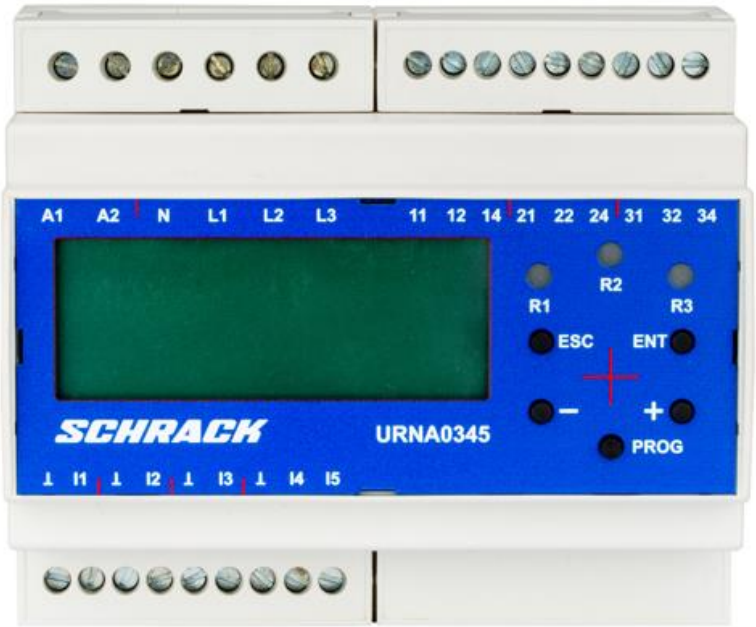
Netz- und Anlagenschutz

Grid and System Protection

URNA0345-C

URNA0345-C (*A) optionale Ausführung
optional version



Parameter der implementierten Standards im Detail / Parameters of the implemented standards in detail

Für / for SW.vers.: 02.18.02i

Fehler und Änderungen vorbehalten / Subject to modifications and errors

(*A) ... optionale Ausführung / optional version: nur mit serieller Schnittstelle erhältlich! /
It is only available with serial interface!

CLIMATE NEUTRAL PRODUCT
certified by Fokus Zukunft

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00. ÖVE TOR R25 NS SYNC [ID 802] Typ A/B low voltage synchr. generators

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire (LN)	4-wire (LN)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	57.5	230.0	28.8	241.4
		Unom Δ	V	400.0	100.0	400.0	50.0	420.0

Functional Safety		Conformity Range	Possible Range
ID	Default		
.007	Errtol	Fixed to 2ch	
Remark:	2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary		

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.018	Ueff >	Enable function		on	on / off		on /off	
.019	Ueff > off	U_{THR} OFF	%Unom	111	100	130	100	135
.020	Ueff > on	U_{THR} ON	%Unom	108	100	108	100	135
.021	T Ueff >	Time OFF	ms	60000	50	180000	50	180000
Comment:	Ueff > on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value							
Only active for:	Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)							

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	Ueff < off	U_{THR} OFF	%Unom	80	10	100	10	100
.024	Ueff < on	U_{THR} ON	%Unom	90	86	100	10	100
.025	T Ueff <	Time OFF	ms	1000	50	180000	50	180000
Comment:	Ueff < on has a fixed offset of 0.5% U_{NOM} added to the displayed value							
Only active for:	Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))							

Overvoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.034	Ueff>>	Enable function		on	on		on /off	
.035	Ueff>> off	U_{THR} OFF	%Unom	115	100	130	100	135
.036	Ueff>> on	U_{THR} ON	%Unom	108	100	108	100	135
.037	T Ueff>>	Time OFF	ms	100	50	180000	50	180000
Comment:	Ueff>> on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value							
Only active for:	Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)							

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.038	Ueff<<	Enable function		on	on		on /off	
.039	Ueff<< off	U_{THR} OFF	%Unom	30	10	100	10	100
.040	Ueff<< on	U_{THR} ON	%Unom	90	86	100	0	100
.041	T Ueff<<	Time OFF	ms	200	50	180000	50	180000
Comment:	Ueff<< on has a fixed offset of 0.5% U_{NOM} added to the displayed value							
Only active for:	Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)							

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	U10min	Enable function		off	on / off		on /off	
.043	U10min off	U_{THR} OFF	%Unom	111	100	130	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (0.9% U_{NOM})				
		Time OFF	ms	Fixed to fastest possible disconnection				

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	Hz	51.50	50.00	55.00	50.00	55.00
.056	f > on	f_{THR} ON	Hz	50.05	50.00	50.05	50.00	55.00
.057	T f >	Time OFF	ms	50	50	50	50	180000
Comment:		f > on has a fixed offset of 0.01 Hz subtracted to the displayed value						
Only active for:		Voltage > 60% U_{NOM}						

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	47.50	45.00	50.00	45.00	50.00
.060	f < on	f_{THR} ON	Hz	49.50	47.55	50.00	45.00	50.00
.061	T f <	Time OFF	ms	50	50	50	50	180000
Comment:		f < on has a fixed offset of 0.01 Hz added to the displayed value						
Only active for:		Voltage > 60% U_{NOM}						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	60	0	300	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R) (T)	on
Contactor feedback contact reports closed, although it should be open (C) (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c) (c)	on

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

01. ÖVE TOR R25 NS ASYNC [ID 803] Typ A/B low voltage asynchr. generators

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire (LN)	4-wire (LN)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	57.5	230.0	28.8	241.4
		Unom Δ	V	400.0	100.0	400.0	50.0	420.0

Functional Safety		Conformity Range	Possible Range
ID	Default		
.007	Errtol	Fixed to 2ch	
Remark:	2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary		

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.018	Ueff >	Enable function		on	on / off		on /off	
.019	Ueff > off	U_{THR} OFF	%Unom	111	100	130	100	135
.020	Ueff > on	U_{THR} ON	%Unom	108	100	108	100	135
.021	T Ueff >	Time OFF	ms	60000	50	180000	50	180000
Comment:	Ueff > on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value							
Only active for:	Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)							

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	Ueff < off	U_{THR} OFF	%Unom	80	10	100	10	100
.024	Ueff < on	U_{THR} ON	%Unom	90	86	100	10	100
.025	T Ueff <	Time OFF	ms	1500	50	180000	50	180000
Comment:	Ueff < on has a fixed offset of 0.5% U_{NOM} added to the displayed value							
Only active for:	Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))							

Overvoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.034	Ueff>>	Enable function		on	on		on /off	
.035	Ueff>> off	U_{THR} OFF	%Unom	115	100	130	100	135
.036	Ueff>> on	U_{THR} ON	%Unom	108	100	108	100	135
.037	T Ueff>>	Time OFF	ms	100	50	180000	50	180000
Comment:	Ueff>> on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value							
Only active for:	Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)							

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.038	Ueff<<	Enable function		on	on		on /off	
.039	Ueff<< off	U_{THR} OFF	%Unom	25	10	100	10	100
.040	Ueff<< on	U_{THR} ON	%Unom	90	86	100	0	100
.041	T Ueff<<	Time OFF	ms	500	50	180000	50	180000
Comment:	Ueff<< on has a fixed offset of 0.5% U_{NOM} added to the displayed value							
Only active for:	Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)							

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	U10min	Enable function		off	on / off		on /off	
.043	U10min off	U_{THR} OFF	%Unom	111	100	130	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (0.9% U_{NOM})				
		Time OFF	ms	Fixed to fastest possible disconnection				

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	Hz	51.50	50.00	55.00	50.00	55.00
.056	f > on	f_{THR} ON	Hz	50.05	50.00	50.05	50.00	55.00
.057	T f >	Time OFF	ms	50	50	50	50	180000
Comment:		f > on has a fixed offset of 0.01 Hz subtracted to the displayed value						
Only active for:		Voltage > 60% U_{NOM}						

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	47.50	45.00	50.00	45.00	50.00
.060	f < on	f_{THR} ON	Hz	49.50	47.55	50.00	45.00	50.00
.061	T f <	Time OFF	ms	50	50	50	50	180000
Comment:		f < on has a fixed offset of 0.01 Hz added to the displayed value						
Only active for:		Voltage > 60% U_{NOM}						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	60	0	300	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	on
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

02. ÖVE TOR R25 MS SYNC [ID 852] Typ A/B medium voltage synchr. generators

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	3-wire	3-wire	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	60.4	57.5	230.0	28.8	241.4
		Unom Δ	V	105.0	100.0	400.0	50.0	420.0
Comment:		Default for Uc=21kV and 200:1 voltage transformer or Uc=31,7kV and 300:1						

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	Fixed to 2ch		
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.011	U > off	U_{THR} OFF	%Unom	106	100	130	100	135
.012	U > on	U_{THR} ON	%Unom	104	100	108	100	135
.013	T U >	Time OFF	ms	60000	50	180000	50	180000
Comment:		U > on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.015	U < off	U_{THR} OFF	%Unom	70	10	100	10	100
.016	U < on	U_{THR} ON	%Unom	90	86	100	10	100
.017	T U <	Time OFF	ms	1500	50	180000	50	180000
Comment:		U < on has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.026	U >>	Enable function		on	on		on /off	
.027	U >> off	U_{THR} OFF	%Unom	110	100	130	100	135
.028	U >> on	U_{THR} ON	%Unom	104	100	108	100	135
.029	T U >>	Time OFF	ms	100	50	180000	50	180000
Comment:		U >> on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.030	U <<	Enable function		on	on		on /off	
.031	U << off	U_{THR} OFF	%Unom	30	10	100	10	100
.032	U << on	U_{THR} ON	%Unom	90	86	100	0	100
.033	T U <<	Time OFF	ms	700	50	180000	50	180000
Comment:		U << on has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	Hz	51.50	50.00	55.00	50.00	55.00
.056	f > on	f_{THR} ON	Hz	50.05	50.00	50.05	50.00	55.00
.057	T f >	Time OFF	ms	50	50	50	50	180000
Comment:		f > on has a fixed offset of 0.01 Hz subtracted to the displayed value						
Only active for:		Voltage > 60% U_{NOM}						

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	47.50	45.00	50.00	45.00	50.00
.060	f < on	f_{THR} ON	Hz	49.50	47.55	50.00	45.00	50.00
.061	T f <	Time OFF	ms	50	50	50	50	180000
Comment:		f < on has a fixed offset of 0.01 Hz added to the displayed value						
Only active for:		Voltage > 60% U_{NOM}						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	60	0	300	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	on
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

03. ÖVE TOR R25 MS ASYNC [ID 853] Typ A/B medium voltage asynchr. generators

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	3-wire	3-wire	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	60.4	57.5	230.0	28.8	241.4
		Unom Δ	V	105.0	100.0	400.0	50.0	420.0
Comment:		Default for Uc=21kV and 200:1 voltage transformer or Uc=31,7kV and 300:1						

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	Fixed to 2ch		
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.011	U > off	U_{THR} OFF	%Unom	106	100	130	100	135
.012	U > on	U_{THR} ON	%Unom	104	100	108	100	135
.013	T U >	Time OFF	ms	60000	50	180000	50	180000
Comment:		U > on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.015	U < off	U_{THR} OFF	%Unom	80	10	100	10	100
.016	U < on	U_{THR} ON	%Unom	90	86	100	10	100
.017	T U <	Time OFF	ms	1500	50	180000	50	180000
Comment:		U < on has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.026	U >>	Enable function		on	on		on /off	
.027	U >> off	U_{THR} OFF	%Unom	110	100	130	100	135
.028	U >> on	U_{THR} ON	%Unom	104	100	108	100	135
.029	T U >>	Time OFF	ms	100	50	180000	50	180000
Comment:		U >> on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.030	U <<	Enable function		on	on		on /off	
.031	U << off	U_{THR} OFF	%Unom	30	10	100	10	100
.032	U << on	U_{THR} ON	%Unom	90	86	100	0	100
.033	T U <<	Time OFF	ms	700	50	180000	50	180000
Comment:		U << on has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	Hz	51.50	50.00	55.00	50.00	55.00
.056	f > on	f_{THR} ON	Hz	50.05	50.00	50.05	50.00	55.00
.057	T f >	Time OFF	ms	50	50	50	50	180000
Comment:		f > on has a fixed offset of 0.01 Hz subtracted to the displayed value						
Only active for:		Voltage > 60% U_{NOM}						

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	47.50	45.00	50.00	45.00	50.00
.060	f < on	f_{THR} ON	Hz	49.50	47.55	50.00	45.00	50.00
.061	T f <	Time OFF	ms	50	50	50	50	180000
Comment:		f < on has a fixed offset of 0.01 Hz added to the displayed value						
Only active for:		Voltage > 60% U_{NOM}						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	60	0	300	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	on
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

04. Oberösterreich OOE TOR R25 NS SYNC [ID 822] Typ A/B low voltage synchr. generators

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire (LN)	4-wire (LN)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	57.5	230.0	28.8	241.4
		Unom Δ	V	400.0	100.0	400.0	50.0	420.0

Functional Safety		Conformity Range	Possible Range
ID		Default	
.007	Errtol	Fixed to 2ch	
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary	

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	Ueff < off	U_{THR} OFF	%Unom	80	10	100	10	100
.024	Ueff < on	U_{THR} ON	%Unom	85	85	100	10	100
.025	T Ueff <	Time OFF	ms	200	50	180000	50	180000
Comment:		Ueff < on has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						

Overvoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.034	Ueff>>	Enable function		on	on		on /off	
.035	Ueff>> off	U_{THR} OFF	%Unom	115	100	130	100	135
.036	Ueff>> on	U_{THR} ON	%Unom	109	100	109	100	135
.037	T Ueff>>	Time OFF	ms	100	50	180000	50	180000
Comment:		Ueff>> on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.038	Ueff<<	Enable function		on	on		on /off	
.039	Ueff<< off	U_{THR} OFF	%Unom	30	10	100	10	100
.040	Ueff<< on	U_{THR} ON	%Unom	85	85	100	0	100
.041	T Ueff<<	Time OFF	ms	200	50	180000	50	180000
Comment:		Ueff<< on has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	U10min	Enable function		on	on / off		on /off	
.043	U10min off	U_{THR} OFF	%Unom	111	100	130	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (0.9% U_{NOM})				
		Time OFF	ms	Fixed to fastest possible disconnection				

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	Hz	51.50	50.00	55.00	50.00	55.00
.056	f > on	f_{THR} ON	Hz	50.1	50.00	50.1	50.00	55.00
.057	T f >	Time OFF	ms	50	50	50	50	180000
Comment:		f > on has a fixed offset of 0.01 Hz subtracted to the displayed value						
Only active for:		Voltage > 60% U_{NOM}						

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	47.50	45.00	50.00	45.00	50.00
.060	f < on	f_{THR} ON	Hz	47.50	47.50	50.00	45.00	50.00
.061	T f <	Time OFF	ms	50	50	50	50	180000
Comment:		f < on has a fixed offset of 0.01 Hz added to the displayed value						
Only active for:		Voltage > 60% U_{NOM}						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	60	0	300	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	on
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

05. Oberösterreich OOE TOR R25 NS ASYNC [ID 823] Typ A/B low voltage asynchr. generators

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire (LN)	4-wire (LN)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	57.5	230.0	28.8	241.4
		Unom Δ	V	400.0	100.0	400.0	50.0	420.0

Functional Safety		Conformity Range	Possible Range
ID		Default	
.007	Errtol	Fixed to 2ch	
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary	

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	Ueff < off	U_{THR} OFF	%Unom	80	10	100	10	100
.024	Ueff < on	U_{THR} ON	%Unom	85	85	100	10	100
.025	T Ueff <	Time OFF	ms	1500	50	180000	50	180000
Comment:		Ueff < on has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						

Overvoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.034	Ueff>>	Enable function		on	on		on /off	
.035	Ueff>> off	U_{THR} OFF	%Unom	115	100	130	100	135
.036	Ueff>> on	U_{THR} ON	%Unom	109	100	109	100	135
.037	T Ueff>>	Time OFF	ms	100	50	180000	50	180000
Comment:		Ueff>> on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.038	Ueff<<	Enable function		on	on		on /off	
.039	Ueff<< off	U_{THR} OFF	%Unom	25	10	100	10	100
.040	Ueff<< on	U_{THR} ON	%Unom	85	85	100	0	100
.041	T Ueff<<	Time OFF	ms	500	50	180000	50	180000
Comment:		Ueff<< on has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	U10min	Enable function		on	on / off		on /off	
.043	U10min off	U_{THR} OFF	%Unom	111	100	130	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (0.9% U_{NOM})				
		Time OFF	ms	Fixed to fastest possible disconnection				

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	Hz	51.50	50.00	55.00	50.00	55.00
.056	f > on	f_{THR} ON	Hz	50.1	50.00	50.1	50.00	55.00
.057	T f >	Time OFF	ms	50	50	50	50	180000
Comment:		f > on has a fixed offset of 0.01 Hz subtracted to the displayed value						
Only active for:		Voltage > 60% U_{NOM}						

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	47.50	45.00	50.00	45.00	50.00
.060	f < on	f_{THR} ON	Hz	47.50	47.50	50.00	45.00	50.00
.061	T f <	Time OFF	ms	50	50	50	50	180000
Comment:		f < on has a fixed offset of 0.01 Hz added to the displayed value						
Only active for:		Voltage > 60% U_{NOM}						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	60	0	300	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	on
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

06. Oberösterreich OOE TOR R25 MS SYNC [ID 872] Typ A/B medium voltage synchr. generators

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	3-wire	3-wire	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	60.4	57.5	230.0	28.8	241.4
		Unom Δ	V	105.0	100.0	400.0	50.0	420.0
Comment:		Default for Uc=21kV and 200:1 voltage transformer or Uc=31,7kV and 300:1						

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	Fixed to 2ch		
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.011	U > off	U_{THR} OFF	%Unom	104.5	100	130	100	135
.012	U > on	U_{THR} ON	%Unom	104.5	100	109	100	135
.013	T U >	Time OFF	ms	60000	50	180000	50	180000
Comment:		U > on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.015	U < off	U_{THR} OFF	%Unom	70	10	100	10	100
.016	U < on	U_{THR} ON	%Unom	85	85	100	10	100
.017	T U <	Time OFF	ms	200	50	180000	50	180000
Comment:		U < on has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.026	U >>	Enable function		on	on		on /off	
.027	U >> off	U_{THR} OFF	%Unom	108	100	130	100	135
.028	U >> on	U_{THR} ON	%Unom	104.5	100	109	100	135
.029	T U >>	Time OFF	ms	100	50	180000	50	180000
Comment:		U >> on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.030	U <<	Enable function		on	on		on /off	
.031	U << off	U_{THR} OFF	%Unom	30	10	100	10	100
.032	U << on	U_{THR} ON	%Unom	85	85	100	0	100
.033	T U <<	Time OFF	ms	200	50	180000	50	180000
Comment:		U << on has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	U10min	Enable function		off	on / off		on /off	
.043	U10min off	U_{THR} OFF	%Unom	104.5	100	130	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (0.9% U_{NOM})				
		Time OFF	ms	Fixed to fastest possible disconnection				

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	Hz	51.50	50.00	55.00	50.00	55.00
.056	f > on	f_{THR} ON	Hz	50.1	50.00	50.1	50.00	55.00
.057	T f >	Time OFF	ms	50	50	50	50	180000
Comment:		f > on has a fixed offset of 0.01 Hz subtracted to the displayed value						
Only active for:		Voltage > 60% U_{NOM}						

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	47.50	45.00	50.00	45.00	50.00
.060	f < on	f_{THR} ON	Hz	47.50	47.5	50.00	45.00	50.00
.061	T f <	Time OFF	ms	50	50	50	50	180000
Comment:		f < on has a fixed offset of 0.01 Hz added to the displayed value						
Only active for:		Voltage > 60% U_{NOM}						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	60	0	300	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	on
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

07. Oberösterreich OOE TOR R25 MS ASYNC [ID 873] Typ A/B med. voltage asynchr. generators

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	3-wire	3-wire	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	60.4	57.5	230.0	28.8	241.4
		Unom Δ	V	105.0	100.0	400.0	50.0	420.0
Comment:		Default for Uc=21kV and 200:1 voltage transformer or Uc=31,7kV and 300:1						

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	Fixed to 2ch		
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.011	U > off	U_{THR} OFF	%Unom	104.5	100	130	100	135
.012	U > on	U_{THR} ON	%Unom	104.5	100	109	100	135
.013	T U >	Time OFF	ms	60000	50	180000	50	180000
Comment:		U > on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.015	U < off	U_{THR} OFF	%Unom	80	10	100	10	100
.016	U < on	U_{THR} ON	%Unom	85	85	100	10	100
.017	T U <	Time OFF	ms	1000	50	180000	50	180000
Comment:		U < on has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.026	U >>	Enable function		on	on		on /off	
.027	U >> off	U_{THR} OFF	%Unom	108	100	130	100	135
.028	U >> on	U_{THR} ON	%Unom	104.5	100	109	100	135
.029	T U >>	Time OFF	ms	100	50	180000	50	180000
Comment:		U >> on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.030	U <<	Enable function		on	on		on /off	
.031	U << off	U_{THR} OFF	%Unom	30	10	100	10	100
.032	U << on	U_{THR} ON	%Unom	85	85	100	0	100
.033	T U <<	Time OFF	ms	500	50	180000	50	180000
Comment:		U << on has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	U10min	Enable function		off	on / off		on /off	
.043	U10min off	U_{THR} OFF	%Unom	104.5	100	130	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (0.9% U_{NOM})				
		Time OFF	ms	Fixed to fastest possible disconnection				

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	Hz	51.50	50.00	55.00	50.00	55.00
.056	f > on	f_{THR} ON	Hz	50.1	50.00	50.1	50.00	55.00
.057	T f >	Time OFF	ms	50	50	50	50	180000
Comment:		f > on has a fixed offset of 0.01 Hz subtracted to the displayed value						
Only active for:		Voltage > 60% U_{NOM}						

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	47.50	45.00	50.00	45.00	50.00
.060	f < on	f_{THR} ON	Hz	47.50	47.5	50.00	45.00	50.00
.061	T f <	Time OFF	ms	50	50	50	50	180000
Comment:		f < on has a fixed offset of 0.01 Hz added to the displayed value						
Only active for:		Voltage > 60% U_{NOM}						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	60	0	300	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	on
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

08. Wien TOR R25 NS SYNC [ID 832] Typ A/B low voltage synchr. generators

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire (LN)	4-wire (LN)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	57.5	230.0	28.8	241.4
		Unom Δ	V	400.0	100.0	400.0	50.0	420.0

Functional Safety		Conformity Range	Possible Range
ID	Default		
.007	Errtol	Fixed to 2ch	
Remark:	2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary		

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.018	Ueff >	Enable function		on	on / off		on /off	
.019	Ueff > off	U_{THR} OFF	%Unom	108	100	130	100	135
.020	Ueff > on	U_{THR} ON	%Unom	107	100	108	100	135
.021	T Ueff >	Time OFF	ms	60000	50	180000	50	180000
Comment:	Ueff > on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value							
Only active for:	Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)							

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	Ueff < off	U_{THR} OFF	%Unom	80	10	100	10	100
.024	Ueff < on	U_{THR} ON	%Unom	90	86	100	10	100
.025	T Ueff <	Time OFF	ms	1000	50	180000	50	180000
Comment:	Ueff < on has a fixed offset of 0.5% U_{NOM} added to the displayed value							
Only active for:	Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))							

Overvoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.034	Ueff>>	Enable function		on	on		on /off	
.035	Ueff>> off	U_{THR} OFF	%Unom	115	100	130	100	135
.036	Ueff>> on	U_{THR} ON	%Unom	107	100	108	100	135
.037	T Ueff>>	Time OFF	ms	100	50	180000	50	180000
Comment:	Ueff>> on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value							
Only active for:	Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)							

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.038	Ueff<<	Enable function		on	on		on /off	
.039	Ueff<< off	U_{THR} OFF	%Unom	30	10	100	10	100
.040	Ueff<< on	U_{THR} ON	%Unom	90	86	100	0	100
.041	T Ueff<<	Time OFF	ms	200	50	180000	50	180000
Comment:	Ueff<< on has a fixed offset of 0.5% U_{NOM} added to the displayed value							
Only active for:	Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)							

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	U10min	Enable function		off	on / off		on /off	
.043	U10min off	U_{THR} OFF	%Unom	108	100	130	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (0.9% U_{NOM})				
		Time OFF	ms	Fixed to fastest possible disconnection				

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	Hz	51.00	50.00	55.00	50.00	55.00
.056	f > on	f_{THR} ON	Hz	50.05	50.00	50.05	50.00	55.00
.057	T f >	Time OFF	ms	50	50	50	50	180000
Comment:		f > on has a fixed offset of 0.01 Hz subtracted to the displayed value						
Only active for:		Voltage > 60% U_{NOM}						

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	47.50	45.00	50.00	45.00	50.00
.060	f < on	f_{THR} ON	Hz	49.50	47.55	50.00	45.00	50.00
.061	T f <	Time OFF	ms	50	50	50	50	180000
Comment:		f < on has a fixed offset of 0.01 Hz added to the displayed value						
Only active for:		Voltage > 60% U_{NOM}						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	60	0	300	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	on
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

09. Wien TOR R25 NS ASYNC [ID 833] Typ A/B low voltage asynchr. generators

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire (LN)	4-wire (LN)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	57.5	230.0	28.8	241.4
		Unom Δ	V	400.0	100.0	400.0	50.0	420.0

Functional Safety		Conformity Range	Possible Range
ID	Default		
.007	Errtol	Fixed to 2ch	
Remark:	2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary		

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.018	Ueff >	Enable function		on	on / off		on /off	
.019	Ueff > off	U_{THR} OFF	%Unom	108	100	130	100	135
.020	Ueff > on	U_{THR} ON	%Unom	107	100	108	100	135
.021	T Ueff >	Time OFF	ms	60000	50	180000	50	180000
Comment:	Ueff > on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value							
Only active for:	Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)							

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	Ueff < off	U_{THR} OFF	%Unom	80	10	100	10	100
.024	Ueff < on	U_{THR} ON	%Unom	90	86	100	10	100
.025	T Ueff <	Time OFF	ms	1000	50	180000	50	180000
Comment:	Ueff < on has a fixed offset of 0.5% U_{NOM} added to the displayed value							
Only active for:	Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))							

Overvoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.034	Ueff>>	Enable function		on	on		on /off	
.035	Ueff>> off	U_{THR} OFF	%Unom	115	100	130	100	135
.036	Ueff>> on	U_{THR} ON	%Unom	107	100	108	100	135
.037	T Ueff>>	Time OFF	ms	100	50	180000	50	180000
Comment:	Ueff>> on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value							
Only active for:	Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)							

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.038	Ueff<<	Enable function		on	on		on /off	
.039	Ueff<< off	U_{THR} OFF	%Unom	30	10	100	10	100
.040	Ueff<< on	U_{THR} ON	%Unom	90	86	100	0	100
.041	T Ueff<<	Time OFF	ms	200	50	180000	50	180000
Comment:	Ueff<< on has a fixed offset of 0.5% U_{NOM} added to the displayed value							
Only active for:	Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)							

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	U10min	Enable function		off	on / off		on /off	
.043	U10min off	U_{THR} OFF	%Unom	108	100	130	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (0.9% U_{NOM})				
		Time OFF	ms	Fixed to fastest possible disconnection				

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	Hz	51.00	50.00	55.00	50.00	55.00
.056	f > on	f_{THR} ON	Hz	50.05	50.00	50.05	50.00	55.00
.057	T f >	Time OFF	ms	50	50	50	50	180000
Comment:		f > on has a fixed offset of 0.01 Hz subtracted to the displayed value						
Only active for:		Voltage > 60% U_{NOM}						

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	47.50	45.00	50.00	45.00	50.00
.060	f < on	f_{THR} ON	Hz	49.50	47.55	50.00	45.00	50.00
.061	T f <	Time OFF	ms	50	50	50	50	180000
Comment:		f < on has a fixed offset of 0.01 Hz added to the displayed value						
Only active for:		Voltage > 60% U_{NOM}						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	60	0	300	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	on
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

10. Wien TOR R25 MS SYNC [ID 882] Typ A/B medium voltage synchr. generators

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	3-wire	3-wire	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	58.7	57.5	230.0	28.8	241.4
		Unom Δ	V	102.0	100.0	400.0	50.0	420.0
Comment:		Default for Uc=21kV and 200:1 voltage transformer or Uc=31,7kV and 300:1						

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	Fixed to 2ch		
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.011	U > off	U_{THR} OFF	%Unom	108	100	130	100	135
.012	U > on	U_{THR} ON	%Unom	107	100	108	100	135
.013	T U >	Time OFF	ms	60000	50	180000	50	180000
Comment:		U > on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.015	U < off	U_{THR} OFF	%Unom	80	10	100	10	100
.016	U < on	U_{THR} ON	%Unom	90	86	100	10	100
.017	T U <	Time OFF	ms	1000	50	180000	50	180000
Comment:		U < on has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.026	U >>	Enable function		on	on		on /off	
.027	U >> off	U_{THR} OFF	%Unom	115	100	130	100	135
.028	U >> on	U_{THR} ON	%Unom	107	100	108	100	135
.029	T U >>	Time OFF	ms	100	50	180000	50	180000
Comment:		U >> on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.030	U <<	Enable function		on	on		on /off	
.031	U << off	U_{THR} OFF	%Unom	30	10	100	10	100
.032	U << on	U_{THR} ON	%Unom	90	86	100	0	100
.033	T U <<	Time OFF	ms	200	50	180000	50	180000
Comment:		U << on has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	Hz	51.00	50.00	55.00	50.00	55.00
.056	f > on	f_{THR} ON	Hz	50.05	50.00	50.05	50.00	55.00
.057	T f >	Time OFF	ms	50	50	50	50	180000
Comment:		f > on has a fixed offset of 0.01 Hz subtracted to the displayed value						
Only active for:		Voltage > 60% U_{NOM}						

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	47.50	45.00	50.00	45.00	50.00
.060	f < on	f_{THR} ON	Hz	49.50	47.55	50.00	45.00	50.00
.061	T f <	Time OFF	ms	50	50	50	50	180000
Comment:		f < on has a fixed offset of 0.01 Hz added to the displayed value						
Only active for:		Voltage > 60% U_{NOM}						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	60	0	300	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	on
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

11. Wien TOR R25 MS ASYNC [ID 883] Typ A/B medium voltage asynchr. generators

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	3-wire	3-wire	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	58.7	57.5	230.0	28.8	241.4
		Unom Δ	V	102.0	100.0	400.0	50.0	420.0
Comment:		Default for Uc=21kV and 200:1 voltage transformer or Uc=31,7kV and 300:1						

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	Fixed to 2ch		
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.011	U > off	U_{THR} OFF	%Unom	108	100	130	100	135
.012	U > on	U_{THR} ON	%Unom	107	100	108	100	135
.013	T U >	Time OFF	ms	60000	50	180000	50	180000
Comment:		U > on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.015	U < off	U_{THR} OFF	%Unom	80	10	100	10	100
.016	U < on	U_{THR} ON	%Unom	90	86	100	10	100
.017	T U <	Time OFF	ms	1000	50	180000	50	180000
Comment:		U < on has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.026	U >>	Enable function		on	on		on /off	
.027	U >> off	U_{THR} OFF	%Unom	115	100	130	100	135
.028	U >> on	U_{THR} ON	%Unom	107	100	108	100	135
.029	T U >>	Time OFF	ms	100	50	180000	50	180000
Comment:		U >> on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.030	U <<	Enable function		on	on		on /off	
.031	U << off	U_{THR} OFF	%Unom	30	10	100	10	100
.032	U << on	U_{THR} ON	%Unom	90	86	100	0	100
.033	T U <<	Time OFF	ms	200	50	180000	50	180000
Comment:		U << on has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	Hz	51.00	50.00	55.00	50.00	55.00
.056	f > on	f_{THR} ON	Hz	50.05	50.00	50.05	50.00	55.00
.057	T f >	Time OFF	ms	50	50	50	50	180000
Comment:		f > on has a fixed offset of 0.01 Hz subtracted to the displayed value						
Only active for:		Voltage > 60% U_{NOM}						

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	47.50	45.00	50.00	45.00	50.00
.060	f < on	f_{THR} ON	Hz	49.50	47.55	50.00	45.00	50.00
.061	T f <	Time OFF	ms	50	50	50	50	180000
Comment:		f < on has a fixed offset of 0.01 Hz added to the displayed value						
Only active for:		Voltage > 60% U_{NOM}						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	60	0	300	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	on
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

12. TIROL TOR NS SYNC [ID 812] Typ A/B low voltage synchr. generators

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire (LN)	4-wire (LN)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	57.5	230.0	28.8	241.4
		Unom Δ	V	400.0	100.0	400.0	50.0	420.0

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	Fixed to 2ch		
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary		

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.018	Ueff >	Enable function		on	on / off		on /off	
.019	Ueff > off	U_{THR} OFF	%Unom	111	100	130	100	135
.020	Ueff > on	U_{THR} ON	%Unom	109	100	109	100	135
.021	T Ueff >	Time OFF	ms	60000	50	180000	50	180000
Comment:		Ueff > on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	Ueff < off	U_{THR} OFF	%Unom	80	10	100	10	100
.024	Ueff < on	U_{THR} ON	%Unom	86	86	100	10	100
.025	T Ueff <	Time OFF	ms	1000	50	180000	50	180000
Comment:		Ueff < on has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						

Overvoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.034	Ueff>>	Enable function		on	on		on /off	
.035	Ueff>> off	U_{THR} OFF	%Unom	115	100	130	100	135
.036	Ueff>> on	U_{THR} ON	%Unom	109	100	109	100	135
.037	T Ueff>>	Time OFF	ms	100	50	180000	50	180000
Comment:		Ueff>> on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.038	Ueff<<	Enable function		on	on		on /off	
.039	Ueff<< off	U_{THR} OFF	%Unom	30	10	100	10	100
.040	Ueff<< on	U_{THR} ON	%Unom	86	86	100	0	100
.041	T Ueff<<	Time OFF	ms	200	50	180000	50	180000
Comment:		Ueff<< on has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	U10min	Enable function		off	on / off		on /off	
.043	U10min off	U_{THR} OFF	%Unom	111	100	130	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (0.9% U_{NOM})				
		Time OFF	ms	Fixed to fastest possible disconnection				

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	Hz	51.50	50.00	55.00	50.00	55.00
.056	f > on	f_{THR} ON	Hz	50.1	50.00	50.1	50.00	55.00
.057	T f >	Time OFF	ms	50	50	50	50	180000
Comment:		f > on has a fixed offset of 0.01 Hz subtracted to the displayed value						
Only active for:		Voltage > 60% U_{NOM}						

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	47.50	45.00	50.00	45.00	50.00
.060	f < on	f_{THR} ON	Hz	47.50	47.50	50.00	45.00	50.00
.061	T f <	Time OFF	ms	50	50	50	50	180000
Comment:		f < on has a fixed offset of 0.01 Hz added to the displayed value						
Only active for:		Voltage > 60% U_{NOM}						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	300	0	300	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	on
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

13. TIROL TOR NS ASYNC [ID 813] Typ A/B low voltage asynchr. generators

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire (LN)	4-wire (LN)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	57.5	230.0	28.8	241.4
		Unom Δ	V	400.0	100.0	400.0	50.0	420.0

Functional Safety		Conformity Range	Possible Range
ID	Default		
.007	Errtol	Fixed to 2ch	
Remark:	2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary		

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.018	Ueff >	Enable function		on	on / off		on /off	
.019	Ueff > off	U_{THR} OFF	%Unom	111	100	130	100	135
.020	Ueff > on	U_{THR} ON	%Unom	109	100	109	100	135
.021	T Ueff >	Time OFF	ms	60000	50	180000	50	180000
Comment:	Ueff > on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value							
Only active for:	Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)							

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	Ueff < off	U_{THR} OFF	%Unom	80	10	100	10	100
.024	Ueff < on	U_{THR} ON	%Unom	86	86	100	10	100
.025	T Ueff <	Time OFF	ms	1500	50	180000	50	180000
Comment:	Ueff < on has a fixed offset of 0.5% U_{NOM} added to the displayed value							
Only active for:	Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))							

Overvoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.034	Ueff>>	Enable function		on	on		on /off	
.035	Ueff>> off	U_{THR} OFF	%Unom	115	100	130	100	135
.036	Ueff>> on	U_{THR} ON	%Unom	109	100	109	100	135
.037	T Ueff>>	Time OFF	ms	100	50	180000	50	180000
Comment:	Ueff>> on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value							
Only active for:	Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)							

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.038	Ueff<<	Enable function		on	on		on /off	
.039	Ueff<< off	U_{THR} OFF	%Unom	25	10	100	10	100
.040	Ueff<< on	U_{THR} ON	%Unom	86	86	100	0	100
.041	T Ueff<<	Time OFF	ms	500	50	180000	50	180000
Comment:	Ueff<< on has a fixed offset of 0.5% U_{NOM} added to the displayed value							
Only active for:	Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)							

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	U10min	Enable function		off	on / off		on /off	
.043	U10min off	U_{THR} OFF	%Unom	111	100	130	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (0.9% U_{NOM})				
		Time OFF	ms	Fixed to fastest possible disconnection				

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	Hz	51.50	50.00	55.00	50.00	55.00
.056	f > on	f_{THR} ON	Hz	50.1	50.00	50.1	50.00	55.00
.057	T f >	Time OFF	ms	50	50	50	50	180000
Comment:		f > on has a fixed offset of 0.01 Hz subtracted to the displayed value						
Only active for:		Voltage > 60% U_{NOM}						

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	47.50	45.00	50.00	45.00	50.00
.060	f < on	f_{THR} ON	Hz	47.50	47.5	50.00	45.00	50.00
.061	T f <	Time OFF	ms	50	50	50	50	180000
Comment:		f < on has a fixed offset of 0.01 Hz added to the displayed value						
Only active for:		Voltage > 60% U_{NOM}						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	300	0	300	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	on
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

14. TIROL TOR MS SYNC [ID 862] Typ A/B medium voltage synchr. generators

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	3-wire	3-wire	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	57.5	57.5	230.0	28.8	241.4
		Unom Δ	V	100.0	100.0	400.0	50.0	420.0
Comment:		Default for Uc=21kV and 200:1 voltage transformer or Uc=31,7kV and 300:1						

Functional Safety		Conformity Range	Possible Range
ID	Default		
.007	Errtol	Fixed to 2ch	
Remark:	2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.011	U > off	U_{THR} OFF	%Unom	105	100	130	100	135
.012	U > on	U_{THR} ON	%Unom	104	100	108	100	135
.013	T U >	Time OFF	ms	60000	50	180000	50	180000
Comment:		U > on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.015	U < off	U_{THR} OFF	%Unom	70	10	100	10	100
.016	U < on	U_{THR} ON	%Unom	86	86	100	10	100
.017	T U <	Time OFF	ms	1000	50	180000	50	180000
Comment:		U < on has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.026	U >>	Enable function		on	on		on /off	
.027	U >> off	U_{THR} OFF	%Unom	115	100	130	100	135
.028	U >> on	U_{THR} ON	%Unom	104	100	108	100	135
.029	T U >>	Time OFF	ms	100	50	180000	50	180000
Comment:		U >> on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.030	U <<	Enable function		on	on		on /off	
.031	U << off	U_{THR} OFF	%Unom	30	10	100	10	100
.032	U << on	U_{THR} ON	%Unom	86	86	100	0	100
.033	T U <<	Time OFF	ms	200	50	180000	50	180000
Comment:		U << on has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	Hz	51.50	50.00	55.00	50.00	55.00
.056	f > on	f_{THR} ON	Hz	50.10	50.00	50.10	50.00	55.00
.057	T f >	Time OFF	ms	50	50	50	50	180000
Comment:		f > on has a fixed offset of 0.01 Hz subtracted to the displayed value						
Only active for:		Voltage > 60% U_{NOM}						

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	47.50	45.00	50.00	45.00	50.00
.060	f < on	f_{THR} ON	Hz	47.50	47.50	50.00	45.00	50.00
.061	T f <	Time OFF	ms	50	50	50	50	180000
Comment:		f < on has a fixed offset of 0.01 Hz added to the displayed value						
Only active for:		Voltage > 60% U_{NOM}						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	300	0	300	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	on
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

15. TIROL TOR MS ASYNC [ID 863] Typ A/B medium voltage asynchr. generators

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	3-wire	3-wire	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	57.5	57.5	230.0	28.8	241.4
		Unom Δ	V	100.0	100.0	400.0	50.0	420.0
Comment:		Default for Uc=21kV and 200:1 voltage transformer or Uc=31,7kV and 300:1						

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	Fixed to 2ch		
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.011	U > off	U_{THR} OFF	%Unom	105	100	130	100	135
.012	U > on	U_{THR} ON	%Unom	104	100	108	100	135
.013	T U >	Time OFF	ms	60000	50	180000	50	180000
Comment:		U > on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.015	U < off	U_{THR} OFF	%Unom	80	10	100	10	100
.016	U < on	U_{THR} ON	%Unom	86	86	100	10	100
.017	T U <	Time OFF	ms	1500	50	180000	50	180000
Comment:		U < on has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.026	U >>	Enable function		on	on		on /off	
.027	U >> off	U_{THR} OFF	%Unom	115	100	130	100	135
.028	U >> on	U_{THR} ON	%Unom	104	100	108	100	135
.029	T U >>	Time OFF	ms	100	50	180000	50	180000
Comment:		U >> on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.030	U <<	Enable function		on	on		on /off	
.031	U << off	U_{THR} OFF	%Unom	30	10	100	10	100
.032	U << on	U_{THR} ON	%Unom	86	86	100	0	100
.033	T U <<	Time OFF	ms	500	50	180000	50	180000
Comment:		U << on has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	Hz	51.50	50.00	55.00	50.00	55.00
.056	f > on	f_{THR} ON	Hz	50.10	50.00	50.10	50.00	55.00
.057	T f >	Time OFF	ms	50	50	50	50	180000
Comment:		f > on has a fixed offset of 0.01 Hz subtracted to the displayed value						
Only active for:		Voltage > 60% U_{NOM}						

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	47.50	45.00	50.00	45.00	50.00
.060	f < on	f_{THR} ON	Hz	47.50	47.50	50.00	45.00	50.00
.061	T f <	Time OFF	ms	50	50	50	50	180000
Comment:		f < on has a fixed offset of 0.01 Hz added to the displayed value						
Only active for:		Voltage > 60% U_{NOM}						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	300	0	300	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	on
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

16. BURGENLAND TOR R25 NS SYNC [ID 842] Typ A/B low voltage synchr. generators

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire LN	4-wire LN	2-wire LN - 4-wire LL+LN

Nominal Voltage				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y Unom Δ	230,00V /400,00V	57,50V /100,00V	230,00V /400,00V	28,75V /50,00V	241,50V /420,00V
Comment:		Default for Uc=21kV and 200:1 voltage transformer or Uc=31,7kV and 300:1					

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	2ch	2ch, 1ch	2ch, 1ch
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary 1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.018	Ueff >	Enable function		on	on / off		on /off	
.019	Ueff > off	U_{THR} OFF	%Unom /VUnom	111,00% (255,30V)	100,00% (230,00V)	130,00% (299,00V)	100,00% (230,00V)	135,00% (310,50V)
.020	Ueff > on	U_{THR} ON	%Unom /VUnom	108,00% (248,40V)	100,00% (230,00V)	108,00% (248,40V)	100,00% (230,00V)	135,00% (310,50V)
.021	T Ueff >	Time OFF		60000 ms	50 ms	180000 ms	50 ms	180000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	Ueff < off	U_{THR} OFF	%Unom /VUnom	80,00% (184,00V)	10,00% (23,00V)	100,00% (230,00V)	10,00% (23,00V)	100,00% (230,00V)
.024	Ueff < on	U_{THR} ON	%Unom /VUnom	90,00% (207,00V)	86,00% (197,80V)	100,00% (230,00V)	10,00% (23,00V)	100,00% (230,00V)
.025	T Ueff <	Time OFF		1000 ms	50 ms	180000 ms	50 ms	180000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						

Overvoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.034	Ueff>>	Enable function		on	on		on /off	
.035	Ueff>> off	U_{THR} OFF	%Unom /VUnom	115,00% (264,50V)	100,00% (230,00V)	130,00% (299,00V)	100,00% (230,00V)	135,00% (310,50V)
.036	Ueff>> on	U_{THR} ON	%Unom /VUnom	108,00% (248,40V)	100,00% (230,00V)	108,00% (248,40V)	100,00% (230,00V)	135,00% (310,50V)
.037	T Ueff>>	Time OFF		100 ms	50 ms	180000 ms	50 ms	180000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.038	Ueff<<	Enable function		on	on		on /off	
.039	Ueff<< off	U_{THR} OFF	%Unom /VUnom	30,00% (69,00V)	10,00% (23,00V)	100,00% (230,00V)	10,00% (23,00V)	100,00% (230,00V)
.040	Ueff<< on	U_{THR} ON	%Unom /VUnom	90,00% (207,00V)	86,00% (197,80V)	100,00% (230,00V)	0,00% (0,00V)	100,00% (230,00V)
.041	T Ueff<<	Time OFF		200 ms	50 ms	180000 ms	50 ms	180000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	U10min	Enable function		off	on / off		on /off	
.043	U10min off	U_{THR} OFF	%Unom /VUnom	111,00% (255,30V /444,00V)	100,00% (230,00V /400,00V)	130,00% (299,00V /520,00V)	100,00% (230,00V /400,00V)	135,00% (310,50V /540,00V)

Overfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.054	f oA	Enable function	on				
.055	f > off	f_{THR} OFF	51,500 Hz	50,000 Hz	55,000 Hz	50,000 Hz	55,000 Hz
.056	f > on	f_{THR} ON	50,050 Hz	50,000 Hz	50,050 Hz	50,000 Hz	55,000 Hz
.057	T f >	Time OFF	50 ms	50 ms	50 ms	50 ms	180000 ms

Underfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.058	f uA	Enable function	on				
.059	f < off	f_{THR} OFF	47,500 Hz	45,000 Hz	50,000 Hz	45,000 Hz	50,000 Hz
.060	f < on	f_{THR} ON	49,500 Hz	47,550 Hz	50,000 Hz	45,000 Hz	50,000 Hz
.061	T f <	Time OFF	50 ms	50 ms	50 ms	50 ms	180000 ms

Frequency measuring in general				Conformity Range			
ID			Default	Min	Max		
.113	F wnd	Window length	100 ms	100 ms	100 ms		

Auxiliary Contact type				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)	n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	Fixed to 500 ms				
.114	I3 STOP	Type	n.o. (normally opened)	n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.102	T on delay	Turn on time	60 s	0 s	300 s	0 s	900 s

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	on
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	SN: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device Serial Number dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

17. BURGENLAND TOR R25 NS ASYNC [ID 843] Typ A/B low voltage synchr. generators

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire LN	4-wire LN	2-wire LN - 4-wire LL+LN

Nominal Voltage				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y Unom Δ	230,00V /400,00V	57,50V /100,00V	230,00V /400,00V	28,75V /50,00V	241,50V /420,00V
Comment:		Default for Uc=21kV and 200:1 voltage transformer or Uc=31,7kV and 300:1					

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	2ch	2ch, 1ch	2ch, 1ch
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary 1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.018	Ueff >	Enable function		on	on / off		on /off	
.019	Ueff > off	U_{THR} OFF	%Unom /VUnom	111,00% (255,30V)	100,00% (230,00V)	130,00% (299,00V)	100,00% (230,00V)	135,00% (310,50V)
.020	Ueff > on	U_{THR} ON	%Unom /VUnom	108,00% (248,40V)	100,00% (230,00V)	108,00% (248,40V)	100,00% (230,00V)	135,00% (310,50V)
.021	T Ueff >	Time OFF		60000 ms	50 ms	180000 ms	50 ms	180000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	Ueff < off	U_{THR} OFF	%Unom /VUnom	80,00% (184,00V)	10,00% (23,00V)	100,00% (230,00V)	10,00% (23,00V)	100,00% (230,00V)
.024	Ueff < on	U_{THR} ON	%Unom /VUnom	90,00% (207,00V)	86,00% (197,80V)	100,00% (230,00V)	10,00% (23,00V)	100,00% (230,00V)
.025	T Ueff <	Time OFF		1500 ms	50 ms	180000 ms	50 ms	180000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						

Overvoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.034	Ueff>>	Enable function		on	on		on /off	
.035	Ueff>> off	U_{THR} OFF	%Unom /VUnom	115,00% (264,50V)	100,00% (230,00V)	130,00% (299,00V)	100,00% (230,00V)	135,00% (310,50V)
.036	Ueff>> on	U_{THR} ON	%Unom /VUnom	108,00% (248,40V)	100,00% (230,00V)	108,00% (248,40V)	100,00% (230,00V)	135,00% (310,50V)
.037	T Ueff>>	Time OFF		100 ms	50 ms	180000 ms	50 ms	180000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.038	Ueff<<	Enable function		on	on		on /off	
.039	Ueff<< off	U_{THR} OFF	%Unom /VUnom	25,00% (57,50V)	10,00% (23,00V)	100,00% (230,00V)	10,00% (23,00V)	100,00% (230,00V)
.040	Ueff<< on	U_{THR} ON	%Unom /VUnom	90,00% (207,00V)	86,00% (197,80V)	100,00% (230,00V)	0,00% (0,00V)	100,00% (230,00V)
.041	T Ueff<<	Time OFF		500 ms	50 ms	180000 ms	50 ms	180000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	U10min	Enable function		off	on / off		on /off	
.043	U10min off	U_{THR} OFF	%Unom /VUnom	111,00% (255,30V /444,00V)	100,00% (230,00V /400,00V)	130,00% (299,00V /520,00V)	100,00% (230,00V/ 400,00V)	135,00% (310,50V /540,00V)

Overfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.054	f oA	Enable function	on				
.055	f > off	f_{THR} OFF	51,500 Hz	50,000 Hz	55,000 Hz	50,000 Hz	55,000 Hz
.056	f > on	f_{THR} ON	50,050 Hz	50,000 Hz	50,050 Hz	50,000 Hz	55,000 Hz
.057	T f >	Time OFF	50 ms	50 ms	50 ms	50 ms	180000 ms

Underfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.058	f uA	Enable function	on				
.059	f < off	f_{THR} OFF	47,500 Hz	45,000 Hz	50,000 Hz	45,000 Hz	50,000 Hz
.060	f < on	f_{THR} ON	49,500 Hz	47,550 Hz	50,000 Hz	45,000 Hz	50,000 Hz
.061	T f <	Time OFF	50 ms	50 ms	50 ms	50 ms	180000 ms

Frequency measuring in general				Conformity Range			
ID			Default	Min	Max		
.113	F wnd	Window length	100 ms	100 ms	100 ms		

Auxiliary Contact type				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)	n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	Fixed to 500 ms				
.114	I3 STOP	Type	n.o. (normally opened)	n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.102	T on delay	Turn on time	60 s	0 s	300 s	0 s	900 s

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	on
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	SN: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device Serial Number dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

18. BURGENLAND TOR R25 MS SYNC [ID 892] Typ A/B medium voltage synchr. generators

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	3-wire LL	3-wire LL	2-wire LN - 4-wire LL+LN

Nominal Voltage				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y Unom Δ	59,23V /103,00V	57,50V /100,00V	230,00V /400,00V	28,75V /50,00V	241,50V /420,00V
Comment:		Default for Uc=21kV and 200:1 voltage transformer or Uc=31,7kV and 300:1					

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	2ch	2ch, 1ch	2ch, 1ch
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary 1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.011	U > off	U_{THR} OFF	%Unom /VUnom	105,00% (108,15V)	100,00% (103,00V)	130,00% (133,90V)	100,00% (103,00V)	135,00% (139,05V)
.012	U > on	U_{THR} ON	%Unom /VUnom	103,00% (106,09V)	100,00% (103,00V)	108,00% (111,24V)	100,00% (103,00V)	135,00% (139,05V)
.013	T U >	Time OFF		60000 ms	50 ms	180000 ms	50 ms	180000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.015	U < off	U_{THR} OFF	%Unom /VUnom	70,00% (72,10V)	10,00% (10,30V)	100,00% (103,00V)	10,00% (10,30V)	100,00% (103,00V)
.016	U < on	U_{THR} ON	%Unom /VUnom	90,00% (92,70V)	86,00% (88,58V)	100,00% (103,00V)	10,00% (10,30V)	100,00% (103,00V)
.017	T U <	Time OFF		1500 ms	50 ms	180000 ms	50 ms	180000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.026	U >>	Enable function		on	on		on /off	
.027	U >> off	U_{THR} OFF	%Unom /VUnom	110,00% (113,30V)	100,00% (103,00V)	130,00% (133,90V)	100,00% (103,00V)	135,00% (139,05V)
.028	U >> on	U_{THR} ON	%Unom /VUnom	103,00% (106,09V)	100,00% (103,00V)	108,00% (111,24V)	100,00% (103,00V)	135,00% (139,05V)
.029	T U >>	Time OFF		100 ms	50 ms	180000 ms	50 ms	180000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.030	U <<	Enable function		on	on		on /off	
.031	U << off	U_{THR} OFF	%Unom /VUnom	30,00% (30,90V)	10,00% (10,30V)	100,00% (103,00V)	10,00% (10,30V)	100,00% (103,00V)
.032	U << on	U_{THR} ON	%Unom /VUnom	90,00% (92,70V)	86,00% (88,58V)	100,00% (103,00V)	0,00% (0,00V)	100,00% (103,00V)
.033	T U <<	Time OFF		700 ms	50 ms	180000 ms	50 ms	180000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	51,500 Hz	50,000 Hz	55,000 Hz	50,000 Hz	55,000 Hz
.056	f > on	f_{THR} ON	50,050 Hz	50,000 Hz	50,050 Hz	50,000 Hz	55,000 Hz
.057	T f >	Time OFF	50 ms	50 ms	50 ms	50 ms	180000 ms

Underfrequency1				Conformity Range		Possible Range	
.058	f uA	Enable function	on				
.059	f < off	f_{THR} OFF	47,500 Hz	45,000 Hz	50,000 Hz	45,000 Hz	50,000 Hz
.060	f < on	f_{THR} ON	49,500 Hz	47,550 Hz	50,000 Hz	45,000 Hz	50,000 Hz
.061	T f <	Time OFF	50 ms	50 ms	50 ms	50 ms	180000 ms

Frequency measuring in general				Conformity Range			
ID			Default	Min	Max		
.113	F wnd	Window length	100 ms	100 ms	100 ms		

Auxiliary Contact type				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)	n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	Fixed to 500 ms				
.114	I3 STOP	Type	n.o. (normally opened)	n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.102	T on delay	Turn on time	60 s	0 s	300 s	0 s	900 s

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	on
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	SN: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device Serial Number dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

19. BURGENLAND TOR R25 MS ASYNC [ID 893] Typ A/B medium voltage asynchr. generators

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	3-wire LL	3-wire LL	2-wire LN - 4-wire LL+LN

Nominal Voltage				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y Unom Δ	59,23V /103,00V	57,50V /100,00V	230,00V /400,00V	28,75V /50,00V	241,50V /420,00V
Comment:		Default for Uc=21kV and 200:1 voltage transformer or Uc=31,7kV and 300:1					

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	2ch	2ch, 1ch	2ch, 1ch
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary 1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.011	U > off	U_{THR} OFF	%Unom /VUnom	105,00% (108,15V)	100,00% (103,00V)	130,00% (133,90V)	100,00% (103,00V)	135,00% (139,05V)
.012	U > on	U_{THR} ON	%Unom /VUnom	103,00% (106,09V)	100,00% (103,00V)	108,00% (111,24V)	100,00% (103,00V)	135,00% (139,05V)
.013	T U >	Time OFF		60000 ms	50 ms	180000 ms	50 ms	180000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.015	U < off	U_{THR} OFF	%Unom /VUnom	80,00% (82,40V)	10,00% (10,30V)	100,00% (103,00V)	10,00% (10,30V)	100,00% (103,00V)
.016	U < on	U_{THR} ON	%Unom /VUnom	90,00% (92,70V)	86,00% (88,58V)	100,00% (103,00V)	10,00% (10,30V)	100,00% (103,00V)
.017	T U <	Time OFF		1500 ms	50 ms	180000 ms	50 ms	180000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.026	U >>	Enable function		on	on		on /off	
.027	U >> off	U_{THR} OFF	%Unom /VUnom	110,00% (113,30V)	100,00% (103,00V)	130,00% (133,90V)	100,00% (103,00V)	135,00% (139,05V)
.028	U >> on	U_{THR} ON	%Unom /VUnom	103,00% (106,09V)	100,00% (103,00V)	108,00% (111,24V)	100,00% (103,00V)	135,00% (139,05V)
.029	T U >>	Time OFF		100 ms	50 ms	180000 ms	50 ms	180000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.030	U <<	Enable function		on	on		on /off	
.031	U << off	U_{THR} OFF	%Unom /VUnom	30,00% (30,90V)	10,00% (10,30V)	100,00% (103,00V)	10,00% (10,30V)	100,00% (103,00V)
.032	U << on	U_{THR} ON	%Unom /VUnom	90,00% (92,70V)	86,00% (88,58V)	100,00% (103,00V)	0,00% (0,00V)	100,00% (103,00V)
.033	T U <<	Time OFF		700 ms	50 ms	180000 ms	50 ms	180000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	51,500 Hz	50,000 Hz	55,000 Hz	50,000 Hz	55,000 Hz
.056	f > on	f_{THR} ON	50,050 Hz	50,000 Hz	50,050 Hz	50,000 Hz	55,000 Hz
.057	T f >	Time OFF	50 ms	50 ms	50 ms	50 ms	180000 ms

Underfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	47,500 Hz	45,000 Hz	50,000 Hz	45,000 Hz	50,000 Hz
.060	f < on	f_{THR} ON	49,500 Hz	47,550 Hz	50,000 Hz	45,000 Hz	50,000 Hz
.061	T f <	Time OFF	50 ms	50 ms	50 ms	50 ms	180000 ms

Frequency measuring in general				Conformity Range			
ID			Default	Min	Max		
.113	F wnd	Window length	100 ms	100 ms	100 ms		

Auxiliary Contact type				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)	n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	Fixed to 500 ms				
.114	I3 STOP	Type	n.o. (normally opened)	n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.102	T on delay	Turn on time	60 s	0 s	300 s	0 s	900 s

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	on
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	SN: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device Serial Number dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

20. VDE-AR-N 4105:2018 ≤50kW [ID 311]

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire (LN+LL)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y Unom Δ	V V	Fixed to 230.0 / 400.0			

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	1ch	1ch	2ch, 1ch
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary 1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.011	ULL >> off	U_{THR} OFF	%Unom	Fixed to 115% U_{NOM}				
.012	ULL >> on	U_{THR} ON	%Unom	110	110	110	100	110
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		ULL >> on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.015	ULL < off	U_{THR} OFF	%Unom	80	80	85	80	85
.016	ULL < on	U_{THR} ON	%Unom	85	85	85	85	100
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		ULL < on has a fixed offset of 0.5% U_{NOM} added to the displayed value						

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	ULN >> off	U_{THR} OFF	%Unom	Fixed to 115% U_{NOM}				
.020	ULN >> on	U_{THR} ON	%Unom	110	110	110	100	110
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		ULN >> on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	ULN < off	U_{THR} OFF	%Unom	80	80	85	80	85
.024	ULN < on	U_{THR} ON	%Unom	85	85	85	85	100
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		ULN < on has a fixed offset of 0.5% U_{NOM} added to the displayed value						

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.043	U > off	U_{THR} OFF	%Unom	110	110	115	110	115
		U_{THR} ON	%Unom	Fixed Hysteresis (0.9% U_{NOM})				
		Time OFF	ms	Fixed to fastest possible disconnection				

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	Hz	Fixed to 51.50Hz				
.056	f > on	f_{THR} ON	Hz	50.10	50.10	50.10	50.00	50.10
		Time OFF	ms	Fixed to fastest possible disconnection				

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	Fixed to 47.50Hz				
.060	f < on	f_{THR} ON	Hz	47.50	47.50	47.50	47.50	50.00
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		f < on has a fixed offset of 0.025 Hz added to the displayed value						

Random overfrequency					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.086	f > random	Enable function		off	on / off		on /off	
.087	f > random	f_{THR} OFF	Hz		50.20	51.50	50.20	51.50
		f_{THR} ON	Hz	Fixed reconnection frequency of 50.10Hz				
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		The random f_{THR} OFF threshold is shown in .087 and cannot be edited						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 100ms				
.110	T ConDelOn	Time ON	ms	100	100	10000	100	300000
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	60	60	60	1	900

Random Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.103	Ton random	Enable function		off	on / off		on / off	
.104	Ton random	Turn on time	s		60	600	60	600
Comment:		The random time value is shown in .104 and cannot be edited						

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	4	0	9
.107	PW2	2nd digit of Password	1	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	5	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	off
Undervoltage LL (UΔ)	off
Overvoltage LN (UY)	off
Undervoltage LN (UY)	off
10-min overvoltage (Ū)	off
Overfrequency (f)	off
Underfrequency (f)	off
RoCoF (Rate of Change of Frequency) (Δf)	off
Phase shift (ΔΦ)	off
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

21. VDE-AR-N 4105:2018 >50kW [ID 312]

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire (LN+LL)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y Unom Δ	V V	Fixed to 230.0 / 400.0			

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	1ch	1ch	2ch, 1ch
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary 1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.011	ULL >> off	U_{THR} OFF	%Unom	Fixed to 125% U_{NOM}				
.012	ULL >> on	U_{THR} ON	%Unom	110	110	110	100	110
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		ULL >> on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.015	ULL < off	U_{THR} OFF	%Unom	Fixed to 80% U_{NOM}				
.016	ULL < on	U_{THR} ON	%Unom	85	85	85	85	100
.017	T ULL <	Time OFF	ms	1000	50	1000	50	10000
Comment:		ULL < on has a fixed offset of 0.5% U_{NOM} added to the displayed value						

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	ULN >> off	U_{THR} OFF	%Unom	Fixed to 125% U_{NOM}				
.020	ULN >> on	U_{THR} ON	%Unom	110	110	110	100	110
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		ULN >> on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	ULN < off	U_{THR} OFF	%Unom	Fixed to 80% U_{NOM}				
.024	ULN < on	U_{THR} ON	%Unom	85	85	85	85	100
.025	T ULN <	Time OFF	ms	1000	50	1000	50	10000
Comment:		ULN < on has a fixed offset of 0.5% U_{NOM} added to the displayed value						

Undervoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.031	ULL << off	U_{THR} OFF	%Unom	Fixed to 45% U_{NOM}				
.032	ULL << on	U_{THR} ON	%Unom	85	85	85	85	100
.033	T ULL <<	Time OFF	ms	300	50	300	50	10000
Comment:		ULL << on has a fixed offset of 0.5% U_{NOM} added to the displayed value						

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.039	ULN << off	U_{THR} OFF	%Unom	Fixed to 45% U_{NOM}				
.040	ULN << on	U_{THR} ON	%Unom	85	85	85	85	100
.041	T ULN <<	Time OFF	ms	200	50	300000	50	300000
Comment:		ULN << on has a fixed offset of 0.5% U_{NOM} added to the displayed value						

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.043	U > off	U_{THR} OFF	%Unom	110	110	115	110	115
		U_{THR} ON	%Unom	Fixed Hysteresis (0.9% U_{NOM})				
		Time OFF	ms	Fixed to fastest possible disconnection				

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	Hz	Fixed to 51.50Hz				
.056	f > on	f_{THR} ON	Hz	50.10	50.10	50.10	50.00	50.10
		Time OFF	ms	Fixed to fastest possible disconnection				

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	Fixed to 47.50Hz				
.060	f < on	f_{THR} ON	Hz	47.50	47.50	47.50	47.50	50.00
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		f < on has a fixed offset of 0.025 Hz added to the displayed value						

Random overfrequency					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.086	f > random	Enable function		off	on / off		on /off	
.087	f > random	f_{THR} OFF	Hz		50.20	51.50	50.20	51.50
		f_{THR} ON	Hz	Fixed reconnection frequency of 50.10Hz				
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		The random f_{THR} OFF threshold is shown in .087 and cannot be edited						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 100ms				
.110	T ConDelOn	Time ON	ms	100	100	10000	100	300000
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	60	60	60	1	900

Random Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.103	Ton random	Enable function		off	on / off		on / off	
.104	Ton random	Turn on time	s		60	600	60	600
Comment:		The random time value is shown in .104 and cannot be edited						

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	4	0	9
.107	PW2	2nd digit of Password	1	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	5	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	off
Undervoltage LL (UΔ)	off
Overvoltage LN (UY)	off
Undervoltage LN (UY)	off
10-min overvoltage (Ū)	off
Overfrequency (f)	off
Underfrequency (f)	off
RoCoF (Rate of Change of Frequency) (Δf)	off
Phase shift (ΔΦ)	off
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

22. VDE-AR-N 4105:2018 Umr [ID 313]

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire (LN+LL)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y Unom Δ	V V	Fixed to 230.0 / 400.0			

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	2ch	2ch	2ch, 1ch
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary 1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.011	ULL >> off	U_{THR} OFF	%Unom	Fixed to 125% U_{NOM}				
.012	ULL >> on	U_{THR} ON	%Unom	110	110	110	100	110
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		ULL >> on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.015	ULL < off	U_{THR} OFF	%Unom	Fixed to 80% U_{NOM}				
.016	ULL < on	U_{THR} ON	%Unom	85	85	85	85	100
		Time OFF	ms	Fixed to 3000ms				
Comment:		ULL < on has a fixed offset of 0.5% U_{NOM} added to the displayed value						

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	ULN >> off	U_{THR} OFF	%Unom	Fixed to 125% U_{NOM}				
.020	ULN >> on	U_{THR} ON	%Unom	110	110	110	100	110
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		ULN >> on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	ULN < off	U_{THR} OFF	%Unom	Fixed to 80% U_{NOM}				
.024	ULN < on	U_{THR} ON	%Unom	85	85	85	85	100
		Time OFF	ms	Fixed to 3000ms				
Comment:		ULN < on has a fixed offset of 0.5% U_{NOM} added to the displayed value						

Undervoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.031	ULL << off	U_{THR} OFF	%Unom	Fixed to 45% U_{NOM}				
.032	ULL << on	U_{THR} ON	%Unom	85	85	85	85	100
		Time OFF	ms	Fixed to 300ms				
Comment:		ULL << on has a fixed offset of 0.5% U_{NOM} added to the displayed value						

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.039	ULN << off	U_{THR} OFF	%Unom	Fixed to 45% U_{NOM}				
.040	ULN << on	U_{THR} ON	%Unom	85	85	85	85	100
		Time OFF	ms	Fixed to 300ms				
Comment:		ULN << on has a fixed offset of 0.5% U_{NOM} added to the displayed value						

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.043	U > off	U_{THR} OFF	%Unom	110	110	115	110	115
		U_{THR} ON	%Unom	Fixed Hysteresis (0.9% U_{NOM})				
		Time OFF	ms	Fixed to fastest possible disconnection				

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	Hz	Fixed to 51.50Hz				
.056	f > on	f_{THR} ON	Hz	50.10	50.10	50.10	50.00	50.10
		Time OFF	ms	Fixed to fastest possible disconnection				

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	Fixed to 47.50Hz				
.060	f < on	f_{THR} ON	Hz	47.50	47.50	47.50	47.50	50.00
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		f < on has a fixed offset of 0.025 Hz added to the displayed value						

Random overfrequency					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.086	f > random	Enable function		off	on / off		on /off	
.087	f > random	f_{THR} OFF	Hz		50.20	51.50	50.20	51.50
		f_{THR} ON	Hz	Fixed reconnection frequency of 50.10Hz				
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		The random f_{THR} OFF threshold is shown in .087 and cannot be edited						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 100ms				
.110	T ConDelOn	Time ON	ms	100	100	10000	100	300000
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	60	60	60	1	900

Random Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.103	Ton random	Enable function		off	on / off		on / off	
.104	Ton random	Turn on time	s		60	600	60	600
Comment:		The random time value is shown in .104 and cannot be edited						

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	4	0	9
.107	PW2	2nd digit of Password	1	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	5	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	off
Undervoltage LL (UΔ)	off
Overvoltage LN (UY)	off
Undervoltage LN (UY)	off
10-min overvoltage (Ū)	off
Overfrequency (f)	off
Underfrequency (f)	off
RoCoF (Rate of Change of Frequency) (Δf)	off
Phase shift (ΔΦ)	off
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

23. VDE-AR-N 4110:2018 TR3-25 [ID 707]

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire (LN)	3-wire, 4-wire (LN)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	57.5	230.0	28.8	241.4
		Unom Δ	V	400.0	100.0	400.0	50.0	420.0

Functional Safety		Conformity Range	Possible Range
ID	Default		
.007	Errtol	Fixed to 1ch	
Remark:	1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.010	ULL>	Enable function		on	on / off		on / off	
.011	ULL > off	U_{THR} OFF	%Unom	110	100	130	100	135
.012	ULL > on	U_{THR} ON	%Unom	109	103	109	100	135
.013	T ULL >	Time OFF	ms	180000	100	180000	100	180000
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.015	ULL < off	U_{THR} OFF	%Unom	80	10	100	10	100
.016	ULL < on	U_{THR} ON	%Unom	95	95	95	10	100
.017	T ULL <	Time OFF	ms	1500	1500	2400	50	60000
Comment:		ULL < on has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.018	ULN >	Enable function		on	on / off		on / off	
.019	ULN > off	U_{THR} OFF	%Unom	110	100	130	100	135
.020	ULN > on	U_{THR} ON	%Unom	109	103	109	100	135
.021	T ULN >	Time OFF	ms	180000	100	180000	100	180000
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	ULN < off	U_{THR} OFF	%Unom	80	10	100	10	100
.024	ULN < on	U_{THR} ON	%Unom	95	95	95	10	100
.025	T ULN <	Time OFF	ms	1500	1500	2400	50	60000
Comment:		ULN < on has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						

Overvoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.026	ULL >>	Enable function		on	on		on / off	
.027	ULL >> off	U_{THR} OFF	%Unom	125	100	130	100	135
.028	ULL >> on	U_{THR} ON	%Unom	124	103	124	100	135
.029	T ULL >>	Time OFF	ms	100	100	100	100	10000
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.031	ULL << off	U_{THR} OFF	%Unom	30	10	100	10	100
.032	ULL << on	U_{THR} ON	%Unom	95	95	95	10	100
.033	T ULL <<	Time OFF	ms	800	800	800	50	60000
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						
Comment:		ULL << on has a fixed offset of 0.5% U_{NOM} added to the displayed value						

Overvoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.034	ULN >>	Enable function		on	on		on / off	
.035	ULN >> off	U_{THR} OFF	%Unom	125	100	130	100	135
.036	ULN >> on	U_{THR} ON	%Unom	124	103	124	100	135
.037	T ULN >>	Time OFF	ms	100	100	100	100	10000
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.039	ULN << off	U_{THR} OFF	%Unom	30	10	100	10	100
.040	ULN << on	U_{THR} ON	%Unom	95	95	95	10	100
.041	T ULN <<	Time OFF	ms	800	800	800	50	60000
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						
Comment:		ULN << on has a fixed offset of 0.5% U_{NOM} added to the displayed value						

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	Hz	51.50	50.00	55.00	50.00	55.00
.056	f > on	f_{THR} ON	Hz	50.10	50.10	50.10	50.00	55.00
.057	T f >	Time OFF	ms	5000	150	5000	150	10000
Comment:		f > on has a fixed offset of 0.01 Hz subtracted to the displayed value						

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	47.50	45.00	50.00	45.00	50.00
.060	f < on	f_{THR} ON	Hz	49.90	49.90	49.90	45.00	50.00
.061	T f <	Time OFF	ms	50	50	70	50	10000
Comment:		f < off has a fixed offset of 0.01 Hz added to the displayed value f < on has a fixed offset of 0.01 Hz added to the displayed value						

Overfrequency 2					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.063	f >> off	f_{THR} OFF	Hz	52.50	50.00	55.00	50.00	55.00
.064	f >> on	f_{THR} ON	Hz	50.10	50.10	50.10	50.00	55.00
.065	T f >>	Time OFF	ms	50	50	70	50	10000
Comment:		f >> off has a fixed offset of 0.01 Hz subtracted to the displayed value						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	60	0	60	0	1800

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	off
Undervoltage LL (UΔ)	off
Overvoltage LN (UY)	off
Undervoltage LN (UY)	off
10-min overvoltage (Ū)	off
Overfrequency (f)	off
Underfrequency (f)	off
RoCoF (Rate of Change of Frequency) (Δf)	off
Phase shift (ΔΦ)	off
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	off
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	off

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

24. CEI 0-21:2019 [ID 102]

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire (LN)	2-wire, 3-wire, 4-wire (LN)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y Unom Δ	V V	Fixed to 230.0 / 400.0			

Functional Safety		Conformity Range	Possible Range
ID	Default		
.007	Errtol	Fixed to 1ch	
Remark:	1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Operational Mode		Conformity Range	Possible Range
ID	Default		
.009	Mode	1 (transitory)	0 (definitive), 1 (transitory)	0 (definitive), 1 (transitory)

Overvoltage1 Line to Line				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.011	V 59.S2 LL	U_{THR} OFF	%Unom	115	100	130	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (4% U_{THR})			
.013	T 59.S2 LL	Time OFF	ms	200	50	1000	50	10000
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)					

Undervoltage1 Line to Line				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.015	V 27.S1 LL	U_{THR} OFF	% Unom	85	20	100	0	100
		U_{THR} ON	%Unom	Fixed Hysteresis (4% U_{THR})			
.017	T 27.S1 LL	Time OFF	ms	1500	50	5000	50	10000
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)					

Overvoltage1 Line to Neutral				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.019	V 59.S2 LN	U_{THR} OFF	%Unom	115	100	130	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (4% U_{THR})			
.021	T 59.S2 LN	Time OFF	ms	200	50	1000	50	10000
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)					

Undervoltage1 Line to Neutral				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.023	V 27.S1 LN	U_{THR} OFF	%Unom	85	20	100	0	100
		U_{THR} ON	%Unom	Fixed Hysteresis (4% U_{THR})			
.025	T 27.S1 LN	Time OFF	ms	1500	50	5000	50	10000
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))					

Undervoltage2 Line to Line				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.031	V 27.S2 LL	U_{THR} OFF	%Unom	15	5	100	0	100
		U_{THR} ON	%Unom	Fixed Hysteresis (4% U_{THR})			
.033	T 27.S2 LL	Time OFF	ms	200	50	5000	50	10000
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)					

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.039	V 27.S2 LN	U_{THR} OFF	%Unom	15	5	100	0	100
		U_{THR} ON	%Unom	Fixed Hysteresis (4% U_{THR})				
.041	T 27.S2 LN	Time OFF	ms	200	50	5000	50	10000
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.043	V 59.S1	U_{THR} OFF	%Unom	110	100	120	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (4% U_{THR})				
.045	T 59.S1	Time OFF	ms	0	0	0	0	10000

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	F 81>S2 ws	f_{THR} OFF	Hz	51.50	50.00	52.00	50.00	55.00
		f_{THR} ON	Hz	Fixed Hysteresis (0.2% f_{THR})				
.057	T 81>S2 ws	Time OFF	ms	1000	50	5000	50	10000
Only active for:		Operational Mode 0 (definitive mode) when DigIn4 is inactive (contact open) Voltage > 20% U_{NOM}						

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	F 81<S2 ws	f_{THR} OFF	Hz	47.50	47.00	50.00	45.00	50.00
		f_{THR} ON	Hz	Fixed Hysteresis (0.2% f_{THR})				
.061	T 81<S2 ws	Time OFF	ms	4000	50	5000	50	10000
Only active for:		Operational Mode 0 (definitive mode) when DigIn4 is inactive (contact open) Voltage > 20% U_{NOM}						

Overfrequency2					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.063	F 81>S1 nf	f_{THR} OFF	Hz	50.20	50.00	52.00	50.00	55.00
		f_{THR} ON	Hz	Fixed Hysteresis (0.2% f_{THR})				
.065	T 81>S1 nf	Time OFF	ms	100	50	5000	50	10000
Only active for:		Operational Mode 0 (definitive mode) when DigIn4 is active (contact closed) Operational Mode 1 (transitory mode) when DigIn5 is active (contact closed) Voltage > 20% U_{NOM}						

Underfrequency2					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.067	F 81<S1 nf	f_{THR} OFF	Hz	49.80	47.00	50.00	45.00	50.00
		f_{THR} ON	Hz	Fixed Hysteresis (0.2% f_{THR})				
.069	T 81<S1 nf	Time OFF	ms	100	50	5000	50	10000
Only active for:		Operational Mode 0 (definitive mode) when DigIn4 is active (contact closed) Operational Mode 1 (transitory mode) when DigIn5 is active (contact closed) Voltage > 20% U_{NOM}						

Overfrequency3					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.071	F 81>S2 wf	f_{THR} OFF	Hz	51.50	50.00	52.00	50.00	55.00
		f_{THR} ON	Hz	Fixed Hysteresis (0.2% f_{THR})				
.073	T 81>S2 wf	Time OFF	ms	100	50	5000	50	10000
Only active for:		Operational Mode 1 (transitory mode) when DigIn5 is inactive (contact open) Voltage > 20% U_{NOM}						

Underfrequency3					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.075	F 81<S2 wf	f_{THR} OFF	Hz	47.50	47.00	50.00	45.00	50.00
		f_{THR} ON	Hz	Fixed Hysteresis (0.2% f_{THR})				
.077	T 81<S2 wf	Time OFF	ms	100	50	5000	50	10000
Only active for:		Operational Mode 1 (transitory mode) when DigIn5 is inactive (contact open) Voltage > 20% U_{NOM}						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Rate of Change of Frequency (RoCoF)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.090	RoCoF	Enable Function		off	on / off		on / off	
.091	RoCoF OFF	$RoCoF_{THR}$ OFF	mHz/s	2700	1000	4000	100	8000
.092	RoCoF ON	$RoCoF_{THR}$ ON	mHz/s	2300	1000	4000	100	8000
.093	T RoCoF	Time OFF	ms	0	0	1000	0	10000
.111	RoCoF wnd	Window length	ms	100	100	1000	100	1000

Auxiliary Contact type				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)	n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms			
.114	I3 STOP	Type	n.o. (normally opened)	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	5	0	300	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	off
Undervoltage LL (UΔ)	off
Overvoltage LN (UY)	off
Undervoltage LN (UY)	off
10-min overvoltage (Ū)	off
Overfrequency (f)	off
Underfrequency (f)	off
RoCoF (Rate of Change of Frequency) (Δf)	off
Phase shift (ΔΦ)	off
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	off

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

25. G99/1/3:2018 LV [ID 410]

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	Fixed to 4-wire (LN)		

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	230.0	240.0	100.0	240.0
		Unom Δ	V	400.0	400.0	417.4	173.9	417.4

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	Fixed to 1ch		
Remark:		1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	O/V st 1	U_{THR} OFF	%Unom	114	114	114	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (0.75% U_{NOM})				
.021	T O/V st 1	Time OFF	ms	1000	1000	1000	50	300000

Overvoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.035	O/V st 2	U_{THR} OFF	%Unom	119	119	119	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (0.75% U_{NOM})				
.037	T O/V st 2	Time OFF	ms	500	500	500	50	300000

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.039	U/V	U_{THR} OFF	%Unom	80	80	80	0	100
		U_{THR} ON	%Unom	Fixed Hysteresis (0.75% U_{NOM})				
.041	T U/V	Time OFF	ms	2500	2500	2500	50	300000

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	U/F st 1	f_{THR} OFF	Hz	47.50	47.50	47.50	40.00	50.00
		f_{THR} ON	Hz	Fixed Hysteresis (0.05 Hz)				
.061	T U/F st 1	Time OFF	ms	20000	20000	20000	1000	300000

Overfrequency2					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.063	O/F	f_{THR} OFF	Hz	52.00	52.00	52.00	50.00	55.00
		f_{THR} ON	Hz	Fixed Hysteresis (0.05 Hz)				
.065	T O/F	Time OFF	ms	500	500	500	50	300000

Underfrequency2					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.067	U/F st 2	f_{THR} OFF	Hz	47.00	47.00	47.00	40.00	50.00
		f_{THR} ON	Hz	Fixed Hysteresis (0.05 Hz)				
.069	T U/F st 2	Time OFF	ms	500	500	500	50	300000

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Rate of Change of Frequency (RoCoF)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.090	RoCoF	Enable Function		on	on / off		on / off	
.091	RoCoF off	$RoCoF_{THR}$ OFF	mHz/s	1000	10	3000	10	3000
.092	RoCoF on	$RoCoF_{THR}$ ON	mHz/s	950	10	3000	10	3000
.093	RoCoFDelay	Time OFF	ms	500	50	500	50	2000
.111	RoCoF wnd	Window length	ms	Fixed window length 225ms				

Phase Shift (PShift)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.094	PShift	Enable Function		off	on / off		on / off	
.095	PShift off	$PShift_{THR}$ OFF	°	12	--	--	3	15
.096	PShift on	$PShift_{THR}$ ON	°	9	--	--	3	15
		Time OFF	ms	Fixed to fastest possible disconnection				
.112	PShift wnd	Window length	ms	Fixed window length 200ms				

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	20	20	20	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

26. G99/1/3:2018 HV [ID 460]

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	Fixed to 3-wire		

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	57.5	230.0	28.8	241.4
		Unom Δ	V	400.0	100.0	400	50.0	420.0

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	Fixed to 1ch		
Remark:		1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.011	O/V st 1	U_{THR} OFF	%Unom	110	110	110	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (0.75% U_{NOM})				
.013	T O/V st 1	Time OFF	ms	1000	1000	1000	50	300000

Overvoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.027	O/V st 2	U_{THR} OFF	%Unom	113	113	113	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (0.75% U_{NOM})				
.029	T O/V st 2	Time OFF	ms	500	500	500	50	300000

Undervoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.031	U/V	U_{THR} OFF	%Unom	80	80	80	0	100
		U_{THR} ON	%Unom	Fixed Hysteresis (0.75% U_{NOM})				
.033	T U/V	Time OFF	ms	2500	2500	2500	50	300000

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	U/F st 1	f_{THR} OFF	Hz	47.50	47.50	47.50	40.00	50.00
		f_{THR} ON	Hz	Fixed Hysteresis (0.05 Hz)				
.061	T U/F st 1	Time OFF	ms	20000	20000	20000	1000	300000

Overfrequency2					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.063	O/F	f_{THR} OFF	Hz	52.00	52.00	52.00	50.00	55.00
		f_{THR} ON	Hz	Fixed Hysteresis (0.05 Hz)				
.065	T O/F	Time OFF	ms	500	500	500	50	300000

Underfrequency2					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.067	U/F st 2	f_{THR} OFF	Hz	47.00	47.00	47.00	40.00	50.00
		f_{THR} ON	Hz	Fixed Hysteresis (0.05 Hz)				
.069	T U/F st 2	Time OFF	ms	500	500	500	50	300000

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Rate of Change of Frequency (RoCoF)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.090	RoCoF	Enable Function		on	on / off		on / off	
.091	RoCoF off	$RoCoF_{THR}$ OFF	mHz/s	1000	10	3000	10	3000
.092	RoCoF on	$RoCoF_{THR}$ ON	mHz/s	950	10	3000	10	3000
.093	RoCoFDelay	Time OFF	ms	500	50	500	50	2000
.111	RoCoF wnd	Window length	ms	Fixed window length 225ms				

Phase Shift (PShift)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.094	PShift	Enable Function		off	on / off		on / off	
.095	PShift off	$PShift_{THR}$ OFF	°	12	--	--	3	15
.096	PShift on	$PShift_{THR}$ ON	°	9	--	--	3	15
		Time OFF	ms	Fixed to fastest possible disconnection				
.112	PShift wnd	Window length	ms	Fixed window length 200ms				

Auxiliary Contact type					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.099	Contact	Type		dis. (disabled)	n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type		n.o. (normally opened)	n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	20	20	20	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

27. G98/1/2:2018 [ID 510]

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	Fixed to 4-wire (LN)		

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	230.0	240.0	100.0	240.0
		Unom Δ	V	400.0	400.0	417.4	173.9	417.4

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	Fixed to 1ch		
Remark:		1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	O/V st 1	U_{THR} OFF	%Unom	114	114	114	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (0.75% U_{NOM})				
.021	T O/V st 1	Time OFF	ms	1000	1000	1000	50	10000

Overvoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.035	O/V st 2	U_{THR} OFF	%Unom	119	119	119	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (0.75% U_{NOM})				
.037	T O/V st 2	Time OFF	ms	500	500	500	50	10000

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.039	U/V	U_{THR} OFF	%Unom	80	80	80	0	100
		U_{THR} ON	%Unom	Fixed Hysteresis (0.75% U_{NOM})				
.041	T U/V	Time OFF	ms	2500	2500	2500	50	10000

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	U/F st 1	f_{THR} OFF	Hz	47.50	47.50	47.50	40.00	50.00
		f_{THR} ON	Hz	Fixed Hysteresis (0.05 Hz)				
.061	T U/F st 1	Time OFF	ms	20000	20000	20000	1000	120000

Overfrequency2					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.063	O/F	f_{THR} OFF	Hz	52.00	52.00	52.00	50.00	55.00
		f_{THR} ON	Hz	Fixed Hysteresis (0.05 Hz)				
.065	T O/F	Time OFF	ms	500	500	500	50	10000

Underfrequency2					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.067	U/F st 2	f_{THR} OFF	Hz	47.00	47.00	47.00	40.00	50.00
		f_{THR} ON	Hz	Fixed Hysteresis (0.05 Hz)				
.069	T U/F st 2	Time OFF	ms	500	500	500	50	10000

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Rate of Change of Frequency (RoCoF)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.090	RoCoF	Enable Function		on	on / off		on / off	
.091	RoCoF off	$RoCoF_{THR}$ OFF	mHz/s	1000	10	3000	10	3000
.092	RoCoF on	$RoCoF_{THR}$ ON	mHz/s	950	10	3000	10	3000
		Time OFF	ms	Fixed to fastest possible disconnection				
.111	RoCoF wnd	Window length	ms	Fixed window length 535ms				

Phase Shift (PShift)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.094	PShift	Enable Function		off	on / off		on / off	
.095	PShift off	$PShift_{THR}$ OFF	°	12	--	--	3	15
.096	PShift on	$PShift_{THR}$ ON	°	9	--	--	3	15
		Time OFF	ms	Fixed to the fastest possible disconnection				
.112	PShift wnd	Window length	ms	Fixed window length 200ms				

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	20	20	20	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	off
Undervoltage LL (UΔ)	off
Overvoltage LN (UY)	off
Undervoltage LN (UY)	off
10-min overvoltage (Ū)	off
Overfrequency (f)	off
Underfrequency (f)	off
RoCoF (Rate of Change of Frequency) (Δf)	off
Phase shift (ΔΦ)	off
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	off
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	off

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

28. C10-11:2021 LV-IP [ID 603] Interface Protection low voltage

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire (LN+LL)	4-wire (LN+LL)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	230.0	240.0	100.0	240.0
		Unom Δ	V	400.0	400.0	417.4	173.9	417.4

Functional Safety		Conformity Range	Possible Range
ID	Default		
.007	Errtol	Fixed to 1ch	
Remark:	1ch means: 1 channel without functional safety and 1 auxilliary contact necessary		

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	U LN > off	U_{THR} OFF	%Unom	110	100	110	100	135
.020	U LN > on	U_{THR} ON	%Unom	109	100	120	100	135
.021	T U LN >	Time OFF	ms	1000	0	3000	0	10000
Comment:	U LN > off has a fixed offset of 0.25% U_{NOM} subtracted from the displayed value							
Only active for:	Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)							

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	U LN < off	U_{THR} OFF	%Unom	70	50	85	0	100
.024	U LN < on	U_{THR} ON	%Unom	85	50	100	0	100
.025	T U LN <	Time OFF	ms	1500	0	1500	0	10000
Comment:	U LN < off has a fixed offset of 0.25% U_{NOM} added to the displayed value							
Only active for:	Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))							

Overvoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.035	U LN>> off	U_{THR} OFF	%Unom	115	110	130	100	135
.036	U LN>> on	U_{THR} ON	%Unom	114	100	120	100	135
.037	T ULN>>	Time OFF	ms	0	0	0	0	10000
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:	U LN > off has a fixed offset of 0.25% U_{NOM} subtracted from the displayed value							
Only active for:	Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)							

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.039	U LN<< off	U_{THR} OFF	%Unom	15	15	50	0	100
.040	U LN<< on	U_{THR} ON	%Unom	85	50	100	0	100
.041	T U LN<<	Time OFF	ms	250	0	5000	0	10000
Comment:	U LN < off has a fixed offset of 0.25% U_{NOM} added to the displayed value							
Only active for:	Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)							

Zero Voltage Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.115	Uzero >	Enable Function		on	on		on/off	
.116	Uzero> off	U_{THR} OFF	%Unom	20	20	20	5	100
.117	Uzero> on	U_{THR} ON	%Unom	15	1	19	1	100
.118	T Uzero >	Time OFF	ms	1500	0	1500	0	10000
Only active for:		Connection Modes: 4-wire (LN+LL)						

Residual Voltage (3 x Zero Voltage) Line to Neutral Activation of a narrower frequency window					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.119	Ures-anfw>	Enable Function		on	on		on/off	
.120	Ures > on	U_{THR} OFF	%Unom	5	5	5	2	100
.121	Ures > off	U_{THR} ON	%Unom	3	1	3	1	100
.122	T Ures >	Time OFF	ms	200	0	240000	0	240000
Only active for:		Connection Modes: 4-wire (LN+LL)						

Undervoltage Line to Neutral Activation of a narrower frequency window					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.123	Uanfw <	Enable Function		on	on		on/off	
.124	Uanfw< on	U_{THR} OFF	%Unom	85	85	85	1	100
.125	Uanfw< off	U_{THR} ON	%Unom	86	86	100	2	100
.126	T Uanfw <	Time OFF	ms	0	0	240000	0	240000
Only active for:		Connection Modes: 4-wire (LN+LL)						

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	Hz	51.50	51.50	51.50	50.00	55.00
.056	f > on	f_{THR} ON	Hz	50.10	50.00	52.00	50.00	55.00
.057	T f >	Time OFF	ms	0	0	0	0	10000
Comment:		f > off has a fixed offset of 0.01 Hz subtracted to the displayed value						
Only active for:		Voltage > 20% U_{NOM}						

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	47.50	47.50	47.50	40.00	50.00
.060	f < on	f_{THR} ON	Hz	49.90	47.00	50.00	40.00	50.00
.061	T f <	Time OFF	ms	0	0	0	0	10000
Comment:		f < off has a fixed offset of 0.01 Hz added to the displayed value						
Only active for:		Voltage > 20% U_{NOM}						

Overfrequency nw (narrower window)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.062	f nw >	Enable Function		on	on		on/off	
.063	f nw > off	f_{THR} OFF	Hz	50.30	50.30	50.30	50.00	55.00
.064	f nw > on	f_{THR} ON	Hz	50.10	50.00	52.00	50.00	55.00
.065	T f nw >	Time OFF	ms	500	500	500	0	10000
Comment:		f nw > off has a fixed offset of 0.01 Hz subtracted to the displayed value						
Only active for:		Ures-anfw, Uanfw, Dig Input5=HIGH (local setting)						

Underfrequency nw (narrower window)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.066	f nw <	Enable Function		on	on		on/off	
.067	f nw < off	f_{THR} OFF	Hz	49.70	49.70	49.70	45.00	50.00
.068	f nw < on	f_{THR} ON	Hz	49.90	47.00	50.00	45.00	50.00
.069	T f nw <	Time OFF	ms	500	500	500	0	10000
Comment:		f nw < off has a fixed offset of 0.01 Hz added to the displayed value						
Only active for:		Ures-anfw, Uanfw, Dig Input5=HIGH (local setting)						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Rate of Change of Frequency (RoCoF)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.090	RoCoF	Enable Function		on	on / off		on / off	
.091	RoCoF off	$RoCoF_{THR}$ OFF	mHz/s	1000	1000	2000	100	5000
.092	RoCoF on	$RoCoF_{THR}$ ON	mHz/s	800	100	2000	100	5000
.093	RoCoF t	Time OFF	ms	0	0	0	0	5000
.111	RoCoF wnd	Window length	ms	Fixed window length 100ms				

Phase Shift (PShift)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.094	PShift	Enable Function		off	on / off		on / off	
.095	PShift off	$PShift_{THR}$ OFF	°	7	7	7	3	15
.096	PShift on	$PShift_{THR}$ ON	°	5	3	7	3	15
		Time OFF	ms	Fixed to the fastest possible disconnection				
.112	PShift wnd	Window length	ms	Fixed window length 100ms				
Comment:		PShift off has a fixed offset of 1° subtracted from the displayed value						

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	Contact t	Time OFF	ms	300	100	300	10	5000
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	T on delay	Turn on time	s	60	60	60	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	off
Undervoltage LL (UΔ)	off
Overvoltage LN (UY)	off
Undervoltage LN (UY)	off
10-min overvoltage (Ū)	off
Overfrequency (f)	off
Underfrequency (f)	off
RoCoF (Rate of Change of Frequency) (Δf)	off
Phase shift (ΔΦ)	off
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

29. C10-11:2019 LV-ASS [ID 602] Automatic Separation System / Low Voltage

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire (LN)	4-wire (LN)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	230.0	240.0	100.0	240.0
		Unom Δ	V	400.0	400.0	417.4	173.9	417.4

Functional Safety		Conformity Range	Possible Range
ID	Default		
.007	Errtol	Fixed to 1ch	
Remark:	1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	U LN > off	U_{THR} OFF	%Unom	115	100	120	100	135
.020	U LN > on	U_{THR} ON	%Unom	109	100	120	100	135
.021	T U LN >	Time OFF	ms	100	100	100000	100	100000
Comment:	U LN > off has a fixed offset of 0.25% U_{NOM} subtracted from the displayed value							
Only active for:	Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)							

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	U LN < off	U_{THR} OFF	%Unom	80	20	100	0	100
.024	U LN < on	U_{THR} ON	%Unom	85	50	100	0	100
.025	T U LN <	Time OFF	ms	100	100	100000	100	100000
Comment:	U LN < off has a fixed offset of 0.25% U_{NOM} added to the displayed value							
Only active for:	Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))							

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	Uavg	Enable function		on	on		on /off	
.043	Uavg off	U_{THR} OFF	%Unom	110	100	115	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (1% U_{NOM})				
		Time OFF	ms	Fixed to fastest possible disconnection				

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	Hz	51.50	50.00	52.00	50.00	55.00
.056	f > on	f_{THR} ON	Hz	50.10	50.00	52.00	50.00	55.00
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:	f > off has a fixed offset of 0.01 Hz subtracted to the displayed value							
Only active for:	Voltage > 20% U_{NOM}							

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	47.50	47.00	50.00	40.00	50.00
.060	f < on	f_{THR} ON	Hz	49.90	47.00	50.00	40.00	50.00
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:	f < off has a fixed offset of 0.01 Hz added to the displayed value							
Only active for:	Voltage > 20% U_{NOM}							

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Rate of Change of Frequency (RoCoF)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.090	RoCoF	Enable Function		off	on / off		on / off	
.091	RoCoF off	$RoCoF_{THR}$ OFF	mHz/s	1000	1000	1000	100	2000
.092	RoCoF on	$RoCoF_{THR}$ ON	mHz/s	800	100	1000	100	1000
.093	RoCoF t	Time OFF	ms	0	0	0	0	1000
.111	RoCoF wnd	Window length	ms	Fixed window length 100ms				

Phase Shift (PShift)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.094	PShift	Enable Function		on	on / off		on / off	
.095	PShift off	$PShift_{THR}$ OFF	°	7	7	7	3	15
.096	PShift on	$PShift_{THR}$ ON	°	5	3	7	3	15
		Time OFF	ms	Fixed to the fastest possible disconnection				
.112	PShift wnd	Window length	ms	Fixed window length 100ms				
Comment:		PShift off has a fixed offset of 1° subtracted from the displayed value						

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	Contact t	Time OFF	ms	300	100	300	10	5000
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	60	60	60	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	off
Undervoltage LL (UΔ)	off
Overvoltage LN (UY)	off
Undervoltage LN (UY)	off
10-min overvoltage (Ū)	off
Overfrequency (f)	off
Underfrequency (f)	off
RoCoF (Rate of Change of Frequency) (Δf)	off
Phase shift (ΔΦ)	off
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

30. C10-11:2021 HV-IP [ID 653] Interface Protection / High Voltage

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	3-wire	3-wire	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	57.5	230.0	28.8	241.4
		Unom Δ	V	400.0	100.0	400.0	50.0	420.0

Functional Safety		Conformity Range	Possible Range
ID	Default		
.007	Errtol	Fixed to 1ch	
Remark:	1ch means: 1 channel without functional safety and 1 auxilliary contact necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.011	U LL > off	U_{THR} OFF	%Unom	110	100	110	100	135
.012	U LL > on	U_{THR} ON	%Unom	109	100	120	100	135
.013	T U LL >	Time OFF	ms	1000	0	3000	0	10000
Comment:		U LL > off has a fixed offset of 0.25% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.015	U LL < off	U_{THR} OFF	%Unom	70	50	85	0	100
.016	U LL < on	U_{THR} ON	%Unom	90	50	100	0	100
.017	T U LL <	Time OFF	ms	1500	0	1500	0	10000
Comment:		U LL < off has a fixed offset of 0.25% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.027	U LL>> off	U_{THR} OFF	%Unom	115	110	130	100	135
.028	U LL>> on	U_{THR} ON	%Unom	114	100	120	100	135
.029	T U LL>>	Time OFF	ms	0	0	0	0	10000
Comment:		U LL>> off has a fixed offset of 0.25% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.031	U LL<< off	U_{THR} OFF	%Unom	15	15	50	0	100
.032	U LL<< on	U_{THR} ON	%Unom	90	50	100	0	100
.033	T U LL<<	Time OFF	ms	250	0	5000	0	10000
Comment:		U LL<< off has a fixed offset of 0.25% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage Line to Neutral Activation of a narrower frequency window					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.123	Uanfw <	Enable Function		off	on/off		on/off	
.124	Uanfw< on	U_{THR} OFF	%Unom	85	85	85	1	100
.125	Uanfw< off	U_{THR} ON	%Unom	90	86	100	2	100
.126	T Uanfw <	Time OFF	ms	0	0	240000	0	240000
Only active for:		Connection Modes: 4-wire (LN+LL)						

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	Hz	51.50	51.50	51.50	50.00	55.00
.056	f > on	f_{THR} ON	Hz	50.10	50.00	52.00	50.00	55.00
.057	T f >	Time OFF	ms	0	0	0	0	10000
Comment:		f > off has a fixed offset of 0.01 Hz subtracted to the displayed value						
Only active for:		Voltage > 20% U_{NOM}						

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	47.50	47.50	47.50	40.00	50.00
.060	f < on	f_{THR} ON	Hz	49.90	47.00	50.00	40.00	50.00
.061	T f <	Time OFF	ms	0	0	0	0	10000
Comment:		f < off has a fixed offset of 0.01 Hz added to the displayed value						
Only active for:		Voltage > 20% U_{NOM}						

Overfrequency nw (narrower window)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.062	f nw >	Enable Function		on	on		on/off	
.063	f nw > off	f_{THR} OFF	Hz	50.30	50.30	50.30	50.00	55.00
.064	f nw > on	f_{THR} ON	Hz	50.10	50.00	52.00	50.00	55.00
.065	T f nw >	Time OFF	ms	500	500	500	0	10000
Comment:		f nw > off has a fixed offset of 0.01 Hz subtracted to the displayed value						
Only active for:		Dig Input5=HIGH (local setting)						

Underfrequency nw (narrower window)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.066	f nw <	Enable Function		on	on		on/off	
.067	f nw < off	f_{THR} OFF	Hz	49.70	49.70	49.70	45.00	50.00
.068	f nw < on	f_{THR} ON	Hz	49.90	47.00	50.00	45.00	50.00
.069	T f nw <	Time OFF	ms	500	500	500	0	10000
Comment:		f nw < off has a fixed offset of 0.01 Hz added to the displayed value						
Only active for:		Dig Input5=HIGH (local setting)						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Rate of Change of Frequency (RoCoF)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.090	RoCoF	Enable Function		on	on / off		on / off	
.091	RoCoF off	$RoCoF_{THR}$ OFF	mHz/s	1000	1000	2000	100	5000
.092	RoCoF on	$RoCoF_{THR}$ ON	mHz/s	800	100	2000	100	5000
.093	RoCoF t	Time OFF	ms	0	0	0	0	5000
.111	RoCoF wnd	Window length	ms	Fixed window length 100ms				

Phase Shift (PShift)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.094	PShift	Enable Function		off	on / off		on / off	
.095	PShift off	PShift $_{THR}$ OFF	°	7	7	7	3	15
.096	PShift on	PShift $_{THR}$ ON	°	5	3	7	3	15
		Time OFF	ms	Fixed to the fastest possible disconnection				
.112	PShift wnd	Window length	ms	Fixed window length 100ms				
Comment:		PShift off has a fixed offset of 1° subtracted from the displayed value						

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	Contact t	Time OFF	ms	300	100	300	10	5000
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	T on delay	Turn on time	s	60	60	60	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	off
Undervoltage LL (UΔ)	off
Overvoltage LN (UY)	off
Undervoltage LN (UY)	off
10-min overvoltage (Ū)	off
Overfrequency (f)	off
Underfrequency (f)	off
RoCoF (Rate of Change of Frequency) (Δf)	off
Phase shift (ΔΦ)	off
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

31. C10-11:2019 HV-ASS [ID 652] Automatic Separation System / High Voltage

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	3-wire	3-wire	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	57.5	230.0	28.8	241.4
		Unom Δ	V	400.0	100.0	400.0	50.0	420.0

Functional Safety		Conformity Range	Possible Range
ID	Default		
.007	Errtol	Fixed to 1ch	
Remark:	1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.011	U LL > off	U_{THR} OFF	%Unom	115	100	120	100	135
.012	U LL > on	U_{THR} ON	%Unom	109	100	120	100	135
.013	T U LL >	Time OFF	ms	100	100	100000	100	100000
Comment:	U LL > off has a fixed offset of 0.25% U_{NOM} subtracted from the displayed value							
Only active for:	Connection Modes: 3-wire, 4-wire (LN+LL)							

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.015	U LL < off	U_{THR} OFF	%Unom	80	20	100	0	100
.016	U LL < on	U_{THR} ON	%Unom	90	50	100	0	100
.017	T U LL <	Time OFF	ms	100	100	100000	100	10000
Comment:	U LL < off has a fixed offset of 0.25% U_{NOM} added to the displayed value							
Only active for:	Connection Modes: 3-wire, 4-wire (LN+LL)							

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	Uavg	Enable function		on	on		on /off	
.043	Uavg off	U_{THR} OFF	%Unom	110	100	115	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (1% U_{NOM})				
		Time OFF	ms	Fixed to fastest possible disconnection				

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	Hz	51.50	50.00	52.00	50.00	55.00
.056	f > on	f_{THR} ON	Hz	50.10	50.00	52.00	50.00	55.00
.057	T f >	Time OFF	ms	100	100	100000	100	100000
Comment:	f > off has a fixed offset of 0.01 Hz subtracted to the displayed value							
Only active for:	Voltage > 20% U_{NOM}							

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	47.50	47.00	50.00	40.00	50.00
.060	f < on	f_{THR} ON	Hz	49.90	47.00	50.00	40.00	50.00
.061	T f <	Time OFF	ms	100	100	100000	100	100000
Comment:	f < off has a fixed offset of 0.01 Hz added to the displayed value							
Only active for:	Voltage > 20% U_{NOM}							

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Rate of Change of Frequency (RoCoF)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.090	RoCoF	Enable Function		off	on / off		on / off	
.091	RoCoF off	$RoCoF_{THR}$ OFF	mHz/s	1000	1000	1000	100	2000
.092	RoCoF on	$RoCoF_{THR}$ ON	mHz/s	800	100	1000	100	1000
.093	RoCoF t	Time OFF	ms	0	0	0	0	1000
.111	RoCoF wnd	Window length	ms	Fixed window length 100ms				

Phase Shift (PShift)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.094	PShift	Enable Function		on	on / off		on / off	
.095	PShift off	$PShift_{THR}$ OFF	°	7	7	7	3	15
.096	PShift on	$PShift_{THR}$ ON	°	5	3	7	3	15
		Time OFF	ms	Fixed to the fastest possible disconnection				
.112	PShift wnd	Window length	ms	Fixed window length 100ms				
Comment:		PShift off has a fixed offset of 1° subtracted from the displayed value						

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	Contact t	Time OFF	ms	300	100	300	10	5000
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	60	60	60	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	off
Undervoltage LL (UΔ)	off
Overvoltage LN (UY)	off
Undervoltage LN (UY)	off
10-min overvoltage (Ū)	off
Overfrequency (f)	off
Underfrequency (f)	off
RoCoF (Rate of Change of Frequency) (Δf)	off
Phase shift (ΔΦ)	off
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

32. NA/EEA- CH 2014 [ID 1200] Low Voltage Type A up to 1MW

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire (LN+LL)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	230.0	230.0	28.8	241.4
		Unom Δ	V	400.0	400.0	400.0	50.0	420.0

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	Fixed to 2ch		
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.010	ULL >	Enable function		off	on / off		on /off	
.011	ULL > off	U_{THR} OFF	%Unom	110	100	115	100	135
.012	ULL > on	U_{THR} ON	%Unom	110	100	110	100	135
.013	T ULL >	Time OFF	ms	60000	50	180000	50	180000
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						
Comment:		ULL > on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.015	ULL < off	U_{THR} OFF	%Unom	80	10	100	10	100
.016	ULL < on	U_{THR} ON	%Unom	90	90	100	10	100
.017	T ULL <	Time OFF	ms	100	50	180000	50	180000
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						
Comment:		ULL < on has a fixed offset of 0.5% U_{NOM} added to the displayed value						

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.018	ULN >	Enable function		off	on / off		on /off	
.019	ULN > off	U_{THR} OFF	%Unom	110	100	115	100	135
.020	ULN > on	U_{THR} ON	%Unom	110	100	110	100	135
.021	T ULN >	Time OFF	ms	60000	50	180000	50	180000
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						
Comment:		ULN > on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	ULN < off	U_{THR} OFF	%Unom	80	10	100	10	100
.024	ULN < on	U_{THR} ON	%Unom	90	90	100	10	100
.025	T ULN <	Time OFF	ms	100	50	180000	50	180000
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						
Comment:		ULN < on has a fixed offset of 0.5% U_{NOM} added to the displayed value						

Overvoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.027	ULL >> off	U_{THR} OFF	%Unom	115	100	125	100	135
.028	ULL >> on	U_{THR} ON	%Unom	110	100	110	100	135
.029	T ULL >>	Time OFF	ms	100	50	180000	50	180000
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						
Comment:		ULL >> on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						

Overvoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.035	ULN >> off	U_{THR} OFF	%Unom	115	100	125	100	135
.036	ULN >> on	U_{THR} ON	%Unom	110	100	110	100	135
.037	T ULN >>	Time OFF	ms	100	50	180000	50	180000
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						
Comment:		ULN >> on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	U10min	Enable function		on	on/off		on /off	
.043	U10min off	U_{THR} OFF	%Unom	110	110	115	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (0.9% U_{NOM})				
		Time OFF	ms	Fixed to fastest possible disconnection				

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	Hz	51.50	50.00	53.00	50.00	55.00
.056	f > on	f_{THR} ON	Hz	50.05	50.00	50.05	50.00	55.00
.057	T f >	Time OFF	ms	50	50	50	50	180000
Comment:		f > on has a fixed offset of 0.01 Hz subtracted to the displayed value						

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	47.50	47.00	50.00	45.00	50.00
.060	f < on	f_{THR} ON	Hz	47.50	47.50	50.00	45.00	50.00
.061	T f <	Time OFF	ms	50	50	50	50	180000
Comment:		f < on has a fixed offset of 0.01 Hz added to the displayed value						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	120	0	1800	0	1800

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	on
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

33. NA/EEA-NE7 - CH 2020 [ID 1220] Low Voltage Type A > 800W to ≤ 250kW

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire (LN+LL)	4-wire (LN+LL)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	230.0	230.0	28.8	241.4
		Unom Δ	V	400.0	400.0	400.0	50.0	420.0

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	Fixed to 2ch		
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.010	ULL >	Enable function		off	on / off		on /off	
.011	ULL > off	U_{THR} OFF	%Unom	110	100	115	100	135
.012	ULL > on	U_{THR} ON	%Unom	110	100	110	100	135
.013	T ULL >	Time OFF	ms	60000	50	180000	50	180000
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						
Comment:		ULL > on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.015	ULL < off	U_{THR} OFF	%Unom	80	10	100	10	100
.016	ULL < on	U_{THR} ON	%Unom	85	85	100	10	100
.017	T ULL <	Time OFF	ms	1500	50	10000	50	180000
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						
Comment:		ULL > on has a fixed offset of 0.5% U_{NOM} added to the displayed value						

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.018	ULN >	Enable function		off	on / off		on /off	
.019	ULN > off	U_{THR} OFF	%Unom	110	100	115	100	135
.020	ULN > on	U_{THR} ON	%Unom	110	100	110	100	135
.021	T ULN >	Time OFF	ms	60000	50	180000	50	180000
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						
Comment:		ULN > on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	ULN < off	U_{THR} OFF	%Unom	80	10	100	10	100
.024	ULN < on	U_{THR} ON	%Unom	85	85	100	10	100
.025	T ULN <	Time OFF	ms	1500	50	10000	50	180000
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						
Comment:		ULN > on has a fixed offset of 0.5% U_{NOM} added to the displayed value						

Overvoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.027	ULL >> off	U_{THR} OFF	%Unom	120	100	125	100	135
.028	ULL >> on	U_{THR} ON	%Unom	110	100	110	100	135
.029	T ULL >>	Time OFF	ms	100	50	1000	50	180000
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						
Comment:		ULL >> on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						

Undervoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.031	ULL << off	U_{THR} OFF	%Unom	45	10	100	10	100
.032	ULL << on	U_{THR} ON	%Unom	85	85	100	10	100
.033	T ULL <<	Time OFF	ms	300	50	1000	50	180000
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						
Comment:		ULL << on has a fixed offset of 0.5% U_{NOM} added to the displayed value						

Overvoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.035	ULN >> off	U_{THR} OFF	%Unom	120	100	125	100	135
.036	ULN >> on	U_{THR} ON	%Unom	110	100	110	100	135
.037	T ULN >>	Time OFF	ms	100	50	1000	50	180000
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						
Comment:		ULN >> on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.039	ULN << off	U_{THR} OFF	%Unom	45	10	100	10	100
.040	ULN << on	U_{THR} ON	%Unom	85	85	100	10	100
.041	T ULN <<	Time OFF	ms	300	50	1000	50	180000
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						
Comment:		ULN << on has a fixed offset of 0.5% U_{NOM} added to the displayed value						

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	U10min	Enable function		On	on/off		on /off	
.043	U10min off	U_{THR} OFF	%Unom	110	110	115	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (0.9% U_{NOM})				
		Time OFF	ms	Fixed to fastest possible disconnection				

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	Hz	51.50	50.00	53.00	50.00	55.00
.056	f > on	f_{THR} ON	Hz	50.1	50.00	50.1	50.00	55.00
.057	T f >	Time OFF	ms	50	50	50	50	180000
Comment:		f < on has a fixed offset of 0.01 Hz added to the displayed value						

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	47.50	47.00	50.00	45.00	50.00
.060	f < on	f_{THR} ON	Hz	47.50	47.50	50.00	45.00	50.00
.061	T f <	Time OFF	ms	50	50	50	50	180000
Comment:		f < on has a fixed offset of 0.01 Hz added to the displayed value						

Rate of Change of Frequency (RoCoF)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.090	RoCoF	Enable Function		off	on / off		on / off	
.091	RoCoF off	$RoCoF_{THR}$ OFF	mHz/s	2000	2000	2000	100	5000
.092	RoCoF on	$RoCoF_{THR}$ ON	mHz/s	1900	100	1900	100	5000
.093	RoCoF t	Time OFF	ms	0	0	500	0	10000
.111	RoCoF wnd	Window length	ms	Fixed window length 500ms				

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	60	60	1800	0	1800

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	on
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

34. NA/EEA-NE7 - CH 2020 [ID 1221] Low Voltage Type B > 250kW to ≤ 36MW

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire (LN+LL)	4-wire (LN+LL)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	230.0	230.0	28.8	241.4
		Unom Δ	V	400.0	400.0	400.0	50.0	420.0

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	Fixed to 2ch		
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.010	ULL >	Enable function		off	on / off		on /off	
.011	ULL > off	U_{THR} OFF	%Unom	110	100	115	100	135
.012	ULL > on	U_{THR} ON	%Unom	110	100	110	100	135
.013	T ULL >	Time OFF	ms	60000	50	180000	50	180000
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						
Comment:		ULL > on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.015	ULL < off	U_{THR} OFF	%Unom	80	10	100	10	100
.016	ULL < on	U_{THR} ON	%Unom	85	85	100	10	100
.017	T ULL <	Time OFF	ms	1000	50	10000	50	180000
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						
Comment:		ULL > on has a fixed offset of 0.5% U_{NOM} added to the displayed value						

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.018	ULN >	Enable function		off	on / off		on /off	
.019	ULN > off	U_{THR} OFF	%Unom	110	100	115	100	135
.020	ULN > on	U_{THR} ON	%Unom	110	100	110	100	135
.021	T ULN >	Time OFF	ms	60000	50	180000	50	180000
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						
Comment:		ULN > on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	ULN < off	U_{THR} OFF	%Unom	80	10	100	10	100
.024	ULN < on	U_{THR} ON	%Unom	85	85	100	10	100
.025	T ULN <	Time OFF	ms	1000	50	10000	50	180000
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						
Comment:		ULN > on has a fixed offset of 0.5% U_{NOM} added to the displayed value						

Overvoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.027	ULL >> off	U_{THR} OFF	%Unom	120	100	125	100	135
.028	ULL >> on	U_{THR} ON	%Unom	11010	100	110	100	135
.029	T ULL >>	Time OFF	ms	100	50	1000	50	180000
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						
Comment:		ULL >> on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						

Undervoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.031	ULL << off	U_{THR} OFF	%Unom	45	10	100	10	100
.032	ULL << on	U_{THR} ON	%Unom	85	85	100	10	100
.033	T ULL <<	Time OFF	ms	300	50	1000	50	180000
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						
Comment:		ULL << on has a fixed offset of 0.5% U_{NOM} added to the displayed value						

Overvoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.035	ULN >> off	U_{THR} OFF	%Unom	120	100	125	100	135
.036	ULN >> on	U_{THR} ON	%Unom	11010	100	110	100	135
.037	T ULN >>	Time OFF	ms	100	50	1000	50	180000
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						
Comment:		ULN >> on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.039	ULN << off	U_{THR} OFF	%Unom	45	10	100	10	100
.040	ULN << on	U_{THR} ON	%Unom	85	85	100	10	100
.041	T ULN <<	Time OFF	ms	300	50	1000	50	180000
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						
Comment:		ULN << on has a fixed offset of 0.5% U_{NOM} added to the displayed value						

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	U10min	Enable function		On	on/off		on /off	
.043	U10min off	U_{THR} OFF	%Unom	110	110	115	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (0.9% U_{NOM})				
		Time OFF	ms	Fixed to fastest possible disconnection				

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	Hz	51.50	50.00	53.00	50.00	55.00
.056	f > on	f_{THR} ON	Hz	50.1	50.00	50.1	50.00	55.00
.057	T f >	Time OFF	ms	50	50	50	50	180000
Comment:		f < on has a fixed offset of 0.01 Hz added to the displayed value						

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	47.50	47.00	50.00	45.00	50.00
.060	f < on	f_{THR} ON	Hz	47.50	47.50	50.00	45.00	50.00
.061	T f <	Time OFF	ms	50	50	50	50	180000
Comment:		f < on has a fixed offset of 0.01 Hz added to the displayed value						

Rate of Change of Frequency (RoCoF)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.090	RoCoF	Enable Function		off	on / off		on / off	
.091	RoCoF off	$RoCoF_{THR}$ OFF	mHz/s	2000	2000	2000	100	5000
.092	RoCoF on	$RoCoF_{THR}$ ON	mHz/s	1900	100	1900	100	5000
.093	RoCoF t	Time OFF	ms	0	0	500	0	10000
.111	RoCoF wnd	Window length	ms	Fixed window length 500ms				

Frequency measuring in general				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms			

Auxiliary Contact type				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)	n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)	n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	600	60	1800	0	1800

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	on
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

35. EN50549-1:2019 LV Netherlands [ID 901]

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire (LN+LL)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	57.5	230.0	100.0	230.0
		Unom Δ	V	400.0	100.0	400.0	50.0	400.0

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	Fixed to 2ch		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.010	ULL >	Enable Function		on	on/off		on/off	
.011	ULL > off	U_{THR} OFF	%Unom	110	100	120	100	135
.012	ULL > on	U_{THR} ON	%Unom	109	100	120	100	135
.013	T ULL >	Time OFF	ms	200	100	100000	100	300000
Comment:		ULL > on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
,014	ULL <	Enable Function		on	on/off		on/off	
.015	ULL < off	U_{THR} OFF	%Unom	80	20	100	10	100
.016	ULL < on	U_{THR} ON	%Unom	85	50	100	10	100
.017	T ULL <	Time OFF	ms	3000	100	100000	100	3000000
Comment:		ULL < on has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.018	ULN >	Enable Function		on	on/off		on/off	
.019	ULN > off	U_{THR} OFF	%Unom	110	100	120	100	135
.020	ULN > on	U_{THR} ON	%Unom	109	100	120	100	135
.021	T ULN >	Time OFF	ms	200	100	100000	100	300000
Comment:		ULN > on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.022	ULN <	Enable Function		on		on/off		on/off
.023	ULN < off	U_{THR} OFF	%Unom	80	20	100	10	100
.024	ULN < on	U_{THR} ON	%Unom	85	50	100	10	100
.025	T LN <	Time OFF	ms	3000	100	100000	0	300000
Comment:		ULN < off has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						

Overvoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.026	ULL >>	Enable Function		on	on/off		on/off	
.027	ULL >> off	U_{THR} OFF	%Unom	120	100	120	100	135
.028	ULL >> on	U_{THR} ON	%Unom	109	100	120	100	135
.029	T ULL >	Time OFF	ms	100	100	5000	100	300000
Comment:		ULL >> on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage2 Line to Line					*Conformity Range*		*Possible Range*	
ID				*Default*	*Min*	*Max*	*Min*	*Max*
,030	ULL <<	Enable Function		on	on/off		on/off	
.031	ULL << off	U_{THR} OFF	%Unom	30	20	100	10	100
.032	ULL << on	U_{THR} ON	%Unom	85	50	100	10	100
.033	T ULL <<	Time OFF	ms	100	100	5000	100	3000000
Comment:		ULL << on has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.034	ULN>>	Enable Function		on	on/off		on/off	
.035	ULN>> off	U_{THR} OFF	%Unom	120	100	130	100	135
.036	ULN>> on	U_{THR} ON	%Unom	109	100	120	100	135
.037	T ULN>>	Time OFF	ms	100	100	5000	100	300000
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		U LN > off has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.038	ULN<<	Enable Function		on	on/off		on/off	
.039	ULN<< off	U_{THR} OFF	%Unom	30	20	100	10	100
.040	ULN<< on	U_{THR} ON	%Unom	85	50	100	10	100
.041	T ULN<<	Time OFF	ms	100	100	5000	100	300000
Comment:		U LN < off has a fixed offset of 0.25% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	Uavg	Enable function		on	on / off		on /off	
.043	Uavg off	U_{THR} OFF	%Unom	110	100	115	100	135
.044	Uavg on	U_{THR} ON	%Unom	109	100	115	100	135
		Time OFF	ms	Fixed to fastest possible disconnection				

Zero Voltage Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.115	Uzero >	Enable Function		off	on/off		on/off	
.116	Uzero> off	U_{THR} OFF	%Unom	20	1	100	1	100
.117	Uzero> on	U_{THR} ON	%Unom	15	1	100	1	100
.118	T Uzero >	Time OFF	ms	1500	200	100000	0	300000
Only active for:		Connection Modes: 4-wire (LN+LL)						

Residual Voltage (3 x Zero Voltage) Line to Neutral Activation of a narrower frequency window					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.119	Ures-anfw>	Enable Function		off	on/off		on/off	
.120	U res > on	U_{THR} OFF	%Unom	5	2	20	2	200
.121	U res > off	U_{THR} ON	%Unom	3	1	20	1	100
.122	T Ures >	Time OFF	ms	200	0	240000	0	240000
Only active for:		Connection Modes: 4-wire (LN+LL)						

Undervoltage Line to Neutral Activation of a narrower frequency window					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.123	Uanfw <	Enable Function		off	on/off		on/off	
.124	Uanfw< on	U_{THR} OFF	%Unom	85	21	100	2	100
.125	Uanfw< off	U_{THR} ON	%Unom	86	21	100	2	100
.126	T Uanfw <	Time OFF	ms	0	0	240000	0	240000
Only active for:		Connection Modes: 4-wire (LN+LL)						

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.054	f >	Enable Function		on	on		on/off	
.055	f > off	f_{THR} OFF	Hz	51.50	50.00	52.00	50.00	55.00
.056	f > on	f_{THR} ON	Hz	50.10	50.00	52.00	50.00	55.00
.057	T f >	Time OFF	ms	100	100	100000	100	300000
Comment:		f > on has a fixed offset of 0.01 Hz subtracted to the displayed value						
Only active for:		Voltage > 20% U_{NOM}						

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.058	f <	Enable Function		on	on		on/off	
.059	f < off	f_{THR} OFF	Hz	47.50	47.00	50.00	45.00	50.00
.060	f < on	f_{THR} ON	Hz	48.50	47.00	50.00	45.00	50.00
.061	T f <	Time OFF	ms	100	100	100000	100	300000
Comment:		f < on has a fixed offset of 0.01 Hz added to the displayed value						
Only active for:		Voltage > 20% U_{NOM}						

Overfrequency nw (narrower window)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.062	f nw >	Enable Function		off	on/off		on/off	
.063	f nw > off	f_{THR} OFF	Hz	50.30	50.00	52.00	50.00	55.00
.064	f nw > on	f_{THR} ON	Hz	50.10	50.00	52.00	50.00	55.00
.065	T f nw >	Time OFF	ms	500	100	5000	100	300000
Comment:		f nw > off has a fixed offset of 0.01 Hz subtracted to the displayed value						
Only active for:		Ures-anfw, Uanfw, Dig Input5=HIGH (local setting)						

Underfrequency nw (narrower window)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.066	f nw <	Enable Function		off	on/off		on/off	
.067	f nw < off	f_{THR} OFF	Hz	49.70	47.00	50.00	45.00	50.00
.068	f nw < on	f_{THR} ON	Hz	49.80	47.00	50.00	45.00	50.00
.069	T f nw <	Time OFF	ms	500	100	5000	100	300000
Comment:		f nw < off has a fixed offset of 0.01 Hz added to the displayed value						
Only active for:		Ures-anfw, Uanfw, Dig Input5=HIGH (local setting)						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Rate of Change of Frequency (RoCoF)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.090	ROCOF	Enable Function		off	on / off		on / off	
.091	ROCOF off	$RoCoF_{THR}$ OFF	mHz/s	1000	200	9990	100	9990
.092	ROCOF on	$RoCoF_{THR}$ ON	mHz/s	800	100	9990	100	9990
.093	ROCOF t	Time OFF	ms	0	0	5000	0	5000
.111	RoCoF wnd	Window length	ms	Fixed window length 100ms				

Phase Shift (PShift)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.094	PShift	Enable Function		off	on / off		on / off	
.095	PShift off	$PShift_{THR}$ OFF	°	7	2	15	2	15
.096	PShift on	$PShift_{THR}$ ON	°	5	1	15	1	15
		Time OFF	ms	Fixed to the fastest possible disconnection				
.112	PShift wnd	Window length	ms	Fixed window length 100ms				
Comment:		PShift off has a fixed offset of 1° subtracted from the displayed value						

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	Contact t	Time OFF	ms	500				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	T on delay	Turn on time	s	60	10	600	10	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	off
Undervoltage LL (UΔ)	off
Overvoltage LN (UY)	off
Undervoltage LN (UY)	off
10-min overvoltage (Ū)	off
Overfrequency (f)	off
Underfrequency (f)	off
RoCoF (Rate of Change of Frequency) (Δf)	off
Phase shift (ΔΦ)	off
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

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Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire (LN+LL)	3-wire, 4-wire (LN), 4-wire (LN+LL)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	57.5	230.0	100.0	240.0
		Unom Δ	V	400.0	100.0	400.0	50.0	420.0

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	Fixed to 2ch		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.010	ULL >	Enable Function		on	on/off		on/off	
.011	ULL > off	U_{THR} OFF	%Unom	110	100	120	100	135
.012	ULL > on	U_{THR} ON	%Unom	109	100	120	100	135
.013	T ULL >	Time OFF	ms	200	100	100000	100	300000
Comment:		ULL > on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
,014	ULL <	Enable Function		on	on/off		on/off	
.015	ULL < off	U_{THR} OFF	%Unom	80	20	100	10	100
.016	ULL < on	U_{THR} ON	%Unom	90	50	100	10	100
.017	T ULL <	Time OFF	ms	3000	100	100000	100	3000000
Comment:		ULL < on has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.018	ULN >	Enable Function		on	on/off		on/off	
.019	ULN > off	U_{THR} OFF	%Unom	110	100	120	100	135
.020	ULN > on	U_{THR} ON	%Unom	109	100	120	100	135
.021	T ULN >	Time OFF	ms	200	100	100000	100	300000
Comment:		ULN > on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.022	ULN <	Enable Function		on	on/off		on/off	
.023	ULN < off	U_{THR} OFF	%Unom	80	20	100	10	100
.024	ULN < on	U_{THR} ON	%Unom	90	50	100	10	100
.025	T LN <	Time OFF	ms	3000	100	100000	0	300000
Comment:		ULN < off has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						

Overvoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.026	ULL >>	Enable Function		on	on/off		on/off	
.027	ULL >> off	U_{THR} OFF	%Unom	120	100	120	100	135
.028	ULL >> on	U_{THR} ON	%Unom	109	100	120	100	135
.029	T ULL >	Time OFF	ms	100	100	5000	100	300000
Comment:		ULL >> on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage2 Line to Line					*Conformity Range*		*Possible Range*	
ID				*Default*	*Min*	*Max*	*Min*	*Max*
,030	ULL <<	Enable Function		on	on/off		on/off	
.031	ULL << off	U_{THR} OFF	%Unom	30	20	100	10	100
.032	ULL << on	U_{THR} ON	%Unom	90	50	100	10	100
.033	T ULL <<	Time OFF	ms	100	100	5000	100	3000000
Comment:		ULL << on has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.034	ULN>>	Enable Function		on	on/off		on/off	
.035	ULN>> off	U_{THR} OFF	%Unom	120	100	130	100	135
.036	ULN>> on	U_{THR} ON	%Unom	109	100	120	100	135
.037	T ULN>>	Time OFF	ms	100	100	5000	100	300000
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		U LN > off has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.038	ULN<<	Enable Function		on	on/off		on/off	
.039	ULN<< off	U_{THR} OFF	%Unom	30	20	100	10	100
.040	ULN<< on	U_{THR} ON	%Unom	90	50	100	10	100
.041	T ULN<<	Time OFF	ms	100	100	5000	100	300000
Comment:		U LN < off has a fixed offset of 0.25% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	Uavg	Enable function		on	on / off		on /off	
.043	Uavg off	U_{THR} OFF	%Unom	110	100	115	100	135
.044	Uavg on	U_{THR} ON	%Unom	109	100	115	100	135
		Time OFF	ms	Fixed to fastest possible disconnection				

Zero Voltage Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.115	Uzero >	Enable Function		off	on/off		on/off	
.116	Uzero> off	U_{THR} OFF	%Unom	20	1	100	1	100
.117	Uzero> on	U_{THR} ON	%Unom	15	1	100	1	100
.118	T Uzero >	Time OFF	ms	1500	200	100000	0	300000
Only active for:		Connection Modes: 4-wire (LN+LL)						

Residual Voltage (3 x Zero Voltage) Line to Neutral Activation of a narrower frequency window					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.119	Ures-anfw>	Enable Function		off	on/off		on/off	
.120	U res > on	U_{THR} OFF	%Unom	5	2	20	2	200
.121	U res > off	U_{THR} ON	%Unom	3	1	20	1	100
.122	T Ures >	Time OFF	ms	200	0	240000	0	240000
Only active for:		Connection Modes: 4-wire (LN+LL)						

Undervoltage Line to Neutral Activation of a narrower frequency window					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.123	Uanfw <	Enable Function		off	on/off		on/off	
.124	Uanfw< on	U_{THR} OFF	%Unom	85	21	100	2	100
.125	Uanfw< off	U_{THR} ON	%Unom	86	21	100	2	100
.126	T Uanfw <	Time OFF	ms	0	0	240000	0	240000
Only active for:		Connection Modes: 4-wire (LN+LL)						

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.054	f >	Enable Function		on	on		on/off	
.055	f > off	f_{THR} OFF	Hz	51.50	50.00	52.00	50.00	55.00
.056	f > on	f_{THR} ON	Hz	50.10	50.00	52.00	50.00	55.00
.057	T f >	Time OFF	ms	100	100	100000	100	300000
Comment:		f > on has a fixed offset of 0.01 Hz subtracted to the displayed value						
Only active for:		Voltage > 20% U_{NOM}						

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.058	f <	Enable Function		on	on		on/off	
.059	f < off	f_{THR} OFF	Hz	47.50	47.00	50.00	45.00	50.00
.060	f < on	f_{THR} ON	Hz	48.50	47.00	50.00	45.00	50.00
.061	T f <	Time OFF	ms	100	100	100000	100	300000
Comment:		f < on has a fixed offset of 0.01 Hz added to the displayed value						
Only active for:		Voltage > 20% U_{NOM}						

Overfrequency nw (narrower window)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.062	f nw >	Enable Function		off	on/off		on/off	
.063	f nw > off	f_{THR} OFF	Hz	50.30	50.00	52.00	50.00	55.00
.064	f nw > on	f_{THR} ON	Hz	50.10	50.00	52.00	50.00	55.00
.065	T f nw >	Time OFF	ms	500	100	5000	100	300000
Comment:		f nw > off has a fixed offset of 0.01 Hz subtracted to the displayed value						
Only active for:		Ures-anfw, Uanfw, Dig Input5=HIGH (local setting)						

Underfrequency nw (narrower window)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.066	f nw <	Enable Function		off	on/off		on/off	
.067	f nw < off	f_{THR} OFF	Hz	49.70	47.00	50.00	45.00	50.00
.068	f nw < on	f_{THR} ON	Hz	49.80	47.00	50.00	45.00	50.00
.069	T f nw <	Time OFF	ms	500	100	5000	100	300000
Comment:		f nw < off has a fixed offset of 0.01 Hz added to the displayed value						
Only active for:		Ures-anfw, Uanfw, Dig Input5=HIGH (local setting)						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Rate of Change of Frequency (RoCoF)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.090	ROCOF	Enable Function		off	on / off		on / off	
.091	ROCOF off	$RoCoF_{THR}$ OFF	mHz/s	1000	200	9990	100	9990
.092	ROCOF on	$RoCoF_{THR}$ ON	mHz/s	800	100	9990	100	9990
.093	ROCOF t	Time OFF	ms	0	0	5000	0	5000
.111	RoCoF wnd	Window length	ms	Fixed window length 100ms				

Phase Shift (PShift)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.094	PShift	Enable Function		off	on / off		on / off	
.095	PShift off	$PShift_{THR}$ OFF	°	7	2	15	2	15
.096	PShift on	$PShift_{THR}$ ON	°	5	1	15	1	15
		Time OFF	ms	Fixed to the fastest possible disconnection				
.112	PShift wnd	Window length	ms	Fixed window length 100ms				
Comment:		PShift off has a fixed offset of 1° subtracted from the displayed value						

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	Contact t	Time OFF	ms	500				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	T on delay	Turn on time	s	60	10	600	10	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	off
Undervoltage LL (UΔ)	off
Overvoltage LN (UY)	off
Undervoltage LN (UY)	off
10-min overvoltage (Ū)	off
Overfrequency (f)	off
Underfrequency (f)	off
RoCoF (Rate of Change of Frequency) (Δf)	off
Phase shift (ΔΦ)	off
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

37. EN50549-1:2019 LV Ireland [ID 905]

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire LL+LN	2-wire LN - 4-wire LL+LN	2-wire LN - 4-wire LL+LN

Nominal Voltage				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y Unom Δ	230,00V /400,00V	57,50V /100,00V	230,00V /400,00V	28,75V /50,00V	241,50V /420,00V

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	2ch	2ch, 1ch	2ch, 1ch
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary 1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.010	ULL >	Enable function		on	on / off		on /off	
.011	ULL > off	U_{THR} OFF	%Unom /VUnom	117,00% (468,00V)	100,00% (400,00V)	120,00% (480,00V)	100,00% (400,00V)	135,00% (540,00V)
.012	ULL > on	U_{THR} ON	%Unom /VUnom	109,00% (436,00V)	100,00% (400,00V)	120,00% (480,00V)	100,00% (400,00V)	135,00% (540,00V)
.013	T ULL >	Time OFF		70000 ms	100 ms	100000 ms	100 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.014	ULL <	Enable function		on	on / off		on /off	
.015	ULL < off	U_{THR} OFF	%Unom /VUnom	83,00% (332,00V)	20,00% (80,00V)	100,00% (400,00V)	10,00% (40,00V)	100,00% (400,00V)
.016	ULL < on	U_{THR} ON	%Unom /VUnom	85,00% (340,00V)	50,00% (200,00V)	100,00% (400,00V)	10,00% (40,00V)	100,00% (400,00V)
.017	T ULL <	Time OFF		700 ms	100 ms	100000 ms	100 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.018	ULN >	Enable function		on	on / off		on /off	
.019	ULN > off	U_{THR} OFF	%Unom /VUnom	117,00% (269,10V)	100,00% (230,00V)	120,00% (276,00V)	100,00% (230,00V)	135,00% (310,50V)
.020	ULN > on	U_{THR} ON	%Unom /VUnom	109,00% (250,70V)	100,00% (230,00V)	120,00% (276,00V)	100,00% (230,00V)	135,00% (310,50V)
.021	T ULN >	Time OFF		70000 ms	100 ms	100000 ms	100 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.022	ULN <	Enable function		on	on / off		on /off	
.023	ULN < off	U_{THR} OFF	%Unom /VUnom	83,00% (190,90V)	20,00% (46,00V)	100,00% (230,00V)	10,00% (23,00V)	100,00% (230,00V)
.024	ULN < on	U_{THR} ON	%Unom /VUnom	85,00% (195,50V)	50,00% (115,00V)	100,00% (230,00V)	10,00% (23,00V)	100,00% (230,00V)
.025	T ULN <	Time OFF		700 ms	100 ms	100000 ms	100 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						

Overvoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.026	ULL >>	Enable function		on	on / off		on /off	
.027	ULL >> off	U_{THR} OFF	%Unom /VUnom	122,00% (488,00V)	100,00% (400,00V)	130,00% (520,00V)	100,00% (400,00V)	135,00% (540,00V)
.028	ULL >> on	U_{THR} ON	%Unom /VUnom	109,00% (436,00V)	100,00% (400,00V)	120,00% (480,00V)	100,00% (400,00V)	135,00% (540,00V)
.029	T ULL >>	Time OFF		700 ms	100 ms	5000 ms	100 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.030	ULL <<	Enable function		off	on / off		on /off	
.031	ULL << off	U_{THR} OFF	%Unom /VUnom	30,00% (120,00V)	20,00% (80,00V)	100,00% (400,00V)	10,00% (40,00V)	100,00% (400,00V)
.032	ULL << on	U_{THR} ON	%Unom /VUnom	85,00% (340,00V)	50,00% (200,00V)	100,00% (400,00V)	10,00% (40,00V)	100,00% (400,00V)
.033	T ULL <<	Time OFF		100 ms	100 ms	5000 ms	100 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.034	ULN >>	Enable function		on	on / off		on /off	
.035	ULN >> off	U_{THR} OFF	%Unom /VUnom	122,00% (280,60V)	100,00% (230,00V)	130,00% (299,00V)	100,00% (230,00V)	135,00% (310,50V)
.036	ULN >> on	U_{THR} ON	%Unom /VUnom	109,00% (250,70V)	100,00% (230,00V)	120,00% (276,00V)	100,00% (230,00V)	135,00% (310,50V)
.037	T ULN >>	Time OFF		700 ms	100 ms	5000 ms	100 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.038	ULN <<	Enable function		off	on / off		on /off	
.039	ULN << off	U_{THR} OFF	%Unom /VUnom	30,00% (69,00V)	20,00% (46,00V)	100,00% (230,00V)	10,00% (23,00V)	100,00% (230,00V)
.040	ULN << on	U_{THR} ON	%Unom /VUnom	85,00% (195,50V)	50,00% (115,00V)	100,00% (230,00V)	10,00% (23,00V)	100,00% (230,00V)
.041	T ULN <<	Time OFF		100 ms	100 ms	5000 ms	100 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Zero Voltage Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.115	Uzero >	Enable Function		off	on/off		on/off	
.116	Uzero> off	U_{THR} OFF	%Unom /VUnom	20,00% (46,00V)	1,00% (2,30V)	100,00% (230,00V)	1,00% (2,30V)	100,00% (230,00V)
.117	Uzero> on	U_{THR} ON	%Unom /VUnom	15,00% (34,50V)	1,00% (2,30V)	100,00% (230,00V)	1,00% (2,30V)	100,00% (230,00V)
.118	T Uzero >	Time OFF		1500 ms	200 ms	100000 ms	0 ms	300000 ms
Only active for:		Connection Modes: 4-wire (LN+LL)						

Residual Voltage (3 x Zero Voltage) Line to Neutral Activation of a narrower frequency window					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.119	Ures-anfw>	Enable Function		off	on/off		on/off	
.120	U res > on	U_{THR} OFF	%Unom /VUnom	5,00% (11,50V)	2,00% (4,60V)	20,00% (46,00V)	2,00% (4,60V)	100,00% (230,00V)
.121	Ures > off	U_{THR} ON	%Unom /VUnom	3,00% (6,90V)	1,00% (2,30V)	20,00% (46,00V)	1,00% (2,30V)	100,00% (230,00V)
.122	T Ures >	Time OFF		200 ms	0 ms	240000 ms	0 ms	240000 ms
Only active for:		Connection Modes: 4-wire (LN+LL)						

Undervoltage LN (UY) Activation of a narrower frequency winw					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.123	Uanfw <	Enable Function		off	on/off		on/off	
.124	Uanfw< on	U_{THR} OFF	%Unom /VUnom	85,00% (195,50V)	20,00% (46,00V)	100,00% (230,00V)	1,00% (2,30V)	100,00% (230,00V)
.125	Uanfw< off	U_{THR} ON	%Unom /VUnom	86,00% (197,80V)	21,00% (48,30V)	100,00% (230,00V)	2,00% (4,60V)	100,00% (230,00V)
.126	T Uanfw <	Time OFF		0 ms	0 ms	240000 ms	0 ms	240000 ms
Only active for:		Connection Modes: 4-wire (LN+LL)						

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	Uavg	Enable function		off	on / off		on /off	
.043	Uavg off	U_{THR} OFF	%Unom /VUnom	110,00% (253,00V /440,00V)	100,00% (230,00V /400,00V)	115,00% (264,50V /460,00V)	100,00% (230,00V /400,00V)	135,00% (310,50V /540,00V)
.044	Uavg on	U_{THR} ON	%Unom /VUnom	109,00% (250,70V /436,00V)	100,00% (230,00V /400,00V)	115,00% (264,50V /460,00V)	100,00% (230,00V /400,00V)	135,00% (310,50V /540,00V)

Overfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.054	f >	Enable function	on	on / off		on /off	
.055	f > off	f_{THR} OFF	52,000 Hz	50,000 Hz	52,000 Hz	50,000 Hz	55,000 Hz
.056	f > on	f_{THR} ON	50,100 Hz	50,000 Hz	52,000 Hz	50,000 Hz	55,000 Hz
.057	T f >	Time OFF	500 ms	100 ms	100000 ms	100 ms	300000 ms

Underfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.058	f <	Enable function	on	on / off		on /off	
.059	f < off	f_{THR} OFF	47,000 Hz	47,000 Hz	50,000 Hz	45,000 Hz	50,000 Hz
.060	f < on	f_{THR} ON	48,500 Hz	47,000 Hz	50,000 Hz	45,000 Hz	50,000 Hz
.061	T f <	Time OFF	500 ms	100 ms	100000 ms	100 ms	300000 ms

Overfrequency2				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.062	f nw >	Enable function	off	on / off		on /off	
.063	f nw > off	f_{THR} OFF	50,300 Hz	50,000 Hz	52,000 Hz	50,000 Hz	55,000 Hz
.064	f nw > on	f_{THR} ON	50,100 Hz	50,000 Hz	52,000 Hz	50,000 Hz	55,000 Hz
.065	T f nw >	Time OFF	500 ms	100 ms	5000 ms	100 ms	300000 ms

Underfrequency2				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.066	f nw <	Enable function	off	on / off		on /off	
.067	f nw < off	f_{THR} OFF	49,700 Hz	47,000 Hz	50,000 Hz	45,000 Hz	50,000 Hz
.068	f nw < on	f_{THR} ON	49,800 Hz	47,000 Hz	50,000 Hz	45,000 Hz	50,000 Hz
.069	T f nw <	Time OFF	500 ms	100 ms	5000 ms	100 ms	300000 ms

Frequency measuring in general				Conformity Range			
ID			Default	Min	Max		
.113	F wnd	Window length	100 ms	100 ms	100 ms		

Rate of Change of Frequency (RoCoF)				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.090	ROCOF	Enable Function	on	on / off		on / off	
.091	ROCOF off	$RoCoF_{THR}$ OFF	1000 mHz/s	200 mHz/s	9990 mHz/s	100 mHz/s	9990 mHz/s
.092	ROCOF on	$RoCoF_{THR}$ ON	800 mHz/s	100 mHz/s	9990 mHz/s	100 mHz/s	9990 mHz/s
.093	T ROCOF	Time OFF	0 ms	0 ms	5000 ms	0 ms	5000 ms

Phase Shift (PShift)				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.094	Pshift	Enable Function	off	off		on / off	
.095	Pshift off	$PShift_{THR}$ OFF	7,0 °	2,0 °	15,0 °	2,0 °	15,0 °
.096	Pshift on	$PShift_{THR}$ ON	5,0 °	1,0 °	15,0 °	1,0 °	15,0 °

Auxiliary Contact type				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)	n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	Fixed to 500 ms				
.114	I3 STOP	Type	n.o. (normally opened)	n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.102	T on delay	Turn on time	20 s	10 s	600 s	0 s	900 s

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	off
Undervoltage LL (UΔ)	off
Overvoltage LN (UY)	off
Undervoltage LN (UY)	off
10-min overvoltage (Ū)	off
Overfrequency (f)	off
Underfrequency (f)	off
RoCoF (Rate of Change of Frequency) (Δf)	off
Phase shift (ΔΦ)	off
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	SN: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device Serial Number dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

38. EN50438:2013 DK [ID 950]

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire (LN)	3-wire, 4-wire (LN)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	230.0	230.0	100.0	240.0
		Unom Δ	V	400.0	400.0	400.0	173.9	417.4

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	2ch	2ch, 1ch	2ch, 1ch
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary 1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.011	ULL max 1	U_{THR} OFF	%Unom	110	110	110	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (1% U_{NOM})				
.013	ULL max 1t	Time OFF	ms	39500	39500	39500	50	60000
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.015	ULL min	U_{THR} OFF	%Unom	90	90	90	10	100
		U_{THR} ON	%Unom	Fixed Hysteresis (1% U_{NOM})				
.017	ULL min t	Time OFF	ms	9500	9500	9500	50	60000
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	ULN max 1	U_{THR} OFF	%Unom	110	110	110	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (1% U_{NOM})				
.021	ULN max 1t	Time OFF	ms	39500	39500	39500	50	60000
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	ULN min	U_{THR} OFF	%Unom	90	90	90	10	100
		U_{THR} ON	%Unom	Fixed Hysteresis (1% U_{NOM})				
.025	ULN min t	Time OFF	ms	9500	9500	9500	50	60000
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						

Overvoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.027	ULL max 2	U_{THR} OFF	%Unom	113	113	113	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (1% U_{NOM})				
		Time OFF	ms	Fixed to 100ms				
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.035	ULN max 2	U_{THR} OFF	%Unom	113	113	113	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (1% U_{NOM})				
		Time OFF	ms	Fixed to 100ms				
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	Hz	52.00	52.00	52.00	50.00	55.00
.056	f > on	f_{THR} ON	Hz	50.05	50.05	50.05	50.00	55.00
		Time OFF	ms	Fixed to 150ms				

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	47.50	47.50	47.50	45.00	50.00
.060	f < on	f_{THR} ON	Hz	47.50	47.50	47.50	45.00	50.00
		Time OFF	ms	Fixed to 150ms				
Comment:		f < on has a fixed offset of 0.025 Hz added to the displayed value						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Rate of Change of Frequency (RoCoF)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.090	RoCoF	Enable Function		on	on / off		on / off	
.091	RoCoF off	$RoCoF_{THR}$ OFF	mHz/s	2500	2500	2500	100	3000
.092	RoCoF on	$RoCoF_{THR}$ ON	mHz/s	2300	2300	2300	100	3000
		Time OFF	ms	Fixed to the fastest possible disconnection				
.111	RoCoF wnd	Window length	ms	Fixed window length 200ms				

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	60	60	60	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	off
Undervoltage LL (UΔ)	off
Overvoltage LN (UY)	off
Undervoltage LN (UY)	off
10-min overvoltage (Ū)	off
Overfrequency (f)	off
Underfrequency (f)	off
RoCoF (Rate of Change of Frequency) (Δf)	off
Phase shift (ΔΦ)	off
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	off
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	off

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

39. EN50549-1:2019 LV SRPS (Serbia) [ID 910]

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire LL+LN	2-wire LN - 4-wire LL+LN	2-wire LN - 4-wire LL+LN

Nominal Voltage				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y Unom Δ	230,00V /400,00V	57,50V /100,00V	230,00V /400,00V	28,75V /50,00V	241,50V /420,00V

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	2ch	2ch, 1ch	2ch, 1ch
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary 1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.010	ULL >	Enable function		on	on / off		on /off	
.011	ULL > off	U_{THR} OFF	%Unom /VUnom	110,00% (440,00V)	100,00% (400,00V)	120,00% (480,00V)	100,00% (400,00V)	135,00% (540,00V)
.012	ULL > on	U_{THR} ON	%Unom /VUnom	109,00% (436,00V)	100,00% (400,00V)	120,00% (480,00V)	100,00% (400,00V)	135,00% (540,00V)
.013	T ULL >	Time OFF		200 ms	100 ms	100000 ms	100 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.014	ULL <	Enable function		on	on / off		on / off	
.015	ULL < off	U_{THR} OFF	%Unom /VUnom	85,00% (340,00V)	20,00% (80,00V)	100,00% (400,00V)	10,00% (40,00V)	100,00% (400,00V)
.016	ULL < on	U_{THR} ON	%Unom /VUnom	85,00% (340,00V)	50,00% (200,00V)	100,00% (400,00V)	10,00% (40,00V)	100,00% (400,00V)
.017	T ULL <	Time OFF		3000 ms	100 ms	100000 ms	100 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.018	ULN >	Enable function		on	on / off		on / off	
.019	ULN > off	U_{THR} OFF	%Unom /VUnom	110,00% (253,00V)	100,00% (230,00V)	120,00% (276,00V)	100,00% (230,00V)	135,00% (310,50V)
.020	ULN > on	U_{THR} ON	%Unom /VUnom	109,00% (250,70V)	100,00% (230,00V)	120,00% (276,00V)	100,00% (230,00V)	135,00% (310,50V)
.021	T ULN >	Time OFF		200 ms	100 ms	100000 ms	100 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.022	ULN <	Enable function		on	on / off		on / off	
.023	ULN < off	U_{THR} OFF	%Unom /VUnom	85,00% (195,50V)	20,00% (46,00V)	100,00% (230,00V)	10,00% (23,00V)	100,00% (230,00V)
.024	ULN < on	U_{THR} ON	%Unom /VUnom	85,00% (195,50V)	50,00% (115,00V)	100,00% (230,00V)	10,00% (23,00V)	100,00% (230,00V)
.025	T ULN <	Time OFF		3000 ms	100 ms	100000 ms	100 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						

Overvoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.026	ULL >>	Enable function		off	on / off		on / off	
.027	ULL >> off	U_{THR} OFF	%Unom /VUnom	120,00% (480,00V)	100,00% (400,00V)	130,00% (520,00V)	100,00% (400,00V)	135,00% (540,00V)
.028	ULL >> on	U_{THR} ON	%Unom /VUnom	109,00% (436,00V)	100,00% (400,00V)	120,00% (480,00V)	100,00% (400,00V)	135,00% (540,00V)
.029	T ULL >>	Time OFF		100 ms	100 ms	5000 ms	100 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.030	ULL <<	Enable function		off	on / off		on / off	
.031	ULL << off	U_{THR} OFF	%Unom /VUnom	30,00% (120,00V)	20,00% (80,00V)	100,00% (400,00V)	10,00% (40,00V)	100,00% (400,00V)
.032	ULL << on	U_{THR} ON	%Unom /VUnom	85,00% (340,00V)	50,00% (200,00V)	100,00% (400,00V)	10,00% (40,00V)	100,00% (400,00V)
.033	T ULL <<	Time OFF		100 ms	100 ms	5000 ms	100 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.034	ULN >>	Enable function		off	on / off		on / off	
.035	ULN >> off	U_{THR} OFF	%Unom /VUnom	120,00% (276,00V)	100,00% (230,00V)	130,00% (299,00V)	100,00% (230,00V)	135,00% (310,50V)
.036	ULN >> on	U_{THR} ON	%Unom /VUnom	109,00% (250,70V)	100,00% (230,00V)	120,00% (276,00V)	100,00% (230,00V)	135,00% (310,50V)
.037	T ULN >>	Time OFF		100 ms	100 ms	5000 ms	100 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.038	ULN <<	Enable function		off	on / off		on / off	
.039	ULN << off	U_{THR} OFF	%Unom /VUnom	30,00% (69,00V)	20,00% (46,00V)	100,00% (230,00V)	10,00% (23,00V)	100,00% (230,00V)
.040	ULN << on	U_{THR} ON	%Unom /VUnom	85,00% (195,50V)	50,00% (115,00V)	100,00% (230,00V)	10,00% (23,00V)	100,00% (230,00V)
.041	T ULN <<	Time OFF		100 ms	100 ms	5000 ms	100 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Zero Voltage Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.115	Uzero >	Enable Function		off	on / off		on / off	
.116	Uzero> off	U_{THR} OFF	%Unom /VUnom	20,00% (46,00V)	1,00% (2,30V)	100,00% (230,00V)	1,00% (2,30V)	100,00% (230,00V)
.117	Uzero> on	U_{THR} ON	%Unom /VUnom	15,00% (34,50V)	1,00% (2,30V)	100,00% (230,00V)	1,00% (2,30V)	100,00% (230,00V)
.118	T Uzero >	Time OFF		1500 ms	200 ms	100000 ms	0 ms	300000 ms
Only active for:		Connection Modes: 4-wire (LN+LL)						

Residual Voltage (3 x Zero Voltage) Line to Neutral Activation of a narrower frequency window					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.119	Ures-anfw>	Enable Function		off	on / off		on / off	
.120	U res > on	U_{THR} OFF	%Unom /VUnom	5,00% (11,50V)	2,00% (4,60V)	20,00% (46,00V)	2,00% (4,60V)	100,00% (230,00V)
.121	Ures > off	U_{THR} ON	%Unom /VUnom	3,00% (6,90V)	1,00% (2,30V)	20,00% (46,00V)	1,00% (2,30V)	100,00% (230,00V)
.122	T Ures >	Time OFF		200 ms	0 ms	240000 ms	0 ms	240000 ms
Only active for:		Connection Modes: 4-wire (LN+LL)						

Undervoltage LN (UY) Activation of a narrower frequency winw					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.123	Uanfw <	Enable Function		off	on / off		on / off	
.124	Uanfw< on	U_{THR} OFF	%Unom /VUnom	85,00% (195,50V)	20,00% (46,00V)	100,00% (230,00V)	1,00% (2,30V)	100,00% (230,00V)
.125	Uanfw< off	U_{THR} ON	%Unom /VUnom	86,00% (197,80V)	21,00% (48,30V)	100,00% (230,00V)	2,00% (4,60V)	100,00% (230,00V)
.126	T Uanfw <	Time OFF		0 ms	0 ms	240000 ms	0 ms	240000 ms
Only active for:		Connection Modes: 4-wire (LN+LL)						

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	Uavg	Enable function		off	on / off		on /off	
.043	Uavg off	U_{THR} OFF	%Unom /VUnom	110,00% (253,00V /440,00V)	100,00% (230,00V /400,00V)	115,00% (264,50V /460,00V)	100,00% (230,00V /400,00V)	135,00% (310,50V /540,00V)
.044	Uavg on	U_{THR} ON	%Unom /VUnom	109,00% (250,70V /436,00V)	100,00% (230,00V /400,00V)	115,00% (264,50V /460,00V)	100,00% (230,00V /400,00V)	135,00% (310,50V /540,00V)
.045	Uavg o t	Time OFF		50 ms	200 ms	10000 ms	100 ms	10000 ms

Overfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.054	f >	Enable function	on	on / off		on /off	
.055	f > off	f_{THR} OFF	50,200 Hz	50,000 Hz	52,000 Hz	50,000 Hz	55,000 Hz
.056	f > on	f_{THR} ON	50,100 Hz	50,000 Hz	52,000 Hz	50,000 Hz	55,000 Hz
.057	T f >	Time OFF	100 ms	100 ms	100000 ms	100 ms	300000 ms

Underfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.058	f <	Enable function	on	on / off		on / off	
.059	f < off	f_{THR} OFF	49,500 Hz	47,000 Hz	50,000 Hz	45,000 Hz	50,000 Hz
.060	f < on	f_{THR} ON	49,500 Hz	47,000 Hz	50,000 Hz	45,000 Hz	50,000 Hz
.061	T f <	Time OFF	100 ms	100 ms	100000 ms	100 ms	300000 ms

Overfrequency2				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.062	f nw >	Enable function	off	on / off		on / off	
.063	f nw > off	f_{THR} OFF	50,300 Hz	50,000 Hz	52,000 Hz	50,000 Hz	55,000 Hz
.064	f nw > on	f_{THR} ON	50,100 Hz	50,000 Hz	52,000 Hz	50,000 Hz	55,000 Hz
.065	T f nw >	Time OFF	500 ms	100 ms	5000 ms	100 ms	300000 ms

Underfrequency2				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.066	f nw <	Enable function	off	on / off		on / off	
.067	f nw < off	f_{THR} OFF	49,700 Hz	47,000 Hz	50,000 Hz	45,000 Hz	50,000 Hz
.068	f nw < on	f_{THR} ON	49,800 Hz	47,000 Hz	50,000 Hz	45,000 Hz	50,000 Hz
.069	T f nw <	Time OFF	500 ms	100 ms	5000 ms	100 ms	300000 ms

Frequency measuring in general				Conformity Range			
ID			Default	Min	Max		
.113	F wnd	Window length	100 ms	100 ms	100 ms		

Rate of Change of Frequency (RoCoF)				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.090	ROCOF	Enable Function	off	on / off		on / off	
.091	ROCOF off	$RoCoF_{THR}$ OFF	1000 mHz/s	200 mHz/s	9990 mHz/s	100 mHz/s	9990 mHz/s
.092	ROCOF on	$RoCoF_{THR}$ ON	800 mHz/s	100 mHz/s	9990 mHz/s	100 mHz/s	9990 mHz/s
.093	T ROCOF	Time OFF	0 ms	0 ms	5000 ms	0 ms	5000 ms

Phase Shift (PShift)				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.094	Pshift	Enable Function	off	on / off		on / off	
.095	Pshift off	$PShift_{THR}$ OFF	7,0 °	2,0 °	15,0 °	2,0 °	15,0 °
.096	Pshift on	$PShift_{THR}$ ON	5,0 °	1,0 °	15,0 °	1,0 °	15,0 °

Auxiliary Contact type				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)	n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	Fixed to 500 ms				
.114	I3 STOP	Type	n.o. (normally opened)	n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.102	T on delay	Turn on time	60 s	10 s	600 s	0 s	900 s

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	off
Undervoltage LL (UΔ)	off
Overvoltage LN (UY)	off
Undervoltage LN (UY)	off
10-min overvoltage (Ū)	off
Overfrequency (f)	off
Underfrequency (f)	off
RoCoF (Rate of Change of Frequency) (Δf)	off
Phase shift (ΔΦ)	off
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	SN: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device Serial Number dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

40. VDE 0126-1-1:2013 [ID 200]

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	Fixed to 4-wire (LN+LL)		

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y Unom Δ	V V	Fixed to 230.0 / 400.0				

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	Fixed to 2ch		
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.011	ULLmax off	U_{THR} OFF	%Unom	115	115	115	100	135
.012	ULLmax on	U_{THR} ON	%Unom	110	110	110	100	135
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		ULLmax on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.015	ULLmin off	U_{THR} OFF	% Unom	80	80	80	10	100
.016	ULLmin on	U_{THR} ON	%Unom	85	85	85	10	100
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		ULLmin on has a fixed offset of 0.5% U_{NOM} added to the displayed value						

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	U >> off	U_{THR} OFF	%Unom	115	115	115	100	135
.020	U >> on	U_{THR} ON	%Unom	110	110	110	100	135
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		U >> on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	U < off	U_{THR} OFF	%Unom	80	80	80	10	100
.024	U < on	U_{THR} ON	%Unom	85	85	85	10	100
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		U < on has a fixed offset of 0.5% U_{NOM} added to the displayed value						

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.043	U>	U_{THR} OFF	%Unom	110	110	115	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (0.9% U_{NOM})				
		Time OFF	ms	Fixed to fastest possible disconnection				

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	Hz	51.50	51.50	51.50	50.00	55.00
.056	F > on	f_{THR} ON	Hz	50.05	50.05	50.05	50.00	55.00
		Time OFF	ms	Fixed to fastest possible disconnection				

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	47.50	47.50	47.50	45.00	50.00
.060	f < on	f_{THR} ON	ms	47.50	47.50	47.50	45.00	50.00
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		f < on has a fixed offset of 0.025 Hz added to the displayed value						

Random overfrequency					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.086	f> random	Enable function		off	on / off		on /off	
.087	f> random	f_{THR} OFF	Hz		50.20	51.50	50.20	51.50
		f_{THR} ON	Hz	Fixed reconnection frequency of 50.05Hz				
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		The random f_{THR} OFF threshold is shown in .087 and cannot be edited						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	60	60	60	0	900

Random Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.103	Ton random	Enable function		off	on / off		on / off	
.104	Ton random	Turn on time	s		60	600	60	600
Comment:		The random time value is shown in .104 and cannot be edited						

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	off
Undervoltage LL (UΔ)	off
Overvoltage LN (UY)	off
Undervoltage LN (UY)	off
10-min overvoltage (Ū)	off
Overfrequency (f)	off
Underfrequency (f)	off
RoCoF (Rate of Change of Frequency) (Δf)	off
Phase shift (ΔΦ)	off
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	off
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	off

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

41. Romania ANRE 2021 [ID 1300]

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire LN	4-wire LN	2-wire LN – 4-wire LL+LN

Nominal Voltage				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y Unom Δ	230,00V /400,00V	57,50V /100,00V	230,00V /400,00V	28,75V /50,00V	241,50V /420,00V

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	2ch	2ch, 1ch	2ch, 1ch
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary 1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.018	Ueff >	Enable function		on				
.019	Ueff > off	U_{THR} OFF	%Unom /VUnom	115,00% (264,50V)	100,00% (230,00V)	120,00% (276,00V)	100,00% (230,00V)	135,00% (310,50V)
.020	Ueff > on	U_{THR} ON	%Unom /VUnom	110,00% (253,00V)	100,00% (230,00V)	120,00% (276,00V)	100,00% (230,00V)	135,00% (310,50V)
.021	T Ueff >	Time OFF		500 ms	100 ms	5000 ms	100 ms	180000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.022	0	Enable function		on				
.023	Ueff < off	U_{THR} OFF	%Unom /VUnom	85,00% (195,50V)	20,00% (46,00V)	100,00% (230,00V)	10,00% (23,00V)	100,00% (230,00V)
.024	Ueff < on	U_{THR} ON	%Unom /VUnom	90,00% (207,00V)	50,00% (115,00V)	100,00% (230,00V)	10,00% (23,00V)	100,00% (230,00V)
.025	T Ueff <	Time OFF		3200 ms	100 ms	100000 ms	100 ms	180000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	U10min	Enable function		on	on / off		on /off	
.043	U10min off	U_{THR} OFF	%Unom /VUnom	110,00% (253,00V /440,00V)	100,00% (230,00V /400,00V)	115,00% (264,50V /460,00V)	100,00% (230,00V /400,00V)	135,00% (310,50V /540,00V)

Overfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.054	f oA	Enable function	on				
.055	f > off	f_{THR} OFF	52,000 Hz	50,000 Hz	52,000 Hz	50,000 Hz	55,000 Hz
.056	f > on	f_{THR} ON	51,000 Hz	50,000 Hz	52,000 Hz	50,000 Hz	55,000 Hz
.057	T f >	Time OFF	500 ms	100 ms	100000 ms	100 ms	180000 ms

Underfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.058	f uA	Enable function	on				
.059	f < off	f_{THR} OFF	47,500 Hz	47,000 Hz	50,000 Hz	45,000 Hz	50,000 Hz
.060	f < on	f_{THR} ON	47,500 Hz	47,000 Hz	50,000 Hz	45,000 Hz	50,000 Hz
.061	T f <	Time OFF	500 ms	100 ms	100000 ms	100 ms	180000 ms

Frequency measuring in general				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.113	F wnd	Window length	100 ms				

Auxiliary Contact type				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.099	Contact	Type	(normally closed)	n.o. (normally opened) n.c. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	Fixed to 500 ms				
.114	I3 STOP	Type	n.o. (normally opened)	n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.102	T on delay	Turn on time	900 s	0 s	900 s	0 s	900 s

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

ErrorLogic	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
underfrequency	on
RoCoF (Rate of Change of Frequency) (Δf)	on
phase shift	on
Remote shutdown / self-test (R)	on
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	SN: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device Serial Number dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

42. AB AS 4777.2:2020 [ID 1110]

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire (LN)	4-wire (LN)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	230.0	240.0	100.0	240.0
		Unom Δ	V	400.0	400.0	417.4	173.9	417.4

Functional Safety		Conformity Range	Possible Range
ID	Default		
.007	Errtol	Fixed to 2ch	
Remark:	2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary		

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	V> off	U_{THR} OFF	%Unom	115.2	115.2	115.2	100	135
.020	V> on	U_{THR} ON	%Unom	110	100	110	100	135
.021	T V>	Time OFF	ms	1000	1000	1900	50	300000

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	V< off	U_{THR} OFF	%Unom	78.3	78.3	78.3	0	100
.024	V< on	U_{THR} ON	%Unom	89	89	100	0	100
.025	T V<	Time OFF	ms	10000	10000	10900	50	300000

Overvoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.034	V>>	Enable function		off	on /off		on /off	
.035	V>> off	U_{THR} OFF	%Unom	119.6	119.6	119.6	100	135
.036	V>> on	U_{THR} ON	%Unom	110	100	110	100	135
.037	T V>>	Time OFF	ms	100	100	200	100	300000

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.039	V<< off	U_{THR} OFF	%Unom	30.4	30.4	30.4	0	100
.040	V<< on	U_{THR} ON	%Unom	89	89	100	0	100
.041	T V<<	Time OFF	ms	1000	1000	1900	50	300000

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	Uavg	Enable function		on	on / off		on /off	
.043	Uavg off	U_{THR} OFF	%Unom	112.2	106.1	112.2	100	135
.044	Uavg on	U_{THR} ON	%Unom	110	100	110	100	135
		Time OFF	ms	Fixed to fastest possible disconnection				

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	F> off	f_{THR} OFF	Hz	52.00	52.00	52.00	50.00	55.00
.056	F> on	f_{THR} ON	Hz	50.15	50.00	50.15	50.00	55.00
.057	T F>	Time OFF	ms	100	100	200	100	300000

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	F< off	f_{THR} OFF	Hz	47.00	47.00	47.00	40.00	50.00
.060	F< on	f_{THR} ON	Hz	47.50	47.50	50.00	40.00	50.00
.061	T F<	Time OFF	ms	1000	1000	1900	50	300000

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Rate of Change of Frequency (RoCoF)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.090	RoCoF	Enable Function		off	on / off		on / off	
.091	RoCoF off	$RoCoF_{THR}$ OFF	mHz/s	1000	10	9990	10	9990
.092	RoCoF on	$RoCoF_{THR}$ ON	mHz/s	950	10	9990	10	9990
.093	RoCoFDelay	Time OFF	ms	500	50	500	50	10000
.111	RoCoF wnd	Window length	ms	225	100	1000	100	1000

Phase Shift (PShift)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.094	PShift	Enable Function		off	on / off		on / off	
.095	PShift off	$PShift_{THR}$ OFF	°	8	1	8	1	15
.096	PShift on	$PShift_{THR}$ ON	°	6	1	7	1	15
.097	PShiftDel	Time OFF	ms	50	50	50	50	10000
.112	PShift wnd	Window length	ms	50	50	500	50	1000

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	60	0	60	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

43. C AS 4777.2:2020 [ID 1120]

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire (LN)	4-wire (LN)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	230.0	240.0	100.0	240.0
		Unom Δ	V	400.0	400.0	417.4	173.9	417.4

Functional Safety		Conformity Range	Possible Range
ID	Default		
.007	Errtol	Fixed to 2ch	
Remark:	2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary		

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	V> off	U_{THR} OFF	%Unom	115.2	115.2	115.2	100	135
.020	V> on	U_{THR} ON	%Unom	110	100	110	100	135
.021	T V>	Time OFF	ms	1000	1000	1900	50	300000

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	V< off	U_{THR} OFF	%Unom	78.3	78.3	78.3	0	100
.024	V< on	U_{THR} ON	%Unom	89	89	100	0	100
.025	T V<	Time OFF	ms	10000	10000	10900	50	300000

Overvoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.034	V>>	Enable function		off	on /off		on /off	
.035	V>> off	U_{THR} OFF	%Unom	119.6	119.6	119.6	100	135
.036	V>> on	U_{THR} ON	%Unom	110	100	110	100	135
.037	T V>>	Time OFF	ms	100	100	200	100	300000

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.039	V<< off	U_{THR} OFF	%Unom	30.4	30.4	30.4	0	100
.040	V<< on	U_{THR} ON	%Unom	89	89	100	0	100
.041	T V<<	Time OFF	ms	1000	1000	1900	50	300000

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	Uavg	Enable function		on	on / off		on /off	
.043	Uavg off	U_{THR} OFF	%Unom	112.2	106.1	112.2	100	135
.044	Uavg on	U_{THR} ON	%Unom	110	100	110	100	135
		Time OFF	ms	Fixed to fastest possible disconnection				

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	F> off	f_{THR} OFF	Hz	55.00	55.00	55.00	50.00	55.00
.056	F> on	f_{THR} ON	Hz	50.15	50.00	50.15	50.00	55.00
.057	T F>	Time OFF	ms	100	100	200	100	300000

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	F< off	f_{THR} OFF	Hz	45.00	45.00	45.00	40.00	50.00
.060	F< on	f_{THR} ON	Hz	47.50	47.50	50.00	40.00	50.00
.061	T F<	Time OFF	ms	5000	5000	5900	50	300000

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Rate of Change of Frequency (RoCoF)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.090	RoCoF	Enable Function		off	on / off		on / off	
.091	RoCoF off	$RoCoF_{THR}$ OFF	mHz/s	1000	10	9990	10	9990
.092	RoCoF on	$RoCoF_{THR}$ ON	mHz/s	950	10	9990	10	9990
.093	RoCoFDelay	Time OFF	ms	500	50	500	50	10000
.111	RoCoF wnd	Window length	ms	225	100	1000	100	1000

Phase Shift (PShift)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.094	PShift	Enable Function		off	on / off		on / off	
.095	PShift off	$PShift_{THR}$ OFF	°	8	1	8	1	15
.096	PShift on	$PShift_{THR}$ ON	°	6	1	7	1	15
.097	PShiftDel	Time OFF	ms	50	50	50	50	10000
.112	PShift wnd	Window length	ms	50	50	500	50	1000

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	60	0	60	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

44. NZS 4777.2:2020 [ID 1130]

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire (LN)	4-wire (LN)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	230.0	240.0	100.0	240.0
		Unom Δ	V	400.0	400.0	417.4	173.9	417.4

Functional Safety		Conformity Range	Possible Range
ID	Default		
.007	Errtol	Fixed to 2ch	
Remark:	2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary		

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	V> off	U_{THR} OFF	%Unom	115.2	115.2	115.2	100	135
.020	V> on	U_{THR} ON	%Unom	110	100	110	100	135
.021	T V>	Time OFF	ms	1000	1000	1900	50	300000

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	V< off	U_{THR} OFF	%Unom	78.3	78.3	78.3	0	100
.024	V< on	U_{THR} ON	%Unom	89	89	100	0	100
.025	T V<	Time OFF	ms	10000	10000	10900	50	300000

Overvoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.034	V>>	Enable function		off	on /off		on /off	
.035	V>> off	U_{THR} OFF	%Unom	119.6	119.6	119.6	100	135
.036	V>> on	U_{THR} ON	%Unom	110	100	110	100	135
.037	T V>>	Time OFF	ms	100	100	200	100	300000

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.039	V<< off	U_{THR} OFF	%Unom	30.4	30.4	30.4	0	100
.040	V<< on	U_{THR} ON	%Unom	89	89	100	0	100
.041	T V<<	Time OFF	ms	1000	1000	1900	50	300000

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	Uavg	Enable function		on	on / off		on /off	
.043	Uavg off	U_{THR} OFF	%Unom	108.3	106.1	112.2	100	135
.044	Uavg on	U_{THR} ON	%Unom	106.1	100	110	100	135
		Time OFF	ms	Fixed to fastest possible disconnection				

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	F> off	f_{THR} OFF	Hz	55.00	55.00	55.00	50.00	55.00
.056	F> on	f_{THR} ON	Hz	50.15	50.00	50.15	50.00	55.00
.057	T F>	Time OFF	ms	100	100	200	100	300000

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	F< off	f_{THR} OFF	Hz	45.00	45.00	45.00	40.00	50.00
.060	F< on	f_{THR} ON	Hz	47.50	47.50	50.00	40.00	50.00
.061	T F<	Time OFF	ms	1000	1000	1900	50	300000

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Rate of Change of Frequency (RoCoF)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.090	RoCoF	Enable Function		off	on / off		on / off	
.091	RoCoF off	$RoCoF_{THR}$ OFF	mHz/s	1000	10	9990	10	9990
.092	RoCoF on	$RoCoF_{THR}$ ON	mHz/s	950	10	9990	10	9990
.093	RoCoFDelay	Time OFF	ms	500	50	500	50	10000
.111	RoCoF wnd	Window length	ms	225	100	1000	100	1000

Phase Shift (PShift)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.094	PShift	Enable Function		off	on / off		on / off	
.095	PShift off	$PShift_{THR}$ OFF	°	8	1	8	1	15
.096	PShift on	$PShift_{THR}$ ON	°	6	1	7	1	15
.097	PShiftDel	Time OFF	ms	50	50	50	50	10000
.112	PShift wnd	Window length	ms	50	50	500	50	1000

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	60	0	60	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

45. NSW-Augrid 23 [ID 1135]

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire LL+LN	4-wire LN - 4-wire LL+LN	2-wire LN - 4-wire LL+LN

Nominal Voltage				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y Unom Δ	240,01V/ 417,40V	230,00V /400,00V	240,01V /417,40V	99,99V /173,90V	240,01V /417,40V

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	2ch	2ch, 1ch	2ch, 1ch
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary 1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.010	VLL>	Enable function		on	on / off		on /off	
.011	VLL> off	U_{THR} OFF	%Unom /VUnom	108,00% (450,79V)	108,00% (450,79V)	108,00% (450,79V)	100,00% (417,40V)	135,00% (563,49V)
.012	VLL> on	U_{THR} ON	%Unom /VUnom	105,00% (438,27V)	105,00% (438,27V)	105,00% (438,27V)	100,00% (417,40V)	135,00% (563,49V)
.013	T VLL>	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.014	VLL<	Enable function		on	on / off		on /off	
.015	VLL< off	U_{THR} OFF	%Unom /VUnom	75,00% (313,05V)	75,00% (313,05V)	75,00% (313,05V)	0,00% (0,00V)	100,00% (417,40V)
.016	VLL< on	U_{THR} ON	%Unom /VUnom	78,00% (325,57V)	78,00% (325,57V)	78,00% (325,57V)	0,00% (0,00V)	100,00% (417,40V)
.017	T VLL<	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	V> off	U_{THR} OFF	%Unom /VUnom	108,00% (259,21V)	108,00% (259,21V)	108,00% (259,21V)	100,00% (240,01V)	135,00% (324,01V)
.020	V> on	U_{THR} ON	%Unom /VUnom	105,00% (252,01V)	105,00% (252,01V)	105,00% (252,01V)	100,00% (240,01V)	135,00% (324,01V)
.021	T V>	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	V< off	U_{THR} OFF	%Unom /VUnom	75,00% (180,00V)	75,00% (180,00V)	75,00% (180,00V)	0,00% (0,00V)	100,00% (240,01V)
.024	V< on	U_{THR} ON	%Unom /VUnom	78,00% (187,20V)	78,00% (187,20V)	78,00% (187,20V)	0,00% (0,00V)	100,00% (240,01V)
.025	T V<	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						

Zero Voltage Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.115	Uzero >	Enable Function		off	on / off		on / off	
.116	Uzero> off	U_{THR} OFF	%Unom /VUnom	20,00% (48,00V)	20,00% (48,00V)	20,00% (48,00V)	1,00% (2,40V)	100,00% (240,01V)
.117	Uzero> on	U_{THR} ON	%Unom /VUnom	15,00% (36,00V)	15,00% (36,00V)	15,00% (36,00V)	1,00% (2,40V)	100,00% (240,01V)
.118	T Uzero>	Time OFF		1500 ms	1500 ms	1500 ms	0 ms	300000 ms
Only active for:		Connection Modes: 4-wire (LN+LL)						

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	Uavg	Enable function		on	on / off		on /off	
.043	Uavg off	U_{THR} OFF	%Unom /VUnom	107,00% (256,81V /446,62V)	107,00% (256,81V /446,62V)	107,00% (256,81V /446,62V)	100,00% (240,01V /417,40V)	135,00% (324,01V /563,49V)
.044	Uavg on	U_{THR} ON	%Unom /VUnom	105,00% (252,01V /438,27V)	105,00% (252,01V /438,27V)	105,00% (252,01V /438,27V)	100,00% (240,01V /417,40V)	135,00% (324,01V /563,49V)

Overfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.055	F> off	f_{THR} OFF	52,000 Hz	52,000 Hz	52,000 Hz	50,000 Hz	55,000 Hz
.056	F> on	f_{THR} ON	51,900 Hz	51,900 Hz	51,900 Hz	50,000 Hz	55,000 Hz
.057	T F>	Time OFF	2000 ms	2000 ms	2000 ms	100 ms	300000 ms

Underfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.059	F< off	f_{THR} OFF	47,000 Hz	47,000 Hz	47,000 Hz	40,000 Hz	50,000 Hz
.060	F< on	f_{THR} ON	47,500 Hz	47,500 Hz	47,500 Hz	40,000 Hz	50,000 Hz
.061	T F<	Time OFF	2000 ms	2000 ms	2000 ms	100 ms	300000 ms

Frequency measuring in general				Conformity Range			
ID			Default	Min	Max		
.113	F wnd	Window length	100 ms	100 ms	100 ms		

Rate of Change of Frequency (RoCoF)				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.090	RoCoF	En Function	on	on / off		on / off	
.091	RoCoF off	$RoCoF_{THR}$ OFF	4000 mHz/s	4000 mHz/s	4000 mHz/s	10 mHz/s	5000 mHz/s
.092	RoCoF on	$RoCoF_{THR}$ ON	3950 mHz/s	3950 mHz/s	3950 mHz/s	10 mHz/s	4950 mHz/s
.093	RoCoFDelay	Time OFF	100 ms	100 ms	100 ms	100 ms	10000 ms
.111	RoCoF wnd	Window length	225 ms	100 ms	1000 ms	100 ms	1000 ms

Phase Shift (PShift)				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.094	PShift	Enable Function	on	on / off		on / off	
.095	PShift off	$PShift_{THR}$ OFF	20,0 °	20,0 °	20,0 °	1,0 °	25,0 °
.096	Pshift on	$PShift_{THR}$ ON	18,0 °	17,0 °	17,0 °	1,0 °	24,0 °
.097	PshiftDel	Time OFF	50 ms	50 ms	50 ms	50 ms	10000 ms
.112	PShift wnd	Window length	50 ms	50 ms	500 ms	50 ms	1000 ms

Auxiliary Contact type				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)	n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	Fixed to 500 ms				
.114	I3 STOP	Type	n.o. (normally opened)	n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.102	T on delay	Turn on time	60 s	0 s	60 s	0 s	900 s

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	SN: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device Serial Number dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

46. NSW-Essential 23 [ID 1140]

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire LL+LN	4-wire LN - 4-wire LL+LN	2-wire LN - 4-wire LL+LN

Nominal Voltage				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y Unom Δ	240,01V /417,40V	230,00V /400,00V	240,01V /417,40V	99,99V /173,90V	240,01V /417,40V

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	2ch	2ch, 1ch	2ch, 1ch
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary 1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.010	VLL>	Enable function		on	on / off		on / off	
.011	VLL> off	U_{THR} OFF	%Unom /VUnom	108,00% (450,79V)	108,00% (450,79V)	108,00% (450,79V)	100,00% (417,40V)	135,00% (563,49V)
.012	VLL> on	U_{THR} ON	%Unom /VUnom	105,00% (438,27V)	105,00% (438,27V)	105,00% (438,27V)	100,00% (417,40V)	135,00% (563,49V)
.013	T VLL>	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.014	VLL<	Enable function		on	on / off		on / off	
.015	VLL< off	U_{THR} OFF	%Unom /VUnom	75,00% (313,05V)	75,00% (313,05V)	75,00% (313,05V)	0,00% (0,00V)	100,00% (417,40V)
.016	VLL< on	U_{THR} ON	%Unom /VUnom	78,00% (325,57V)	78,00% (325,57V)	78,00% (325,57V)	0,00% (0,00V)	100,00% (417,40V)
.017	T VLL<	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	V> off	U_{THR} OFF	%Unom /VUnom	108,00% (259,21V)	108,00% (259,21V)	108,00% (259,21V)	100,00% (240,01V)	135,00% (324,01V)
.020	V> on	U_{THR} ON	%Unom /VUnom	105,00% (252,01V)	110,00% (264,01V)	110,00% (264,01V)	100,00% (240,01V)	135,00% (324,01V)
.021	T V>	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	V< off	U_{THR} OFF	%Unom /VUnom	75,00% (180,00V)	75,00% (180,00V)	75,00% (180,00V)	0,00% (0,00V)	100,00% (240,01V)
.024	V< on	U_{THR} ON	%Unom /VUnom	78,00% (187,20V)	78,00% (187,20V)	78,00% (187,20V)	0,00% (0,00V)	100,00% (240,01V)
.025	T V<	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						

Zero Voltage Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.115	Uzero>	Enable Function		off	on / off		on / off	
.116	Uzero> off	U_{THR} OFF	%Unom /VUnom	20,00% (48,00V)	20,00% (48,00V)	20,00% (48,00V)	1,00% (2,40V)	100,00% (240,01V)
.117	Uzero> on	U_{THR} ON	%Unom /VUnom	15,00% (36,00V)	15,00% (36,00V)	15,00% (36,00V)	1,00% (2,40V)	100,00% (240,01V)
.118	T Uzero>	Time OFF		1500 ms	1500 ms	1500 ms	0 ms	300000 ms
Only active for:		Connection Modes: 4-wire (LN+LL)						

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	Uavg	Enable function		on	on / off		on / off	
.043	Uavg off	U_{THR} OFF	%Unom /VUnom	106,00% (254,41V /442,44V)	106,00% (254,41V /442,44V)	106,00% (254,41V /442,44V)	100,00% (240,01V /417,40V)	135,00% (324,01V /563,49V)
.044	Uavg on	U_{THR} ON	%Unom /VUnom	104,00% (249,61V /434,10V)	104,00% (249,61V /434,10V)	104,00% (249,61V /434,10V)	100,00% (240,01V /417,40V)	135,00% (324,01V /563,49V)

Overfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.055	F> off	f_{THR} OFF	52,000 Hz	52,000 Hz	52,000 Hz	50,000 Hz	55,000 Hz
.056	F> on	f_{THR} ON	51,900 Hz	51,900 Hz	51,900 Hz	50,000 Hz	55,000 Hz
.057	T F>	Time OFF	2000 ms	2000 ms	2000 ms	100 ms	300000 ms

Underfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.059	F< off	f_{THR} OFF	47,000 Hz	47,000 Hz	47,000 Hz	40,000 Hz	50,000 Hz
.060	F< on	f_{THR} ON	47,500 Hz	47,500 Hz	47,500 Hz	40,000 Hz	50,000 Hz
.061	T F<	Time OFF	2000 ms	2000 ms	2000 ms	100 ms	300000 ms

Frequency measuring in general				Conformity Range			
ID			Default	Min	Max		
.113	F wnd	Window length	100 ms	100 ms	100 ms		

Rate of Change of Frequency (RoCoF)				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.090	RoCoF	En Function	on	on / off		on / off	
.091	RoCoF off	$RoCoF_{THR}$ OFF	1000 mHz/s	1000 mHz/s	1000 mHz/s	10 mHz/s	5000 mHz/s
.092	RoCoF on	$RoCoF_{THR}$ ON	950 mHz/s	950 mHz/s	950 mHz/s	10 mHz/s	4950 mHz/s
.093	RoCoFDelay	Time OFF	850 ms	850 ms	850 ms	100 ms	10000 ms
.111	RoCoF wnd	Window length	225 ms	100 ms	1000 ms	100 ms	1000 ms

Phase Shift (PShift)				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.094	PShift	Enable Function	on	on / off		on / off	
.095	PShift off	$PShift_{THR}$ OFF	8,0 °	8,0 °	8,0 °	1,0 °	25,0 °
.096	Pshift on	$PShift_{THR}$ ON	6,0 °	6,0 °	6,0 °	1,0 °	24,0 °
.097	PshiftDel	Time OFF	50 ms	50 ms	50 ms	50 ms	10000 ms
.112	PShift wnd	Window length	50 ms	50 ms	500 ms	50 ms	1000 ms

Auxiliary Contact type				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)	n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	Fixed to 500 ms				
.114	I3 STOP	Type	n.o. (normally opened)	n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.102	T on delay	Turn on time	60 s	0 s	60 s	0 s	900 s

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	SN: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device Serial Number dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

47. NSW-Endeavour 23 [ID 1145]

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire LL+LN	4-wire LN - 4-wire LL+LN	2-wire LN - 4-wire LL+LN

Nominal Voltage				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y Unom Δ	240,01V /417,40V	230,00V /400,00V	240,01V /417,40V	99,99V /173,90V	240,01V /417,40V

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	2ch	2ch, 1ch	2ch, 1ch
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary 1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.010	VLL>	Enable function		on	on / off		on / off	
.011	VLL> off	U_{THR} OFF	%Unom /VUnom	108,00% (450,79V)	108,00% (450,79V)	108,00% (450,79V)	100,00% (417,40V)	135,00% (563,49V)
.012	VLL> on	U_{THR} ON	%Unom /VUnom	105,00% (438,27V)	105,00% (438,27V)	105,00% (438,27V)	100,00% (417,40V)	135,00% (563,49V)
.013	T VLL>	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.014	VLL<	Enable function		on	on / off		on / off	
.015	VLL< off	U_{THR} OFF	%Unom /VUnom	75,00% (313,05V)	75,00% (313,05V)	75,00% (313,05V)	0,00% (0,00V)	100,00% (417,40V)
.016	VLL< on	U_{THR} ON	%Unom /VUnom	78,00% (325,57V)	78,00% (325,57V)	78,00% (325,57V)	0,00% (0,00V)	100,00% (417,40V)
.017	T VLL<	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	V> off	U_{THR} OFF	%Unom /VUnom	108,00% (259,21V)	108,00% (259,21V)	108,00% (259,21V)	100,00% (240,01V)	135,00% (324,01V)
.020	V> on	U_{THR} ON	%Unom /VUnom	105,00% (252,01V)	110,00% (264,01V)	110,00% (264,01V)	100,00% (240,01V)	135,00% (324,01V)
.021	T V>	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	V< off	U_{THR} OFF	%Unom /VUnom	75,00% (180,00V)	75,00% (180,00V)	75,00% (180,00V)	0,00% (0,00V)	100,00% (240,01V)
.024	V< on	U_{THR} ON	%Unom /VUnom	78,00% (187,20V)	78,00% (187,20V)	78,00% (187,20V)	0,00% (0,00V)	100,00% (240,01V)
.025	T V<	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						

Zero Voltage Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.115	Uzero>	Enable Function		off	on / off		on / off	
.116	Uzero> off	U_{THR} OFF	%Unom /VUnom	20,00% (48,00V)	20,00% (48,00V)	20,00% (48,00V)	1,00% (2,40V)	100,00% (240,01V)
.117	Uzero> on	U_{THR} ON	%Unom /VUnom	15,00% (36,00V)	15,00% (36,00V)	15,00% (36,00V)	1,00% (2,40V)	100,00% (240,01V)
.118	T Uzero>	Time OFF		1500 ms	1500 ms	1500 ms	0 ms	300000 ms
Only active for:		Connection Modes: 4-wire (LN+LL)						

Overfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.055	F> off	f_{THR} OFF	52,000 Hz	52,000 Hz	52,000 Hz	50,000 Hz	55,000 Hz
.056	F> on	f_{THR} ON	51,900 Hz	51,900 Hz	51,900 Hz	50,000 Hz	55,000 Hz
.057	T F>	Time OFF	2000 ms	2000 ms	2000 ms	100 ms	300000 ms

Underfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.059	F< off	f_{THR} OFF	47,000 Hz	47,000 Hz	47,000 Hz	40,000 Hz	50,000 Hz
.060	F< on	f_{THR} ON	47,500 Hz	47,500 Hz	47,500 Hz	40,000 Hz	50,000 Hz
.061	T F<	Time OFF	2000 ms	2000 ms	2000 ms	100 ms	300000 ms

Frequency measuring in general				Conformity Range			
ID			Default	Min	Max		
.113	F wnd	Window length	100 ms	100 ms	100 ms		

Rate of Change of Frequency (RoCoF)				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.090	RoCoF	En Function	on	on / off		on / off	
.091	RoCoF off	$RoCoF_{THR}$ OFF	1000 mHz/s	1000 mHz/s	1000 mHz/s	10 mHz/s	5000 mHz/s
.092	RoCoF on	$RoCoF_{THR}$ ON	950 mHz/s	950 mHz/s	950 mHz/s	10 mHz/s	4950 mHz/s
.093	RoCoFDelay	Time OFF	850 ms	850 ms	850 ms	100 ms	10000 ms
.111	RoCoF wnd	Window length	225 ms	100 ms	1000 ms	100 ms	1000 ms

Phase Shift (PShift)				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.094	PShift	Enable Function	on	on / off		on / off	
.095	PShift off	$PShift_{THR}$ OFF	8,0 °	8,0 °	8,0 °	1,0 °	25,0 °
.096	Pshift on	$PShift_{THR}$ ON	6,0 °	6,0 °	6,0 °	1,0 °	24,0 °
.097	PshiftDel	Time OFF	50 ms	50 ms	50 ms	50 ms	10000 ms
.112	PShift wnd	Window length	50 ms	50 ms	500 ms	50 ms	1000 ms

Auxiliary Contact type				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)	n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	Fixed to 500 ms				
.114	I3 STOP	Type	n.o. (normally opened)	n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.102	T on delay	Turn on time	60 s	0 s	60 s	0 s	900 s

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	SN: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device Serial Number dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

48. VIC-United Energy 23 [ID 1150]

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire LL+LN	4-wire LN - 4-wire LL+LN	2-wire LN - 4-wire LL+LN

Nominal Voltage				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y Unom Δ	240,01V /417,40V	230,00V /400,00V	240,01V /417,40V	99,99V /173,90V	240,01V /417,40V

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	2ch	2ch, 1ch	2ch, 1ch
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary 1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.010	VLL>	Enable function		on	on / off		on / off	
.011	VLL> off	U_{THR} OFF	%Unom /VUnom	110,00% (459,14V)	110,00% (459,14V)	110,00% (459,14V)	100,00% (417,40V)	135,00% (563,49V)
.012	VLL> off	U_{THR} ON	%Unom /VUnom	107,00% (446,62V)	107,00% (446,62V)	107,00% (446,62V)	100,00% (417,40V)	135,00% (563,49V)
.013	T VLL>	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.014	VLL<	Enable function		on				
.015	VLL< off	U_{THR} OFF	%Unom /VUnom	75,00% (313,05V)	75,00% (313,05V)	75,00% (313,05V)	0,00% (0,00V)	100,00% (417,40V)
.016	VLL< on	U_{THR} ON	%Unom /VUnom	78,00% (325,57V)	78,00% (325,57V)	78,00% (325,57V)	0,00% (0,00V)	100,00% (417,40V)
.017	T VLL<	Time OFF		11000 ms	11000 ms	11000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	V> off	U_{THR} OFF	%Unom /VUnom	110,00% (264,01V)	110,00% (264,01V)	110,00% (264,01V)	100,00% (240,01V)	135,00% (324,01V)
.020	V> on	U_{THR} ON	%Unom /VUnom	107,00% (256,81V)	107,00% (256,81V)	107,00% (256,81V)	100,00% (240,01V)	135,00% (324,01V)
.021	T V>	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	V< off	U_{THR} OFF	%Unom /VUnom	75,00% (180,00V)	75,00% (180,00V)	75,00% (180,00V)	0,00% (0,00V)	100,00% (240,01V)
.024	V< on	U_{THR} ON	%Unom /VUnom	78,00% (187,20V)	78,00% (187,20V)	78,00% (187,20V)	0,00% (0,00V)	100,00% (240,01V)
.025	T V<	Time OFF		11000 ms	11000 ms	11000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						

Overvoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.026	VLL>>	Enable function		on				
.027	VLL>> off	U_{THR} OFF	%Unom /VUnom	114,00% (475,84V)	114,00% (475,84V)	114,00% (475,84V)	100,00% (417,40V)	135,00% (563,49V)
.028	VLL>> on	U_{THR} ON	%Unom /VUnom	107,00% (446,62V)	107,00% (446,62V)	107,00% (446,62V)	100,00% (417,40V)	135,00% (563,49V)
.029	T VLL>>	Time OFF		200 ms	200 ms	200 ms	50 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.030	VLL<<	Enable function		on				
.031	VLL<< off	U_{THR} OFF	%Unom /VUnom	29,20% (121,88V)	29,20% (121,88V)	29,20% (121,88V)	0,00% (0,00V)	100,00% (417,40V)
.032	VLL<< on	U_{THR} ON	%Unom /VUnom	78,00% (325,57V)	78,00% (325,57V)	78,00% (325,57V)	0,00% (0,00V)	100,00% (417,40V)
.033	T VLL<<	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.034	V>>	Enable function		on	on / off		on / off	
.035	V>> off	U_{THR} OFF	%Unom /VUnom	114,00% (273,61V)	114,00% (273,61V)	114,00% (273,61V)	100,00% (240,01V)	135,00% (324,01V)
.036	V>> on	U_{THR} ON	%Unom /VUnom	107,00% (256,81V)	107,00% (256,81V)	107,00% (256,81V)	100,00% (240,01V)	135,00% (324,01V)
.037	T V>>	Time OFF		200 ms	200 ms	200 ms	100 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.038	V<<	Enable function		on	on / off		on / off	
.039	V<< off	U_{THR} OFF	%Unom /VUnom	29,20% (70,08V)	29,20% (70,08V)	29,20% (70,08V)	0,00% (0,00V)	100,00% (240,01V)
.040	V<< on	U_{THR} ON	%Unom /VUnom	78,00% (187,20V)	78,00% (187,20V)	78,00% (187,20V)	0,00% (0,00V)	100,00% (240,01V)
.041	T V<<	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Zero Voltage Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.115	Uzero>	Enable Function		off	on / off		on / off	
.116	Uzero> off	U_{THR} OFF	%Unom /VUnom	20,00% (48,00V)	20,00% (48,00V)	20,00% (48,00V)	1,00% (2,40V)	100,00% (240,01V)
.117	Uzero> on	U_{THR} ON	%Unom /VUnom	15,00% (36,00V)	15,00% (36,00V)	15,00% (36,00V)	1,00% (2,40V)	100,00% (240,01V)
.118	T Uzero>	Time OFF		1500 ms	1500 ms	1500 ms	0 ms	300000 ms
Only active for:		Connection Modes: 4-wire (LN+LL)						

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	Uavg	Enable function		on	on / off		on / off	
.043	Uavg off	U_{THR} OFF	%Unom /VUnom	106,00% (254,41V /442,44V)	106,00% (254,41V /442,44V)	106,00% (254,41V /442,44V)	100,00% (240,01V /417,40V)	135,00% (324,01V /563,49V)
.044	Uavg on	U_{THR} ON	%Unom /VUnom	104,00% (249,61V /434,10V)	104,00% (249,61V /434,10V)	104,00% (249,61V /434,10V)	100,00% (240,01V /417,40V)	135,00% (324,01V /563,49V)

Overfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.055	F> off	f_{THR} OFF	52,000 Hz	52,000 Hz	52,000 Hz	50,000 Hz	55,000 Hz
.056	F> on	f_{THR} ON	51,900 Hz	51,900 Hz	51,900 Hz	50,000 Hz	55,000 Hz
.057	T F>	Time OFF	2000 ms	2000 ms	2000 ms	100 ms	300000 ms

Underfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.059	F< off	f_{THR} OFF	47,000 Hz	47,000 Hz	47,000 Hz	40,000 Hz	50,000 Hz
.060	F< on	f_{THR} ON	47,500 Hz	47,500 Hz	47,500 Hz	40,000 Hz	50,000 Hz
.061	T F<	Time OFF	2000 ms	2000 ms	2000 ms	100 ms	300000 ms

Frequency measuring in general				Conformity Range			
ID			Default	Min	Max		
.113	F wnd	Window length	100 ms	100 ms	100 ms		

Rate of Change of Frequency (RoCoF)				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.090	RoCoF	En Function	on	on / off		on / off	
.091	RoCoF off	$RoCoF_{THR}$ OFF	3000 mHz/s	3000 mHz/s	3000 mHz/s	10 mHz/s	5000 mHz/s
.092	RoCoF on	$RoCoF_{THR}$ ON	2950 mHz/s	2950 mHz/s	2950 mHz/s	10 mHz/s	4950 mHz/s
.093	RoCoFDelay	Time OFF	850 ms	850 ms	850 ms	100 ms	10000 ms
.111	RoCoF wnd	Window length	225 ms	100 ms	1000 ms	100 ms	1000 ms

Phase Shift (PShift)				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.094	PShift	Enable Function	on	on / off		on / off	
.095	PShift off	$PShift_{THR}$ OFF	21,0 °	21,0 °	21,0 °	1,0 °	25,0 °
.096	Pshift on	$PShift_{THR}$ ON	19,0 °	19,0 °	19,0 °	1,0 °	24,0 °
.097	PshiftDel	Time OFF	50 ms	50 ms	50 ms	50 ms	10000 ms
.112	PShift wnd	Window length	50 ms	50 ms	500 ms	50 ms	1000 ms

Auxiliary Contact type				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)	n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	Fixed to 500 ms				
.114	I3 STOP	Type	n.o. (normally opened)	n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.102	T on delay	Turn on time	60 s	0 s	60 s	0 s	900 s

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	SN: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device Serial Number dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

49. VIC-Ausnet Energy 23 [ID 1155]

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire LL+LN	4-wire LN - 4-wire LL+LN	2-wire LN - 4-wire LL+LN

Nominal Voltage				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y Unom Δ	240,01V /417,40V	230,00V /400,00V	240,01V /417,40V	99,99V /173,90V	240,01V /417,40V

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	2ch	2ch, 1ch	2ch, 1ch
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary 1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.010	VLL>	Enable function		on	on / off		on / off	
.011	VLL> off	U_{THR} OFF	%Unom /VUnom	108,00% (450,79V)	108,00% (450,79V)	108,00% (450,79V)	100,00% (417,40V)	135,00% (563,49V)
.012	VLL> on	U_{THR} ON	%Unom /VUnom	105,00% (438,27V)	105,00% (438,27V)	105,00% (438,27V)	100,00% (417,40V)	135,00% (563,49V)
.013	T VLL>	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.014	VLL<	Enable function		on	on / off		on / off	
.015	VLL< off	U_{THR} OFF	%Unom /VUnom	75,00% (313,05V)	75,00% (313,05V)	75,00% (313,05V)	0,00% (0,00V)	100,00% (417,40V)
.016	VLL< on	U_{THR} ON	%Unom /VUnom	78,00% (325,57V)	78,00% (325,57V)	78,00% (325,57V)	0,00% (0,00V)	100,00% (417,40V)
.017	T VLL<	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	V> off	U_{THR} OFF	%Unom /VUnom	108,00% (259,21V)	108,00% (259,21V)	108,00% (259,21V)	100,00% (240,01V)	135,00% (324,01V)
.020	V> on	U_{THR} ON	%Unom /VUnom	105,00% (252,01V)	105,00% (252,01V)	105,00% (252,01V)	100,00% (240,01V)	135,00% (324,01V)
.021	T V>	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	V< off	U_{THR} OFF	%Unom /VUnom	75,00% (180,00V)	75,00% (180,00V)	75,00% (180,00V)	0,00% (0,00V)	100,00% (240,01V)
.024	V< on	U_{THR} ON	%Unom /VUnom	78,00% (187,20V)	78,00% (187,20V)	78,00% (187,20V)	0,00% (0,00V)	100,00% (240,01V)
.025	T V<	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						

Zero Voltage Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.115	Uzero>	Enable Function		off	on / off		on / off	
.116	Uzero> off	U_{THR} OFF	%Unom /VUnom	20,00% (48,00V)	20,00% (48,00V)	20,00% (48,00V)	1,00% (2,40V)	100,00% (240,01V)
.117	Uzero> on	U_{THR} ON	%Unom /VUnom	15,00% (36,00V)	15,00% (36,00V)	15,00% (36,00V)	1,00% (2,40V)	100,00% (240,01V)
.118	T Uzero>	Time OFF		1500 ms	1500 ms	1500 ms	0 ms	300000 ms
Only active for:		Connection Modes: 4-wire (LN+LL)						

Overfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.055	F> off	f_{THR} OFF	52,000 Hz	52,000 Hz	52,000 Hz	50,000 Hz	55,000 Hz
.056	F> on	f_{THR} ON	51,900 Hz	51,900 Hz	51,900 Hz	50,000 Hz	55,000 Hz
.057	T F>	Time OFF	2000 ms	2000 ms	2000 ms	100 ms	300000 ms

Underfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.059	F< off	f_{THR} OFF	47,500 Hz	47,500 Hz	47,500 Hz	40,000 Hz	50,000 Hz
.060	F< on	f_{THR} ON	48,000 Hz	48,000 Hz	48,000 Hz	40,000 Hz	50,000 Hz
.061	T F<	Time OFF	2000 ms	2000 ms	2000 ms	100 ms	300000 ms

Frequency measuring in general				Conformity Range			
ID			Default	Min	Max		
.113	F wnd	Window length	100 ms	100 ms	100 ms		

Rate of Change of Frequency (RoCoF)				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.090	RoCoF	En Function	on	on / off		on / off	
.091	RoCoF off	$RoCoF_{THR}$ OFF	4000 mHz/s	4000 mHz/s	4000 mHz/s	10 mHz/s	5000 mHz/s
.092	RoCoF on	$RoCoF_{THR}$ ON	3950 mHz/s	3950 mHz/s	3950 mHz/s	10 mHz/s	4950 mHz/s
.093	RoCoFDelay	Time OFF	850 ms	850 ms	850 ms	100 ms	10000 ms
.111	RoCoF wnd	Window length	225 ms	100 ms	1000 ms	100 ms	1000 ms

Phase Shift (PShift)				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.094	PShift	Enable Function	on	on / off		on / off	
.095	PShift off	$PShift_{THR}$ OFF	8,0 °	8,0 °	8,0 °	1,0 °	25,0 °
.096	Pshift on	$PShift_{THR}$ ON	6,0 °	6,0 °	6,0 °	1,0 °	24,0 °
.097	PshiftDel	Time OFF	50 ms	50 ms	50 ms	50 ms	10000 ms
.112	PShift wnd	Window length	50 ms	50 ms	500 ms	50 ms	1000 ms

Auxiliary Contact type				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)	n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	Fixed to 500 ms				
.114	I3 STOP	Type	n.o. (normally opened)	n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.102	T on delay	Turn on time	60 s	0 s	60 s	0 s	900 s

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	SN: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device Serial Number dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

50. VIC-Citipower 23 [ID 1160]

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire LL+LN	4-wire LN - 4-wire LL+LN	2-wire LN - 4-wire LL+LN

Nominal Voltage				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y Unom Δ	240,01V /417,40V	230,00V /400,00V	240,01V /417,40V	99,99V /173,90V	240,01V /417,40V

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	2ch	2ch, 1ch	2ch, 1ch
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary 1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.010	VLL>	Enable function		on	on / off		on / off	
.011	VLL> off	U_{THR} OFF	%Unom /VUnom	108,00% (450,79V)	108,00% (450,79V)	108,00% (450,79V)	100,00% (417,40V)	135,00% (563,49V)
.012	VLL> on	U_{THR} ON	%Unom /VUnom	105,00% (438,27V)	105,00% (438,27V)	105,00% (438,27V)	100,00% (417,40V)	135,00% (563,49V)
.013	T VLL>	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.014	VLL<	Enable function		on	on / off		on / off	
.015	VLL< off	U_{THR} OFF	%Unom /VUnom	75,00% (313,05V)	75,00% (313,05V)	75,00% (313,05V)	0,00% (0,00V)	100,00% (417,40V)
.016	VLL< on	U_{THR} ON	%Unom /VUnom	78,00% (325,57V)	78,00% (325,57V)	78,00% (325,57V)	0,00% (0,00V)	100,00% (417,40V)
.017	T VLL<	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	V> off	U_{THR} OFF	%Unom /VUnom	108,00% (259,21V)	108,00% (259,21V)	108,00% (259,21V)	100,00% (240,01V)	135,00% (324,01V)
.020	V> on	U_{THR} ON	%Unom /VUnom	105,00% (252,01V)	110,00% (264,01V)	110,00% (264,01V)	100,00% (240,01V)	135,00% (324,01V)
.021	T V>	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	V< off	U_{THR} OFF	%Unom /VUnom	75,00% (180,00V)	75,00% (180,00V)	75,00% (180,00V)	0,00% (0,00V)	100,00% (240,01V)
.024	V< on	U_{THR} ON	%Unom /VUnom	78,00% (187,20V)	78,00% (187,20V)	78,00% (187,20V)	0,00% (0,00V)	100,00% (240,01V)
.025	T V<	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						

Zero Voltage Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.115	Uzero>	Enable Function		off	on / off		on / off	
.116	Uzero> off	U_{THR} OFF	%Unom /VUnom	20,00% (48,00V)	20,00% (48,00V)	20,00% (48,00V)	1,00% (2,40V)	100,00% (240,01V)
.117	Uzero> on	U_{THR} ON	%Unom /VUnom	15,00% (36,00V)	15,00% (36,00V)	15,00% (36,00V)	1,00% (2,40V)	100,00% (240,01V)
.118	T Uzero>	Time OFF		1500 ms	1500 ms	1500 ms	0 ms	300000 ms
Only active for:		Connection Modes: 4-wire (LN+LL)						

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	Uavg	Enable function		on	on / off		on / off	
.043	Uavg off	U_{THR} OFF	%Unom /VUnom	106,00% (254,41V /442,44V)	106,00% (254,41V /442,44V)	106,00% (254,41V /442,44V)	100,00% (240,01V /417,40V)	135,00% (324,01V /563,49V)
.044	Uavg on	U_{THR} ON	%Unom /VUnom	104,00% (249,61V /434,10V)	104,00% (249,61V /434,10V)	104,00% (249,61V /434,10V)	100,00% (240,01V /417,40V)	135,00% (324,01V /563,49V)

Overfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.055	F> off	f_{THR} OFF	52,000 Hz	52,000 Hz	52,000 Hz	50,000 Hz	55,000 Hz
.056	F> on	f_{THR} ON	51,900 Hz	51,900 Hz	51,900 Hz	50,000 Hz	55,000 Hz
.057	T F>	Time OFF	2000 ms	2000 ms	2000 ms	100 ms	300000 ms

Underfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.059	F< off	f_{THR} OFF	47,000 Hz	47,000 Hz	47,000 Hz	40,000 Hz	50,000 Hz
.060	F< on	f_{THR} ON	47,500 Hz	47,500 Hz	47,500 Hz	40,000 Hz	50,000 Hz
.061	T F<	Time OFF	2000 ms	2000 ms	2000 ms	100 ms	300000 ms

Frequency measuring in general				Conformity Range			
ID			Default	Min	Max		
.113	F wnd	Window length	100 ms	100 ms	100 ms		

Rate of Change of Frequency (RoCoF)				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.090	RoCoF	En Function	on	on / off		on / off	
.091	RoCoF off	$RoCoF_{THR}$ OFF	1000 mHz/s	1000 mHz/s	1000 mHz/s	10 mHz/s	5000 mHz/s
.092	RoCoF on	$RoCoF_{THR}$ ON	950 mHz/s	950 mHz/s	950 mHz/s	10 mHz/s	4950 mHz/s
.093	RoCoFDelay	Time OFF	850 ms	850 ms	850 ms	100 ms	10000 ms
.111	RoCoF wnd	Window length	225 ms	100 ms	1000 ms	100 ms	1000 ms

Phase Shift (PShift)				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.094	PShift	Enable Function	on	on / off		on / off	
.095	PShift off	$PShift_{THR}$ OFF	8,0 °	8,0 °	8,0 °	1,0 °	25,0 °
.096	Pshift on	$PShift_{THR}$ ON	6,0 °	6,0 °	6,0 °	1,0 °	24,0 °
.097	PshiftDel	Time OFF	50 ms	50 ms	50 ms	50 ms	10000 ms
.112	PShift wnd	Window length	50 ms	50 ms	500 ms	50 ms	1000 ms

Auxiliary Contact type				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)	n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	Fixed to 500 ms				
.114	I3 STOP	Type	n.o. (normally opened)	n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.102	T on delay	Turn on time	60 s	0 s	60 s	0 s	900 s

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	SN: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device Serial Number dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

51. VIC-Jemana 23 [ID 1165]

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire LL+LN	4-wire LN - 4-wire LL+LN	2-wire LN - 4-wire LL+LN

Nominal Voltage				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y Unom Δ	240,01V /417,40V	230,00V /400,00V	240,01V /417,40V	99,99V /173,90V	240,01V /417,40V

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	2ch	2ch, 1ch	2ch, 1ch
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary 1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.010	VLL>	Enable function		on	on / off		on / off	
.011	VLL> off	U_{THR} OFF	%Unom /VUnom	108,00% (450,79V)	108,00% (450,79V)	108,00% (450,79V)	100,00% (417,40V)	135,00% (563,49V)
.012	VLL> on	U_{THR} ON	%Unom /VUnom	105,00% (438,27V)	105,00% (438,27V)	105,00% (438,27V)	100,00% (417,40V)	135,00% (563,49V)
.013	T VLL>	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.014	VLL<	Enable function		on	on / off		on / off	
.015	VLL< off	U_{THR} OFF	%Unom /VUnom	75,00% (313,05V)	75,00% (313,05V)	75,00% (313,05V)	0,00% (0,00V)	100,00% (417,40V)
.016	VLL< on	U_{THR} ON	%Unom /VUnom	78,00% (325,57V)	78,00% (325,57V)	78,00% (325,57V)	0,00% (0,00V)	100,00% (417,40V)
.017	T VLL<	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	V> off	U_{THR} OFF	%Unom /VUnom	108,00% (259,21V)	108,00% (259,21V)	108,00% (259,21V)	100,00% (240,01V)	135,00% (324,01V)
.020	V> on	U_{THR} ON	%Unom /VUnom	105,00% (252,01V)	110,00% (264,01V)	110,00% (264,01V)	100,00% (240,01V)	135,00% (324,01V)
.021	T V>	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	V< off	U_{THR} OFF	%Unom /VUnom	75,00% (180,00V)	75,00% (180,00V)	75,00% (180,00V)	0,00% (0,00V)	100,00% (240,01V)
.024	V< on	U_{THR} ON	%Unom /VUnom	78,00% (187,20V)	78,00% (187,20V)	78,00% (187,20V)	0,00% (0,00V)	100,00% (240,01V)
.025	T V<	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						

Zero Voltage Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.115	Uzero>	Enable Function		off	on / off		on / off	
.116	Uzero> off	U_{THR} OFF	%Unom /VUnom	20,00% (48,00V)	20,00% (48,00V)	20,00% (48,00V)	1,00% (2,40V)	100,00% (240,01V)
.117	Uzero> on	U_{THR} ON	%Unom /VUnom	15,00% (36,00V)	15,00% (36,00V)	15,00% (36,00V)	1,00% (2,40V)	100,00% (240,01V)
.118	T Uzero>	Time OFF		1500 ms	1500 ms	1500 ms	0 ms	300000 ms
Only active for:		Connection Modes: 4-wire (LN+LL)						

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	Uavg	Enable function		on	on / off		on / off	
.043	Uavg off	U_{THR} OFF	%Unom /VUnom	106,00% (254,41V /442,44V)	106,00% (254,41V /442,44V)	106,00% (254,41V /442,44V)	100,00% (240,01V /417,40V)	135,00% (324,01V /563,49V)
.044	Uavg on	U_{THR} ON	%Unom /VUnom	104,00% (249,61V /434,10V)	104,00% (249,61V /434,10V)	104,00% (249,61V /434,10V)	100,00% (240,01V /417,40V)	135,00% (324,01V /563,49V)

Overfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.055	F> off	f_{THR} OFF	52,000 Hz	52,000 Hz	52,000 Hz	50,000 Hz	55,000 Hz
.056	F> on	f_{THR} ON	51,900 Hz	51,900 Hz	51,900 Hz	50,000 Hz	55,000 Hz
.057	T F>	Time OFF	2000 ms	2000 ms	2000 ms	100 ms	300000 ms

Underfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.059	F< off	f_{THR} OFF	47,000 Hz	47,000 Hz	47,000 Hz	40,000 Hz	50,000 Hz
.060	F< on	f_{THR} ON	47,500 Hz	47,500 Hz	47,500 Hz	40,000 Hz	50,000 Hz
.061	T F<	Time OFF	2000 ms	2000 ms	2000 ms	100 ms	300000 ms

Frequency measuring in general				Conformity Range			
ID			Default	Min	Max		
.113	F wnd	Window length	100 ms	100 ms	100 ms		

Rate of Change of Frequency (RoCoF)				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.090	RoCoF	En Function	on	on / off		on / off	
.091	RoCoF off	$RoCoF_{THR}$ OFF	1000 mHz/s	1000 mHz/s	1000 mHz/s	10 mHz/s	5000 mHz/s
.092	RoCoF on	$RoCoF_{THR}$ ON	950 mHz/s	950 mHz/s	950 mHz/s	10 mHz/s	4950 mHz/s
.093	RoCoFDelay	Time OFF	1850 ms	850 ms	850 ms	100 ms	10000 ms
.111	RoCoF wnd	Window length	225 ms	100 ms	1000 ms	100 ms	1000 ms

Phase Shift (PShift)				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.094	PShift	Enable Function	on	on / off		on / off	
.095	PShift off	$PShift_{THR}$ OFF	8,0 °	8,0 °	8,0 °	1,0 °	25,0 °
.096	Pshift on	$PShift_{THR}$ ON	6,0 °	6,0 °	6,0 °	1,0 °	24,0 °
.097	PshiftDel	Time OFF	50 ms	50 ms	50 ms	50 ms	10000 ms
.112	PShift wnd	Window length	50 ms	50 ms	500 ms	50 ms	1000 ms

Auxiliary Contact type				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)	n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	Fixed to 500 ms				
.114	I3 STOP	Type	n.o. (normally opened)	n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.102	T on delay	Turn on time	60 s	0 s	60 s	0 s	900 s

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	SN: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device Serial Number dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

52. VIC-Powercor 23 [ID 1170]

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire LL+LN	4-wire LN - 4-wire LL+LN	2-wire LN - 4-wire LL+LN

Nominal Voltage				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y Unom Δ	240,01V /417,40V	230,00V /400,00V	240,01V /417,40V	99,99V /173,90V	240,01V /417,40V

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	2ch	2ch, 1ch	2ch, 1ch
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary 1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.010	VLL>	Enable function		on	on / off		on / off	
.011	VLL> off	U_{THR} OFF	%Unom /VUnom	108,00% (450,79V)	108,00% (450,79V)	108,00% (450,79V)	100,00% (417,40V)	135,00% (563,49V)
.012	VLL> on	U_{THR} ON	%Unom /VUnom	105,00% (438,27V)	105,00% (438,27V)	105,00% (438,27V)	100,00% (417,40V)	135,00% (563,49V)
.013	T VLL>	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.014	VLL<	Enable function		on	on / off		on / off	
.015	VLL< off	U_{THR} OFF	%Unom /VUnom	75,00% (313,05V)	75,00% (313,05V)	75,00% (313,05V)	0,00% (0,00V)	100,00% (417,40V)
.016	VLL< on	U_{THR} ON	%Unom /VUnom	78,00% (325,57V)	78,00% (325,57V)	78,00% (325,57V)	0,00% (0,00V)	100,00% (417,40V)
.017	T VLL<	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	V> off	U_{THR} OFF	%Unom /VUnom	108,00% (259,21V)	108,00% (259,21V)	108,00% (259,21V)	100,00% (240,01V)	135,00% (324,01V)
.020	V> on	U_{THR} ON	%Unom /VUnom	105,00% (252,01V)	110,00% (264,01V)	110,00% (264,01V)	100,00% (240,01V)	135,00% (324,01V)
.021	T V>	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	V< off	U_{THR} OFF	%Unom /VUnom	75,00% (180,00V)	75,00% (180,00V)	75,00% (180,00V)	0,00% (0,00V)	100,00% (240,01V)
.024	V< on	U_{THR} ON	%Unom /VUnom	78,00% (187,20V)	78,00% (187,20V)	78,00% (187,20V)	0,00% (0,00V)	100,00% (240,01V)
.025	T V<	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						

Zero Voltage Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.115	Uzero>	Enable Function		off	on / off		on / off	
.116	Uzero> off	U_{THR} OFF	%Unom /VUnom	20,00% (48,00V)	20,00% (48,00V)	20,00% (48,00V)	1,00% (2,40V)	100,00% (240,01V)
.117	Uzero> on	U_{THR} ON	%Unom /VUnom	15,00% (36,00V)	15,00% (36,00V)	15,00% (36,00V)	1,00% (2,40V)	100,00% (240,01V)
.118	T Uzero>	Time OFF		1500 ms	1500 ms	1500 ms	0 ms	300000 ms
Only active for:		Connection Modes: 4-wire (LN+LL)						

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	Uavg	Enable function		on	on / off		on / off	
.043	Uavg off	U_{THR} OFF	%Unom /VUnom	106,00% (254,41V /442,44V)	106,00% (254,41V /442,44V)	106,00% (254,41V /442,44V)	100,00% (240,01V /417,40V)	135,00% (324,01V /563,49V)
.044	Uavg on	U_{THR} ON	%Unom /VUnom	104,00% (249,61V /434,10V)	104,00% (249,61V /434,10V)	104,00% (249,61V /434,10V)	100,00% (240,01V /417,40V)	135,00% (324,01V /563,49V)

Overfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.055	F> off	f_{THR} OFF	52,000 Hz	52,000 Hz	52,000 Hz	50,000 Hz	55,000 Hz
.056	F> on	f_{THR} ON	51,900 Hz	51,900 Hz	51,900 Hz	50,000 Hz	55,000 Hz
.057	T F>	Time OFF	2000 ms	2000 ms	2000 ms	100 ms	300000 ms

Underfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.059	F< off	f_{THR} OFF	47,000 Hz	47,000 Hz	47,000 Hz	40,000 Hz	50,000 Hz
.060	F< on	f_{THR} ON	47,500 Hz	47,500 Hz	47,500 Hz	40,000 Hz	50,000 Hz
.061	T F<	Time OFF	2000 ms	2000 ms	2000 ms	100 ms	300000 ms

Frequency measuring in general				Conformity Range			
ID			Default	Min	Max		
.113	F wnd	Window length	100 ms	100 ms	100 ms		

Rate of Change of Frequency (RoCoF)				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.090	RoCoF	En Function	on	on / off		on / off	
.091	RoCoF off	$RoCoF_{THR}$ OFF	1000 mHz/s	1000 mHz/s	1000 mHz/s	10 mHz/s	5000 mHz/s
.092	RoCoF on	$RoCoF_{THR}$ ON	950 mHz/s	950 mHz/s	950 mHz/s	10 mHz/s	4950 mHz/s
.093	RoCoFDelay	Time OFF	850 ms	850 ms	850 ms	100 ms	10000 ms
.111	RoCoF wnd	Window length	225 ms	100 ms	1000 ms	100 ms	1000 ms

Phase Shift (PShift)				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.094	PShift	Enable Function	on	on / off		on / off	
.095	PShift off	$PShift_{THR}$ OFF	8,0 °	8,0 °	8,0 °	1,0 °	25,0 °
.096	Pshift on	$PShift_{THR}$ ON	6,0 °	6,0 °	6,0 °	1,0 °	24,0 °
.097	PshiftDel	Time OFF	50 ms	50 ms	50 ms	50 ms	10000 ms
.112	PShift wnd	Window length	50 ms	50 ms	500 ms	50 ms	1000 ms

Auxiliary Contact type				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)	n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	Fixed to 500 ms				
.114	I3 STOP	Type	n.o. (normally opened)	n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.102	T on delay	Turn on time	60 s	0 s	60 s	0 s	900 s

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	SN: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device Serial Number dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

53. VIC-Western Power 23 [ID 1175]

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire LL+LN	4-wire LN - 4-wire LL+LN	2-wire LN - 4-wire LL+LN

Nominal Voltage				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y Unom Δ	240,01V /417,40V	230,00V /400,00V	240,01V /417,40V	99,99V /173,90V	240,01V /417,40V

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	2ch	2ch, 1ch	2ch, 1ch
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary 1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.010	VLL>	Enable function		on	on / off		on / off	
.011	VLL> off	U_{THR} OFF	%Unom /VUnom	106,00% (442,44V)	106,00% (442,44V)	106,00% (442,44V)	100,00% (417,40V)	135,00% (563,49V)
.012	VLL> off	U_{THR} ON	%Unom /VUnom	103,00% (429,92V)	103,00% (429,92V)	103,00% (429,92V)	100,00% (417,40V)	135,00% (563,49V)
.013	T VLL>	Time OFF		10000 ms	10000 ms	10000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.014	VLL<	Enable function		on				
.015	VLL< off	U_{THR} OFF	%Unom /VUnom	80,00% (333,92V)	80,00% (333,92V)	80,00% (333,92V)	0,00% (0,00V)	100,00% (417,40V)
.016	VLL< on	U_{THR} ON	%Unom /VUnom	83,00% (346,44V)	83,00% (346,44V)	83,00% (346,44V)	0,00% (0,00V)	100,00% (417,40V)
.017	T VLL<	Time OFF		10000 ms	10000 ms	10000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	V> off	U_{THR} OFF	%Unom /VUnom	106,00% (254,41V)	106,00% (254,41V)	106,00% (254,41V)	100,00% (240,01V)	135,00% (324,01V)
.020	V> on	U_{THR} ON	%Unom /VUnom	103,00% (247,21V)	103,00% (247,21V)	103,00% (247,21V)	100,00% (240,01V)	135,00% (324,01V)
.021	T V>	Time OFF		10000 ms	10000 ms	10000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	V< off	U_{THR} OFF	%Unom /VUnom	80,00% (192,00V)	80,00% (192,00V)	80,00% (192,00V)	0,00% (0,00V)	100,00% (240,01V)
.024	V< on	U_{THR} ON	%Unom /VUnom	83,00% (199,20V)	83,00% (199,20V)	83,00% (199,20V)	0,00% (0,00V)	100,00% (240,01V)
.025	T V<	Time OFF		10000 ms	10000 ms	10000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						

Overvoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.026	VLL>>	Enable function		on				
.027	VLL>> off	U_{THR} OFF	%Unom /VUnom	110,00% (459,14V)	110,00% (459,14V)	110,00% (459,14V)	100,00% (417,40V)	135,00% (563,49V)
.028	VLL>> on	U_{THR} ON	%Unom /VUnom	103,00% (429,92V)	103,00% (429,92V)	103,00% (429,92V)	100,00% (417,40V)	135,00% (563,49V)
.029	T VLL>>	Time OFF		500 ms	500 ms	500 ms	50 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.030	VLL<<	Enable function		on				
.031	VLL<< off	U_{THR} OFF	%Unom /VUnom	50,00% (208,70V)	50,00% (208,70V)	50,00% (208,70V)	0,00% (0,00V)	100,00% (417,40V)
.032	VLL<< on	U_{THR} ON	%Unom /VUnom	83,00% (346,44V)	83,00% (346,44V)	83,00% (346,44V)	0,00% (0,00V)	100,00% (417,40V)
.033	T VLL<<	Time OFF		500 ms	500 ms	500 ms	50 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.034	V>>	Enable function		on	on / off		on / off	
.035	V>> off	U_{THR} OFF	%Unom /VUnom	110,00% (264,01V)	110,00% (264,01V)	110,00% (264,01V)	100,00% (240,01V)	135,00% (324,01V)
.036	V>> on	U_{THR} ON	%Unom /VUnom	103,00% (247,21V)	103,00% (247,21V)	103,00% (247,21V)	100,00% (240,01V)	135,00% (324,01V)
.037	T V>>	Time OFF		500 ms	500 ms	500 ms	100 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.038	V<<	Enable function		on	on / off		on / off	
.039	V<< off	U_{THR} OFF	%Unom /VUnom	50,00% (120,00V)	50,00% (120,00V)	50,00% (120,00V)	0,00% (0,00V)	100,00% (240,01V)
.040	V<< on	U_{THR} ON	%Unom /VUnom	83,00% (199,20V)	83,00% (199,20V)	83,00% (199,20V)	0,00% (0,00V)	100,00% (240,01V)
.041	T V<<	Time OFF		500 ms	500 ms	500 ms	50 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Zero Voltage Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.115	Uzero>	Enable Function		off	on / off		on / off	
.116	Uzero> off	U_{THR} OFF	%Unom /VUnom	20,00% (48,00V)	20,00% (48,00V)	20,00% (48,00V)	1,00% (2,40V)	100,00% (240,01V)
.117	Uzero> on	U_{THR} ON	%Unom /VUnom	15,00% (36,00V)	15,00% (36,00V)	15,00% (36,00V)	1,00% (2,40V)	100,00% (240,01V)
.118	T Uzero>	Time OFF		1500 ms	1500 ms	1500 ms	0 ms	300000 ms
Only active for:		Connection Modes: 4-wire (LN+LL)						

Overfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.055	F> off	f_{THR} OFF	51,500 Hz	51,500 Hz	51,500 Hz	50,000 Hz	55,000 Hz
.056	F> on	f_{THR} ON	51,400 Hz	51,400 Hz	51,400 Hz	50,000 Hz	55,000 Hz
.057	T F>	Time OFF	2000 ms	0 ms	2000 ms	0 ms	300000 ms

Underfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.059	F< off	f_{THR} OFF	47,000 Hz	47,000 Hz	47,000 Hz	40,000 Hz	50,000 Hz
.060	F< on	f_{THR} ON	47,500 Hz	47,500 Hz	47,500 Hz	40,000 Hz	50,000 Hz
.061	T F<	Time OFF	10000 ms	10000 ms	10000 ms	100 ms	300000 ms

Frequency measuring in general				Conformity Range			
ID			Default	Min	Max		
.113	F wnd	Window length	100 ms	100 ms	100 ms		

Rate of Change of Frequency (RoCoF)				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.090	RoCoF	En Function	on	on / off		on / off	
.091	RoCoF off	$RoCoF_{THR}$ OFF	4000 mHz/s	4000 mHz/s	4000 mHz/s	10 mHz/s	5000 mHz/s
.092	RoCoF on	$RoCoF_{THR}$ ON	3950 mHz/s	3950 mHz/s	3950 mHz/s	10 mHz/s	4950 mHz/s
.093	RoCoFDelay	Time OFF	0 ms	0 ms	0 ms	0 ms	10000 ms
.111	RoCoF wnd	Window length	100 ms	100 ms	1000 ms	100 ms	1000 ms

Phase Shift (PShift)				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.094	PShift	Enable Function	on	on / off		on / off	
.095	PShift off	$PShift_{THR}$ OFF	12,0 °	12,0 °	12,0 °	1,0 °	25,0 °
.096	Pshift on	$PShift_{THR}$ ON	10,0 °	10,0 °	10,0 °	1,0 °	24,0 °
.097	PshiftDel	Time OFF	50 ms	50 ms	50 ms	50 ms	10000 ms
.112	PShift wnd	Window length	50 ms	50 ms	500 ms	50 ms	1000 ms

Auxiliary Contact type				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)	n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	Fixed to 500 ms				
.114	I3 STOP	Type	n.o. (normally opened)	n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.102	T on delay	Turn on time	60 s	0 s	60 s	0 s	900 s

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	SN: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device Serial Number dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

54. ACT-Evoenergy 23 [ID 1180]

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire LL+LN	4-wire LN - 4-wire LL+LN	2-wire LN - 4-wire LL+LN

Nominal Voltage				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y Unom Δ	240,01V /417,40V	230,00V /400,00V	240,01V /417,40V	99,99V /173,90V	240,01V /417,40V

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	2ch	2ch, 1ch	2ch, 1ch
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary 1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.010	VLL>	Enable function		on	on / off		on / off	
.011	VLL> off	U_{THR} OFF	%Unom /VUnom	110,00% (459,14V)	110,00% (459,14V)	110,00% (459,14V)	100,00% (417,40V)	135,00% (563,49V)
.012	VLL> off	U_{THR} ON	%Unom /VUnom	107,00% (446,62V)	107,00% (446,62V)	107,00% (446,62V)	100,00% (417,40V)	135,00% (563,49V)
.013	T VLL>	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.014	VLL<	Enable function		on				
.015	VLL< off	U_{THR} OFF	%Unom /VUnom	75,00% (313,05V)	75,00% (313,05V)	75,00% (313,05V)	0,00% (0,00V)	100,00% (417,40V)
.016	VLL< on	U_{THR} ON	%Unom /VUnom	78,00% (325,57V)	78,00% (325,57V)	78,00% (325,57V)	0,00% (0,00V)	100,00% (417,40V)
.017	T VLL<	Time OFF		11000 ms	11000 ms	11000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	V> off	U_{THR} OFF	%Unom /VUnom	110,00% (264,01V)	110,00% (264,01V)	110,00% (264,01V)	100,00% (240,01V)	135,00% (324,01V)
.020	V> on	U_{THR} ON	%Unom /VUnom	107,00% (256,81V)	107,00% (256,81V)	107,00% (256,81V)	100,00% (240,01V)	135,00% (324,01V)
.021	T V>	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	V< off	U_{THR} OFF	%Unom /VUnom	75,00% (180,00V)	75,00% (180,00V)	75,00% (180,00V)	0,00% (0,00V)	100,00% (240,01V)
.024	V< on	U_{THR} ON	%Unom /VUnom	78,00% (187,20V)	78,00% (187,20V)	78,00% (187,20V)	0,00% (0,00V)	100,00% (240,01V)
.025	T V<	Time OFF		11000 ms	11000 ms	11000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						

Undervoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.030	VLL<<	Enable function		on	on / off		on / off	
.031	VLL<< off	U_{THR} OFF	%Unom /VUnom	70,80% (295,52V)	70,80% (295,52V)	70,80% (295,52V)	0,00% (0,00V)	100,00% (417,40V)
.032	VLL<< on	U_{THR} ON	%Unom /VUnom	78,00% (325,57V)	78,00% (325,57V)	78,00% (325,57V)	0,00% (0,00V)	100,00% (417,40V)
.033	T VLL<<	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.038	V<<	Enable function		on	on / off		on / off	
.039	V<< off	U_{THR} OFF	%Unom /VUnom	70,80% (169,92V)	70,80% (169,92V)	70,80% (169,92V)	0,00% (0,00V)	100,00% (240,01V)
.040	V<< on	U_{THR} ON	%Unom /VUnom	78,00% (187,20V)	78,00% (187,20V)	78,00% (187,20V)	0,00% (0,00V)	100,00% (240,01V)
.041	T V<<	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Zero Voltage Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.115	Uzero>	Enable Function		off	on / off		on / off	
.116	Uzero> off	U_{THR} OFF	%Unom /VUnom	20,00% (48,00V)	20,00% (48,00V)	20,00% (48,00V)	1,00% (2,40V)	100,00% (240,01V)
.117	Uzero> on	U_{THR} ON	%Unom /VUnom	15,00% (36,00V)	15,00% (36,00V)	15,00% (36,00V)	1,00% (2,40V)	100,00% (240,01V)
.118	T Uzero>	Time OFF		1500 ms	1500 ms	1500 ms	0 ms	300000 ms
Only active for:		Connection Modes: 4-wire (LN+LL)						

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	Uavg	Enable function		on	on / off		on / off	
.043	Uavg off	U_{THR} OFF	%Unom /VUnom	106,00% (254,41V /442,44V)	106,00% (254,41V /442,44V)	106,00% (254,41V /442,44V)	100,00% (240,01V /417,40V)	135,00% (324,01V /563,49V)
.044	Uavg on	U_{THR} ON	%Unom /VUnom	104,00% (249,61V /434,10V)	104,00% (249,61V /434,10V)	104,00% (249,61V /434,10V)	100,00% (240,01V /417,40V)	135,00% (324,01V /563,49V)

Overfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.055	F> off	f_{THR} OFF	52,000 Hz	52,000 Hz	52,000 Hz	50,000 Hz	55,000 Hz
.056	F> on	f_{THR} ON	51,900 Hz	51,900 Hz	51,900 Hz	50,000 Hz	55,000 Hz
.057	T F>	Time OFF	2000 ms	2000 ms	2000 ms	100 ms	300000 ms

Underfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.059	F< off	f_{THR} OFF	47,000 Hz	47,000 Hz	47,000 Hz	40,000 Hz	50,000 Hz
.060	F< on	f_{THR} ON	47,500 Hz	47,500 Hz	47,500 Hz	40,000 Hz	50,000 Hz
.061	T F<	Time OFF	2000 ms	2000 ms	2000 ms	100 ms	300000 ms

Frequency measuring in general				Conformity Range			
ID			Default	Min	Max		
.113	F wnd	Window length	100 ms	100 ms	100 ms		

Rate of Change of Frequency (RoCoF)				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.090	RoCoF	En Function	on	on / off		on / off	
.091	RoCoF off	$RoCoF_{THR}$ OFF	1000 mHz/s	1000 mHz/s	1000 mHz/s	10 mHz/s	5000 mHz/s
.092	RoCoF on	$RoCoF_{THR}$ ON	950 mHz/s	950 mHz/s	950 mHz/s	10 mHz/s	4950 mHz/s
.093	RoCoFDelay	Time OFF	1850 ms	1850 ms	1850 ms	100 ms	10000 ms
.111	RoCoF wnd	Window length	225 ms	100 ms	1000 ms	100 ms	1000 ms

Phase Shift (PShift)				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.094	PShift	Enable Function	on	on / off		on / off	
.095	PShift off	$PShift_{THR}$ OFF	10,0 °	10,0 °	10,0 °	1,0 °	25,0 °
.096	Pshift on	$PShift_{THR}$ ON	8,0 °	8,0 °	8,0 °	1,0 °	24,0 °
.097	PshiftDel	Time OFF	50 ms	50 ms	50 ms	50 ms	10000 ms
.112	PShift wnd	Window length	50 ms	50 ms	500 ms	50 ms	1000 ms

Auxiliary Contact type				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)	n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	Fixed to 500 ms				
.114	I3 STOP	Type	n.o. (normally opened)	n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.102	T on delay	Turn on time	60 s	0 s	60 s	0 s	900 s

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	SN: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device Serial Number dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

55. QLD-Energex 23 [ID 1185]

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire LL+LN	4-wire LN - 4-wire LL+LN	2-wire LN - 4-wire LL+LN

Nominal Voltage				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y Unom Δ	240,01V /417,40V	230,00V /400,00V	240,01V /417,40V	99,99V /173,90V	240,01V /417,40V

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	2ch	2ch, 1ch	2ch, 1ch
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary 1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.010	VLL>	Enable function		on	on / off		on / off	
.011	VLL> off	U_{THR} OFF	%Unom /VUnom	114,00% (475,84V)	114,00% (475,84V)	114,00% (475,84V)	100,00% (417,40V)	135,00% (563,49V)
.012	VLL> off	U_{THR} ON	%Unom /VUnom	111,00% (463,31V)	111,00% (463,31V)	111,00% (463,31V)	100,00% (417,40V)	135,00% (563,49V)
.013	T VLL>	Time OFF		200 ms	200 ms	200 ms	50 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.014	VLL<	Enable function		on				
.015	VLL< off	U_{THR} OFF	%Unom /VUnom	75,00% (313,05V)	75,00% (313,05V)	75,00% (313,05V)	0,00% (0,00V)	100,00% (417,40V)
.016	VLL< on	U_{THR} ON	%Unom /VUnom	78,00% (325,57V)	78,00% (325,57V)	78,00% (325,57V)	0,00% (0,00V)	100,00% (417,40V)
.017	T VLL<	Time OFF		3000 ms	3000 ms	3000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	V> off	U_{THR} OFF	%Unom /VUnom	114,00% (273,61V)	114,00% (273,61V)	114,00% (273,61V)	100,00% (240,01V)	135,00% (324,01V)
.020	V> on	U_{THR} ON	%Unom /VUnom	111,00% (266,41V)	111,00% (266,41V)	111,00% (266,41V)	100,00% (240,01V)	135,00% (324,01V)
.021	T V>	Time OFF		200 ms	200 ms	200 ms	50 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	V< off	U_{THR} OFF	%Unom /VUnom	75,00% (180,00V)	75,00% (180,00V)	75,00% (180,00V)	0,00% (0,00V)	100,00% (240,01V)
.024	V< on	U_{THR} ON	%Unom /VUnom	78,00% (187,20V)	78,00% (187,20V)	78,00% (187,20V)	0,00% (0,00V)	100,00% (240,01V)
.025	T V<	Time OFF		3000 ms	3000 ms	3000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						

Undervoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.030	VLL<<	Enable function		on	on / off		on / off	
.031	VLL<< off	U_{THR} OFF	%Unom /VUnom	29,20% (121,88V)	29,20% (121,88V)	29,20% (121,88V)	0,00% (0,00V)	100,00% (417,40V)
.032	VLL<< on	U_{THR} ON	%Unom /VUnom	78,00% (325,57V)	78,00% (325,57V)	78,00% (325,57V)	0,00% (0,00V)	100,00% (417,40V)
.033	T VLL<<	Time OFF		3000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.038	V<<	Enable function		on	on / off		on / off	
.039	V<< off	U_{THR} OFF	%Unom /VUnom	29,20% (70,08V)	29,20% (70,08V)	29,20% (70,08V)	0,00% (0,00V)	100,00% (240,01V)
.040	V<< on	U_{THR} ON	%Unom /VUnom	78,00% (187,20V)	78,00% (187,20V)	78,00% (187,20V)	0,00% (0,00V)	100,00% (240,01V)
.041	T V<<	Time OFF		3000 ms	3000 ms	3000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Zero Voltage Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.115	Uzero>	Enable Function		off	on / off		on / off	
.116	Uzero> off	U_{THR} OFF	%Unom /VUnom	20,00% (48,00V)	20,00% (48,00V)	20,00% (48,00V)	1,00% (2,40V)	100,00% (240,01V)
.117	Uzero> on	U_{THR} ON	%Unom /VUnom	15,00% (36,00V)	15,00% (36,00V)	15,00% (36,00V)	1,00% (2,40V)	100,00% (240,01V)
.118	T Uzero>	Time OFF		1500 ms	1500 ms	1500 ms	0 ms	300000 ms
Only active for:		Connection Modes: 4-wire (LN+LL)						

Overfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.055	F> off	f_{THR} OFF	52,000 Hz	52,000 Hz	52,000 Hz	50,000 Hz	55,000 Hz
.056	F> on	f_{THR} ON	51,900 Hz	51,900 Hz	51,900 Hz	50,000 Hz	55,000 Hz
.057	T F>	Time OFF	2000 ms	2000 ms	2000 ms	100 ms	300000 ms

Underfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.059	F< off	f_{THR} OFF	47,000 Hz	47,000 Hz	47,000 Hz	40,000 Hz	50,000 Hz
.060	F< on	f_{THR} ON	47,500 Hz	47,500 Hz	47,500 Hz	40,000 Hz	50,000 Hz
.061	T F<	Time OFF	3000 ms	3000 ms	3000 ms	100 ms	300000 ms

Frequency measuring in general				Conformity Range			
ID			Default	Min	Max		
.113	F wnd	Window length	100 ms	100 ms	100 ms		

Rate of Change of Frequency (RoCoF)				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.090	RoCoF	En Function	on	on / off		on / off	
.091	RoCoF off	$RoCoF_{THR}$ OFF	4000 mHz/s	4000 mHz/s	4000 mHz/s	10 mHz/s	5000 mHz/s
.092	RoCoF on	$RoCoF_{THR}$ ON	3950 mHz/s	3950 mHz/s	3950 mHz/s	10 mHz/s	4950 mHz/s
.093	RoCoFDelay	Time OFF	350 ms	350 ms	350 ms	100 ms	10000 ms
.111	RoCoF wnd	Window length	225 ms	100 ms	1000 ms	100 ms	1000 ms

Auxiliary Contact type				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)	n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	Fixed to 500 ms				
.114	I3 STOP	Type	n.o. (normally opened)	n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.102	T on delay	Turn on time	60 s	0 s	60 s	0 s	900 s

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	SN: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device Serial Number dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

56. QLD-Ergon 23 [ID 1190]

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire LL+LN	4-wire LN - 4-wire LL+LN	2-wire LN - 4-wire LL+LN

Nominal Voltage				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y Unom Δ	240,01V /417,40V	230,00V /400,00V	240,01V /417,40V	99,99V /173,90V	240,01V /417,40V

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	2ch	2ch, 1ch	2ch, 1ch
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary 1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.010	VLL>	Enable function		on	on / off		on / off	
.011	VLL> off	U_{THR} OFF	%Unom /VUnom	114,00% (475,84V)	114,00% (475,84V)	114,00% (475,84V)	100,00% (417,40V)	135,00% (563,49V)
.012	VLL> off	U_{THR} ON	%Unom /VUnom	111,00% (463,31V)	111,00% (463,31V)	111,00% (463,31V)	100,00% (417,40V)	135,00% (563,49V)
.013	T VLL>	Time OFF		200 ms	200 ms	200 ms	50 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.014	VLL<	Enable function		on				
.015	VLL< off	U_{THR} OFF	%Unom /VUnom	75,00% (313,05V)	75,00% (313,05V)	75,00% (313,05V)	0,00% (0,00V)	100,00% (417,40V)
.016	VLL< on	U_{THR} ON	%Unom /VUnom	78,00% (325,57V)	78,00% (325,57V)	78,00% (325,57V)	0,00% (0,00V)	100,00% (417,40V)
.017	T VLL<	Time OFF		3000 ms	3000 ms	3000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	V> off	U_{THR} OFF	%Unom /VUnom	114,00% (273,61V)	114,00% (273,61V)	114,00% (273,61V)	100,00% (240,01V)	135,00% (324,01V)
.020	V> on	U_{THR} ON	%Unom /VUnom	111,00% (266,41V)	111,00% (266,41V)	111,00% (266,41V)	100,00% (240,01V)	135,00% (324,01V)
.021	T V>	Time OFF		200 ms	200 ms	200 ms	50 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	V< off	U_{THR} OFF	%Unom /VUnom	75,00% (180,00V)	75,00% (180,00V)	75,00% (180,00V)	0,00% (0,00V)	100,00% (240,01V)
.024	V< on	U_{THR} ON	%Unom /VUnom	78,00% (187,20V)	78,00% (187,20V)	78,00% (187,20V)	0,00% (0,00V)	100,00% (240,01V)
.025	T V<	Time OFF		3000 ms	3000 ms	3000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						

Undervoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.030	VLL<<	Enable function		on	on / off		on / off	
.031	VLL<< off	U_{THR} OFF	%Unom /VUnom	29,20% (121,88V)	29,20% (121,88V)	29,20% (121,88V)	0,00% (0,00V)	100,00% (417,40V)
.032	VLL<< on	U_{THR} ON	%Unom /VUnom	78,00% (325,57V)	78,00% (325,57V)	78,00% (325,57V)	0,00% (0,00V)	100,00% (417,40V)
.033	T VLL<<	Time OFF		3000 ms	3000 ms	3000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.038	V<<	Enable function		on	on / off		on / off	
.039	V<< off	U_{THR} OFF	%Unom /VUnom	29,20% (70,08V)	29,20% (70,08V)	29,20% (70,08V)	0,00% (0,00V)	100,00% (240,01V)
.040	V<< on	U_{THR} ON	%Unom /VUnom	78,00% (187,20V)	78,00% (187,20V)	78,00% (187,20V)	0,00% (0,00V)	100,00% (240,01V)
.041	T V<<	Time OFF		3000 ms	3000 ms	3000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Zero Voltage Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.115	Uzero>	Enable Function		off	on / off		on / off	
.116	Uzero> off	U_{THR} OFF	%Unom /VUnom	20,00% (48,00V)	20,00% (48,00V)	20,00% (48,00V)	1,00% (2,40V)	100,00% (240,01V)
.117	Uzero> on	U_{THR} ON	%Unom /VUnom	15,00% (36,00V)	15,00% (36,00V)	15,00% (36,00V)	1,00% (2,40V)	100,00% (240,01V)
.118	T Uzero>	Time OFF		1500 ms	1500 ms	1500 ms	0 ms	300000 ms
Only active for:		Connection Modes: 4-wire (LN+LL)						

Overfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.055	F> off	f_{THR} OFF	52,000 Hz	52,000 Hz	52,000 Hz	50,000 Hz	55,000 Hz
.056	F> on	f_{THR} ON	51,900 Hz	51,900 Hz	51,900 Hz	50,000 Hz	55,000 Hz
.057	T F>	Time OFF	2000 ms	2000 ms	2000 ms	100 ms	300000 ms

Underfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.059	F< off	f_{THR} OFF	47,000 Hz	47,000 Hz	47,000 Hz	40,000 Hz	50,000 Hz
.060	F< on	f_{THR} ON	47,500 Hz	47,500 Hz	47,500 Hz	40,000 Hz	50,000 Hz
.061	T F<	Time OFF	3000 ms	3000 ms	3000 ms	100 ms	300000 ms

Frequency measuring in general				Conformity Range			
ID			Default	Min	Max		
.113	F wnd	Window length	100 ms	100 ms	100 ms		

Rate of Change of Frequency (RoCoF)				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.090	RoCoF	En Function	on	on / off		on / off	
.091	RoCoF off	$RoCoF_{THR}$ OFF	4000 mHz/s	4000 mHz/s	4000 mHz/s	10 mHz/s	5000 mHz/s
.092	RoCoF on	$RoCoF_{THR}$ ON	3950 mHz/s	3950 mHz/s	3950 mHz/s	10 mHz/s	4950 mHz/s
.093	RoCoFDelay	Time OFF	350 ms	350 ms	350 ms	100 ms	10000 ms
.111	RoCoF wnd	Window length	225 ms	100 ms	1000 ms	100 ms	1000 ms

Auxiliary Contact type				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)	n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	Fixed to 500 ms				
.114	I3 STOP	Type	n.o. (normally opened)	n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.102	T on delay	Turn on time	60 s	0 s	60 s	0 s	900 s

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	SN: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device Serial Number dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

57. SA-Power networks23 [ID 1195]

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire LL+LN	4-wire LN - 4-wire LL+LN	2-wire LN - 4-wire LL+LN

Nominal Voltage				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y Unom Δ	230,00V /400,00V	230,00V /400,00V	240,01V /417,40V	99,99V /173,90V	240,01V /417,40V

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	2ch	2ch, 1ch	2ch, 1ch
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary 1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.010	VLL>	Enable function		on	on / off		on / off	
.011	VLL> off	U_{THR} OFF	%Unom /VUnom	113,00% (452,00V)	113,00% (452,00V)	113,00% (452,00V)	100,00% (400,00V)	135,00% (540,00V)
.012	VLL> on	U_{THR} ON	%Unom /VUnom	110,00% (440,00V)	110,00% (440,00V)	110,00% (440,00V)	100,00% (400,00V)	135,00% (540,00V)
.013	T VLL>	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.014	VLL<	Enable function		on	on / off		on / off	
.015	VLL< off	U_{THR} OFF	%Unom /VUnom	79,00% (316,00V)	79,00% (316,00V)	79,00% (316,00V)	0,00% (0,00V)	100,00% (400,00V)
.016	VLL< on	U_{THR} ON	%Unom /VUnom	81,00% (324,00V)	81,00% (324,00V)	81,00% (324,00V)	0,00% (0,00V)	100,00% (400,00V)
.017	T VLL<	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	V> off	U_{THR} OFF	%Unom /VUnom	113,00% (259,90V)	113,00% (259,90V)	113,00% (259,90V)	100,00% (230,00V)	135,00% (310,50V)
.020	V> on	U_{THR} ON	%Unom /VUnom	110,00% (253,00V)	110,00% (253,00V)	110,00% (253,00V)	100,00% (230,00V)	135,00% (310,50V)
.021	T V>	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	V< off	U_{THR} OFF	%Unom /VUnom	79,00% (181,70V)	79,00% (181,70V)	79,00% (181,70V)	0,00% (0,00V)	100,00% (230,00V)
.024	V< on	U_{THR} ON	%Unom /VUnom	81,00% (186,30V)	81,00% (186,30V)	81,00% (186,30V)	0,00% (0,00V)	100,00% (230,00V)
.025	T V<	Time OFF		2000 ms	2000 ms	2000 ms	50 ms	300000 ms
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						

Zero Voltage Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.115	Uzero>	Enable Function		off	on / off		on / off	
.116	Uzero> off	U_{THR} OFF	%Unom /VUnom	20,00% (46,00V)	20,00% (46,00V)	20,00% (46,00V)	1,00% (2,30V)	100,00% (230,00V)
.117	Uzero> on	U_{THR} ON	%Unom /VUnom	15,00% (34,50V)	15,00% (34,50V)	15,00% (34,50V)	1,00% (2,30V)	100,00% (230,00V)
.118	T Uzero>	Time OFF		1500 ms	1500 ms	1500 ms	0 ms	300000 ms
Only active for:		Connection Modes: 4-wire (LN+LL)						

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	Uavg	Enable function		on				
.043	Uavg off	U_{THR} OFF	%Unom /VUnom	112,00% (257,60V /448,00V)	112,00% (257,60V /448,00V)	112,00% (257,60V /448,00V)	100,00% (230,00V /400,00V)	135,00% (310,50V /540,00V)
.044	Uavg on	U_{THR} ON	%Unom /VUnom	110,00% (253,00V /440,00V)	110,00% (253,00V /440,00V)	110,00% (253,00V /440,00V)	100,00% (230,00V /400,00V)	135,00% (310,50V /540,00V)

Overfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.055	F> off	f_{THR} OFF	52,000 Hz	52,000 Hz	52,000 Hz	50,000 Hz	55,000 Hz
.056	F> on	f_{THR} ON	51,900 Hz	51,900 Hz	51,900 Hz	50,000 Hz	55,000 Hz
.057	T F>	Time OFF	2000 ms	2000 ms	2000 ms	100 ms	300000 ms

Underfrequency1				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.059	F< off	f_{THR} OFF	47,000 Hz	47,000 Hz	47,000 Hz	40,000 Hz	50,000 Hz
.060	F< on	f_{THR} ON	47,500 Hz	47,500 Hz	47,500 Hz	40,000 Hz	50,000 Hz
.061	T F<	Time OFF	2000 ms	2000 ms	2000 ms	100 ms	300000 ms

Frequency measuring in general				Conformity Range			
ID			Default	Min	Max		
.113	F wnd	Window length	100 ms	100 ms	100 ms		

Rate of Change of Frequency (RoCoF)				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.090	RoCoF	En Function	on	on / off		on / off	
.091	RoCoF off	$RoCoF_{THR}$ OFF	4000 mHz/s	4000 mHz/s	4000 mHz/s	10 mHz/s	5000 mHz/s
.092	RoCoF on	$RoCoF_{THR}$ ON	3950 mHz/s	3950 mHz/s	3950 mHz/s	10 mHz/s	4950 mHz/s
.093	RoCoFDelay	Time OFF	100 ms	850 ms	850 ms	100 ms	10000 ms
.111	RoCoF wnd	Window length	225 ms	100 ms	1000 ms	100 ms	1000 ms

Auxiliary Contact type				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)	n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	Fixed to 500 ms				
.114	I3 STOP	Type	n.o. (normally opened)	n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.102	T on delay	Turn on time	60 s	0 s	60 s	0 s	900 s

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	SN: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device Serial Number dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

58. NRS 097-2-1:2017 [ID 1000]

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire (LN)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	230.0	230.0	28.8	250.0
		Unom Δ	V	400.0	400.0	400.0	50.0	434.8

Functional Safety		Conformity Range	Possible Range
ID	Default		
.007	Errtol	Fixed to 2ch	
Remark:	2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.011	ULL>1 OFF	U_{THR} OFF	%Unom	111	111	111	100	135
.012	ULL>1 ON	U_{THR} ON	%Unom	109	100	109	100	135
.013	ULL>1 T	Time OFF	ms	2000	200	2000	200	60000
Comment:		ULL>1 OFF has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.015	ULL<1 OFF	U_{THR} OFF	%Unom	84	84	84	10	100
.016	ULL<1 ON	U_{THR} ON	%Unom	86	86	100	10	100
.017	ULL<1 T	Time OFF	ms	10000	600	10000	200	60000
Comment:		ULL<1 OFF has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	ULN>1 OFF	U_{THR} OFF	%Unom	111	111	111	100	135
.020	ULN>1 ON	U_{THR} ON	%Unom	109	100	109	100	135
.021	ULN>1 T	Time OFF	ms	2000	200	2000	200	60000
Comment:		ULN>1 OFF has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	ULN<1 OFF	U_{THR} OFF	%Unom	84	84	84	10	100
.024	ULN<1 ON	U_{THR} ON	%Unom	86	86	100	10	100
.025	ULN<1 T	Time OFF	ms	10000	600	10000	200	60000
Comment:		ULN<1 OFF has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						

Overvoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.027	ULL>2 OFF	U_{THR} OFF	%Unom	121	121	121	100	135
.028	ULL>2 ON	U_{THR} ON	%Unom	119	100	119	100	135
.029	ULL>2 T	Time OFF	ms	160	110	160	110	60000
Comment:		ULL>2 OFF has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.031	ULL<2 OFF	U_{THR} OFF	%Unom	49	49	49	10	100
.032	ULL<2 ON	U_{THR} ON	%Unom	51	51	100	10	100
.033	ULL<2 T	Time OFF	ms	200	150	200	150	60000
Comment:		ULL<2 OFF has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.035	ULN>2 OFF	U_{THR} OFF	%Unom	121	121	121	100	135
.036	ULN>2 ON	U_{THR} ON	%Unom	119	100	119	100	135
.037	ULN>2 T	Time OFF	ms	160	110	160	110	60000
Comment:		ULN>2 OFF has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.039	ULN<2 OFF	U_{THR} OFF	%Unom	49	49	49	10	100
.040	ULN<2 ON	U_{THR} ON	%Unom	51	51	100	10	100
.041	ULN<2 T	Time OFF	ms	200	150	200	150	60000
Comment:		ULN<2 OFF has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f>1 OFF	f_{THR} OFF	Hz	52.00	52.00	52.00	50.00	60.00
.056	f>1 ON	f_{THR} ON	Hz	50.50	50.00	50.50	50.00	60.00
.057	f>1 T	Time OFF	ms	4000	4000	4000	200	60000

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f<1 OFF	f_{THR} OFF	Hz	47.00	47.00	47.00	40.00	50.00
.060	f<1 ON	f_{THR} ON	Hz	47.10	47.10	50.00	40.00	50.00
.061	f<1 T	Time OFF	ms	200	200	200	200	60000

Random overfrequency					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.086	f>RND	Enable function		off	on / off		on /off	
.087	f>RND OFF	f_{THR} OFF	Hz		50.50	52.00	50.50	52.00
.088	f>RND ON	f_{THR} ON	Hz	50.10	50.00	50.49	50.00	50.49
.089	f>RND T	Time OFF	ms	4000	4000	4000	50	60000
Comment:		The random f_{THR} OFF threshold is shown in .087 and cannot be edited						

Frequency measuring in general				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms			

Rate of Change of Frequency (RoCoF)				Conformity Range		Possible Range	
ID			Default	Min	Max	Min	Max
.090	RoCoF	Enable Function	off	on / off		on / off	
.091	RoCoF OFF	$RoCoF_{THR}$ OFF	mHz/s	1000	10	9990	10	9990
.092	RoCoF ON	$RoCoF_{THR}$ ON	mHz/s	950	10	9990	100	9990
.093	RoCoFDelay	Time OFF	ms	500	50	60000	50	60000
.111	RoCoF wnd	Window length	ms	Fixed window length 225ms			

Phase Shift (PShift)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.094	PShift	Enable Function		off	on / off		on / off	
.095	PShift OFF	PShift $_{THR}$ OFF	°	7	2	20	2	20
.096	PShift ON	PShift $_{THR}$ ON	°	5	2	20	2	20
.097	PShift T	Time OFF	ms	0	0	60000	0	60000
.112	PShift wnd	Window length	ms	Fixed window length 200ms				

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	60	60	600	0	900

Random Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.103	Ton random	Enable function		off	on / off		on / off	
.104	Ton random	Turn on time	s		60	600	60	600
Comment:		The random time value is shown in .104 and cannot be edited						

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	on
Undervoltage LL (UΔ)	on
Overvoltage LN (UY)	on
Undervoltage LN (UY)	on
10-min overvoltage (Ū)	on
Overfrequency (f)	on
Underfrequency (f)	on
RoCoF (Rate of Change of Frequency) (Δf)	on
Phase shift (ΔΦ)	on
Remote shutdown / self-test (R)	off
Contactor feedback contact reports closed, although it should be open (C)	on
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	on

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

59. OPEN SETUP [ID 9006]

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire (LN)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	28.8	250.0	28.8	250.0
		Unom Δ	V	400.0	50.0	434.8	50.0	434.8

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	2ch	2ch, 1ch	2ch, 1ch
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary 1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.010	ULL>1	Enable function		on	on / off		on /off	
.011	ULL>1 OFF	U_{THR} OFF	%Unom	110	0	180	0	180
.012	ULL>1 ON	U_{THR} ON	%Unom	109	0	180	0	180
.013	ULL>1 T	Time OFF	ms	200	50	300000	50	300000
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.014	ULL<1	Enable function		on	on / off		on /off	
.015	ULL<1 OFF	U_{THR} OFF	%Unom	90	0	180	0	180
.016	ULL<1 ON	U_{THR} ON	%Unom	91	0	180	0	180
.017	ULL<1 T	Time OFF	ms	200	50	300000	50	300000
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.018	ULN>1	Enable function		on	on / off		on /off	
.019	ULN>1 OFF	U_{THR} OFF	%Unom	110	0	180	0	180
.020	ULN>1 ON	U_{THR} ON	%Unom	109	0	180	0	180
.021	ULN>1 T	Time OFF	ms	200	50	300000	50	300000
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.022	ULN<1	Enable function		on	on / off		on /off	
.023	ULN<1 OFF	U_{THR} OFF	%Unom	90	0	180	0	180
.024	ULN<1 ON	U_{THR} ON	%Unom	91	0	180	0	180
.025	ULN<1 T	Time OFF	ms	200	50	300000	50	300000
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						

Overvoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.026	ULL>2	Enable function		on	on / off		on /off	
.027	ULL>2 OFF	U_{THR} OFF	%Unom	120	0	180	0	180
.028	ULL>2 ON	U_{THR} ON	%Unom	119	0	180	0	180
.029	ULL>2 T	Time OFF	ms	100	50	300000	50	300000
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.030	ULL<2	Enable function		on	on / off		on /off	
.031	ULL<2 OFF	U_{THR} OFF	%Unom	80	0	180	0	180
.032	ULL<2 ON	U_{THR} ON	%Unom	81	0	180	0	180
.033	ULL<2 T	Time OFF	ms	100	50	300000	50	300000
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.034	ULN>2	Enable function		on	on / off		on /off	
.035	ULN>2 OFF	U_{THR} OFF	%Unom	120	0	180	0	180
.036	ULN>2 ON	U_{THR} ON	%Unom	119	0	180	0	180
.037	ULN>2 T	Time OFF	ms	100	50	300000	50	300000
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.038	ULN<2	Enable function		on	on / off		on /off	
.039	ULN<2 OFF	U_{THR} OFF	%Unom	80	0	180	0	180
.040	ULN<2 ON	U_{THR} ON	%Unom	81	0	180	0	180
.041	ULN<2 T	Time OFF	ms	100	50	300000	50	300000
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	UAVG>	Enable function		on	on / off		on /off	
.043	UAVG> OFF	U_{THR} OFF	%Unom	110	0	180	0	180
.044	UAVG> ON	U_{THR} ON	%Unom	109	0	180	0	180
.045	UAVG> T	Time OFF	ms	0	0	300000	0	300000

Deactivation frequency monitoring LL					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.046	fdeac ULL<	Enable function		off	on / off		on /off	
.047	ULL< OFF	U_{THR} OFF	%Unom	9.5	9.5	60	2	100
		U_{THR} ON	%Unom	Fixed Hysteresis (1% U_{NOM})				

Deactivation frequency monitoring LN					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.050	fdeac ULN<	Enable function		off	on / off		on /off	
.051	ULN< OFF	U_{THR} OFF	%Unom	9.5	9.5	60	2	100
		U_{THR} ON	%Unom	Fixed Hysteresis (1% U_{NOM})				

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.054	f>1	Enable function		on	on / off		on /off	
.055	f>1 OFF	f_{THR} OFF	Hz	51.00	40.00	65.00	40.00	65.00
.056	f>1 ON	f_{THR} ON	Hz	50.90	40.00	65.00	40.00	65.00
.057	f>1 T	Time OFF	ms	200	75	300000	75	300000

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.058	f<1	Enable function		on	on / off		on /off	
.059	f<1 OFF	f_{THR} OFF	Hz	49.00	40.00	65.00	40.00	65.00
.060	f<1 ON	f_{THR} ON	Hz	49.10	40.00	65.00	40.00	65.00
.061	f<1 T	Time OFF	ms	200	75	300000	75	300000

Overfrequency2					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.062	f>2	Enable function		on	on / off		on /off	
.063	f>2 OFF	f_{THR} OFF	Hz	52.00	40.00	65.00	40.00	65.00
.064	f>2 ON	f_{THR} ON	Hz	51.90	40.00	65.00	40.00	65.00
.065	f>1 T	Time OFF	ms	100	75	300000	75	300000

Underfrequency2					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.066	f<2	Enable function		on	on / off		on /off	
.067	f<2 OFF	f_{THR} OFF	Hz	48.00	40.00	65.00	40.00	65.00
.068	f<2 ON	f_{THR} ON	Hz	48.10	40.00	65.00	40.00	65.00
.069	f<2 T	Time OFF	ms	100	75	300000	75	300000

Random overfrequency					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.086	f>RND	Enable function		off	on / off		on /off	
.087	f>RND OFF	f_{THR} OFF	Hz		50.20	51.50	50.20	51.50
.088	f>RND ON	f_{THR} ON	Hz	50.05	50.00	50.19	50.00	50.19
.089	f>RND T	Time OFF	ms	100	50	300000	50	300000
Comment:		The random f_{THR} OFF threshold is shown in .087 and cannot be edited						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	100	100	1000	100	1000

Rate of Change of Frequency (RoCoF)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.090	RoCoF	Enable Function		off	on / off		on / off	
.091	RoCoF OFF	$RoCoF_{THR}$ OFF	mHz/s	1000	10	9990	10	9990
.092	RoCoF ON	$RoCoF_{THR}$ ON	mHz/s	950	10	9990	10	9990
.093	RoCoFDelay	Time OFF	ms	500	50	300000	50	300000
.111	RoCoF wnd	Window length	ms	225	100	1000	100	1000

Phase Shift (PShift)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.094	PShift	Enable Function		off	on / off		on / off	
.095	PShift OFF	$PShift_{THR}$ OFF	°	7	2	20	2	20
.096	PShift ON	$PShift_{THR}$ ON	°	5	2	20	2	20
.097	PShift T	Time OFF	ms	0	0	300000	0	300000
.112	PShift wnd	Window length	ms	200	50	500	50	1000

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	60	0	600	0	900

Random Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.103	Ton random	Enable function		off	on / off		on / off	
.104	Ton random	Turn on time	s		60	600	60	600
Comment:		The random time value is shown in .104 and cannot be edited						

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Errorlogic signalled (shown) on output relay R3. On = it is possible to detect this error Off = it is not possible to show this error on relay R3	
Overvoltage LL (UΔ)	On/off
Undervoltage LL (UΔ)	On/off
Overvoltage LN (UY)	On/off
Undervoltage LN (UY)	On/off
10-min overvoltage (Ū)	On/off
Overfrequency (f)	On/off
Underfrequency (f)	On/off
RoCoF (Rate of Change of Frequency) (Δf)	On/off
Phase shift (ΔΦ)	On/off
Remote shutdown / self-test (R)	On/off
Contactor feedback contact reports closed, although it should be open (C)	On/off
Contactor feedback contact reports open, although it should be closed (no error, only info) (c)	On/off

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

88. EN50438:2013 [ID 900]

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	Fixed to 4-wire (LN)		

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	230.0	230.0	100.0	240.0
		Unom Δ	V	400.0	400.0	400.0	173.9	417.4

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	Fixed to 2ch		
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary		

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	U > off	U_{THR} OFF	%Unom	115	115	115	100	135
.020	U > on	U_{THR} ON	%Unom	110	110	110	100	135
		Time OFF	ms	Fixed to 100ms				
Comment:		U > on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	U < off	U_{THR} OFF	%Unom	85	85	85	10	100
.024	U < on	U_{THR} ON	%Unom	85	85	85	10	100
.025	U < t	Time OFF	ms	1300	1300	1300	50	10000
Comment:		U < on has a fixed offset of 0.5% U_{NOM} added to the displayed value						

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.043	U avg off	U_{THR} OFF	%Unom	110	110	110	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (0.9% U_{NOM})				
		Time OFF	ms	Fixed to fastest possible disconnection				

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	Hz	52.00	52.00	52.00	50.00	55.00
.056	f > on	f_{THR} ON	Hz	50.05	50.05	50.05	50.00	55.00
.057	f > t	Time OFF	ms	400	400	400	50	10000

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	47.50	47.50	47.50	45.00	50.00
.060	f < on	f_{THR} ON	Hz	47.50	47.50	47.50	45.00	50.00
.061	f < t	Time OFF	ms	400	400	400	50	10000
Comment:		f < on has a fixed offset of 0.025 Hz added to the displayed value						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	60	60	60	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

89. OVE E8001/8101:2014 [ID 801] renewed standard

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire (LN)	4-wire (LN)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	230.0	230.0	28.8	241.4
		Unom Δ	V	400.0	400.0	400.0	50.0	420.0

Functional Safety		Conformity Range	Possible Range
ID		Default	
.007	Errtol	Fixed to 2ch	
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary	

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.011	ULLmax1off	U_{THR} OFF	%Unom	115	115	115	100	135
.012	ULLmax1on	U_{THR} ON	%Unom	110	110	110	100	135
.013	T ULL max1	Time OFF	ms	50	50	180000	50	180000
Comment:		ULLmax1on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.015	ULLmin1off	U_{THR} OFF	%Unom	80	80	80	10	100
.016	ULLmin1on	U_{THR} ON	%Unom	90	90	90	10	100
.017	T ULL min1	Time OFF	ms	50	50	180000	50	180000
Comment:		ULLmin1on has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	ULNmax1off	U_{THR} OFF	%Unom	115	115	115	100	135
.020	ULNmax1on	U_{THR} ON	%Unom	110	110	110	100	135
.021	T ULN max1	Time OFF	ms	50	50	180000	50	180000
Comment:		ULNmax1on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	ULNmin1off	U_{THR} OFF	%Unom	80	80	80	10	100
.024	ULNmin1on	U_{THR} ON	%Unom	90	90	90	10	100
.025	T ULN min1	Time OFF	ms	50	50	180000	50	180000
Comment:		ULNmin1on has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						

Overvoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.026	ULL max 2	Enable function		off	on / off		on /off	
.027	ULLmax2off	U_{THR} OFF	%Unom	105	100	135	100	135
.028	ULLmax2on	U_{THR} ON	%Unom	110	110	110	100	135
.029	T ULL max2	Time OFF	ms	60000	50	180000	50	180000
Comment:		ULLmax2on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.030	ULL min 2	Enable function		off	on / off		on /off	
.031	ULLmin2off	U_{THR} OFF	%Unom	30	10	100	10	100
.032	ULLmin2on	U_{THR} ON	%Unom	90	90	90	0	100
.033	T ULL min2	Time OFF	ms	50	50	180000	50	180000
Comment:		ULLmin2on has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.034	ULN max 2	Enable function		off	on / off		on /off	
.035	ULNmax2off	U_{THR} OFF	%Unom	105	100	135	100	135
.036	ULNmax2on	U_{THR} ON	%Unom	110	110	110	100	135
.037	T ULN max2	Time OFF	ms	60000	50	180000	50	180000
Comment:		ULNmax2on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.038	ULN min 2	Enable function		off	on / off		on /off	
.039	ULNmin2off	U_{THR} OFF	%Unom	30	10	100	10	100
.040	ULNmin2on	U_{THR} ON	%Unom	90	90	90	0	100
.041	T ULN min2	Time OFF	ms	50	50	180000	50	180000
Comment:		ULNmin2on has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	U avg	Enable function		on	on		on /off	
.043	U avg off	U_{THR} OFF	%Unom	112	110	115	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (0.9% U_{NOM})				
		Time OFF	ms	Fixed to fastest possible disconnection				

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	Hz	51.50	51.50	51.50	50.00	55.00
		f_{THR} ON	Hz	Fixed reconnection frequency of 50.05Hz				
		Time OFF	ms	Fixed to fastest possible disconnection				

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	47.50	47.50	47.50	45.00	50.00
.060	f < on	f_{THR} ON	Hz	47.50	47.50	47.50	45.00	50.00
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		f < on has a fixed offset of 0.01 Hz added to the displayed value						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	30	30	30	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

90. VDE 0124-100:2013 [ID 300] renewed standard

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	Fixed to 4-wire (LN+LL)		

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y Unom Δ	V V	Fixed to 230.0 / 400.0				

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	Fixed to 2ch		
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.011	ULLmax off	U_{THR} OFF	%Unom	115	115	115	100	135
.012	ULLmax on	U_{THR} ON	%Unom	110	110	110	100	135
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		ULLmax on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.015	ULLmin off	U_{THR} OFF	%Unom	80	80	80	10	100
.016	ULLmin on	U_{THR} ON	%Unom	85	85	85	10	100
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		ULLmin on has a fixed offset of 0.5% U_{NOM} added to the displayed value						

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	U >> off	U_{THR} OFF	%Unom	115	115	115	100	135
.020	U >> on	U_{THR} ON	%Unom	110	110	110	100	135
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		U >> on has a fixed offset of 0.5% U_{NOM} subtracted from the displayed value						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	U < off	U_{THR} OFF	%Unom	80	80	80	10	100
.024	U < on	U_{THR} ON	%Unom	85	85	85	10	100
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		U < on has a fixed offset of 0.5% U_{NOM} added to the displayed value						

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.043	U>	U_{THR} OFF	%Unom	110	110	115	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (0.9% U_{NOM})				
		Time OFF	ms	Fixed to fastest possible disconnection				

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	Hz	51.50	51.50	51.50	50.00	55.00
.056	f > on	f_{THR} ON	Hz	50.05	50.05	50.05	50.00	55.00
		Time OFF	ms	Fixed to fastest possible disconnection				

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	47.50	47.50	47.50	45.00	50.00
.060	f < on	f_{THR} ON	ms	47.50	47.50	47.50	45.00	50.00
		f_{THR} ON	Hz	Fixed reconnection frequency of 50.05Hz				
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		f < on has a fixed offset of 0.025 Hz added to the displayed value						

Random overfrequency					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.086	f> random	Enable function		off	on / off		on /off	
.087	f> random	f_{THR} OFF	Hz		50.20	51.50	50.20	51.50
		f_{THR} ON	Hz	Fixed reconnection frequency of 50.05Hz				
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		The random f_{THR} OFF threshold is shown in .087 and cannot be edited						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	60	60	60	0	900

Random Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.103	Ton random	Enable function		off	on / off		on / off	
.104	Ton random	Turn on time	s		60	600	60	600
Comment:		The random time value is shown in .104 and cannot be edited						

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

91. TR3 Rev23:2013 [ID 700] renewed standard

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire (LN)	3-wire, 4-wire (LN)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	57.5	230.0	28.8	241.4
		Unom Δ	V	400.0	100.0	400.0	50.0	420.0

Functional Safety		Conformity Range	Possible Range
ID	Default		
.007	Errtol	Fixed to 1ch	
Remark:	1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.011	ULL>> Off	U_{THR} OFF	%Unom	120	100	130	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (1% U_{NOM})				
.013	T ULL>>	Time OFF	ms	50	50	50	50	10000
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.015	ULL< Off	U_{THR} OFF	%Unom	80	10	100	10	100
.016	ULL< On	U_{THR} ON	%Unom	95	95	95	10	100
.017	T ULL<	Time OFF	ms	1500	1500	2400	50	10000
Comment:		ULL< On has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	ULN>> Off	U_{THR} OFF	%Unom	120	100	130	100	135
		U_{THR} ON		Fixed Hysteresis (1% U_{NOM})				
.021	T ULN>>	Time OFF	ms	50	50	50	50	10000
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	ULN< Off	U_{THR} OFF	%Unom	80	10	100	10	100
.024	ULN< On	U_{THR} ON	%Unom	95	95	95	10	100
.025	T ULN<	Time OFF	ms	1500	1500	2400	50	10000
Comment:		ULN< On has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						

Undervoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.031	ULL<< Off	U_{THR} OFF	%Unom	45	10	100	0	100
.032	ULL<< On	U_{THR} ON	%Unom	95	95	95	10	100
.033	T ULL<<	Time OFF	ms	300	300	300	50	10000
Comment:		ULL<< On has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.039	ULN<< Off	U_{THR} OFF	%Unom	45	10	100	0	100
.040	ULN<< On	U_{THR} ON	%Unom	95	95	95	10	100
.041	T ULN<<	Time OFF	ms	300	300	300	50	10000
Comment:		ULN<< On has a fixed offset of 0.5% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f> Off	f_{THR} OFF	Hz	51.50	50.00	52.00	50.00	55.00
.056	f> On	f_{THR} ON	Hz	50.05	50.05	50.05	50.00	55.00
.057	T f>	Time OFF	ms	50	50	50	50	10000

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f< Off	f_{THR} OFF	Hz	47.50	47.50	50.00	45.00	50.00
.060	f< On	f_{THR} ON	Hz	47.50	47.50	47.50	45.00	50.00
.061	T f<	Time OFF	ms	50	50	50	50	10000
Comment:		f< On has a fixed offset of 0.025 Hz added to the displayed value						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	60	0	60	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

92. AS/NZS 4777.2:2015 [ID 1102] renewed standard

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire (LN)	4-wire (LN)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	230.0	240.0	100.0	240.0
		Unom Δ	V	400.0	400.0	417.4	173.9	417.4

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	Fixed to 2ch		
Remark:		2ch means: 2 channel with functional safety and 2 auxilliary contacts necessary		

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	V> off	U_{THR} OFF	%Unom	113	113	113	100	135
.020	V> on	U_{THR} ON	%Unom	111	100	112	100	135
.021	T V>	Time OFF	ms	2000	1100	2000	100	300000

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	V< off	U_{THR} OFF	%Unom	78	78	78	0	100
.024	V< on	U_{THR} ON	%Unom	80	79	100	0	100
.025	T V<	Time OFF	ms	2000	1100	2000	100	300000

Overvoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.034	V>>	Enable function		off	on /off		on /off	
.035	V>> off	U_{THR} OFF	%Unom	115	115	115	100	135
.036	V>> on	U_{THR} ON	%Unom	111	100	112	100	135
.037	T V>>	Time OFF	ms	200	100	200	100	300000

10 minutes average overvoltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.042	Uavg	Enable function		on	on / off		on /off	
.043	Uavg off	U_{THR} OFF	%Unom	112	112	112	100	135
.044	Uavg on	U_{THR} ON	%Unom	111	100	111	100	135
		Time OFF	ms	Fixed to fastest possible disconnection				

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	F> off	f_{THR} OFF	Hz	52.00	52.00	52.00	50.00	55.00
.056	F> on	f_{THR} ON	Hz	51.90	50.00	51.90	50.00	55.00
.057	T F>	Time OFF	ms	2000	100	2000	100	300000

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	F< off	f_{THR} OFF	Hz	47.00	45.00	47.00	40.00	50.00
.060	F< on	f_{THR} ON	Hz	47.50	45.50	50.00	40.00	50.00
.061	T F<	Time OFF	ms	2000	1100	2000	1000	300000

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Rate of Change of Frequency (RoCoF)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.090	RoCoF	Enable Function		on	on / off		on / off	
.091	RoCoF off	$RoCoF_{THR}$ OFF	mHz/s	1000	10	3000	10	3000
.092	RoCoF on	$RoCoF_{THR}$ ON	mHz/s	950	10	3000	10	3000
.093	RoCoFDelay	Time OFF	ms	500	50	500	50	10000
.111	RoCoF wnd	Window length	ms	225	100	1000	100	1000

Phase Shift (PShift)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.094	PShift	Enable Function		on	on / off		on / off	
.095	PShift off	$PShift_{THR}$ OFF	°	8	1	8	1	15
.096	PShift on	$PShift_{THR}$ ON	°	6	1	7	1	15
.097	PShiftDel	Time OFF	ms	50	50	50	50	10000
.112	PShift wnd	Window length	ms	50	50	500	50	1000

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	60	0	60	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

93. G59/3/3:2015 LV [ID 405] renewed standard

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	Fixed to 4-wire (LN)		

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	230.0	240.0	100.0	240.0
		Unom Δ	V	400.0	400.0	417.4	173.9	417.4

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	Fixed to 1ch		
Remark:		1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	O/V st 1	U_{THR} OFF	%Unom	114	114	114	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (0.75% U_{NOM})				
.021	T O/V st 1	Time OFF	ms	1000	1000	1000	50	300000

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	U/V st 1	U_{THR} OFF	%Unom	87	87	87	0	100
		U_{THR} ON	%Unom	Fixed Hysteresis (0.75% U_{NOM})				
.025	T U/V st 1	Time OFF	ms	2500	2500	2500	50	300000

Overvoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.035	O/V st 2	U_{THR} OFF	%Unom	119	119	119	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (0.75% U_{NOM})				
.037	T O/V st 2	Time OFF	ms	500	500	500	50	300000

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.039	U/V st 2	U_{THR} OFF	%Unom	80	80	80	0	100
		U_{THR} ON	%Unom	Fixed Hysteresis (0.75% U_{NOM})				
.041	T U/V st 2	Time OFF	ms	500	500	500	50	300000

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	O/F st 1	f_{THR} OFF	Hz	51.50	51.50	51.50	50.00	55.00
		f_{THR} ON	Hz	Fixed Hysteresis (0.05 Hz)				
.057	T O/F st 1	Time OFF	ms	90000	90000	90000	1000	300000

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	U/F st 1	f_{THR} OFF	Hz	47.50	47.50	47.50	40.00	50.00
		f_{THR} ON	Hz	Fixed Hysteresis (0.05 Hz)				
.061	T U/F st 1	Time OFF	ms	20000	20000	20000	1000	300000

Overfrequency2					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.063	O/F st 2	f_{THR} OFF	Hz	52.00	52.00	52.00	50.00	55.00
		f_{THR} ON	Hz	Fixed Hysteresis (0.05 Hz)				
.065	T O/F st 2	Time OFF	ms	500	500	500	50	300000

Underfrequency2					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.067	U/F st 2	f_{THR} OFF	Hz	47.00	47.00	47.00	40.00	50.00
		f_{THR} ON	Hz	Fixed Hysteresis (0.05 Hz)				
.069	T U/F st 2	Time OFF	ms	500	500	500	50	300000

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Rate of Change of Frequency (RoCoF)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.090	RoCoF	Enable Function		on	on / off		on / off	
.091	RoCoF off	$RoCoF_{THR}$ OFF	mHz/s	1000	10	3000	10	3000
.092	RoCoF on	$RoCoF_{THR}$ ON	mHz/s	950	10	3000	10	3000
.093	RoCoFDelay	Time OFF	ms	500	50	2000	50	2000
.111	RoCoF wnd	Window length	ms	Fixed window length 225ms				

Phase Shift (PShift)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.094	PShift	Enable Function		off	on / off		on / off	
.095	PShift off	$PShift_{THR}$ OFF	°	12	6	12	3	15
.096	PShift on	$PShift_{THR}$ ON	°	9	5	11	3	15
		Time OFF	ms	Fixed to the fastest possible disconnection				
.112	PShift wnd	Window length	ms	Fixed window length 200ms				

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	20	20	20	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

94. G59/3/3:2015 MV [ID 455] renewed standard

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	Fixed to 3-wire		

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	57.5	230.0	28.8	241.4
		Unom Δ	V	400.0	100.0	400.0	50.0	420.0

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	Fixed to 1ch		
Remark:		1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.011	O/V st 1	U_{THR} OFF	%Unom	110	110	110	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (0.75% U_{NOM})				
.013	T O/V st 1	Time OFF	ms	1000	1000	1000	50	300000

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.015	U/V st 1	U_{THR} OFF	%Unom	87	87	87	0	100
		U_{THR} ON	%Unom	Fixed Hysteresis (0.75% U_{NOM})				
.017	T U/V st 1	Time OFF	ms	2500	2500	2500	50	300000

Overvoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.027	O/V st 2	U_{THR} OFF	%Unom	113	113	113	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (0.75% U_{NOM})				
.029	T O/V st 2	Time OFF	ms	500	500	500	50	300000

Undervoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.031	U/V st 2	U_{THR} OFF	%Unom	80	80	80	0	100
		U_{THR} ON	%Unom	Fixed Hysteresis (0.75% U_{NOM})				
.033	T U/V st 2	Time OFF	ms	500	500	500	50	300000

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	O/F st 1	f_{THR} OFF	Hz	51.50	51.50	51.50	50.00	55.00
		f_{THR} ON	Hz	Fixed Hysteresis (0.05 Hz)				
.057	T O/F st 1	Time OFF	ms	90000	90000	90000	1000	300000

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	U/F st 1	f_{THR} OFF	Hz	47.50	47.50	47.50	40.00	50.00
		f_{THR} ON	Hz	Fixed Hysteresis (0.05 Hz)				
.061	T U/F st 1	Time OFF	ms	20000	20000	20000	1000	300000

Overfrequency2					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.063	O/F st 2	f_{THR} OFF	Hz	52.00	52.00	52.00	50.00	55.00
		f_{THR} ON	Hz	Fixed Hysteresis (0.05 Hz)				
.065	T O/F st 2	Time OFF	ms	500	500	500	50	300000

Underfrequency2					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.067	U/F st 2	f_{THR} OFF	Hz	47.00	47.00	47.00	40.00	50.00
		f_{THR} ON	Hz	Fixed Hysteresis (0.05 Hz)				
.069	T U/F st 2	Time OFF	ms	500	500	500	50	300000

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Rate of Change of Frequency (RoCoF)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.090	RoCoF	Enable Function		on	on / off		on / off	
.091	RoCoF off	$RoCoF_{THR}$ OFF	mHz/s	1000	10	3000	10	3000
.092	RoCoF on	$RoCoF_{THR}$ ON	mHz/s	950	10	3000	10	3000
.093	RoCoFDelay	Time OFF	ms	500	50	2000	50	2000
.111	RoCoF wnd	Window length	ms	Fixed window length 225ms				

Phase Shift (PShift)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.094	PShift	Enable Function		off	on / off		on / off	
.095	PShift off	$PShift_{THR}$ OFF	°	12	6	12	3	15
.096	PShift on	$PShift_{THR}$ ON	°	9	5	11	3	15
		Time OFF	ms	Fixed to the fastest possible disconnection				
.112	PShift wnd	Window length	ms	Fixed window length 200ms				
Comment:		PShift off has a fixed offset of 0.2° subtracted from the displayed value						

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	20	20	20	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

95. G83/2:2012 [ID 500] renewed standard

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	Fixed to 4-wire (LN)		

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	230.0	240.0	100.0	240.0
		Unom Δ	V	400.0	400.0	417.4	173.9	417.4

Functional Safety			Conformity Range	Possible Range
ID		Default		
.007	Errtol	Fixed to 1ch		
Remark:		1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	O/V st 1	U_{THR} OFF	%Unom	114	114	114	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (0.75% U_{NOM})				
.021	T O/V st 1	Time OFF	ms	1000	1000	1000	50	10000

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	U/V st 1	U_{THR} OFF	%Unom	87	87	87	0	100
		U_{THR} ON	%Unom	Fixed Hysteresis (0.75% U_{NOM})				
.025	T U/V st 1	Time OFF	ms	2500	2500	2500	50	10000

Overvoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.035	O/V st 2	U_{THR} OFF	%Unom	119	119	119	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (0.75% U_{NOM})				
.037	T O/V st 2	Time OFF	ms	500	500	500	50	10000

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.039	U/V st 2	U_{THR} OFF	%Unom	80	80	80	0	100
		U_{THR} ON	%Unom	Fixed Hysteresis (0.75% U_{NOM})				
.041	T U/V st 2	Time OFF	ms	500	500	500	50	10000

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	O/F st 1	f_{THR} OFF	Hz	51.50	51.50	51.50	50.00	55.00
		f_{THR} ON	Hz	Fixed Hysteresis (0.05 Hz)				
.057	T O/F st 1	Time OFF	ms	90000	90000	90000	1000	120000

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	U/F st 1	f_{THR} OFF	Hz	47.50	47.50	47.50	40.00	50.00
		f_{THR} ON	Hz	Fixed Hysteresis (0.05 Hz)				
.061	T U/F st 1	Time OFF	ms	20000	20000	20000	1000	120000

Overfrequency2					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.063	O/F st 2	f_{THR} OFF	Hz	52.00	52.00	52.00	50.00	55.00
		f_{THR} ON	Hz	Fixed Hysteresis (0.05 Hz)				
.065	T O/F st 2	Time OFF	ms	500	500	500	50	10000

Underfrequency2					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.067	U/F st 2	f_{THR} OFF	Hz	47.00	47.00	47.00	40.00	50.00
		f_{THR} ON	Hz	Fixed Hysteresis (0.05 Hz)				
.069	T U/F st 2	Time OFF	ms	500	500	500	50	10000

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Rate of Change of Frequency (RoCoF)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.090	RoCoF	Enable Function		off	on / off		on / off	
.091	RoCoF off	$RoCoF_{THR}$ OFF	mHz/s	200	190	210	100	1000
.092	RoCoF on	$RoCoF_{THR}$ ON	mHz/s	190	180	210	100	1000
		Time OFF	ms	Fixed to the fastest possible disconnection				
.111	RoCoF wnd	Window length	ms	Fixed window length 535ms				

Phase Shift (PShift)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.094	PShift	Enable Function		on	on / off		on / off	
.095	PShift off	$PShift_{THR}$ OFF	°	12.0	11.0	13.0	3.0	15.0
.096	PShift on	$PShift_{THR}$ ON	°	10.5	9.5	13.0	3.0	15.0
		Time OFF	ms	Fixed to the fastest possible disconnection				
.112	PShift wnd	Window length	ms	Fixed window length 200ms				

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	20	20	20	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

96. C10-11:2013 LV [ID 600] renewed standard

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire (LN)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y Unom Δ	V V	230.0 400.0	230.0 400.0	230.0 400.0	100.0 173.9	240.0 417.4

Functional Safety		Conformity Range	Possible Range
ID	Default		
.007	Errtol	Fixed to 1ch	
Remark:	1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	U LN >	U_{THR} OFF	%Unom	110	100	110	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (0.5% U_{NOM})				
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		U LN > has a fixed offset of 0.25% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	U LN <	U_{THR} OFF	%Unom	85	50	85	0	100
		U_{THR} ON	%Unom	Fixed Hysteresis (0.5% U_{NOM})				
.025	T U LN <	Time OFF	ms	1500	100	1500	100	10000
Comment:		U LN < has a fixed offset of 0.25% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.039	U LN <<	U_{THR} OFF	%Unom	50	25	50	0	100
		U_{THR} ON	%Unom	Fixed Hysteresis (0.5% U_{NOM})				
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		U LN << has a fixed offset of 0.25% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f >	f_{THR} OFF	Hz	51.50	50.00	51.50	50.00	55.00
		f_{THR} ON	Hz	Fixed reconnection frequency of 50.05Hz				
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		f > has a fixed offset of 0.01 Hz subtracted from the displayed value						

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	47.50	47.50	50.00	40.00	50.00
.060	f < on	f_{THR} ON	Hz	47.50	47.50	47.50	40.00	50.00
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		f < on has a fixed offset of 0.02 Hz added to the displayed value						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Rate of Change of Frequency (RoCoF)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.090	RoCoF	Enable Function		off	on / off		on / off	
.091	RoCoF off	$RoCoF_{THR}$ OFF	mHz/s	1000	1000	1000	100	2000
.092	RoCoF on	$RoCoF_{THR}$ ON	mHz/s	800	100	1000	100	1000
.093	RoCoF T	Time OFF	ms	0	0	100	0	1000
.111	RoCoF wnd	Window length	ms	Fixed window length 100ms				

Phase Shift (PShift)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.094	PShift	Enable Function		on	on / off		on / off	
.095	PShift off	$PShift_{THR}$ OFF	°	7	7	7	3	15
.096	PShift on	$PShift_{THR}$ ON	°	5	3	7	3	15
		Time OFF	ms	Fixed to the fastest possible disconnection				
.112	PShift wnd	Window length	ms	Fixed window length 100ms				
Comment:		PShift off has a fixed offset of 1° subtracted from the displayed value						

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 500ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	60	60	60	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

97. C10-11:2013 MV [ID 650] renewed standard

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	3-wire	3-wire	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y Unom Δ	V V	230.0 400.0	230.0 400.0	230.0 400.0	28.8 50.0	241.4 420.0

Functional Safety		Conformity Range	Possible Range
ID	Default		
.007	Errtol	Fixed to 1ch	
Remark:	1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.011	U LL >	U_{THR} OFF	%Unom	110	100	110	100	135
		U_{THR} ON	%Unom	Fixed Hysteresis (0.5% U_{NOM})				
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		U LL > has a fixed offset of 0.25% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.015	U LL <	U_{THR} OFF	%Unom	85	50	85	0	100
		U_{THR} ON	%Unom	Fixed Hysteresis (0.5% U_{NOM})				
.017	T ULL <	Time OFF	ms	1500	100	1500	100	10000
Comment:		U LL < has a fixed offset of 0.25% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Undervoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.031	U LL <<	U_{THR} OFF	%Unom	50	25	50	0	100
		U_{THR} ON	%Unom	Fixed Hysteresis (0.5% U_{NOM})				
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		U LL << has a fixed offset of 0.25% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 3-wire, 4-wire (LN+LL)						

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f >	f_{THR} OFF	Hz	51.50	50.00	51.50	50.00	55.00
		f_{THR} ON	Hz	Fixed reconnection frequency of 50.05Hz				
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		f > has a fixed offset of 0.01 Hz subtracted from the displayed value						

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	47.50	47.50	50.00	40.00	50.00
.060	f < on	f_{THR} ON	Hz	47.50	47.50	47.50	40.00	50.00
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		f < on has a fixed offset of 0.02 Hz added to the displayed value						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Rate of Change of Frequency (RoCoF)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.090	RoCoF	Enable Function		off	on / off		on / off	
.091	RoCoF off	$RoCoF_{THR}$ OFF	mHz/s	1000	1000	1000	100	2000
.092	RoCoF on	$RoCoF_{THR}$ ON	mHz/s	800	100	1000	100	1000
.093	RoCoF T	Time OFF	ms	0	0	100	0	1000
.111	RoCoF wnd	Window length	ms	Fixed window length 100ms				

Phase Shift (PShift)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.094	PShift	Enable Function		on	on / off		on / off	
.095	PShift off	$PShift_{THR}$ OFF	°	7	7	7	3	15
.096	PShift on	$PShift_{THR}$ ON	°	5	3	7	3	15
		Time OFF	ms	Fixed to the fastest possible disconnection				
.112	PShift wnd	Window length	ms	Fixed window length 100ms				
Comment:		PShift off has a fixed offset of 1° subtracted from the displayed value						

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	T Contact	Time OFF	ms	Fixed to 270ms				
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	60	60	60	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

98. C10-11:2019 LV-IP [ID 601] Interface Protection low voltage

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	4-wire (LN)	4-wire (LN)	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	230.0	240.0	100.0	240.0
		Unom Δ	V	400.0	400.0	417.4	173.9	417.4

Functional Safety		Conformity Range	Possible Range
ID		Default	
.007	Errtol	Fixed to 1ch	
Remark:		1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary	

Overvoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.019	U LN > off	U_{THR} OFF	%Unom	110	100	110	100	135
.020	U LN > on	U_{THR} ON	%Unom	109	100	120	100	135
.021	T U LN >	Time OFF	ms	1000	0	3000	0	10000
Comment:		U LN > off has a fixed offset of 0.25% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage1 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.023	U LN < off	U_{THR} OFF	%Unom	70	50	85	0	100
.024	U LN < on	U_{THR} ON	%Unom	85	50	100	0	100
.025	T U LN <	Time OFF	ms	1500	0	1500	0	10000
Comment:		U LN < off has a fixed offset of 0.25% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL))						

Overvoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.035	U LN>> off	U_{THR} OFF	%Unom	115	100	130	100	135
.036	U LN>> on	U_{THR} ON	%Unom	114	100	120	100	135
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		U LN > off has a fixed offset of 0.25% U_{NOM} subtracted from the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Undervoltage2 Line to Neutral					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.039	U LN<< off	U_{THR} OFF	%Unom	25	25	50	0	100
.040	U LN<< on	U_{THR} ON	%Unom	85	50	100	0	100
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		U LN < off has a fixed offset of 0.25% U_{NOM} added to the displayed value						
Only active for:		Connection Modes: 2-wire, 4-wire (LN), 4-wire (LN+LL)						

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	Hz	51.50	51.50	51.50	50.00	55.00
.056	f > on	f_{THR} ON	Hz	50.10	50.00	52.00	50.00	55.00
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		f > off has a fixed offset of 0.01 Hz subtracted to the displayed value						
Only active for:		Voltage > 20% U_{NOM}						

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	47.50	47.50	47.50	40.00	50.00
.060	f < on	f_{THR} ON	Hz	49.90	47.00	50.00	40.00	50.00
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		f < off has a fixed offset of 0.01 Hz added to the displayed value						
Only active for:		Voltage > 20% U_{NOM}						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Rate of Change of Frequency (RoCoF)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.090	RoCoF	Enable Function		off	on / off		on / off	
.091	RoCoF off	$RoCoF_{THR}$ OFF	mHz/s	1000	1000	1000	100	2000
.092	RoCoF on	$RoCoF_{THR}$ ON	mHz/s	800	100	1000	100	1000
.093	RoCoF t	Time OFF	ms	0	0	0	0	1000
.111	RoCoF wnd	Window length	ms	Fixed window length 100ms				

Phase Shift (PShift)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.094	PShift	Enable Function		on	on / off		on / off	
.095	PShift off	$PShift_{THR}$ OFF	°	7	7	7	3	15
.096	PShift on	$PShift_{THR}$ ON	°	5	3	7	3	15
		Time OFF	ms	Fixed to the fastest possible disconnection				
.112	PShift wnd	Window length	ms	Fixed window length 100ms				
Comment:		PShift off has a fixed offset of 1° subtracted from the displayed value						

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	Contact t	Time OFF	ms	300	100	300	10	5000
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	60	60	60	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set

99. C10-11:2019 HV-IP [ID 651] Interface Protection / High Voltage

Connection Mode			Conformity Range	Possible Range
ID		Default		
.003	Connection	3-wire	3-wire	2-wire, 3-wire, 4-wire (LN), 4-wire (LN+LL)

Nominal Voltage					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.005	ULN/LL nom	Unom Y	V	230.0	57.5	230.0	28.8	241.4
		Unom Δ	V	400.0	100.0	400.0	50.0	420.0

Functional Safety		Conformity Range	Possible Range
ID	Default		
.007	Errtol	Fixed to 1ch	
Remark:	1ch means: 1 channel without functional safety and 1 auxilliary contact1 necessary		

Overvoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.011	U LL > off	U_{THR} OFF	%Unom	110	100	110	100	135
.012	U LL > on	U_{THR} ON	%Unom	109	100	120	100	135
.013	T U LL >	Time OFF	ms	1000	0	3000	0	10000
Comment:	U LL > off has a fixed offset of 0.25% U_{NOM} subtracted from the displayed value							
Only active for:	Connection Modes: 3-wire, 4-wire (LN+LL)							

Undervoltage1 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.015	U LL < off	U_{THR} OFF	%Unom	70	50	85	0	100
.016	U LL < on	U_{THR} ON	%Unom	90	50	100	0	100
.017	T U LL <	Time OFF	ms	1500	0	1500	0	10000
Comment:	U LL < off has a fixed offset of 0.25% U_{NOM} added to the displayed value							
Only active for:	Connection Modes: 3-wire, 4-wire (LN+LL)							

Overvoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.027	U LL>> off	U_{THR} OFF	%Unom	115	100	130	100	135
.028	U LL>> on	U_{THR} ON	%Unom	114	100	120	100	135
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:	U LL>> off has a fixed offset of 0.25% U_{NOM} subtracted from the displayed value							
Only active for:	Connection Modes: 3-wire, 4-wire (LN+LL)							

Undervoltage2 Line to Line					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.031	U LL<< off	U_{THR} OFF	%Unom	25	25	50	0	100
.032	U LL<< on	U_{THR} ON	%Unom	90	50	100	0	100
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:	U LL<< off has a fixed offset of 0.25% U_{NOM} added to the displayed value							
Only active for:	Connection Modes: 3-wire, 4-wire (LN+LL)							

Overfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.055	f > off	f_{THR} OFF	Hz	51.50	51.50	51.50	50.00	55.00
.056	f > on	f_{THR} ON	Hz	50.10	50.00	52.00	50.00	55.00
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		f > off has a fixed offset of 0.01 Hz subtracted to the displayed value						
Only active for:		Voltage > 20% U_{NOM}						

Underfrequency1					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.059	f < off	f_{THR} OFF	Hz	47.50	47.50	47.50	40.00	50.00
.060	f < on	f_{THR} ON	Hz	49.90	47.00	50.00	40.00	50.00
		Time OFF	ms	Fixed to fastest possible disconnection				
Comment:		f < off has a fixed offset of 0.01 Hz added to the displayed value						
Only active for:		Voltage > 20% U_{NOM}						

Frequency measuring in general					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.113	F wnd	Window length	ms	Fixed window length 100ms				

Rate of Change of Frequency (RoCoF)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.090	RoCoF	Enable Function		off	on / off		on / off	
.091	RoCoF off	$RoCoF_{THR}$ OFF	mHz/s	1000	1000	1000	100	2000
.092	RoCoF on	$RoCoF_{THR}$ ON	mHz/s	800	100	1000	100	1000
.093	RoCoF t	Time OFF	ms	0	0	0	0	1000
.111	RoCoF wnd	Window length	ms	Fixed window length 100ms				

Phase Shift (PShift)					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.094	PShift	Enable Function		on	on / off		on / off	
.095	PShift off	$PShift_{THR}$ OFF	°	7	7	7	3	15
.096	PShift on	$PShift_{THR}$ ON	°	5	3	7	3	15
		Time OFF	ms	Fixed to the fastest possible disconnection				
.112	PShift wnd	Window length	ms	Fixed window length 100ms				
Comment:		PShift off has a fixed offset of 1° subtracted from the displayed value						

Auxiliary Contact type					Conformity Range		Possible Range	
ID			Default		Min	Max	Min	Max
.099	Contact	Type	dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	
.100	Contact t	Time OFF	ms	300	100	300	10	5000
.114	I3 STOP	Type	n.o. (normally opened)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)		n.o. (normally opened) n.c. (normally closed) dis. (disabled)	

Turn-on delay					Conformity Range		Possible Range	
ID				Default	Min	Max	Min	Max
.102	Ton delay	Turn on time	s	60	60	60	0	900

Password					
ID			Default	Min	Max
.106	PW1	1st digit of Password	0	0	9
.107	PW2	2nd digit of Password	0	0	9
.108	PW3	3rd digit of Password	0	0	9
.109	PW4	4th digit of Password	0	0	9
Remark:		If all 4 digits of the Password are 0 (default setting) the Password request is skipped			

Device Information		
ID		
.105	ID: xxxxxxxxxx SW: aa.dd.ccb	xxxxxxxxxx = Device ID dd: Software version of Display Software aa: Software version of Measuring Software cc: Index of Configuration set b: Version of Configuration set