Valve actuator, electromotive AP 562/02 **5WG1562-7AB02**

Product and Application Description

The valve actuator AP 562/02 is suitable for installation on radiator or zone valves. It receives the set commands via the KNX bus line from a room temperature controller. The valve actuator with integrated bus coupling unit is connected via a bus connecting block to the KNX bus line. The power supply results from the bus voltage.

Constant mode of operating:
The valve adjustment works motor driven proportional. Any valve position between two parametrizable limit values can be reached. The current valve position is displayed by five LED's at the front side of the device.

The device has two separate binary inputs, which can be used as a window contact or a presence contact. The respective values of the corresponding communication objects can be sent via the KNX bus e. g. for changing the operation mode.

By monitoring the time interval between two set value telegrams sent out by the room temperature controller, its function can be controlled. If the telegram fails an alarm telegram can be sent via the KNX bus and an emergency mode can be activated.

By using central heating boilers with a demand regulated flow temperature control the device can send a feedback regarding the current energy demand (current max. valve position) via a group address to the central heating boiler.

The valve actuator provides a valve protection mode, which is activated if the set value has not been changed within 7 days. Thereby the valve will be completely opened and closed one time to avoid blocking of the valve if it has not been actuated over a longer period.

The valve actuator can be used directly after mounting on the valve and connecting to the bus voltage. If there is still no application loaded, the valve will be opened - after an automatic adjustment – 25 % automatically.

Application Program

12 A1 Valve Actuator 510E01, version 01 or higher

- Automatic adjustment, 3 different modes selectable
- Valve protection mode
- Forced mode
- Maximum actuating value limitation (min/ max)
- Adaption to valve characteristics
- Monitoring of actuating value
- Determination and forwarding of the maximum actuating value
- Binary input for window contact
- Binary input for presence contact
- Summer mode
- Transmit the current valve value

Installation Notes

- This device can be used for fixed installation in dry indoor rooms on radiator or zone valves.
- The connection to the KNX bus is possible via a small distribution board or a terminal box.
- During maintenance at the radiator the device should always be dismounted and it should be assured, that the valve is closed via an alternative solution (e.g. original protective cover). Otherwise the valve could be opened unexpected via the controller or the valve protection mode, which can cause damage by water.
- The valve actuator has to be mounted on the valve before download of the application. Otherwise adaptation is not possible.

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Automatic Adaptation (Calibration Run)

- At first the device and the fitting adapter ring are put on the valve.
- Afterwards the bus voltage can be connected. The calibration run is then started automatically.
- During calibration run (e.g. after reset) the valve is measured and the positions for "valve open" and "valve closed" are stored.
- After download the calibration run is performed twice and the determined values are compared. If the values do not match the calibration run is repeated until 2 consecutive value pairs are reasonable. These values are stored and used afterwards.

- If the valve actuator is not yet mounted on the valve, the procedure described above is repeated frequently.

⚠ WARNING

- The device may only be installed and commissioned by an authorized electrician.
- The device may only be used in connection with the named accessories.
- The prevailing safety and accident regulations should be observed.
- For planning and construction of electric installations, the relevant guidelines, regulations and standards of the respective country are to be considered.

Technical Data

Power Supply

- KNX power supply: via the bus line
- KNX current drain: max. 15 mA

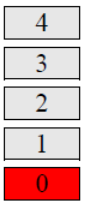
Operating Elements

- Learning button for switching between normal operating mode and addressing mode for configuration of the physical address
- Dismantling lever red
- Locking mechanism of the cover as anti-theft protection with special key

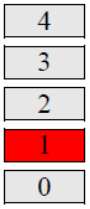
Display Elements

- LED display for valve position with 5 red LED´s
- Red LED for indicating normal operating mode (LED off) or addressing mode (LED on); upon receiving the physical address it turns off automatically.

LED Display during Calibration Run



Flashes until the spindle is in its maximum inner position.



Flashes while valve is scanned.

Flashes during determination of position (can be very short).

LED Display in Case of Error

In the event of an error, if the valve adaption could not be carried out successfully, all LEDs flash as running light from bottom to top.

Possible causes:

- Actuator not plugged onto valve
- Valve adapter does not fit to the valve
- Valve tappet is firmly seated
- Incorrect parameterization (e. g. valve seal is pressed too much)
- Stroke too low (min. 1.2 mm)

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Connections

- KNX bus line: bus terminal block (red +/black -)
- E1 is used for window contacts (yellow/green). The window contacts can be connected directly and without additional supply voltage.
- E2 (white/brown) is used for binary input for presence indicator or presence key. A presence indicator or key can be directly connected.
- The connection cable can be lengthened up to max. 10m.

Mechanical Data

- Housing: plastic
- Outer dimensions (W x H x D): 82 x 50 x 65 mm
- Weight: approx. 260 g
- Length of connection cable: 0.80 m
- Set force: max. 120 N
- Min. stroke: 1.2 mm
- Max. stroke: 7.5 mm (linear movement)
- Mounting: is plugged on a valve together with adapter rings screwed on
- Included adapter ring (VA 80 - M40 x 1,5 mm) fits for valves from:
  - Siemens
  - Braukmann
  - Danfoss
  - Dumser
  - Heimeier
  - Herb
  - Honeywell
  - MNG
  - Onda
  - Oventrop
  - Reich
  - Schlösser
- If necessary, the valve actuator can be combined with adapter rings available at a HVAC dealer.
- Detection of the valve end positions: automatically
- Linearization of the characteristic of the valve: possible via software.

Electrical Safety

- Protection (according to EN 60529): IP 21
- Overvoltage category (according EN 60730-2-14): III
- Bus: safety extra-low voltage SELV DC 24 V
- Device complies with: EN 50090-2-2

EMC Requirements

Complies with EN 50090-2-2

Ambient Conditions

- Climatic withstand capability: EN 50090-2-2
- Ambient operating conditions: 0 °C to + 50 °C
- Operating temperature, flow temperature max. 80 °C
- Storage temperature: - 25 ... + 70 °C
- Relative humidity (not condensing): 5 % to 93 %

Markings

KNX, *EIB*, CE

CE Mark

In accordance with the EMC guideline (residential and functional buildings), low voltage guideline

Location of the Display and Operating Elements

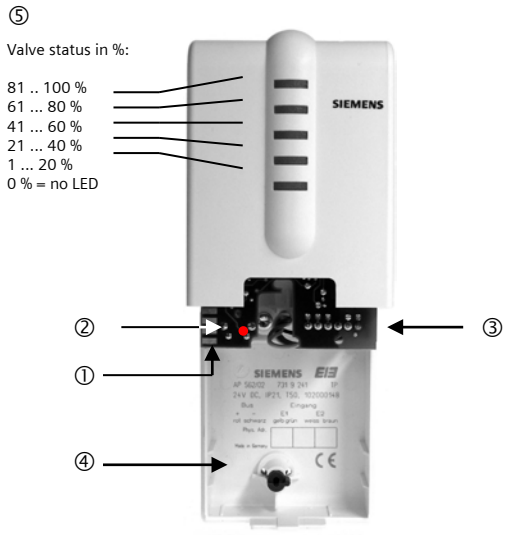

figure 1: Location of the Display and Operating Elements

1 Learning button for switching between normal operating mode and addressing mode for configuration of the physical address
2 LED for indicating normal operating mode (LED off) and addressing mode (LED on); upon receiving the physical address it turns off automatically
3 Dismantling lever, red
4 Locking mechanism of the cover as anti-theft protection with special key
5 LED display for valve position with 5 red LED´s

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Mounting and Wiring

The learning button (1), the learning LED (2) and the red dismantling lever (3) are accessible after opening the cover of the housing.
The locking mechanism (4) of the cover can be locked and unlocked with the enclosed special key by turning it by 90° (see figure 3).

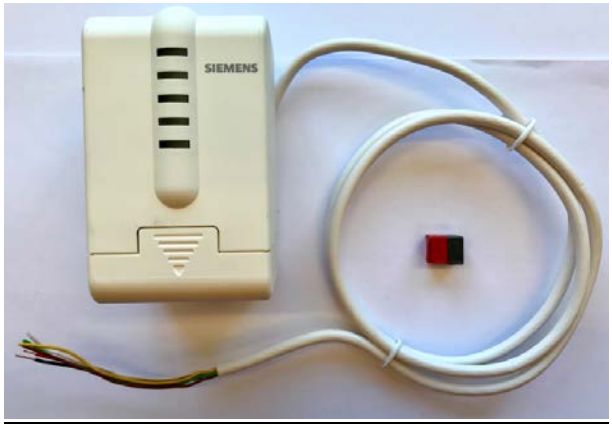

figure 2: Connection Cable and Bus Terminal Block

The valve actuator AP 562/02 is suitable for installation on radiator or zone valves. A connection cable (80 cm) is already connected with the device. A bus terminal block is also included (compare figure 2).

Mounting

- Choose a suitable adapter ring, either enclosed or purchased at a HVAC dealer.
- Tighten the adapter ring (figure 4.1) (hand-tight is sufficient).
- Bring the device in the upright mounting position see figure 4.2).
- Shift the device on the adapter ring until it snaps in hearably.
- The installation position of the valve actuator AP 562/02 can be selected without restriction. However, the actuator should not be installed below the valve to avoid water intrusion in case of defect (leaky valve, leaky pipe, ...).

Dismantling

- Open the cover of the housing.
- Press the red lever towards left-hand (see figure 4.3).
- Pull off the valve actuator.

The valve position is displayed by the 5 LEDs at the front side of the device. Depending on which LED is on, the valve is opened like shown at figure 1.

Address Assignment

- Open the cover of the housing.
- Press the learning button (1, figure 1) on the device to initiate the assignment of the physical address to the device.
- The programming LED (2, figure 1) turns on to indicate the programming mode. Upon receiving the physical address, the device automatically returns to normal operating mode and the LED turns off.

Dimension Drawing

Dimensions in mm

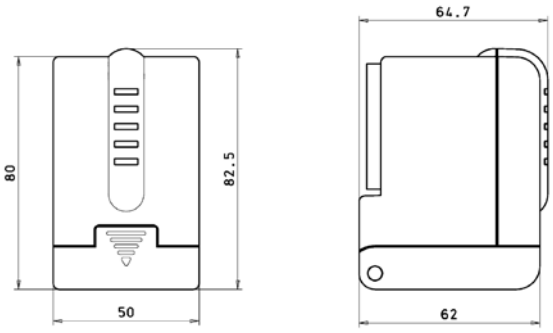

figure 3

figure 4.1

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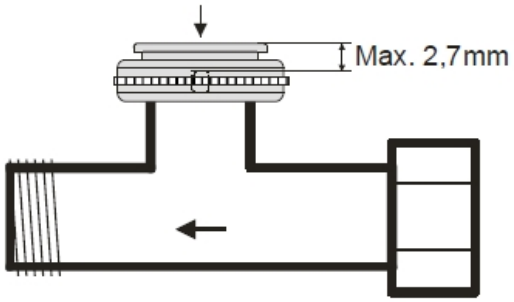
figure 4.2

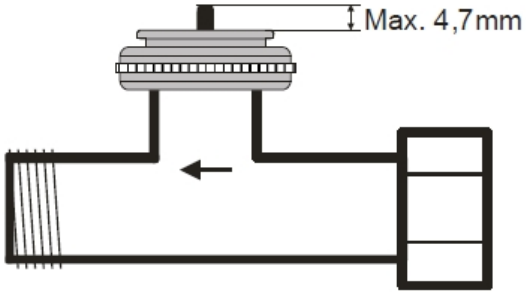
figure 4.3

Check Adapter Ring

The space between top edge of the adapter and top edge of the depressed tappet must not exceed 2.7 mm.



If the space does not exceed 4.7 mm (tappet not pressed), the valve can be opened via the valve actuator completely.



Attention: If the space exceeds 4.7 mm (up to max. 7 mm) the valve cannot be opened 100 %. This is not relevant in most of the cases, as the flow of many valves is already sufficient when opened half.

Only a distance up to 4.7 mm can be used. It has to be estimated if the valve adapter is appropriate, considering the remaining distance and the characteristic of the valve.

Additional information concerning suitable and available adapter rings you can get from your Siemens Support.

General Notes

- The operating instructions must be handed over to the client.
- Any faulty device is to be sent together with a return delivery note to the local Siemens office.
- For any technical questions, please contact:

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✉ support.automation@siemens.com
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