



M9-MD15

Intelligent Valve Actuator

Description

Small radio controlled, battery-powered actuator for room temperature control. For thermostat valve bodies for direct mounting on commercially available radiator valves for room-specific temperature control in heating systems.

The actuator is radio controlled based on the non-proprietary EnOcean radio protocol. The following EnOcean Equipment Profile (EEP) is supported : EEP A5-20-01 Battery Powered Actuator.

Actuator Functions

Actuator mode

If a 0 to 100% EnOcean telegram is received from an external radio partner for controlling the radio small actuator, the internal loop controller is not active. The transmitted actuating signal is translated into a positioning movement. A suitable radio single room controller takes over the control functions.

Self-controlling operation

The integrated room temperature controller is activated if no external 0 to 100% EnOcean radio telegram is received.

Without external operator panel (= emergency mode):

The temperature is controlled to a fixed setpoint 20 °C using the integrated temperature sensor (actual value) and the integrated control function of the actuator.

With external operator panel (EnOcean technology):

Using the operator panel, the users can freely determine the setpoint or enter their own schedule. The actual valve and the setpoint are transmitted via an EnOcean telegram (EEP A5-20-01). The integrated control algorithm makes room control easy and convenient.

Battery monitoring

The battery capacity is continuously monitored. If the battery capacity is too low, a radio signal is transmitted to the radio partner and 2 acoustic signal tones are emitted in succession every 6 hours. If this message is activated, the remaining capacity of the batteries is < 10%.

The batteries must be replaced within 30 days.

As the battery level decreases, the interval between the audible signals becomes shorter and the number of signal tones increases to 4 signal tones in succession every 3 hours. If the remaining battery capacity is insufficient to maintain motorized operation, the actuator moves into the safety position of 50%.

The radio communication with the radio partner still functions in this operating state.

Valve recognition

During commissioning, the actuator detects the closing point and the total stroke of the valve. After the batteries are changed or after the unit is successfully taught in on a radio partner, this detection process is performed again via the Init.

Valve block protection

Block protection prevents the cone from jamming when the valve is inactive for a long time. When block protection is active, the actuator performs a displacement of 50% once every 21 days. If the remaining battery level is < 10% (see "Battery monitoring" section), this function is inactive. This function can be switched on and off.

Automatic closing point control

The small actuator continuously monitors the closing point and corrects it if necessary.

All content subject to change

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Actuator Functions (continued)

Energy block (automatic "Window Open" recognition)

When a window is open, the flow of heat energy to the room is interrupted. An open window is signified by a large and rapid temperature drop at the M9-MD15 small actuator. If such a drop is measured by the internal temperature sensor, the small actuator closes the valve for 30 min. After 30 minutes, the small actuator returns to normal operation and the automatic "Window open" recognition function is active again.

Frost protection function

If the temperature at the integrated temperature sensor drops below 6 °C, the small actuator opens the valve until 8 °C is reached.

Summer mode

If the status message "Summer mode on" is received from an external radio partner, the small actuator closes the valve. The transmission/reception interval in summer mode is permanently set to 60 minutes.

TECHNICAL SPECIFICATIONS:

Part Numbers (Frequency Dependant)	M9-D15 (902 MHz - North America) M8-D15 (868 MHz - Europe and China) MJ-D15 (928 MHz - Japan)
Nominal Voltage	Battery-Operated, 3 alkaline AA batteries (LR6AD Panasonic Powerline 1.5 V)
Battery Life	Depends on the frequency and method of operation - approx. 3 years with default settings
Measuring System	Integrated digital temperature sensor; 0..40 °C; ±0.5 °C at 25 °C
Interfaces	EnOcean® radio interface: - Radio telegram: EnOcean radio telegram, bidirectional - EEP A5-20-01 (Battery Powered Actuator) - Frequency: 868.3 MHz - Range: approx. 30 m in buildings (depending on building structure) - Duty cycle: < 1 % - Transmission/reception interval: every 2..20 min, can be set in 2 min increments
Motor Switch-Off	Actuator spindle: when extending = load-dependent, when retracting = path-dependent
Display	Multicolored status LED
Actuating Noise	< 28 dB (A)
Nominal Stroke	Up to 3 mm
Travel Time	10 s/mm
Positioning Force	100 N (nominal)
Position Indication	Stroke range scale
Housing	RAL 9010 pure white, battery compartment cover with mechanical locking mechanism
Ambient temp.	0..50°C
Degree of Protection	IP40
Installation Position	Anywhere from vertical to horizontal
Maintenance	Maintenance-free
Weight	157 g (without batteries); 225 g (with batteries)

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