**MDT TECHNOLOGIES**

KNX Room Actuator
[AKR-IOxxx.01S]

Compact and versatile Room Actuator for switching and blind functions. With flexible analog/digital inputs for connecting temperature sensors or potential-free contacts. Heating control via PWM, integrated Temperature Controller as well as fan coil and ventilation functions. Extensive scene, time and central functions ensure a high level of comfort. Future-proof with KNX Secure.
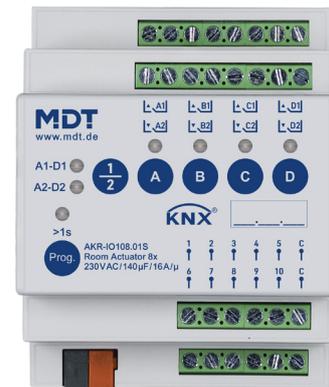
AKR-IO108.01S

Blind functions:

Automatic shading by sun position calculation

To prevent unwanted temperature increases in the house, the MDT Room Actuator continuously calculates the position of the sun based on the time, date, and location. Using information from a weather station or a brightness sensor, shutters and blinds can automatically move to the shading position. For blinds, the slats are also automatically adjusted. Manual operation interrupts the adjustment, but it can be reactivated via a release signal or by moving to the upper end position. The window's orientation and potential shading from neighboring structures can also be considered.

Ventilation function and lock-out protection

If the status of a window or door is detected via a contact, the shutter can move up a few centimetres when the window is tilted for ventilation, or the slats can be turned to the ventilation position. If the window or patio door is opened, the shutter or blind moves fully up and, for example, blocks the shading or central commands (lock-out protection). Manual operation can also remain active when the door is open, so the position can be changed at any time.

Wind alarm, rain alarm, fire alarm

If, for example, the wind sensor of the MDT weather station triggers a wind alarm, all blinds and awnings can automatically move to their protection position. If the smoke detector or fire alarm system reports a fire, all shutters immediately move up to clear the escape route. If the rain sensor detects precipitation, for example, the shutters on the weather side can automatically move down or the awning can be retracted for protection. Different actions can be configured for each alarm type during the alarm and after it has been reset. The priority of the alarms can be set individually.

Frost/ice protection:

Automatic locking of blinds at temperatures below 3 °C and precipitation. Release after a defined time at above 5 °C – without external logic.

Advanced lock function:

Flexible locks for positions, shading, ventilation, scenes and central functions.
Scenes can control positions, locks and limits.

Status information:

Detailed data for visualisations, including height and slat position, direction of movement, shading status, upper/lower position and lock/alarm.

Plain text diagnosis

A 14-byte diagnosis object provides the current shading status (released/locked), the active brightness threshold and the calculated sun position (azimuth, elevation).
Diagnosis object for alarm, ventilation position and lock.
The diagnosis objects make commissioning, testing and troubleshooting much easier.

Switching functions:

Threshold and pulse function

When temperature, brightness or humidity thresholds are reached or exceeded/fallen below, the channel can automatically perform actions. This also includes short switching pulses (e.g. 500 ms) for applications such as garage doors or doorbells.

Extended staircase light function

Repeated pressing of the push button extends the staircase lighting switch-on time. Times can be set individually for each floor. Pre-warning via flashing button LEDs possible. The actuator channel can also be used as a normal switching channel.

Extensive logic and scene function

The integrated universal logic and logic gate make external logic unnecessary. Various data point types can be used and compared in the logic functions to execute operations. Inputs can be inverted as desired and set to a defined value after bus voltage returns. This prevents unwanted behaviour after a restart. In addition to switching on or off, the extended scene function can also lock or unlock. In addition, learned scenes are retained when the application is reprogrammed.

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Operating hours counter

The actuator has its own operating hours counter for each channel, which can be reset via a 1-bit object. Alternatively, a service counter can be activated for each channel.

Central switching function

The central switching function can be individually activated for each channel and simplifies the programming of central switching commands. When the communication object of the central function is addressed, all channels with the central function activated are switched simultaneously.

Lock function / Priority / Forced guidance

Each channel has a lock function as well as a priority or forced guidance. This allows a channel to be permanently switched ON or OFF, also via 2-bit forced objects. The behaviour in the event of bus voltage failure/return, locking, unlocking or priority can be set individually. A fallback time can be defined for the priority function, after which the channel returns to normal operation.

Status objects

Each channel has a status object with configurable sending conditions and cyclic sending. Additionally, an inverted status object can be activated, which is suitable for visualisations or logic functions.

Heating control with PWM

The switching channels of the actuator can be controlled via a 1-byte setpoint (0–100%). This allows infrared heaters and electric ceiling or underfloor heating systems to be conveniently switched on and off.

Fan coil function

The integrated fan coil function offers a flexible solution for connecting and controlling fan coil units. It supports both 2- and 4-pipe systems for heating and cooling as well as fans with up to four speeds. Control in automatic mode can be carried out via a setpoint or Delta T, with individual switching thresholds for each fan stage and freely configurable hysteresis values. In the event of a setpoint failure, a defined fan speed can be specified as a fallback. Additional comfort functions such as automatic and manual additional ventilation enable demand-based ventilation, with cycle times, duration and fan speeds able to be set individually.

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Analogue and digital inputs

Both analogue temperature sensors (e.g. NTC or PT1000) and potential-free contacts can be connected to the actuator, for example for evaluating window contacts or conventional switches. The connected temperature sensors can be used directly in the integrated Temperature Controller as well as for fan coil control. Window contacts are used, for example, for lock-out protection or for activating the ventilation function of the blind.

KNX Data Secure

The device supports secure commissioning in KNX installations.

Updateable

If necessary, the device can be updated via the "MDT Firmware Update App".

Long frame support

The device supports "Long Frames" (longer telegrams). These contain more user data per telegram, which significantly reduces programming time with the ETS.

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