

OpenAir™

Communicative Damper Actuators KNX / PL-Link

G..B111.1E/KN



Damper actuators 5 / 10 Nm with KNX communication

- GDB111.1E/KN with 5 Nm nominal torque
- GLB111.1E/KN with 10 Nm nominal torque
- Operating voltage AC 24 V
- Supports KNX S-Mode, LTE-Mode, and PL-Link

Type summary

| Product no. | Stock no. | Operating voltage | Positioning signal | Power consumption | Positioning time | Manual adjuster | Position feedback |
|---------------------|-------------|-------------------|--------------------|----------------------------|------------------|-----------------|-------------------|
| GDB111.1E/KN | S55499-D190 | AC 24 V | KNX-TP | 1 VA / 0,5 W | 150 s | Yes | Yes |
| GLB111.1E/KN | S55499-D198 | | | 3 VA / 2,5 W ¹⁾ | | | |

Please refer to data sheet **N4698** for information on accessories and spare parts.

¹⁾ Actuator rotates

Ordering (Example)

| Product no. | Stock no. | Description | Amount |
|--------------|-------------|---------------------|--------|
| GDB111.1E/KN | S55499-D190 | Damper Actuator KNX | 1 |

Equipment combinations

| Product no. | Stock no. | Description | Doc. number / reference |
|-----------------------|-----------|---------------------------------------|--|
| ETS | Software | KNX Engineering/Commissioning Tool | www.knx.org |
| ABT 4.0 ²⁾ | Software | Desigo Engineering/Commissioning Tool | A6V11159913 |

²⁾ Release planned for April 2020

Product and software versions

| Product revision | Series A |
|-----------------------|--------------|
| Production period | From 02/2020 |
| Bus module FW version | 4.25 |
| ETS device profile | v1d0.knxprod |

The ETS device profile can be downloaded at the following Internet address:

<http://siemens.com/hvac-td>

Product documentation

| Title | Topic | Document ID |
|---|--|-------------|
| Mounting Instruction damper actuators 5 / 10 Nm | Mounting / installation instruction for damper actuators 5 / 10 Nm without spring return | M4634 |
| KNX bus communications | Detailed information about KNX bus communications: engineering, commissioning, addressing and settings | P3127 |

Related documents such as environmental declarations, CE declarations, etc., can be downloaded at the following Internet address:

<http://siemens.com/bt/download>

Safety

⚠ Caution

National safety regulations

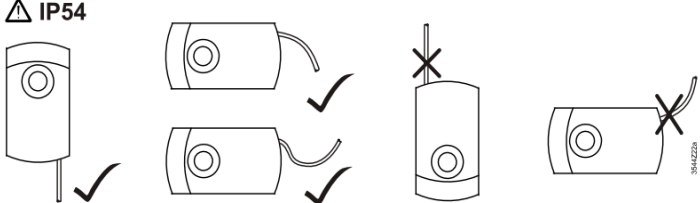
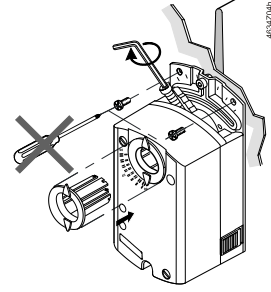
Failure to comply with national safety regulations may result in personal injury and property damage.

- Observe national provisions and comply with the appropriate safety regulations.

Mounting

- Do not open the damper actuators.
- Do not use the accessory mounting holes for fixation of the damper actuators. Instead use the shaft fixation screw and the enclosed anti-rotation-bracket.

Mounting positions

| IP54 protection in following mounting positions | Accessory mounting holes ²⁾ |
|---|---|
|  |  <p>Cf. mounting instr. M4634</p> |

⚠ ²⁾ Not to be used for fixation of the actuator, use anti-rotation-bracket instead.

Maintenance

The damper actuators are maintenance-free.

Disconnect the electrical connections from the terminals if you want to work at the device.

Disposal



The device is considered electrical and electronic equipment for disposal in terms of the applicable European Directive and may not be disposed of as domestic garbage.

- Dispose of the device through channels provided for this purpose.
- Comply with all local and currently applicable laws and regulations.

Push-button operation

| Activity | Push-button operation | Confirmation |
|---------------------------------------|--------------------------|--|
| Enter / leave addressing mode | Press button <1 s | LED turns red or turns off |
| Reset to factory settings | Press button >20 s | LED flashes orange until device restarts |
| PL-Link connection test ⁴⁾ | Press key >2 s and <20 s | LED flashes orange 1x |

LED colors and patterns

| Color | Pattern | Description |
|--------|----------|--|
| Off | --- | Fault free operation or device not powered |
| Green | steady | Connection test successful ⁴⁾ |
| Orange | flashing | a) Factory reset in progress b) When a connection test was triggered: wait ⁴⁾ |
| Red | steady | a) Device is in programming/addressing mode b) When a connection test was triggered: Connection test failed ⁴⁾ |

⁴⁾ Function or part of the function available in PL-Link operation only

Addressing and bus test with push button

The damper actuators can be set into addressing/programming mode by push-button:

- Press push button (>0.1 s and <1 s)
- KNX bus wiring OK → LED turns red until addressing/programming is finished
- KNX bus wiring not OK → LED stays dark

Reset with push button

The damper actuators can be reset to the OEM default values by push-button:

- Press push button > 20s
- LED flashes orange
- Device restarts

All parameters are set to factory settings.

Commissioning and parameterization

The following parameters are checked or set during engineering and commissioning in the ETS engineering tool.

| Parameter | Range | Description | Factory settings |
|--------------------------------------|---------------------------------------|---|------------------|
| Tab card "standard" | | | |
| Adaptive positioning | On / Off | Adaption of actual (if mechanically limited) opening range to position feedback 0...100% Off = No adaption / On = Adaption active | Off |
| Backup timeout | 0..60 min 0 min = disabled | Time interval to detect communication interruption. If disabled, the actuator drives to the last received setpoint until a new valid setpoint is received. | 30 min. |
| Backup mode | Backup position Keep last position | Actuator behavior when the communication timeout has been exceeded (no setpoint received within the defined time interval). <ul style="list-style-type: none"> Backup position: Actuator drives to defined position Keep last position: Actuator keeps position without flow control | Backup position |
| Backup position | 0...100% | Position the damper drives to in case of communication interruption | 50% |
| Tab card "advanced" | | | |
| Hysteresis (COV) damper position | 1...20% | Threshold for the damper position. COV below this value are not sent over the bus | 1% |
| Min. repetition time damper position | 10...900 s | Minimum waiting time until a COV above the hysteresis threshold is sent over the bus | 10 s |
| Minimum damper position | 0...100% | Electronic lower position limit | 0% |
| Maximum damper position | 0...100% | Electronic upper position limit | 100% |
| Override position 1 | 0...100% | Damper position which can be triggered by the corresponding group object (with override priority) | 0% |
| Override position 2 | 0...100% | Damper position which can be triggered by the corresponding group object (with override priority) | 100% |

| No. | Name in ETS | Object function | Flags | | | | | Data point type KNX | | | | Range |
|-----|---------------------|-----------------|-------|---|---|---|---|---------------------|------------|--------|------|----------------------------------|
| | | | C | R | W | T | U | ID | DPT_Name | Format | Unit | |
| 1 | Fault information | Transmit | 1 | 1 | 0 | 1 | 0 | 219.001 | _AlarmInfo | 6 Byte | --- | cf. Description below |
| 2 | Fault state | Transmit | 1 | 1 | 0 | 1 | 0 | 1.005 | _Alarm | 1 bit | --- | 0 = No alarm 1 = Alarm |
| 3 | Fault transmission | Receive | 1 | 0 | 1 | 0 | 1 | 1.003 | _Enable | 1 bit | --- | 0 = Disable 1 = Enable |
| 4 | Setpoint | Receive | 1 | 1 | 1 | 0 | 1 | 5.001 | _Scaling | 1 Byte | % | 0...100% |
| 5 | Damper position | Transmit | 1 | 1 | 0 | 1 | 0 | 5.001 | _Scaling | 1 Byte | % | 0...100% |
| 9 | Overridden | Transmit | 1 | 1 | 0 | 1 | 0 | 1.002 | _Bool | 1 bit | --- | 0 = False 1 = True |
| 10 | Override position 1 | Receive | 1 | 1 | 1 | 0 | 1 | 1.003 | _Enable | 1 bit | --- | 0 = Disable 1 = Enable |
| 11 | Override position 2 | Receive | 1 | 1 | 1 | 0 | 1 | 1.003 | _Enable | 1 bit | --- | 0 = Disable 1 = Enable |
| 12 | Opening direction | Read-only | 1 | 1 | 0 | 0 | 0 | 1.012 | _Invert | 1 bit | --- | 0 = Not Inverted 1 = Inverted |

Description of Group Objects

1 Fault information

If group object #3 "fault transmission" is set to "on", the following faults can be transmitted if they occur. In that case, group object #2 value changes to "alarm".

| Error | Group obj. #1 | Description | Resolution |
|------------------------------|-------------------|---|--|
| Device jammed | XX 00 0A 03 0C 05 | Target position cannot be reached due to mechanical blockage. | Remove blockage (visual inspection required). Or invert Opening direction, if it is set wrongly. Or switch on adaptive positioning, if mechanical limits are intended. |
| Backup mode entered | XX 01 01 02 0C 05 | Actuator is in backup mode (cf. respective parameter setting) | Actuator leaves Backup mode when receiving a setpoint. |
| Operating hours notification | XX 01 0A 04 0C 05 | Appears after a cumulated motor running time of 365 days | Check device status and control loop sensitivity |

2 Fault state

Indicates whether the actuator is in fault state. If yes, read out group object #1.

3 Fault transmission

Enabling/ disabling the fault transmission. Fault transmission is disabled by default → no faults are transmitted from the actuator over the KNX bus.

4 Setpoint

Setpoint 0...100% for volume flow or position, depending on the operating mode.

5 Damper position

Relative damper position 0...100%. An opening range less than 0...90° can be normalized to 0...100% if adaptive positioning is set to "on".

8 Fault state

Identical with group object #2, used for compatibility reasons.

9 Overridden

Indicates whether the VAV controller is in override control either by a programming tool connected to the HMI or by objects #10 / #11.

10 Override position 1

When the object is triggered, the actuator drives to the override position 1 defined by the respective ETS parameter.

11 Override position 2

When the object is triggered, the actuator drives to the override position 2 defined by the respective ETS parameter.

12 Opening direction

Opening direction of the air damper.

| Power supply | | |
|---|--|---|
| Operating voltage | G..B111.1E/.. | AC 24 V \pm 20 % (SELV) or AC 24 V class 2 (US) |
| Frequency | | 50/60 Hz |
| Power consumption | at 50 Hz | |
| | Actuator holds | 1 VA / 0.5 W |
| | Actuator rotates | 3 VA / 2.5 W |
| Function data | | |
| Positioning time for nominal rotation angle | G..B111.1E/.. | 150 s (50 Hz) 125 s (60 Hz) |
| Nominal torque | GDB.. | 5 Nm |
| | GLB.. | 10 Nm |
| Maximum torque | GDB.. | < 7 Nm |
| | GLB.. | < 14 Nm |
| Nominal / maximum rotation angle | | 90° / 95° \pm 2° |
| Direction of rotation | Adjustable by tool or over bus | Clockwise (CW) / Counter-clockwise (CCW) |
| Connection cables | | |
| Cable length | | 0.9 m |
| Power supply | Number of cores and cross-sectional area | 2 x 0.75 mm ² |
| Communication | Number of cores and cross-sectional area | 2 x 0.75 mm ² |
| Communication | | |
| Communication protocol | Connection type | KNX-TP (galvanically isolated) |
| | Bus load | 5 mA |
| Degree of protection | | |
| Degree of protection | Degree of protection acc. to EN 60529 (see mounting instruction) | IP54 |
| Safety class | Safety class acc. to EN 60730 | III |
| Environmental conditions | | |
| Applicable standard | | IEC 60721-3-x |
| Operation | Climatic conditions | Class 3K5 |
| | Mounting location | Indoors |
| | Temperature general | 0...50 °C |
| | Humidity (non condensing) | 5...95 % r. F. |
| Transport | Climatic conditions | Class 2K3 |
| | Temperature | -25...70 °C |
| | Humidity | 5...95 % r. h. |
| Storage | Climatic conditions | Class 1K3 |
| | Temperature | -5...45 °C |
| | Humidity | 5...95 % r. h. |

| Directives and Standards | | |
|---|---|--|
| Product standard | EN60730-x | |
| Electromagnetic compatibility (Application) | For residential, commercial and industrial environments | |
| EU Conformity (CE) | GDB111.1E/KN | GLB111.1E/KN |
| | A5W00003842 ¹⁾ | A5W00000176 ¹⁾ |
| RCM Conformity | A5W00003843 ¹⁾ | A5W00000177 ¹⁾ |
| UL, cUL | AC 24 V | UL 873 http://ul.com/database |

| Environmental compatibility |
|--|
| The product environmental declaration A6V10209938 ¹⁾ contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal). |

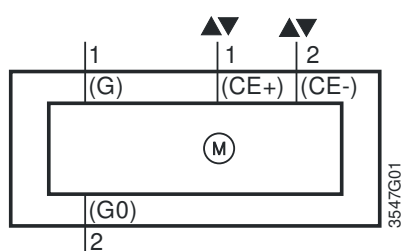
| Dimensions / Weight | | |
|-----------------------|--------------------------------------|-----------------------|
| Weight | Without packaging | 0.6 kg |
| Dimensions | | 71 x 137 x 61 mm |
| Suitable drive shafts | Round shaft (with centering element) | 8...16 mm (8...10 mm) |
| | Square shaft | 6...12.8 mm |
| | Min. drive shaft length | 30 mm |
| | Max. shaft hardness | <300 HV |

¹⁾ The documents can be downloaded from <http://siemens.com/bt/download>

Diagrams

Internal diagrams

The damper actuator is supplied with two prewired cables.



Power supply and communication cables

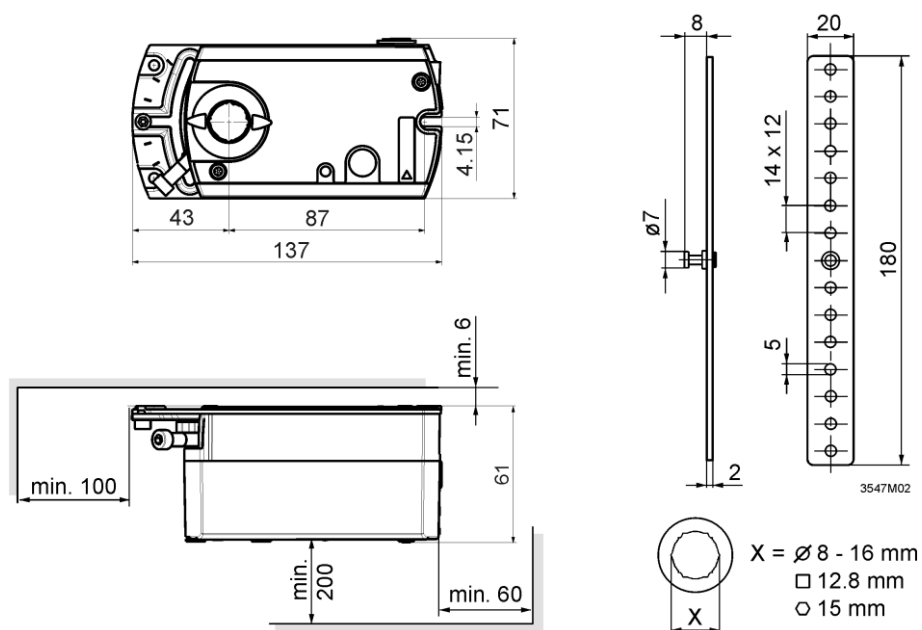
| Core designation | Core color | Terminal code | Description |
|--|------------|---------------|------------------------|
| Cable 1: Power / black sheathing | | | |
| 1 | red (RD) | G | System voltage AC 24 V |
| 2 | black (BK) | G0 | System neutral AC 24 V |
| Cable 2: Communication / green sheathing | | | |
| 1 | red (RD) | CE+ | KNX CE+ |
| 2 | black (BK) | CE- | KNX CE+ |



The operating voltage at terminals G and G0 must comply with the requirements under SELV or PELV.

Safety transformers with twofold insulation as per EN 61558 required; they must be designed to be on 100 % of the time.

Dimensions



Measurements in mm