SIEMENS

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 3 VA / 2,5 W [1]	150 s	Yes	Yes
GLB111.1E/KN	S55499-D198						
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	Series D
Production period	From 02/2020	From 12/2023
Bus module FW version	4.25	4.26
ETS device profile	v1d0.knxprod	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

Notes

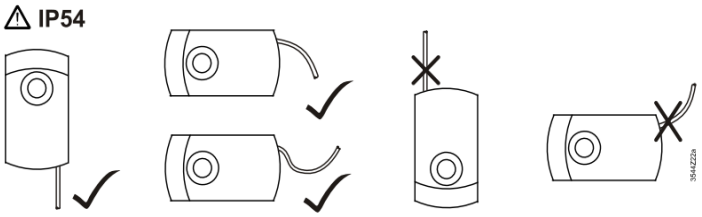
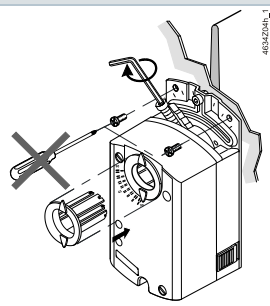
Safety

> **⚠ 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]
	 *Cf. mounting instr. M4634*

⚠ [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.

HMI (Human-Machine Interface)

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). ▪ 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%

KNX Group Objects

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.

Technical data

Power supply		
Operating voltage	G..B111.1E/..	AC 24 V ± 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° ± 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	-32…55 °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	
		GDB111.1E/KN	**GLB111.1E/KN**
EU Conformity (CE)		A5W00003842 [1)]	A5W00000176 [1)]
UK Conformity (UKCA)		A5W00198029A [1)]	A5W00198019A [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).

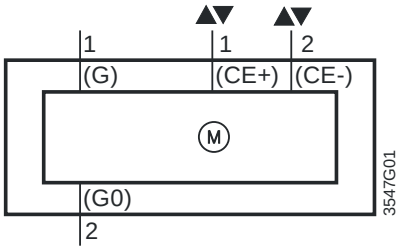
Dimensions / Weight		
Weight	Without packaging	0.6 kg
Dimensions		71 x 137 x 61 mm
Suitable drive shafts	Round shaft (with centering element)	8...16 mm (8...10 mm)
	Square shaft	6...12.8 mm
	Min. drive shaft length	30 mm
	Max. shaft hardness	<300 HV

[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

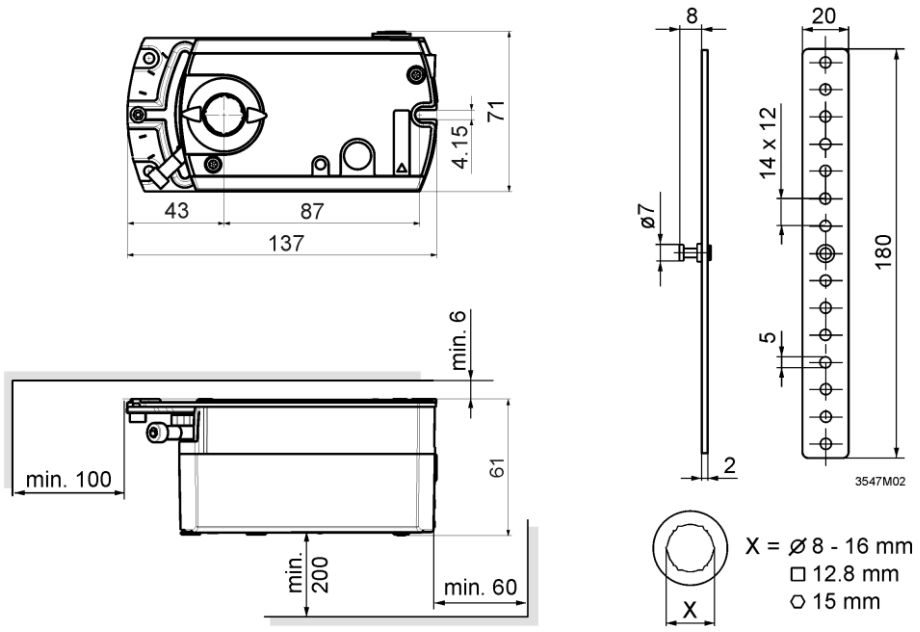
Core designation	Core color	Terminal code	Description
Cable 1: Power / black sheathing			
1	red (RD)	G	System voltage AC 24 V
2	black (BK)	G0	System neutral AC 24 V
Cable 2: Communication / green sheathing			
1	red (RD)	CE+	KNX CE+
2	black (BK)	CE-	KNX CE+

!

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

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Document ID A6V11753386_en--_c
Edition 2024-07-09