

AGNOSYS

AGNOSYS Series F V3.5

BKM-35-F

BKM-35-S

BKM-35-F-ST

BKM-35-F-IP66

Generation 3

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1 History

Date	Editor	Description
11.06.2019	FL	First version
31.07.2020	MAR	Various changes
09.11.2020	FL	Added wiring for mechanical damper
14.01.2021	FL	Added BKM35-F-IP66
17.05.2022	FL	Minimum detection voltage
21.12.2023	GEA	Various changes
28.11.2024	MH	Changed Figure 13 and corresponding text
06.12.2024	MH	Removed erroneous tightening torque of screw

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3 General Information



Figure 1: BKM-35-F

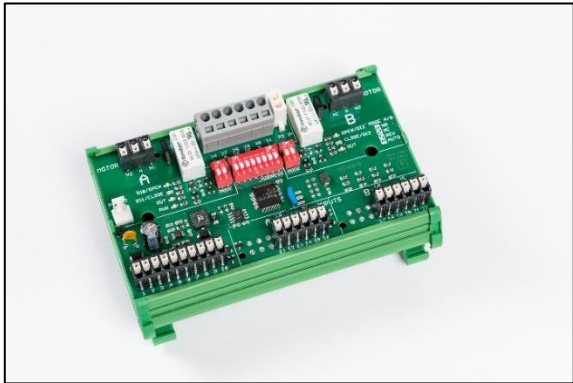


Figure 2: BKM-35-S



Figure 3: BKM-35-F-ST

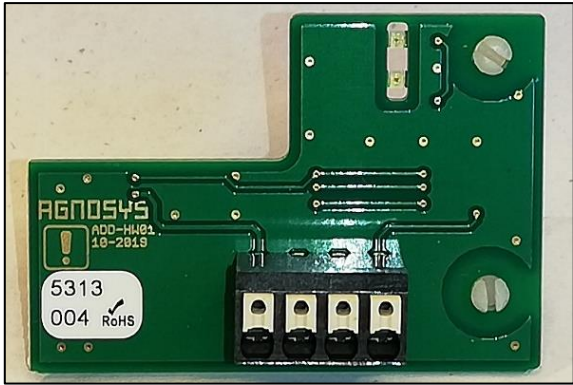


Figure 4: AGF-ADD-01



Figure 5: BKM-35-F-IP66

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- BKM-35-S Fire-Damper Module IP20 for 35mm DIN rail-mounting
- BKM 35-F Fire-Damper Module IP20 for wall-mounting
- BKM 35-F-ST Fire-Damper Module IP20 for wall-mounting: version with plugs
- BKM 35-F-IP66 Fire-Damper Module IP66 for wall-mounting

The modules serve to monitor and operate fire-dampers, in addition to testing their runtime. Up to two damper motors can be operated per module and the respective damper limit switches can be monitored. Additionally they can be extended by an expansion print which adds two configurable digital inputs. Furthermore, a fully automated test of the dampers, executing a review of the runtimes is implemented. During the test, the limit switches are monitored for faulty signal sequence. The relay output has been designed as change-over contact. Thus, the secure location of the fire-damper can be defined via the connector on the module.

The module features the connection of auxiliary snap-on devices (expansion boards) in order to integrate various functions.

General Features:

- Communication with the superior control unit takes place via bus-ring.
- Monitoring and activation of up to two fire-dampers.
- Fully automated test of the fire-dampers.
- Relay output as change-over contact.
- Operation of up to 126 modules (252 fire-dampers) per bus-ring system within a max. distance of 900m.
- Supply with 24VDC voltage
- Operation of fire-dampers with 24VAC or 230VAC
- Simple connection through vertical push-in or spring-type terminals.
- Damper connection via a 3- or 6-pole connector (BKM-35-F-ST).
- Two free configurable digital inputs with the extension board (AGF-ADD-01)

Overview

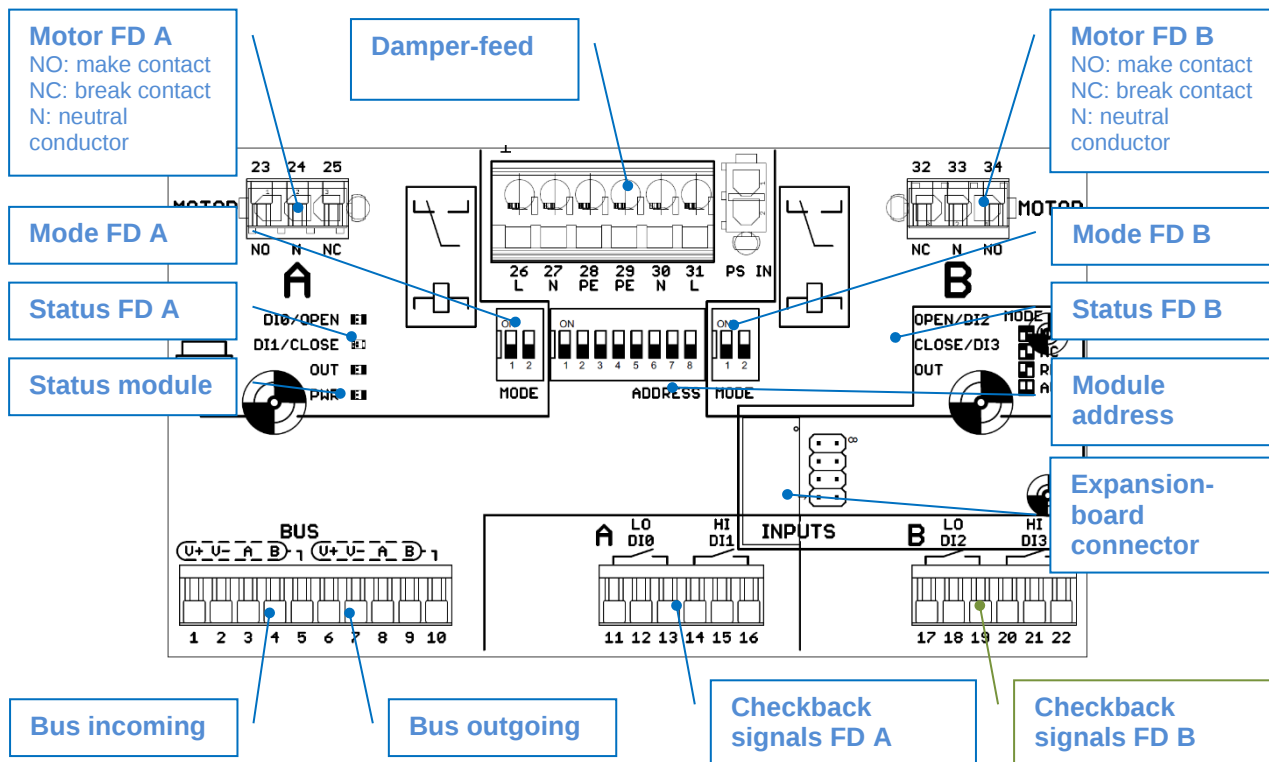


Figure 6: BKM-35-F, BKM-35-S

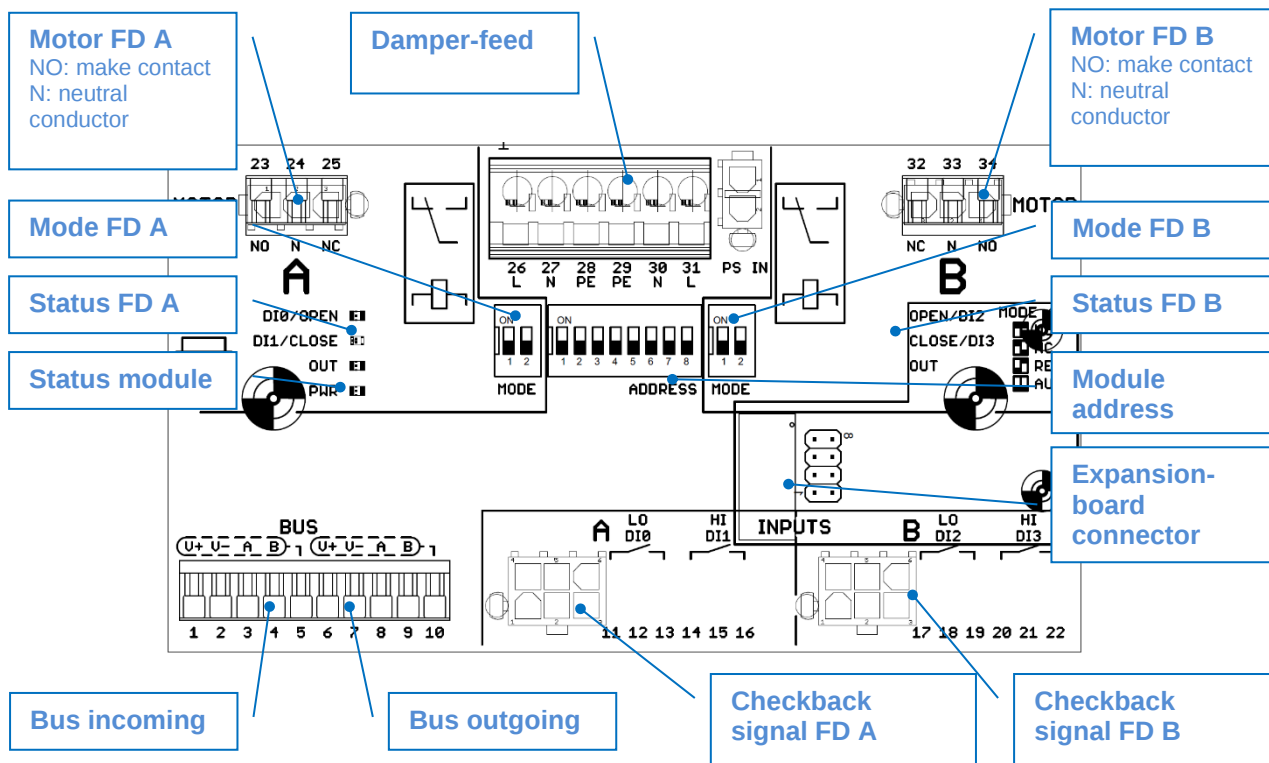


Figure 7: BKM-35-F-ST

Details about the expansion boards can be found in the [TB_BSK_3rdGen_Expansion Boards.pdf](#)

Module Address

The module address is set via switches 1-7 as a binary-coded number. Switch 8 serves to reset the module. Switch 8 is essential in order to change the address during operation.

Mode

The damper-feed can be put into the following states via the mode switch:

Automatic (damper is controlled via the bus / status LEDs deactivated)

Revision (damper is controlled via the bus / status LEDs activated)

Manual break-contact (commands via the bus are ignored)

Manual make-contact (commands via the bus are ignored)

Switch positions Mode/ Mode Switch

1	2	Description
OFF	OFF	automatic
ON	OFF	NC – Contact active
OFF	ON	Revision / LEDs active
ON	ON	NO – Contact active

Table 1: Mode switch

Status fire-damper

The status of a fire-damper is signalled via 3 indicators. The yellow indicator OUT signals active control of the output. The indicators OPEN and CLOSE signal the status of the checkback signals.

Limit switch	Description	Indicator OPEN	Indicator CLOSE
No limit switch active	Damper closed	Off	On (red)
LO limit switch active	Damper between both limit switches	On (green)	On (red)
HI limit switch active	Undefined status	Off	Off
Both limit switches active	Damper open	On (green)	Off

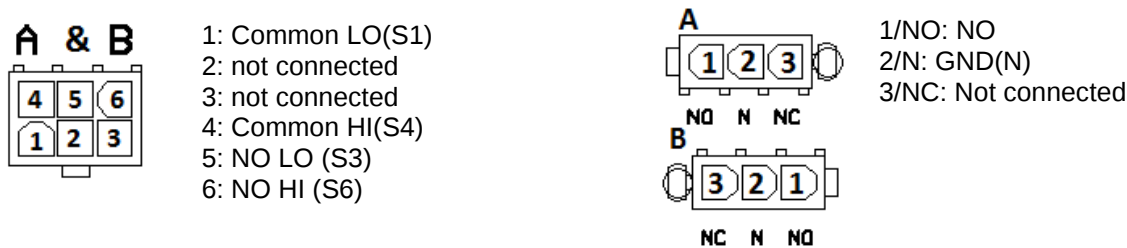
Table 2: Initial State

Status module

The module status indicator serves to visualise the supply status and communication. When the module is correctly supplied, this indicator is lit. The indicator flashes once every time a data packet has been correctly received via the bus. If a faulty data packet is received, the indicator flashes three times.

Feedback/Motor A & B for plug version

The assignment is the same for both channels and is assigned as follows:



Adaptation for incompatible connector variants

For the 6-pole feedback plugs, from Wildeboer actuators, the positions of the wires 21, 23, 24, 25 must be adapted. The pin assignment of the connectors on the AGNOSYS module can be seen here:

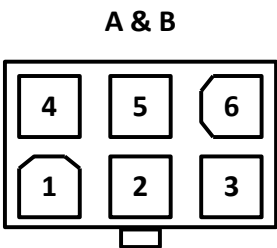


Figure 8: AGNOSYS module

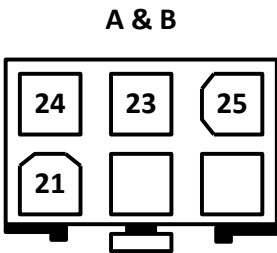


Figure 9: Wildeboer/ AGNOSYS compatible

AGNOSYS		WILDEBOER
1	Common LO(S1)	21
4	Common HI(S4)	24
5	NO LO (S3)	23
6	NO HI (S6)	25

The two remaining wires can be freely assigned.

For the 3-pole motor connector, the N and NC connectors must be exchanged.

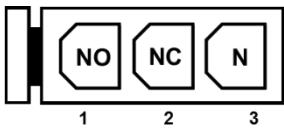


Figure 10:Wildeboer

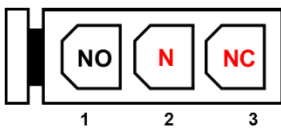


Figure 11: AGNOSYS compatible

4 Safety Regulations

- The device may only be used for the specified purpose.
- Warning! The device carries live voltage!
- The device may only be installed and put into operation by trained specialists.
- The device may only be opened by the manufacturer. It does not contain any parts which the operator can maintain themselves.
- The device contains electronic components and may not be disposed of in general waste.

ATTENTION! The respective system design, installation, commissioning, changes, extensions or other interventions in components, systems, software or parameterization of plants or systems may only be carried out by AGNOSYS certified specialist companies!

Certified specialist companies have:

- Company certification as AGNOSYS partner for planning, parameterization and commissioning of AGNOSYS products and systems. (Validity: 2 years from the date of issue)

5 Dimensioned Drawing and Mounting Instructions

The fire damper module (BKM-35-F, BKM-35-F-ST) can be mounted on any flat surface, either externally with four 5mm round-head screws, or internally with two 5mm self-tapping cylinder-head screws (not included with the product).

The module of the type BKM-35-F-IP66 can be mounted with 4 semi-circular head screws of the thickness 4.0 mm (not included in the scope of delivery) at the positions shown in Figure 10. It is recommended to pre-drill the corresponding nipples.

Due to protection concerns, the module may only be mounted in a dry environment, out of normal human reach (suspended ceilings, engineering/maintenance rooms, vertical ducts etc.).

The module may not be mounted above or next to significant sources of heat, such as a furnace, in order not to exceed the maximum permissible operating temperature. It should be noted that an increase in temperature can also occur via the surface which the module is mounted on.

NOTE: When fitting the cover, it should be ensured that it audibly snaps into place on the left as well as on the right side!

Otherwise, the long-term shape and stability of the shutter cannot be guaranteed!

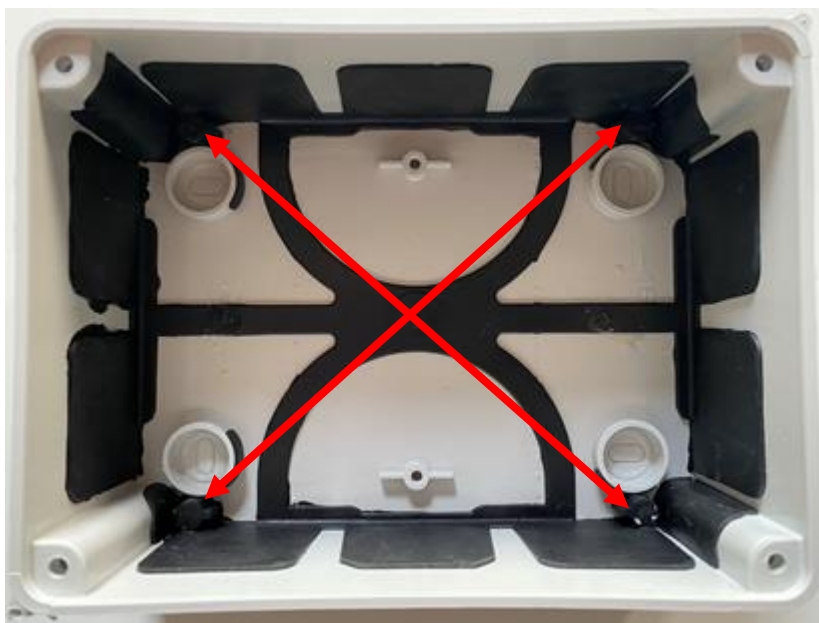


Figure 12: BKM-35-F-IP66 mounting screws position.

It is important to ensure that the maximum tightening torque of the assembly screws is between 0.5 and 1 Nm.

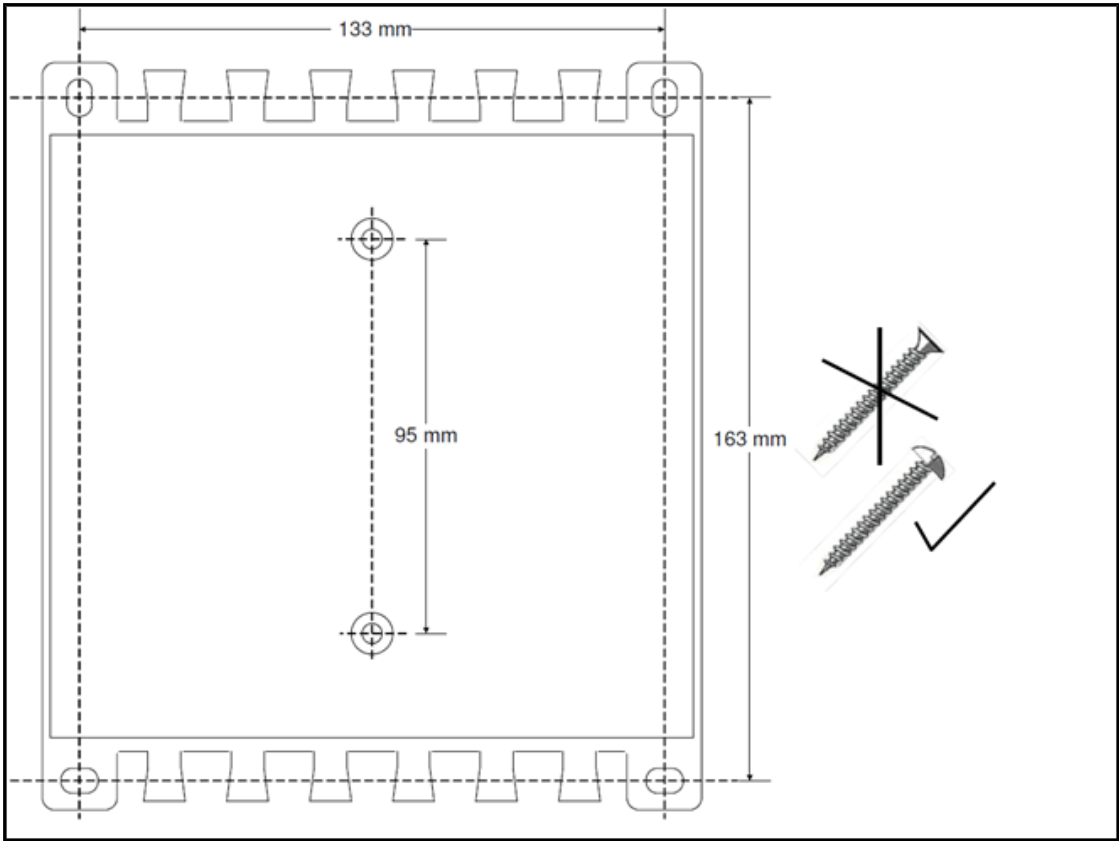


Figure 13: BKM-35-F, BKM-35-F-ST



Figure 14: BKM-35-F-IP66

The module BKM-35-S is intended to be mounted on a 35mm DIN-rail in the control-cabinet area. It is mounted onto the DIN-rail by snapping it into place. In order to remove the module, it has to be pushed upwards (1) and it should then be lifted off the rail from above (2).

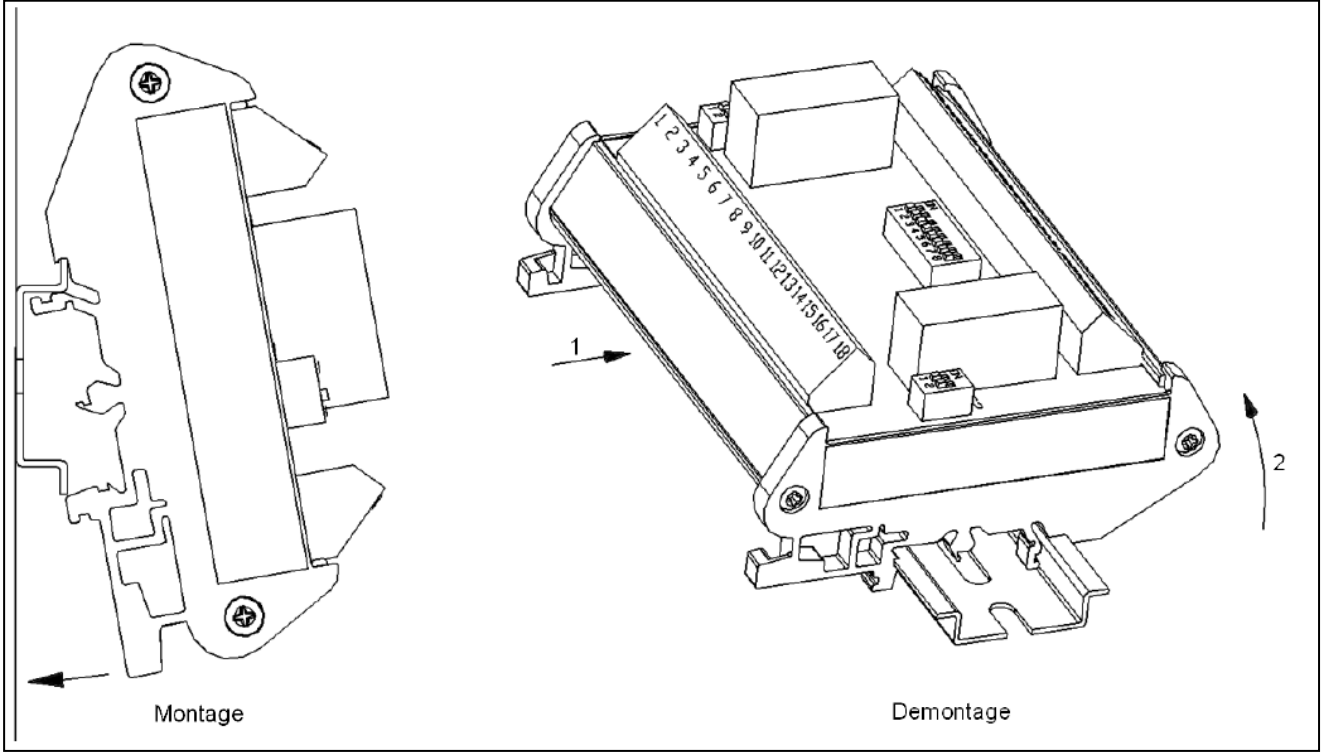


Figure 15: BKM-35-S

5.1 Fall protection module Cover of field modules (*-F)

If it is not possible to install the cover properly as described in 5 Dimensioned Drawing and Mounting Instructions or if additional securing is required, the cover can be easily secured against falling. Two approved variants are available for this purpose.

5.1.1 Securing via cable ties

When securing with cable ties, two holes must be drilled through the lid and base in such a way that a cable tie can be inserted in the assembled state with lid.

The following procedure is recommended for this:

- Drill two holes while the lid is mounted on the floor, drill with D = 5mm.
 - In this case, make sure that the cover sits loosely on the module and is not pressed manually too hard on the floor. - Otherwise, damage cannot be excluded when drilling.
- First hole (left hole according to Figure 16: Fall protection with cable tie) 25mm from the left edge (measured at the rebate) and 6mm from the rebate edge.
- Second hole (right hole according to Figure 16: Fall protection with cable tie) 37mm from the left edge (measured at the rebate) and 6mm from the edge of the rebate.
- Feed-through and installation of cable tie with width 3.5mm



Figure 16: Fall protection with cable tie

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5.1.2 Fall protection with screw

When securing with screws, a hole must be drilled through the lid and base so that a screw can be fitted in the assembled state with lid.

The following procedure is recommended for this:

- Drill a hole while the lid is mounted on the floor, drill with $D = 2,5\text{mm}$.
 - In this case, make sure that the lid sits loosely on the module and is not pressed too hard on the floor by hand. - Otherwise, damage cannot be excluded when drilling.
- Hole as shown in Figure 17: Fall protection with screw 75mm from the left edge (measured at the rebate) and 11mm from the edge of the rebate.
- Mounting the screw (3.0x10 / pan head)

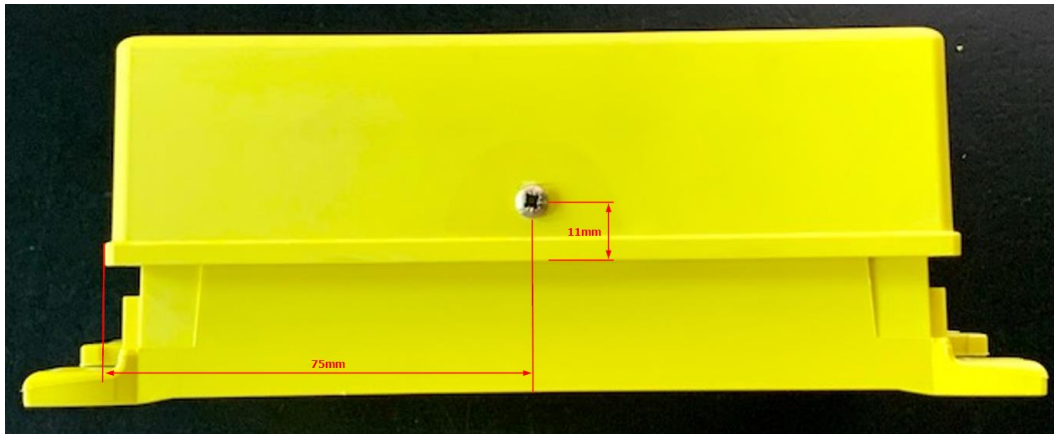


Figure 17: Fall protection with screw

6 Wiring Diagram

6.1 Wiring for fire damper control system

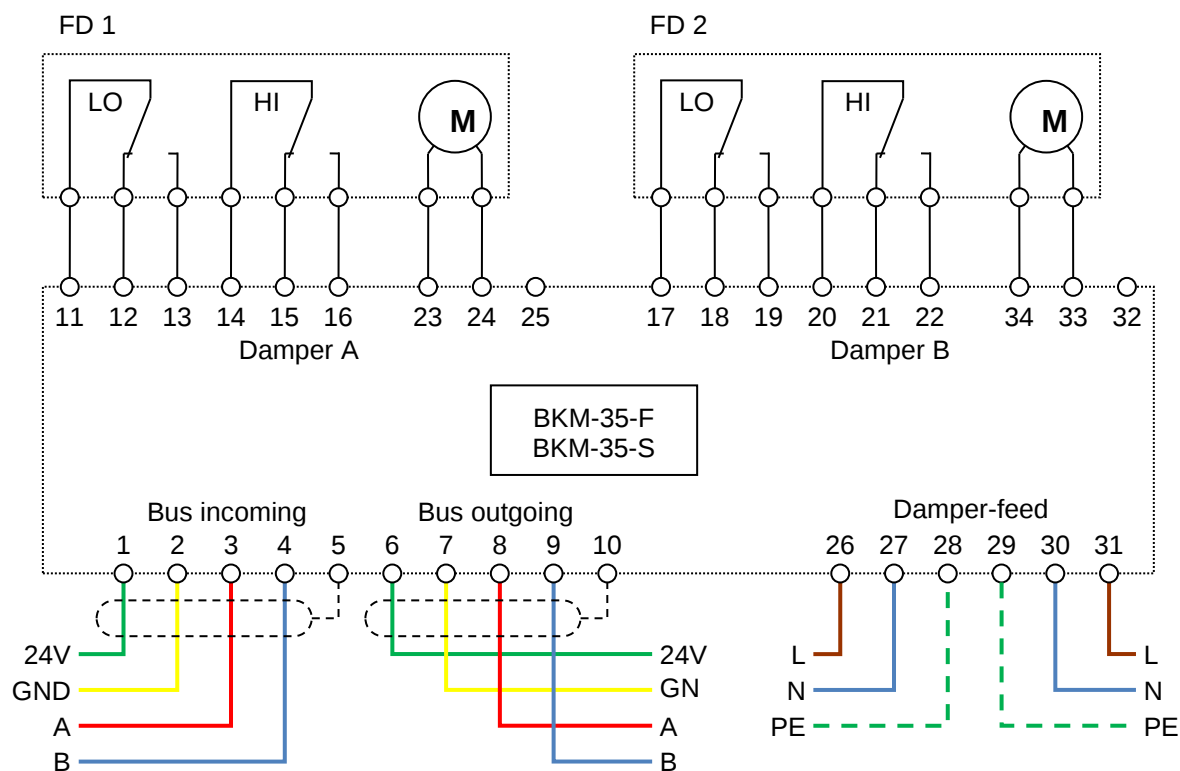


Figure 18: Connection diagram BKM-35-F, BKM-35-S

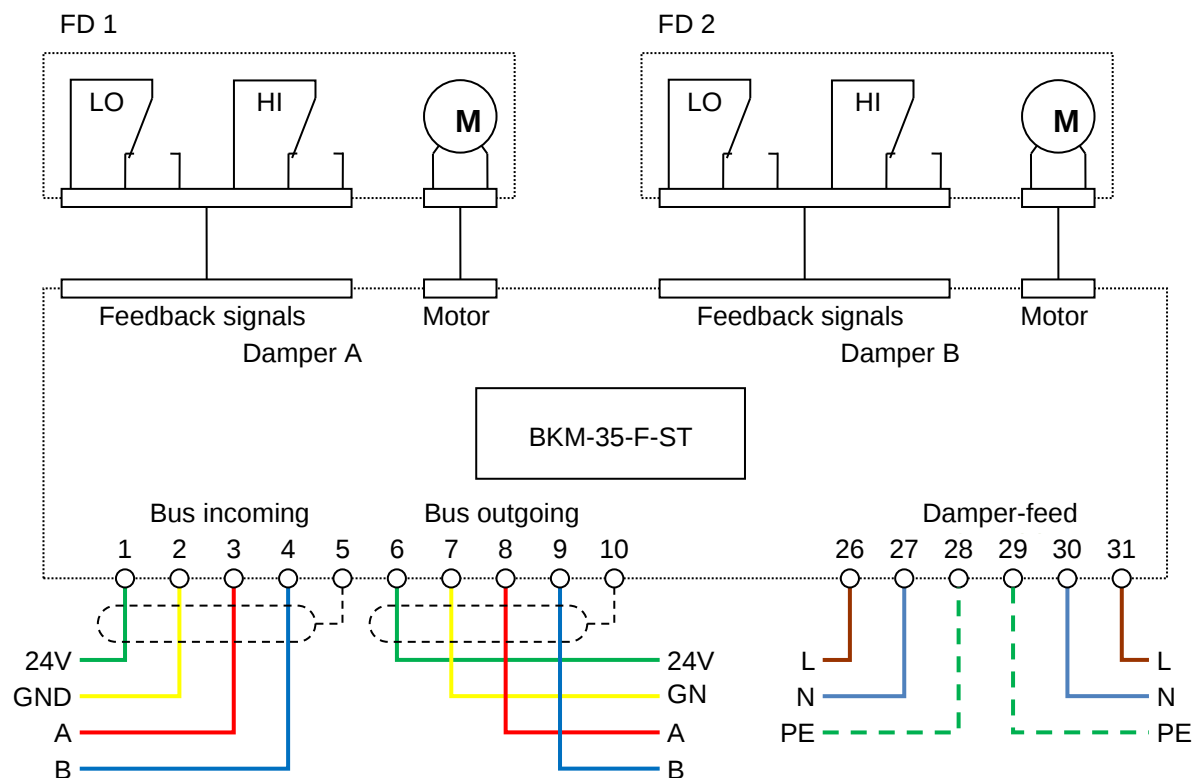


Figure 19: Connection diagram BKM-35-F-ST

6.2 Wiring for fire damper monitoring system

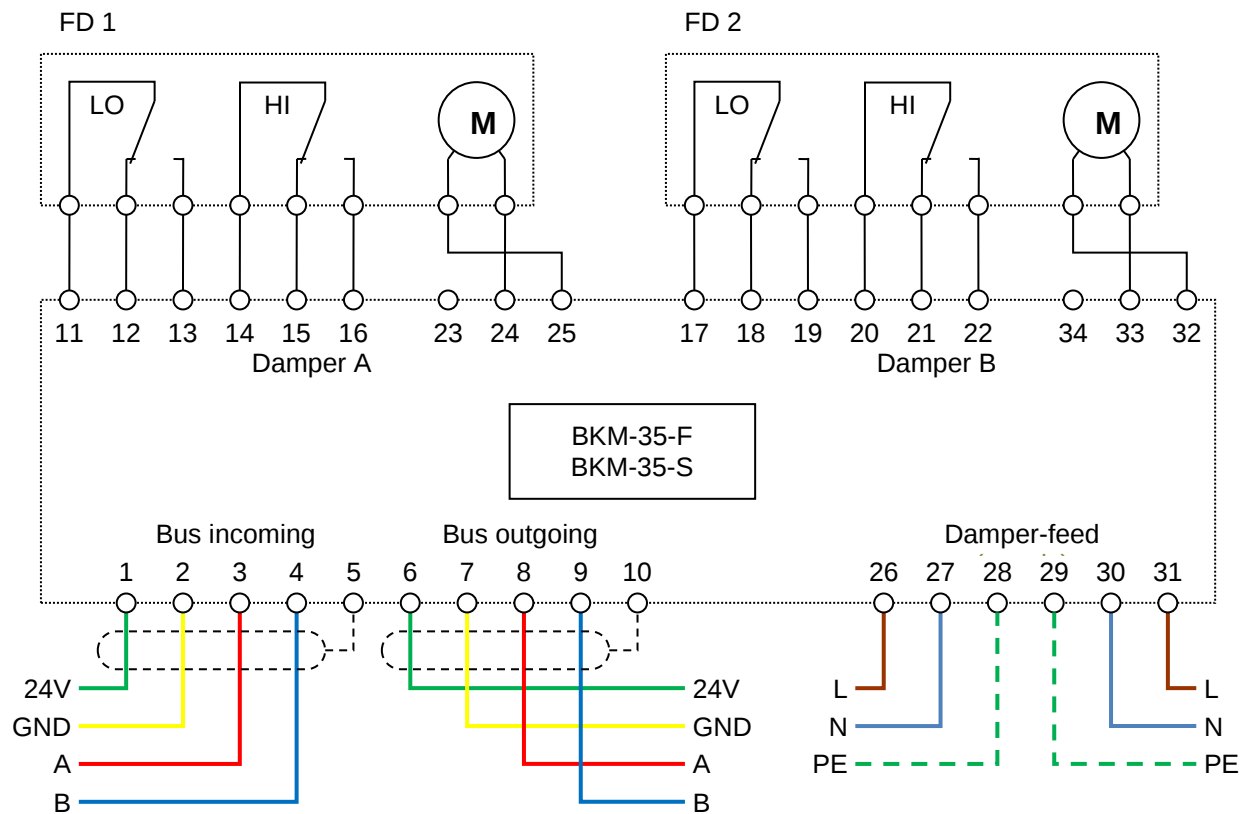


Figure 20: Connection diagram BKM-35-F, BKM-35-S

Note:

The BKM-35-F-ST cannot be used in a fire-damper monitoring system because the NC contact is firmly wired onto the corresponding contacts of the motor connector!

6.3 Wiring for mechanical fire damper with HI feedback

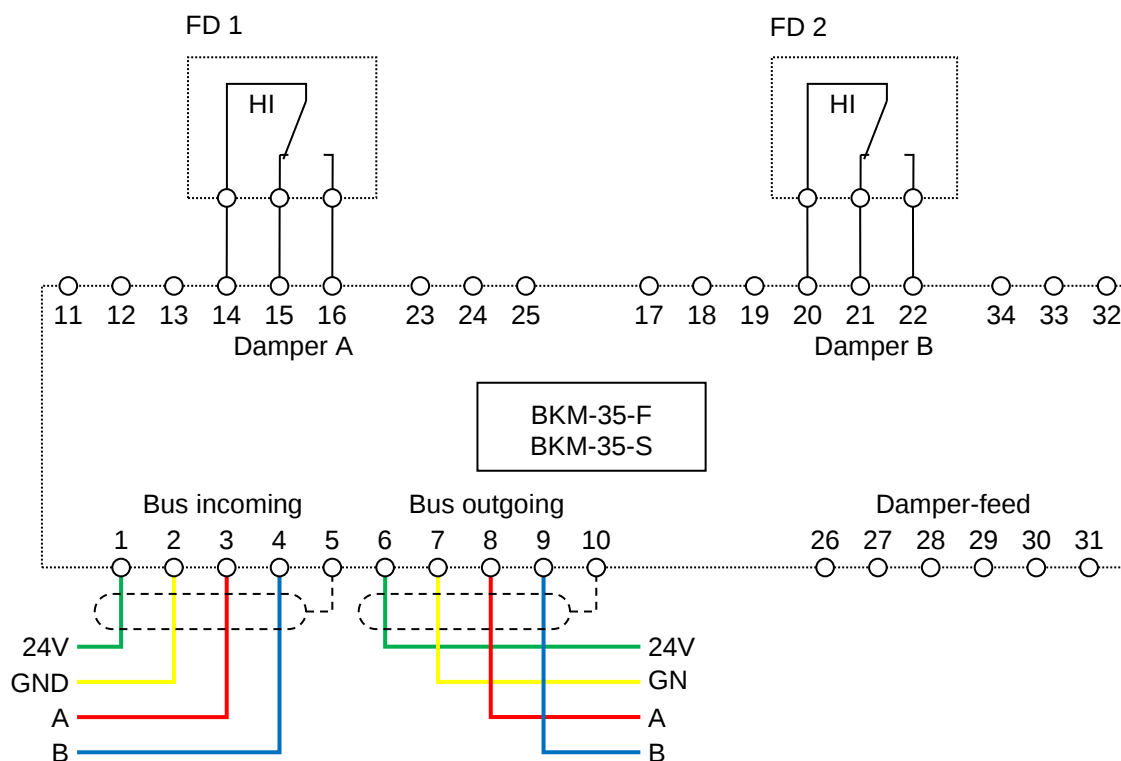


Figure 21: Connection diagram mechanical wiring BKM-35-F, BKM-35-S

In the Agnosys projection tool, the configuration of the actuator looks as follows:

Allocation	Actuator test	LO feedback present	Time closing [s]	Time opening [s]	Contact type LO feedback	Contact type HI feedback	Contact type output	Position "run"	Position "stop"	Position "fire"
Master 550104251 > M#011 > A	☐	☐	70	150	Make contact	Make contact	Make contact	Opened	Opened	Opened

Figure 22: Agnosys projection configuration of a mechanical actuator with HI feedback.

All "Position" options (run/stop/fire) are configured "Opened" and the "LO feedback present" is deactivated.

6.4 Identification color of Agnosys hybrid cable

Description	Color
V+ / 24 V	Green (gn)
V- / GND	Yellow (ye)
Bus A	Red (rd)
Bus B	Blue (bu)

Table 3: Wire assignment

The connection diagram for the expansion boards (AGF-ADD-01) can be found in **TB_BSK_3rdGen_Expansion Boards.pdf**

7 Technical Specifications

Electrical data		
Supply voltage	DC 18 – 32V (24V typ.)	
Current consumption	15 mA typ. (both relays energised) 26 mA max. (for 200ms when relays energise)	
Protection rating		
BKM-35-F	IP20 (EN 60529)	
BKM-35-F-ST		
BKM-35-F-IP66	IP66 (EN 60529)	
Protection class	II	
Execution		
Digital inputs	4 for checkback signal fire-damper limit switch (isolated)	
Digital outputs	2 for activation of fire-dampers only	
Checkback signals/limit switch		
Minimum detection voltage	18 V _{DC}	
Outputs		
Damper-feed	24 / 230V _{AC}	24V _{DC}
Max. permanent current	AC 5 A	DC 3 A
Max. switch-on current (< 15ms)	AC 10 A	DC 10 A
Switching capacity (AC1/AC3/AC15)	1250VA / 185W / 250VA	
Terminals damper-feed		
Maximum terminal cross-section	Solid-wired: 0.08 – 2.5mm ² Fine-strand (without ferrule): 0.08 – 2.5mm ² Fine-strand (ferrule with collar): 0.25 – 1.5mm ² Fine-strand (ferrule without collar): 0.25 – 2.5mm ²	
Maximum bridge-current terminals	10A	
Maximum preliminary fuse	LSS 10A characteristic B	
Terminal bus-ring, checkback signals, damper outgoing circuit		
Terminal cross-sections	Solid-wired: 0.2 – 1.5mm ² Fine-strand (without ferrule): 0.2 – 1.5mm ² Fine-strand (ferrule with collar): 0.25 – 0.75mm ² Fine-strand (ferrule without collar): 0.25 – 1.5mm ²	
Environment variables		
Permissible ambient temperature	0 – 45°C	
Permissible ambient humidity	10 – 90 % RH non-condensing	
Measurements (<i>width x height x depth</i>) [mm]		
BKM-35-F, BKM-35-F-ST	158 x 180 x 65	
BKM-35-S	132 x 93 x 60	
BKM-35-F-IP66	150 x 110 x 70	
Weight		
BKM-35-F, BKM-35-F-ST	467g	
BKM-35-S	196g	
BKM-35-F-IP66	397g	