



BACring. The powerful control system
for smoke dampers

Technical Datasheet DPM-M2A2

[DUP] BACring - Control system

VERSION 1.14

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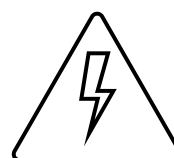


Safety Instructions and Warranty Conditions

WARNING: DANGER TO LIFE!



Before working on the device, it must be disconnected from the power supply (unplug the mains plug). Work on the device may only be carried out by a qualified electrician.

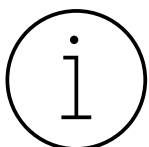


Warranty Conditions



Installation and commissioning must be performed by a qualified electrician! Please read the technical data sheet before installation.

Information



The individual modules are built and tested in accordance with applicable standards and laws and left the factory in perfect condition. To maintain this condition and ensure safe operation, the instructions contained in the user manual must be observed.



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Description

The BACring DPM-M2A2 is primarily used when analog signals are required, for example for percentage-based position control of dampers or for power-dependent control of smoke extraction fans.

It combines the digital open/close logic for two motorized dampers with additional 0–10 V analog inputs and outputs for closed-loop control functions (measuring, controlling, regulating).

Communication is carried out via the BACring bus protocol.

Key benefits

- Proportional setpoint specification (0–10 V) for dampers and fans (e.g. 20 %, 50 %, 75 %, 100 %).
- Acquisition of measured values (0–10 V) from external controllers/sensors (e.g. airflow, pressure, temperature).
- Digital end-position monitoring and relay control remain fully available.

Functional Scope

2 Digital Damper Control (as with DPM-M2):

- 2 bistable relay outputs for controlling 2 motorized fire protection / smoke extraction dampers.
- 4 digital inputs for end-position evaluation (OPEN / CLOSED per damper).

2 Analog Functions:

- 2 galvanically isolated analog outputs (AO, 0–10 V) – Proportional setpoint specification for damper positioning (e.g. 20 %, 75 %, 100 %) and for power-dependent control of smoke extraction fans (e.g. 10 %, 25 %, 50 %, 100 %) depending on zone or scenario.
- 2 analog inputs (AI, 0–10 V) – Acquisition of external 0–10 V signals, e.g. airflow / pressure controllers, temperature / position signals, or other process / control signals.

Power Supply

The DPM-M2A2 is available for different actuator concepts.

The supply for the digital outputs and the analog I/Os is provided via a separate power supply, depending on the device variant:

- Variant for 24 V motors – 24 V AC / DC
- Variant for 230 V motors – 100–240 V AC

The selection of the voltage variant is project-specific and depends on the damper actuators or smoke extraction fans used.



Interfaces & I/O Overview

- BACring bus protocol
- Relay outputs (DO): 2× for controlling 2 motorized dampers
- Digital inputs (DI): 4× for end-position feedback (OPEN / CLOSED per damper)
- Analog inputs (AI): 2× 0–10 V (acquisition of external control / measurement signals)
- Analog outputs (AO): 2× 0–10 V, galvanically isolated (proportional setpoint specification)

Typical Applications

- Damper control with airflow setpoint specification – Proportional damper positioning (e.g. 20 % / 50 % / 75 % / 100 %) for targeted airflow adjustment.
- Zone-dependent control of smoke extraction fans – Proportional power / speed specification (e.g. 10 % / 25 % / 50 % / 75 % / 100 %) depending on the smoke extraction scenario.
- Closed-loop fire protection / smoke extraction concepts – Combination of signal acquisition (AI) and control output (AO) for reliable and stable control loops.

Versions / Variants

- DPM-M2A2 – Fieldbus module (field-mounted).
- DPM-M2A2C – Control cabinet module (DIN rail, control cabinet integration).

Project Planning Notes

- Percentage values (e.g. 25 %, 50 %, 75 %) are logically defined within the BACring-System; output is performed via AO 0–10 V.
- Galvanic isolation of the AO ensures robust signal transmission and minimizes interference.
- The power supply variant (24 V AC/DC or 100–240 V AC) must match the connected actuators / devices.

Short Comparison with DPM-M2

In addition to the DPM-M2 functions, the DPM-M2A2 provides 2× AI (0–10 V) and 2× AO (0–10 V). It is the recommended choice when analog signal processing (measuring / controlling / regulating) is required, particularly for proportional damper and fan setpoints.



Technical Data

Power Supply bus	20 V DC $\pm$ 2 % (via DPB-Buscontroller)
Power supply for motors	24V variant: 24V AC/DC 230V variant: 100 - 240V AC
Indicators	Green LED for "BUS activity"
Operating keys	Motor test buttons for relay 1 and relay 2
Bus protocol	BACring protocol; Setting the outputs within 90 ms; Polling the inputs within < 1.5 s (independent of the size of the ring bus)
Digital inputs	4 digital inputs for limit contacts, not isolated, referring to bus ground
Relay outputs	2 relays with change-over contacts, galvanically isolated, max. load 2.5A / 250 V
Analog inputs	2 analog inputs 0 - 10V, used for the monitoring of the damper positions
Analog outputs	2 analog outputs 0 - 10V, used to set the damper positions
Digital IAQ interface	Serial interface for future use options
Motor fuse	One 2.5 A time-lag fuse 5 $\times$ 20 mm
Connectors	Bus ports : WAGO cage-clamp terminals type 236 , light gray; Inputs and motor outputs : WAGO cage-clamp terminals type 236 , dark gray; Motor supply : Phoenix Contact TFKC 2,5/4-ST-5,08 (4-pin); Digital interface : WAGO cage-clamp terminals type 236 , blue, light gray, orange
EMC conformity	2014/35/EU, EN61000-6-1, EN61000-6-3, EN61000-4-2...5
Maintenance	Maintenance-free
Mounting	Wall mount
Operation temperature	0° to +75°C
Humidity	Storage: 0% - 100%, non-condensing; Operation: 0% - 100%, non-condensing
Safety class	IP 66 (M20, M25 without screws)
Dimensions (W x H x D)	180 mm x 90 mm x 180 mm
Housing	Spelsberg (TK PS 1818-9-tm)
Weight	Approx. 0.4 kg

