

Decentralised operating and monitoring systems Type MB-BAC-WA 1/4



Communication interface for exchanging variables via BACnet or Modbus

Functional modules designed for the monitoring of motorised fire dampers
and smoke control dampers

- Programming according to the standardised BACnet device profile B-ASC
- High transmission reliability and data integrity
- Network can easily be expanded



BACnet-MS/TP interface

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Description



MB-BAC-WA1/4

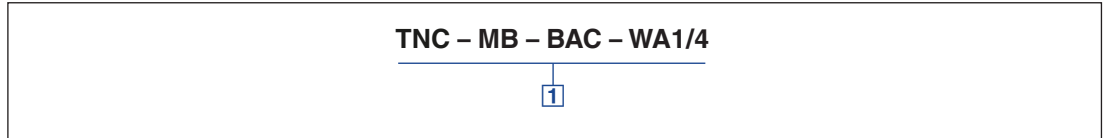
Application

- MB-BAC-WA1/4 is a functional module that has been specially developed for the monitoring of motorised fire dampers and smoke control dampers
- Up to four motorised fire dampers or smoke control dampers can be controlled with MB-BAC-WA1/4
- Mechanical fire dampers with one or two limit switches for the damper blade end positions can also be monitored with MB-BAC-WA1/4
- Supply voltage: 230 V AC, 24 V AC/DC
- The connections for the damper actuators are either designed for the respective supply voltage of volt-free
- MB-BAC-WA1/4 can be integrated with the central BMS using the integral EIA RS 485 interface (two-wire).
Choice of BACnet MS/TP or MODBUS RTU communication protocol
- An EIA RS 485 standard bus (two-wire) is used as a communication line
- With a BACnet client or a Modbus master, the inputs and outputs can be activated or data can be retrieved using BACnet objects or Modbus registers

Technical data

Supply voltage	230 V AC $\pm 10\%$, 50/60 Hz, 24 V AC or 24 V DC $\pm 10\%$ as an option; double terminals for looping through
Power consumption	Approx. 12 VA without actuators (4.8 VA or W)
Inputs	8 digital inputs for volt-free switches
Outputs	5 digital outputs, each with changeover relay
Modbus/BACnet interface	4-pole spring-loaded terminals for 0.08 – 2.5 mm ² ; EIA-RS 485 standard (BACnet MS/TP or Modbus RTU)
IP protection level	IP 20
Operating temperature	10 – 60 °C
Relative humidity	20 – 95 % (non-condensing)
Connection terminals	Actuator control: 4-pole spring-loaded terminals for 0.08 – 2.5 mm ² ; actuators for position indication: 4-pole spring-loaded terminals for 0.08 – 2.5 mm ²
Supply voltage for terminals	2 x 3-pole for 0.08 – 2.5 mm ²
Firechain signal	3-pole spring-loaded terminals for 0.08 – 2.5 mm ²
Dimensions (B x H x T)	285 x 270 x 150 mm
Material	ABS plastic, blue (RAL 5002)

Order code



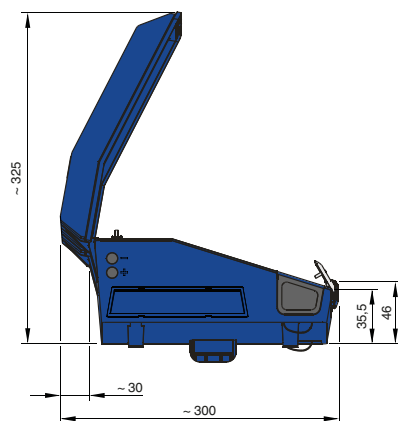
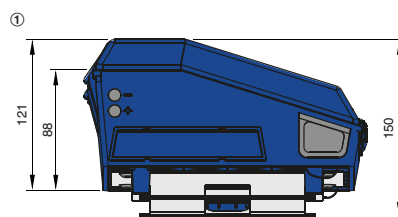
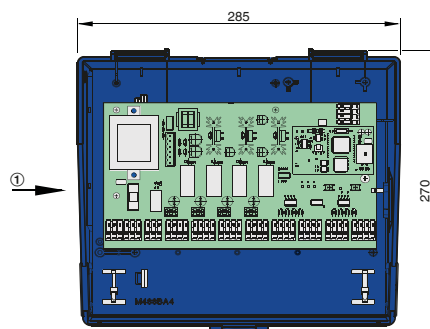
1 Type
TNC-MB-BAC-WA1/4

Dimensions



MB-BAC-WA1/4

Module MB-BAC-WA1/4



① Illustration shows module rotated by 90°, with cover

Description

This specification text describes the general properties of the product. Texts for variants can be generated with our Easy Product Finder design programme.

Standard description (characteristics)

Module for the control of up to four motorised fire dampers or smoke control dampers (230 V or 24 V AC/DC). Also for monitoring up to 8 mechanical fire dampers with one limit switch for end position OPEN or CLOSED, or up to 4 mechanical fire dampers with two limit switches for capturing end positions OPEN and CLOSED. Transmission of all signals and control input signal for motorised fire dampers; transmission of the system status; integral watchdog and heartbeat functions

The following parameters can be defined:

- Maximum interval for sending data
- Minimum interval for receiving data
- Maximum interval for sending status
- Zone number
- Designation of the damper
- Installation date and time
- Date and time of the last inspection
- Maximum time required to CLOSE the damper
- Maximum time required to OPEN the damper
- Maximum time for test run

Connections

- 8 digital inputs
- 5 digital relay outputs, changeover contact 250 V/5 A
- Choice of 230 V AC or 24 V AC/DC voltage supply
- Outputs either with supply voltage or volt-free
- BACnet interface EIA RS 485 MS/TP
- Modbus interface EIA RS 485 Modbus RTU

Order options

Type

- TNC-MB-BAC-WA1/4

TROXNETCOM

Basic information and nomenclature



- Communication systems for fire protection systems
- Colour codes according to IEC 60757
- AS-Interface
- LON

Description

Information and communication are becoming more and more important in today's world. People not only want more information, they also want more detailed information. This development is also visible in building automation, and there is no end in sight. A building becomes 'transparent' through distributed intelligence and new decentralised communication systems.

These new technologies allow us to develop bespoke system solutions for various building services and to integrate them with building management systems. In this way, the best solutions for the different building services can be combined to create the best possible overall solution. Decentralised communication systems offer you the most advanced technology for your application requirements.

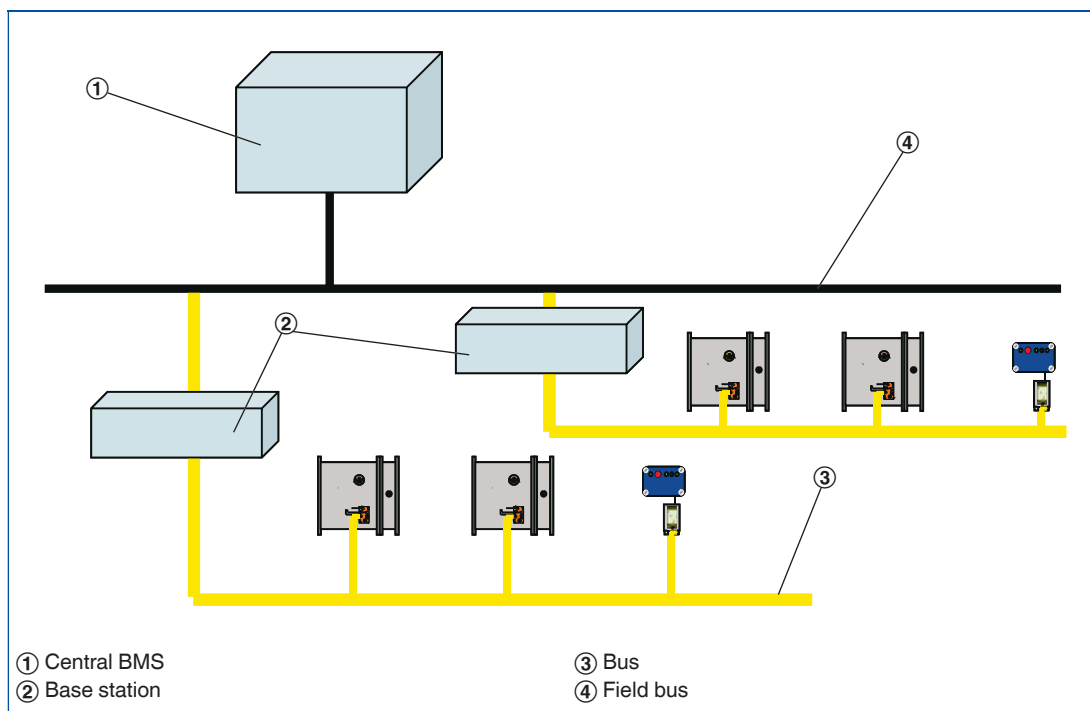
Communication systems for fire protection systems

The functional safety of programmable electronic systems is becoming more and more important in fire protection and is implemented with regard to protection goals and risks. According to IEC 61508, the requirements for these systems are based on a risk analysis. Components are given an SIL rating (safety integrity level) and must meet the corresponding requirements to ensure safety even in case of a malfunction.

General advantages of decentralised bus systems

It is no longer necessary to wire every single actuator and every single controller. Modern bus systems only need one bus cable, and in some cases a supply cable, to connect all components. This saves not only installation time but also cables, connectors, terminal blocks, and control cabinet space. It also drastically reduces the fire load and the installation costs. All signals from all components on a bus can be retrieved and recorded by the central unit. Inspection is simplified, and measurement and control can be optimised.

Communications system



Wiring

Colour codes according to IEC 60757

Code	Colour
BK	black
BN	brown
RD	red
OG	orange
YE	yellow
GN	green
BU	blue

Colour codes according to IEC 60757

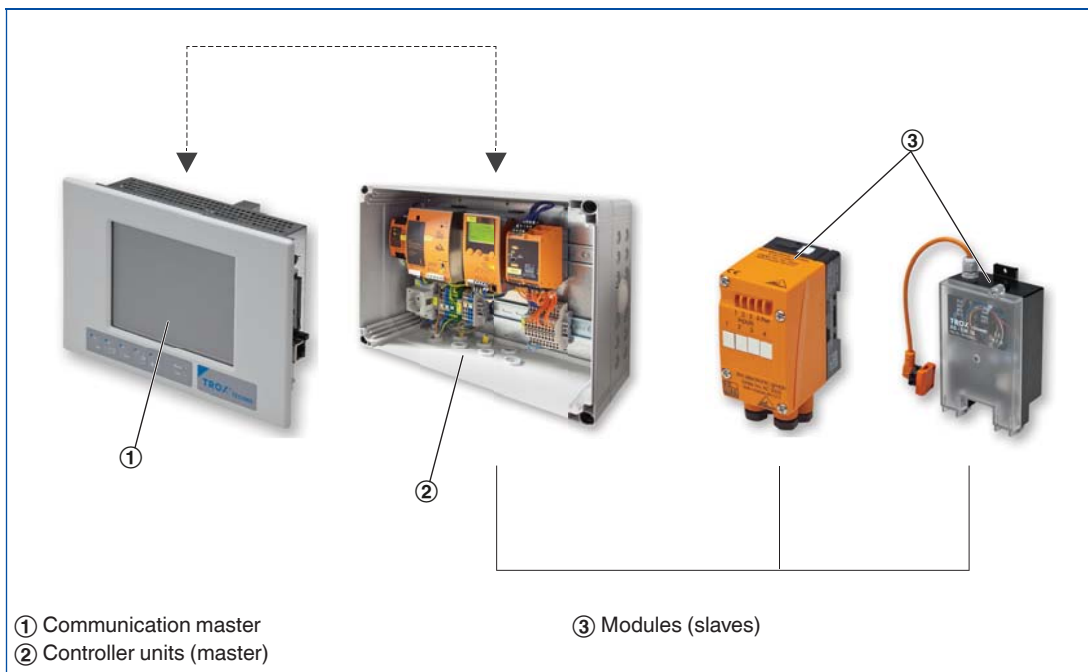
Code	Colour
VT	violet
GY	grey
WH	white
PK	pink
TQ	turquoise
GNYE	green-yellow

Description

The AS interface is a world-standard bus system according to EN 50295 and IEC 62026-2. It enables the integration of different components (modules) in a network regardless of the manufacturer and the design. The modules control actuators and/or receive signals from sensors. TROX provides a system for controlling fire dampers, smoke protection dampers and smoke control dampers based on the AS-i standard. TROX modules are characterised by a wide spectrum of functions yet simple cabling.

Special characteristics

- Data exchange and power supply with just one cable
- Central control of actuators and monitoring of damper blade positions and duct smoke detectors
- Simple commissioning using standardised software
- Automatic function test including data logging

The system**Communications system**

The communication master is the central display and control panel for the entire system.

- Connection of up to 28 controller and power units
- Display of operating status
- Operation of actuators
- Menu-driven operation in case of errors or malfunctions
- System configuration at the time of commissioning
- Logging of function tests and error messages

The controller and power unit combines the control functions, the power supply, and the data exchange for all components on the bus.

- The controller and power unit is installed near the modules, e.g. as a floor distributor
- With TNC Basic User Software for fire and smoke protection
- Communication interface to higher level systems (BACnet/Modbus)
- Display, also for operation
- Units with: 1 master – for 31 modules, 2 masters – for 62 modules

The modules establish the link between the measurement and control signals (sensors and actuators) and the network on the so-called field level. A module provides the supply voltage for the operation of actuators.

- Modules can be part of a fire damper or used separately to connect one or more fire dampers
- Integrated monitoring function, e.g. for running time
- Connection to the bus cable is with a flat cable insulation displacement connector

Description

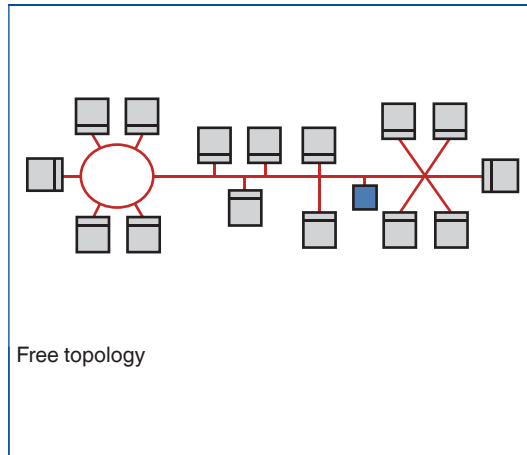
LON indicates a standard local operating network system with manufacturer-independent communications. Data is transferred by a microprocessor supplied by Echelon Corporation using a unified protocol. LonMark defines standards to ensure product compatibility. TROX offers components that meet LON standards. TROX modules are characterised by a wide spectrum of functions yet simple cabling.

Special characteristics

- Data exchange and power supply can be achieved with just one cable
- Decentralised structure with high operational reliability
- Standardised data transfer
- Manufacturer-independent compatibility

The system

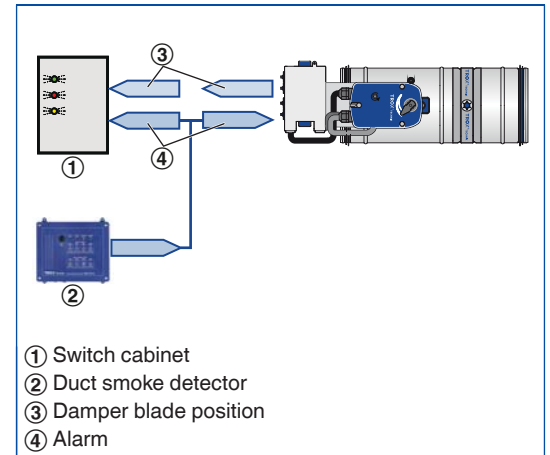
Network topology



Network

The local operating level (subnet) consists of the modules (nodes) and free topology data cables. A subnet can consist of up to 64 nodes or, alternatively, can be extended to 128 nodes using a repeater or router. Physical data transfer is via systems with or without a transfer of supply voltage. All nodes of a subnet must comply with the system. In larger networks the routers link the subnets with each other. The routers communicate with each other via the backbone, on a separate network level. Central monitoring of a LON network is possible and is connected to the backbone or above it.

Binding network variables



Data exchange

Network variables are used for the communication between the nodes. These variables ensure unambiguous data exchange between the nodes. For commissioning, it is necessary to link the network variables between the nodes (binding). Project software is used to link the outputs of a node to the inputs of other nodes. Binding information is transferred to the subnet. Binding is carried out by a system integrator.