TROXNETCOM AS-i

Pre-configured switch boxes

For the control of fire and smoke protection systems

Pre-configured modular base station with power supply units, relays and controllers, for the rapid implementation and adjustment of control systems

- Space saving, compact design
- All components are already wired to rail mount terminals
- Quick, error free assembly and installation
- Robust design
- With TROXNETCOM Basic User Software for rapid and safe commissioning and configuration
- Integral display, also for operation

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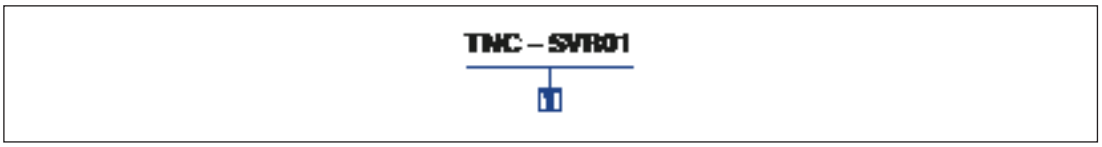
Description

TROXNETCOM AS-i
Pre-configured
switch boxes

Application

- Controller and power unit which consists of:
  Controller, switching power supply unit,
  AS-i power supply unit, and repeater
  or relay modules, in a plastic casing
  with transparent cover
- Installed and wired to rail mount terminals
- Cable glands with clamping bracket for mains
  cable, AS-i bus cable and network cable
- European 'Schuko' socket
  for programming device
- Communication master can be installed
  in the door of the switch cabinet
- For one or two masters
- With TNC Basic User Software
  for fire and smoke protection
- Communication interface
  to higher level systems (BACnet/Modbus)
- Display, also for operation

Order code



1 Serie

TNC-SVR01	1xTNC-A2225; 1xTNC-A1256
TNC-SVR02	1xTNC-A2225; 1xTNC-A1258
TNC-SVC01DP	1xTNC-A1305; 1x TNC-A1256; 1xTNC-D1020
TNC-SVC02DP	1xTNC-A1305; 1x TNC-A1258; 1xTNC-D1020
TNC-SVC03DP	1xTNC-A1306; 2x TNC-A1256; 1xTNC-D1020
TNC-SVC04DP	1xTNC-A1306; 2x TNC-A1258; 1xTNC-D1020
TNC-SVC01DPR	1xTNC-A1305; 1x TNC-A1256; 1xTNC-D1020; 1xTNC-Z0094
TNC-SVC02DPR	1xTNC-A1305; 1x TNC-A1258; 1xTNC-D1020; 1xTNC-Z0094
TNC-SVC03DPR	1xTNC-A1306; 2x TNC-A1256; 1xTNC-D1020; 1xTNC-Z0094
TNC-SVC04DPR	1xTNC-A1306; 2x TNC-A1258; 1xTNC-D1020; 1xTNC-Z0094
TNC-SVC01DPRR	1xTNC-A1305; 1x TNC-A1256; 1xTNC-D1020; 2xTNC-Z0094
TNC-SVC02DPRR	1xTNC-A1305; 1x TNC-A1258; 1xTNC-D1020; 2xTNC-Z0094
TNC-SVC03DPRR	1xTNC-A1306; 2x TNC-A1256; 1xTNC-D1020; 2xTNC-Z0094
TNC-SVC04DPRR	1xTNC-A1306; 2x TNC-A1258; 1xTNC-D1020; 2xTNC-Z0094
TNC-SVC01MB	1xTNC-A1353; 1x TNC-A1256; 1xTNC-D1020
TNC-SVC02MB	1xTNC-A1353; 1x TNC-A1258; 1xTNC-D1020
TNC-SVC03MB	1xTNC-A1354; 2x TNC-A1256; 1xTNC-D1020
TNC-SVC04MB	1xTNC-A1354; 2x TNC-A1258; 1xTNC-D1020
TNC-SVC01MBR	1xTNC-A1353; 1x TNC-A1256; 1xTNC-D1020; 1xTNC-Z0094
TNC-SVC02MBR	1xTNC-A1353; 1x TNC-A1258; 1xTNC-D1020; 1xTNC-Z0094
TNC-SVC03MBR	1xTNC-A1354; 2x TNC-A1256; 1xTNC-D1020; 1xTNC-Z0094
TNC-SVC04MBR	1xTNC-A1354; 2x TNC-A1258; 1xTNC-D1020; 1xTNC-Z0094
TNC-SVC01MBRR	1xTNC-A1353; 1x TNC-A1256; 1xTNC-D1020; 2xTNC-Z0094
TNC-SVC02MBRR	1xTNC-A1353; 1x TNC-A1258; 1xTNC-D1020; 2xTNC-Z0094
TNC-SVC03MBRR	1xTNC-A1354; 2x TNC-A1256; 1xTNC-D1020; 2xTNC-Z0094
TNC-SVC04MBRR	1xTNC-A1354; 2x TNC-A1258; 1xTNC-D1020; 2xTNC-Z0094

Description

TNC-SVR01/TNC-SVR02

Application

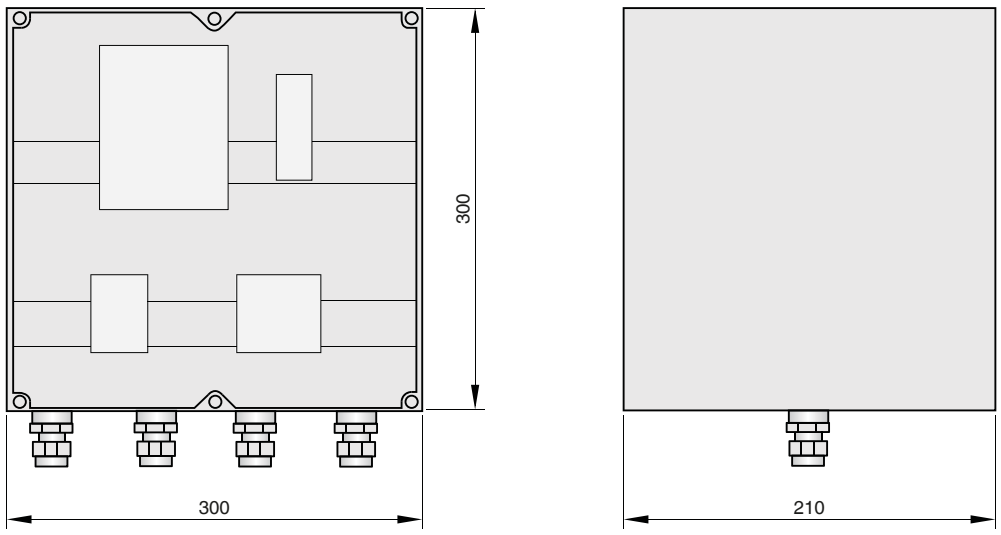
- Pre-configured AS-i base stations for repeaters (TNC-A2225), with an AS-i power supply unit TNC-A1256 = 2.8 A or TNC-A1258 = 8 A
- Installed and wired to rail mount terminals
- Plastic casing, free of halogens, with transparent cover
- Allows for AS-i cable extension by 100 m

Technical data

Description	TNC-SVR01/SVR02
Casing dimensions (B × H × T)	300 × 300 × 210 mm
Casing material	Plastic, free of halogens, with transparent cover
Wired components	TNC-SVR01: 1 × TNC-A2225; 1 × TNC-A1256; TNC-SVR02: 1 × TNC-A2225; 1 × TNC-A1258
Mains supply	230 V AC, 50 Hz
Max. power consumption	TNC-SVR01: 0.1 KW; TNC-SVR02: 0.24 KW
Pre fuse	20 A
IP protection level	IP 65

Dimensions

AS-i pre-configured switch boxes TNC-SVR01, TNC-SVR02



Specification text

Standard description (characteristics)

Switch box 'Repeater'

- Dimensions: 300 × 300 × 210 mm
- Casing materials: Plastic, free of halogens, with transparent cover
- Components: installed and wired to rail mount terminals
- Cable glands: M20 with clamping bracket for mains cable and AS-i bus cable
- Mains supply: 230 V AC, 50 Hz
- Repeater: TNC-A2225
- Power supply unit: TNC-A1256 = 2.8 A (TNC-SVR01) or TNC-A1258 = 8 A (TNC-SVR02)
- Type: TNC-SVR0*

Description

TNC-SVC02DPR
(Example)

Application

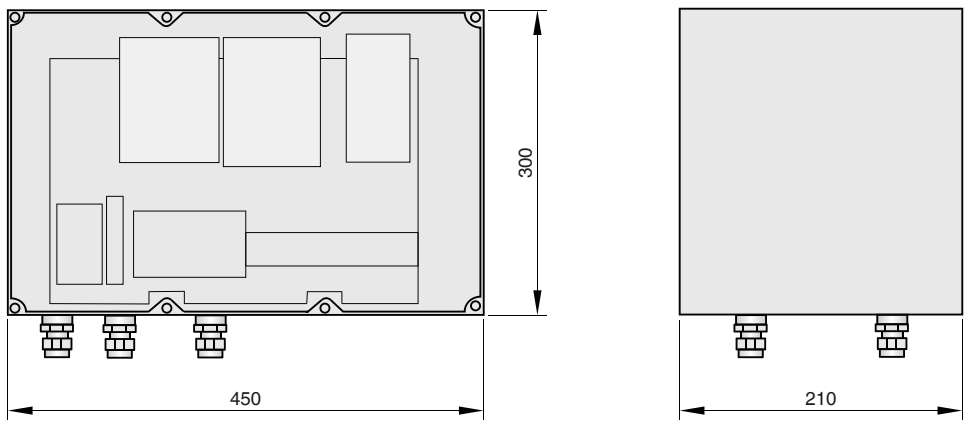
- Pre-configured AS-i base stations for controllers with a master for 31 AS-i participants (TNC-A1305), an AS-i power supply unit TNC-A1256 = 2.8 A or TNC-A1258 = 8 A and switching power supply unit (TNC-D1020), and one or two additional relay modules (TNC-Z0094)
- Installed and wired to rail mount terminals
- Plastic casing, free of halogens, with transparent cover
- With TNC Basic User Software for fire and smoke protection

Technical data

Description	TNC-SVC01DP, -02DP, -01DPR, -02DPR, -01DPRR, -02DPRR
Casing dimensions (B × H × T)	450 × 300 × 210 mm
Casing material	Plastic, free of halogens, with transparent cover
Wired components	TNC-SVC01DP: 1 × TNC-A1305; 1 × TNC-A1256, 1 × TNC-D1020; TNC-SVC02DP: 1 × TNC-A1305; 1 × TNC-A1258, 1 × TNC-D1020; TNC-SVC01DPR: 1 × TNC-A1305; 1 × TNC-A1256, 1 × TNC-D1020, 1 × Z0094; TNC-SVC02DPR: 1 × TNC-A1305; 1 × TNC-A1258, 1 × TNC-D1020, 1 × Z0094; TNC-SVC01DPRR: 1 × TNC-A1305; 1 × TNC-A1256, 1 × TNC-D1020, 2 × Z0094; TNC-SVC02DPRR: 1 × TNC-A1305; 1 × TNC-A1258, 1 × TNC-D1020, 2 × Z0094
Mains supply	230 V AC, 50 Hz
Max. power consumption	TNC-SVC01DP, -01DPR, -01DPRR: 0,15 KW; TNC-SVC02DP, -02DPR, -02DPRR: 0,3 KW
Pre fuse	20 A
IP protection level	IP 65

Dimensions

AS-i pre-configured switch boxes TNC



Specification text

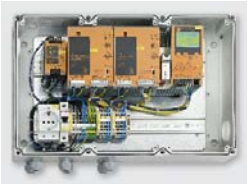
Standard description (characteristics)

Switch box 'Controller and power unit'

- Dimensions: 450 × 300 × 210 mm
- Casing materials: Plastic, free of halogens, with transparent cover
- Components: installed and wired to rail mount terminals
- Cable glands: M20 with clamping bracket for mains cable, AS-i bus cable and network cable
- PROFIBUS DP connector
- European 'Schuko' socket for programming device
- Circuit breaker: 16 A
- Mains supply: 230 V AC, 50 Hz
- Controller: TNC-A1305 PROFIBUS DP ith Basic User Software, 1 master
- Switching power supply unit: TNC-D1020 = 1.3 A
- Power supply unit: 1 x TNC-A1256 = 2.8 A (TNC-SVC01DP) or 1 x TNC-A1258 = 8 A (TNC-SVC02DP) (*no. of relay modules)
- Make: TROX GmbH or equivalent
- Type: TNC-SVC0*DP*

Special information – TNC-SVC0*DPR* Pre-configured switch boxes

Description



TNC-SVC04MB
(example)

Application

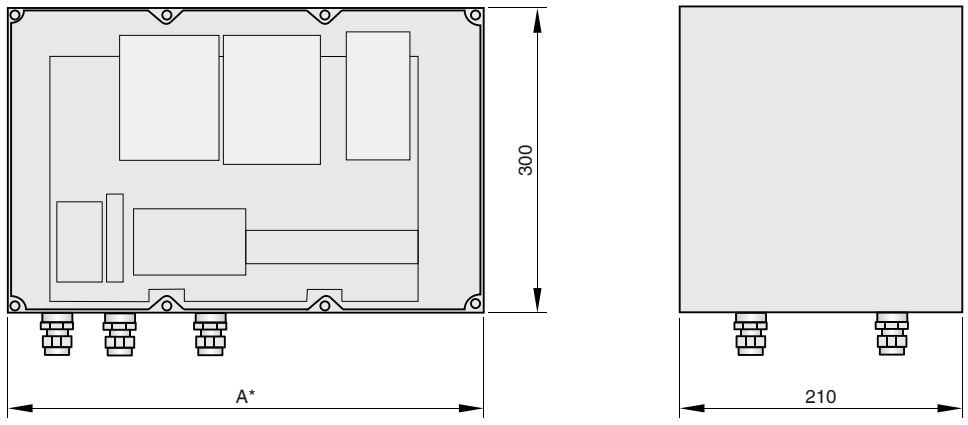
- Pre-configured AS-i base stations for controllers with two masters for 62 AS-i participants (TNC-A1306), an AS-i power supply unit TNC-A1256 = 2.8 A or TNC-A1258 = 8 A and switching power supply unit (TNC-D1020), and one or two additional relay modules (TNC-Z0094)
- Installed and wired to rail mount terminals
- Plastic casing, free of halogens, with transparent cover
- With TNC Basic User Software for fire and smoke protection

Technical data

Description	TNC-SVC03DP, -04DP, -03DPR, -04DPR, -03DPRR, -04DPRR
Casing dimensions (B × H × T)	TNC-SVC03DP, -04DP, -03DPR, -04PDR: 450 × 300 × 210 mm; TNC-SVC03DPRR, -04PDRR: 600 × 300 × 210 mm
Casing material	Plastic, free of halogens, with transparent cover
Wired components	TNC-SVC03DP: 1 × TNC-A1306; 2 × TNC-A1256, 1 × TNC-D1020; TNC-SVC04DP: 1 × TNC-A1306; 2 × TNC-A1258, 1 × TNC-D1020; TNC-SVC03DPR: 1 × TNC-A1306; 2 × TNC-A1256, 1 × TNC-D1020, 1 × Z0094; TNC-SVC04DPR: 1 × TNC-A1306; 2 × TNC-A1258, 1 × TNC-D1020, 1 × Z0094; TNC-SVC03DPRR: 1 × TNC-A1306; 2 × TNC-A1256, 1 × TNC-D1020, 2 × Z0094; TNC-SVC04DPRR: 1 × TNC-A1306; 2 × TNC-A1258, 1 × TNC-D1020, 2 × Z0094
Mains supply	230 V AC, 50 Hz
Max. power consumption	TNC-SVC03DP, -03DPR, -03DPRR: 0,2 KW; TNC-SVC04DP, -04DPR, -04DPRR: 0,5 KW
Pre fuse	20 A
IP protection level	IP 65

Dimensions

AS-i pre-configured switch boxes TNC



* 450 mm with TNC-SVC03DP, -04DP, -03DPR, -04DPR*600 mm with TNC-SVC03 DPRR, -04DPRR

Specification text

Standard description (characteristics)

Switch box 'Controller and power unit'

- Dimensions: 450 × 300 × 210 mm (TNC-SVC03DP, -03DPR, -04DP, -04DPR)
- Dimensions: 600 × 300 × 210 mm (TNC-SVC03DPRR, -04DPRR)
- Casing materials: Plastic, free of halogens, with transparent cover
- Components: installed and wired to rail mount terminals
- Cable glands: M20 with clamping bracket for mains cable, AS-i bus cable and network cable
- PROFIBUS DP connector
- European 'Schuko' socket for programming device
- Circuit breaker: 16 A
- Mains supply: 230 V AC, 50 Hz
- Controller: TNC-A1306 PROFIBUS DP with Basic User Software, 2 masters
- Switching power supply unit: TNC-D1020 = 1.3 A
- Power supply unit: 2 × TNC-A1256 = 2.8 A (TNC-SVC03DP, -03DPR*, -03DPRR*) or 2 × TNC-A1258 = 8 A (TNC-SVC04DP; -04DPR*, -04DPRR*) (*no. of relay modules)
- Make: TROX GmbH or equivalent
- Type: TNC-SVC0*DP*

Description

TNC-SVC02DPR
(Example)

Application

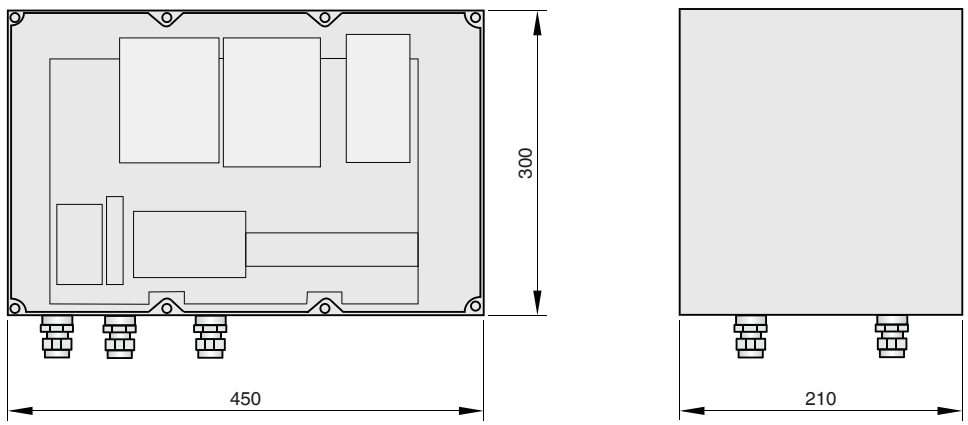
- Pre-configured AS-i base stations for controllers with a master for 31 AS-i participants (TNC-A1353), an AS-i power supply unit TNC-A1256 = 2.8 A or TNC-A1258 = 8 A and switching power supply unit (TNC-D1020), and one or two additional relay modules (TNC-Z0094)
- Installed and wired to rail mount terminals
- Plastic casing, free of halogens, with transparent cover
- Communication interface to higher level systems (Modbus)
- With TNC Basic User Software for fire and smoke protection

Technical data

Description	TNC-SVC01MB, -02MB, -01MBR, -02MBR, -01MBRR, -02MBRR
Casing dimensions (B × H × T)	450 × 300 × 210 mm
Casing material	Plastic, free of halogens, with transparent cover
Wired components	TNC-SVC01MB: 1 × TNC-A1353; 1 × TNC-A1256, 1 × TNC-D1020; TNC-SVC02MB: 1 × TNC-A1353; 1 × TNC-A1258, 1 × TNC-D1020; TNC-SVC01MBR: 1 × TNC-A1353; 1 × TNC-A1256, 1 × TNC-D1020, 1 × Z0094; TNC-SVC02MBPR: 1 × TNC-A1353; 1 × TNC-A1258, 1 × TNC-D1020, 1 × Z0094; TNC-SVC01MBRR: 1 × TNC-A1353; 1 × TNC-A1256, 1 × TNC-D1020, 2 × Z0094; TNC-SVC02MBRR: 1 × TNC-A1353; 1 × TNC-A1258, 1 × TNC-D1020, 2 × Z0094
Mains supply	230 V AC, 50 Hz
Max. power consumption	TNC-SVC01MB, -01MBR, -01MBRR: 0.15 KW; TNC-SVC02MB, -02MBR, -02MBRR: 0.3 KW
Pre fuse	20 A
IP protection level	IP 65

Dimensions

AS-i pre-configured switch boxes TNC



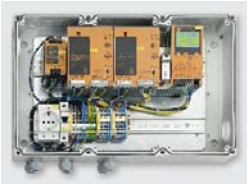
Specification text

Standard description (characteristics)

Switch box 'Controller and power unit'

- Dimensions: 450 × 300 × 210 mm
- Casing materials: Plastic, free of halogens, with transparent cover
- Components: installed and wired to rail mount terminals
- Cable glands: M20 with clamping bracket for mains cable, AS-i bus cable and network cable
- PROFIBUS DP connector
- European 'Schuko' socket for programming device
- Circuit breaker: 16 A
- Mains supply: 230 V AC, 50 Hz
- Pre fuse: 20 A
- Controller: TNC-A1353 Modbus with Basic User Software, 1 master
- Switching power supply unit: TNC-D1020 = 1.3 A
- Power supply unit: TNC-A1256 = 2.8 A (TNC-SVC01MB, - 01MBR*, -01MBRR*) or TNC-A1258 = 8 A (TNC-SVC02MB, -02MBR*, -02MBRR*) (*no. of relay modules)
- Make: TROX GmbH or equivalent
- Type: TNC-SVC0*MB*

Description



TNC-SVC04MB (example)

Application

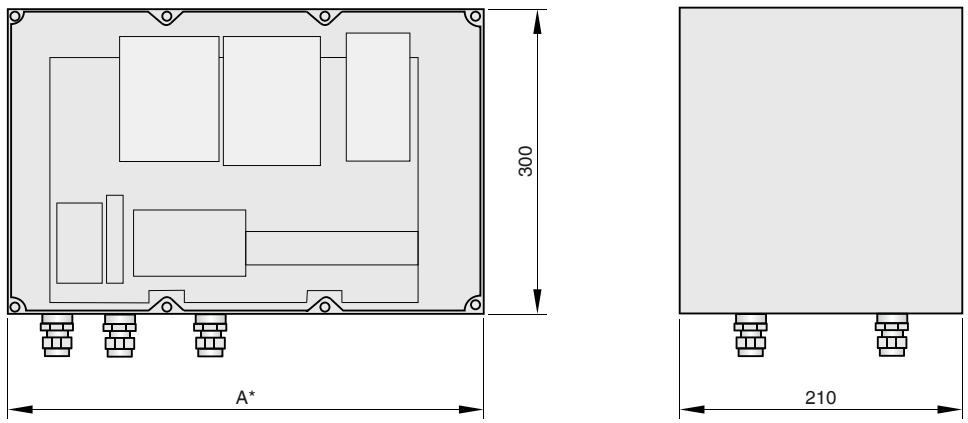
- Pre-configured AS-i base stations for controllers with two masters for 62 AS-i participants (TNC-A1354), an AS-i power supply unit TNC-A1256 = 2.8 A or TNC-A1258 = 8 A and switching power supply unit (TNC-D1020), and one or two additional relay modules (TNC-Z0094)
- Installed and wired to rail mount terminals
- Plastic casing, free of halogens, with transparent cover
- Communication interface to higher level systems (Modbus)
- With TNC Basic User Software for fire and smoke protection

Technical data

Description	TNC-SVC03MB, -04MB, -03MBR, -04MBR, -03MBRR, -04MBRR
Casing dimensions (B × H × T)	TNC-SVC03MB, -04MB, -03MBR, -04MBR: 450 × 300 × 210 mm; TNC-SVC03MBRR, -04MBRR: 600 × 300× 210 mm
Casing material	Plastic, free of halogens, with transparent cover
Wired components	TNC-SVC03MB: 1 × TNC-A1354; 2 × TNC-A1256, 1 × TNC-D1020; TNC-SVC04MB: 1 × TNC-A1354; 2 × TNC-A1258, 1 × TNC-D1020; TNC-SVC03MBR: 1 × TNC-A1354; 2 × TNC-A1256, 1 × TNC-D1020, 1 × Z0094; TNC-SVC04MBR: 1 × TNC-A1354; 2 × TNC-A1258, 1 × TNC-D1020, 1 × Z0094; TNC-SVC03MBRR: 1 × TNC-A1354; 2 × TNC-A1256, 1 × TNC-D1020, 2 × Z0094; TNC-SVC04MBRR: 1 × TNC-A1354; 2 × TNC-A1258, 1 × TNC-D1020, 2 × Z0094
Mains supply	230 V AC, 50 Hz
Max. power consumption	TNC-SVC03MB, -03MBR, -03MBRR: 0.2 KW; TNC-SVC04MB, -04MBR, -04MBRR: 0.5 KW
Pre fuse	20 A
IP protection level	IP 65

Dimensions

AS-i pre-configured switch boxes TNC



* 450 mm with TNC-SVC03MB, -04MB, -03MBR, -04MBR600 mm with TNC-SVC03MBRR, -04MBRR

Specification text

Standard description (characteristics)

Switch box 'Controller and power unit'

- Dimensions: 450 × 300 × 210 mm (TNC-SVC03MB, -03MBR, -04MB, -04MBR)
- Dimensions: 600 × 300 × 210 mm (TNC-SVC03MBRR, -04MBRR)
- Casing materials: Plastic, free of halogens, with transparent cover
- Components: installed and wired to rail mount terminals
- Cable glands: M20 with clamping bracket for mains cable, AS-i bus cable and network cable
- PROFIBUS DP connector
- European 'Schuko' socket for programming device
- Circuit breaker: 16 A
- Mains supply: 230 V AC, 50 Hz
- IP protection level: IP 65
- Controller: TNC-A1354 Modbus with Basic User Software, 2 masters
- Switching power supply unit: TNC-D1020 = 1.3 A
- Power supply unit: TNC-A1256 = 2.8 A (TNC-SVC03MB, - 03MBR*, -03MBRR*) or TNC-A1258 = 8 A (TNC-SVC04MB, -04MBR*, -04MBRR*) (*no. of relay modules)
- Make: TROX GmbH or equivalent
- Type: TNC-SVC0*MB*

TROXNETCOM
Basic information and nomenclature

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

Basic information and nomenclature

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.

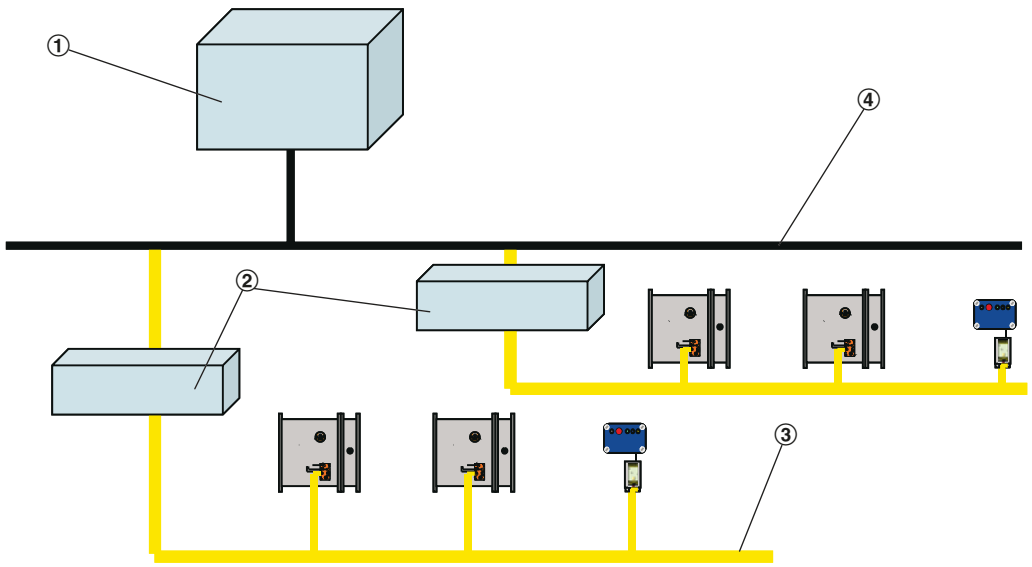
Communication systems for fire protection systems

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



① Central BMS
② Base station
③ Bus
④ Field bus

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

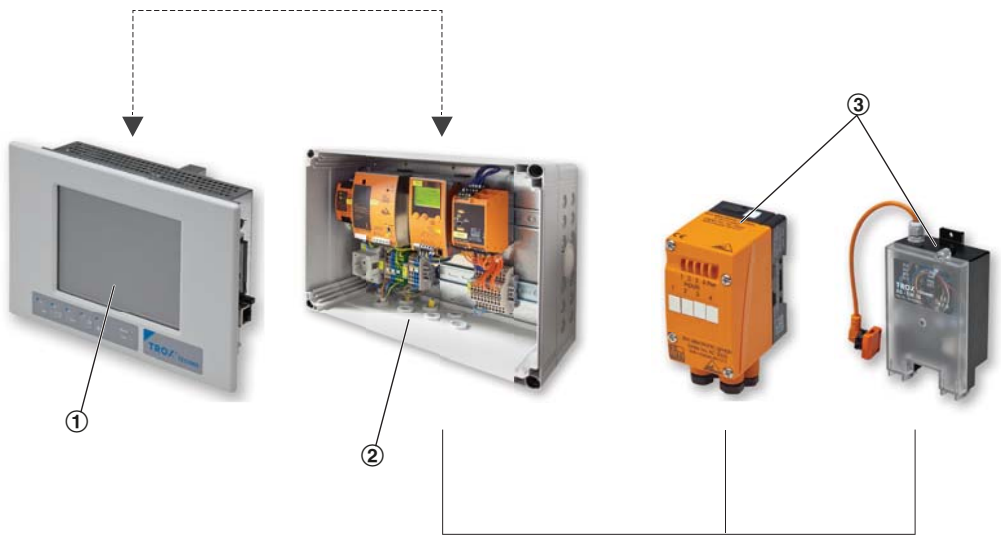
The AS interface is a world-standard bus system according to EN 50295 and IEC 62026-2.
It enables the integration of different components (modules) in a network regardless of the manufacturer and the design.
The modules control actuators and/or receive signals from sensors. TROX provides a system for 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



① Communication master
② Controller units (master)
③ Modules (slaves)

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

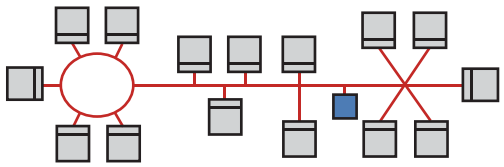
LON indicates a standard local operating network system with manufacturer-independent communications. Data is transferred by a microprocessor supplied by Echelon Corporation using a unified protocol. LonMark defines standards to ensure product compatibility. TROX offers components that meet LON standards. 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

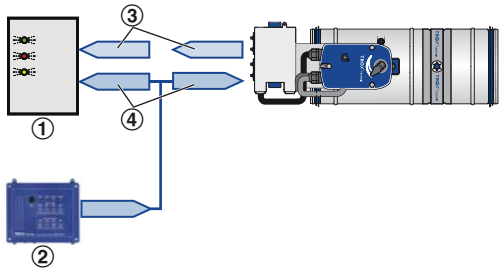
The system

Network topology



Free topology

Binding network variables



① Switch cabinet
② Duct smoke detector
③ Damper blade position
④ Alarm

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.

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.