

# TROXNETCOM AS-i

## Master and display units



### For the control and operation of a system with several controller and power units, and for the display of its functions

Control and display unit as a master for controlling and operating an entire system

- With TROXNETCOM Basic User Software for rapid and safe commissioning and configuration
- Touch display as communication master for 28 controller and power units
- High-quality touch display in four sizes: 4.3", 5.7", 10.4" and 12.1"
- Integration with higher-level systems via Modbus or BACnet/ip interface (no additional effort required)
- For automated function tests including logging
- Display of all system status values
- PLC also for safety related control according to SIL

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**Description**



TROXNETCOM AS-i  
Master and display units

**Application**

- Displays
- Display and control panel
  - Graphical colour TFT displays
  - Touch screen
  - Display and control of all fire damper operating states
  - With TNC Basic User Software
  - Configuration of the entire system
  - For automated fire damper function tests including logging
- PLC master control
- PLC master control (e.g. S7)
  - For the administration of AS-i controllers based on standard PROFIBUS DP communication
  - Connection to central BMS, e.g. with Modbus RTU or some other standard protocol

**Order code**

<b>TP043N</b>
1

**1 Type**

- TP043N**
- TP057N
- TP104N
- TP121N
- SPS Upon request

**Description**



TP043N

**Application**

- 4.3" MMI system for display and operation, also as communication master for up to 3 AS-i controllers TNC-A1353/54
- ModBus TCP and BACnet/IP interfaces for integration with central BMS
- With TNC Basic User Software

**Technical data**

Description	TP043N
Display	TFT (colour)
Operation	Touch screen
Resolution	480 x 272 pixels
Display angle vertical/horizontal	120/150°
Display area B x H	53.8 x 95 mm
Diagonal	4.3"
Casing	Galvanised sheet steel
Front material	Aluminium, anodised (natural colour)
Front B x H x T	140 x 100 x 5 mm
Cut-out B x H	132 x 92 mm
Installation depth without plug attached	Approx. 42 mm
IP protection level	Front IP 65, back IP 20
Total weight	Approx. 590 g
Interfaces	Ethernet, USB
Memory	32 MB flash, 64 MB flash SDRAM, 512 KB SRAM, battery pack
Temperature range for operation	0 – 50 °C
Temperature range for storage	-25 to 70 °C
Rel. humidity for operation and storage	20 – 85 %, non-condensing
Supply voltage	24 V DC (SELV/PELV to EN 61131)
Residual ripple	Max. 10 %
Minimum voltage	18 V
Maximum voltage	30 V
Current consumption (typically 24 V)	0.3 A
Current consumption (max.)	0.4 A
Power required	7.2 W
EMC immunity	EN 61000-4-2 to 4-6
Vibration	EN 60068-2-6
Shock	EN 60068-2-27

**Specification text**

**Standard description (characteristics)**

- MMI system for display, operation and as communication master
- 4.3 " colour display, touch screen
  - Interfaces: ModBus RTU/TCP and BACnet/IP interfaces for integration with the central BMS
  - With Basic User Software for controlling and for the display of all system status values
  - Automatic recognition of TROX modules and their functions
  - Network control
  - Automatic function test, including documentation
  - Real time clock
  - Ethernet, USB
  - Dimensions of front panel (B x H x T):  
140 x 100 x 5 mm
  - IP protection level: Front IP 65; back IP 20
  - Supply voltage 24 V DC
  - Make: TROX GmbH or equivalent
  - Typ: TP043N

**Description**



TP057N

**Application**

- 5.7" MMI system for display and operation, also as communication master for up to 28 AS-i controllers TNC-A1305/06
- ModBus RTU/TCP and BACnet/IP interfaces for integration with the central BMS
- With TNC Basic User Software

**Technical data**

Description	TP057N
Display	TFT (colour)
Operation	Touch screen
Resolution	320 x 240 pixels
Display angle vertical/horizontal	135/150°
Display area B x H	115.2 x 86.4 mm
Diagonal	5.7"
Casing	Galvanised sheet steel
Front material	Aluminium, anodised (natural colour)
Front B x H x T	203 x 147 x 5 mm
Cut-out B x H	195 x 139 mm
Installation depth without plug attached	Approx. 49 mm
IP protection level	Front IP 65, back IP 20
Total weight	Approx. 1000 g
Interfaces	RS232, TTY, USB, Ethernet and field bus interface PROFIBUS DP master
Memory	1 GB flash, 128 MB flash SDRAM, 1 MB SRAM, battery pack
Temperature range for operation	0 – 50 °C
Temperature range for storage	-25 to 70 °C
Rel. humidity for operation and storage	20 – 85 %, non-condensing
Supply voltage	24 V DC (SELV/PELV to EN 61131)
Residual ripple	Max. 10 %
Minimum voltage	18 V
Maximum voltage	30 V
Current consumption (typically 24 V)	0.5 A
Current consumption (max.)	0.8 A
Power required	12 W
EMC immunity	EN 61000-4-2 to 4-6
Vibration	EN 60068-2-6
Shock	EN 60068-2-27

**6**

**Specification text**

**Standard description (characteristics)**

- MMI system for display, operation and as communication master
- 5.7 " colour display, touch screen
  - Interfaces: ModBus RTU/TCP and BACnet/IP interfaces for integration with the central BMS
  - With Basic User Software for controlling and for the display of all system status values
  - Automatic recognition of TROX modules and their functions
  - Network control
  - Automatic function test,
- including documentation
- Real time clock
  - 4 digital inputs/outputs, interfaces  
COM2=RS485, COM1=RS232, Ethernet, USB
  - Dimensions of front panel (B x H x T):  
230 x 147 x 5 mm
  - IP protection level: Front IP 65; back IP 20
  - Supply voltage 24 V DC
  - Make: TROX GmbH or equivalent
  - Typ: TP057N

**Description**



TP104N

**Application**

- 10.4" MMI system for display and operation, also as communication master for up to 28 AS-i controllers TNC-A1305/06
- ModBus RTU/TCP and BACnet/IP interfaces for integration with the central BMS
- With TNC Basic User Software

**Technical data**

Description	TP104N
Display	TFT (colour)
Operation	Touch screen
Resolution	800 × 600 pixels
Display angle vertical/horizontal	110/140°
Display area B × H	211 × 158 mm
Diagonal	10.4"
Casing	Galvanised sheet steel
Front material	Aluminium, anodised (natural colour)
Front B × H × T	295 × 220 × 5 mm
Cut-out B × H	287 × 212 mm
Installation depth without plug attached	Approx. 56 mm
IP protection level	Front IP 65, back IP 20
Total weight	Approx. 1900 g
Interfaces	RS232, TTY, USB, Ethernet and field bus interface PROFIBUS DP master
Memory	1 GB flash, 128 MB flash SDRAM, 1 MB SRAM, battery pack
Temperature range for operation	0 – 50 °C
Temperature range for storage	-25 to 70 °C
Rel. humidity for operation and storage	20 – 85 %, non-condensing
Supply voltage	24 V DC (SELV/PELV to EN 61131)
Residual ripple	Max. 10 %
Minimum voltage	18 V
Maximum voltage	30 V
Current consumption (typically 24 V)	0.7 A
Current consumption (max.)	1.0 A
Power required	16.8 W
EMC immunity	EN 61000-4-2 to 4-6
Vibration	EN 60068-2-6
Shock	EN 60068-2-27

**Specification text**

**Standard description (characteristics)**

- MMI system for display, operation and as communication master
- 10.4 " colour display, touch screen
  - Interfaces: ModBus RTU/TCP and BACnet/IP interfaces for integration with the central BMS
  - With Basic User Software for controlling and for the display of all system status values
  - Automatic recognition of TROX modules and their functions
  - Network control
  - Automatic function test, including documentation
  - Real time clock
  - 4 digital inputs/outputs, interfaces COM2=RS485, COM1=RS232, Ethernet, USB
  - Dimensions of front panel (B × H × T): 295 × 220 × 5 mm
  - IP protection level: Front IP 65; back IP 20
  - Supply voltage 24 V DC
  - Make: TROX GmbH or equivalent
  - Typ: TP104N

**Description**



TP121N

**Application**

- 12.1" MMI system for display and operation, also as communication master for up to 28 AS-i controllers TNC-A1305/06
- ModBus RTU/TCP and BACnet/IP interfaces for integration with the central BMS
- With TNC Basic User Software

**Technical data**

Description	TP121N
Display	TFT (colour)
Operation	Touch screen
Resolution	800 × 600 pixels
Display angle vertical/horizontal	110/140°
Display area B × H	246 × 185 mm
Diagonal	12.1"
Casing	Galvanised sheet steel
Front material	Aluminium, anodised (natural colour)
Front B × H × T	340 × 270 × 5 mm
Cut-out B × H	315 × 243.5 mm
Installation depth without plug attached	Approx. 65 mm
IP protection level	Front IP 65, back IP 20
Total weight	Approx. 2500 g
Interfaces	RS232, TTY, USB, Ethernet and field bus interface PROFIBUS DP master
Memory	1 GB flash, 128 MB flash SDRAM, 1 MB SRAM, battery pack
Temperature range for operation	0 – 50 °C
Temperature range for storage	-25 to 70 °C
Rel. humidity for operation and storage	20 – 85 %, non-condensing
Supply voltage	24 V DC (SELV/PELV to EN 61131)
Residual ripple	Max. 10 %
Minimum voltage	18 V
Maximum voltage	30 V
Current consumption (typically 24 V)	0.7 A
Current consumption (max.)	1.0 A
Power required	16.8 W
EMC immunity	EN 61000-4-2 to 4-6
Vibration	EN 60068-2-6
Shock	EN 60068-2-27

**6**

**Specification text**

**Standard description (characteristics)**

- MMI system for display, operation and as communication master
- 12.1 " colour display, touch screen
  - Interfaces: ModBus RTU/TCP and BACnet/IP interfaces for integration with the central BMS
  - With Basic User Software for controlling and for the display of all system status values
  - Automatic recognition of TROX modules and their functions
  - Network control
  - Automatic function test, including documentation
  - Real time clock
  - 4 digital inputs/outputs, interfaces COM2=RS485, COM1=RS232, Ethernet, USB
  - Dimensions of front panel (B × H × T): 340 × 270 × 5 mm
  - IP protection level: Front IP 65; back IP 20
  - Supply voltage 24 V DC
  - Make: TROX GmbH or equivalent
  - Typ: TP121N

**Description**

**Application**

- For the administration of AS-i controllers based on standard PROFIBUS DP communication
- Connection to central BMS via standard interface
- Standard protocol
- Interface between PROFIBUS DP Master and AS-i controller is possible
- CPU with memory card
- Power supply unit for subassemblies
- Ready-to-install unit for installation in a switch cabinet

Technical data varies depending on system.  
Construction details and technical data available upon request.

# 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.

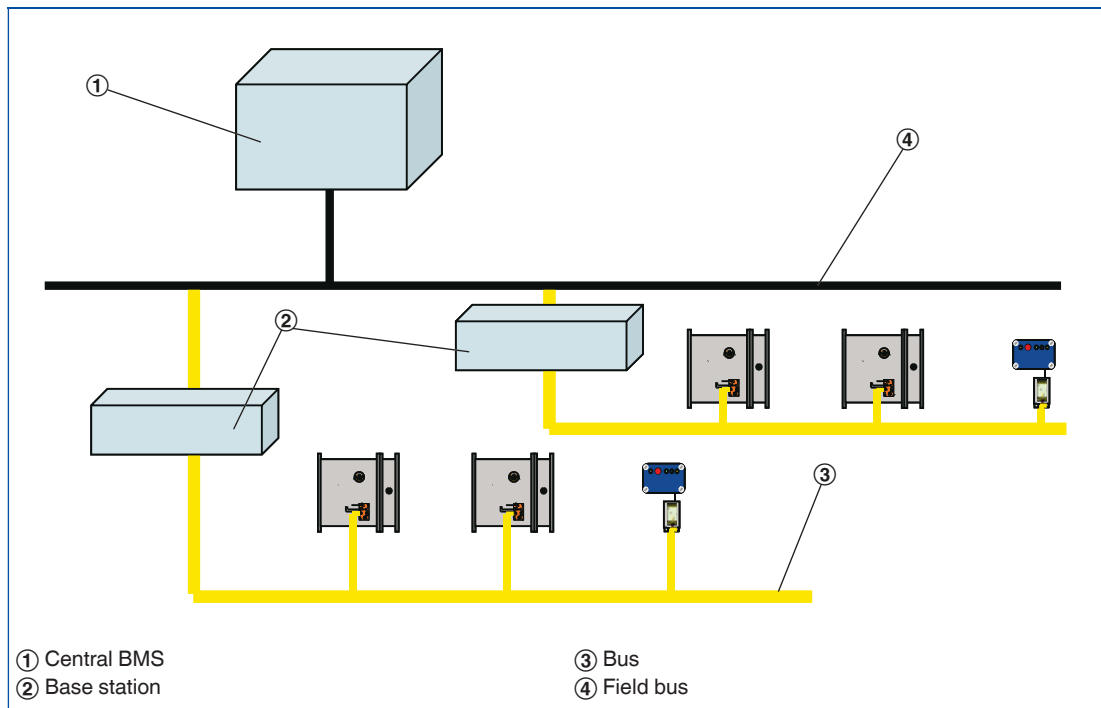
### Communication systems for fire protection systems

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

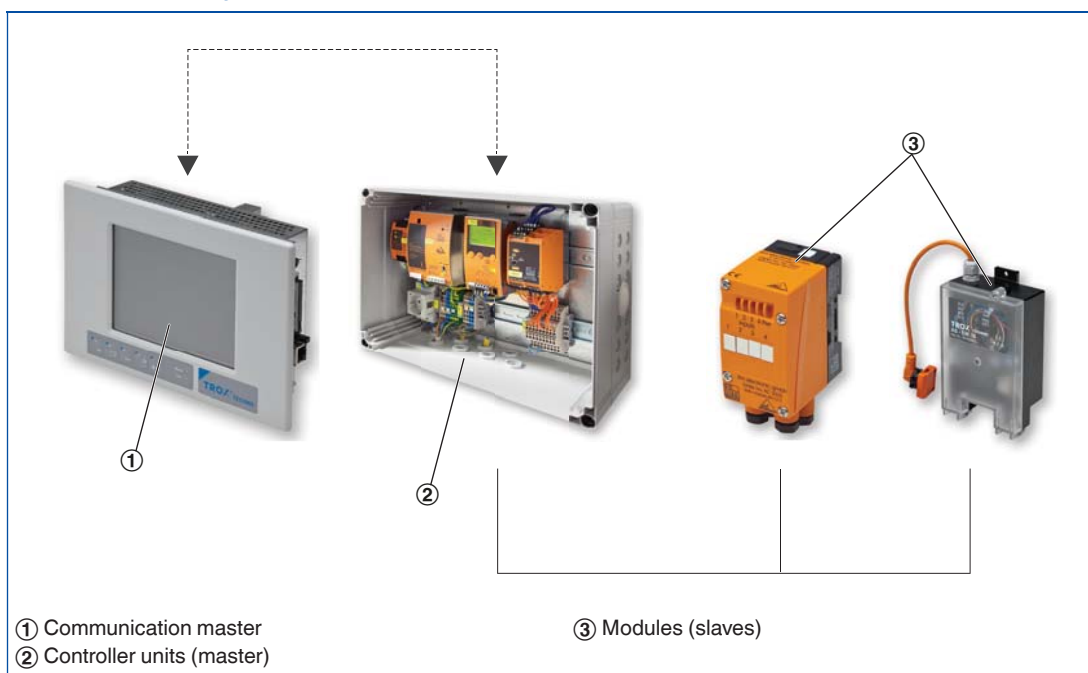
The AS interface is a world-standard bus system according to EN 50295 and IEC 62026-2. It enables the integration of different components (modules) in a network regardless of the manufacturer and the design. The modules control actuators and/or receive signals from sensors. TROX provides a system for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

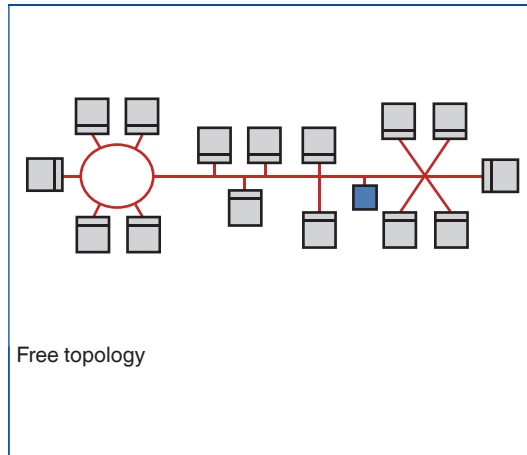
LON indicates a standard local operating network system with manufacturer-independent communications. Data is transferred by a microprocessor supplied by Echelon Corporation using a unified protocol. LonMark defines standards to ensure product compatibility. TROX offers components that meet LON standards.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

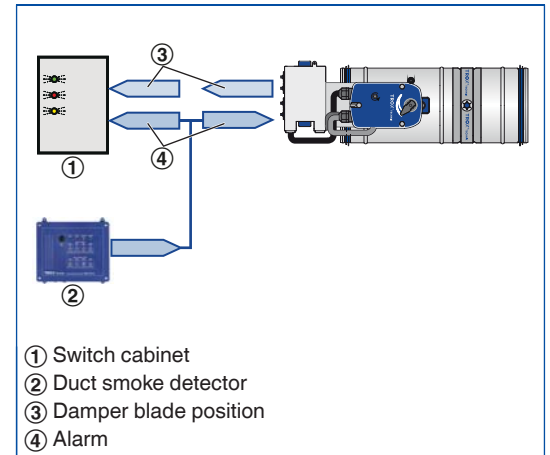
#### Network topology



#### 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.