TROXNETCOM AS-i
Modules

Communication interface between a component and the controller

The module is used to connect the control system with the components

- ■ Integral AS-Interface slave
- ■ Monitoring of signal receipt
- ■ With short circuit protection
- ■ Easy wiring due to flat cable insulation displacement connectors ('click and go')
- ■ Certified motor control modules for safe communication up to SIL2
- ■ Special modules for dampers with special functions including redundant voltage supply
- ■ Universal module for the connection of various terminal units such as fire dampers, smoke protection dampers or duct smoke detectors

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Description

TROXNETCOM AS-i
Modules

Application
– Module used to capture the status of volt-free contacts, e.g. the OPEN and CLOSED positions of fire dampers that are fitted with conventional limit switches, Type AS-EP
– Module used to control the actuator for a fire damper, multileaf damper or air transfer damper, or a duct smoke detector, Type AS-EM
– Module used to control the actuator for a smoke control damper, Type AS-EM/EK
– Module with redundant voltage supply used to control dampers with special functions, Type AS-EM/SO
– SIl2-certified module used to control fire dampers, smoke protection dampers or smoke control dampers, Type AS-EM/SIL2
– Multi functional module used as a control and signalling module for the monitoring of 4 fire damper actuators with one electric limit switch each, to provide the control input signal for and to monitor 2 motorised fire dampers, Type AS-EM/C

– AS-i Safety input module for capturing the actuator end positions, approved for applications up to SIL2 to IEC/EN 61508
– I/O module for the volt-free signalling of errors or of the I/O state of systems etc., Type TNC-A005S
– Illuminated push button module for the connection between AS-i controller and operating staff, Type TNC-Z0047

Order code

AS – EP
[1]

[1] Type

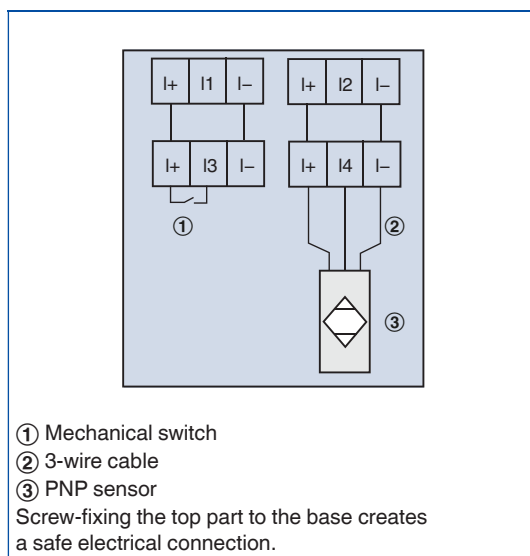|	
AS-EP	Module for capturing 4 end positions
AS-EM	Module for controlling actuators for fire dampers, smoke protection dampers, etc.
AS-EM/EK	Module for controlling actuators on smoke control dampers
AS-EM/SO	Module for controlling actuators with special functions
AS-EM/SIL2	Module for controlling actuators with SIL2 certificate
AS-EM/C	Module for controlling actuators with separate voltage supply, or for capturing four end positions
TNC-A005S	AS-i safety input module
TNC-Z0094	Relay module 4E/4A
TNC-Z0047	Illuminated push button module

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Description

AS-EP

Application

– Connection of up to four limit switches: Damper blade position CLOSED or OPEN for 4 fire dampers, or positions CLOSED and OPEN for 2 fire dampers
– Integral AS-Interface slave
– Monitoring of signal receipt
– Supply voltage to the module through the AS interface
– Wiring of the limit switches with terminals; PG glands for cable penetration
– Up to 30 m cable length between module and limit switch
– Connection with flat cable insulation displacement connector

Technical data

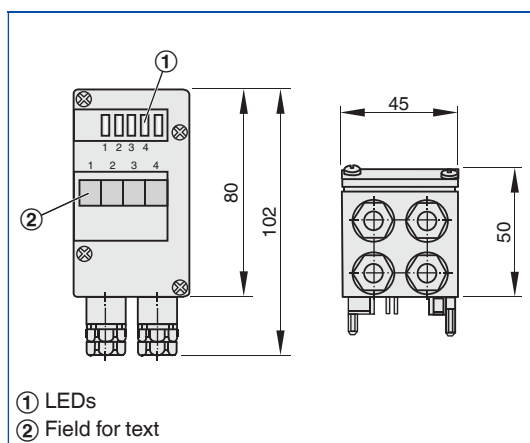| Description	AS-EP
Electrical design	4 inputs
Supply voltage	26.5 – 31.6 V DC
Current consumption	< 80 mA
Inputs	
Switching	PNP
Sensor voltage supply	AS-i
Voltage range	20 – 30 V DC
Max. current load (total for all inputs)	160 mA
With short circuit protection	Yes
Switching level – high signal 1	> 10 V
Input current high/low	> 5/< 1 mA
Status display	
Operation	LED green
Function	LED yellow
Ambient temperature	–25 to 85 °C
IP protection level	IP 67
AS-i profile	S 0.0
I/O configuration	0 Hex
ID code	0 Hex
EMC	EN 50081-2; EN 50082-2
Casing materials	PBTP (Pocan)
Dimensions L × B × H	102 × 45 × 70 mm
Connection	Contact pins on FC or SC lower module
Data bits	Data bit I allocation: D0 I – 1, D1 I – 2, D2 I – 3, D3 I – 4

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Wiring

Connection of limit switches

① Mechanical switch
② 3-wire cable
③ PNP sensor
Screw-fixing the top part to the base creates
a safe electrical connection.

Dimensions

AS-i module AS-EP

① LEDs
② Field for text

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Specification text

Standard description (characteristics)
– Module for capturing 4 damper blade
  end positions (volt-free)
– Integral AS-Interface slave
– Monitoring of signal receipt
– Flat cable connection
– Supply voltage to the module through
  the AS interface
– Make: TROX GmbH or equivalent
– Type: AS-EP

Description

AS-EM

Application
– Module used to control actuators
  for fire dampers, air transfer dampers,
  smoke detectors and multileaf dampers
– Capturing the damper blade end positions
  (CLOSED and OPEN) as well
  as intermediate positions
– Actuators can be started even
  without controller communication
– Emergency position can be set
  (OPEN or CLOSED)
– LEDs for OPEN and CLOSED positions;
  monitoring of running time errors
– Integral AS-Interface slave
– Monitoring of signal receipt
– Master can be used to monitor the running time
  of the damper blade actuator
– Connection with flat cable insulation
  displacement connector
– Supply voltage of the module and 24 V DC
  actuator using AS-Interface (2-wire control)
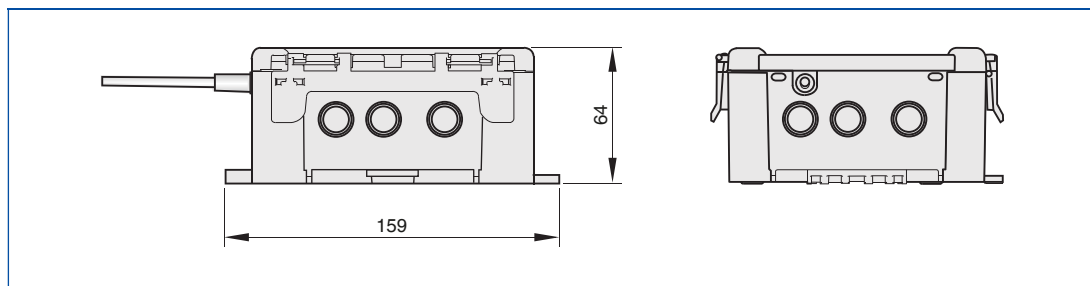– Plug-in connection for Belimo actuators

Damper accessories (mounted)	Usage
–	Module, unmounted
ZA07	Mounted to fire damper
ZA08	Mounted to multileaf damper with reversible actuator
ZA10	Mounted to fire protection damper or multileaf damper with spring return actuator
ZA11	Wired to duct smoke detector RM-O-3-D or RM-O-VS-D
ZA12	Mounted to air transfer damper

Technical data

Description	AS-EM
Electrical design	4 inputs/3 outputs
Output function	PNP transistor
Supply voltage	26.5 – 31.6 V DC
Current consumption, incl. actuator	450 mA
Inputs	
Switching	DC PNP
Sensor voltage supply	AS-i
Voltage range	18 – 30 V DC
With short circuit protection	Yes
Switching level – high signal 1	10
Input current high/low	> 7 mA/< 2 mA
Input characteristic	IEC 61131-2 Type 2
Outputs, PNP	
Galvanically isolated	No
With short circuit protection	Yes
Max. current load per output	400 mA per output/400 in total (from AS-i)
Outputs, relay	
Galvanically isolated	Yes
Maximum voltage	32 V
Max. current load	500 mA
Ambient temperature	–5 to 75 °C
IP protection level	IP 42
AS-i profile	S-7.A.E
I/O configuration	7 Hex
ID code	7 Hex
EMC	EN 61000-6-2; EN 61000-6-3

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Dimensions

AS-EM

Specification text

Standard description (characteristics)

– Module used to control fire dampers,
  air transfer dampers, smoke detectors
  and multileaf dampers: fire damper / multileaf
  damper: actuator with spring return (2DI/1DO);
  smoke control damper / multileaf damper:
  actuator without spring return (2DI/2DO);
  air transfer damper: actuator with spring return
  and smoke detector RM-O-3-D (4DI/2DO);
  24 V terminal. F. RM);
  smoke detector (4DI/2DO)
– Capturing the damper blade end positions
  (CLOSED and OPEN) as well
  as intermediate positions
– Actuators can be started even
  without controller communication
– Emergency position can be set
  (OPEN or CLOSED)
– LEDs for OPEN and CLOSED positions;
  monitoring of running time errors
– Integral AS-Interface slave
– Monitoring of signal receipt
– Master can be used to monitor the running time
  of the damper blade actuator
– Connection with flat cable insulation
  displacement connector
– Supply voltage of the module and 24 V DC
  actuator using AS-Interface (2-wire control)
– Plug-in connection for Belimo actuators
– Ambient temperature: –5 to 75 °C
– IP protection level: IP 42
– Make: TROX GmbH or equivalent
– Type: AS-EM

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Description

AS-EM/EK

Application
– Module for the control
  of smoke control dampers
– Capturing damper blade
  positions OPEN and CLOSED
– Actuators can be started even
  without controller communication
– LEDs for OPEN and CLOSED positions;
  monitoring of running time errors
– Integral AS-Interface slave
– Monitoring of signal receipt
– Master can be used to monitor the running time
  of the damper blade actuator
– Supply voltage of the module and 24 V DC
  actuator using AS-Interface (2-wire control)
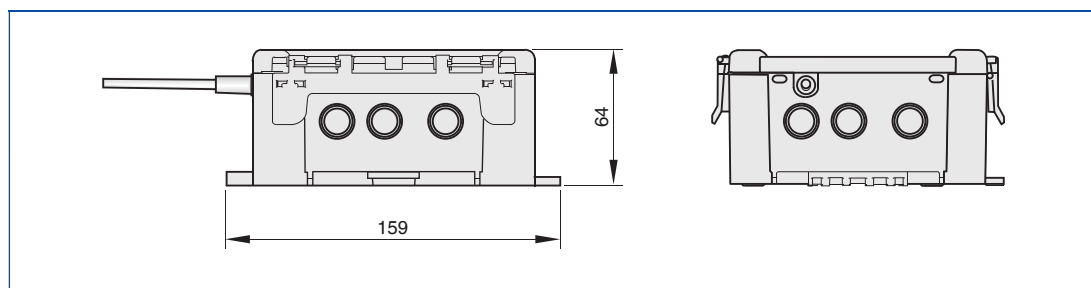– Plug-in connection for Belimo actuators

Damper accessories (mounted)	Usage
B24A	Mounted to the smoke control damper

Technical data

Description	AS-EM/EK
Electrical design	4 inputs/3 outputs
Output function	PNP transistor
Supply voltage	26.5 – 31.6 V DC
Current consumption, incl. actuator	450 mA
Inputs	
Switching	DC PNP
Sensor voltage supply	AS-i
Voltage range	18 – 30 V DC
With short circuit protection	Yes
Switching level – high signal 1	10
Input current high/low	> 7 mA/< 2 mA
Input characteristic	IEC 61131-2 Type 2
Outputs, PNP	
Galvanically isolated	No
With short circuit protection	Yes
Max. current load per output	400 mA per output/400 in total (from AS-i)
Outputs, relay	
Galvanically isolated	Yes
Maximum voltage	32 V
Max. current load	500 mA
Ambient temperature	–5 to 75 °C
IP protection level	IP 42
AS-i profile	S-7.A.E
I/O configuration	7 Hex
ID code	7 Hex
EMC	EN 61000-6-2; EN 61000-6-3

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Dimensions

AS-EM/EK

Specification text

Standard description (characteristics)
– Module for the control
   of smoke control dampers
– Capturing the damper blade end positions
   (CLOSED and OPEN)
– Actuators can be started even
   without controller communication
– Emergency position can be set
   (OPEN or CLOSED)
– LEDs for OPEN and CLOSED positions;
   monitoring of running time errors
– Integral AS-Interface slave
– Monitoring of signal receipt
– Master can be used to monitor the running time
   of the damper blade actuator
– Supply voltage of the module and 24 V DC
   actuator using AS-Interface (2-wire control)
– Plug-in connection for Belimo actuators
– Ambient temperature: –5 to 75 °C
– IP protection level: IP 42
– Make: TROX GmbH or equivalent
– Type: AS-EM/EK
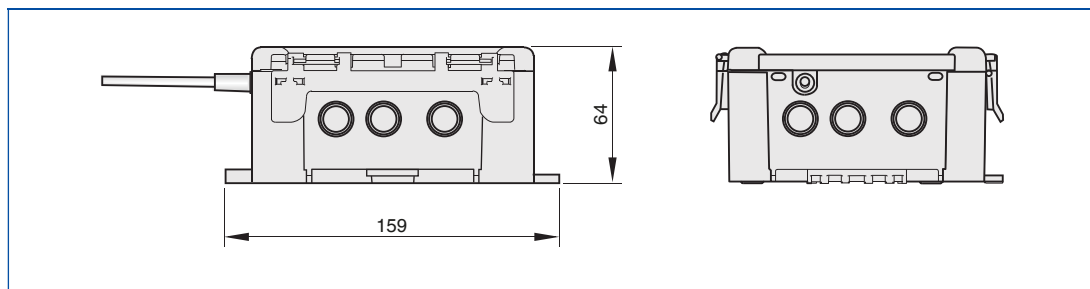
Description

AS-EM/SO

Application
– Module used to control damper actuators
  with a special function
– Including maintenance-free electric
  double-layer capacitors for redundant
  24 V voltage supply
– No battery change required
– Capturing the damper blade end positions
  (CLOSED and OPEN) as well
  as intermediate positions
– LEDs for OPEN and CLOSED positions;
  monitoring of running time errors
– Integral AS-Interface slave
– Monitoring of signal receipt
– Master can be used to monitor the running time
  of the damper blade actuator
– Emergency position can be set
  (OPEN or CLOSED)
– Connection with terminals
– Supply voltage of the module and 24 V DC
  actuator using AS-Interface (2-wire control)
– Actuators can be started even without
  controller communication
– Plug-in connection for Belimo actuators

Technical data

Description	AS-EM/SO
Electrical design	4 inputs/3 outputs
Output function	PNP transistor
Supply voltage	26.5 – 31.6 V DC
Current consumption, incl. actuator	550 mA
Inputs	
Switching	DC PNP
Sensor voltage supply	AS-i
Voltage range	18 – 30 V DC
With short circuit protection	Yes
Switching level – high signal 1	10
Input current high/low	> 7 mA/< 2 mA
Input characteristic	IEC 61131-2 Type 2
Outputs, PNP	
Galvanically isolated	No
With short circuit protection	Yes
Max. current load per output	400 mA per output/400 in total (from AS-i)
Outputs, relay	
Galvanically isolated	Yes
Maximum voltage	32
Max. current load	500 mA
Ambient temperature	–5 to 60 °C
IP protection level	IP 42
AS-i profile	S-7.A.E
I/O configuration	7 Hex
ID code	7 Hex
EMC	EN 61000-6-2; EN 61000-6-3

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Dimensions

AS-EM/SO

Specification text

Standard description (characteristics)

– Module used to control dampers
  with a special function
– Including maintenance-free electric
  double-layer capacitors for redundant
  24 V voltage supply
– No battery change required
– Capturing the damper blade end positions
  (CLOSED and OPEN) as well
  as intermediate positions
– LEDs for OPEN and CLOSED positions;
  monitoring of running time errors
– Integral AS-Interface slave
– Monitoring of signal receipt
– Master can be used to monitor the running time
  of the damper blade actuator
– Emergency position can be set
  (OPEN or CLOSED)
– Connection with terminals
– Supply voltage of the module and 24 V DC
  actuator using AS-Interface (2-wire control)
– Actuators can be started even
  without controller communication
– Plug-in connection for Belimo actuators
– Ambient temperature: –5 to 75 °C
– IP protection level: IP 42
– Make: TROX GmbH or equivalent
– Type: AS-EM/SO

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Description

AS-EM/SIL2

Application
– Module for the control
  of smoke control dampers
– Capturing damper blade positions
  OPEN and CLOSED
– Approved up to SIL2 to IEC/EN 61508
– Integral AS-Interface slave
– Monitoring of signal receipt
– Master can be used to monitor the running time
  of the damper blade actuator
– Connection with terminals
– Supply voltage of the module and 24 V DC
  actuator using AS-Interface (2-wire control)
– Plug-in connection for Belimo actuators

Damper accessories (mounted)	Usage
B24AS	Mounted to the smoke control damper

Technical data

Description	AS-EM/SIL2
Supply voltage	26.5 – 31.6 V DC
Current consumption	< 400 mA from AS-i
Max. current load per output	340 mA
Max. current load per module	340 mA
Status LED	
AS-i power	1 × green
PeripheralFault	1 × red, blinking
ComError	1 × red, static
Ouput Q0	1 × yellow (DO0)
Output Q1	1 x yellow (DO1)
Input status LED SI-1	1 × yellow
Input status LED SI-2	1 × yellow
Input status DI0	1 × yellow (DI0)
Input status DI1	1 × yellow (DI1)
Input status DI2	1 × yellow (DI2)
Binary inputs	2 outputs with transistor (typically 24 V DC from AS-i, voltage range 18 – 30 V)
Operating temperature	–20 to 70 °C
Storage temperature	–20 to 75 °C
IP protection level	IP 54
Casing material	Plastic
AS-i profile	S-7.B.E (Safety at Work) and S7.A.E (motor module)
EMC	EN 61000-6-2; EN 61000-6-3

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Dimensions

AS-i module AS-EM/SIL2
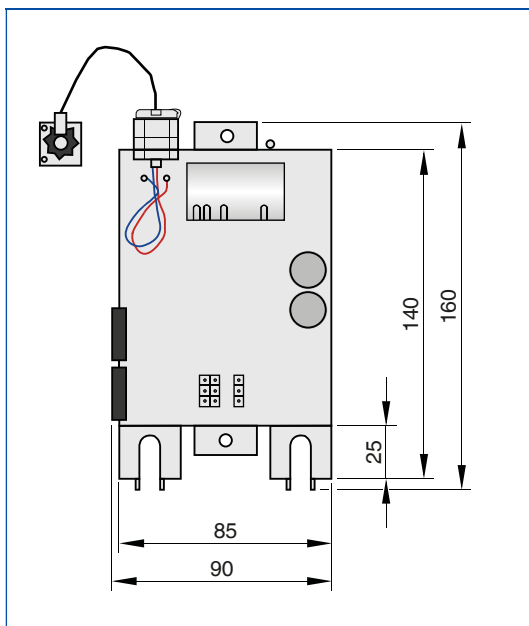
Specification text

Standard description (characteristics)
– Control module for dampers
– To be mounted to dampers and wired
  to the actuator
– Capturing the damper blade end positions
  (CLOSED and OPEN) as well
  as intermediate positions
– Approved for SIL to IEC/EN 61508
– Integral AS-Interface slave
– Monitoring of signal receipt
– Controller can be used to monitor the running
  time of the damper blade actuator
– Supply voltage for the module
  and the damper actuator (24 V DC) from AS-i
– Total current consumption from AS-i: 400 mA
– Ambient temperature: –20 to 70 °C
– IP protection level: IP54
– Make: TROX GmbH or equivalent
– Type: AS-EM/SIL2
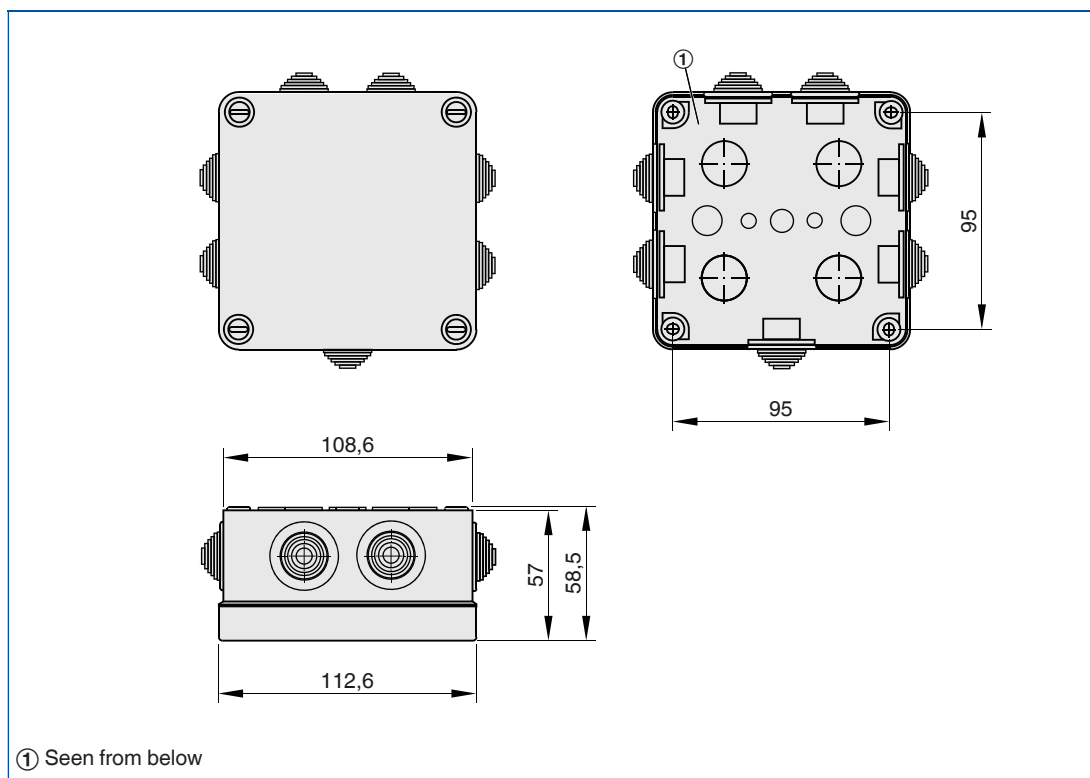
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Description

AS-EM/C

Application
– Universal module with plastic casing
– Can be used to control 2 fire dampers
  with separate power supply
– Can be used to control the explosion-proof
  actuator for a fire damper
– Can be used to control the actuator for a
  KA-EU fire damper with blade opening actuator
– Can be used to capture the damper blade
  positions CLOSED and OPEN, for example
  in fire dampers with conventional limit switches
– Connection of up to four dampers
  with one limit switch each,
  or two dampers with two limit switches each
– Can be used to capture signals from
  duct smoke detectors of Type RM-O-VS-D
  or RM-O-3-D
– Integral AS-Interface slave
– Monitoring of signal receipt
– Voltage supply for actuators with separate 24 V
  or 230 V AC voltage supply
– Cable connection with terminal strip

Technical data

Description	AS-EM/C
Electrical design	4 inputs/2 outputs
Output function	Relay
Supply voltage	26.5 – 31.6 V DC
Current consumption	< 100 mA
Inputs	
Switching	PNP
Sensor voltage supply	AS-i
Voltage range	18 – 30 V DC
Max. current load (total for all inputs)	100 mA
With short circuit protection No	No
Switching level – high signal 1	> 10 V
Input current high/low	> 6/< 2 mA
Outputs	
Galvanically isolated	Yes
With short circuit protection	No
Watchdog	Yes
Max. current load per output	1500 mA
External voltage supply	Yes
Voltage range	10 – 240 V AC/24 V DC
Max. current load per module	6000 mA
Status display	
Switching state	LED yellow
Operation	LED green
Errors	LED red
Ambient temperature	–25 to 50 °C
IP protection level	IP 54
AS-i profile	S-7.A.E
I/O configuration	7 Hex
ID code	A.E Hex
EMC	EN 50295; EN 50178
Casing material	PP (polypropylene); flame retardant
Dimensions L × B × H	110 × 110 × 58 mm
Data bits	Data bit: D0; D1; D2; D3
Input function	In1; In2; In3; In4
Output function	O1; O2
Connecting cable core identification	A+: AS-i +, A-: AS-i –, In+: Sensor supply voltage +24 V, In1 – In4: Switching input, sensors 1 – 4, N: common reference point

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Dimensions

AS-i module AS-EM/C

① Seen from below

Specification text

Standard description (characteristics)
– Universal module with plastic casing
– Can be used to control 2 fire dampers
  with separate power supply
– Can be used to capture the damper blade
  positions CLOSED and OPEN, for example
  in fire dampers with conventional limit switches
– Connection of up to four dampers
  with one limit switch each, or two dampers
  with two limit switches each
– Can be used to capture signals from duct
  smoke detectors of Type RM-O-VS-D or RM-O-
  3-D
– Integral AS-Interface slave
– Monitoring of signal receipt
– Voltage supply for actuators with separate 24 V
  or 230 V AC voltage supply
– Cable connection with terminal strip
– Ambient temperature: –25 to 50 °C
– IP protection level: IP54
– Make: TROX GmbH or equivalent
– Type: AS-EM/C
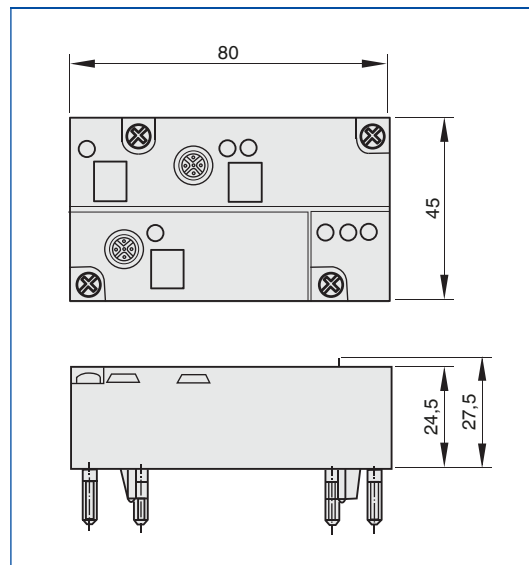
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Description

TNC-A005S

Application
– AS-i Safety input module
  for capturing the actuator end positions
– Approved for applications up to SIL 2
  according to IEC/EN 61508
– Supplied either mounted on the damper blade
  and wired to the actuator or as a separate unit
– Integral AS-Interface slave
– Monitoring of signal receipt
– Supply voltage to the module
  through the AS interface

Technical data

Description	TNC-A005S
Electrical design	2 inputs
Supply voltage	26.5 – 31.6 V DC
Current consumption	Type 80, max. 200 mA depending on sensor
Control category to EN 954-1	4
AS-i specification	V2.1
AS-i profile	S-7.B.1
Short circuit monitoring	Yes
EMC	EN 50081-1; EN 50082-2
IP protection level	IP 67
Ambient temperature	–20 to 60 °C
Display of AS-i voltage	LED green
Display of input	LED yellow
Addressing	With addressing socket
Casing dimensions H × B × T	80 × 45 × 24 mm
Fixing	On mounting rail

Dimensions

AS-i module TNC-A005S

Specification text

Standard description (characteristics)
– AS-i Safety input module for capturing
an actuator end position
– Approved for applications up to SIL 2
according to IEC/EN 61508
– Supplied mounted on the damper blade
and wired to the actuator
– Integral AS-Interface slave
– Monitoring of signal receipt
– Connection with flat cable insulation
displacement connector
– Supply voltage to the module
through the AS interface
– Total current consumption from AS-i: ≤ 800 mA
– Ambient temperature: –20 to 60 °C
– IP protection level: IP 65
– Make: TROX GmbH or equivalent
– Type: TNC-A005S

Description

TNC-Z0094

Application

– Module with 4 digital inputs and outputs
– Outputs with relays, galvanically isolated
– Integral AS-Interface slave
– Monitoring of signal receipt
– Providing a watchdog function
  for digital outputs
– Connection to AS-i network
  with Combicon connector with screw terminal
– Supply voltage to the module
  through the AS interface

Technical data

Description	TNC-Z0094
Electrical design	4 inputs/4 outputs
Output function	Relay
Supply voltage	26.5 – 31.6 V DC
Current consumption	< 250 mA
Inputs	
Switching	PNP
Sensor voltage supply	AS-i
Voltage range	16 – 30 V DC
Max. current load (total for all inputs)	200 mA
With short circuit protection	Yes
Switching level – high signal 1	> 11 V
Input current high/low	> 6/< 2 mA
Outputs	
Galvanically isolated	Yes
Voltage range	10 – 240 V AC/24 V DC
Max. current load per output	6000 mA
Status display	
Operation	LED green
Function	LED yellow
Error display	LED red
Ambient temperature	–25 to 60 °C
IP protection level	IP 20
IEC protection class	
AS-i profile	S 7.0.E
I/O configuration	7 Hex
ID code	0.E Hex
EMC	EN 50295; EN 50178
MTTF	305 years
Casing materials	PA 6.6
Dimensions L × B × H	105 × 50 × 114 mm
Connection	Screw terminals

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Dimensions

AS-i module TNC-Z0094
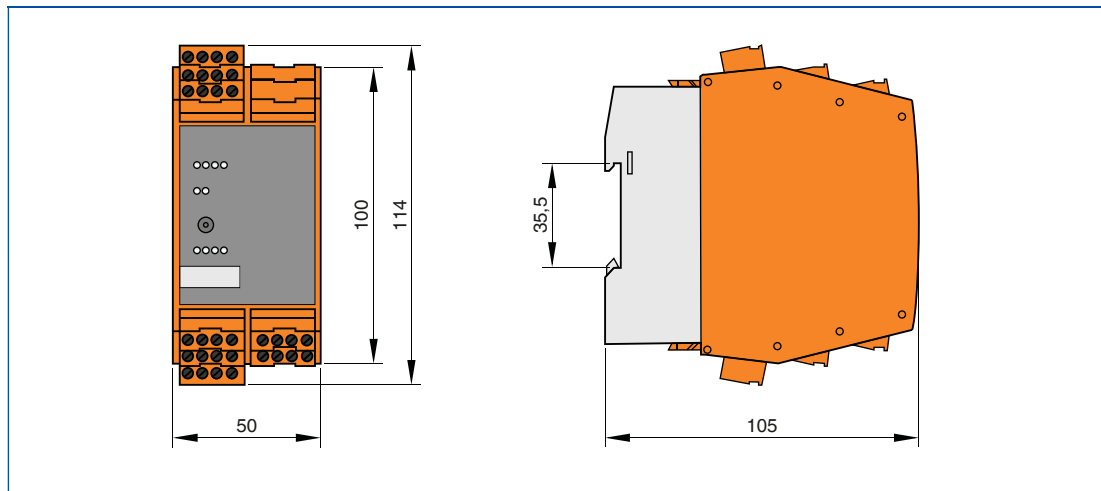
Specification text

Standard description (characteristics)
– Module with 4 digital inputs and outputs;
  several modules can be installed in a row
– Installation with screw terminals
  on a rail or on the rear wall of a switch cabinet
– Total current consumption from AS-i: < 250 mA
– Ambient temperature: –25 to 60 °C
– IP protection level: IP 20
– Make: TROX GmbH or equivalent
– Type: TNC-Z0094

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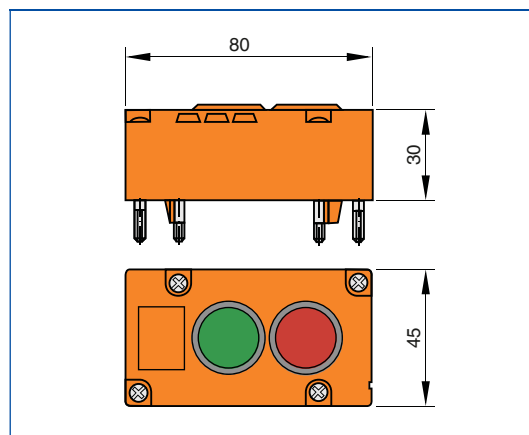
Description

TNC-Z0047

Application
– Illuminated push button module
   with standard EMS interface
– Can be connected to the AS-i bus
   using flat cable mounting base
– IP protection level IP67;
   can be mounted on site
– No additional voltage supply required
– The push buttons are protected
   against accidental contact
– LEDs with a high light output ratio
   at a low operating current

Technical data

Description	TNC-Z0047
Electrical design	2 push buttons/LEDs
Supply voltage	26.5 – 31.6 V DC
Current consumption	< 55 mA (LED on)
AS-i interface reverse voltage protection	Yes
AS-i profile	S-3.F.F
I/O configuration	3 Hex
ID code	F Hex
AS-i certificate	Yes
Data bit D0 open	Push button 2 (red)
Data bit D1 open	Push button 1 (green)
Data bit D2 open	LED 2 red
Data bit D3 open	LED 1 green
Parameter bits	Not used
Ambient temperature	–25 to 60 °C
IP protection level	IP 67
EMC	EN 50295
MTTF	1661 years
Casing materials	PBT (Pocan)
Dimensions L × B × H	80 × 45 × 50 mm
Connection	Contact pins on FC or
Connection	SC lower part; LED supply
Connection	from AS-i cable

Dimensions

AS-i adjustment and addressing device TNC-Z0047

Specification text

Standard description (characteristics)
– Illuminated push button module with 2 push
  buttons/2 LEDs, including mounting base
  with addressing socket
– Voltage supply via AS-i cable
– Opening and closing via bus
– Supply voltage: 26.5 – 31.6 V DC
– Total current consumption from AS-i: < 55 mA
– Ambient temperature: –25 to 60 °C
– IP protection level: IP 67
– Make: TROX GmbH or equivalent
– Type: TNC-Z0047

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TROXNETCOM

Basic information
and nomenclature

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

6

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
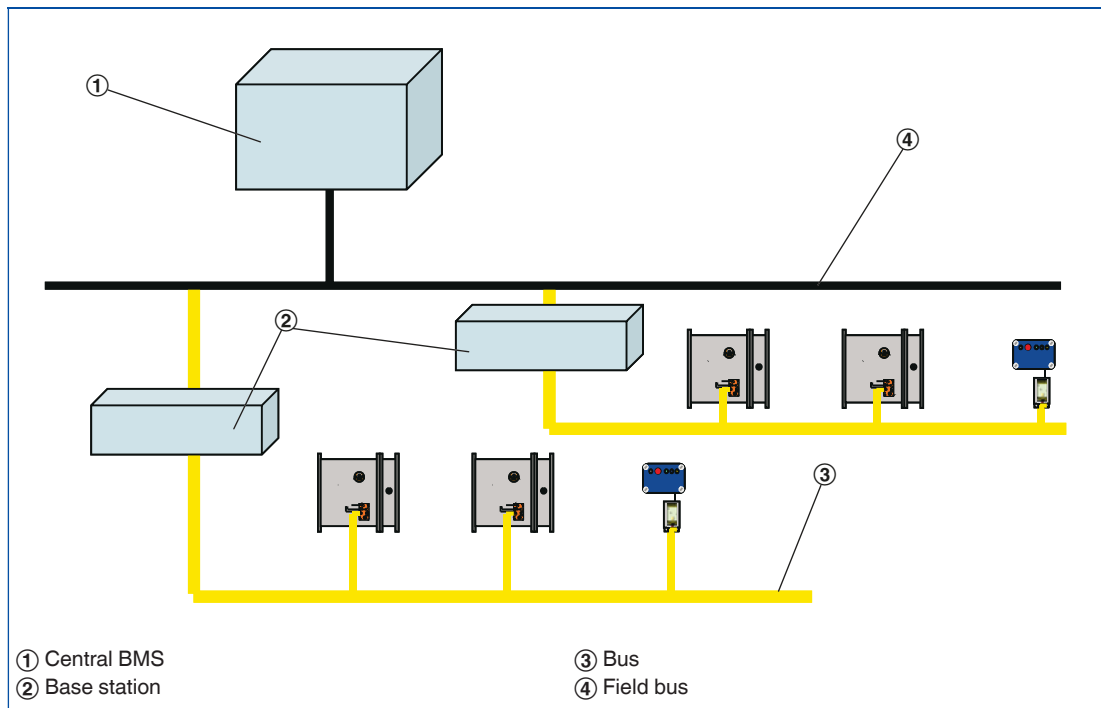
Wiring

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)
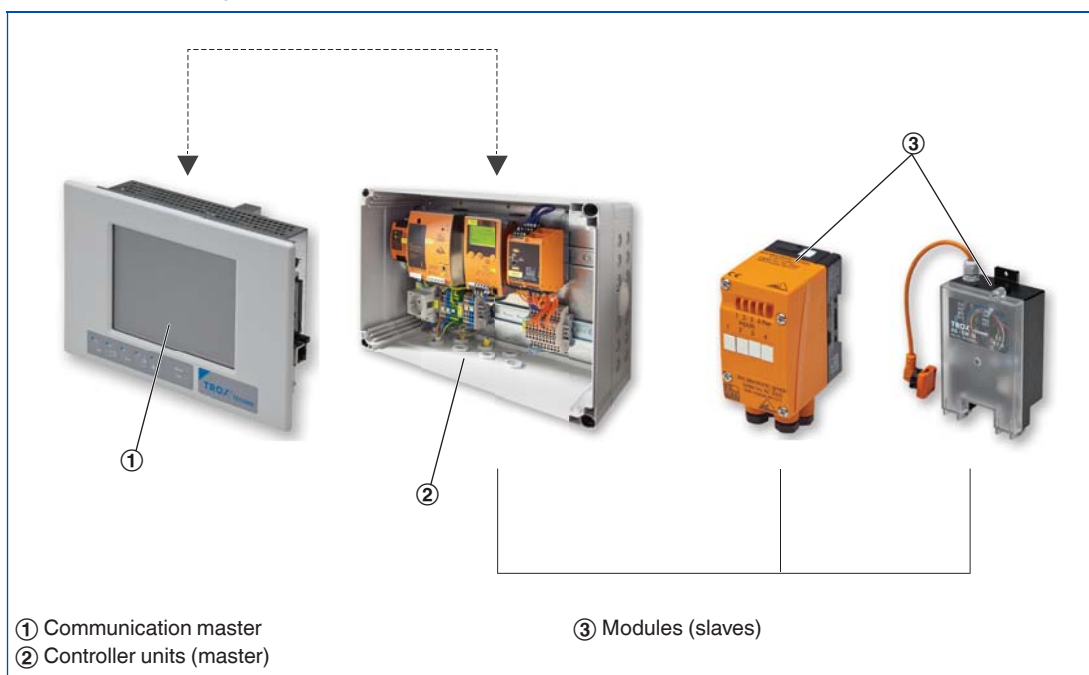
The communication master is the central display and control panel for the entire system.
– Connection of up to 28 controller and power units
– Display of operating status
– Operation of actuators
– Menu-driven operation in case of errors or malfunctions
– System configuration at the time of commissioning
– 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
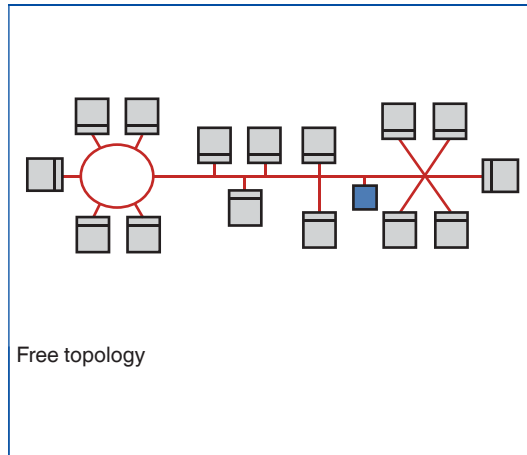
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Description

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
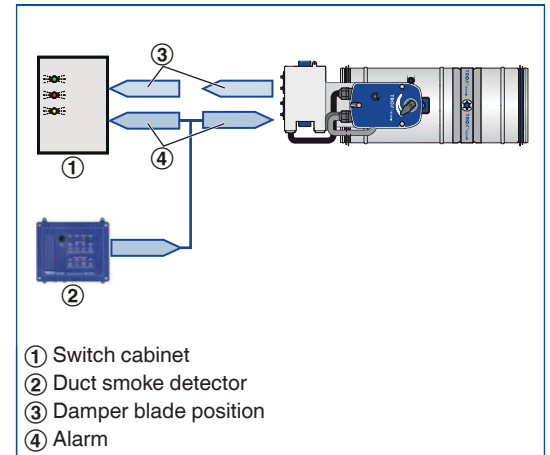– Manufacturer-independent compatibility

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.

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