TROX GmbH

Heinrich-Trox-Platz
D-47504 Neukirchen-Vluyn
Telephone +49/28 45/2 02-0
Telefax +49/28 45/2 02-2 65
e-mail trox@trox.de
www.troxtechnik.com

TROX® TECHNIK

Product Information TROXNETCOM-AS-Interface The System

PI/7.1/1/EN/1

TROXNETCOM-AS-Interface – enhanced performance with a systems approach

Actuator Sensor Interface – that's what AS-i stands for: a bus system that conforms to European EN 50295 and international IEC 62026-2 standards. With over four million AS-i components in operation worldwide, it's clear that today this system is indispensable in the industrial sector all over the world.

Its open and decentralized structure makes it ideal for controlling and monitoring fire protection and smoke extraction valves.

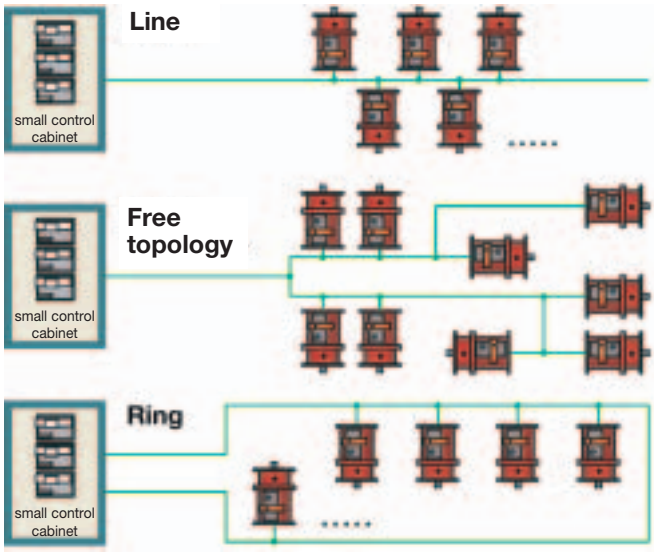
Plug and play through product certification

Many suppliers offer components that can be interfaced to an AS-i and that can communicate directly with each other. This is known as "plug and play."
The compatibility of all products and components is monitored by an umbrella organization known as the AS International Association, which has offices throughout the world.
This ensures that you will always be provided with a system that works – and, what's more, a long-term guarantee of independence from any vendor.

Decentralized configuration saves space in the junction box

The decentralized structure of the AS-i network saves a great deal of junction box space and reduces cabling. The AS-i network is installed exactly where the components are needed.
AS-i solutions allow for energy savings of up to 25 percent.

A single AS-i controller and power unit can run 31 AS-i slaves – for example 31 motorized fire protection or smoke extraction valves. An address assigned to each slave is saved in the permanent memory of the AS-i slave. Address programming can be performed with the AS-i controller or with a manually operated address programming device.
Data is transmitted and voltage supplied (for 24 V DC motors as well) concurrently via an unshielded 2-wire cable, e.g., the characteristic AS-i flat yellow cable. Individual cables can be up to 100 meters in length and can be extended to 300 meters with repeaters and power units.
AS-i network cabling topology is unrestricted.



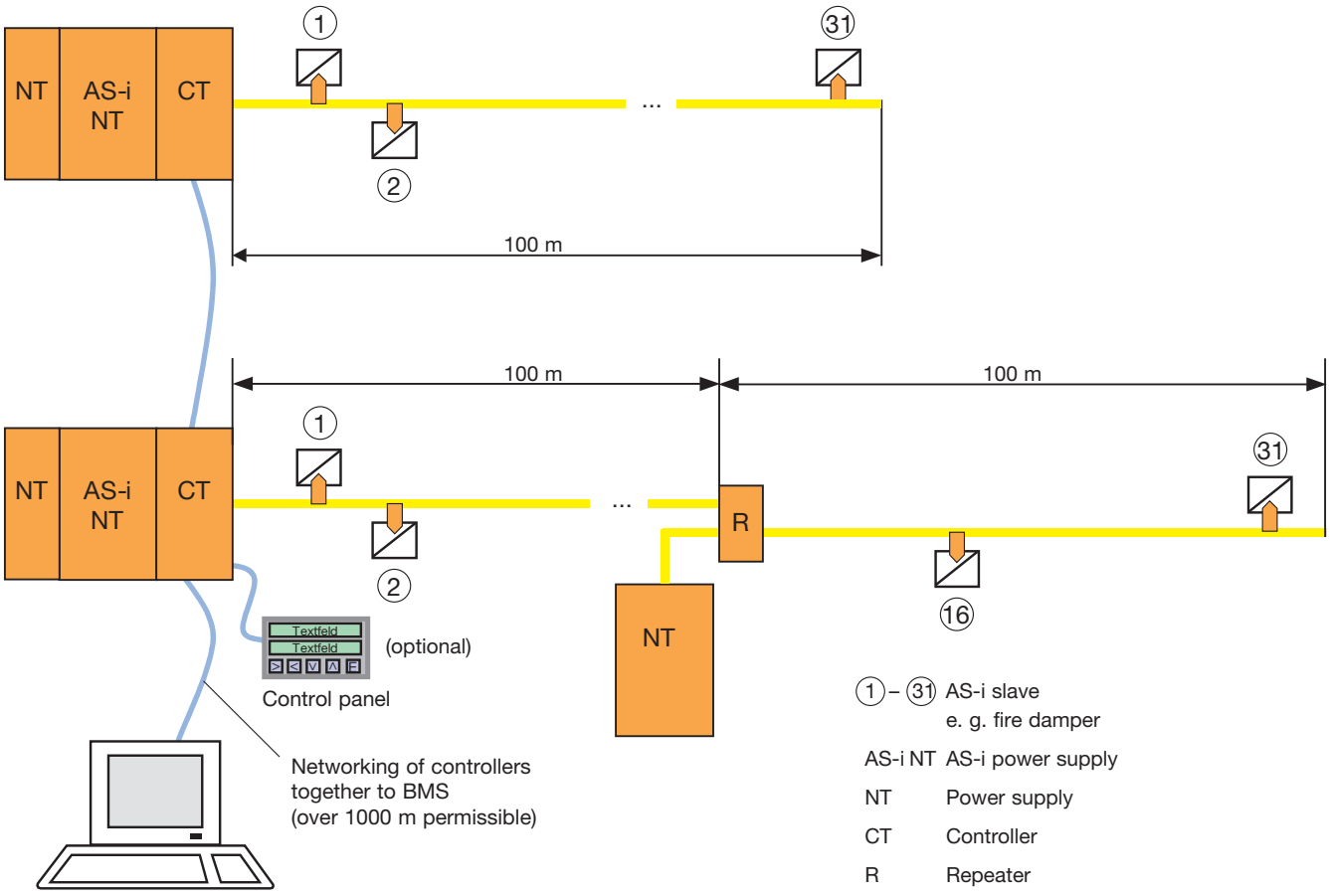
TROX® TECHNIK

Product Information
TROXNETCOM-AS-Interface
The System

PI/7.1/1/EN/1

System Set-up AS-Interface

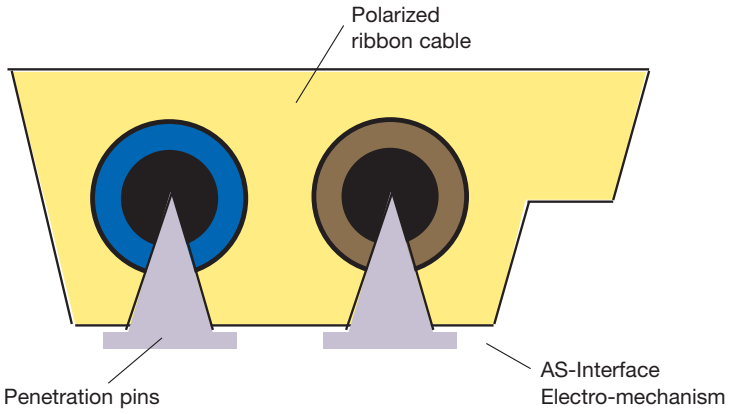
(Cabeling via ring, line or free topology)



Thanks to innovative insulation penetration connectors, installation is extremely simple, free of wiring errors, and extremely variable. To this end, two small blades in a coupling component realize the electrical contact with the network. The best thing about it is: You need far fewer junction boxes, connectors and cables, thereby making the entire installation far more accessible. Fire-resistant cable (E30 / E60 / E90) can also be used without any difficulty.

The AS-i controller and power supply unit are located in their respective distribution points on a given floor, and are responsible (for example) for an entire floor or fire sector. This ensures that you can put your installation into operation sector by sector and localize any errors very quickly.

Wiring: Insulation displacement technology



AS-i networks are secure

The AS-i controller acts as a master that cyclically polls all data from the AS-i participants (slaves) that are connected to it. It only takes 5 milliseconds to poll this data in 31 slaves, which means that you are always updated about the status of your system.
You are notified immediately of the failure of an AS-i slave, and of the location of the failure. If an AS-i controller fails, its AS-i slaves switch to a programmable safe mode. A watchdog circuit integrated into every ASi slave continuously monitors communication.
AS-i guarantees you the highest level of data transmission security without the need for shielded cables. DIN 19244, which ranks communication systems according to data integrity classes, classifies AS-i networks as having the highest level of security (Data Integrity class I3). This means that statistically speaking, a data transmission error will not occur until after the 12th year of operation.

AS-Interfaces are easy to interconnect

All AS-i controllers can be networked together via Profibus DP.
Virtually all measurement and controlling technology suppliers can integrate AS-i directly into your building management system. (This has already been realized in numerous projects around the world.)
Parallel to this, visualization and control consoles can be integrated into the system at any location desired.
In addition, a standalone fire protection or smoke extraction control module can be installed without any difficulty.

Tailor-made solutions with AS-Interface

Fire control scenarios for a given floor or fire sector are individually programmable in the AS-i controllers. The programming language required for this is compliant with international IEC 61131-3 norms and is basically the same as the programming procedure of so-called SPS (freely programmable control modules), which virtually all junction box technicians are familiar with.
Standardized programs, program libraries and ready-to-use applications simplify installation.
Such options as the integration of entire AS-i product families, ranging from analogue signals to measurement of operating temperature to ventilation fan control, make virtually any application a viable solution. And of course such functions as signal switching and error message forwarding are integrated into the system as well.

Our technical consultants stand ready to provide you with support and advice.

AS-Interface: intelligence distributed across the infrastructure enhances security and reliability

The distribution of control functions to smaller and less complex system components (controllers) enhances the transparency of your infrastructure. Errors can be quickly and easily localized and commissioning time is drastically reduced.
Moreover, the failure of individual components does not lead to failure of the entire system.

AS-Interface: a modular solution

AS-i networks have modular architecture.
Following is a list of modules that are available for fire protection. Standardized components can always be added to these modules:

- AS-EP for limit-position detection of up to four conventional potential-free limit switches.
- AS-E for inductive limit position detection (open, closed and intermediate position)
- AS-EM/B for limit position detection and control of 24 V DC motor drives
- AS-RM/BD for transmission of all signals to the smoke detectors, e. g. RM-O-VS-D.

The AS-Interface components
AS-i power supply; AS-i controller, AS-EP, AS-EM/B

Physical characteristics

– Topology:	Line, ring or freely selectable network (tree structure)
– Transmission medium:	Unshielded two-wire cable for data and energy input for the slaves (24 V DC, usually up to 350 mA per slave and, e.g., 8 A per bus line segment)
– Cable lengths:	100 m via repeater, extendable to 300 m
– Number of slaves:	31 per AS-i segment
– Number of AS-i line:	Flexible, depending upon connection medium, e.g., with RS 485 up to 10 lines, with Profibus DP up to 28
– Number of participants:	Combinations of up to 31 intelligent or 124 binary participants per bus line segment
– Access modes:	Master-slave mode, single master mode
– Messages:	Single-address access to master with direct response from slave
– Data:	4 bits master to Slave; 4 bits slave to master
– Address programming:	Fixed, unique address in slave. Address programming realizable via the master or a manually operated address programming device.
– Cycle time with 31 slaves:	5 ms
– Error detection:	Detection of erroneous telegrams; forwarding
– Services of the master:	Cyclic polling of all slaves, processing of data and control programs, cyclic forwarding and registration of data from higher-level control modules
– Management functions:	Initializing network, identifying bus stations, diagnosing network and slaves, detecting errors, generating protocols, allocating addresses to slaves

For further information, consult www.as-interface.net, (AS International Association) in Gelnhausen and/or the following publication: Aktuator-Sensor Interface Systeme (“Actuator sensor interface networks”) by Günter Zeyer (Franzis Verlag); or contact one of our authorized dealers. They’ll be more than happy to help you.