FS-TSFIRE-1624 Fail-safe Fire detector input FTA with line monitoring (24 Vdc, 16 channels)

(FTA-T-19)

Description

The field termination assembly module FS-TSFIRE-1624 is the interface between (digital) fire detectors and the fail-safe high-density analog input module 10105/2/1 in the FSC system. It may be used for installations in, and interfacing signals to Class I, Division 2 Hazardous Locations.

The FS-TSFIRE-1624 module has sixteen digital detector input channels which may be used for both safety-related and non-safety-related applications. The FS-TSFIRE-1624 module uses a SIC-C-12 system interconnection cable to transfer the 16 input signals to a (redundant pair of) 10105/2/1 module(s).
The FTA module has a universal snap-in facility for standard DIN EN rails, and screw terminals for connection of power supply and field wiring.

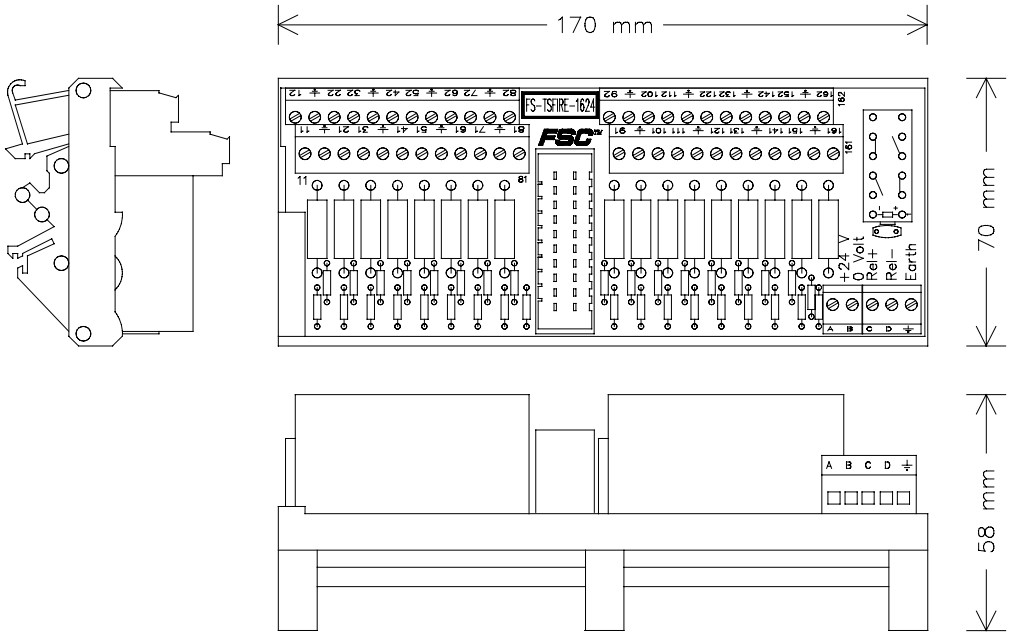


Figure 1 Mechanical layout

Main functions

The FS-TSFIRE-1624 module has three main functions:

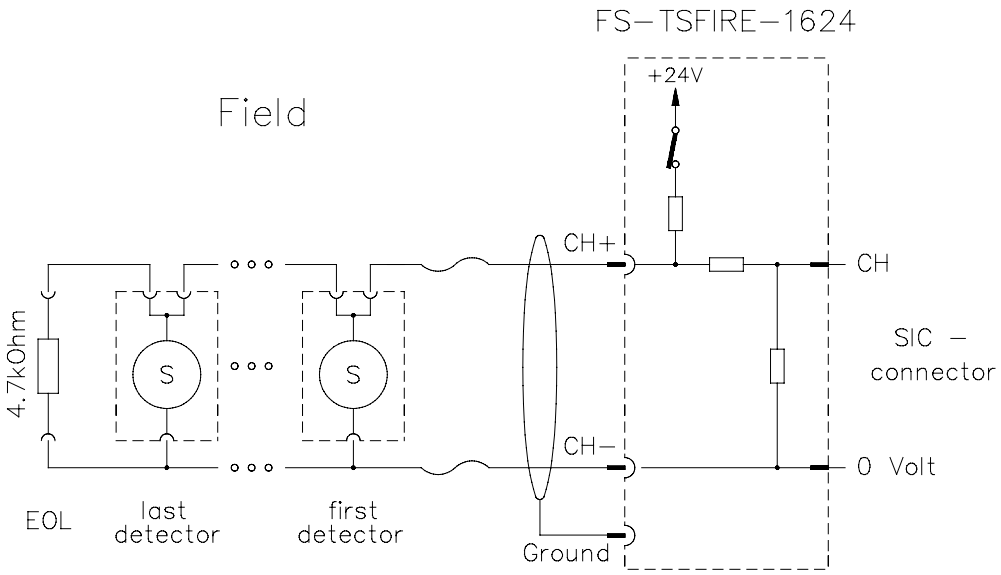
- power supply to each detector with voltage-current limitation in compliance with Hazardous Area Class I Division 2,
- fire detection input function, and
- global reset of the connected sensors.

Detector power supply

The FS-TSFIRE-1624 module requires an external 24 Vdc power supply.
This provides a field signal with open voltage of approx. 24 Vdc and a short-circuit current of approx. 35 mA. The normal operating voltage (with a 4.7 kOhm EOL resistor) is approx. 20.5 Volt.

Fire detector input

The FS-TSFIRE-1624 module converts an input for 24 V fire detectors to levels suitable for the 10105/2/1 module.
Figure 2 below shows the schematic diagram for the connection of fire



detectors or manual call points.

Figure 2 Typical schematic diagram for FS-TSFIRE-1624 input

Global reset

The relay on the FS-TSFIRE-1624 module enables a reset of all connected detectors by removing the supply voltage to the field. The relay is normally de-energized (energized = reset detectors). The Global Reset function is non-safety related .

Applications

For details on applications and connection options for the FS-TSFIRE-1624 module refer to the 'SIC to FTA applications' data sheet.

Connections

Common signals

The connections for common signals are as follows:

Screw terminal	Function
A	+ 24 Vdc Vext
B	0 Vdc Vext
C	Rel+
D	Rel–
E	Ground

Connections diagram

The FS-TSFIRE-1624 module has 48 screw terminals for connection of field wiring. The connections diagram of the FS-TSFIRE-1624 module is as follows:

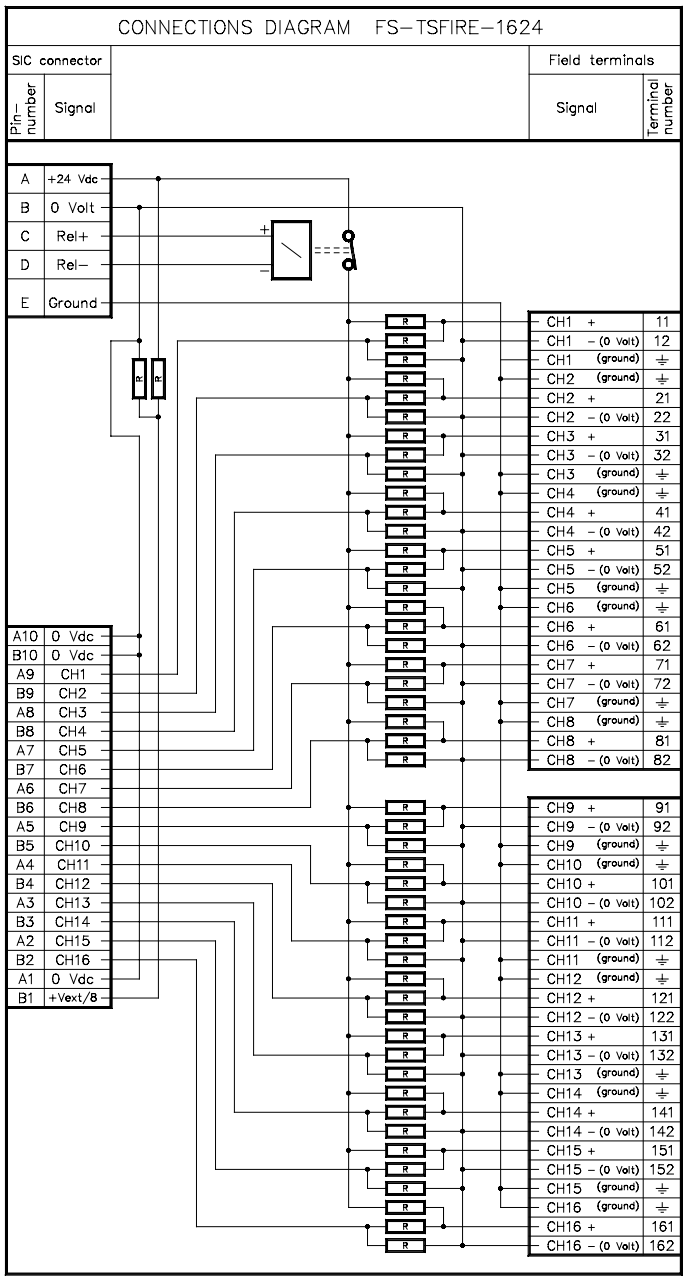


Figure 3 Connections diagram

Technical data

The FS-TSFIRE-1624 module has the following specifications:

General	Type number:	FS-TSFIRE-1624
	Approvals:	CE; TÜV, UL, FM approvals pending
Input	Number of input channels:	16
	Power requirements:	24 Vdc external max. 570 mA
	Max. current per channel:	35 mA at 24 Vdc
Output	Open voltage:	typically 23.5 Vdc (at 24 Vdc ext.)
	With EOL resistor:	typically 20.5 Vdc (at 24 Vdc ext.)
Physical	Module dimensions:	170 x 70 x 58 mm (L x W x H) 6.72 x 2.76 x 2.28 in (L x W x H)
	DIN EN rails:	TS32 / TS35 x 7.5
	Used rail length:	171 mm (6.73 in)
Termination	Screw terminals:	
	– max. wire diameter	2.5 mm² (AWG 14)
	– strip length	7 mm (0.28 in)
	– tightening torque	0.5 Nm (0.37 ft-lb)
Field signal specifications	Field wire resistance:	< 100 Ohm
	End-of-line (EOL) resistor:	e.g. 4k7, ± 5% (≥ 0.25 W) (see F&G Application Manual)
	HYDROGEN (Group A & B):	
	– max. loop inductance	60 mH
	– max. loop capacitance	0.3 µF
	NON-HYDROGEN (Group C & D):	
	– max. loop inductance	230 mH
	– max. loop capacitance	7 µF