

Safety Manager Hardware Reference

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TSFIRE-1624

Safe fire detector input FTA with line monitoring (24 Vdc, 16 channels)

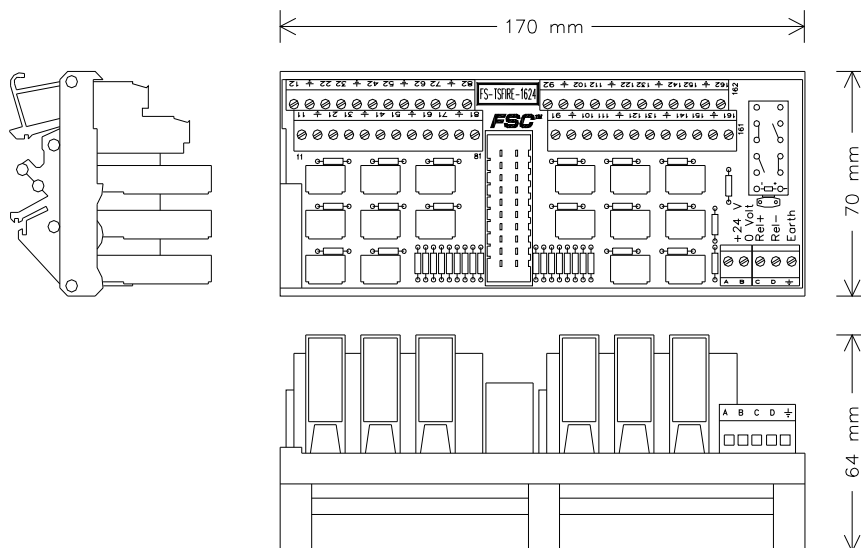
Description

Field termination assembly module TSFIRE-1624 is the interface between (digital) fire detectors and the safe high-density analog input module SAI-1620m in Safety Manager. It may be used for installations in, and interfacing signals to Class I, Division 2 Hazardous Locations.

The TSFIRE-1624 module has sixteen digital detector input channels which may be used for both safety-related and non-safety-related applications. The TSFIRE-1624 module uses a SICC-0001/Lx system interconnection cable to transfer the 16 input signals to a (redundant pair of) SAI-1620m module(s).

The FTA module has a universal snap-in provision for standard DIN EN rails, and screw terminals for connection of power supply and field wiring.

Figure 342 Mechanical layout



Main functions

The 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
- Global reset of the connected sensors

Power supply detector

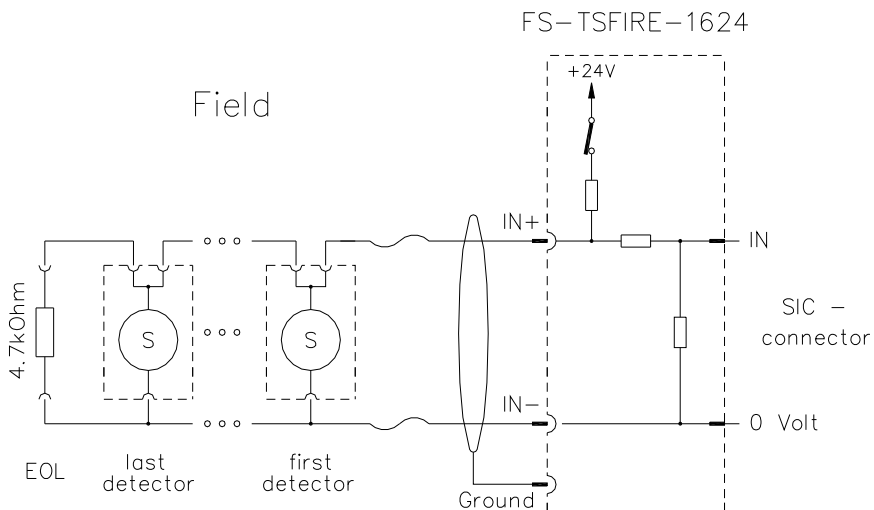
The TSFIRE-1624 module requires an external 24 Vdc power supply. This provides a field signal with open voltage of approximately 24 Vdc and a short-circuit current of approximately 35 mA. Normal operating voltage (with a 4.7 k Ω EOL resistor) is approximately 20.5 Volts.

Fire detector input

The TSFIRE-1624 module converts an input for 24 V fire detectors to levels suitable for the SAI-1620m module.

Figure 343 on page 570 shows the schematic diagram for the connection of fire detectors or manual call points.

Figure 343 Typical schematic diagram for TSFIRE-1624 input



Global reset

The relay on the 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 TSFIRE-1624 module, see section “SICC-0001/Lx” on page 715.

Connections

Common signals

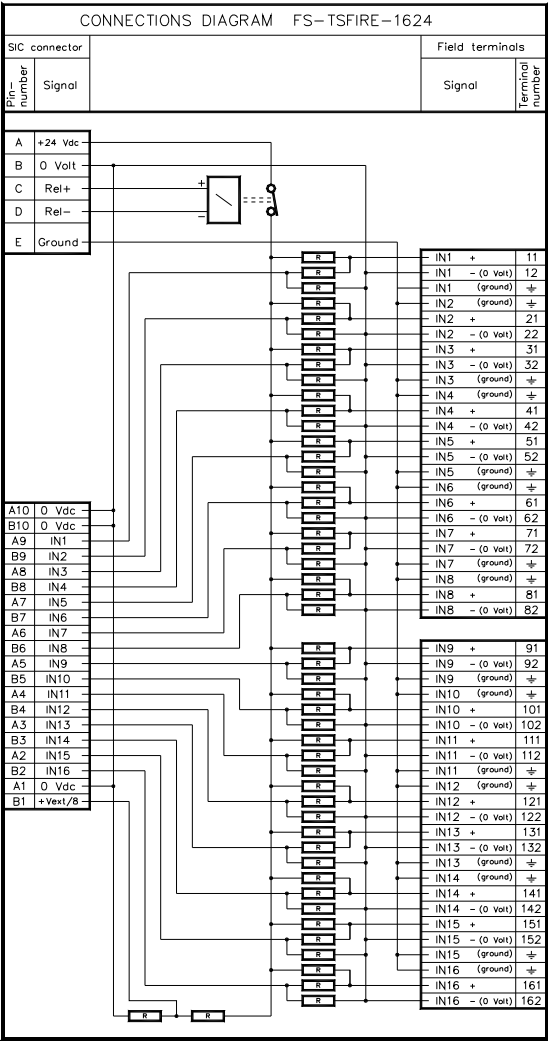
The connections for common signals are as follows:

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

Connections diagram

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

Figure 344 Connections diagram



Technical data

The TSFIRE-1624 module has the following specifications:

General	Type numbers ^{1 2} :	FS-TSFIRE-1624 V1.1
		FC-TSFIRE-1624 V1.1
	Approvals	CE, TUV, UL, CSA, FM
Pwr requirements 24 Vdc ext.	Voltage	24 Vdc +25% / -15%
	Current	Max. 570 mA (at 24 Vdc ext.)
	<ul style="list-style-type: none"> With EOL resistors No load 	<ul style="list-style-type: none"> Typ. 70mA (at 24 Vdc ext.) Typ. 11mA (at 24 Vdc ext.)
Input	Number of channels	16
	Input Voltage	
	<ul style="list-style-type: none"> With EOL resistor (4k7) No load 	<ul style="list-style-type: none"> Typ. 20.5 Vdc (at 24 Vdc ext.) Typ. 23.5 Vdc (at 24 Vdc ext.)
	Channel resistance	680 Ω +/-5%
	Shorted current	35 mA (at 24 Vdc ext.)
Relay	Relay voltage	17 – 39 Vdc
	Current	Typ. 8.5 mA at 24 Vdc
Termination	Screw terminals	
	<ul style="list-style-type: none"> Max. wire diameter 	2.5 mm ² (AWG 14)
	<ul style="list-style-type: none"> Strip length 	7 mm (0.28 in)
	<ul style="list-style-type: none"> Tightening torque 	0.5 Nm (0.37 ft-lb)
Field signal specifications	Field wire resistance	< 100 Ω
	End-of-line (EOL) resistor	For example 4k7, \pm 5% (0.25 W) (see F&G Application Manual, PM.MAN.8163)
	HYDROGEN (Group A & B)	
	<ul style="list-style-type: none"> Max. loop inductance 	60 mH
	<ul style="list-style-type: none"> Max. loop capacitance 	0.3 μ F
	NON-HYDROGEN (Group C & D)	
	<ul style="list-style-type: none"> Max. loop inductance 	230 mH
	<ul style="list-style-type: none"> Max. loop capacitance 	7 μ F

Physical	Module dimensions	170 × 70 × 64 mm (L × W × H) 6.72 × 2.76 × 2.52 in (L × W × H)
	DIN EN rails	TS32 / TS35 × 7.5
	Used rail length	171 mm (6.73 in)

- 1 FS-type modules are non conformal coated modules.
FC-type modules are conformal coated modules. Conformal coated modules have the letters "CC" preceding the version number.
- 2 Modules with suffix code V1.1 or CCV1.1 and higher have an improved PCB design; these versions of the module are equipped with rectangular white resistors.
For earlier versions of the module the +Vext/8 read back (pin B1) is connected with the +24Vdc (screw terminal A).