15.27 TSFIRE-1624

15.27.1 Safe fire detector input FTA with line monitoring (24 V DC, 16 channels)

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.

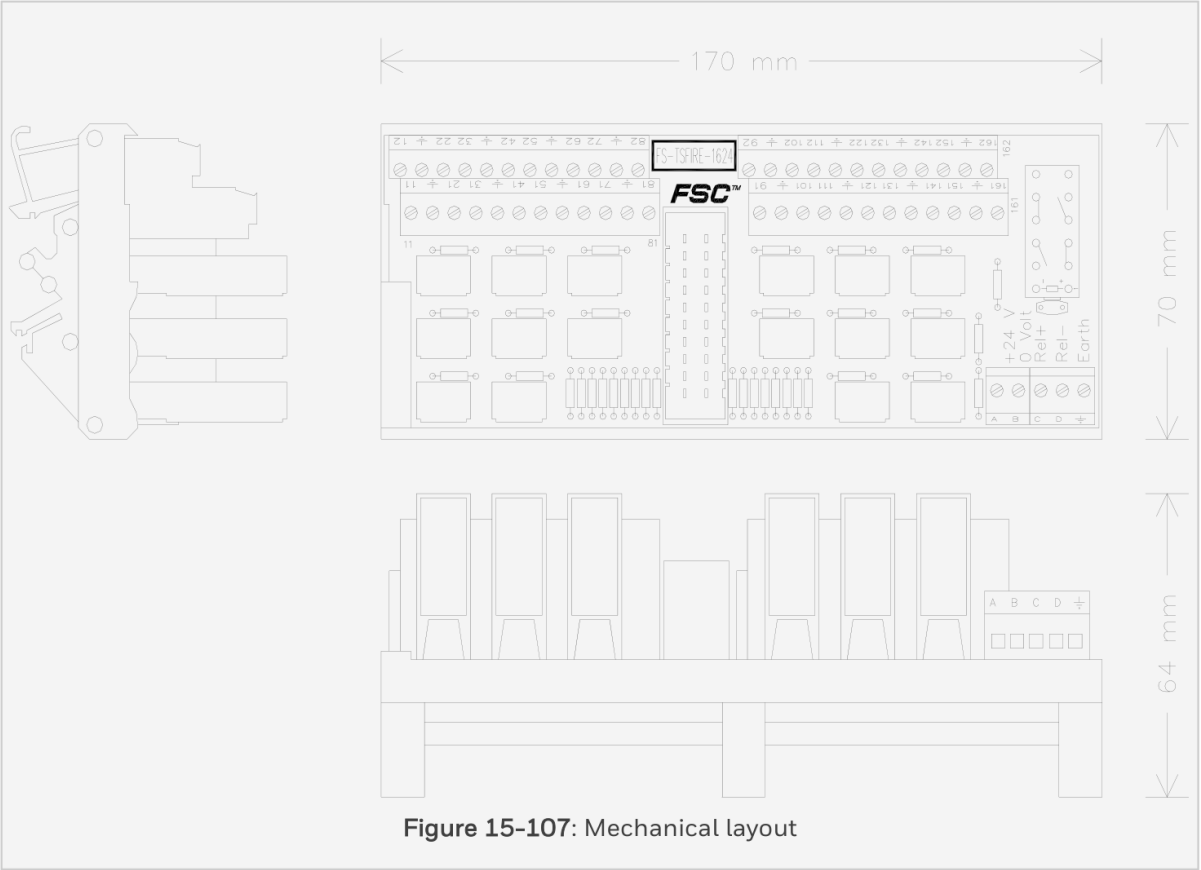


Figure 15-107: Mechanical layout

15.27.2 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

15.27.2.1 Power supply detector

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

15.27.2.2 Fire detector input

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

The below figure shows the schematic diagram for the connection of fire detectors or manual call points.

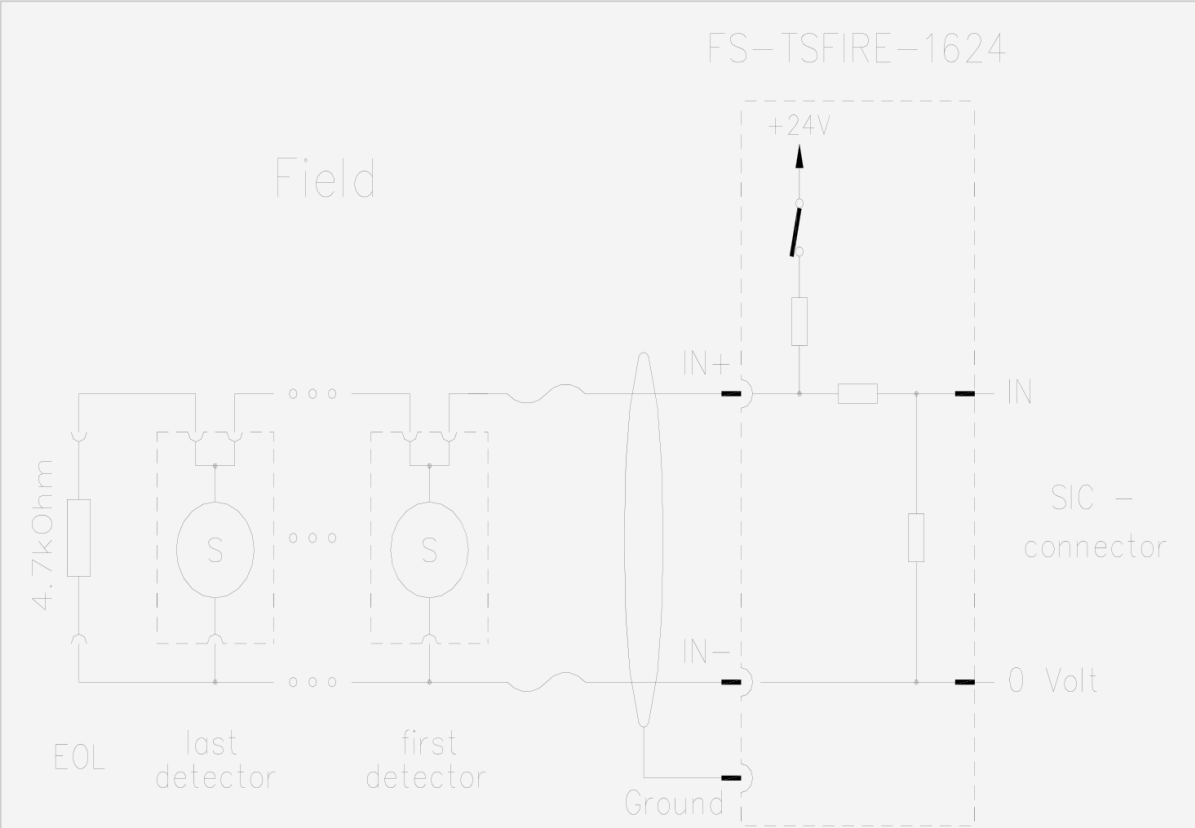


Figure 15-108: Typical schematic diagram for TSFIRE-1624 input

15.27.2.3 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.

15.27.3 Applications

For details on applications and connection options for the TSFIRE-1624 module, see section SICC 0001/Lx.

15.27.4 Connections

15.27.4.1 Common signals

The connections for common signals are as follows:

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

15.27.4.2 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:

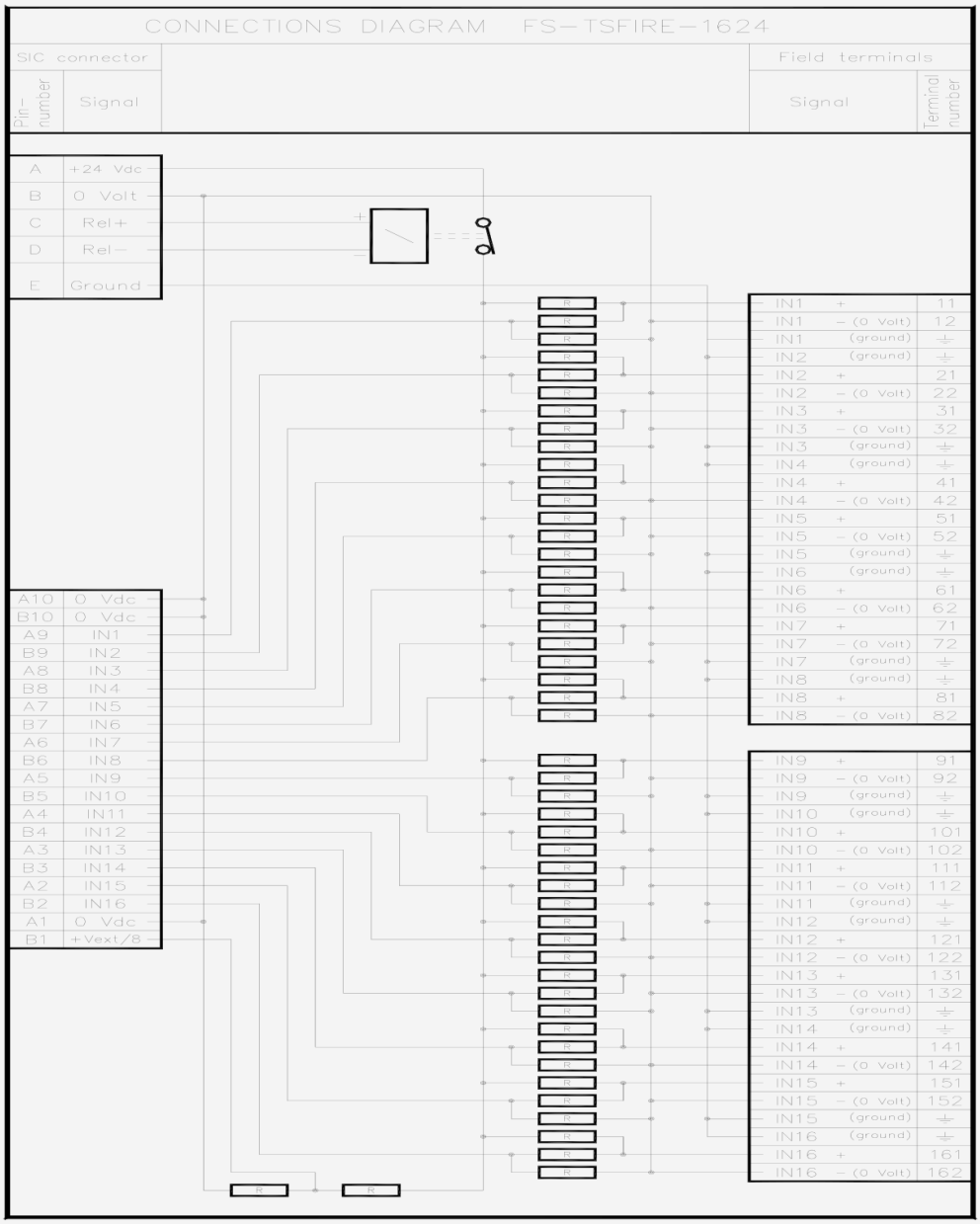


Figure 15-109: Connections diagram

General	Type numbers:	FS-TSFIRE-1624
		FC-TSFIRE-1624
	Approvals	CE, TUV, UL, CSA, FM
Pwr requirements 24 V DC ext.	Voltage	24 V DC +25% / –15%
	Current	Max. 570 mA (at 24 V DC ext.)
	• With EOL resistors	• Typ. 70mA (at 24 V DC ext.)
	• No load	• Typ. 11mA (at 24 V DC ext.)
Input	Number of channels	16
	Input Voltage • With EOL resistor (4k7) • No load	• Typ. 20.5 V DC (at 24 V DC ext.) • Typ. 23.5 V DC (at 24 V DC ext.)
	Channel resistance	680 Ω +/–5%
	Shorted current	35 mA (at 24 V DC ext.)
Relay	Relay voltage	17 – 39 V DC
	Current	Typ. 8.5 mA at 24 V DC
Termination	Screw terminals	
	• Max. wire diameter	2.5 mm⊃ 2; (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 Ω
	End-of-line (EOL) resistor	For example 4k7, ± 5% (0.25 W) (see F&G Application Manual, PM.MAN.8163)
	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
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)