

■ FS303-INV

1 channel – SIL3 module for Energize To Trip (ETT) functionality, inverting action with line fault monitoring

Description:

The FS303-INV module is a SIL3 safety relay according to IEC 61508, which can be used in safety circuitry requiring Energize To Trip (ETT) functionality with current ratings from 10mA to 1.2A. It enables the monitoring of the field wiring all the way, using the Line Fault Monitoring provided by the control line of the safety DCS or PLC.

The FS303-INV module is basically built with two redundant safety relays according to EN50205, IEC/EN 60255, IEC 60664-1 standards. Each relay has two changeover forcibly guided contacts. One contact is use to drive the load, and the other is used to check the integrity of both relays when performing the periodic test.

To achieve the SIL3 level according to IEC 61508, a periodic test must be performed within an interval of one year.



Product options:

Option **ST**:FS303-INV-**ST**: signal connected using Screw Terminals
 Option **CCT**:FS303-INV-**CCT**: signal connected using Cage Clamp or spring Terminals

Main characteristics:

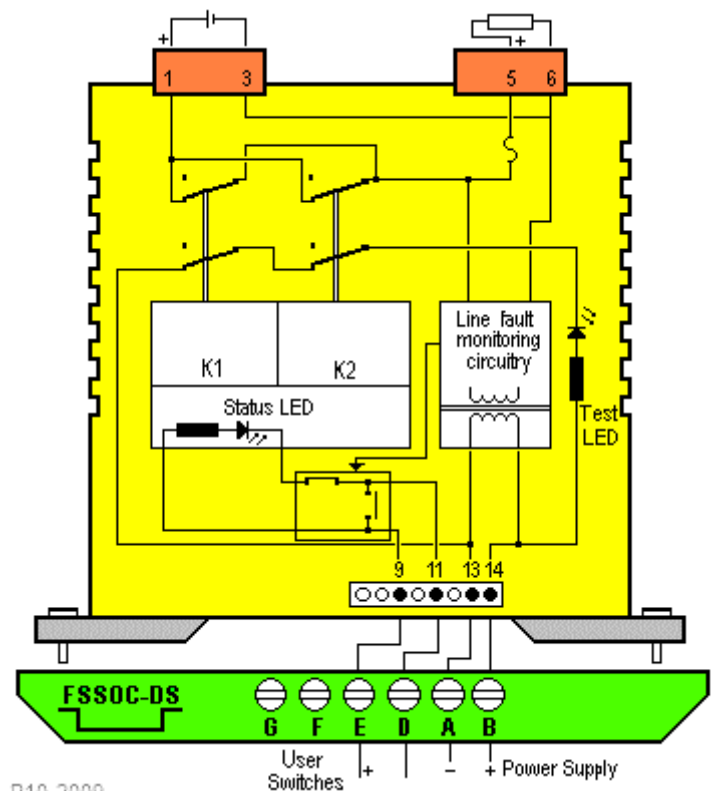
SIL3 Safety Relay according to IEC 61508.

Energize To Trip (ETT) application with inverting action.

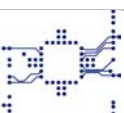
Enables field device monitoring

DIN rail mounting, on individual socket or on termination panel modulo 16.

Slim version allowing high-density mounting and cabinet optimisation.



R10-2009



Technical specifications

Technical input data:

Nominal voltage	24Vdc
Voltage range	18 to 31.2 Vdc
Control Current at 24Vdc	65mA
Coil impedance	375 Ohms
Status indicator	Yellow LED

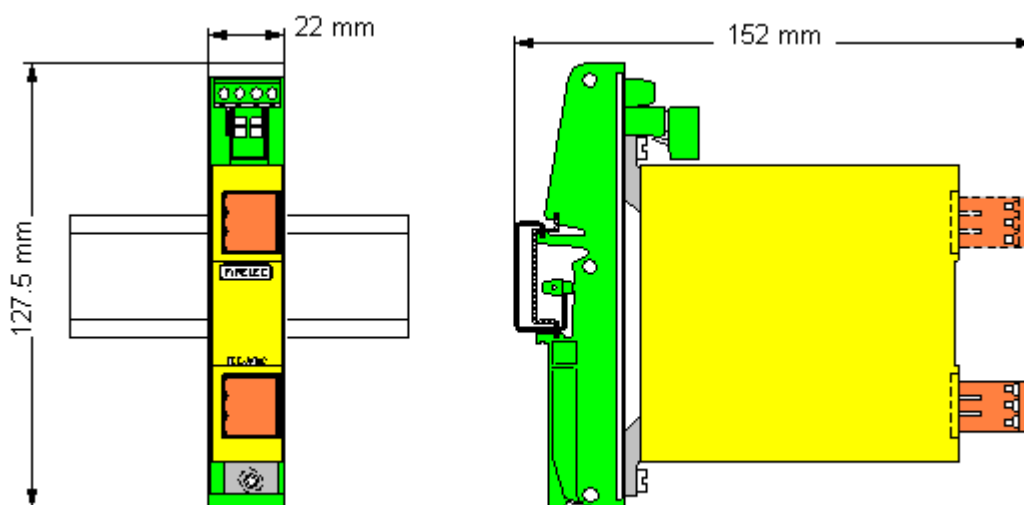
Technical output data :

Contact type:	2 forcibly guided changeover contacts.
Contact material:	AgNi10 + 0.2µm Au
Load power supply voltage max / min:	50VDC / 10VDC
Minimum switching current:	10mA
Load impedance max / min:	
At 24Vdc load Power Supply:	2400 Ω / 20 Ω
At 48Vdc load Power Supply:	4800 Ω / 40 Ω
Short circuit detection:	< 12 Ω
Open loop detection:	> 50 k Ω
Continuous current protection:	2A (5 x 20) semi lagged fuse
Arc current protection:	Transil diode + freewheel diode
Switching power / min:	3W
Switching frequency max	10/s
Response time	10ms (typically)
Release time	6ms (typically)

General Data:

Module power supply:	21Vdc to 28Vdc
Module current consumption at 24Vdc:	60 mA
Operating temperature:	-10°C to +60°C
Storage temperature:	-20°C to +60°C
Relative humidity:	10 to 90% (non condensed)
Mechanical life	>10 ⁷ cycles
Degree of protection / housing:	IP20
Insulation according to EN50178	Contact / Coil: > 4kVac (1min)
Dimensions (W x H x D):	16mm x 85mm x 95 mm without front connector 16mm x 85mm x 120 mm with front connector
Weight:	100g
Wiring conductor section:	Option ST: 24 to 12 AWG (0.2 to 2.5 mm ²) Option CCT: 24 to 12 AWG (0.2 to 2.5 mm ²)
Load wiring (only non polarized load):	Load power supply: removable connector 1(+) and 3(-) Load: removable connector 5(+) and 6(-)
Mounting:	DIN rail: panel modulo 16 type FS-61508-16 or type FS-61508-Mxx (see panel documentation) or individual socket type FSSOC-DS.

Bureau Veritas approved. 

Socket for individual mounting on DIN rail

FS303-INV installed on FSSOC-DS socket
Individual socket characteristics

Reference of individual socket:	FSSOC-DS
Power Supply connection:	Screw Terminal B (+) and A (-) AWG 14 to 26 or 0.14 to 1.5mm ²
Fuse protection on power supply:	1A
Protection:	Against over voltage and reverse polarity
Output connection:	Screw terminals E (+) and D (-) AWG 14 to 26 or 0.14 to 1.5mm ²

Periodic test:

To achieve the SIL3 level according to IEC61508, a periodic test must be performed within an interval of one year.

The FS303-INV module is normally energized, the yellow LED on the front face is ON, the green LED "open line" is ON, and the green LED "Test" is OFF. To perform the test, proceed as follow:

De-energize the FS303-INV module, the yellow Led goes OFF, and check that the green LED "Test" goes ON. If not, replace the FS303-INV module with a spare. Return the faulty module to FIRELEC for general FS series product safety management.

