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FSI-01 FIRE SIGNALLING INTERFACE

MONITORED INTERFACE FOR SHARED FIRE AND INTRUSION SIGNALLING INSTALLATIONS

FEATURES

A fully monitored signalling interface for use in installations where fire detection and intruder detection systems share a common interface to the alarm receiving centre.

The FSI generates separate Fire and Fire Fault signals from the combined fire control panel output for direct connection to the signalling unit. Faults in the fire and fire fault communications path to the ARC due to line faults or power supply faults are presented back to the fire control panel for local display in accordance with fire installation regulations.

An external shunt keyswitch may be connected to isolate the fire signal from the signalling unit. This will permit maintenance and testing of the fire system without generating false fire alarms at the remote monitoring centre.

The FSI unit has two separate compartments to provide independent access to the input connections from the fire control panel and the output connections to the shared signalling unit. Access to each compartment is individually tampered. The FSI thus enables the demarcation requirements of The Regulatory Reform (Fire Safety) Order to be met.

A local indicator on the FSI shows the status of the external shunt switch. Two internal indicators within the fire compartment show any faults on the communications path or the signalling unit power supply.

The FSI is designed to be close coupled to the enclosure housing the communicator and its standby power supply.

- STU line fault signal available at fire control panel
- Separate fire and fire fault signals presented to signalling unit
- Separately tampered fire and intruder connection compartments
- External shunt switch facility with signalling output
- LED status indicators for shunt status, line fault, power supply fault
- 9vdc to- 30vdc operation
- 20mm gland connections
- White powder coated steel enclosure

OPERATION (SEE FIGURE 1)

The combined Fire and Fire Fault output from the fire control panel is decoded into separate signals for direct connection to the signalling unit (STU). The Fire and Fire Fault input is fully monitored for short or open circuit and will generate a Fire Fault if either condition is detected. Note a Fire signal will NOT be generated in either fault condition, thus minimising false alarms.

The Line Fault output from the STU is combined with the fault signals from the STU power supply (i.e. loss of mains, battery fault, PSU fault) to provide a fully monitored feedback signal to the fire control panel.

The STU Line fault and power supply fault outputs are provided as isolated repeated outputs for connection to other intruder alarm system (I&HAS) components.

Opening the fire compartment cover will activate a tamper switch and generate a fire fault signal to the STU.

Opening the intruder compartment cover will activate a tamper switch and generate a tamper signal to the I&HAS.

An external shunt switch may be connected which when activated (switch closed) will isolate the Fire signal from the STU. Thus testing of the fire system will not generate false alarms at the ARC. An open collector output may be used to activate an external indicator e.g. lamp or sounder to indicate when the shunt is active. An LED on the FSI shows if the external shunt is active (closed). The shunt has NO effect on the Fire Fault signal which is passed to the STU as normal irrespective of the status of the shunt.

When the external shunt is active, the STU Line Fault output to the fire control panel is set Active. This minimises the risk of the shunt being inadvertently left in the active state.

Two LEDs visible in the FSI fire compartment indicate the presence of a STU Line Fault or STU Power Supply Fault thus enabling rapid diagnosis of faults on the fire and fire fault signal path.

CONNECTIONS (SEE FIGURE 2.0)

Intruder Communications Compartment

+12v	+ve operating supply
0v	-ve operating supply
EPS In x 2	From voltfree EPS Fault output of STU Power Supply
APS In x 2	From voltfree APS Fault output of STU Power Supply
EPS Rpt x 2	Voltfree contact for EPS Fault output signal to intruder system
APS Rpt x 2	Voltfree contact for APS Fault output signal to intruder system
Tamper x 2	Voltfree contact for intruder compartment tamper signal to intruder system
Fire Fault x 2	Voltfree contact for Fire Fault output connection to STU
Fire x 2	Voltfree contact for Fire output connection to STU
Line Fault Input x 2	From voltfree Telecoms Line Fault output of STU
LNF Rpt x 2	Voltfree contact STU Line Fault output signal to intruder system

Fire Compartment

Fire & Fire Fault Input x 2	From combined Fire and Fire Fault signal from fire control panel – see Fig. 3.0 for typical circuit
STU Line Fault	Voltfree contact for PSU and STU Line Fault output signal to fire control panel
Shunt KS x 2	From voltfree external shunt switch
Shunt O/P	Open collector output to external shunt mode indicator

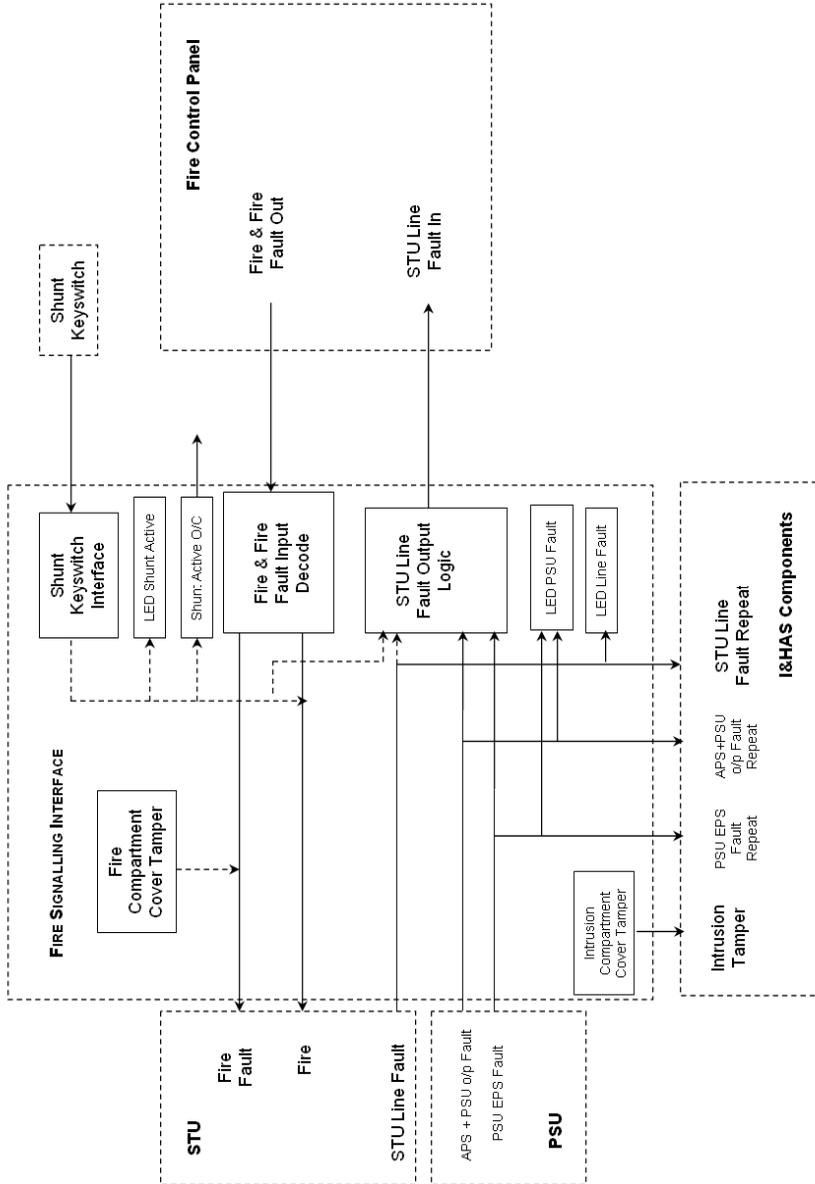


Fig. 1.0 Fire Signalling Interface System Configuration

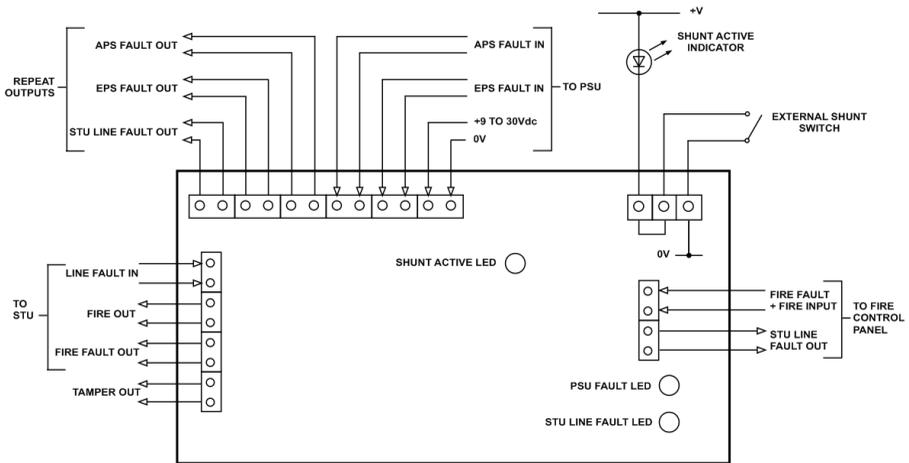


Fig 2.0 FSI Connections

SIGNALLING LOGIC CONVENTIONS

	Open	Closed
Inputs:		
Fire (Fig. 3.0)	Fire Inactive	Fire Active
Fire Fault (Fig 3.0)	Fire Fault Active	Fire Fault Inactive
EPS Fault	EPS Fault Active	EPS Fault Inactive
APS Fault	APS Fault Active	APS Fault Inactive
[STU] Line Fault	Line Fault Present	No Line Fault Present
Shunt KS	External Shunt Inactive	External Shunt Active
Outputs:		
Fire [to STU]	Fire Signal Inactive	Fire Signal Active
Fire Fault [to STU]	Fire Fault Signal Active	Fire Fault Signal Inactive, or Fire compartment cover open
PSU EPS Fault Repeat	PSU EPS Fault Active	PSU EPS Fault Inactive
PSU APS Fault Repeat	PSU APS Fault Active	PSU APS Fault Inactive
STU Line Fault Repeat	STU Line Fault Present	No STU Line Fault
STU Line Fault [to fire control panel]	Line Fault Present, or PSU Fault Present, or External Shunt Active	No Line Fault Present AND No PSU Fault Present AND External Shunt Inactive
Shunt o/p	o/c = External Shunt Inactive	0v = External Shunt Active
Tamper	Intruder compartment cover open	Intruder compartment cover closed

TAMPERS

Fire Compartment Lid

Opening the fire compartment lid will generate a Fire Fault signal to the STU.

Signalling Compartment Lid

Opening the signalling compartment lid will generate a Tamper signal to the intrusion alarm system.

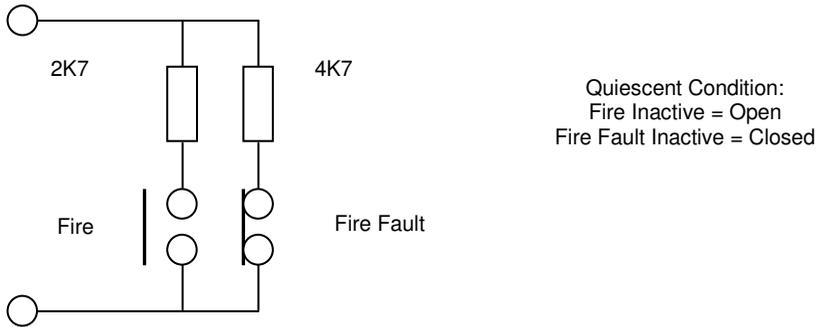


Fig 3.0 Fire and Fire Fault Input Signalling Circuit

Possible Conditions with Resistance Reported to FSI Fire & Fire Fault Input	
Condition	Resistance
Normal (no alarms or fault conditions)	4k7
Fire	1k7
Fire Fault	Open Circuit
Fire & Fire Fault	2k7
Cable / Connection Fault	Open / Short Circuit

INDICATORS – FRONT PANEL

Shunt LED (Red)

ON = external shunt switch active i.e. closed
OFF = external shunt switch inactive i.e. open

INDICATORS – INSIDE FIRE COMPARTMENT

STU Line Fault LED (Red)

ON = Fault detected on telecoms line
OFF = No fault detected on telecoms line

PSU Fault LED (Red)

ON = Loss of mains, battery fault, or power output fault from external power supply
OFF = No fault signalled from external power supply

INSTALLATION INSTRUCTIONS

This unit is only suitable for installation as permanently connected equipment. The Fire Signalling Interface (FSI) is *NOT SUITABLE* for external installation.

Mounting

- 1) Fit gland, or other coupling, to fire compartment meeting the appropriate installation standards
- 2) Align FSI to 20mm knockout in lower face of PSU enclosure and couple together using 20mm bush and locknut supplied, see Fig 4.0.
- 3) Secure FSI to mounting surface using suitable fixing screws.

Connections – Signalling Compartment

- 4) Connect +12v and 0v to corresponding voltage outputs of power supply.
- 5) With no other connections to the FSI, apply power to the FSI and verify that both the Fire and the Fire Fault outputs are open.

- 6) Remove power.
- 7) Connect Fire and Fire Fault outputs to required inputs on signalling unit.
- 8) Connect Line Fault Input to corresponding STU Line fault output on signalling unit.
- 9) Connect signalling unit power supply EPS and APS fault outputs to corresponding inputs on FSI. NB: FSI is supplied with links on these inputs to set default as NO PSU Fault. Remove before connection.
- 10) Connect FSI Repeat outputs (Line Fault, EPS and APS Faults) to other intruder system components as required.

Connections – Fire Compartment

- 11) Connect Fire and Fire Fault input to corresponding outputs on fire control panel, or interfacing relays. Use ONLY the signalling resistor values shown in Fig. 3.0.
- 12) Connect STU Line Fault output to corresponding Telecoms Line Fault input on fire control panel.
- 13) Connect external shunt switch and indicator as required.

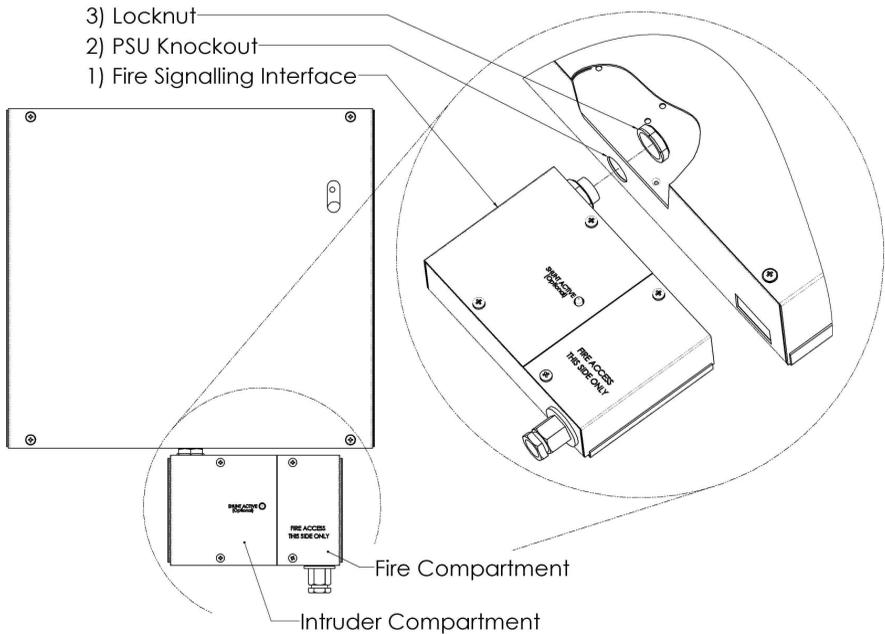


Fig 4.0 Mounting of FSI

COMMISSIONING

- 1) Ensure the covers are in place and the Tamperers are closed.
- 2) Ensure any external shunt switch is in the open (shunt inactive) position.
- 3) Apply power to FSI.
- 4) Activate FIRE or FIRE FAULT signals from FIRE CONTROL PANEL.
- 5) Verify the corresponding signals are passed to the signalling unit. Clear Fire or Fire Fault signals.
- 6) Activate Line Fault output of signalling unit and verify that a Line Fault signal is passed to fire control panel and the STU Line Fault LED illuminates. Clear Line Fault.
- 7) Activate a Fault output of the signalling unit power supply e.g. by removing electrical mains. Verify that a Line Fault signal is passed to fire control panel and the PSU Fault LED illuminates. Clear Line Fault.
- 8) Open the Fire Compartment cover and verify that a Fire Fault signal is passed to the signalling unit. Replace compartment cover.
- 9) Open the Intruder Compartment cover and verify that a Tamper signal is passed to the intrusion system. Replace compartment cover.
- 10) If an external Shunt switch is in use, activate (close) shunt switch and verify that the Shunt Active LED illuminates, Line fault signal is passed to fire control panel and the external shunt indicator activates (if connected).
- 11) Activate FIRE signal from FIRE CONTROL PANEL.
- 12) Verify that the Fire signal is NOT passed to the signalling unit.
- 13) De-activate (open) shunt switch and verify that the Shunt Active LED extinguishes and the external shunt indicator is de-activated (if connected).
- 14) Verify that an active Fire signal IS passed to the signalling unit.
Clear Fire signal from fire control panel.
- 15) Commissioning is now complete.

OPERATING INSTRUCTIONS

This unit is intended for use by Service Personnel only - There are NO USER SERVICEABLE parts inside.

There are no operator inputs on the FSI.

If STU Line LED is illuminated, there is a fault detected by the telecoms signalling unit or external shunt is active (switch closed). Investigate and clear fault, or open external shunt.

If PSU Fault LED is illuminated, there is a fault with the power supply associated with the signalling unit. Investigate and clear power supply fault e.g. check mains, check fuses, check battery.

If the Shunt Active LED is illuminated, the external shunt switch is active (closed).

MAINTENANCE

There is no regular maintenance required of the FSI.

SPECIFICATION

Operating Voltage	9vdc – 30vdc
Input current	60mA max @12vdc, normal state
Fire/Fire Fault Input:	
Fire Fault (EOL) Resistor value	4K7, 1% 0.25W
Fire Resistor value	2K7, 1%, 0.25W
Relay Outputs	Voltfree contacts, 30vdc, 0.5A max switch
Shunt Active Output	Open collector: Short circuit to 0V (via shunt switch) when shunt active Open circuit when shunt inactive (shunt switch open)

Mechanical

Dimensions w x l x h	170 x 107 x 40 mm
Weight	0.58 kg
Material	White powder coated steel

Environmental

Temperature	-10 to +40 °C (operating) 75% RH non-condensing -20 to +80 °C (storage)
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Compliance*

This unit complies with the following European Directives:

EMC: 2014/30/EU

WEEE: 2012/19/EU

RoHS2: 2011/65/EU

*When permanently coupled to a power supply unit using the fixing method supplied, this unit is suitable for use in systems designed to comply with PD6662: 2010/EN50131-1:2009 to Grade 3 and Environmental Class II.

Explanation of symbols: (Not all may apply)



Fault Indication



Shock Risk - isolate before attempting access



Certification Level



Mains Present



Protective Earth



Do not dispose of in unsorted waste

Specifications subject to change without notice

The packaging supplied with this product may be recycled.
Please dispose of packaging accordingly.

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