INSTALLATION, OPERATION, MAINTENANCE

Smoke Fire Damper Interface

2026/07/31

TWO-POSITION DAMPER INTERFACE (SFDI-M/FT, FDI-M/FT, SDI-M/FT)
MODULATING DAMPER INTERFACE (3P-SFDI-M/FT)

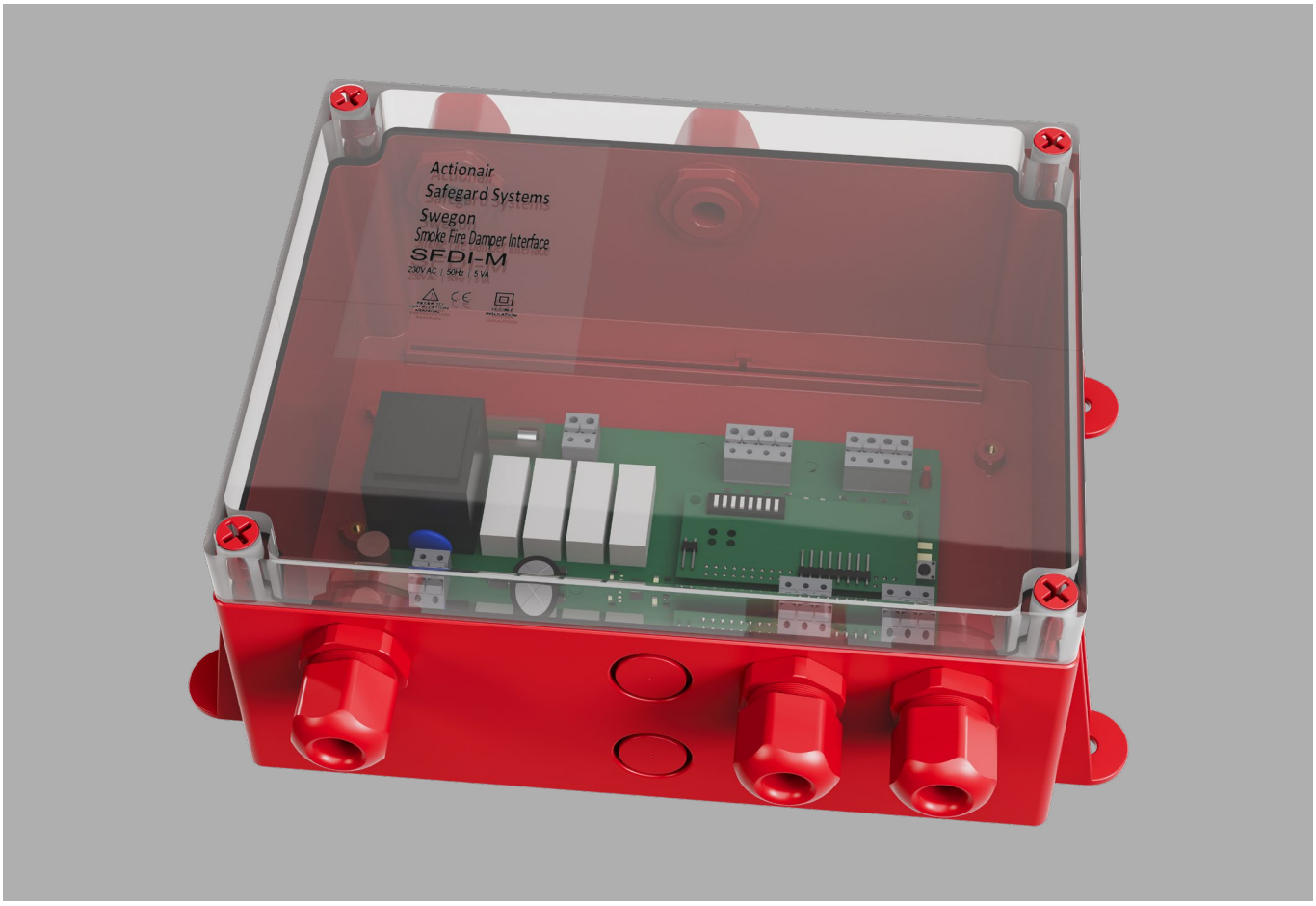

Figure 1. Two-Position SFDI in an enclosure.

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Preface

Disclaimers

- The information herein is subject to change without notice. Safegard Systems Ltd do not assume any liability arising out of the use of this product.
- Purchase of goods and services is subject to Safegard Systems Ltd Terms and Conditions.
- If not agreed otherwise, all wiring is by others.

Warnings ⚠

- Read and understand this document before installation. Follow all the instructions.
- This product forms part of a life-safety system. Failure to correctly store, handle, install, and maintain the product will directly put at risk the lives of the occupants and the fabric of the building.
- The responsible body shall be made aware that, if the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
- Unauthorised modifications to Safegard panels and devices are not allowed, and will render the warranty void.

Explanation of safety warnings

⚠ DANGER	Danger indicates a hazard which, if not avoided, **will result in death or serious injury.**
⚠ WARNING	Warning indicates a hazard which, if not avoided, **could result in death or serious injury**.
⚠ CAUTION	Caution indicates a hazard which, if not avoided, **could result in minor or moderate injury.**
NOTICE	Message not related to personal injury.

Safety Notes

- Only allow trained and qualified personnel to install, replace, or service this equipment.
- Adhere to the relevant local safety standards.
- The device contains electrical and electronic components and must not be disposed of as household refuse. All locally valid regulations and requirements must be observed.

Description of the user

This document is intended for a competent user. They should have sufficient knowledge, skills, and experience to perform electrical installations safely and correctly.

Conventions used in this document

Bold: Emphasis

Abbreviations used in this document

BMS - Building Management System

C - Connector

E- Earth

FT - Lonworks

GND - Ground

L - Live

LED - Light Emitting Diode

M - Modbus

N - Neutral

S - Switch

SFDI - Smoke Fire Damper Interface

Terminology used in this document

Ping - a command to test the connectivity and responsiveness of a networked device.

Wink - a command to identify a networked device.

Related Documentation

- Smoke Fire Damper Interface (SFDI) Product Sheet.
- V5 Damper Control Panel Installation and Maintenance.
- Safegard V5 Catalogue.

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Options

Two-Position Damper Interface (SFDI - M/FT, FDI - M/FT, SDI - M/FT)

The Safegard Systems Two-Position Damper Interface provides a communication device to control or monitor dampers.

Smoke Fire Damper Interface (SFDI - M/FT)

Controls a failsafe spring-return smoke fire damper actuator that incorporates two auxiliary switches.

Fire Damper Interface (FDI - M/FT)

Monitors the open and/or closed fire damper position.

Smoke Damper Interface (SDI - M/FT)

Controls any drive-open/drive-closed smoke damper actuator that incorporates two auxiliary switches.

NOTE:

- Each interface is available in 24 V or 230 V supply. Please specify a voltage at the time of order.

Modulating Damper Interface (3P-SFDI-M/FT)

The Safegard Systems Modulating Damper Interface provides a communication device to control a single modulating actuator that incorporates two auxiliary switches.

Auto Mode

Damper can be set from the control system to a balanced position, or to drive open or closed (damper configuration mechanically set), or failsafe via spring-return.

Learn Mode

Damper can be set to its required balanced position via the set point potentiometer.

Local Mode

Damper can be modulated via a 2–10 V signal from the Building Management System (BMS). In the event of a fire alarm or firefighter's override input, the damper control system will take control away from the BMS and react according to the input(s).

NOTE:

- Local mode does not apply to drive-open/drive-closed (DODC) actuators.
- The interface is available in 24 V or 230 V supply (both driving a 24 V actuator). Please specify a voltage at the time of order.

Functions

Function	Description	Two-Position DI	Modulating DI
Open	Damper blade is open.	✓	✓
Closed	Damper blade is closed.	✓	✓
Balanced	Damper blade is in a predefined position, between fully open (90°) and fully closed (0°)		✓
Travelling	Damper blade is travelling.	✓	✓
Fault	Damper or damper interface is in fault.	✓	✓
Ping	Ping sent (See *Terminology*, p3).	✓	✓
Offline	Damper or damper interface is offline.	✓	✓
Save mode	If an actuator position cannot be reached, actuator save mode will halt attempts for the actuator to reach its final position after 10, 20 or 30 attempts. This can be set in the Safegard Builder.	✓	✓
Wink	Wink sent (See *Terminology*, p3).	✓	✓
Learn mode	Set up the balanced position for the damper (See p13).		✓

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Technical Information

Modbus (M)

	Two-Position Damper Interface	Modulating Damper Interface
Chip	Arm Cortex-M4	
Service Functions	Service pin and service LED	

Lonworks (FT)

	Two-Position Damper Interface	Modulating Damper Interface
Chip	FT6050	
Service Functions	Service pin and service LED	

Supply*

	Two-Position Damper Interface	Modulating Damper Interface
Input Voltages	(230 ± 23) V AC, 50 Hz (24 ± 4.8) V AC, 50 Hz (24 +4.8 /24 -2.4) V DC	
Maximum Power Consumption	2.5 VA 24V AC/DC 4.5VA 230V AC	1.3 W

**Please specify at the time of order.*

Output

	Two-Position Damper Interface	Modulating Damper Interface
Contact Type	DPCO mechanical relay contacts	SPST mechanical relay contact
Maximum Switched Load	200 VA	50 VA

Inputs

	Two-Position Damper Interface	Modulating Damper Interface
Contact Type	Non-isolated dry contacts	
Sense Current	10 mA	10 mA per input

Environmental

	Two-Position Damper Interface	Modulating Damper Interface
Operating Temperature	-10–75°C	
Storage Temperature	-20–70°C	
Humidity	25%–90% RH at 70°C	
Maximum Altitude	2000 m	

Compliance

	Two-Position Damper Interface	Modulating Damper Interface
Agency Listing	CE	
Electromagnetic Compatibility (EMC)	EN60730-1:00+A1:04+A2:08 +A16:07; CISPR 22 / FCC part 15, cl. B	EN60730-1:00+A1:04+A2:08 +A16:07
Low Voltage Directive (LVD)	EN60730-1:2005 + …+ A2:2008	

Enclosure

	Two-Position Damper Interface	Modulating Damper Interface
Material	ABS base with polycarbonate lid	
Ingress Protection (IP) Rating	IP 54	
Insulation	Double	
Flammability	UL 94 V-0	
Pollution Degree Rating	Category 2	
Dimensions, mm (L x W x D), excl. glands	213 x 170 x 95	

Electrostatic Sensitive Device

Double Insulated

LonMark Certified

Indoor Use Only

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Before Installation

Precautions

- Only allow trained and qualified personnel to install, replace, or service this equipment.
- Adhere to the relevant local safety standards.
- The wiring must comply with the International Electrotechnical Commission (IEC) standards and the local electrical rules and regulations.
- Only use cable conductor diameters up to 1.5 mm^2.
- Do not drill the enclosure as this will affect its Ingress Protection (IP) rating.
- Include a fused spur and a circuit breaker as part of the installation. They must both meet the relevant requirements of IEC 60947-1 and IEC 60947-3. Place the fused spur near the equipment and within reach of the operator. Mark the fused spur and the circuit breaker as the disconnecting device for the equipment.
- The switch inputs and auxiliary inputs are not optically isolated.

Recommendations

- Crimp all stranded wires for easier installation and replacement of the product.
- The optional detectors (smoke or heat) should use failsafe open contacts.
- Do not run the network cables alongside any mains voltage or high frequency sources.
- Do not mix the network cables on an individual network.
- If you use the electromagnet failsafe release option, protect the electromagnet by a suitable snubber device.

Before attempting to mount the interface enclosure

- Mount the enclosure on either a block or stud wall, or a suitable alternative.
- The interface must be close enough to the actuator or damper it is controlling or monitoring. Actuator leads are normally 1 m in length. If the actuator is to be located more than 5 m from the interface, contact Safegard Systems Ltd for technical assistance.
- The interface must be fully accessible for commissioning and maintenance.
- Leave suitable clearance for lid removal, installation, and termination of interface.

If using an ATEX rated actuator, contact Safegard Systems Ltd for assistance.

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Installation

1. Make sure the designated enclosure position is close enough to the device it is controlling / monitoring.

NOTICE	Do not drill the enclosure as this will affect its IP rating.

2. If necessary, drill four ø 6 mm holes for mounting the enclosure.

See Figure 2.

3. Mount the enclosure using suitable screws and fixings.

⚠ WARNING	To prevent electrical shock, disconnect power before handling cables.

4. Ensure any local power supply is isolated.
5. Insert the cables into relevant glands.
6. Securely fit the interface into the enclosure.

NOTE:

Only use cable conductor diameters up to 1.5 mm².

NOTE:

The Interface **must be** wired as shown in the Wiring Diagrams.

7. Wire the interface in accordance with the wiring diagrams:

For **Two-Position Damper Interface wiring**, see pp 8–10.

For **Modulating Damper Interface wiring**, see pp 11–14.

8. Seal the unused cable entries.
9. Apply power to the interface.
10. The green power LED illuminates.
11. The interface is now ready to be configured using the Safegard system.

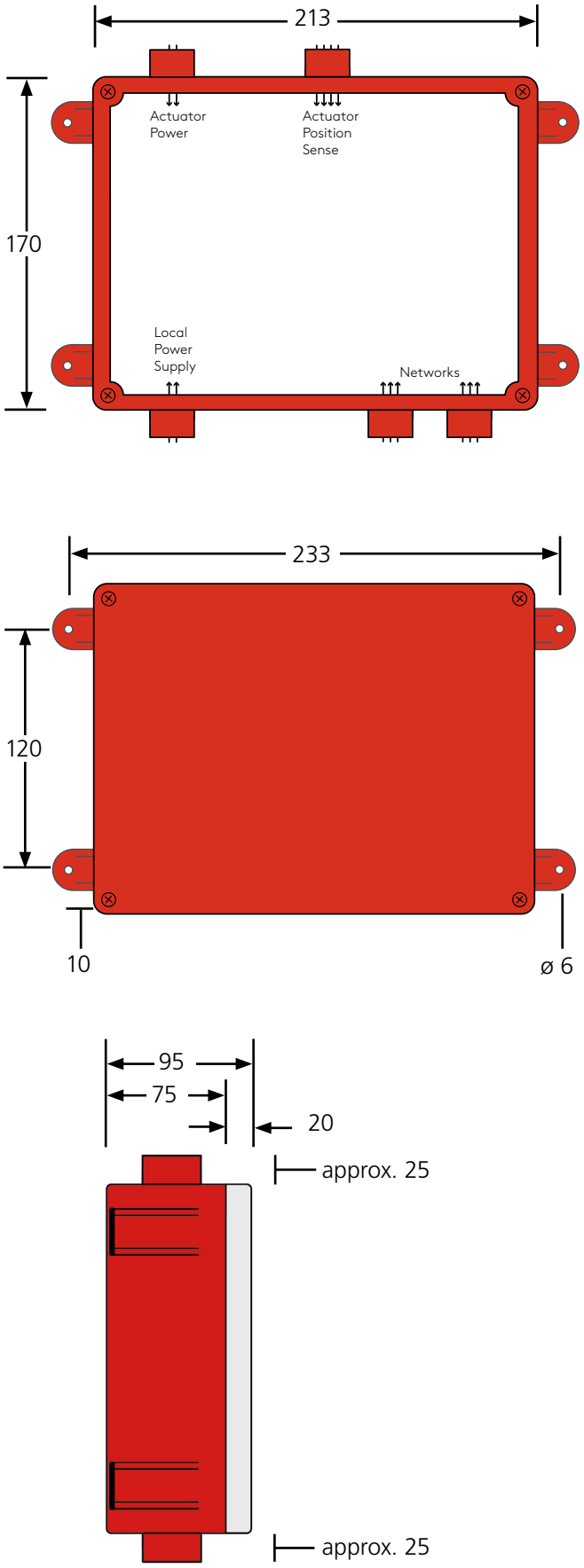

Figure 2. Mounting Diagram. All dimensions in mm.

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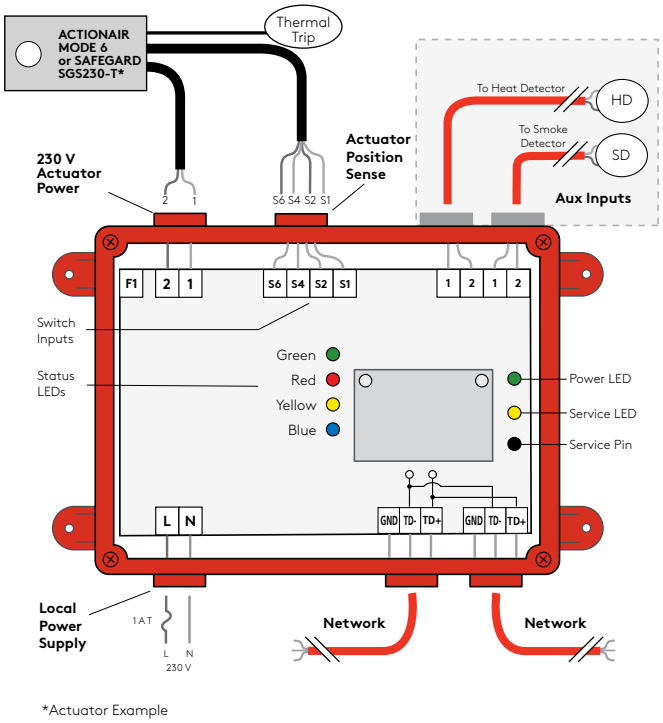
Wiring Diagrams and LED Behaviour: Two-Position Damper Interface

SFDI-M/FT 230 V



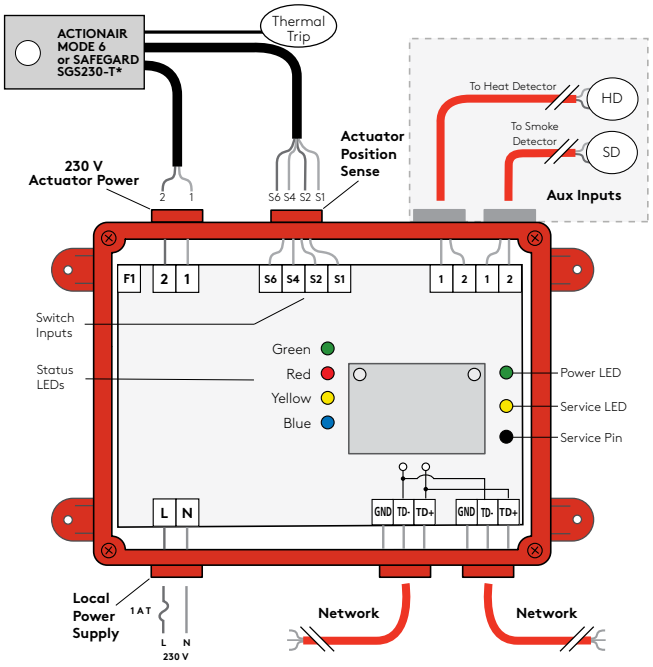
*Actuator Example

Figure 3. SFDI-M/FT 230 V Wiring.

Status LEDs		
	Description	Function
	Steady green on	Open
	Steady red on	Closed
	Green and red flashing	Travelling
	Yellow flashing	Fault
	One shot	Ping
	Steady green, red, yellow, and blue on	Offline
	Red flashing	Save mode
Service LED		
	Yellow, flashes for 5 seconds	Wink

Table 1. Two-Position Damper Interface (230 V/24 V) Status LEDs.

SFDI-M/FT 24 V



*Actuator Example

Figure 4. SFDI-M/FT 24 V Wiring.

NOTE:

The Interface **must be** wired as shown in the Wiring Diagrams.

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FDI-M/FT 230 V

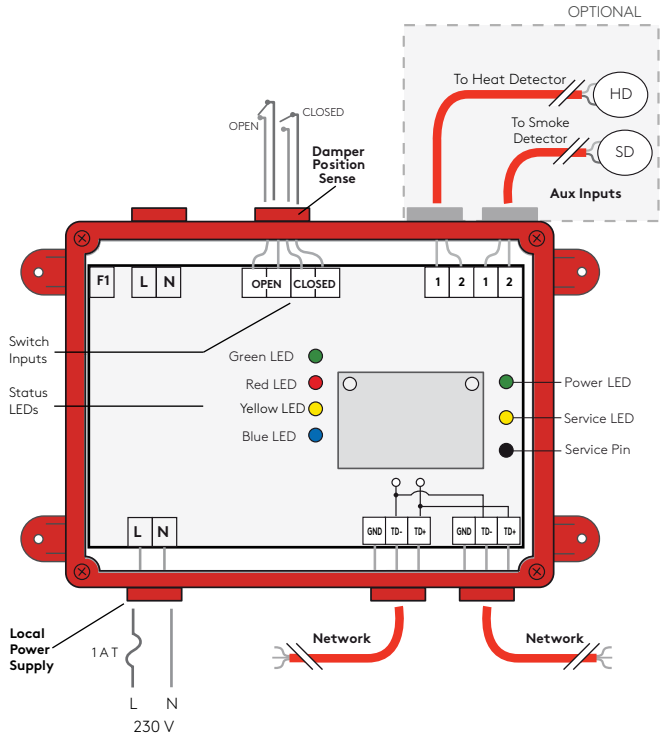

Figure 5. FDI-M/FT 230 V Wiring.

Status LEDs		
	Description	Function
	Steady green on	Open
	Steady red on	Closed
	Green and red flashing	Travelling
	Yellow flashing	Fault
	One shot	Ping
	Steady green, red, yellow, and blue on	Offline
	Red flashing	Save mode
Service LED		
	Yellow, flashes for 5 seconds	Wink

Table 1. Two-Position Damper Interface (230 V/24 V) Status LEDs.

FDI-M/FT 24 V

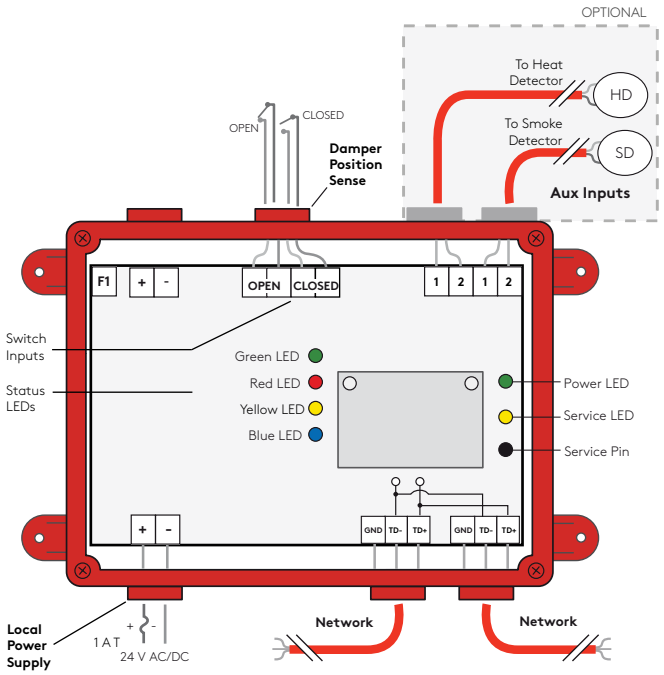

Figure 6. FDI-M/FT 24 V Wiring.

NOTE:

The Interface **must be** wired as shown in the Wiring Diagrams.

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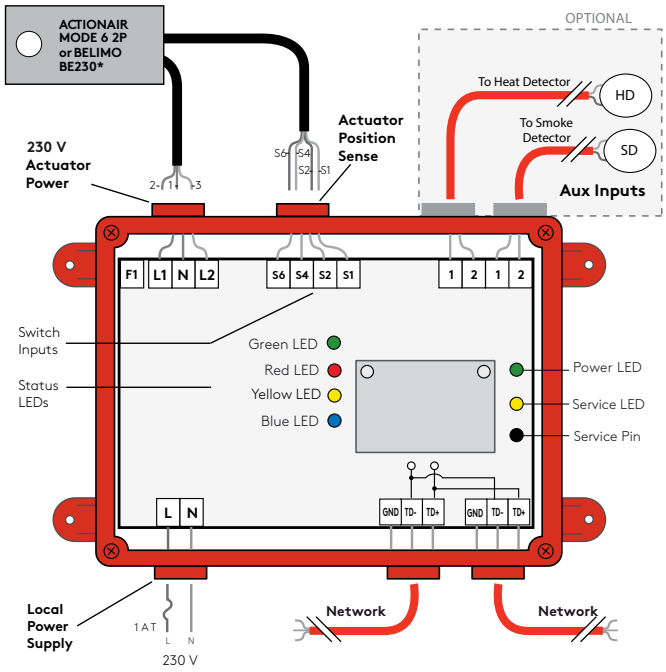
SDI-M/FT 230 V



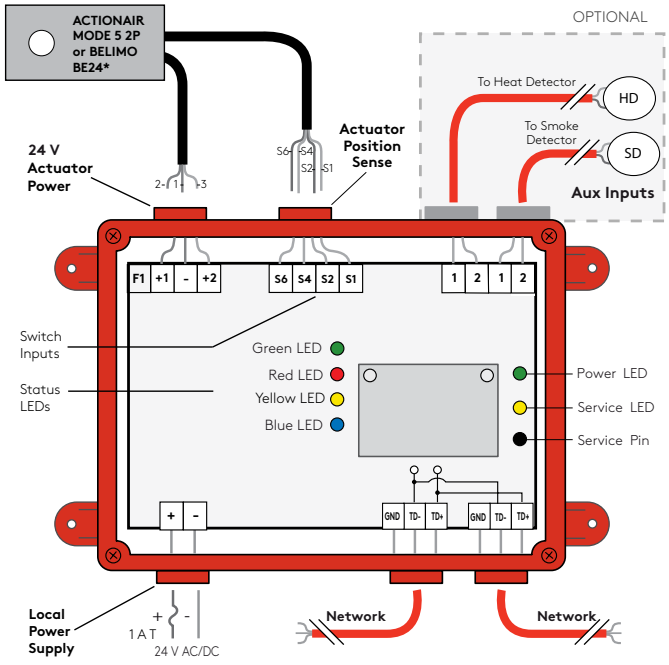
* Actuator Example

Figure 7. SDI-M/FT 230V Wiring.

Status LEDs		
	Description	Function
	Steady green on	Open
	Steady red on	Closed
	Green and red flashing	Travelling
	Yellow flashing	Fault
	One shot	Ping
	Steady green, red, yellow, and blue on	Offline
	Red flashing	Save mode
Service LED		
	Yellow, flashes for 5 seconds	Wink

Table 1. Two-Position Damper Interface (230 V/24 V) Status LEDs.

SDI-M/FT 24 V



* Actuator Example

Figure 8. SDI-M/FT 24 V Wiring.

NOTE:

The Interface **must be** wired as shown in the Wiring Diagrams.

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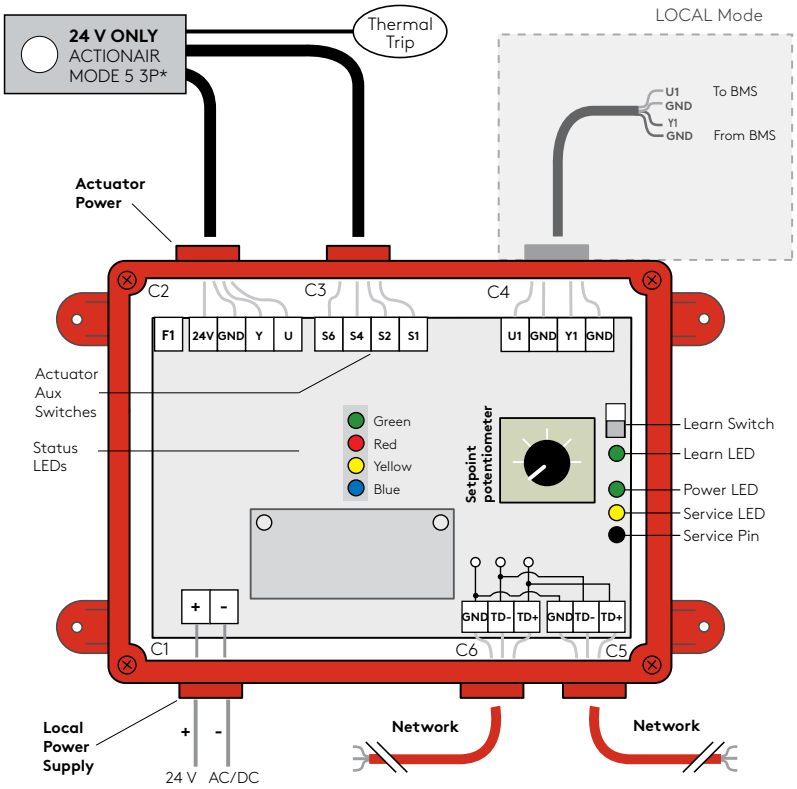
Wiring Diagrams and LED Behaviour: Modulating Damper Interface

3P-SFDI-M/FT 24 V: Wiring



* Actuator Example

Figure 9. 3P-SFDI-M/FT 24 V Wiring.

Connector	Description
C1-1	24 V +
C1-2	24 V -

Table 2. C1 Connector - Power in.

Connector	Description
C2-4	Actuator 24 V
C2-3	Actuator GND
C2-2	Actuator Y signal
C2-1	Actuator U signal

Table 3. C2 Connector - Actuator Drive.

Connector	Description
C3-4	S6
C3-3	S4
C3-2	S2
C3-1	S1

Table 4. C3 Connector - Actuator Auxiliary Switches.

Connector	Description
C4-4	U1 to BMS
C4-3	GND to BMS
C4-2	Y1 from BMS
C4-1	GND from BMS

Table 5. C4 Connector - Local Control.

Connector	Description
C5-1	GND
C5-2	Network
C5-3	Network

Table 6. C5 Connector - Network.

Connector	Description
C6-1	GND
C6-2	Network
C6-3	Network

Table 7. C6 Connector - Network.

NOTE:

The Interface **must be** wired as shown in the Wiring Diagrams.

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3P-SFDI-M/FT 24 V: Auto Mode

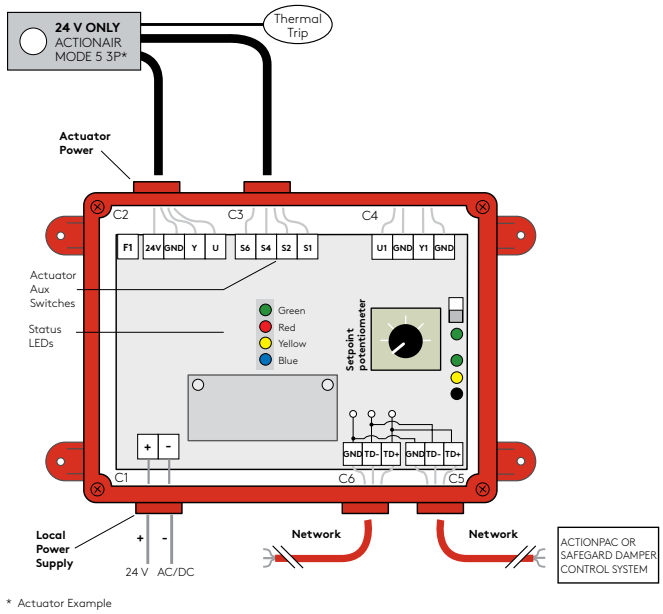

Figure 10. 3P-SFDI-M/FT 24 V Auto Mode.

See p 4 for the description of the auto mode.

Status LEDs		
	Description	Function
	Steady green on	Open
	Steady red on	Closed
	Steady green and red on	Balanced
	Green and red flashing	Travelling
	Yellow flashing	Fault
	Blue, one shot	Ping
	Steady green, red, yellow, and blue on	Offline
	Yellow flashing	Save mode
Service LED		
	Yellow, flashes for 5 seconds	Wink

Table 8. 3P-SFDI-M/FT 24 V Auto Mode LEDs.

NOTE:

The Interface **must be** wired as shown in the Wiring Diagrams.

3P-SFDI-M/FT 24 V: Learn Mode

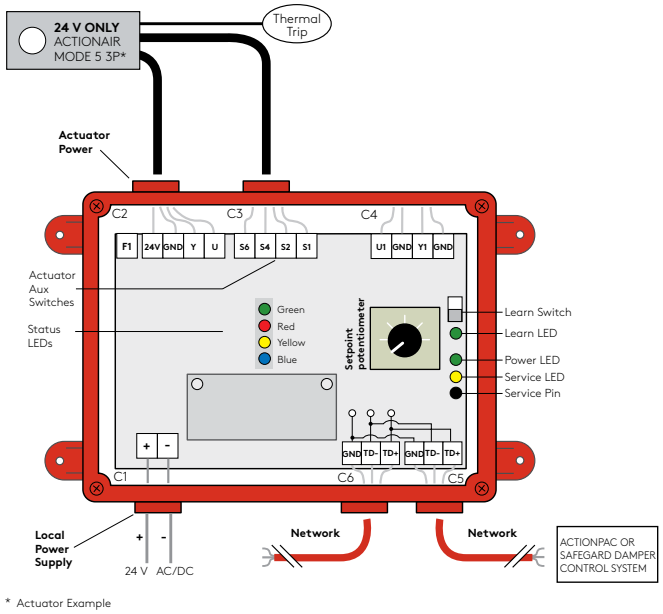

Figure 11. 3P-SFDI-M/FT 24 V Learn Mode.

See p 4 for the description of the learn mode.

Status LEDs		
	Description	Function
	Green and red flashing	Learn

Table 9. 3P-SFDI-M-24 Learn Mode LEDs.

Set up the Learn mode:

1. Turn on the Learn Switch
2. Rotate the potentiometer to 0% to fully close the damper.
3. Use the potentiometer to balance the damper in the required position - the Learn LED illuminates when the actuator is within 2° of the setpoint.
4. Hold the Service Pin for 1 sec.
5. Turn off the Learn Switch.

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3P-SFDI-M/FT 24 V: Local Mode

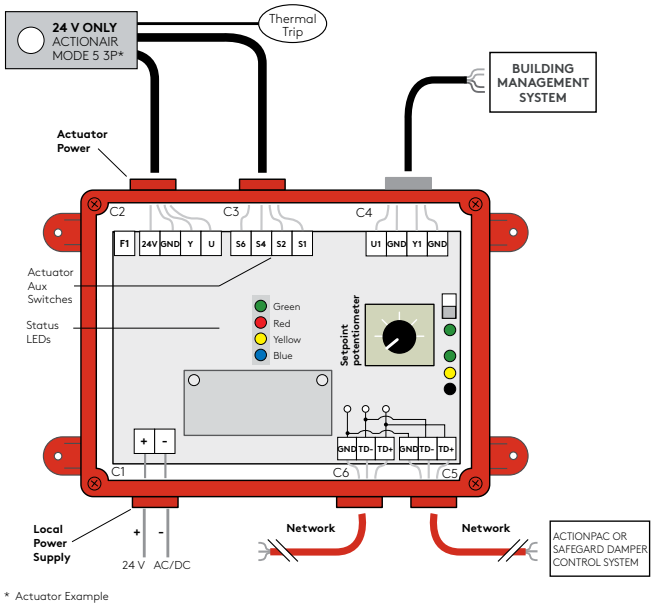

Figure 12. 3P-SFDI-M/FT 24 V Local Mode.

See p 4 for the description of the local mode.

Status LEDs		
	Description	Function
	Yellow flashing	Fault
	Steady yellow on	Local

Table 10. 3P-SFDI-M/FT 24 V Local Mode LEDs.

NOTE:

- The Interface **must be** wired as shown in the Wiring Diagrams.
- Local mode does not apply to drive-open/drive-closed (DODC) actuators.

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3P-SFDI-M/FT 230 V Supply Driving 24 V Actuator

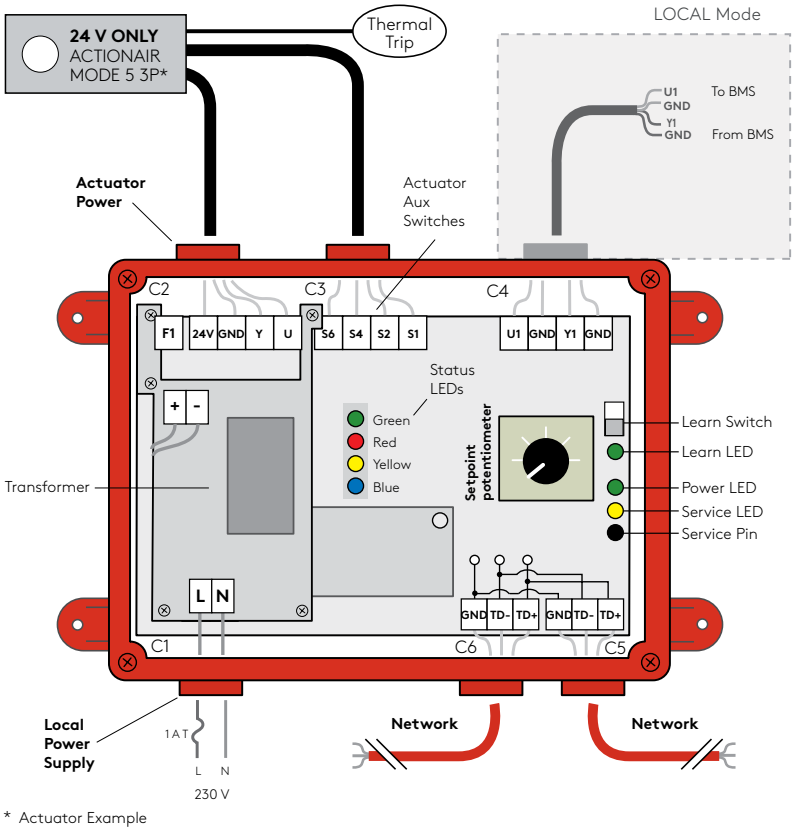

Figure 13. 3P-SFDI-M/FT 230 V Wiring.

NOTE:

If 230 V power supply is required, we supply the board with a transformer for the incoming supply.

All advice for 3P-SFDI-M/FT 24 V also applicable for 3P-SFDI-M/FT 230 V.

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Field Network Wiring (M/FT)

Wire Smoke / Fire Damper Interfaces (SFDIs) on a dedicated power supply.

NOTICE

This is a life safety smoke / fire damper control and monitoring system, and the network cables are fundamental to the stable and reliable operation of the system.

Recommended cables

- Prysmian (Pirelli) FP200 Gold, 2 Core + Earth, 1.5mm^2
- Prysmian (Pirelli) FP Plus, 2 Core + Earth, 1.5mm^2
- Firetuf FT30, 2 Core + Earth, 1.5mm^2
- Firetuf FT120, 2 Core + Earth, 1.5mm^2
- AEI Firetech Enhanced, 2 Core + Earth, 1.5mm^2

Consult Safegard Systems Ltd if adding to an existing system or for non-fire resistant cable options.

Cable rules

- Do not mix the network cable size or manufacturer on a single network.
- If you are extending the network, use the same cable type as the original cable.
- Wire all devices in daisy chain radial circuit.
- Do not run network cables alongside any mains voltage and / or high frequency sources.
- If Smoke / Fire Damper Interfaces are wired in areas of high voltage, for example plant rooms or lift lobbies, install network cable in a dedicated conduit.
- Maximum total wire length per a cable segment must not exceed 1000 m.

Field networking - example

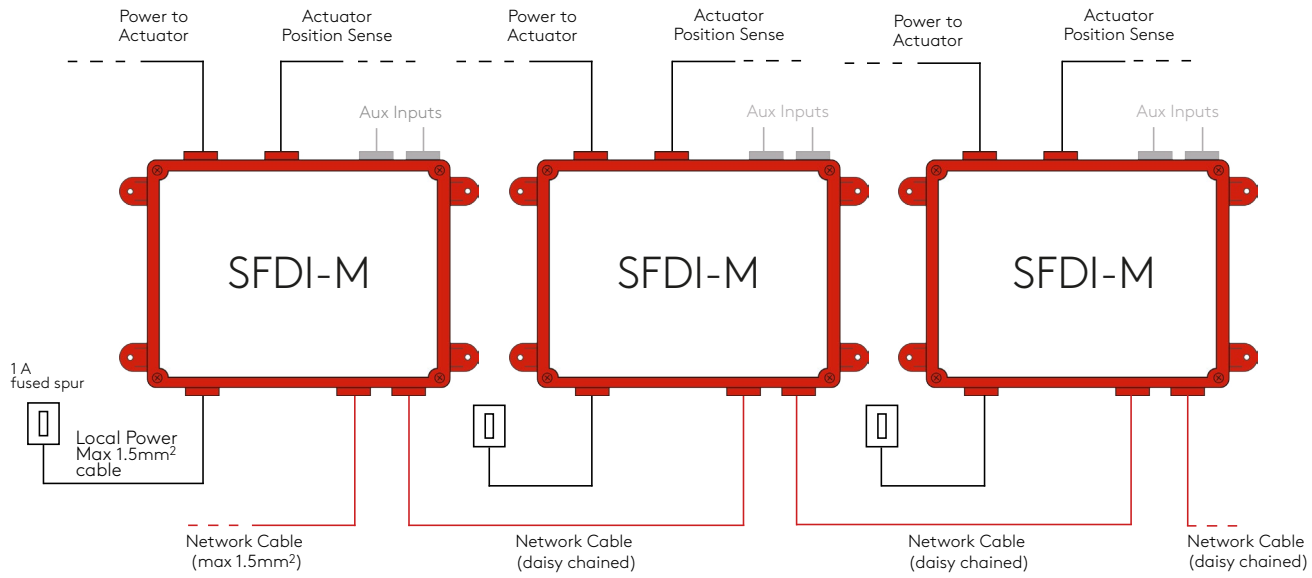

Figure 14. Field Networking Diagram Example - SFDI-Ms.

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Maintenance

Replacement fuse

Once the Damper Interface is commissioned, the customer or the person authorised by customer can replace the fuse if needed.

Two-Position Smoke Fire Damper Interface
(24 V or 230 V)

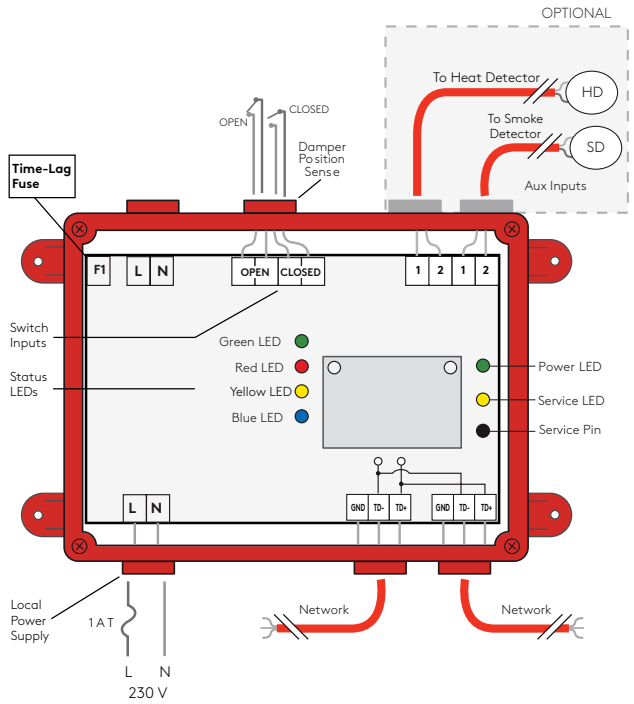
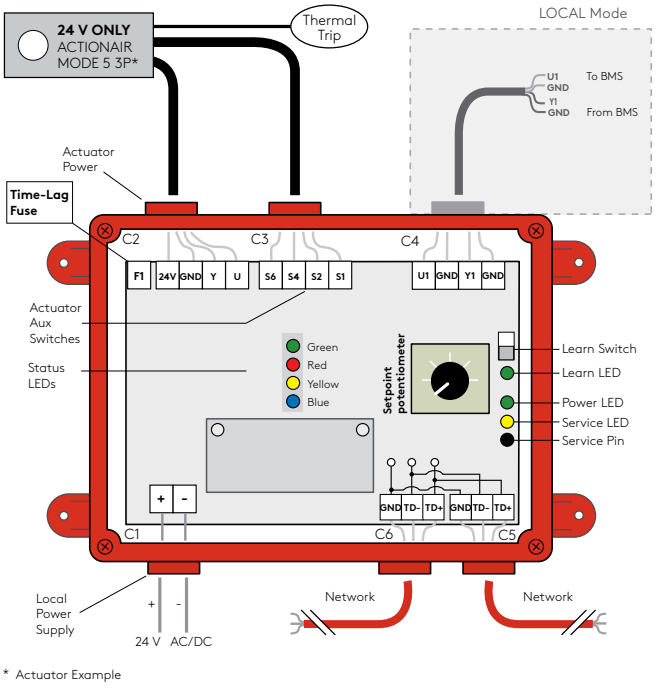


Figure 15. FDI-MIFT 230 V Fuse.

24 V AC / DC - 1 Fuse	230 V AC - 1 Fuse
5 x 20 mm time-lag fuse, 2 A rated, e. g. Littelfuse 215 series	5 x 20 mm time-lag fuse, 1 A rated, e. g. Littelfuse 215 series

All Two-Position SFDIs have the same fuse placement.

Modulating Smoke Fire Damper Interface
(24 V or 230 V Supply)



* Actuator Example

Figure 16. 3P-SFDI-MIFT 24 V Fuse.

24 V, 230 V Supply - 1 Fuse
5 x 20 mm time-lag fuse, 2 A rated, e. g. Littelfuse 215 series

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