9377-FB3-Px

MTL Compact Fieldbus Barrier Module 12 spur

- **For FOUNDATION™ fieldbus networks in hazardous areas**
- **Mount in Zone 1 (gas) with spurs connected into Zone 0**
- **Easy mounting via DIN-rail or panel fixing**
- **Compatible with FISCO and Entity-certified fieldbus instruments**
- **Compact, modular construction**
- **Optional, integrated surge protection for trunk and spurs**

(Surge protectors shown are not included as standard)

The 9377-FB3-Px Fieldbus Barrier module is a further enhancement of the established 937x product range, and provides a compact and economic solution for Foundation fieldbus networks in hazardous area applications. The field-mounted barrier receives power and FOUNDATION™ fieldbus H1 communications via a non-intrinsically safe trunk and converts this to a number of galvanically isolated, intrinsically safe, spur connections.

The trunk terminals are implemented as increased safety (Ex e) and the spur terminals as intrinsically safe (Ex ia) for connection to IS fieldbus instruments in IIC, Zone 0 hazardous areas. The spur connections are compatible with both FISCO and Entity-certified field instruments.

For Zone 1 hazardous area mounting the fieldbus barrier must be mounted in a suitable, increased safety, (Ex e) enclosure that will segregate spur and trunk cabling in accordance with hazardous area requirements. Complete, pre-assembled enclosure systems are also available-consult Eaton. The barrier module has a separate compartment, which contains increased safety (Ex e) trunk wiring terminals where the incoming trunk wiring terminates. This compartment has a protective cover to deter interference, and carries a warning to the user not to work on trunk wiring without first isolating the power. A fieldbus terminator is included; this can be disabled where the fieldbus trunk is extended to a second Fieldbus Barrier Module.

A single barrier module provides 12 spur connections. Each spur is short circuit protected, so that other devices continue to operate in the presence of field wiring faults.

Surge protection can also be added on the spur connections by the use of individual Spur Surge protection modules (part no. FS32). Surge protection of the fieldbus trunk connection can be provided using protector type TP32-I-NDI; consult Eaton MTL for pre-engineered enclosure systems containing appropriate electrical and mechanical hardware.

The 9377-FB3-Px fieldbus barrier module is bus-powered and requires no additional power supply in the field. When used with a fieldbus host control system, power for the trunk must be provided only by a supply conforming to IEC 61158-2, e.g. MTL F800 or MTL 918x-x2 range of redundant power supplies.

The module has four mounting lugs with holes, enabling it to be mounted to a suitable mounting plate inside an enclosure using either bolts or fixed studs. Alternatively, it has built-in mounting clips to permit it to be mounted onto 'top-hat' DIN rail, 35mm x 7.5mm, complying with EN60715 or similar local standards.

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SPECIFICATION

SPURS

No. of spurs	12
Total current per spur	0 - 32mA
Total current limit per spur (max.)	45mA
Spur short circuit current (max.)	4.5mA
Total current available (all spurs)	300mA
Spur voltage @ 20°C	≥ 10V @ 40mA
Open circuit voltage	12V min

Number of field devices
1 per spur

Maximum spur length
120m (depending on the number of spurs per fieldbus segment)

Galvanic isolation (to EN 60079-11)
Trunk to spurs: 1.5kV (test voltage)
Spur to spur: no isolation

Spur surge protection
Plug-in module (part number FS32) - see separate data sheet

Trunk surge protection
Optional surge protector (part number TP32) - see separate data sheet

TRUNK

Data rate
31.25kBaud

Data transmission between trunk and spurs
passive, no repeater function

Number of trunk connections
2 (in & out), internally connected

Maximum number of 937x-FB3-Px modules per segment
2

Input voltage range (trunk)
16 - 32Vdc

Voltage drop (trunk in to trunk out)
0V

Maximum rated current (trunk in to trunk out)
2A

Low voltage monitoring
Input voltage < 16V, spurs de-energized

DC current consumption for, mA

		937x-FB3 @ 16V		
		@16V	@24V	@32V
No load on each spur	typ.	68mA	48mA	43mA
	max.	75mA	56mA	51mA
1 spur @ 20mA	typ.	93mA	67mA	53mA
	max.	100mA	75mA	60mA
All spurs @ 20mA	typ.	355mA	224mA	170mA
	max.	360mA	230mA	175mA
All spurs @ 20mA 1 short circuit	typ.	333mA	213mA	162mA
	max.	340mA	220mA	165mA
Max. Load 300mA Total	typ.	392mA	258mA	210mA
	max.	410mA	270mA	215mA

Fieldbus terminator
Provides 100Ω + 1µF according to IEC 61158-2, with enable/disable feature

Reverse polarity protection on trunk
Yes

ELECTRICAL CONNECTIONS

Trunk wiring terminals
Type: 3 - way, pluggable, black, Ex eb certified

Cable types and capacity	Screw cage clamp - mm²	Spring cage clamp - mm²
Rigid cable	0.2 to 2.5	0.2 to 2.5
Flexible cable	0.2 to 2.5	0.2 to 2.5

Spur field wiring terminals
Type: 3-way, pluggable, blue

Cable types and capacity	Screw cage clamp - mm²	Spring cage clamp - mm²
Rigid cable	0.2 to 2.5	0.2 to 2.5
Flexible cable	0.25 to 2.5	0.25 to 2.5

Grounding of cable screens (trunk & spurs)
(Configured with links in the Trunk Terminal area)

Options		Trunk	Spurs
1	Single point grounding	Grounded at host	Trunk & spur screens joined
2	Local grounding of spurs	Grounded at host	Grounded at field enclosure

BARRIER LED INDICATORS

Trunk Power (PWR)

	ON	OFF
Green	Supply voltage > 16V, internal supply healthy	Supply voltage < 16V or no supply

Spurs (tri-colour, per spur)

Colour	Steady	Flashing
Green	Channel powering spur - spur OK	Channel powering spur - spur open
Red	Internal fault	N.A.
Yellow	Short to shield	Short circuit or current limit
Off	Supply < 16V or no supply	N.A.

PHYSICAL NETWORKS

IEC61158-2
FOUNDATION™ fieldbus H1

Profile type (according to FF-816)
Type 163 (isolated device coupler)
Designed to comply with FF-846

HAZARDOUS AREA APPROVALS

Location of equipment
Safe area or Zone 1 IIC T4 or Zone 21 hazardous area, when mounted in a suitable enclosure

Location of connected spur equipment
Safe area or Zone 0 IIC hazardous area

Certification codes
Ⓔx II 2(1) G
Ex eb ib mb [ia Ga] IIC T4 Gb

Certificate numbers
Baseefa 19 ATEX0024U
IECEx BAS 19.0017U

Safety description (spurs)

U_o	=	16.4V
$I_{o\ peak}$	=	247.9mA
$I_{o\ continuous}$	=	107.1mA
P_o	=	1.02W
C_i	=	0
L_i	=	0

Spurs in accordance with FISCO specification

ENVIRONMENTAL

Ambient temperature

Operation	Storage
–20°C ... +65°C	–40°C ... +75°C

Relative humidity
< 95%, non-condensing

Electromagnetic compatibility
EN 61326 – 1:2013
NAMUR NE 21

Shock & Vibration

Vibration:
BS EN 60068-2-6: 2008 Test Fc: 1g
BS EN 60068-2-64: 2008 Test Fh

Shock:
BS EN 60068-2-27: 2009 Test Ea: 15g

ORDERING INFORMATION

Order as:

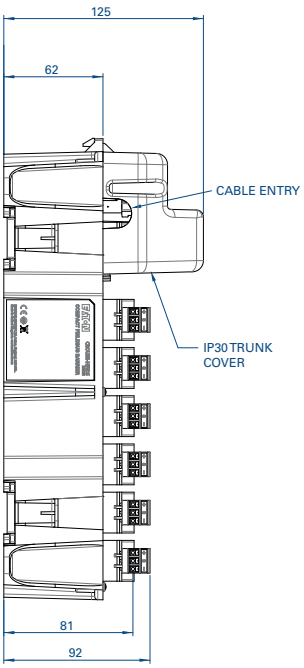
9377-FB3-PS
12-spur Fieldbus Barrier module, screw terminals

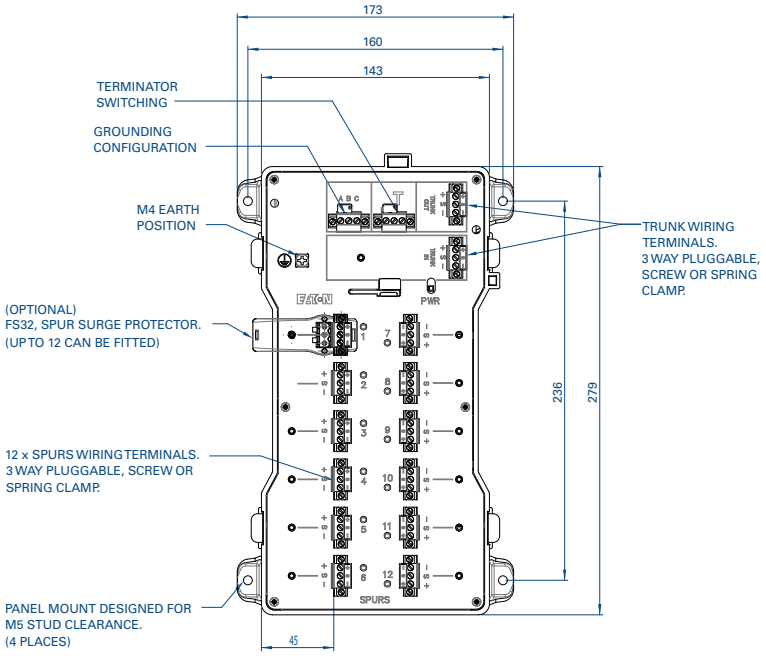
9377-FB3-PC
12-spur Fieldbus Barrier module, spring clamp terminals

ASSOCIATED LITERATURE

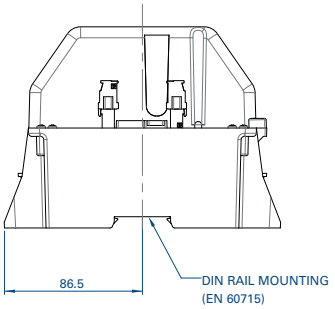
Instruction Manual - stainless steel enclosures **INM9373-FB3-Px-SS**

DIMENSIONS





VIEW WITH IP30 TRUNK COVER OMMITED



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