

# FP32

Din rail mounting, 20kA surge protection for Fieldbus systems

- **DIN rail mounting for easy installation and automatic earthing (grounding)**
- **20kA maximum surge current per line**
- **Plug connectors for quick and easy connection or rewiring**
- **Meets the requirements of IEC 61158-2:2000 for FOUNDATION FIELDBUS**
- **10 year product warranty**



**The FP32 surge protection device** prevents surges and transient over-voltages conducted along the Trunk or Spurs of fieldbus systems from damaging the associated electronics such as terminators, spur blocks and the bus control equipment. The FP32 is designed to be used at both ends of the Trunk where a Spur is connected to safely divert any surges to earth.

**The multi-stage hybrid surge protection network** at the heart of the FP32 uses a combination of solid state electronics and a gas filled discharge tube (GDT) to provide surge protection up to 20kA. This impressive surge protection circuit is designed to exhibit exceptionally low line resistance and adds only a tiny voltage drop to the bus. As a result, no matter how many FP32 devices are connected to a Trunk or Spur the system will still be able to support its full 32 transmitters as specified by IEC 61158-2.

In operation the **FP32 device does not adversely effect the performance or operation of the fieldbus** or connected equipment, it allows signals to pass with very little attenuation while diverting surge currents safely to earth (ground) and clamping output voltages to safe levels.

**Fully automatic in operation**, FP32 devices react immediately to make sure that equipment is never exposed to damaging surges between lines or the lines and earth (ground). Reacting instantaneously the FP32 redirects surges safely to earth and then resets automatically.

**Din rail mounting and a small footprint** allow the FP32 to be conveniently located near terminators and spur blocks while plug connectors for Trunk / spur cables and the earth (ground)

& shield of the cable make removing a device or re-patching a simple operation.

**A 10 Year 'No Fuss' warranty** is available as standard for the FP32, so if a correctly connected device should fail for any reason, simply return it for a free replacement.

**The FP32 meets IEC 61158-2:2000** for 31.25kB/s systems such as FOUNDATION Fieldbus, PROFIBUS-PA and WorldFIP.

# Specification

All figures typical at 77°F (25°C) unless otherwise stated

## Maximum surge current

20kA (8/20µs waveform) per line

## Leakage current

<1mA @ working voltage

## Working voltage

±32Vdc

## Maximum continuous operating voltage

±36V peak normal mode

±225V peak common mode

## Limiting voltage

62V @ 3kA 8/20µs

## Line resistance

0.5Ω per line

## Capacitance

Line – Line – 40pF

Line – Earth (Ground) – 80pF

## Attenuation

-1dB – 7kHz-75mHz

## Ambient temperature limits

-40°F – +158°F (-40°C – +70°C) – working

-40°F – +176°F (-40°C – +80°C) – storage

## Humidity

5% to 95% RH (non-condensing)

## Electrical connections

Plug/header screw terminal strip

## Weight

5.0 oz (140g approx)

## Dimensions

See figure 1

## EMC compliance

BS EN 60950:1992

BS EN 61000-6-2:1999

BS EN 61010-1:1993

## Electrical Safety

ATEX II 3 G

DOC #MTL02ATEX0032X

Model		FP32
Nominal voltage	$U_n$	32V
Rated voltage (MCOV)	$U_c$	36V
Nominal current	$I_n$	1.6A
Nominal discharge current (8/20µs)	$I_{sn}$	3kA
Max discharge current (8/20µs)	$I_{max}$	20kA
Lightning impulse current (10/350µs)	$I_{imp}$	2.5kA
Residual voltage @ $I_{sn}$	$U_p$	62V
Voltage protection level @ 1kV/µs	$U_p$	<45V
Bandwidth	$f_G$	73MHz
Capitance	C	40pF
Series resistance	R	0.5
Operating Temperature Range		-40°C to +70°C
Category tested		A2, B2, C1, C2, C3, D1
Overstressed fault mode $i_n=3kA$		22kA
Impulse durability (8/20µs)		10kA
Degree of protection		IP20
AC durability		1A <sub>rms</sub> , 5T
Service conditions		80kPa - 160kPa 5% - 95% RH

Tested in accordance to IEC 61643-21

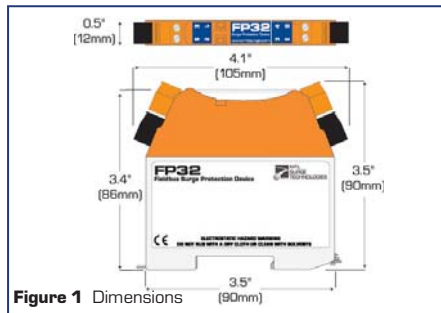


Figure 1 Dimensions

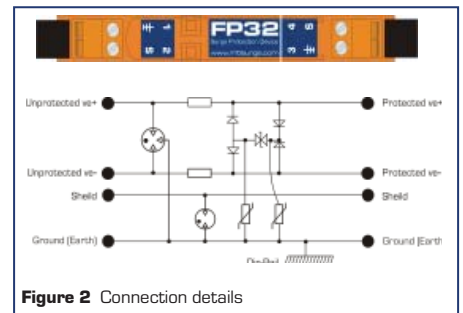


Figure 2 Connection details

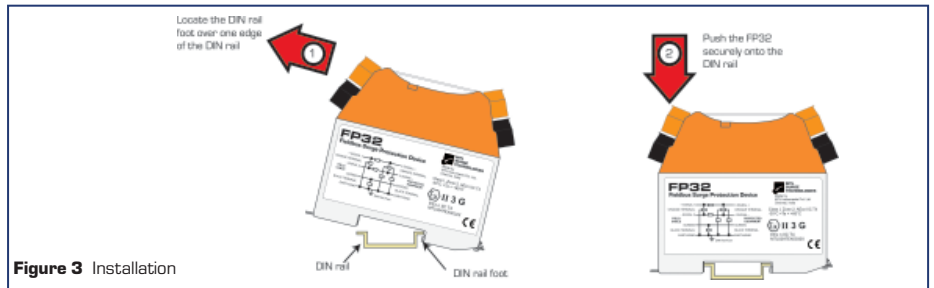


Figure 3 Installation

Note: In accordance with our policy of continuous improvement, we reserve the right to change the product's specification without notice

## Approvals

Standard/Authority	Certificate/File No.	Approved for	Product
ATEX Directive 94/9/EC FISCO (BASEEFA)	BASEEFA04ATEX0260X	EEx ia IIC T4 EEx ia IIB T3 (-40°C≤Ta≤70°C)	FP32
USA (FM)	3022293 Class Nos. 3600 (1998), 3610 (1999), 3611 (1999), 3615 (1989), 3810 incl. Supp 1 (1995-07 (1989-03), ANSI/NEMA 250 (1991), ISA-S12.0.01 (1999)	FP32 Intrinsically Safe: I/1/A-D, I/O/II C Non incandive: I/2/A-D, I/2/II C	
Canada (FM)	3025374 C22.2 No. 213, 142, 94, 157, 30 ANSI/NEMA 250 CAN/CSA-E79-0 CAN/CSA-E79-11	IS/I/1/ABCD I/O/Ex ia/IIC I/O/Ex ib/IIC NE/I/2/ABCD NE/I/2/IIC	FP32
India	Petroleum & Explosives Safety Organisation (PESO)	EEx ia IIB T3	FP32
Lloyd's Register	09/60014 Test Specification No. 1, 2002	Environmental Category ENV3	FP32

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