



9376-SP

Trunk Surge Protector

- For use with MTL's 9370-FB Series Fieldbus Barrier System for FOUNDATION™ fieldbus networks in hazardous areas
- Effective protection against adjacent lightning strikes and power-induced surges
- 10kA surge protection level
- $\pm 32\text{V}$ operating voltage range
- Transparent to fieldbus signals
- Fast reaction time
- 'Live pluggable' in Zone 1 hazardous areas without gas clearance



The **9376-SP Trunk Surge Protector** is designed for use in MTL's 9370-FB Series Fieldbus Barrier System. It prevents surges and transient over-voltages induced on the trunk of the fieldbus network from damaging the system's internal components such as the Fieldbus Barrier Module and Terminator. Designed specifically for installation on the Trunk Terminal Assembly inside the system enclosure, its pluggable construction allows it to be installed either during initial installation or later in the life of the apparatus.

The use of specially certified connectors allows the 9376-SP module to be removed and replaced in the Fieldbus Barrier enclosure in a Zone 1 hazardous area while the fieldbus trunk remains energised and without gas clearance procedures.

The 9376-SP's multi-stage hybrid surge protection network uses a combination of solid state electronics and a gas-filled discharge tube (GDT) to provide surge protection up to 10kA. It is completely transparent to the operation of the fieldbus,

and allows the signals to pass without attenuation while diverting surge currents safely to ground and clamping output voltages to safe levels.

Fully automatic in operation, the 9376-SP reacts immediately to make sure that the protected equipment is never exposed to damaging surges between the fieldbus lines or between the lines and ground. It resets automatically without manual intervention.

When combined with a similar performance device at the host end (e.g. MTL's FP32 surge protector), there is effective protection for equipment at both ends of the fieldbus trunk.

Devices are also available to provide surge protection for the intrinsically safe spurs of MTL's 9370-FB Fieldbus Barrier System - refer to product type FS32.

The 9376-SP meets IEC 61158-2 for 31.25kb/s systems such as FOUNDATION™ fieldbus and PROFIBUS-PA.

SPECIFICATION

Maximum surge current

10kA (8/20 μ s waveform) per line

Leakage current

<1mA @ working voltage

Working voltage

\pm 32Vdc

Maximum continuous operating voltage

\pm 32V peak normal mode

\pm 225V peak common mode

Limiting voltage

62V @ 3kA 8/20 μ s

Capacitance

Line – Line – 40pF

Line – Earth (Ground) – 80pF

Attenuation

-1dB – 7kHz to 7.5MHz

Electrical connections

Ex de subminiature plugs, compatible with sockets of Trunk

Terminal Assembly in 9370-FB Series Fieldbus Barrier Systems

ENVIRONMENTAL

Ambient temperature limits

-40°C to +75°C – working

-40°C to +85°C – storage

Relative humidity

5% to 95% RH (non-condensing)

EMC compliance

EN 61326-1:2006

Vibration

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

BS EN 60068-2-64: 1995 Test Fh: 1g

Shock

BS EN 60068-2-27: 1993 Test Ea: 15g

Ratings in accordance with IEC 61643-21

Nominal voltage	U_n	32V
Rated voltage (MCOV)	U_c	36V
Nominal current	I_n	1.6A
Nominal discharge current (8/20 μ s)	I_{sn}	3kA
Max discharge current (8/20 μ s)	I_{max}	10kA
Lightning impulse current (10/350 μ s)	I_{imp}	1.5kA
Residual voltage @ I_{sn}	U_p	62V
Voltage protection level @ 1kV/ μ s	U_p	<45V
Bandwidth	f_G	73MHz
Capacitance	C	40pF
Series resistance	R	0.5 Ω
Operating Temperature Range		-40°C to +75°C
Category tested		A2, B2, C1, C2, C3, D1
Overstressed fault mode ($I_n = 3kA$)		12kA
Impulse durability (8/20 μ s)		5kA
Degree of protection (when installed)		IP40
AC durability $1A_{rms}$,		5T
Service conditions 80kPa - 160kPa		5% - 95% RH

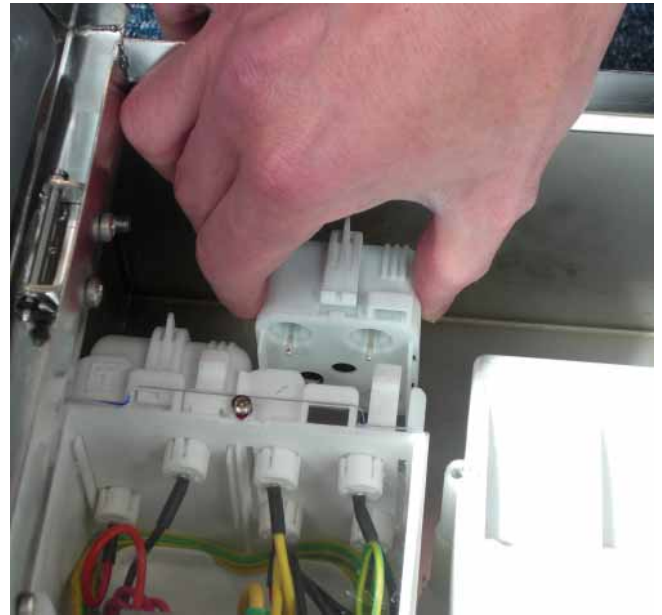


Figure 1: Fitting the 9376-SP module to the Trunk Termination Assembly (TTA) inside the system enclosure

HAZARDOUS AREA APPROVALS

Electrical Safety

EN 61010-1:2001

Certification code

Baseefa 09ATEX0324U

Ⓔ II 2G Ex de mb IIC T4 Gb

IECEx BAS10.0005U

MECHANICAL

Weight

165g approx.

Dimensions

See diagram

The given data is only intended as a product description and should not be regarded as a legal warranty of properties or guarantee. In the interest of further technical developments, we reserve the right to make design changes.



EUROPE (EMEA): +44 (0)1582 723633
enquiry@mtl-inst.com

THE AMERICAS: +1 800 835 7075
csinfo@mtl-inst.com

ASIA-PACIFIC: +65 6 487 7887
sales@mtlsing.com.sg

EPS9376 Rev1 010410

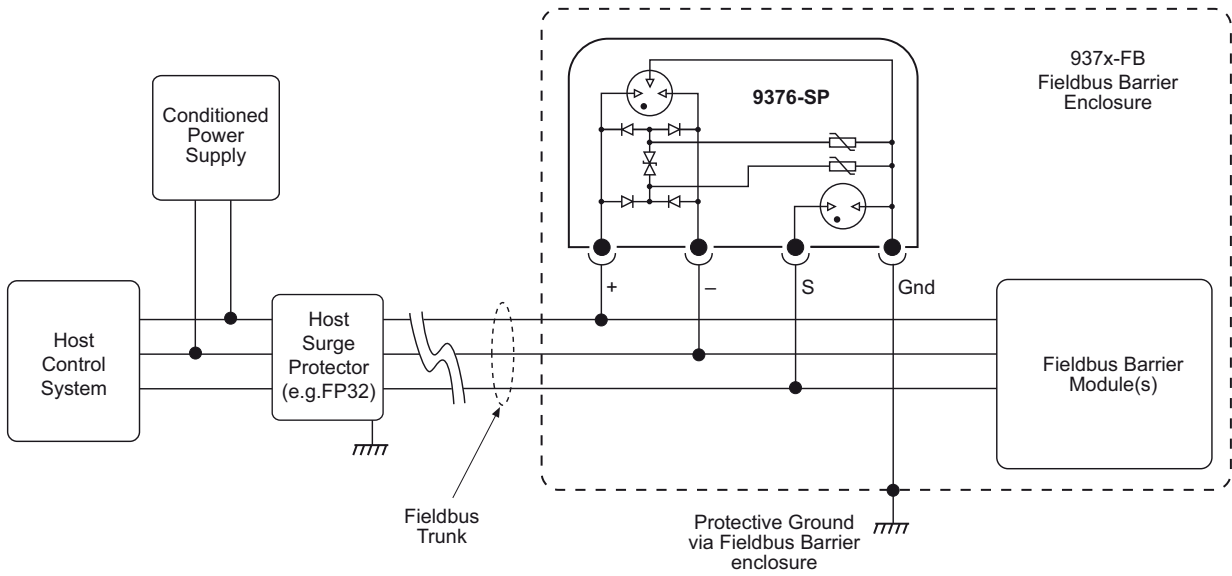
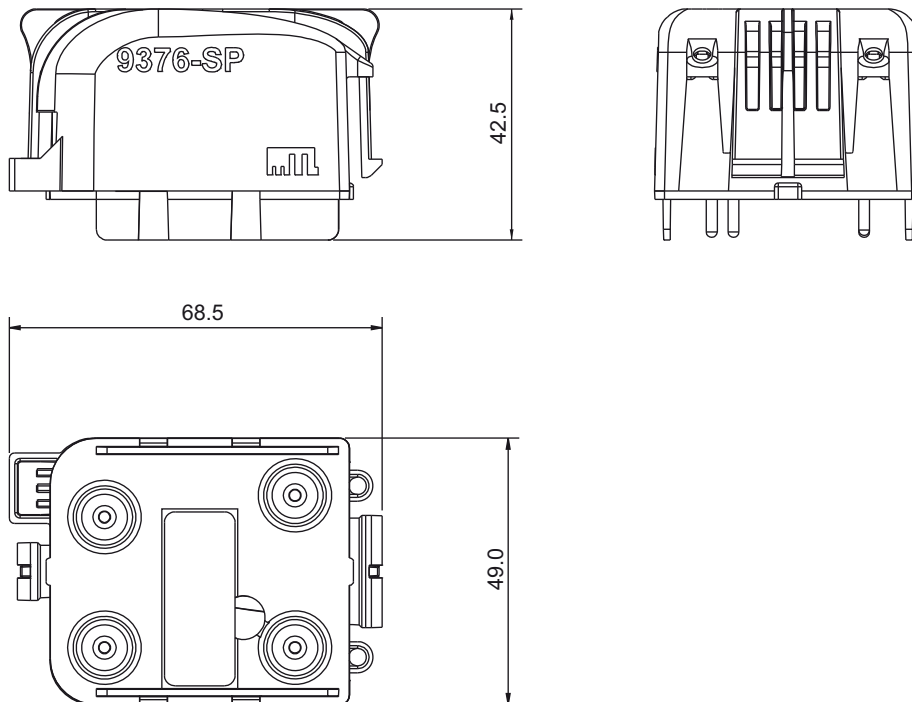


Figure 2: Application of the 9376-SP in the 937x-FB Fieldbus Barrier Enclosure

DIMENSIONS (mm)



The given data is only intended as a product description and should not be regarded as a legal warranty of properties or guarantee. In the interest of further technical developments, we reserve the right to make design changes.



EUROPE (EMEA): +44 (0)1582 723633
enquiry@mtl-inst.com

THE AMERICAS: +1 800 835 7075
csinfo@mtl-inst.com

ASIA-PACIFIC: +65 6 487 7887
sales@mtlsing.com.sg

EPS9376 Rev1 010410