

Features

- Protection module for 1 signal line
- Nominal voltage 1 V DC
- Protection module for grounded signal lines
- Max. surge current (8/20 μs) 10 kA
- Uninterruptable operation (auto reset)
- Status indication output
- Mounting on base module, pluggable
- Up to SIL 3 acc. to IEC 61508

Function

The protection module limits induced transients of different causes, e. g. lightning or switching operations. The limitation is achieved by diverting the current to earth and limiting the signal circuit voltage during the duration of the overvoltage pulse.

The device has LEDs for the status indication. If required, this status is transferred to the corresponding function module via a status indication output.

The device is used in applications where more than 2 signal lines have to be protected, e. g. in applications with 3-wire resistance thermometers or 4-/6-wire measuring bridges.

The device is HART transparent.

The device is inserted onto the base module and forms the surge protection barrier together with the base module.

The device can be replaced without tools by a locking lever.

Assembly

Front view

Connection
Status indication output



LED red:
Fault

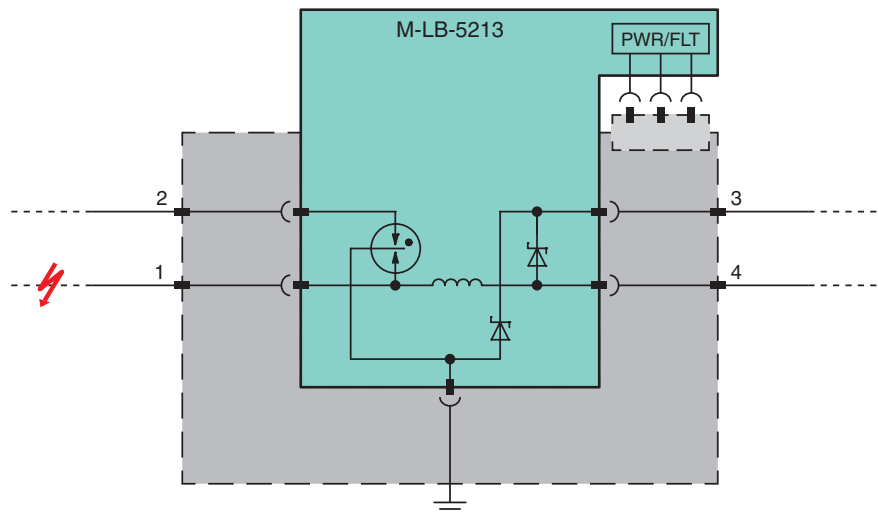
LED yellow:
Maintenance

LED green:
Power supply



SIL 3


Connection



Zone 2

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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

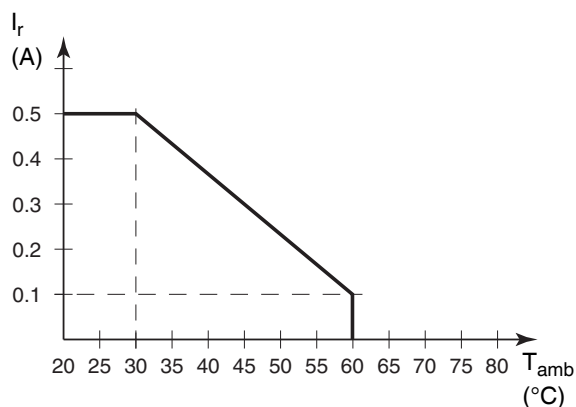
General specifications	
Number of protected signal lines	1
Topology	grounded
Functional safety related parameters	
Safety Integrity Level (SIL)	SIL 3
Supply	
Connection	via Universal Power Rail M-UPR-03-S
Nominal voltage	see power feed module M-LB-5300
Current	≤ 8 mA
Electrical specifications	
Connection	protected area: terminal 4 unprotected area: terminals 1, 3
Rated current I_r	500 mA , restrictions see derating characteristics
Leakage current	< 5 μ A x (number of used modules - 1) at 1 V and 25 °C (77 °F) . line-line
Nominal voltage	1 V DC
Maximum continuous operating voltage U_c	6 V DC
Series resistance	≤ 0.5 Ω per line at 25 °C (77 °F)
Impulse rating	1 kV/0.5 kA (category C1) 10 kV/5 kA (category C2) 1 kA (category D1)
Impulse discharge current (10/350 μ s) I_{imp}	1 kA per line (2x)
Nominal discharge current (8/20 μ s) I_n	5 kA per line (10x)
Rated surge current (8/20 μ s) I_{SM}	10 kA per line (1x)
Total discharge current (8/20 μ s) I_{total}	10 kA (1x)
Voltage protection level U_p	≤ 22 V line-line for nominal discharge current I_n ≤ 31 V line-earth for nominal discharge current I_n
Impulse reset time	< 500 ms
Insertion loss	≤ 0.05 dB, at 0 ... 4 kHz, in 600 Ω -System ≤ 3 dB, at 0 ... 350 kHz, in 100 Ω -System
Output	
Additional functions	
Status indication	fault and maintenance signal via Universal Power Rail M-UPR-03-S
Galvanic isolation	
Signal lines/fault indication output	reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff}
Signal lines/power supply	reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff}
Indicators/settings	
Display elements	LED PWR (power supply), green LED LED FLT (fault signal), red LED LED CHK (maintenance signal), yellow LED
Directive conformity	
Electromagnetic compatibility Directive 2014/30/EU	EN 61326-1:2013 (industrial locations)
Conformity	
Degree of protection	IEC 60529:2013
Functional safety	IEC/EN 61508:2010
Surge protective devices for low voltage	EN 61643-21:2001+A1:2009+A2:2013 IEC 61643-21:2001+A1:2008+A2:2012
Ambient conditions	
Ambient temperature	-40 ... 60 °C (-40 ... 140 °F) Observe the temperature range limited by derating, see section derating.
Storage temperature	-40 ... 85 °C (-40 ... 185 °F)
Relative humidity	max. 95 % , without condensation
Mechanical specifications	
Degree of protection	IP20
Mass	approx. 20 g
Dimensions	6.2 x 77 x 79 mm
Mounting	pluggable in base module for mounting on 35 mm DIN mounting rail
Data for application in connection with hazardous areas	
Certificate	BVS 17 ATEX E 070 X
Marking	 II 3G Ex ec IIC T4 Gc
Directive conformity Directive 2014/34/EU	EN 60079-0:2012+A11:2013 , EN 60079-7:2015
International approvals	

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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

IECEX approval	
IECEX certificate	IECEX BVS 17.0061X
IECEX marking	Ex ec IIC T4 Gc
General information	
Supplementary information	Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com .
Accessories	
Designation	system components: - base module with screw terminals M-LB-5000 - base module with spring terminals M-LB-5000.SP - power feed module M-LB-5300 - fault status module M-LB-5400 - maintenance status module M-LB-5500 - universal power rail M-UPR-03-S - place holder module M-LB-5900 - insulation spacer M-UPR-I

Derating of the Rated Current



In the case of a short circuit, the rated current must not be exceeded.