Устройства защиты сигнальных линий

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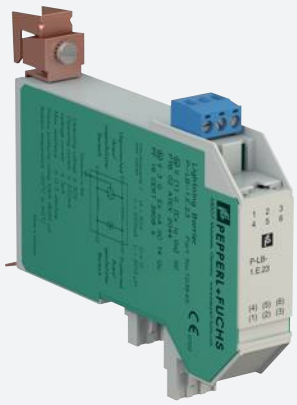


Surge Protection Barrier

P-LB-1.E.23

- 1-channel
- Plugs directly in to field side of KF modules
- Analog or digital signal inputs
- Surge protection up to 10 kA
- Protects leads 2 and 3 of KF modules
- Uninterruptable operation (auto reset)
- Up to SIL 3 acc. to IEC/EN 61508

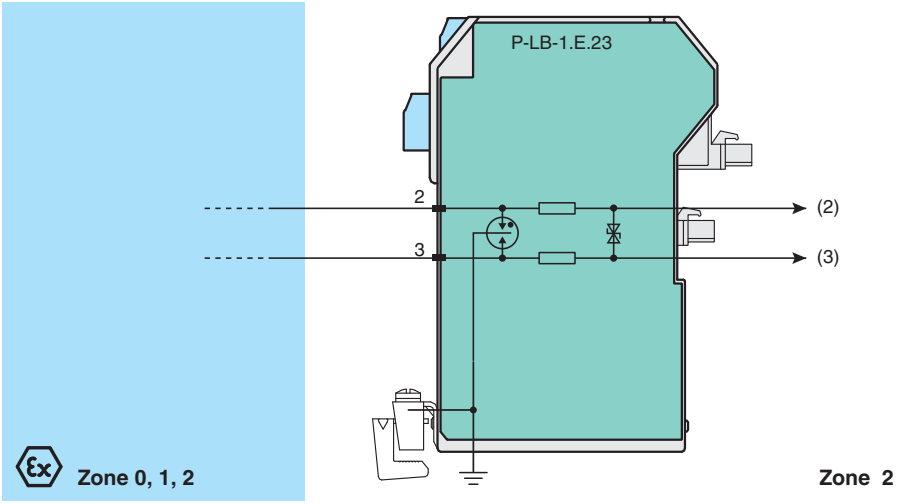
SIL 3

Function

This Surge Protection Barrier is designed for use with K-System (KF modules).
By simply snapping the barriers into a standard KF module, the modules are safely protected against voltage surges of different origin (e. g. lightning stroke, switching impulse, etc.). This is achieved by diverting the transient current to ground and limiting the signal line voltage to a safe level for the duration of the surge.
The end digits of the model designation correspond to the protected terminals of the respective KF module.
.com.

Note: Surge Protection Barriers must always be connected to a solid and effective ground and be at the same equipotential level as the instrument it is protecting. The ground system must comply with all applicable regulations.

Connection



Technical Data

General specifications		
Number of protected signal lines		2
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Signal lines		
Connection		terminals 2, 3
Rated voltage	U_B	max. 30 V
Rated current	I_B	max. 250 mA

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103645_eng.pdf

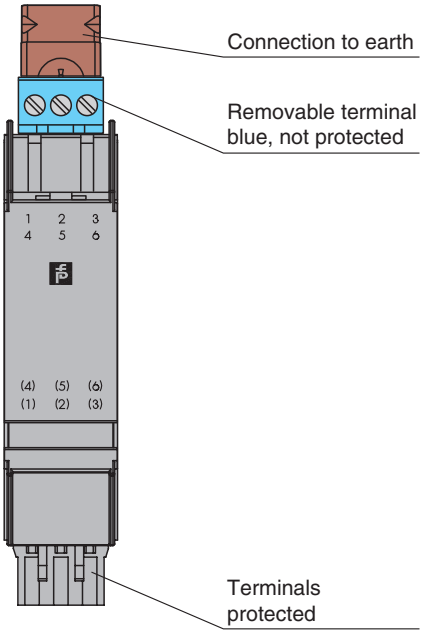
Technical Data

Leakage current		max. 5 µA
On-state voltage		max. 45 V
Ground insulation		max. 500 V breakdown voltage
Conformity		
Degree of protection		IEC 60529:2001
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Mechanical specifications		
Degree of protection		IP20
Mass		approx. 70 g
Dimensions		20 x 104 x 127 mm (0.8 x 4.1 x 5 inch) (W x H x D)
Mounting		on the KF module
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 02 ATEX 2044
Marking		⟨Ex⟩ II (1)G [Ex ia Ga] IIC
Voltage	U_i	30 V
Current	I_i	250 mA
Internal capacitance	C_i	negligible
Internal inductance	L_i	200 µH
Maximum leakage current		10 kA (8/20 µs) per conductor
Nominal response time		
Symmetrical		1 ns
Asymmetric		100 ns
Series resistor		≤ 0.5 Ω per wire
Bandwidth		≥ 40 kHz
Certificate		PF 16 CERT 3908 X
Marking		⟨Ex⟩ II 3G Ex nA IIC T4 Gc
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013 , EN 60079-11:2012 , EN 60079-15:2010
International approvals		
IECEx approval		
IECEx certificate		IECEx BAS 12.0123
IECEx marking		[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103645_eng.pdf

Assembly

Front view



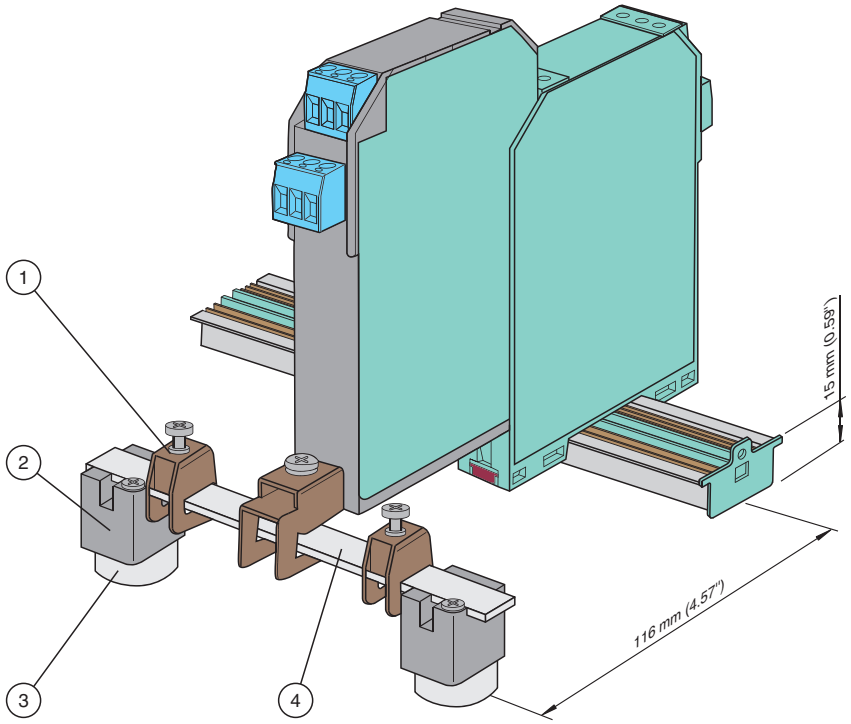
Accessories

	ZH-Z.AK16	Connection terminal for grounding rail
	ZH-Z.AB/SS	Mounting block for grounding rail
	ZH-Z.NLS-Cu3/10	Grounding Rail

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103645_eng.pdf

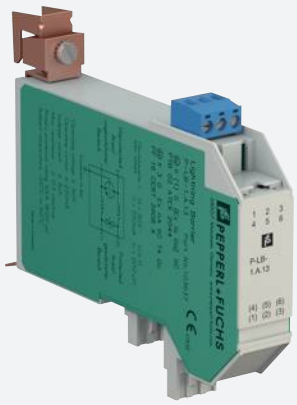
Installation

1 Connection terminal	ZH-Z.AK16
2 Mounting block	ZH-Z.AB/SS
3 Spacing roller	when mounting on 35 mm DIN EN 60715 mounting rail: – installation height 15 mm: spacing roller ZH-Z.AR.85 – installation height 7.5 mm: no spacing roller necessary
4 Grounding rail	ZH-Z.NLS-Cu3/10



Keep the drilling distance of 116 mm between center mounting rail and center grounding bar.

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103645_eng.pdf



Surge Protection Barrier

P-LB-1.A.13

- 1-channel
- Plugs directly in to field side of KF modules
- Analog or digital signal inputs
- Surge protection up to 10 kA
- Protects leads 1 and 3 of KF modules
- Uninterruptable operation (auto reset)
- Up to SIL 3 acc. to IEC/EN 61508

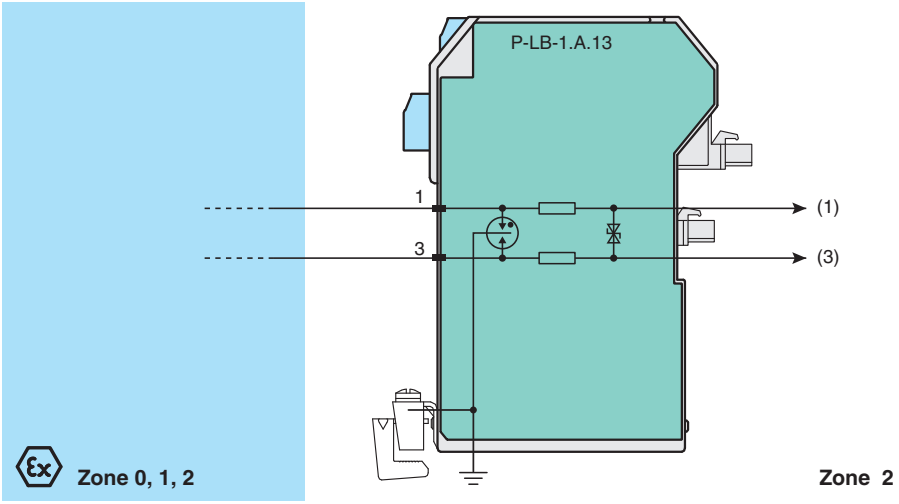
SIL 3

Function

This Surge Protection Barrier is designed for use with K-System (KF modules).
By simply snapping the barriers into a standard KF module, the modules are safely protected against voltage surges of different origin (e. g. lightning stroke, switching impulse, etc.). This is achieved by diverting the transient current to ground and limiting the signal line voltage to a safe level for the duration of the surge.
The end digits of the model designation correspond to the protected terminals of the respective KF module.
For additional information, refer to the manual and

Note: Surge Protection Barriers must always be connected to a solid and effective ground and be at the same equipotential level as the instrument it is protecting. The ground system must comply with all applicable regulations.

Connection



Technical Data

General specifications		
Number of protected signal lines		2
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Signal lines		
Connection		terminals 1, 3
Rated voltage	U_B	max. 30 V
Rated current	I_B	max. 250 mA

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103637_eng.pdf

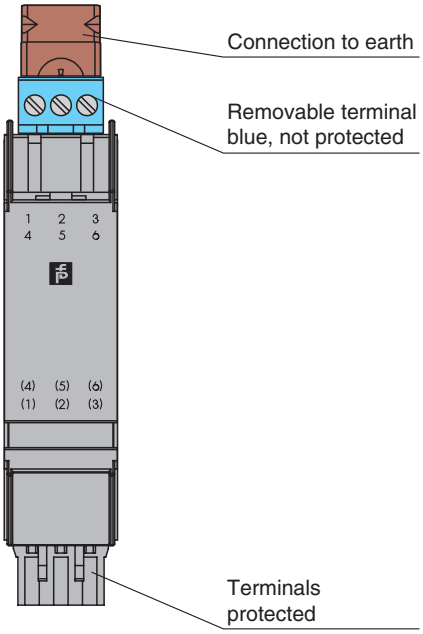
Technical Data

Leakage current		max. 5 µA
On-state voltage		max. 45 V
Ground insulation		max. 500 V breakdown voltage
Indicators/settings		
Labeling		space for labeling at the front
Conformity		
Degree of protection		IEC 60529:2001
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Mechanical specifications		
Degree of protection		IP20
Mass		approx. 70 g
Dimensions		20 x 104 x 127 mm (0.8 x 4.1 x 5 inch) (W x H x D)
Mounting		on the KF module
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 02 ATEX 2044
Marking		⟨Ex⟩ II (1)G [Ex ia Ga] IIC
Voltage	U_i	30 V
Current	I_i	250 mA
Internal capacitance	C_i	negligible
Internal inductance	L_i	200 µH
Maximum leakage current		10 kA (8/20 µs) per conductor
Nominal response time		
Symmetrical		1 ns
Asymmetric		100 ns
Series resistor		≤ 0.5 Ω per wire
Bandwidth		≥ 40 kHz
Certificate		PF 16 CERT 3908 X
Marking		⟨Ex⟩ II 3G Ex nA IIC T4 Gc
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013 , EN 60079-11:2012 , EN 60079-15:2010
International approvals		
IECEx approval		
IECEx certificate		IECEx BAS 12.0123
IECEx marking		[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103637_eng.pdf

Assembly

Front view



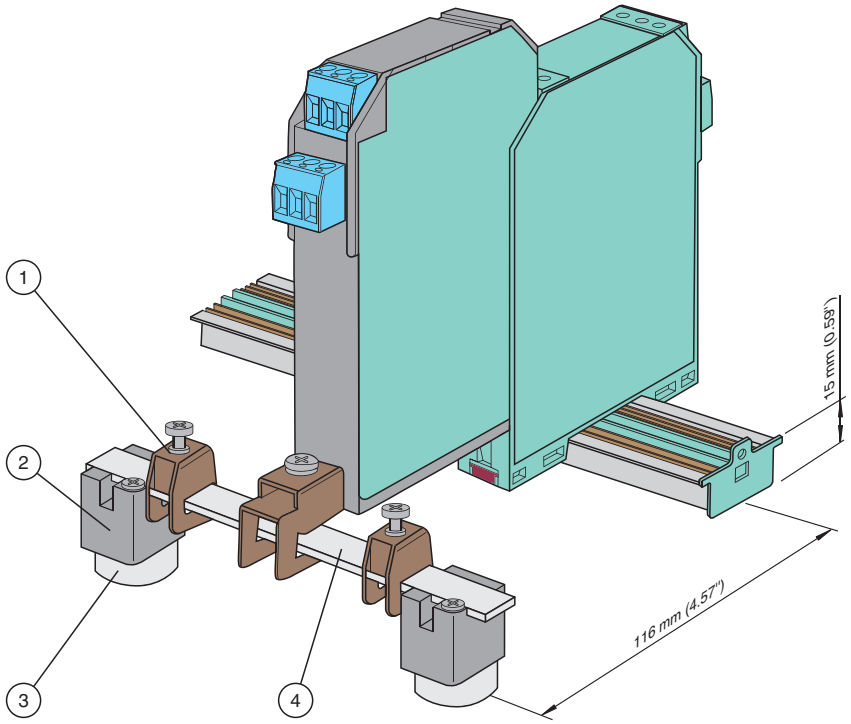
Accessories

	ZH-Z.AK16	Connection terminal for grounding rail
	ZH-Z.AB/SS	Mounting block for grounding rail
	ZH-Z.NLS-Cu3/10	Grounding Rail

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103637_eng.pdf

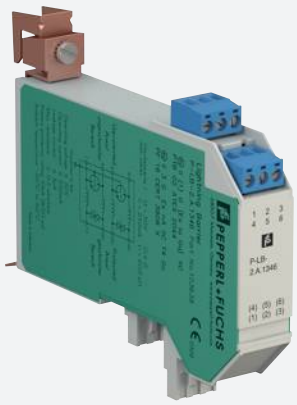
Installation

1 Connection terminal	ZH-Z.AK16
2 Mounting block	ZH-Z.AB/SS
3 Spacing roller	when mounting on 35 mm DIN EN 60715 mounting rail: – installation height 15 mm: spacing roller ZH-Z.AR.85 – installation height 7.5 mm: no spacing roller necessary
4 Grounding rail	ZH-Z.NLS-Cu3/10



Keep the drilling distance of 116 mm between center mounting rail and center grounding bar.

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103637_eng.pdf



Surge Protection Barrier

P-LB-2.A.1346

- 2-channel
- Plugs directly in to field side of KF modules
- Analog or digital signal inputs
- Surge protection up to 10 kA
- Protects leads 1, 3, 4 and 6 of KF modules
- Uninterruptable operation (auto reset)
- Up to SIL 3 acc. to IEC/EN 61508

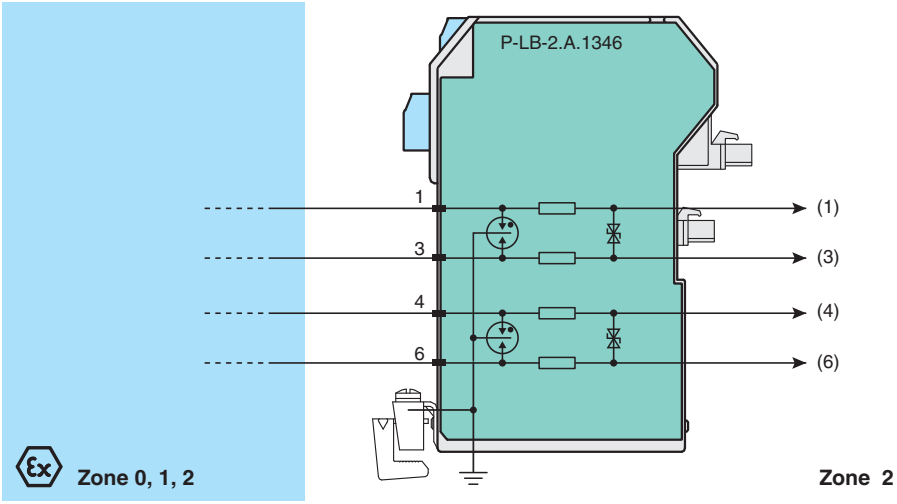
SIL 3

Function

This Surge Protection Barrier is designed for use with K-System (KF modules).
By simply snapping the barriers into a standard KF module, the modules are safely protected against voltage surges of different origin (e. g. lightning stroke, switching impulse, etc.). This is achieved by diverting the transient current to ground and limiting the signal line voltage to a safe level for the duration of the surge.
The end digits of the model designation correspond to the protected terminals of the respective KF module.
For additional information, refer to the manual and

Note: Surge Protection Barriers must always be connected to a solid and effective ground and be at the same equipotential level as the instrument it is protecting. The ground system must comply with all applicable regulations.

Connection



Technical Data

General specifications		
Number of protected signal lines		4
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Signal lines		
Connection		terminals 1, 3; 4, 6
Rated voltage	U_B	max. 30 V
Rated current	I_B	max. 250 mA

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103638_eng.pdf

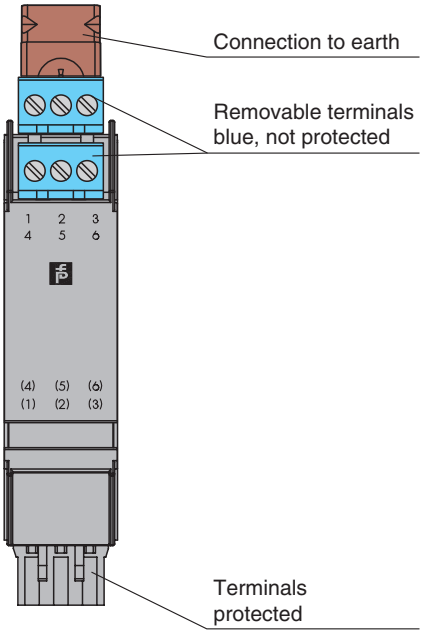
Technical Data

Leakage current		max. 5 µA
On-state voltage		max. 45 V
Ground insulation		max. 500 V breakdown voltage
Conformity		
Degree of protection		IEC 60529:2001
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Mechanical specifications		
Degree of protection		IP20
Mass		approx. 70 g
Dimensions		20 x 104 x 127 mm (0.8 x 4.1 x 5 inch) (W x H x D)
Mounting		on the KF module
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 02 ATEX 2044
Marking		⟨Ex⟩ II (1)G [Ex ia Ga] IIC
Voltage	U_i	30 V
Current	I_i	250 mA
Internal capacitance	C_i	negligible
Internal inductance	L_i	200 µH
Maximum leakage current		10 kA (8/20 µs) per conductor
Nominal response time		
Symmetrical		1 ns
Asymmetric		100 ns
Series resistor		≤ 0.5 Ω per wire
Bandwidth		≥ 40 kHz
Certificate		PF 16 CERT 3908 X
Marking		⟨Ex⟩ II 3G Ex nA IIC T4 Gc
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013 , EN 60079-11:2012 , EN 60079-15:2010
International approvals		
IECEx approval		
IECEx certificate		IECEx BAS 12.0123
IECEx marking		[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103638_eng.pdf

Assembly

Front view



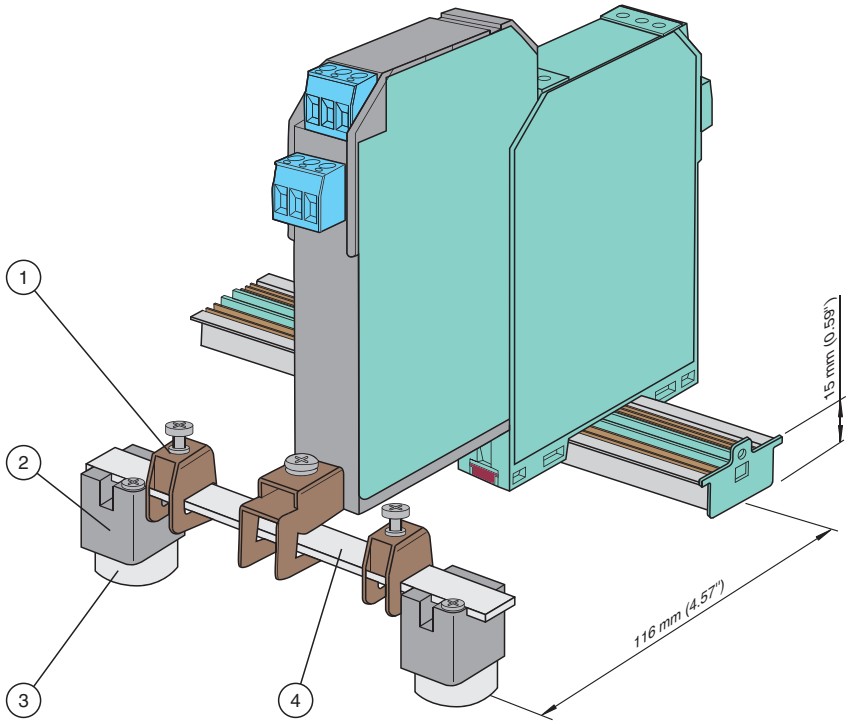
Accessories

	ZH-Z.AK16	Connection terminal for grounding rail
	ZH-Z.AB/SS	Mounting block for grounding rail
	ZH-Z.NLS-Cu3/10	Grounding Rail

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103638_eng.pdf

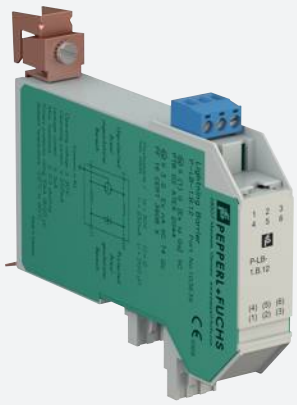
Installation

1	Connection terminal	ZH-Z.AK16
2	Mounting block	ZH-Z.AB/SS
3	Spacing roller	when mounting on 35 mm DIN EN 60715 mounting rail: – installation height 15 mm: spacing roller ZH-Z.AR.85 – installation height 7.5 mm: no spacing roller necessary
4	Grounding rail	ZH-Z.NLS-Cu3/10



Keep the drilling distance of 116 mm between center mounting rail and center grounding bar.

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103638_eng.pdf



Surge Protection Barrier

P-LB-1.B.12

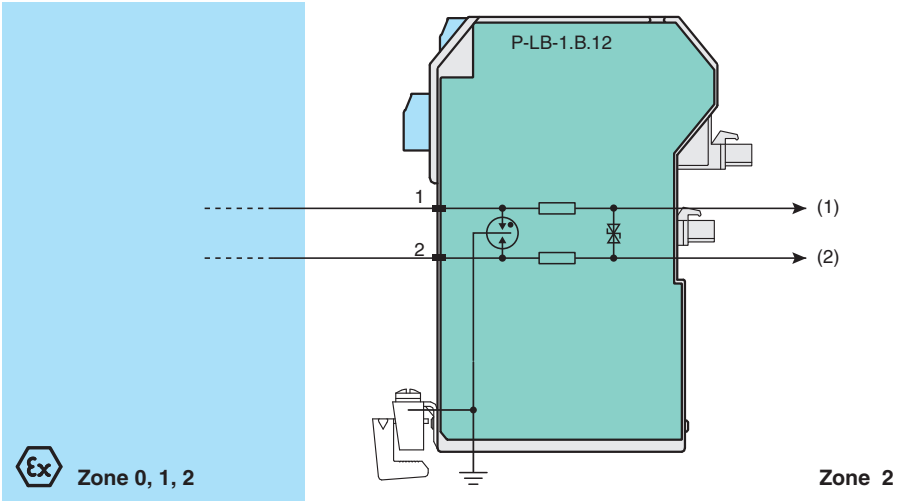
- 1-channel
- Plugs directly in to field side of KF modules
- Analog or digital signal inputs
- Surge protection up to 10 kA
- Protects leads 1 and 2 of KF modules
- Uninterruptable operation (auto reset)
- Up to SIL 3 acc. to IEC/EN 61508

Function

This Surge Protection Barrier is designed for use with K-System (KF modules).
By simply snapping the barriers into a standard KF module, the modules are safely protected against voltage surges of different origin (e. g. lightning stroke, switching impulse, etc.). This is achieved by diverting the transient current to ground and limiting the signal line voltage to a safe level for the duration of the surge.
The end digits of the model designation correspond to the protected terminals of the respective KF module.
For additional information, refer to the manual and

Note: Surge Protection Barriers must always be connected to a solid and effective ground and be at the same equipotential level as the instrument it is protecting. The ground system must comply with all applicable regulations.

Connection



Technical Data

General specifications		
Number of protected signal lines		2
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Signal lines		
Connection		terminals 1, 2
Rated voltage	U_B	max. 30 V
Rated current	I_B	max. 250 mA

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103639_eng.pdf

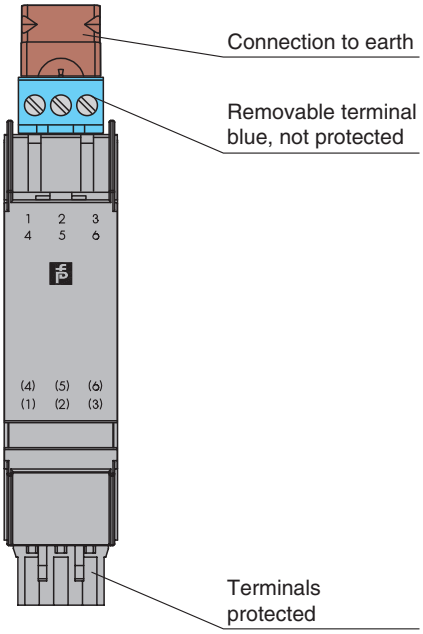
Technical Data

Leakage current		max. 5 µA
On-state voltage		max. 45 V
Ground insulation		max. 500 V breakdown voltage
Conformity		
Degree of protection		IEC 60529:2001
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Mechanical specifications		
Degree of protection		IP20
Mass		approx. 70 g
Dimensions		20 x 104 x 127 mm (0.8 x 4.1 x 5 inch) (W x H x D)
Mounting		on the KF module
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 02 ATEX 2044
Marking		⟨Ex⟩ II (1)G [Ex ia Ga] IIC
Voltage	U_i	30 V
Current	I_i	250 mA
Internal capacitance	C_i	negligible
Internal inductance	L_i	200 µH
Maximum leakage current		10 kA (8/20 µs) per conductor
Nominal response time		
Symmetrical		1 ns
Asymmetric		100 ns
Series resistor		≤ 0.5 Ω per wire
Bandwidth		≥ 40 kHz
Certificate		PF 16 CERT 3908 X
Marking		⟨Ex⟩ II 3G Ex nA IIC T4 Gc
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013 , EN 60079-11:2012 , EN 60079-15:2010
International approvals		
IECEx approval		
IECEx certificate		IECEx BAS 12.0123
IECEx marking		[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103639_eng.pdf

Assembly

Front view



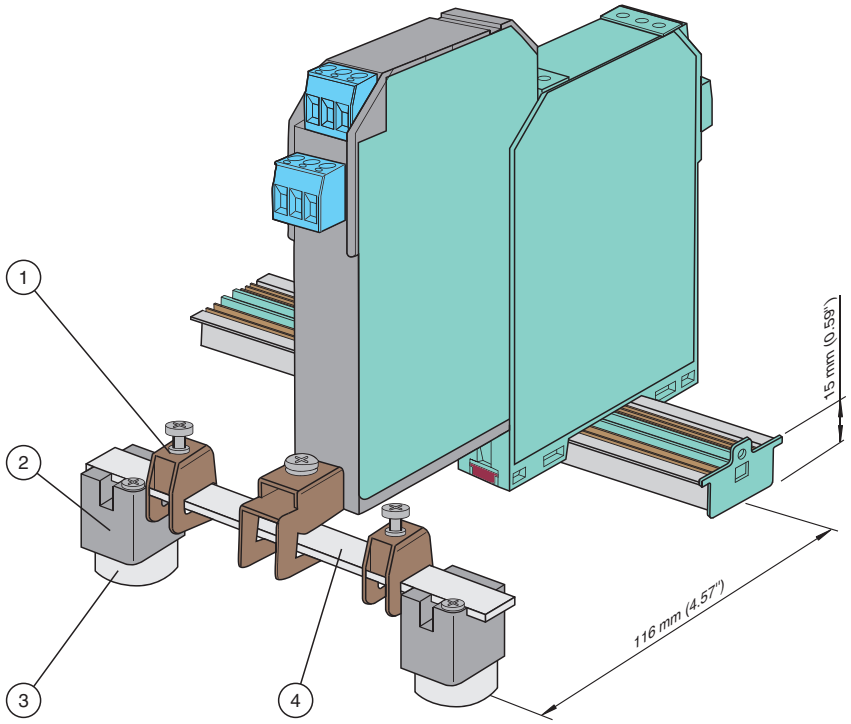
Accessories

	ZH-Z.AK16	Connection terminal for grounding rail
	ZH-Z.AB/SS	Mounting block for grounding rail
	ZH-Z.NLS-Cu3/10	Grounding Rail

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103639_eng.pdf

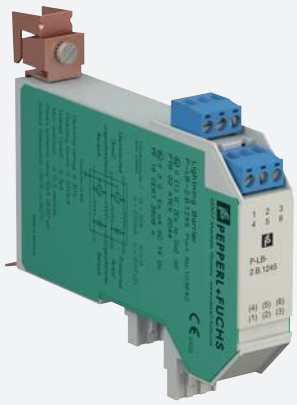
Installation

1 Connection terminal	ZH-Z.AK16
2 Mounting block	ZH-Z.AB/SS
3 Spacing roller	when mounting on 35 mm DIN EN 60715 mounting rail: – installation height 15 mm: spacing roller ZH-Z.AR.85 – installation height 7.5 mm: no spacing roller necessary
4 Grounding rail	ZH-Z.NLS-Cu3/10



Keep the drilling distance of 116 mm between center mounting rail and center grounding bar.

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103639_eng.pdf



Surge Protection Barrier

P-LB-2.B.1245

- 2-channel
- Plugs directly in to field side of KF modules
- Analog or digital signal inputs
- Surge protection up to 10 kA
- Protects leads 1, 2, 4 and 5 of KF modules
- Uninterruptable operation (auto reset)
- Up to SIL 3 acc. to IEC/EN 61508

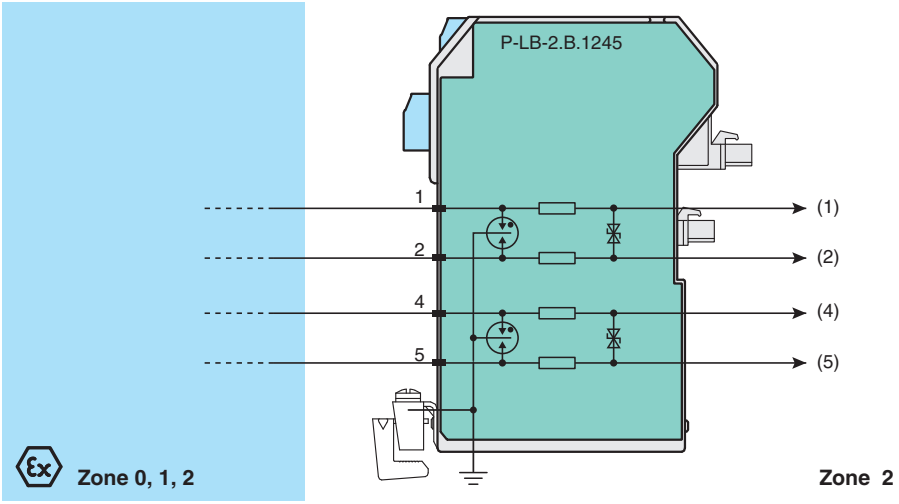
SIL 3

Function

This Surge Protection Barrier is designed for use with K-System (KF modules).
By simply snapping the barriers into a standard KF module, the modules are safely protected against voltage surges of different origin (e. g. lightning stroke, switching impulse, etc.). This is achieved by diverting the transient current to ground and limiting the signal line voltage to a safe level for the duration of the surge.
The end digits of the model designation correspond to the protected terminals of the respective KF module.
For additional information, refer to the manual and

Note: Surge Protection Barriers must always be connected to a solid and effective ground and be at the same equipotential level as the instrument it is protecting. The ground system must comply with all applicable regulations.

Connection



Technical Data

General specifications		
Number of protected signal lines		4
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Signal lines		
Connection		terminals 1, 2; 4, 5
Rated voltage	U_B	max. 30 V
Rated current	I_B	max. 250 mA

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103640_eng.pdf

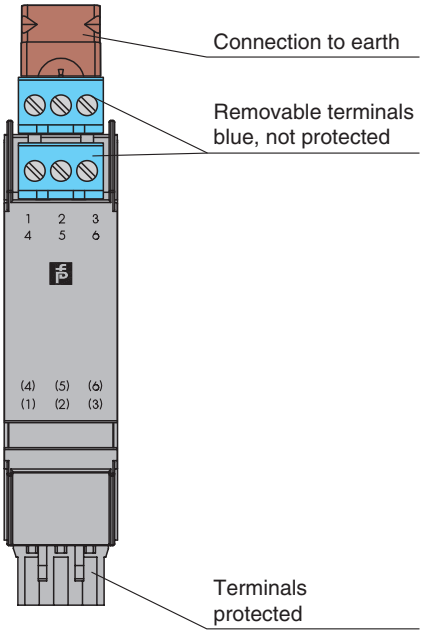
Technical Data

Leakage current		max. 5 µA
On-state voltage		max. 45 V
Ground insulation		max. 500 V breakdown voltage
Conformity		
Degree of protection		IEC 60529:2001
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Mechanical specifications		
Degree of protection		IP20
Mass		approx. 70 g
Dimensions		20 x 104 x 127 mm (0.8 x 4.1 x 5 inch) (W x H x D)
Mounting		on the KF module
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 02 ATEX 2044
Marking		⟨Ex⟩ II (1)G [Ex ia Ga] IIC
Voltage	U_i	30 V
Current	I_i	250 mA
Internal capacitance	C_i	negligible
Internal inductance	L_i	200 µH
Maximum leakage current		10 kA (8/20 µs) per conductor
Nominal response time		
Symmetrical		1 ns
Asymmetric		100 ns
Series resistor		≤ 0.5 Ω per wire
Bandwidth		≥ 40 kHz
Certificate		PF 16 CERT 3908 X
Marking		⟨Ex⟩ II 3G Ex nA IIC T4 Gc
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013 , EN 60079-11:2012 , EN 60079-15:2010
International approvals		
IECEx approval		
IECEx certificate		IECEx BAS 12.0123
IECEx marking		[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103640_eng.pdf

Assembly

Front view



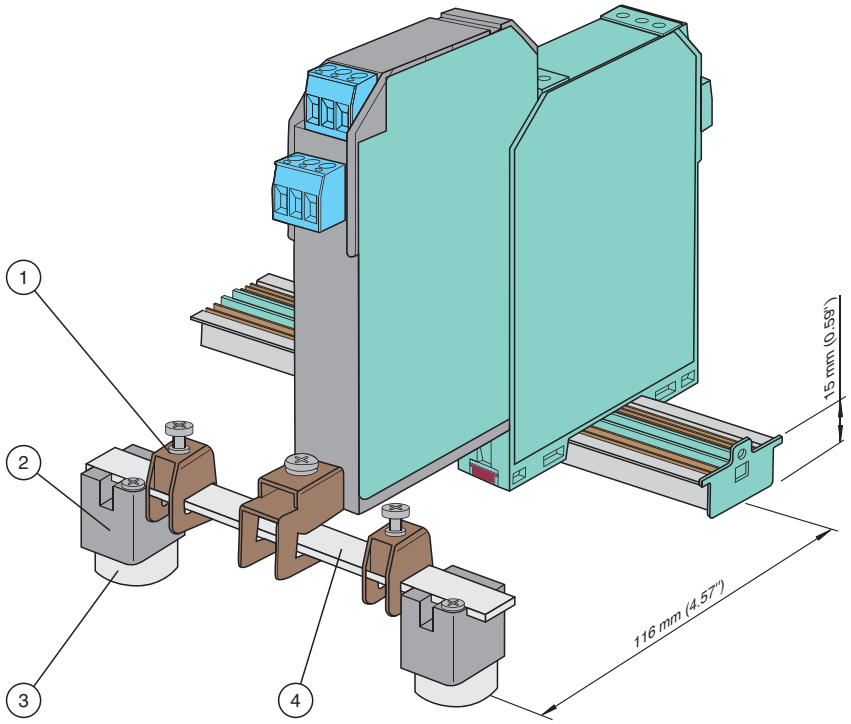
Accessories

	ZH-Z.AK16	Connection terminal for grounding rail
	ZH-Z.AB/SS	Mounting block for grounding rail
	ZH-Z.NLS-Cu3/10	Grounding Rail

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103640_eng.pdf

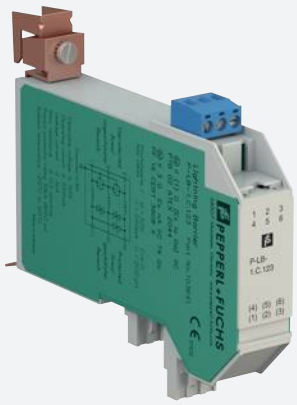
Installation

1 Connection terminal	ZH-Z.AK16
2 Mounting block	ZH-Z.AB/SS
3 Spacing roller	when mounting on 35 mm DIN EN 60715 mounting rail: – installation height 15 mm: spacing roller ZH-Z.AR.85 – installation height 7.5 mm: no spacing roller necessary
4 Grounding rail	ZH-Z.NLS-Cu3/10



Keep the drilling distance of 116 mm between center mounting rail and center grounding bar.

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103640_eng.pdf



Surge Protection Barrier

P-LB-1.C.123

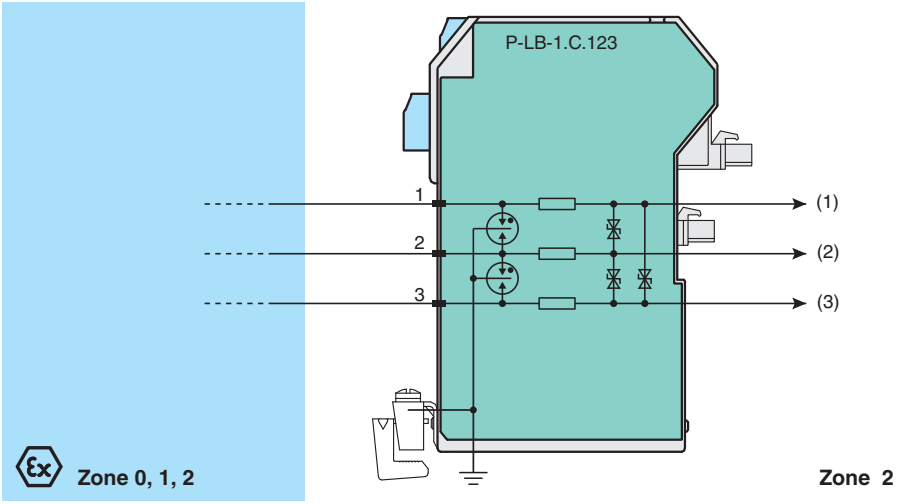
- 1-channel
- Plugs directly in to field side of KF modules
- Analog or digital signal inputs
- Surge protection up to 10 kA
- Protects leads 1, 2 and 3 of KF modules
- Uninterruptable operation (auto reset)
- Up to SIL 3 acc. to IEC/EN 61508

Function

This Surge Protection Barrier is designed for use with K-System (KF modules).
By simply snapping the barriers into a standard KF module, the modules are safely protected against voltage surges of different origin (e. g. lightning stroke, switching impulse, etc.). This is achieved by diverting the transient current to ground and limiting the signal line voltage to a safe level for the duration of the surge.
The end digits of the model designation correspond to the protected terminals of the respective KF module.
For additional information, refer to the manual and

Note: Surge Protection Barriers must always be connected to a solid and effective ground and be at the same equipotential level as the instrument it is protecting. The ground system must comply with all applicable regulations.

Connection



Technical Data

General specifications		
Number of protected signal lines		3
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Signal lines		
Connection		terminals 1, 2, 3
Rated voltage	U_B	max. 30 V
Rated current	I_B	max. 250 mA

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103641_eng.pdf

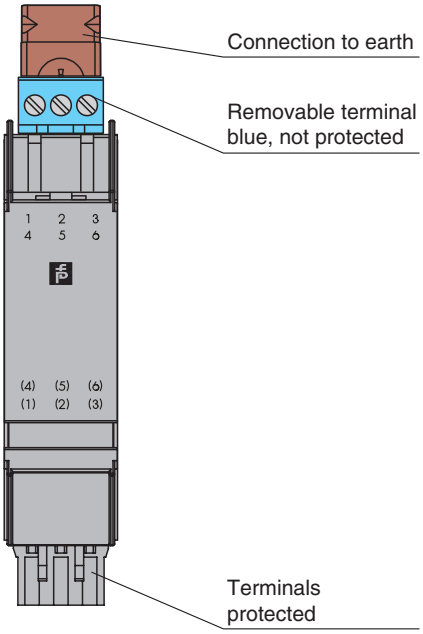
Technical Data

Leakage current		max. 5 µA
On-state voltage		max. 45 V
Ground insulation		max. 500 V breakdown voltage
Conformity		
Degree of protection		IEC 60529:2001
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Mechanical specifications		
Degree of protection		IP20
Mass		approx. 70 g
Dimensions		20 x 104 x 127 mm (0.8 x 4.1 x 5 inch) (W x H x D)
Mounting		on the KF module
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 02 ATEX 2044
Marking		⟨Ex⟩ II (1)G [Ex ia Ga] IIC
Voltage	U_i	30 V
Current	I_i	250 mA
Internal capacitance	C_i	negligible
Internal inductance	L_i	200 µH
Maximum leakage current		10 kA (8/20 µs) per conductor
Nominal response time		
Symmetrical		1 ns
Asymmetric		100 ns
Series resistor		≤ 0.5 Ω per wire
Bandwidth		≥ 40 kHz
Certificate		PF 16 CERT 3908 X
Marking		⟨Ex⟩ II 3G Ex nA IIC T4 Gc
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013 , EN 60079-11:2012 , EN 60079-15:2010
International approvals		
IECEx approval		
IECEx certificate		IECEx BAS 12.0123
IECEx marking		[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103641_eng.pdf

Assembly

Front view



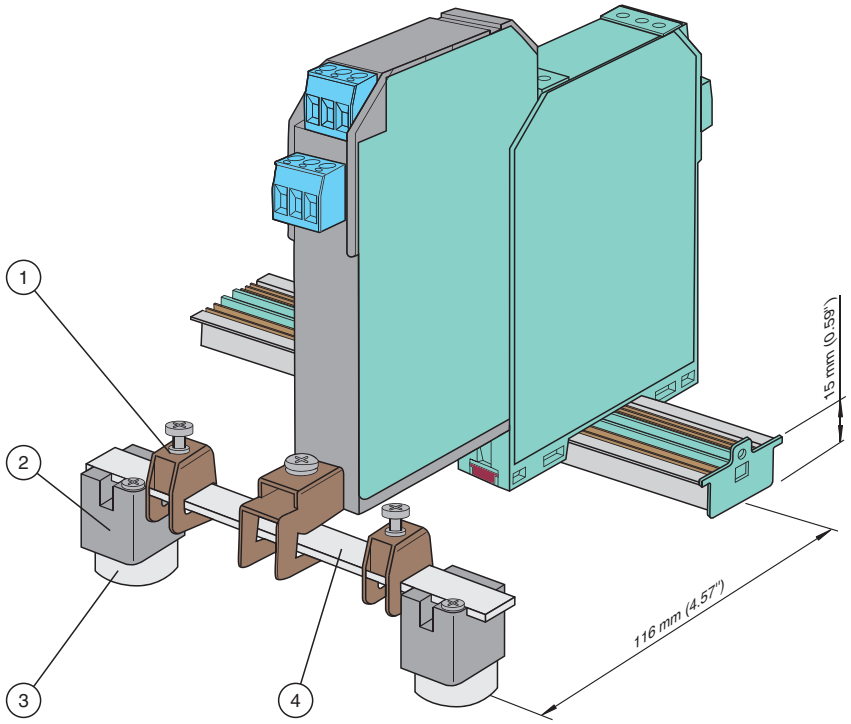
Accessories

	ZH-Z.AK16	Connection terminal for grounding rail
	ZH-Z.AB/SS	Mounting block for grounding rail
	ZH-Z.NLS-Cu3/10	Grounding Rail

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103641_eng.pdf

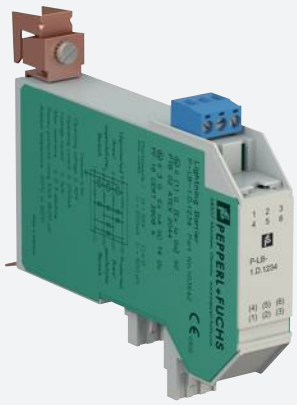
Installation

1	Connection terminal	ZH-Z.AK16
2	Mounting block	ZH-Z.AB/SS
3	Spacing roller	when mounting on 35 mm DIN EN 60715 mounting rail: – installation height 15 mm: spacing roller ZH-Z.AR.85 – installation height 7.5 mm: no spacing roller necessary
4	Grounding rail	ZH-Z.NLS-Cu3/10



Keep the drilling distance of 116 mm between center mounting rail and center grounding bar.

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103641_eng.pdf



Surge Protection Barrier

P-LB-1.D.1234

- 1-channel
- Plugs directly in to field side of KF modules
- Analog or digital signal inputs
- Surge protection up to 10 kA
- Protects leads 1, 2, 3 and 4 of KF modules
- Uninterruptable operation (auto reset)
- Up to SIL 3 acc. to IEC/EN 61508

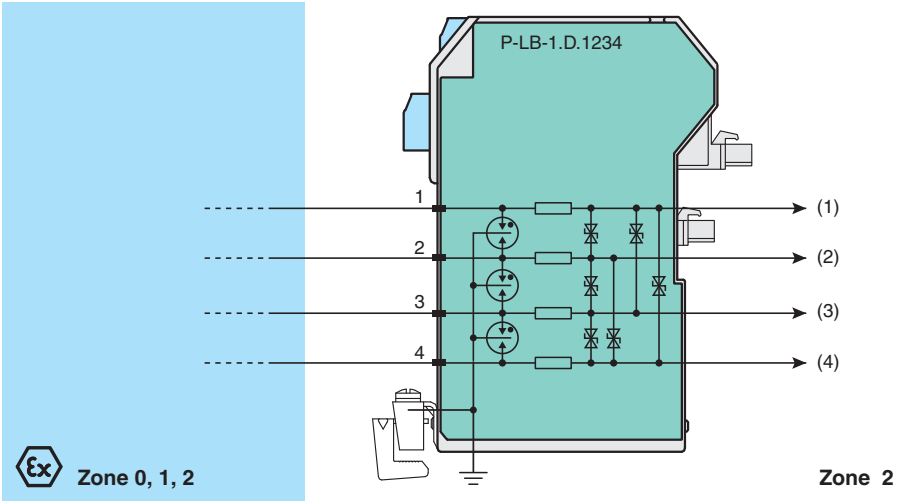
SIL 3

Function

This Surge Protection Barrier is designed for use with K-System (KF modules).
By simply snapping the barriers into a standard KF module, the modules are safely protected against voltage surges of different origin (e. g. lightning stroke, switching impulse, etc.). This is achieved by diverting the transient current to ground and limiting the signal line voltage to a safe level for the duration of the surge.
The end digits of the model designation correspond to the protected terminals of the respective KF module.
For additional information, refer to the manual and

Note: Surge Protection Barriers must always be connected to a solid and effective ground and be at the same equipotential level as the instrument it is protecting. The ground system must comply with all applicable regulations.

Connection



Technical Data

General specifications		
Number of protected signal lines		4
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Signal lines		
Connection		terminals 1, 2, 3, 4
Rated voltage	U_B	max. 30 V
Rated current	I_B	max. 250 mA

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103642_eng.pdf

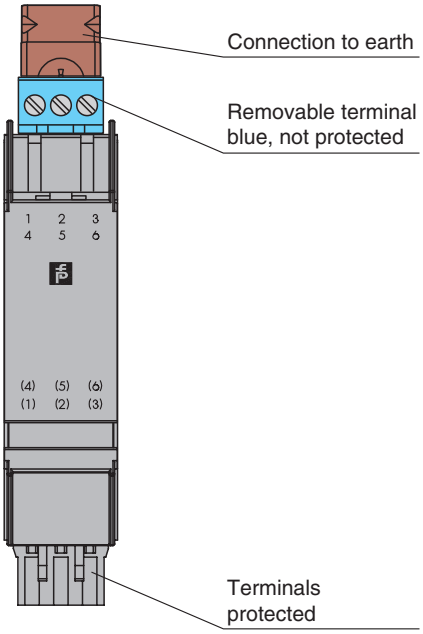
Technical Data

Leakage current		max. 5 µA
On-state voltage		max. 45 V
Ground insulation		max. 500 V breakdown voltage
Conformity		
Degree of protection		IEC 60529:2001
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Mechanical specifications		
Degree of protection		IP20
Mass		approx. 70 g
Dimensions		20 x 104 x 127 mm (0.8 x 4.1 x 5 inch) (W x H x D)
Mounting		on the KF module
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 02 ATEX 2044
Marking		⟨Ex⟩ II (1)G [Ex ia Ga] IIC
Voltage	U_i	30 V
Current	I_i	250 mA
Internal capacitance	C_i	negligible
Internal inductance	L_i	300 µH
Maximum leakage current		10 kA (8/20 µs) per conductor
Nominal response time		
Symmetrical		1 ns
Asymmetric		100 ns
Series resistor		≤ 0.5 Ω per wire
Bandwidth		≥ 40 kHz
Certificate		PF 16 CERT 3908 X
Marking		⟨Ex⟩ II 3G Ex nA IIC T4 Gc
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013 , EN 60079-11:2012 , EN 60079-15:2010
International approvals		
IECEx approval		
IECEx certificate		IECEx BAS 12.0123
IECEx marking		[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103642_eng.pdf

Assembly

Front view



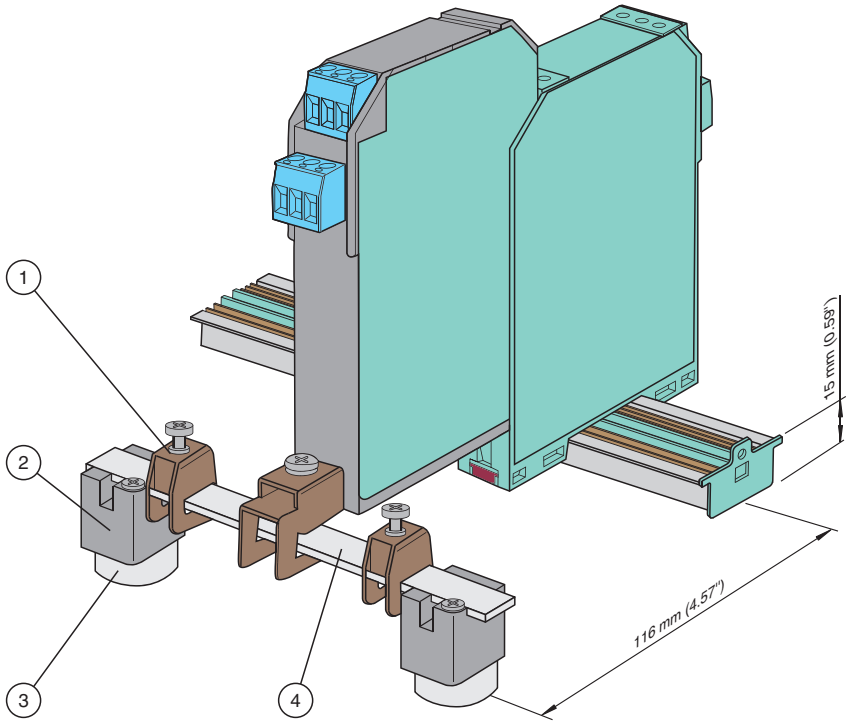
Accessories

	ZH-Z.AK16	Connection terminal for grounding rail
	ZH-Z.AB/SS	Mounting block for grounding rail
	ZH-Z.NLS-Cu3/10	Grounding Rail

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103642_eng.pdf

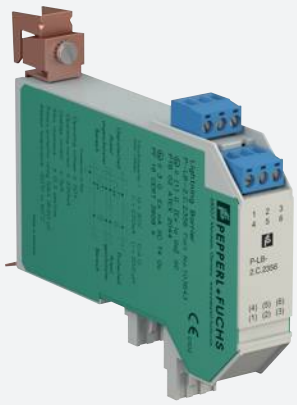
Installation

1	Connection terminal	ZH-Z.AK16
2	Mounting block	ZH-Z.AB/SS
3	Spacing roller	when mounting on 35 mm DIN EN 60715 mounting rail: – installation height 15 mm: spacing roller ZH-Z.AR.85 – installation height 7.5 mm: no spacing roller necessary
4	Grounding rail	ZH-Z.NLS-Cu3/10



Keep the drilling distance of 116 mm between center mounting rail and center grounding bar.

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103642_eng.pdf



Surge Protection Barrier

P-LB-2.C.2356

- 2-channel
- Plugs directly in to field side of KF modules
- Analog or digital signal inputs
- Surge protection up to 10 kA
- Protects leads 2, 3, 5 and 6 of KF modules
- Uninterruptable operation (auto reset)
- Up to SIL 3 acc. to IEC/EN 61508

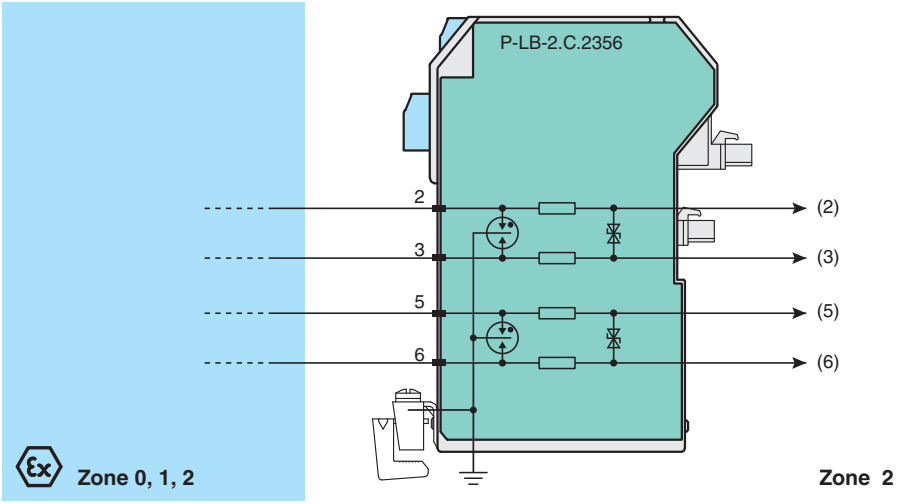
SIL 3

Function

This Surge Protection Barrier is designed for use with K-System (KF modules).
By simply snapping the barriers into a standard KF module, the modules are safely protected against voltage surges of different origin (e. g. lightning stroke, switching impulse, etc.). This is achieved by diverting the transient current to ground and limiting the signal line voltage to a safe level for the duration of the surge.
The end digits of the model designation correspond to the protected terminals of the respective KF module.
For additional information, refer to the manual and

Note: Surge Protection Barriers must always be connected to a solid and effective ground and be at the same equipotential level as the instrument it is protecting. The ground system must comply with all applicable regulations.

Connection



Technical Data

General specifications		
Number of protected signal lines		4
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Signal lines		
Connection		Terminals 2, 3; 5, 6
Rated voltage	U_B	max. 30 V
Rated current	I_B	max. 250 mA

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103643_eng.pdf

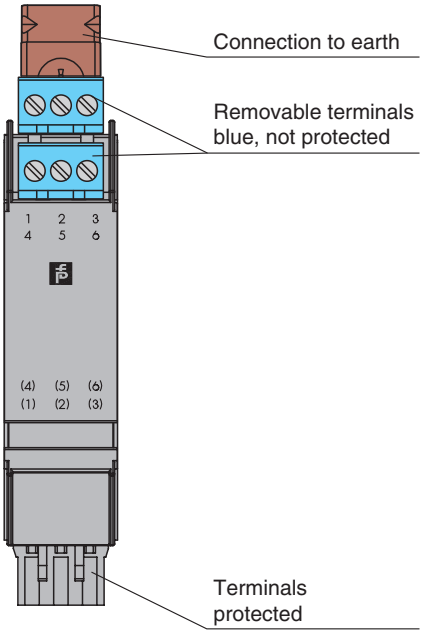
Technical Data

Leakage current		max. 5 µA
On-state voltage		max. 45 V
Ground insulation		max. 500 V breakdown voltage
Conformity		
Degree of protection		IEC 60529:2001
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Mechanical specifications		
Degree of protection		IP20
Mass		approx. 70 g
Dimensions		20 x 104 x 127 mm (0.8 x 4.1 x 5 inch) (W x H x D)
Mounting		on the KF module
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 02 ATEX 2044
Marking		⟨Ex⟩ II (1)G [Ex ia Ga] IIC
Voltage	U_i	30 V
Current	I_i	250 mA
Internal capacitance	C_i	negligible
Internal inductance	L_i	200 µH
Maximum leakage current		10 kA (8/20 µs) per conductor
Nominal response time		
Symmetrical		1 ns
Asymmetric		100 ns
Series resistor		≤ 0.5 Ω per wire
Bandwidth		≥ 40 kHz
Certificate		PF 16 CERT 3908 X
Marking		⟨Ex⟩ II 3G Ex nA IIC T4 Gc
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013 , EN 60079-11:2012 , EN 60079-15:2010
International approvals		
IECEx approval		
IECEx certificate		IECEx BAS 12.0123
IECEx marking		[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103643_eng.pdf

Assembly

Front view



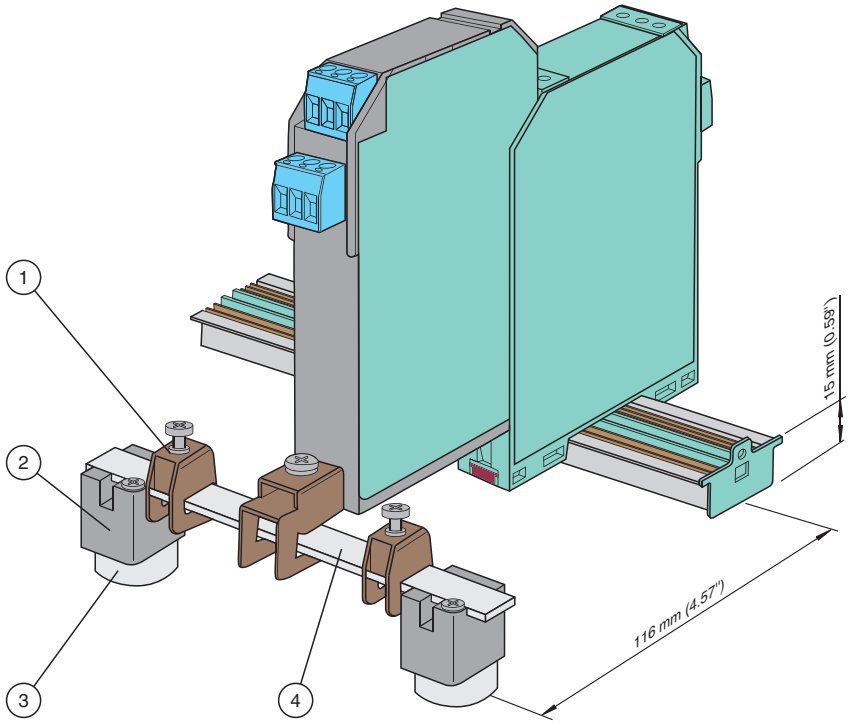
Accessories

	ZH-Z.AK16	Connection terminal for grounding rail
	ZH-Z.AB/SS	Mounting block for grounding rail
	ZH-Z.NLS-Cu3/10	Grounding Rail

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103643_eng.pdf

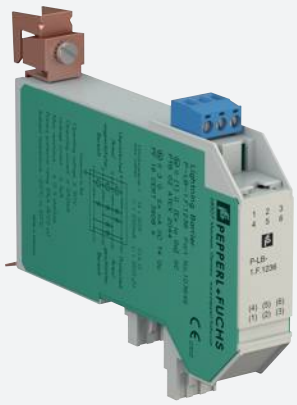
Installation

1	Connection terminal	ZH-Z.AK16
2	Mounting block	ZH-Z.AB/SS
3	Spacing roller	when mounting on 35 mm DIN EN 60715 mounting rail: – installation height 15 mm: spacing roller ZH-Z.AR.85 – installation height 7.5 mm: no spacing roller necessary
4	Grounding rail	ZH-Z.NLS-Cu3/10



Keep the drilling distance of 116 mm between center mounting rail and center grounding bar.

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103643_eng.pdf



Surge Protection Barrier

P-LB-1.F.1236

- 1-channel
- Plugs directly in to field side of KF modules
- Analog or digital signal inputs
- Surge protection up to 10 kA
- Protects leads 1, 2, 3 and 6 of KF modules
- Uninterruptable operation (auto reset)
- Up to SIL 3 acc. to IEC/EN 61508

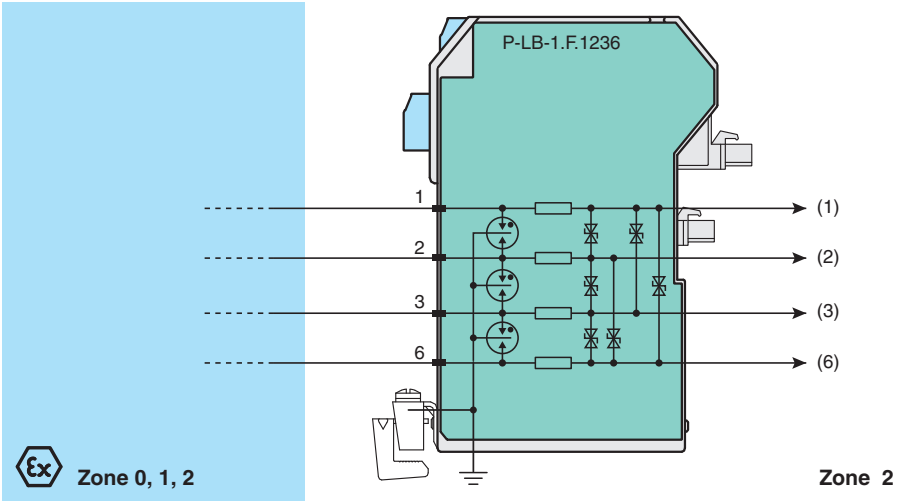
SIL 3

Function

This Surge Protection Barrier is designed for use with K-System (KF modules).
By simply snapping the barriers into a standard KF module, the modules are safely protected against voltage surges of different origin (e. g. lightning stroke, switching impulse, etc.). This is achieved by diverting the transient current to ground and limiting the signal line voltage to a safe level for the duration of the surge.
The end digits of the model designation correspond to the protected terminals of the respective KF module.
For additional information, refer to the manual and

Note: Surge Protection Barriers must always be connected to a solid and effective ground and be at the same equipotential level as the instrument it is protecting. The ground system must comply with all applicable regulations.

Connection



Technical Data

General specifications		
Number of protected signal lines		4
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Signal lines		
Connection		terminals 1, 2, 3, 6
Rated voltage	U_B	max. 30 V
Rated current	I_B	max. 250 mA

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103646_eng.pdf

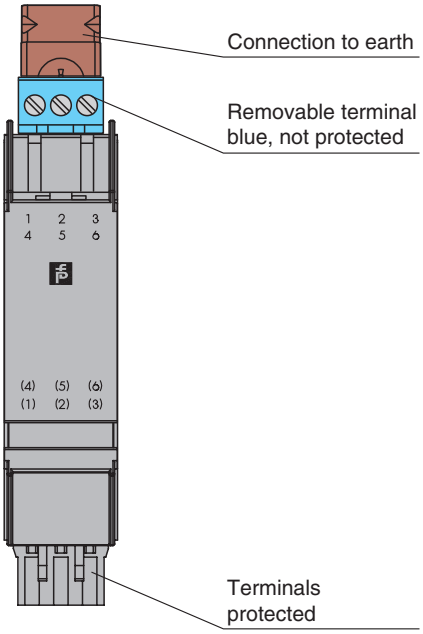
Technical Data

Leakage current		max. 5 µA
On-state voltage		max. 45 V
Ground insulation		max. 500 V breakdown voltage
Conformity		
Degree of protection		IEC 60529:2001
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Mechanical specifications		
Degree of protection		IP20
Mass		approx. 70 g
Dimensions		20 x 104 x 127 mm (0.8 x 4.1 x 5 inch) (W x H x D)
Mounting		on the KF module
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 02 ATEX 2044
Marking		⟨Ex⟩ II (1)G [Ex ia Ga] IIC
Voltage	U_i	30 V
Current	I_i	250 mA
Internal capacitance	C_i	negligible
Internal inductance	L_i	300 µH
Maximum leakage current		10 kA (8/20 µs) per conductor
Nominal response time		
Symmetrical		1 ns
Asymmetric		100 ns
Series resistor		≤ 0.5 Ω per wire
Bandwidth		≥ 40 kHz
Certificate		PF 16 CERT 3908 X
Marking		⟨Ex⟩ II 3G Ex nA IIC T4 Gc
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013 , EN 60079-11:2012 , EN 60079-15:2010
International approvals		
IECEx approval		
IECEx certificate		IECEx BAS 12.0123
IECEx marking		[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103646_eng.pdf

Assembly

Front view



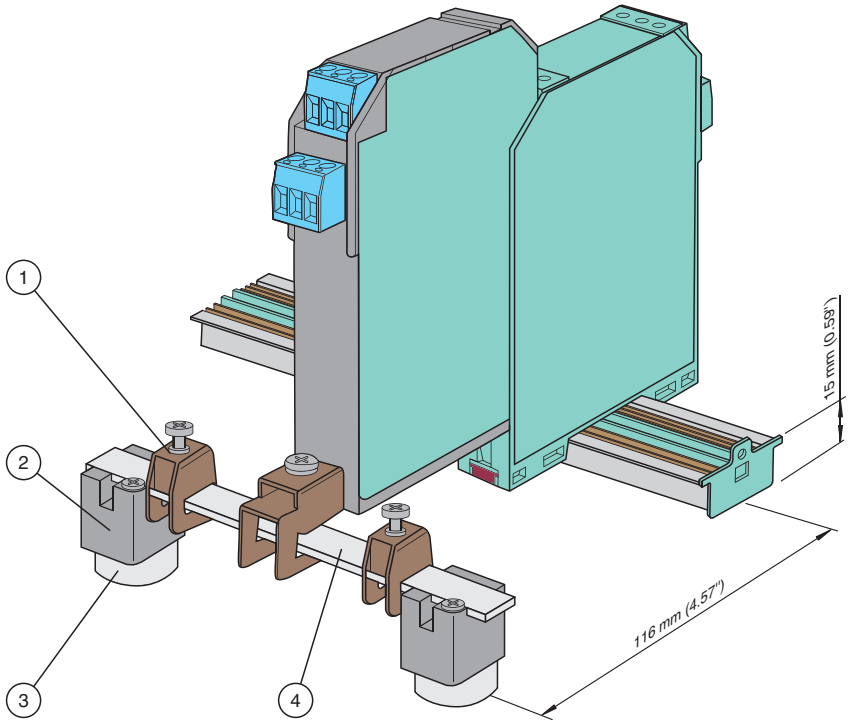
Accessories

	ZH-Z.AK16	Connection terminal for grounding rail
	ZH-Z.AB/SS	Mounting block for grounding rail
	ZH-Z.NLS-Cu3/10	Grounding Rail

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103646_eng.pdf

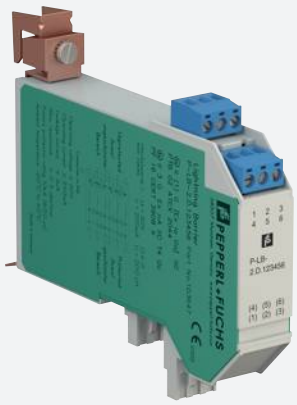
Installation

1	Connection terminal	ZH-Z.AK16
2	Mounting block	ZH-Z.AB/SS
3	Spacing roller	when mounting on 35 mm DIN EN 60715 mounting rail: – installation height 15 mm: spacing roller ZH-Z.AR.85 – installation height 7.5 mm: no spacing roller necessary
4	Grounding rail	ZH-Z.NLS-Cu3/10



Keep the drilling distance of 116 mm between center mounting rail and center grounding bar.

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103646_eng.pdf



Surge Protection Barrier

P-LB-2.D.123456

- 2-channel
- Plugs directly in to field side of KF modules
- Analog or digital signal inputs
- Surge protection up to 10 kA
- Protects leads 1, 2, 3, 4, 5 and 6 of KF modules
- Uninterruptable operation (auto reset)
- Up to SIL 3 acc. to IEC/EN 61508

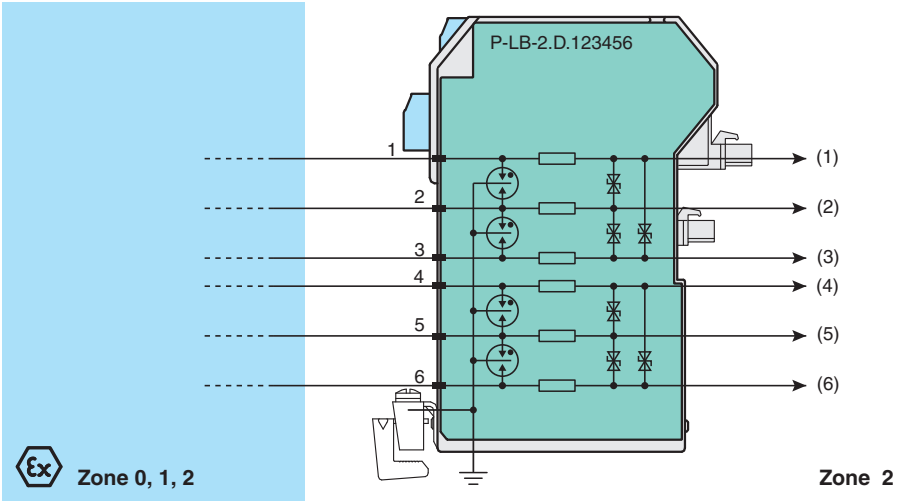
SIL 3

Function

This Surge Protection Barrier is designed for use with K-System (KF modules).
By simply snapping the barriers into a standard KF module, the modules are safely protected against voltage surges of different origin (e. g. lightning stroke, switching impulse, etc.). This is achieved by diverting the transient current to ground and limiting the signal line voltage to a safe level for the duration of the surge.
The end digits of the model designation correspond to the protected terminals of the respective KF module.
For additional information, refer to the manual and

Note: Surge Protection Barriers must always be connected to a solid and effective ground and be at the same equipotential level as the instrument it is protecting. The ground system must comply with all applicable regulations.

Connection



Technical Data

General specifications		
Number of protected signal lines		6
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Signal lines		
Connection		terminals 1, 2, 3; 4, 5, 6
Rated voltage	U_B	max. 30 V
Rated current	I_B	max. 250 mA

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103647_eng.pdf

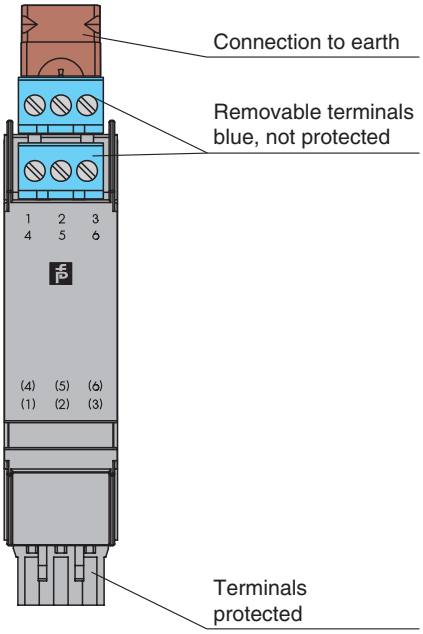
Technical Data

Leakage current		max. 5 µA
On-state voltage		max. 45 V
Ground insulation		max. 500 V breakdown voltage
Conformity		
Degree of protection		IEC 60529:2001
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Mechanical specifications		
Degree of protection		IP20
Mass		approx. 70 g
Dimensions		20 x 104 x 127 mm (0.8 x 4.1 x 5 inch) (W x H x D)
Mounting		on the KF module
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 02 ATEX 2044
Marking		⟨Ex⟩ II (1)G [Ex ia Ga] IIC
Voltage	U_i	30 V
Current	I_i	250 mA
Internal capacitance	C_i	negligible
Internal inductance	L_i	200 µH
Maximum leakage current		10 kA (8/20 µs) per conductor
Nominal response time		
Symmetrical		1 ns
Asymmetric		100 ns
Series resistor		≤ 0.5 Ω per wire
Bandwidth		≥ 40 kHz
Certificate		PF 16 CERT 3908 X
Marking		⟨Ex⟩ II 3G Ex nA IIC T4 Gc
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013 , EN 60079-11:2012 , EN 60079-15:2010
International approvals		
IECEx approval		
IECEx certificate		IECEx BAS 12.0123
IECEx marking		[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103647_eng.pdf

Assembly

Front view



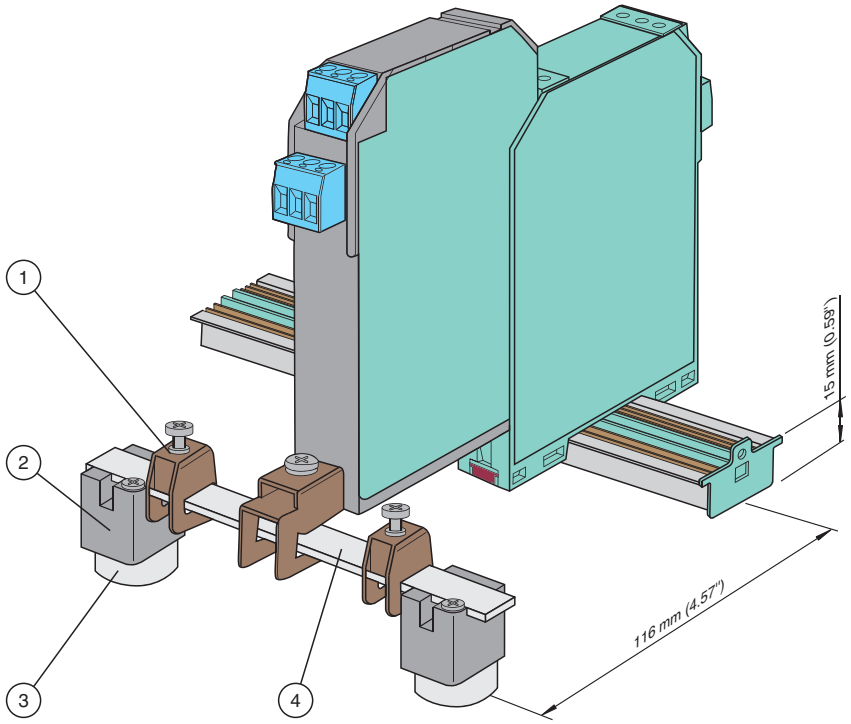
Accessories

	ZH-Z.AK16	Connection terminal for grounding rail
	ZH-Z.AB/SS	Mounting block for grounding rail
	ZH-Z.NLS-Cu3/10	Grounding Rail

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103647_eng.pdf

Installation

1	Connection terminal	ZH-Z.AK16
2	Mounting block	ZH-Z.AB/SS
3	Spacing roller	when mounting on 35 mm DIN EN 60715 mounting rail: – installation height 15 mm: spacing roller ZH-Z.AR.85 – installation height 7.5 mm: no spacing roller necessary
4	Grounding rail	ZH-Z.NLS-Cu3/10



Keep the drilling distance of 116 mm between center mounting rail and center grounding bar.

Release date: 2022-01-12 Date of issue: 2022-01-12 Filename: 103647_eng.pdf

Surge Protection Barrier

FS-LB-I

- 1-channel
- Field mount module
- M20 x 1.5 thread
- Stainless steel housing
- Max. surge current (8/20 µs) 20 kA
- 500 V isolation from earth
- Suitable for hazardous area
- Up to SIL 3 acc. to IEC/EN 61508

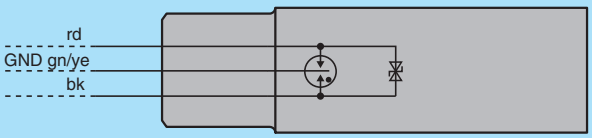
SIL 3

C US

Function

This Surge Protection Barrier limits induced transients of different origin (e. g. lightning stroke, switching impulse, etc.). This is achieved by diverting the transient current to ground and limiting the signal line voltage to a safe level for the duration of the surge.
This barrier provides 85 V line-to-line and 500 V line-to-ground clamping voltage for the protected instruments. It also protects instruments that have less than 500 V isolation-to-ground.
It is installed in an available conduit or cable gland opening like those found on most process transmitters.
For additional information, refer to the manual and
Note: Surge Protection Barriers must always be connected to a solid and effective ground and be at the same equipotential level as the instrument it is protecting. The ground system must comply with all applicable regulations.

Connection



Zone 1, 2
Div. 1, 2

Technical Data

General specifications		
Number of protected signal lines		1
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Supply		
Rated voltage	U_r	≤ 48 V
Rated current	I_r	≤ 250 mA
Leakage current		≤ 5 µA
On-state voltage		≤ 85 V
Ground insulation		≥ 500 V breakdown voltage

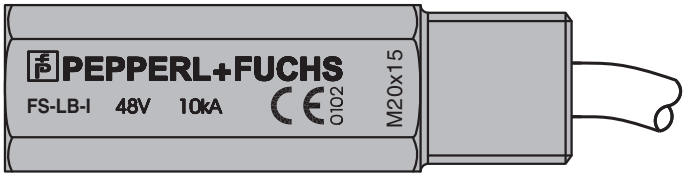
Release date: 2024-01-15 Date of issue: 2024-01-15 Filename: 098916_eng.pdf

Technical Data

Electrical specifications		
Total discharge current (8/20 µs)	I_{total}	20 kA
Conformity		
Degree of protection		IEC 60529:2001
Ambient conditions		
Ambient temperature		-30 ... 60 °C (-22 ... 140 °F) For usage in hazardous area observe the EC-type examination certificate.
Mechanical specifications		
Housing material		Stainless steel 1.4401 (AISI 316) surface all over polished
Degree of protection		IP67
Cable		
Length	L	0.3 m
Mass		approx. 200 g
Dimensions		AF22 x 77 mm (0.9 x 3 inch)
Length		77 mm
Width across flats		22
Mounting		M20 x 1.5 thread
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 00 ATEX 2175
Marking		⟨Ex⟩ II 2G EEx ia IIC T6
Voltage	U_i	50 V
Maximum leakage current		10 kA line to ground (common), 5 kA line to line (differential) in accordance to IEC 60-2
Nominal response time		
Symmetrical		1 ns
Asymmetric		100 ns
Bandwidth		≥ 40 kHz
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013 , EN 60079-11:2012
International approvals		
CSA approval		
Control drawing		116-0187 (cCSAus)
General information		
Supplementary information		EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable.

Release date: 2024-01-15 Date of issue: 2024-01-15 Filename: 098916_eng.pdf

Assembly

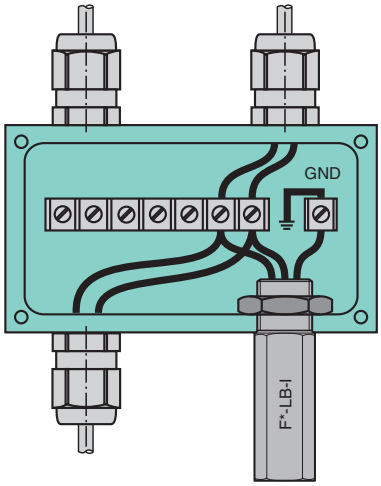


Release date: 2024-01-15 Date of issue: 2024-01-15 Filename: 098916_eng.pdf

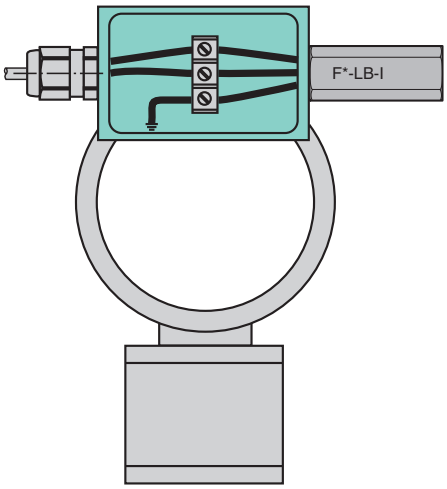
Connection

Installation examples

Terminal box



Transmitter



Release date: 2024-01-15 Date of issue: 2024-01-15 Filename: 098916_eng.pdf

Surge Protection Barrier

FP-LB-I

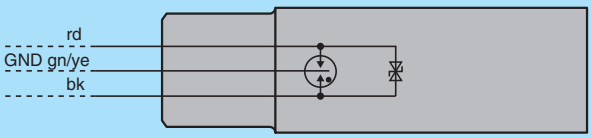
- 1-channel
- Field mount module
- PG13.5 thread
- Stainless steel housing
- Max. surge current (8/20 µs) 20 kA
- 500 V isolation from earth
- Suitable for hazardous area
- Up to SIL 3 acc. to IEC/EN 61508

SIL 3

Function

This Surge Protection Barrier limits induced transients of different origin (e. g. lightning stroke, switching impulse, etc.). This is achieved by diverting the transient current to ground and limiting the signal line voltage to a safe level for the duration of the surge.
This barrier provides 85 V line-to-line and 500 V line-to-ground clamping voltage for the protected instruments. It also protects instruments that have less than 500 V isolation-to-ground.
It is installed in an available conduit or cable gland opening like those found on most process transmitters.
For additional information, refer to the manual and
Note: Surge Protection Barriers must always be connected to a solid and effective ground and be at the same equipotential level as the instrument it is protecting. The ground system must comply with all applicable regulations.

Connection



Zone 1, 2
Div. 1, 2

Technical Data

General specifications		
Number of protected signal lines		1
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Supply		
Rated voltage	U_r	≤ 48 V
Rated current	I_r	≤ 250 mA
Leakage current		≤ 5 µA
On-state voltage		≤ 85 V
Ground insulation		≥ 500 V breakdown voltage

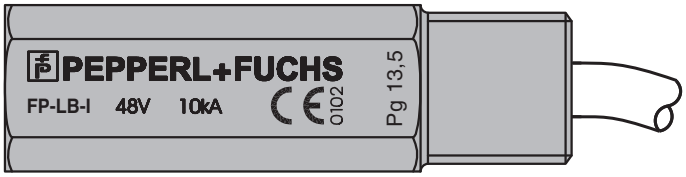
Release date: 2024-01-15 Date of issue: 2024-01-15 Filename: 098917_eng.pdf

Technical Data

Electrical specifications		
Total discharge current (8/20 µs)	I_{total}	20 kA
Conformity		
Degree of protection		IEC 60529:2001
Ambient conditions		
Ambient temperature		-30 ... 60 °C (-22 ... 140 °F) For usage in hazardous area observe the EC-type examination certificate.
Mechanical specifications		
Housing material		Stainless steel 1.4401 (AISI 316) surface all over polished
Degree of protection		IP67
Cable		
Length	L	0.3 m
Mass		approx. 200 g
Dimensions		AF22 x 77 mm (0.9 x 3 inch)
Length		77 mm
Width across flats		22
Mounting		PG13.5 thread
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 00 ATEX 2175
Marking		⟨Ex⟩ II 2G EEx ia IIC T6
Voltage	U_i	50 V
Maximum leakage current		10 kA line to ground (common), 5 kA line to line (differential) in accordance to IEC 60-2
Nominal response time		
Symmetrical		1 ns
Asymmetric		100 ns
Bandwidth		≥ 40 kHz
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013 , EN 60079-11:2012
International approvals		
CSA approval		
Control drawing		116-0187 (cCSAus)
General information		
Supplementary information		EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable.

Release date: 2024-01-15 Date of issue: 2024-01-15 Filename: 098917_eng.pdf

Assembly

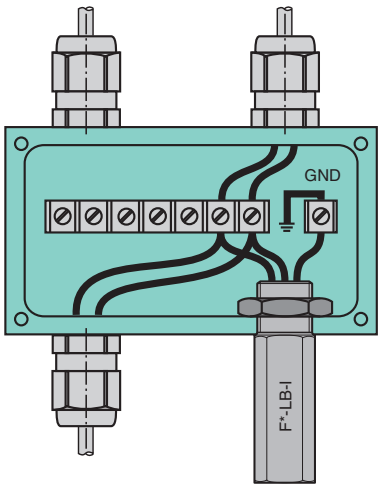


Release date: 2024-01-15 Date of issue: 2024-01-15 Filename: 098917_eng.pdf

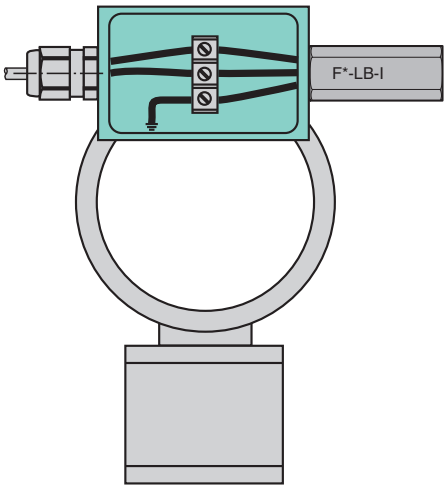
Connection

Installation examples

Terminal box



Transmitter



Release date: 2024-01-15 Date of issue: 2024-01-15 Filename: 098917_eng.pdf

Surge Protection Barrier

FN-LB-I

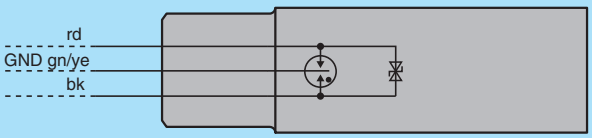
- 1-channel
- Field mount module
- ½ NPT thread
- Stainless steel housing
- Max. surge current (8/20 µs) 20 kA
- 500 V isolation from earth
- Suitable for hazardous area
- Up to SIL 3 acc. to IEC/EN 61508

SIL 3

Function

This Surge Protection Barrier limits induced transients of different origin (e. g. lightning stroke, switching impulse, etc.). This is achieved by diverting the transient current to ground and limiting the signal line voltage to a safe level for the duration of the surge.
This barrier provides 85 V line-to-line and 500 V line-to-ground clamping voltage for the protected instruments. It also protects instruments that have less than 500 V isolation-to-ground.
It is installed in an available conduit or cable gland opening like those found on most process transmitters.
For additional information, refer to the manual and
Note: Surge Protection Barriers must always be connected to a solid and effective ground and be at the same equipotential level as the instrument it is protecting. The ground system must comply with all applicable regulations.

Connection



Zone 1, 2
Div. 1, 2

Technical Data

General specifications		
Number of protected signal lines		1
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Supply		
Rated voltage	U_r	≤ 48 V
Rated current	I_r	≤ 250 mA
Leakage current		≤ 5 µA
On-state voltage		≤ 85 V
Ground insulation		≥ 500 V breakdown voltage

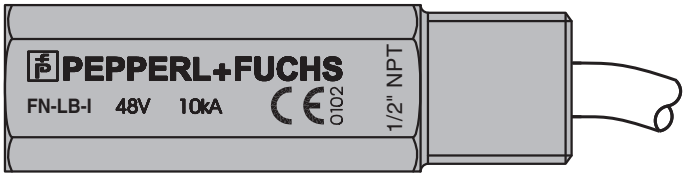
Release date: 2024-01-15 Date of issue: 2024-01-15 Filename: 098918_eng.pdf

Technical Data

Electrical specifications		
Total discharge current (8/20 µs)	I_{total}	20 kA
Conformity		
Degree of protection		IEC 60529:2001
Ambient conditions		
Ambient temperature		-30 ... 60 °C (-22 ... 140 °F) For usage in hazardous area observe the EC-type examination certificate.
Mechanical specifications		
Housing material		Stainless steel 1.4401 (AISI 316) surface all over polished
Degree of protection		IP67
Cable		
Length	L	0.3 m
Mass		approx. 200 g
Dimensions		AF22 x 77 mm (0.9 x 3 inch)
Length		77 mm
Width across flats		22
Mounting		NPT1/2 thread
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 00 ATEX 2175
Marking		⟨Ex⟩ II 2G EEx ia IIC T6
Voltage	U_i	50 V
Maximum leakage current		10 kA line to ground (common), 5 kA line to line (differential) in accordance to IEC 60-2
Nominal response time		
Symmetrical		1 ns
Asymmetric		100 ns
Bandwidth		≥ 40 kHz
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013 , EN 60079-11:2012
International approvals		
CSA approval		
Control drawing		116-0187 (cCSAus)
General information		
Supplementary information		EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable.

Release date: 2024-01-15 Date of issue: 2024-01-15 Filename: 098918_eng.pdf

Assembly

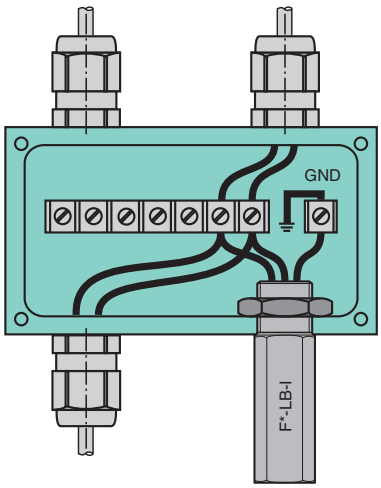


Release date: 2024-01-15 Date of issue: 2024-01-15 Filename: 098918_eng.pdf

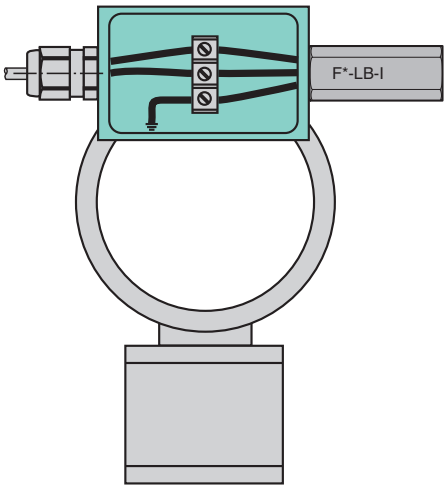
Connection

Installation examples

Terminal box



Transmitter



Release date: 2024-01-15 Date of issue: 2024-01-15 Filename: 098918_eng.pdf

Surge Protection Barrier

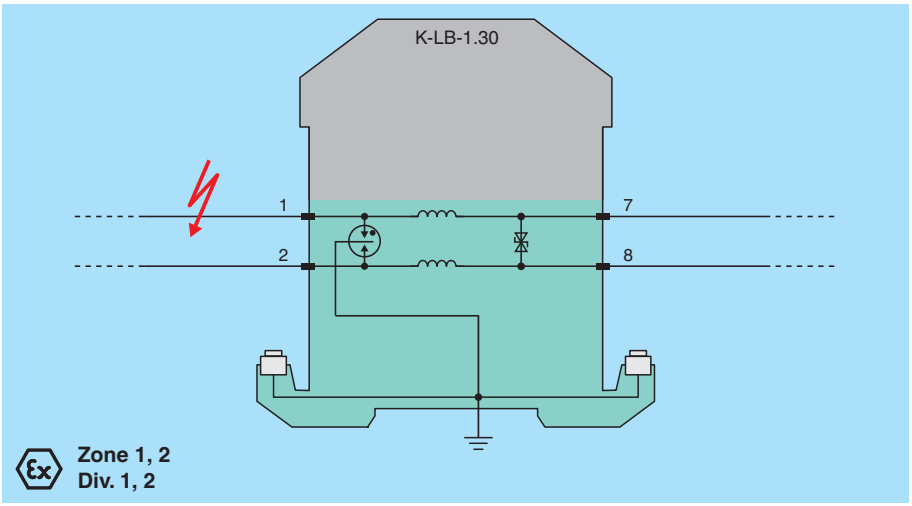
K-LB-1.30

- 1-channel
- Mounting on DIN mounting rail
- For intrinsically safe or non-intrinsically safe 30 V applications
- Protects field or control circuit inputs
- Max. surge current (8/20 µs) 20 kA
- Uninterruptable operation (auto reset)
- Up to SIL 3 acc. to IEC/EN 61508

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device is HART transparent.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.
Note:
Always connect the device to high-quality ground connections. The device must have the same potential as the devices it protects. Install the ground system in accordance with the applicable regulations.

Connection



Technical Data

General specifications		
Number of protected signal lines		2
Topology		non-grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 7, 8 unprotected area: terminals 1, 2
Rated current	I_r	250 mA
Leakage current		< 5 µA at 24 V and 25 °C (77 °F) , line-line

Release date: 2022-03-03 Date of issue: 2022-03-03 Filename: 098908_eng.pdf

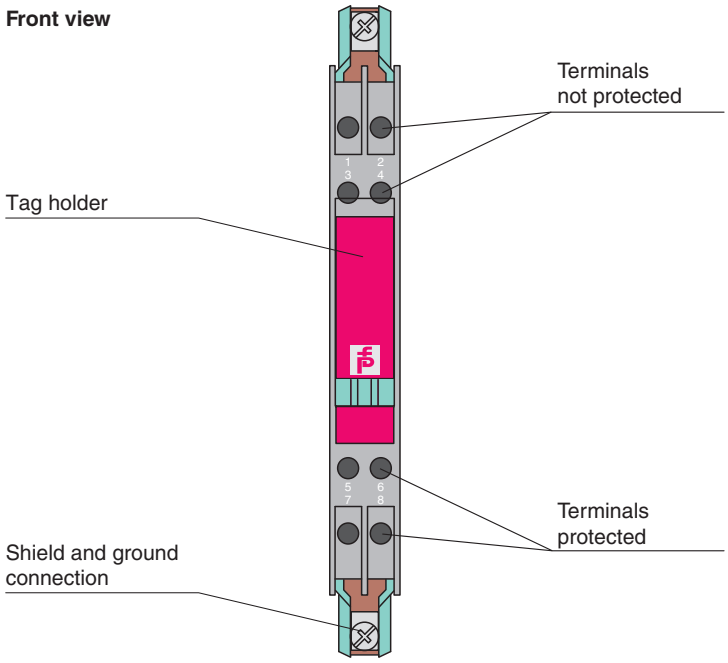
Technical Data

Nominal voltage		24 V DC
Maximum continuous operating voltage	U_c	30 V DC
Series resistance		< 0.5 Ω per line
Impulse rating		10 kV/5 kA (category C2) 2 kV/2 kA (category D1)
Impulse discharge current (10/350 µs)	I_{imp}	2 kA per line (2x)
Nominal discharge current (8/20 µs)	I_n	5 kA per line (10x)
Rated surge current (8/20 µs)	I_{SM}	10 kA per line (1x)
Total discharge current (8/20 µs)	I_{total}	20 kA (1x)
Voltage protection level	U_p	max. 75 V line-line for nominal discharge current I_n max. 1.2 kV line-earth for nominal discharge current I_n
Impulse reset time		< 30 ms
Insertion loss		≤ 0.05 dB, at 0 ... 4 kHz, in 600 Ω-System ≤ 3 dB, at 0 ... 174 kHz, in 100 Ω-System
Indicators/settings		
Labeling		space for labeling at the front
Conformity		
Degree of protection		IEC 60529:2013
Surge protective devices for low voltage		EN 61643-21:2001+A1:2009+A2:2013 IEC 61643-21:2001+A1:2008+A2:2012
Operating conditions		
Installation conditions		
Mounting location		indoor
Ambient conditions		
Ambient temperature		-30 ... 80 °C (-22 ... 176 °F) For usage in hazardous area observe EC-type examination certificate.
Relative humidity		5 ... 95 %
Mechanical specifications		
Degree of protection		IP20
Connection		screw terminals
Core cross section		2 x 2.5 mm²
Mass		approx. 100 g
Dimensions		12.5 x 115 x 116 mm (0.5 x 4.5 x 4.6 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 00 ATEX 2176 X
Marking		⟨Ex⟩ II 2(1)G Ex ia IIC T6/T5/T4
Temperature class		T6 for ambient temperature ≤ 50 °C T5 for ambient temperature ≤ 70 °C T4 for ambient temperature ≤ 80 °C
Voltage	U_i	30 V
Current	I_i	250 mA
Internal capacitance	C_i	negligible
Internal inductance	L_i	200 µH
Certificate		PF 16 CERT 4065 X
Marking		⟨Ex⟩ II (3)D [Ex ic Dc] IIIC
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013 , EN 60079-11:2012
International approvals		
CSA approval		
Control drawing		116-0187 (cCSAus)
IECEx approval		
IECEx certificate		IECEx BAS 14.0010X
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2022-03-03 Date of issue: 2022-03-03 Filename: 098908_eng.pdf

Assembly

Front view



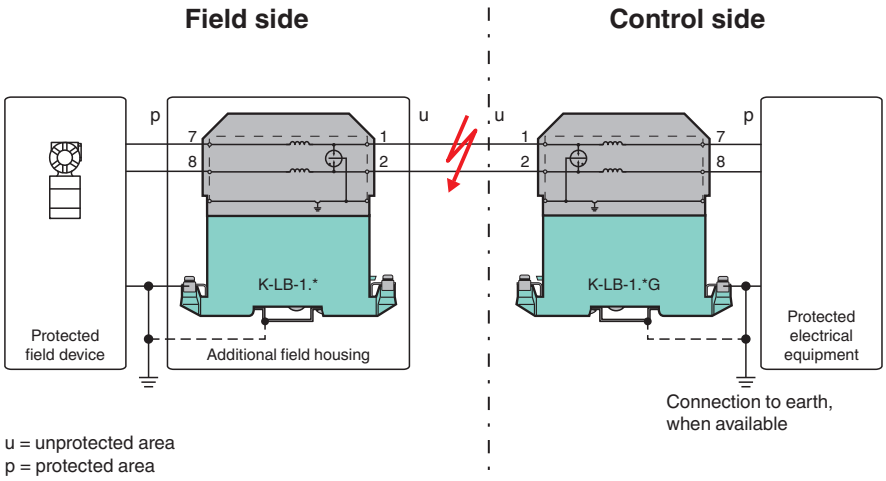
Matching System Components

	USLKG5	Terminal block for equipotential bonding

Release date: 2022-03-03 Date of issue: 2022-03-03 Filename: 098908_eng.pdf

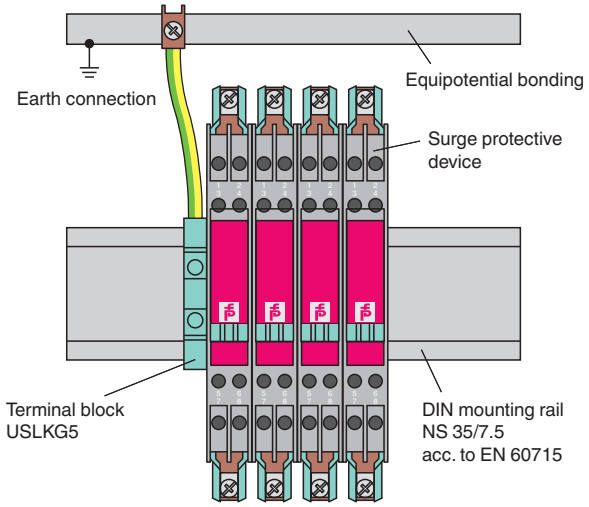
Connection

Topology

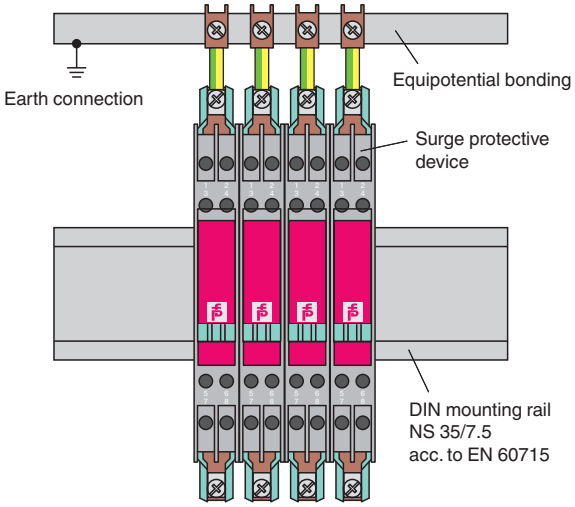


Installation

Installation examples



Insulated mounting (group grounding)



Insulated mounting (individual grounding)

Release date: 2022-03-03 Date of issue: 2022-03-03 Filename: 098908_eng.pdf

Surge Protection Barrier

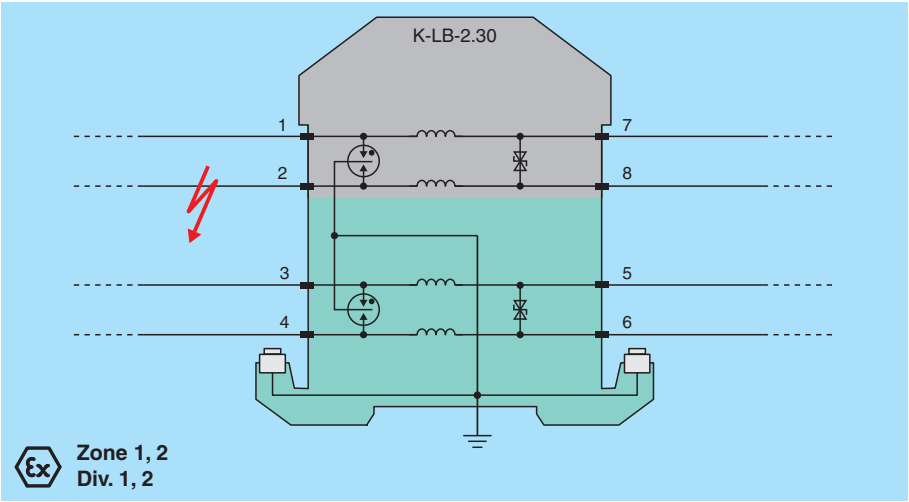
K-LB-2.30

- 2-channel
- Mounting on DIN mounting rail
- For intrinsically safe or non-intrinsically safe 30 V applications
- Protects field or control circuit inputs
- Max. surge current (8/20 µs) 20 kA
- Uninterruptable operation (auto reset)
- Up to SIL 3 acc. to IEC/EN 61508

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device is HART transparent.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.
Note:
Always connect the device to high-quality ground connections. The device must have the same potential as the devices it protects. Install the ground system in accordance with the applicable regulations.

Connection



Technical Data

General specifications		
Number of protected signal lines		4
Topology		non-grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 5, 6; 7, 8 unprotected area: terminals 1, 2; 3, 4
Rated current	I_r	250 mA
Leakage current		< 5 µA at 24 V and 25 °C (77 °F) , line-line

Release date: 2022-03-03 Date of issue: 2022-03-03 Filename: 098909_eng.pdf

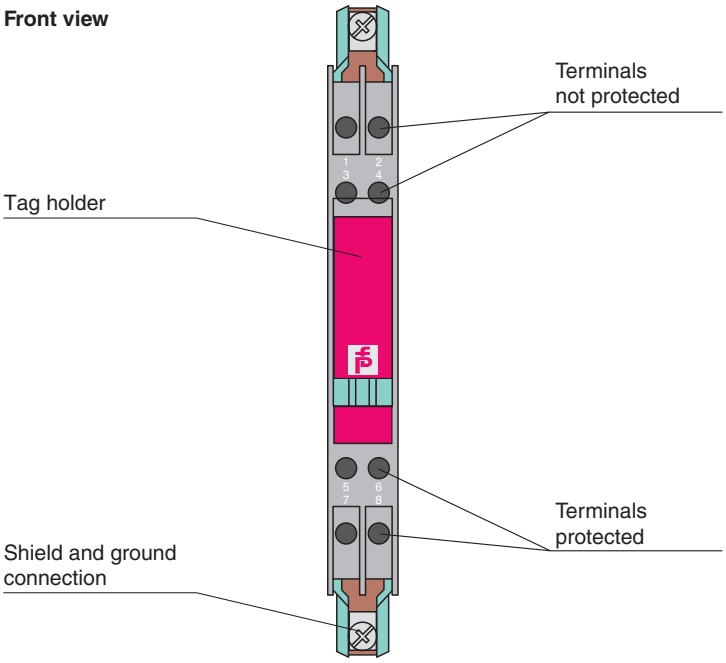
Technical Data

Nominal voltage		24 V DC
Maximum continuous operating voltage	U_c	30 V DC
Series resistance		< 0.5 Ω per line
Impulse rating		10 kV/5 kA (category C2) 2 kV/2 kA (category D1)
Impulse discharge current (10/350 µs)	I_{imp}	2 kA per line (2x)
Nominal discharge current (8/20 µs)	I_n	5 kA per line (10x)
Rated surge current (8/20 µs)	I_{SM}	10 kA per line (1x)
Total discharge current (8/20 µs)	I_{total}	20 kA (1x)
Voltage protection level	U_p	max. 75 V line-line for nominal discharge current I_n max. 1.2 kV line-earth for nominal discharge current I_n
Impulse reset time		< 30 ms
Insertion loss		≤ 0.05 dB, at 0 ... 4 kHz, in 600 Ω-System ≤ 3 dB, at 0 ... 174 kHz, in 100 Ω-System
Indicators/settings		
Labeling		space for labeling at the front
Conformity		
Degree of protection		IEC 60529:2013
Surge protective devices for low voltage		EN 61643-21:2001+A1:2009+A2:2013 IEC 61643-21:2001+A1:2008+A2:2012
Operating conditions		
Installation conditions		
Mounting location		indoor
Ambient conditions		
Ambient temperature		-30 ... 80 °C (-22 ... 176 °F) For usage in hazardous area observe EC-type examination certificate.
Relative humidity		5 ... 95 %
Mechanical specifications		
Degree of protection		IP20
Connection		screw terminals
Core cross section		2 x 2.5 mm²
Mass		approx. 100 g
Dimensions		12.5 x 115 x 116 mm (0.5 x 4.5 x 4.6 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 00 ATEX 2176 X
Marking		⟨Ex⟩ II 2(1)G Ex ia IIC T6/T5/T4
Temperature class		T6 for ambient temperature ≤ 50 °C T5 for ambient temperature ≤ 70 °C T4 for ambient temperature ≤ 80 °C
Voltage	U_i	30 V
Current	I_i	250 mA
Internal capacitance	C_i	negligible
Internal inductance	L_i	200 µH
Certificate		PF 16 CERT 4065 X
Marking		⟨Ex⟩ II (3)D [Ex ic Dc] IIIC
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013 , EN 60079-11:2012
International approvals		
CSA approval		
Control drawing		116-0187 (cCSAus)
IECEx approval		
IECEx certificate		IECEx BAS 14.0010X
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2022-03-03 Date of issue: 2022-03-03 Filename: 098909_eng.pdf

Assembly

Front view



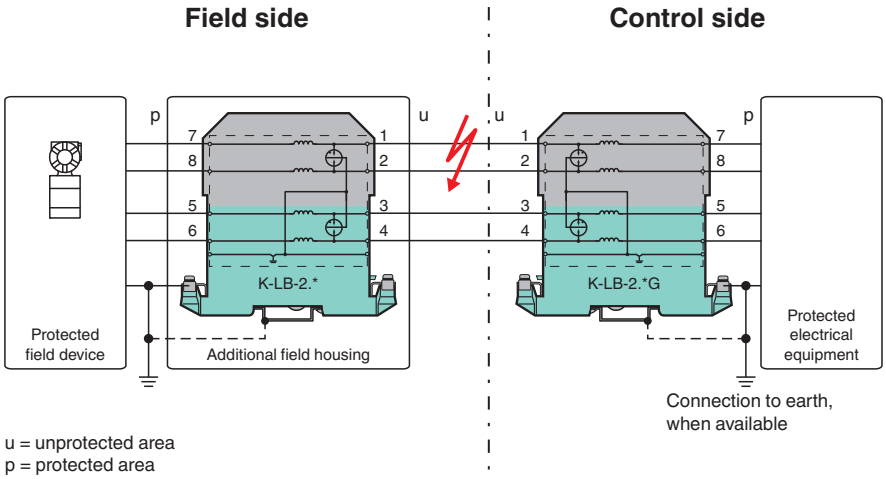
Matching System Components

	USLKG5	Terminal block for equipotential bonding

Release date: 2022-03-03 Date of issue: 2022-03-03 Filename: 098909_eng.pdf

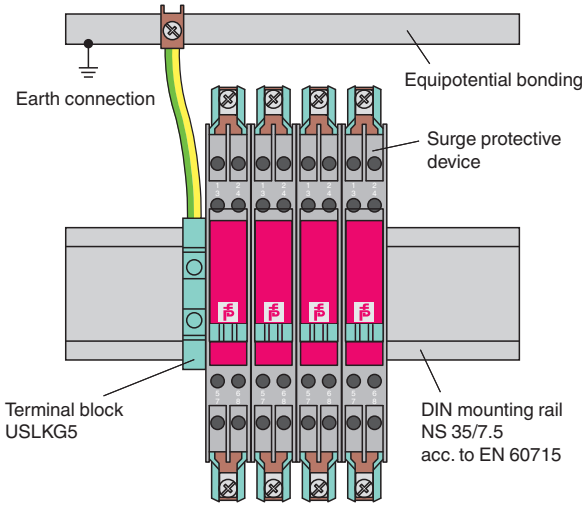
Application

Topology

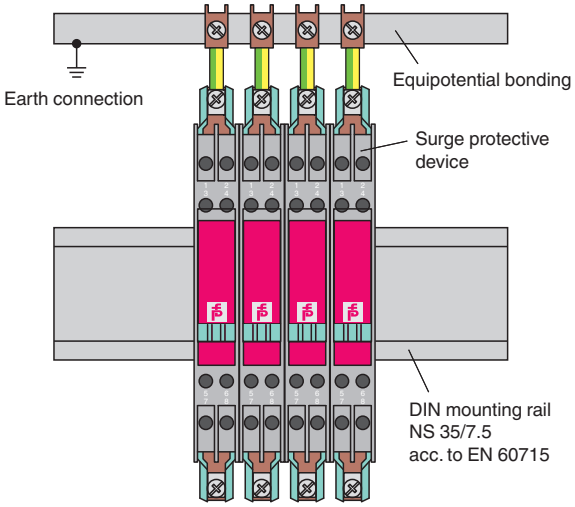


Installation

Installation examples



Insulated mounting (group grounding)



Insulated mounting (individual grounding)

Release date: 2022-03-03 Date of issue: 2022-03-03 Filename: 098909_eng.pdf

Surge Protection Barrier

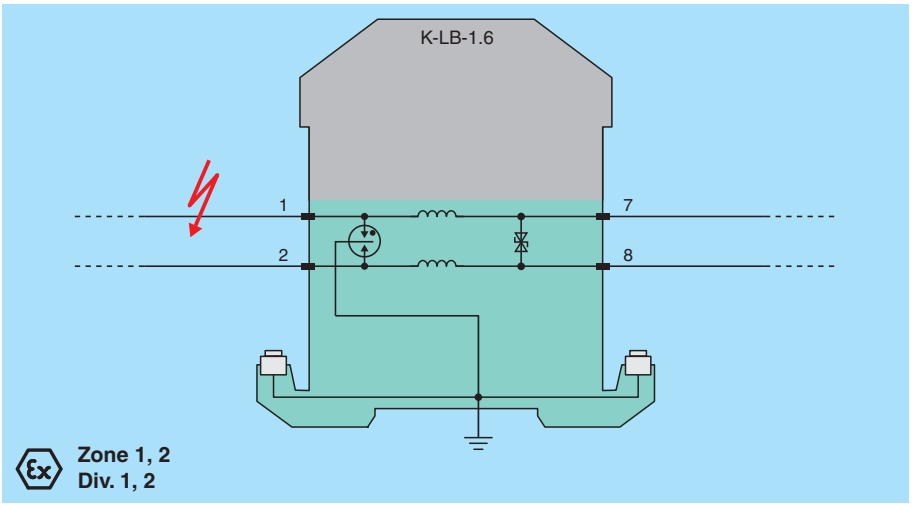
K-LB-1.6

- 1-channel
- Mounting on DIN mounting rail
- For intrinsically safe or non-intrinsically safe 6 V applications
- Protects field or control circuit inputs
- Max. surge current (8/20 µs) 20 kA
- Uninterruptable operation (auto reset)
- Up to SIL 3 acc. to IEC/EN 61508

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device is HART transparent.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.
Note:
Always connect the device to high-quality ground connections. The device must have the same potential as the devices it protects. Install the ground system in accordance with the applicable regulations.

Connection



Technical Data

General specifications		
Number of protected signal lines		2
Topology		non-grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 7, 8 unprotected area: terminals 1, 2
Rated current	I_r	250 mA
Leakage current		< 5 µA at 1 V and 25 °C (77 °F) , line-line

Release date: 2022-03-03 Date of issue: 2022-03-03 Filename: 098910_eng.pdf

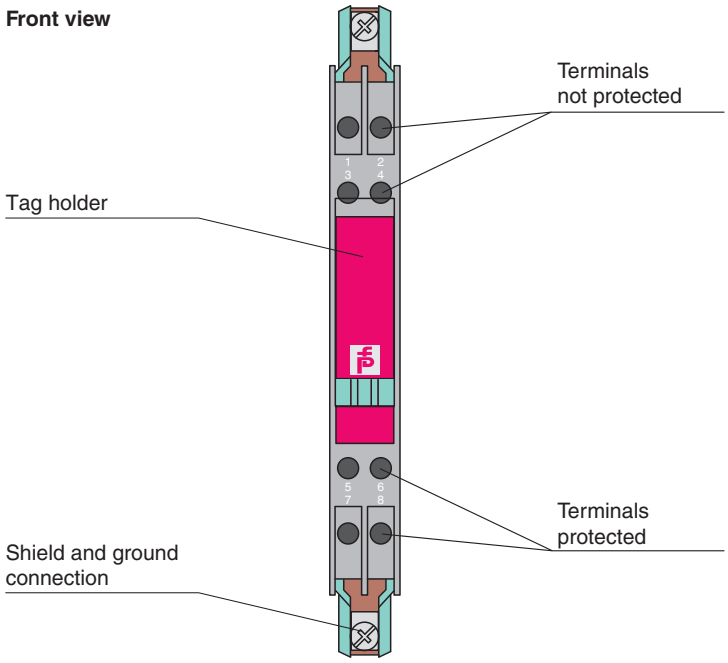
Technical Data

Nominal voltage		1 V DC
Maximum continuous operating voltage	U_c	6 V DC
Series resistance		< 0.5 Ω per line
Impulse rating		10 kV/5 kA (category C2) 2 kV/2 kA (category D1)
Impulse discharge current (10/350 µs)	I_{imp}	2 kA per line (2x)
Nominal discharge current (8/20 µs)	I_n	5 kA per line (10x)
Rated surge current (8/20 µs)	I_{SM}	10 kA per line (1x)
Total discharge current (8/20 µs)	I_{total}	20 kA (1x)
Voltage protection level	U_p	max. 60 V line-line for nominal discharge current I_n max. 1.2 kV line-earth for nominal discharge current I_n
Impulse reset time		< 30 ms
Insertion loss		≤ 0.05 dB, at 0 ... 4 kHz, in 600 Ω-System ≤ 3 dB, at 0 ... 174 kHz, in 100 Ω-System
Indicators/settings		
Labeling		space for labeling at the front
Conformity		
Degree of protection		IEC 60529:2013
Surge protective devices for low voltage		EN 61643-21:2001+A1:2009+A2:2013 IEC 61643-21:2001+A1:2008+A2:2012
Operating conditions		
Installation conditions		
Mounting location		indoor
Ambient conditions		
Ambient temperature		-30 ... 80 °C (-22 ... 176 °F) For usage in hazardous area observe EC-type examination certificate.
Relative humidity		5 ... 95 %
Mechanical specifications		
Degree of protection		IP20
Connection		screw terminals
Core cross section		2 x 2.5 mm²
Mass		approx. 100 g
Dimensions		12.5 x 115 x 116 mm (0.5 x 4.5 x 4.6 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 00 ATEX 2176 X
Marking		⟨Ex⟩ II 2(1)G Ex ia IIC T6/T5/T4
Temperature class		T6 for ambient temperature ≤ 50 °C T5 for ambient temperature ≤ 70 °C T4 for ambient temperature ≤ 80 °C
Voltage	U_i	6 V
Current	I_i	250 mA
Internal capacitance	C_i	negligible
Internal inductance	L_i	200 µH
Certificate		PF 16 CERT 4065 X
Marking		⟨Ex⟩ II (3)D [Ex ic Dc] IIIC
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013 , EN 60079-11:2012
International approvals		
CSA approval		
Control drawing		116-0187 (cCSAus)
IECEx approval		
IECEx certificate		IECEx BAS 14.0010X
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2022-03-03 Date of issue: 2022-03-03 Filename: 098910_eng.pdf

Assembly

Front view



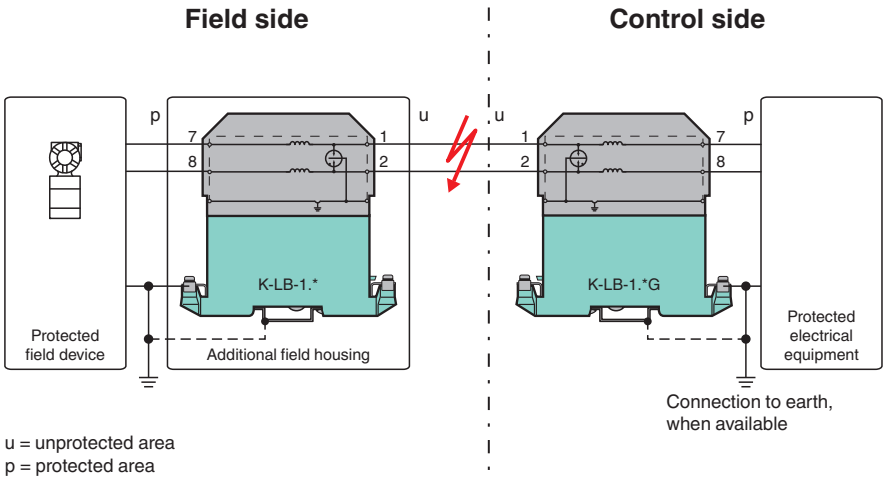
Matching System Components

	USLKG5	Terminal block for equipotential bonding

Release date: 2022-03-03 Date of issue: 2022-03-03 Filename: 098910_eng.pdf

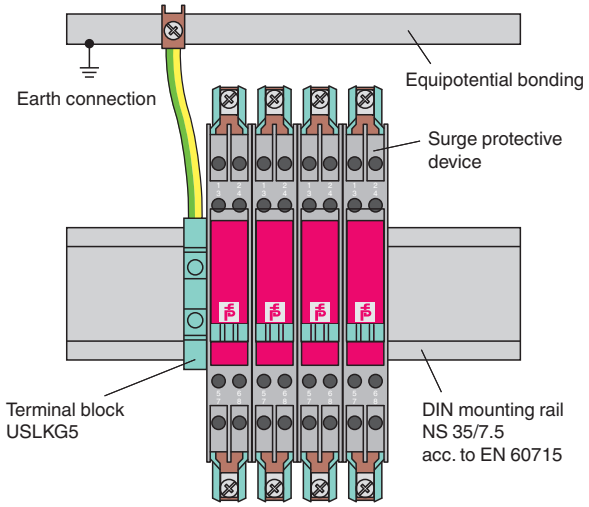
Connection

Topology

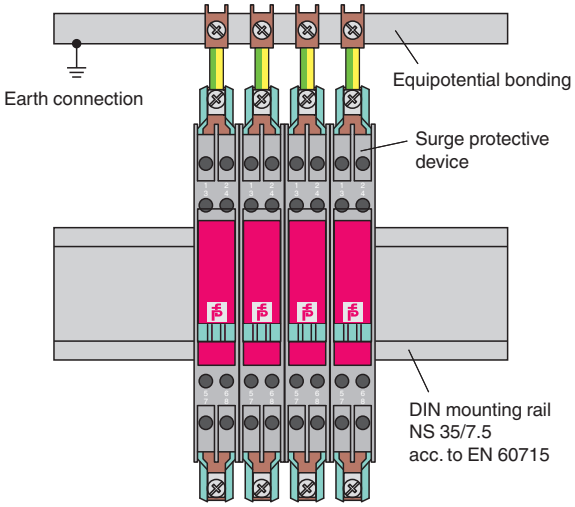


Installation

Installation examples



Insulated mounting (group grounding)



Insulated mounting (individual grounding)

Release date: 2022-03-03 Date of issue: 2022-03-03 Filename: 098910_eng.pdf

Surge Protection Barrier

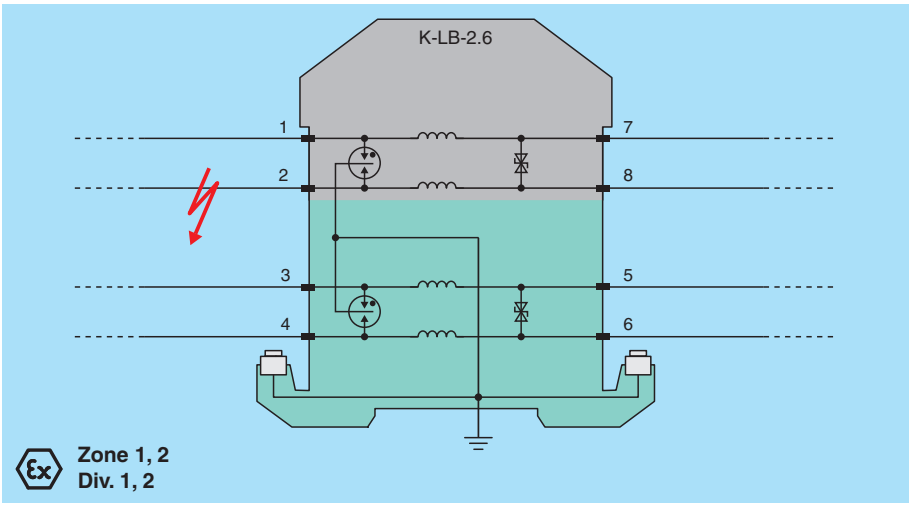
K-LB-2.6

- 2-channel
- Mounting on DIN mounting rail
- For intrinsically safe or non-intrinsically safe 6 V applications
- Protects field or control circuit inputs
- Max. surge current (8/20 µs) 20 kA
- Uninterruptable operation (auto reset)
- Up to SIL 3 acc. to IEC/EN 61508

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device is HART transparent.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.
Note:
Always connect the device to high-quality ground connections. The device must have the same potential as the devices it protects. Install the ground system in accordance with the applicable regulations.

Connection



Technical Data

General specifications		
Number of protected signal lines		4
Topology		non-grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 5, 6; 7, 8 unprotected area: terminals 1, 2; 3, 4
Rated current	I_r	250 mA
Leakage current		< 5 µA at 1 V and 25 °C (77 °F) , line-line

Release date: 2022-03-03 Date of issue: 2022-03-03 Filename: 098911_eng.pdf

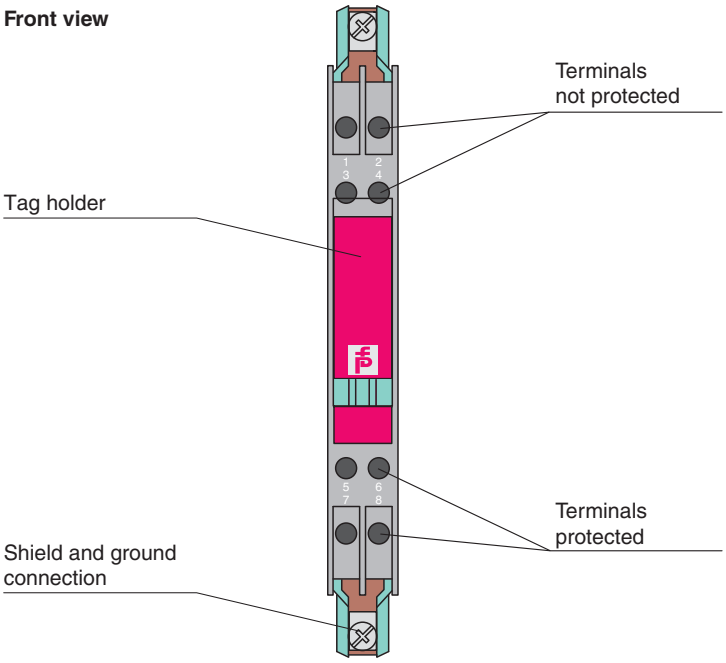
Technical Data

Nominal voltage		1 V DC
Maximum continuous operating voltage	U_c	6 V DC
Series resistance		< 0.5 Ω per line
Impulse rating		10 kV/5 kA (category C2) 2 kV/2 kA (category D1)
Impulse discharge current (10/350 µs)	I_{imp}	2 kA per line (2x)
Nominal discharge current (8/20 µs)	I_n	5 kA per line (10x)
Rated surge current (8/20 µs)	I_{SM}	10 kA per line (1x)
Total discharge current (8/20 µs)	I_{total}	20 kA (1x)
Voltage protection level	U_p	max. 60 V line-line for nominal discharge current I_n max. 1.2 kV line-earth for nominal discharge current I_n
Impulse reset time		< 30 ms
Insertion loss		≤ 0.05 dB, at 0 ... 4 kHz, in 600 Ω-System ≤ 3 dB, at 0 ... 174 kHz, in 100 Ω-System
Indicators/settings		
Labeling		space for labeling at the front
Conformity		
Degree of protection		IEC 60529:2013
Surge protective devices for low voltage		EN 61643-21:2001+A1:2009+A2:2013 IEC 61643-21:2001+A1:2008+A2:2012
Operating conditions		
Installation conditions		
Mounting location		indoor
Ambient conditions		
Ambient temperature		-30 ... 80 °C (-22 ... 176 °F) For usage in hazardous area observe EC-type examination certificate.
Relative humidity		5 ... 95 %
Mechanical specifications		
Degree of protection		IP20
Connection		screw terminals
Core cross section		2 x 2.5 mm²
Mass		approx. 100 g
Dimensions		12.5 x 115 x 116 mm (0.5 x 4.5 x 4.6 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 00 ATEX 2176 X
Marking		Ⓔx II 2(1)G Ex ia IIC T6/T5/T4
Temperature class		T6 for ambient temperature ≤ 50 °C T5 for ambient temperature ≤ 70 °C T4 for ambient temperature ≤ 80 °C
Voltage	U_i	6 V
Current	I_i	250 mA
Internal capacitance	C_i	negligible
Internal inductance	L_i	200 µH
Certificate		PF 16 CERT 4065 X
Marking		Ⓔx II (3)D [Ex ic Dc] IIIC
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013 , EN 60079-11:2012
International approvals		
CSA approval		
Control drawing		116-0187 (cCSAus)
IECEx approval		
IECEx certificate		IECEx BAS 14.0010X
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2022-03-03 Date of issue: 2022-03-03 Filename: 098911_eng.pdf

Assembly

Front view



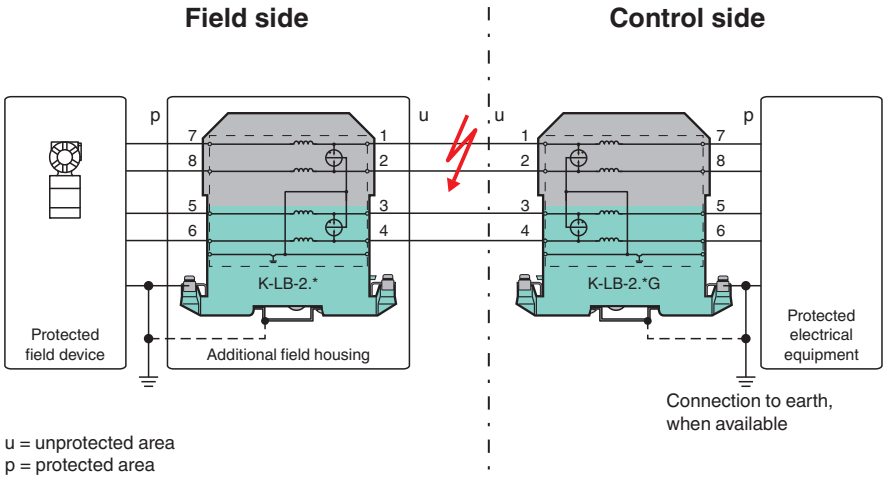
Matching System Components

	USLKG5	Terminal block for equipotential bonding

Release date: 2022-03-03 Date of issue: 2022-03-03 Filename: 098911_eng.pdf

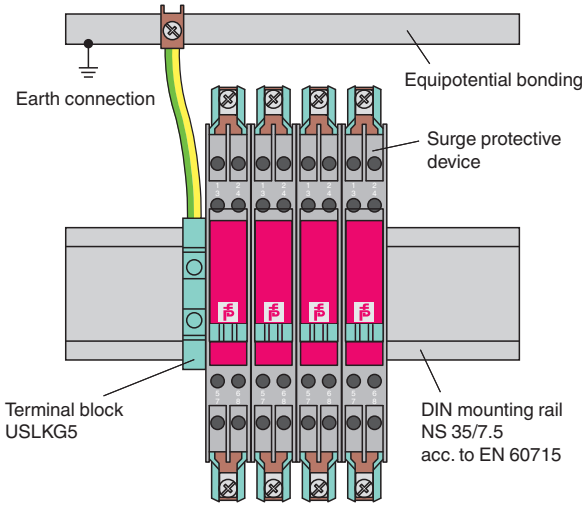
Application

Topology

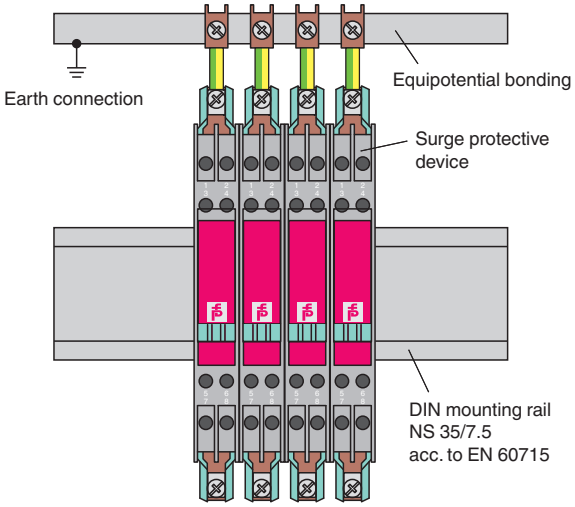


Installation

Installation examples



Insulated mounting (group grounding)



Insulated mounting (individual grounding)

Release date: 2022-03-03 Date of issue: 2022-03-03 Filename: 098911_eng.pdf

Surge Protection Barrier

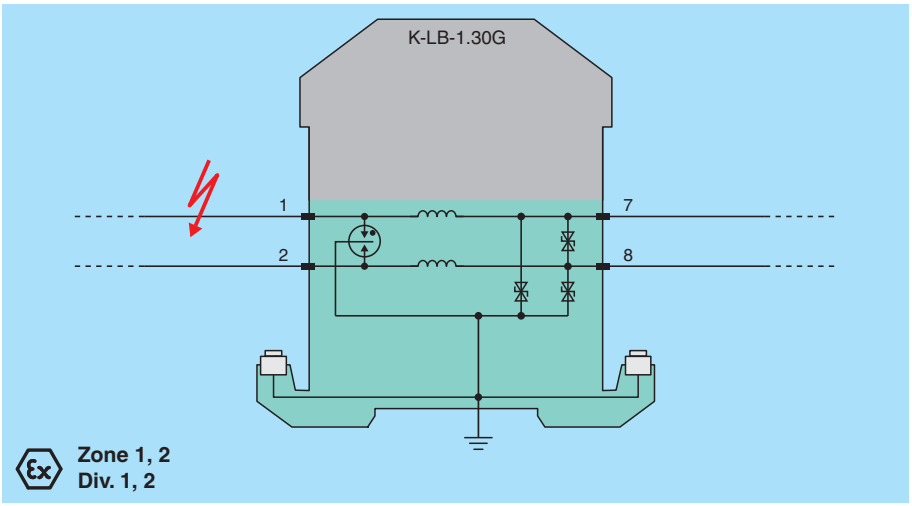
K-LB-1.30G

- 1-channel
- Mounting on DIN mounting rail
- For intrinsically safe or non-intrinsically safe 30 V applications
- Protects field or control circuit inputs
- Max. surge current (8/20 µs) 20 kA
- Uninterruptable operation (auto reset)
- Up to SIL 3 acc. to IEC/EN 61508

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device is HART transparent.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.
Note:
Always connect the device to high-quality ground connections. The device must have the same potential as the devices it protects. Install the ground system in accordance with the applicable regulations.

Connection



Technical Data

General specifications		
Number of protected signal lines		2
Topology		grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 7, 8 unprotected area: terminals 1, 2
Rated current	I_r	250 mA
Leakage current		< 10 µA at 24 V and 25 °C (77 °F) , line-line

Release date: 2022-03-03 Date of issue: 2022-03-03 Filename: 098912_eng.pdf

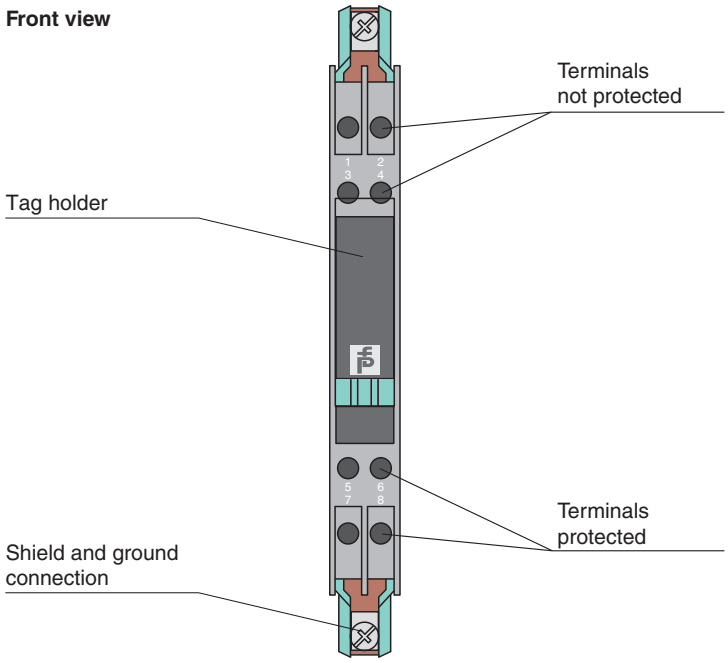
Technical Data

Nominal voltage		24 V DC
Maximum continuous operating voltage	U_c	30 V DC
Series resistance		< 0.5 Ω per line
Impulse rating		10 kV/5 kA (category C2) 2 kV/2 kA (category D1)
Impulse discharge current (10/350 µs)	I_{imp}	2 kA per line (2x)
Nominal discharge current (8/20 µs)	I_n	5 kA per line (10x)
Rated surge current (8/20 µs)	I_{SM}	10 kA per line (1x)
Total discharge current (8/20 µs)	I_{total}	20 kA (1x)
Voltage protection level	U_p	max. 100 V line-line for nominal discharge current I_n max. 50 V line-earth for nominal discharge current I_n
Impulse reset time		< 30 ms
Insertion loss		≤ 0.05 dB, at 0 ... 4 kHz, in 600 Ω-System ≤ 3 dB, at 0 ... 174 kHz, in 100 Ω-System
Indicators/settings		
Labeling		space for labeling at the front
Conformity		
Degree of protection		IEC 60529:2013
Surge protective devices for low voltage		EN 61643-21:2001+A1:2009+A2:2013 IEC 61643-21:2001+A1:2008+A2:2012
Operating conditions		
Installation conditions		
Mounting location		indoor
Ambient conditions		
Ambient temperature		-30 ... 80 °C (-22 ... 176 °F) For usage in hazardous area observe EC-type examination certificate.
Relative humidity		5 ... 95 %
Mechanical specifications		
Degree of protection		IP20
Connection		screw terminals
Core cross section		2 x 2.5 mm²
Mass		approx. 100 g
Dimensions		12.5 x 115 x 116 mm (0.5 x 4.5 x 4.6 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 00 ATEX 2176 X
Marking		⟨Ex⟩ II 2(1)G Ex ia IIC T6/T5/T4
Temperature class		T6 for ambient temperature ≤ 50 °C T5 for ambient temperature ≤ 70 °C T4 for ambient temperature ≤ 80 °C
Voltage	U_i	30 V
Current	I_i	250 mA
Internal capacitance	C_i	negligible
Internal inductance	L_i	200 µH
Certificate		PF 16 CERT 4065 X
Marking		⟨Ex⟩ II (3)D [Ex ic Dc] IIIC
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013 , EN 60079-11:2012
International approvals		
CSA approval		
Control drawing		116-0187 (cCSAus)
IECEx approval		
IECEx certificate		IECEx BAS 14.0010X
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2022-03-03 Date of issue: 2022-03-03 Filename: 098912_eng.pdf

Assembly

Front view



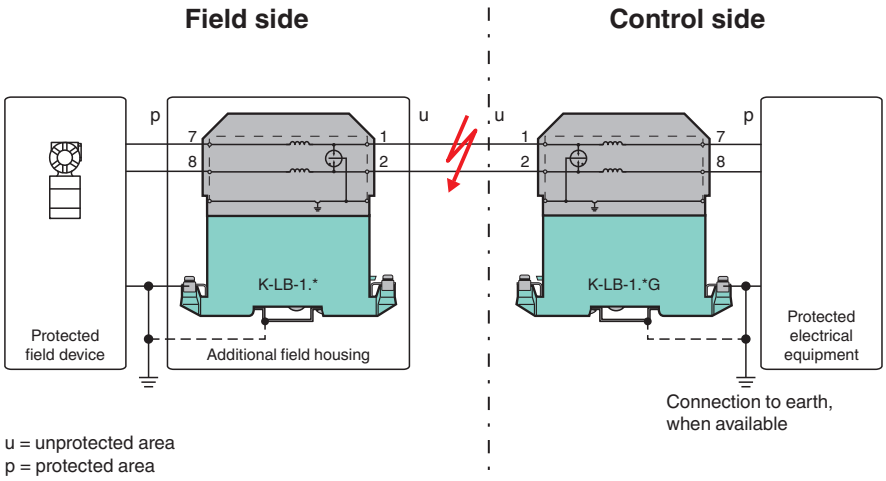
Matching System Components

	USLKG5	Terminal block for equipotential bonding

Release date: 2022-03-03 Date of issue: 2022-03-03 Filename: 098912_eng.pdf

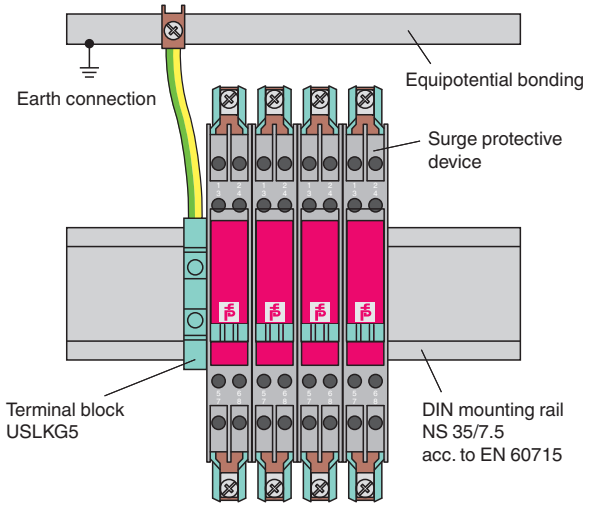
Connection

Topology

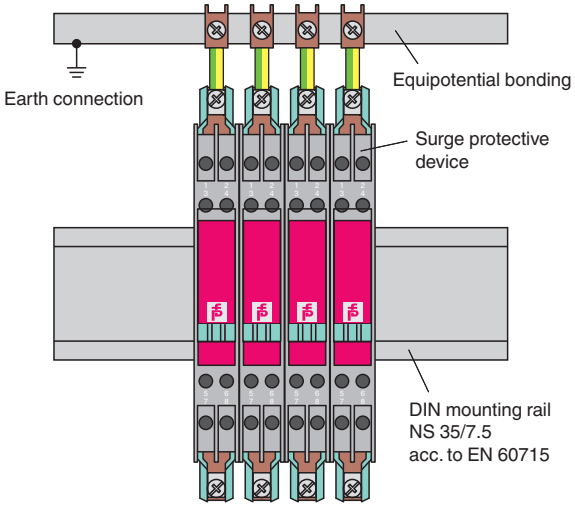


Installation

Installation examples



Insulated mounting (group grounding)



Insulated mounting (individual grounding)

Release date: 2022-03-03 Date of issue: 2022-03-03 Filename: 098912_eng.pdf

Surge Protection Barrier

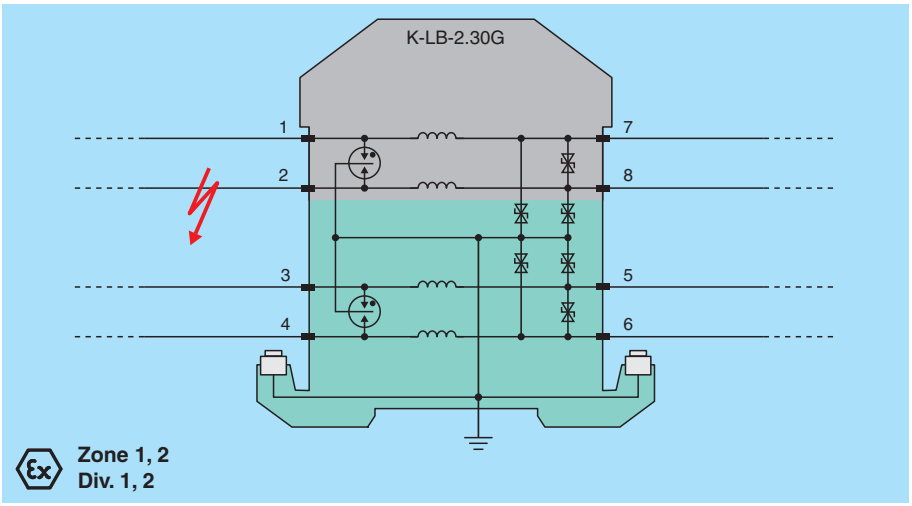
K-LB-2.30G

- 2-channel
- Mounting on DIN mounting rail
- For intrinsically safe or non-intrinsically safe 30 V applications
- Protects field or control circuit inputs
- Max. surge current (8/20 µs) 20 kA
- Uninterruptable operation (auto reset)
- Up to SIL 3 acc. to IEC/EN 61508

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device is HART transparent.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.
Note:
Always connect the device to high-quality ground connections. The device must have the same potential as the devices it protects. Install the ground system in accordance with the applicable regulations.

Connection



Technical Data

General specifications		
Number of protected signal lines		4
Topology		grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 5, 6; 7, 8 unprotected area: terminals 1, 2; 3, 4
Rated current	I_r	250 mA
Leakage current		< 10 µA at 24 V and 25 °C (77 °F) , line-line

Release date: 2022-03-03 Date of issue: 2022-03-03 Filename: 098913_eng.pdf

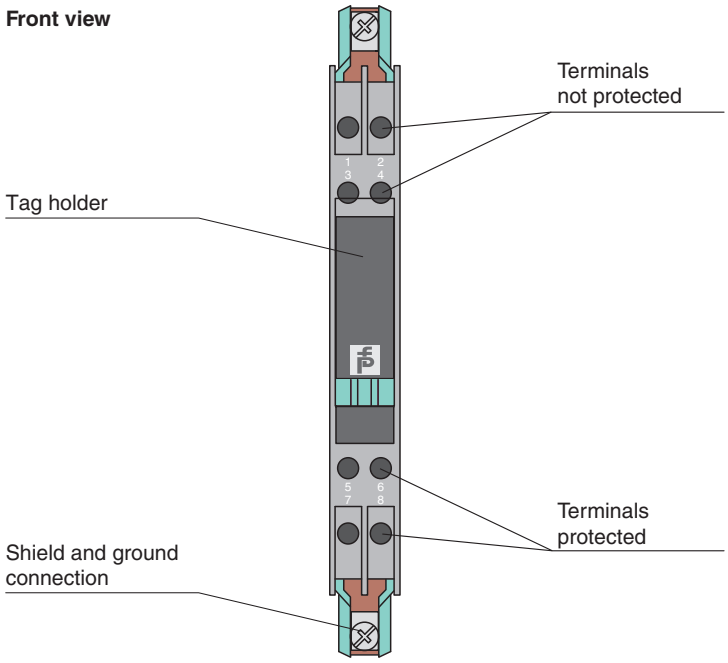
Technical Data

Nominal voltage		24 V DC
Maximum continuous operating voltage	U_c	30 V DC
Series resistance		< 0.5 Ω per line
Impulse rating		10 kV/5 kA (category C2) 2 kV/2 kA (category D1)
Impulse discharge current (10/350 µs)	I_{imp}	2 kA per line (2x)
Nominal discharge current (8/20 µs)	I_n	5 kA per line (10x)
Rated surge current (8/20 µs)	I_{SM}	10 kA per line (1x)
Total discharge current (8/20 µs)	I_{total}	20 kA (1x)
Voltage protection level	U_p	max. 100 V line-line for nominal discharge current I_n max. 50 V line-earth for nominal discharge current I_n
Impulse reset time		< 30 ms
Insertion loss		≤ 0.05 dB, at 0 ... 4 kHz, in 600 Ω-System ≤ 3 dB, at 0 ... 174 kHz, in 100 Ω-System
Indicators/settings		
Labeling		space for labeling at the front
Conformity		
Degree of protection		IEC 60529:2013
Surge protective devices for low voltage		EN 61643-21:2001+A1:2009+A2:2013 IEC 61643-21:2001+A1:2008+A2:2012
Operating conditions		
Installation conditions		
Mounting location		indoor
Ambient conditions		
Ambient temperature		-30 ... 80 °C (-22 ... 176 °F) For usage in hazardous area observe EC-type examination certificate.
Relative humidity		5 ... 95 %
Mechanical specifications		
Degree of protection		IP20
Connection		screw terminals
Core cross section		2 x 2.5 mm²
Mass		approx. 100 g
Dimensions		12.5 x 115 x 116 mm (0.5 x 4.5 x 4.6 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 00 ATEX 2176 X
Marking		⟨Ex⟩ II 2(1)G Ex ia IIC T6/T5/T4
Temperature class		T6 for ambient temperature ≤ 50 °C T5 for ambient temperature ≤ 70 °C T4 for ambient temperature ≤ 80 °C
Voltage	U_i	30 V
Current	I_i	250 mA
Internal capacitance	C_i	negligible
Internal inductance	L_i	200 µH
Certificate		PF 16 CERT 4065 X
Marking		⟨Ex⟩ II (3)D [Ex ic Dc] IIIC
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013 , EN 60079-11:2012
International approvals		
CSA approval		
Control drawing		116-0187 (cCSAus)
IECEx approval		
IECEx certificate		IECEx BAS 14.0010X
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2022-03-03 Date of issue: 2022-03-03 Filename: 098913_eng.pdf

Assembly

Front view



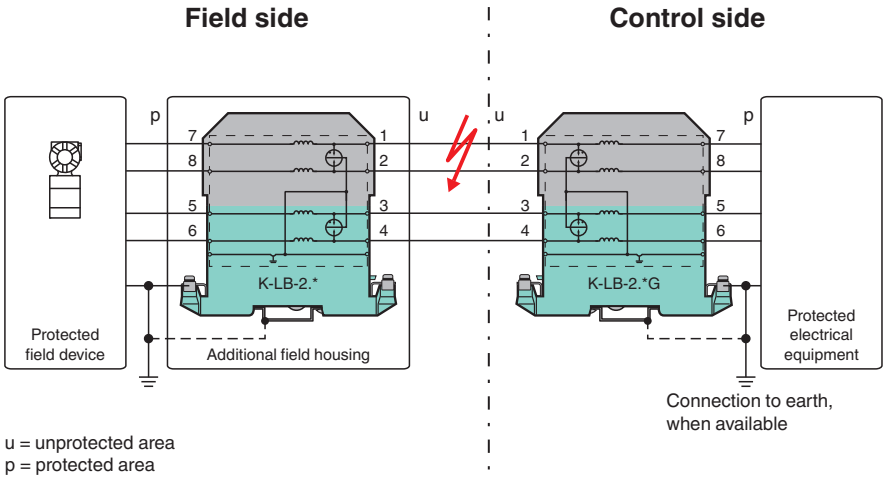
Matching System Components

	USLKG5	Terminal block for equipotential bonding

Release date: 2022-03-03 Date of issue: 2022-03-03 Filename: 098913_eng.pdf

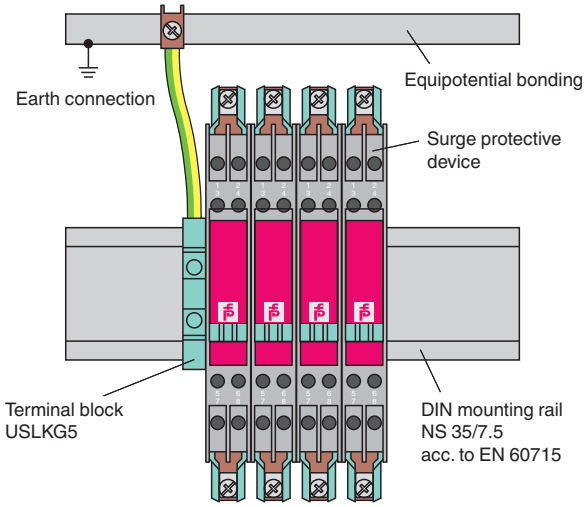
Application

Topology

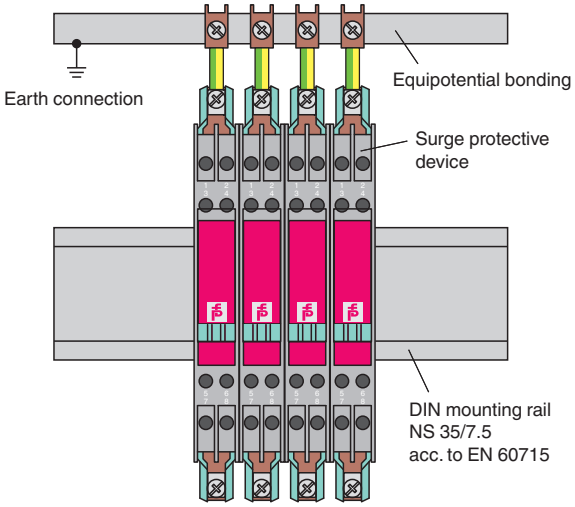


Installation

Installation examples



Insulated mounting (group grounding)



Insulated mounting (individual grounding)

Release date: 2022-03-03 Date of issue: 2022-03-03 Filename: 098913_eng.pdf

Surge Protection Barrier

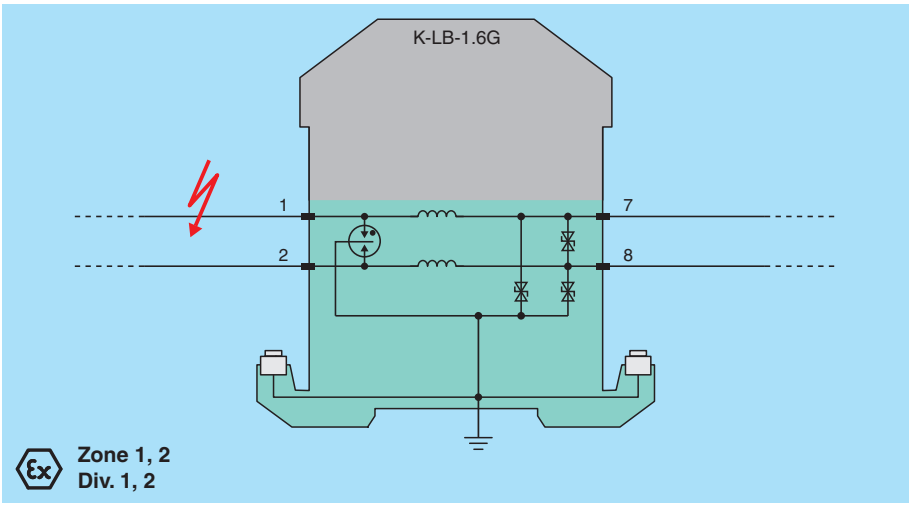
K-LB-1.6G

- 1-channel
- Mounting on DIN mounting rail
- For intrinsically safe or non-intrinsically safe 6 V applications
- Protects field or control circuit inputs
- Max. surge current (8/20 µs) 20 kA
- Uninterruptable operation (auto reset)
- Up to SIL 3 acc. to IEC/EN 61508

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device is HART transparent.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.
Note:
Always connect the device to high-quality ground connections. The device must have the same potential as the devices it protects. Install the ground system in accordance with the applicable regulations.

Connection



Technical Data

General specifications		
Number of protected signal lines		2
Topology		grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 7, 8 unprotected area: terminals 1, 2
Rated current	I_r	250 mA
Leakage current		< 10 µA at 1 V and 25 °C (77 °F) , line-line

Release date: 2022-03-03 Date of issue: 2022-03-03 Filename: 098914_eng.pdf

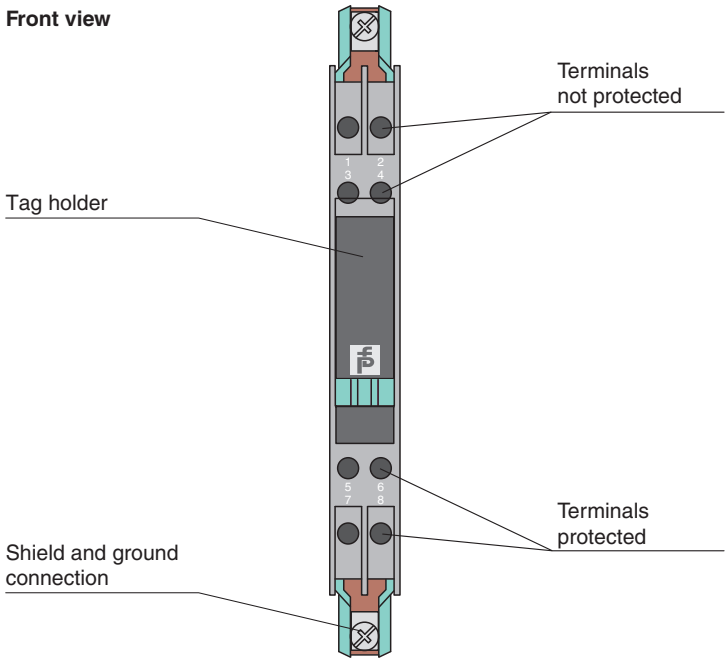
Technical Data

Nominal voltage		1 V DC
Maximum continuous operating voltage	U_c	6 V DC
Series resistance		< 0.5 Ω per line
Impulse rating		10 kV/5 kA (category C2) 2 kV/2 kA (category D1)
Impulse discharge current (10/350 µs)	I_{imp}	2 kA per line (2x)
Nominal discharge current (8/20 µs)	I_n	5 kA per line (10x)
Rated surge current (8/20 µs)	I_{SM}	10 kA per line (1x)
Total discharge current (8/20 µs)	I_{total}	20 kA (1x)
Voltage protection level	U_p	max. 90 V line-line for nominal discharge current I_n max. 25 V line-earth for nominal discharge current I_n
Impulse reset time		< 30 ms
Insertion loss		≤ 0.05 dB, at 0 ... 4 kHz, in 600 Ω-System ≤ 3 dB, at 0 ... 174 kHz, in 100 Ω-System
Indicators/settings		
Labeling		space for labeling at the front
Conformity		
Degree of protection		IEC 60529:2013
Surge protective devices for low voltage		EN 61643-21:2001+A1:2009+A2:2013 IEC 61643-21:2001+A1:2008+A2:2012
Operating conditions		
Installation conditions		
Mounting location		indoor
Ambient conditions		
Ambient temperature		-30 ... 80 °C (-22 ... 176 °F) For usage in hazardous area observe EC-type examination certificate.
Relative humidity		5 ... 95 %
Mechanical specifications		
Degree of protection		IP20
Connection		screw terminals
Core cross section		2 x 2.5 mm²
Mass		approx. 100 g
Dimensions		12.5 x 115 x 116 mm (0.5 x 4.5 x 4.6 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 00 ATEX 2176 X
Marking		Ⓔx II 2(1)G Ex ia IIC T6/T5/T4
Temperature class		T6 for ambient temperature ≤ 50 °C T5 for ambient temperature ≤ 70 °C T4 for ambient temperature ≤ 80 °C
Voltage	U_i	6 V
Current	I_i	250 mA
Internal capacitance	C_i	negligible
Internal inductance	L_i	200 µH
Certificate		PF 16 CERT 4065 X
Marking		Ⓔx II (3)D [Ex ic Dc] IIIC
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013 , EN 60079-11:2012
International approvals		
CSA approval		
Control drawing		116-0187 (cCSAus)
IECEx approval		
IECEx certificate		IECEx BAS 14.0010X
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2022-03-03 Date of issue: 2022-03-03 Filename: 098914_eng.pdf

Assembly

Front view



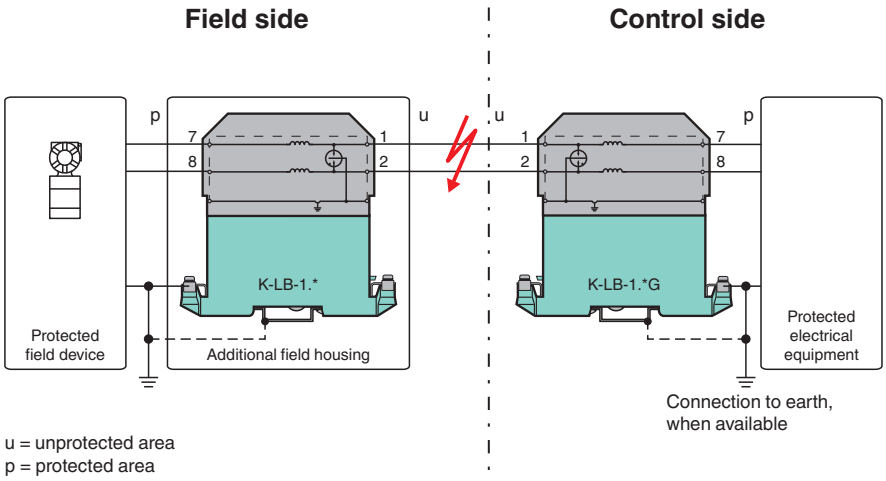
Matching System Components

	USLKG5	Terminal block for equipotential bonding

Release date: 2022-03-03 Date of issue: 2022-03-03 Filename: 098914_eng.pdf

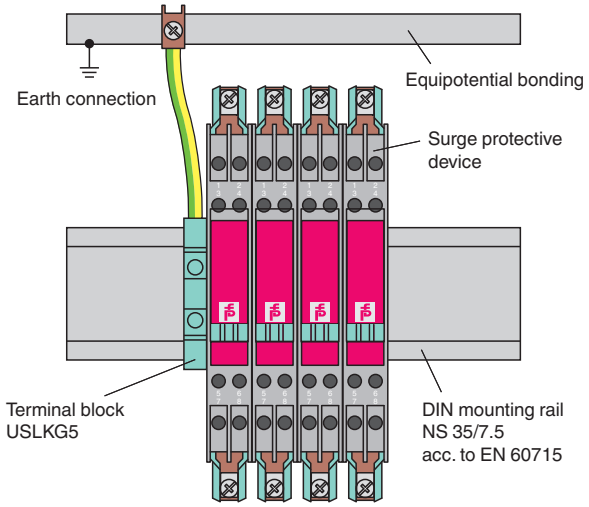
Connection

Topology

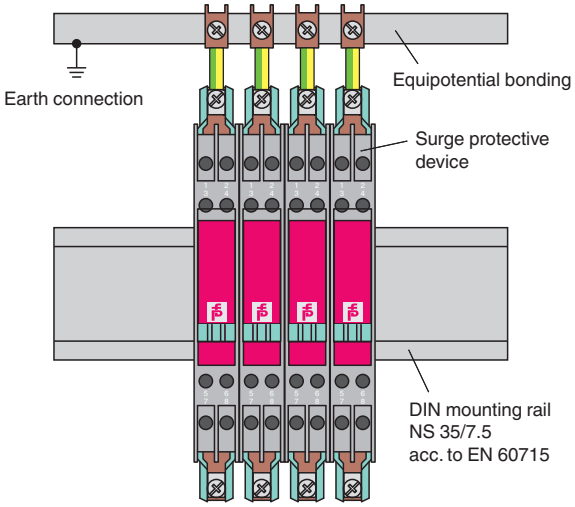


Installation

Installation examples



Insulated mounting (group grounding)



Insulated mounting (individual grounding)

Release date: 2022-03-03 Date of issue: 2022-03-03 Filename: 098914_eng.pdf

Surge Protection Barrier

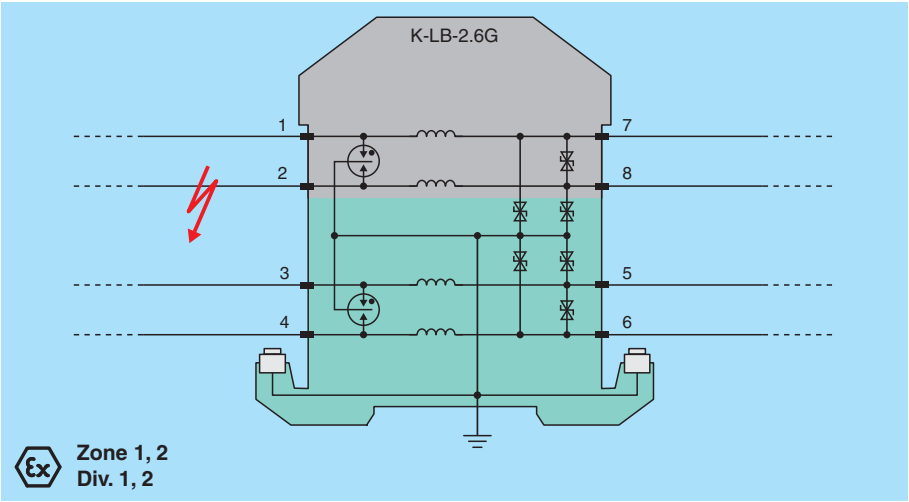
K-LB-2.6G

- 2-channel
- Mounting on DIN mounting rail
- For intrinsically safe or non-intrinsically safe 6 V applications
- Protects field or control circuit inputs
- Max. surge current (8/20 µs) 20 kA
- Uninterruptable operation (auto reset)
- Up to SIL 3 acc. to IEC/EN 61508

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device is HART transparent.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.
Note:
Always connect the device to high-quality ground connections. The device must have the same potential as the devices it protects. Install the ground system in accordance with the applicable regulations.

Connection



Technical Data

General specifications		
Number of protected signal lines		4
Topology		grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 5, 6; 7, 8 unprotected area: terminals 1, 2; 3, 4
Rated current	I_r	250 mA
Leakage current		< 10 µA at 1 V and 25 °C (77 °F) , line-line

Release date: 2022-03-03 Date of issue: 2022-03-03 Filename: 098915_eng.pdf

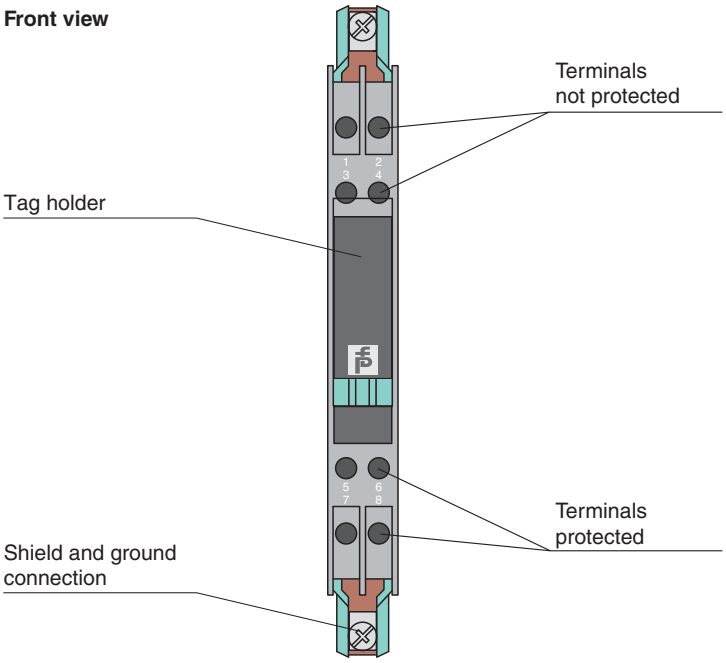
Technical Data

Nominal voltage		1 V DC
Maximum continuous operating voltage	U_c	6 V DC
Series resistance		< 0.5 Ω per line
Impulse rating		10 kV/5 kA (category C2) 2 kV/2 kA (category D1)
Impulse discharge current (10/350 µs)	I_{imp}	2 kA per line (2x)
Nominal discharge current (8/20 µs)	I_n	5 kA per line (10x)
Rated surge current (8/20 µs)	I_{SM}	10 kA per line (1x)
Total discharge current (8/20 µs)	I_{total}	20 kA (1x)
Voltage protection level	U_p	max. 90 V line-line for nominal discharge current I_n max. 25 V line-earth for nominal discharge current I_n
Impulse reset time		< 30 ms
Insertion loss		≤ 0.05 dB, at 0 ... 4 kHz, in 600 Ω-System ≤ 3 dB, at 0 ... 174 kHz, in 100 Ω-System
Indicators/settings		
Labeling		space for labeling at the front
Conformity		
Degree of protection		IEC 60529:2013
Surge protective devices for low voltage		EN 61643-21:2001+A1:2009+A2:2013 IEC 61643-21:2001+A1:2008+A2:2012
Operating conditions		
Installation conditions		
Mounting location		indoor
Ambient conditions		
Ambient temperature		-30 ... 80 °C (-22 ... 176 °F) For usage in hazardous area observe EC-type examination certificate.
Relative humidity		5 ... 95 %
Mechanical specifications		
Degree of protection		IP20
Connection		screw terminals
Core cross section		2 x 2.5 mm²
Mass		approx. 100 g
Dimensions		12.5 x 115 x 116 mm (0.5 x 4.5 x 4.6 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 00 ATEX 2176 X
Marking		⟨Ex⟩ II 2(1)G Ex ia IIC T6/T5/T4
Temperature class		T6 for ambient temperature ≤ 50 °C T5 for ambient temperature ≤ 70 °C T4 for ambient temperature ≤ 80 °C
Voltage	U_i	6 V
Current	I_i	250 mA
Internal capacitance	C_i	negligible
Internal inductance	L_i	200 µH
Certificate		PF 16 CERT 4065 X
Marking		⟨Ex⟩ II (3)D [Ex ic Dc] IIIC
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013 , EN 60079-11:2012
International approvals		
CSA approval		
Control drawing		116-0187 (cCSAus)
IECEx approval		
IECEx certificate		IECEx BAS 14.0010X
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2022-03-03 Date of issue: 2022-03-03 Filename: 098915_eng.pdf

Assembly

Front view



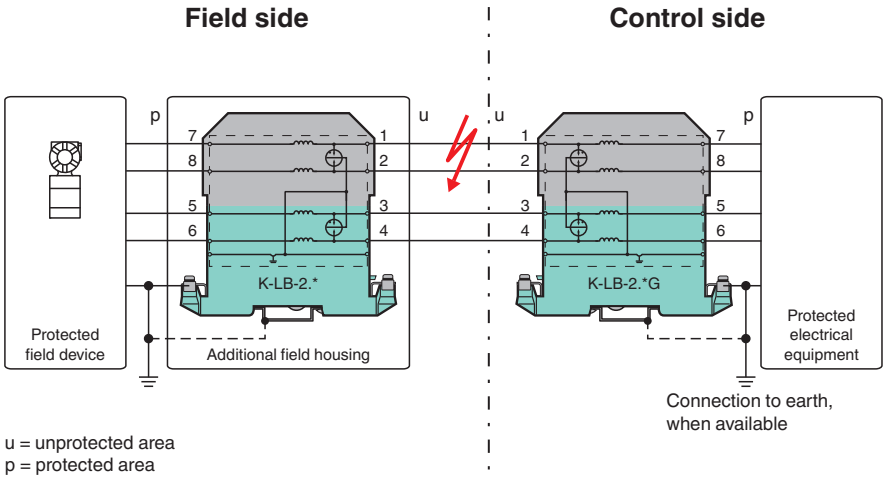
Matching System Components

	USLKG5	Terminal block for equipotential bonding

Release date: 2022-03-03 Date of issue: 2022-03-03 Filename: 098915_eng.pdf

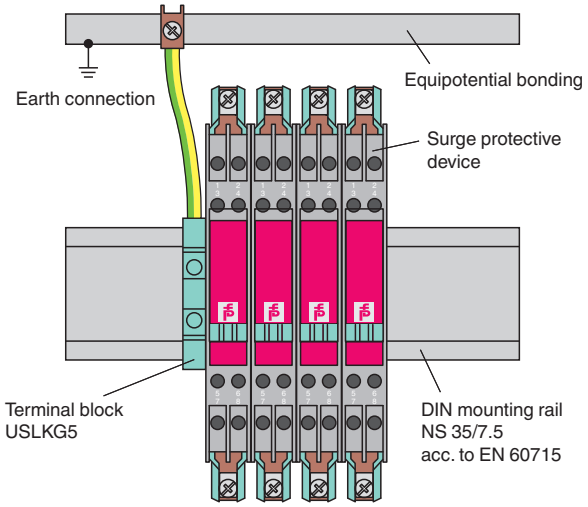
Application

Topology

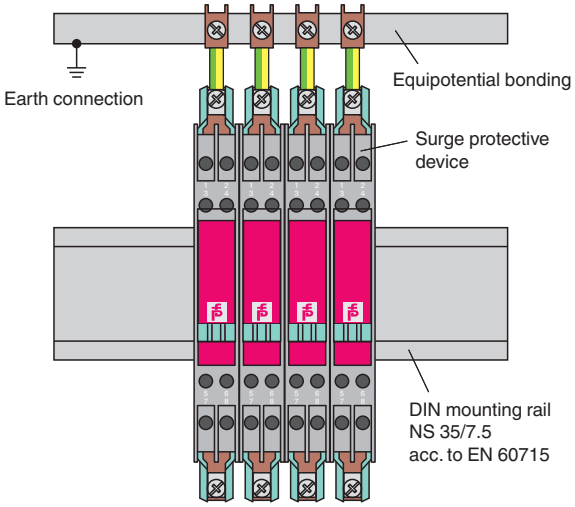


Installation

Installation examples



Insulated mounting (group grounding)



Insulated mounting (individual grounding)

Release date: 2022-03-03 Date of issue: 2022-03-03 Filename: 098915_eng.pdf

Surge Protection Barrier

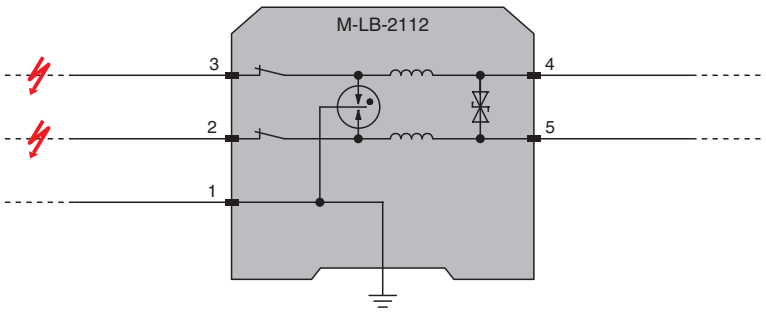
M-LB-2112

- Surge protection barrier for 2 signal lines
- Nominal voltage 1 V DC
- Surge protection barrier for non-grounded signal lines
- Max. surge current (8/20 µs) 20 kA
- Connection via screw terminals
- DIN rail mountable
- Up to SIL 3 acc. to IEC/EN 61508

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device is HART transparent.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.

Connection



Zone 2
Div. 2

Technical Data

General specifications		
Number of protected signal lines		2
Topology		non-grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 4, 5 unprotected area: terminals 2, 3 shielding/grounding: terminal 1 (optional)
Rated current	I_r	500 mA , restrictions see derating tables UL : 400 mA , restrictions see derating tables
Leakage current		< 5 µA at 1 V and 25 °C (77 °F) , line-line
Nominal voltage		1 V DC

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 313279_eng.pdf

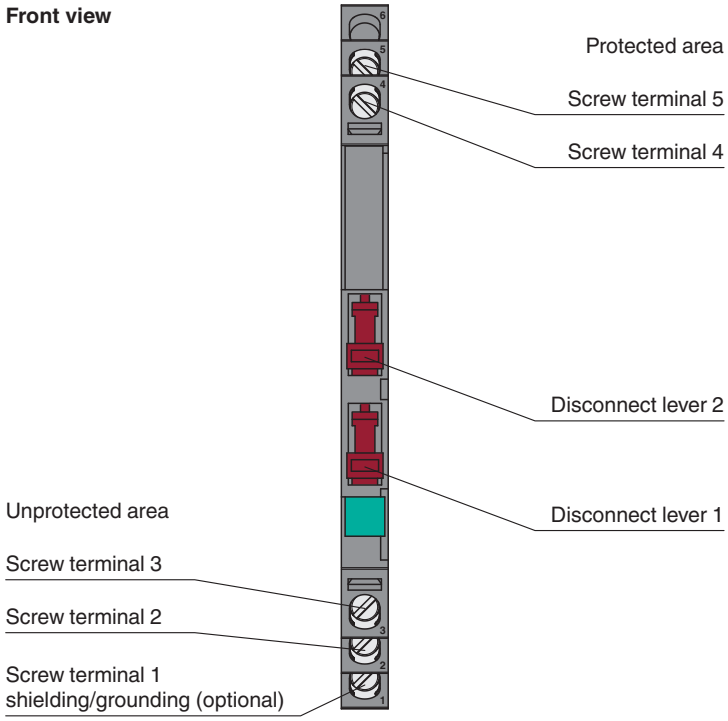
Technical Data

Maximum continuous operating voltage	U_c	6 V DC
Series resistance		≤ 3 Ω per line
Impulse rating		1 kV/0.5 kA (category C1) 10 kV/5 kA (category C2) 1 kA (category D1)
Impulse discharge current (10/350 µs)	I_{imp}	1 kA per line (2x)
Nominal discharge current (8/20 µs)	I_n	5 kA per line (10x)
Total discharge current (8/20 µs)	I_{total}	20 kA (1x) , overstressed fault mode 3 acc. to IEC 61643-21
Voltage protection level	U_p	max. 12 V line-line for nominal discharge current I_n max. 1400 V line-earth for nominal discharge current I_n
Impulse reset time		< 500 ms
Insertion loss		≤ 3 dB at 0 ... 400 kHz in 100 Ω system
Conformity		
Electromagnetic compatibility		EN 61326-3-1:2017
Degree of protection		IEC 60529:2013
Functional safety		IEC/EN 61508:2010
Surge protective devices for low voltage		IEC 61643-21:2000+A1:2008+A2:2012
Ambient conditions		
Ambient temperature		-40 ... 80 °C (-40 ... 176 °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
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20 , after mounting of the insulation spacer
Connection		screw terminals , max. core cross section 1 x 2.5 mm²
Material		Polyamide (PA)
Mass		approx. 32 g
Dimensions		6.2 x 93 x 72.4 mm (0.24 x 3.7 x 2.8 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
Certificate		KIWA 19 ATEX 0002 X
Marking		⟨Ex⟩ II 3G Ex ec IIC T6...T4 Gc
Temperature class		T6, T5 or T4 , restrictions see derating tables
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 , EN 60079-7:2015+A1:2018
International approvals		
UL approval		E501704 E501881
Breakdown voltage	U_{BR}	6 ... 12 V line-line at 100 V/s acc. to UL 497B < 1000 V at 100 V/µs acc. to UL 497B
IECEx approval		
IECEx certificate		IECEx KIWA 19.0002X
IECEx marking		Ex ec IIC T6...T4 Gc
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 313279_eng.pdf

Assembly

Front view



Matching System Components

	**USLKG6N**	Terminal block for equipotential bonding

Accessories

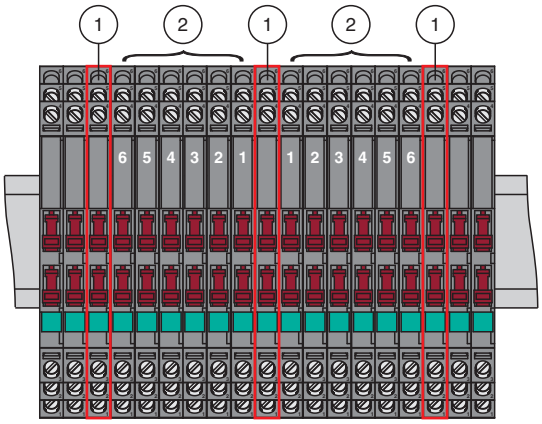
	**M-LB-2800**	Insulation spacer for surge protection system M-LB-2000

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 313279_eng.pdf

Operation

Derating of the Rated Current

This derating is valid for mounting in areas requiring explosion protection level Gc and temperature class T4 or in a non-hazardous area under following special conditions:
The increased rated current of 0.5 A is only applicable for a device (1) if the current in at least 6 adjacent devices (2) from both sides of the device is < 80 % of the increased current, see figure.



Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	500 mA	420 mA	340 mA	260 mA	180 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in areas requiring explosion protection level Gc and temperature class T4 or in a non-hazardous area.

Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	400 mA	340 mA	280 mA	220 mA	160 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in areas requiring explosion protection level Gc and temperature class T5 or T6.

Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	280 mA	224 mA	168 mA	112 mA	56 mA	0 mA

Linear interpolation allowed, extrapolation not allowed.

Derating for Mounting According to UL

This derating is valid for mounting in Zone 2 or Division 2 areas requiring temperature class T4 or in a non-hazardous area.

Max. ambient temperature	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	400 mA	325 mA	250 mA	175 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in Zone 2 or Division 2 areas requiring temperature class T5.

Max. ambient temperature	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	280 mA	210 mA	140 mA	70 mA	0 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in Zone 2 or Division 2 areas requiring temperature class T6.

Max. ambient temperature	40 °C	50 °C	60 °C	70 °C
I_r	280 mA	210 mA	140 mA	70 mA

Linear interpolation allowed, extrapolation not allowed.

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

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Surge Protection Barrier

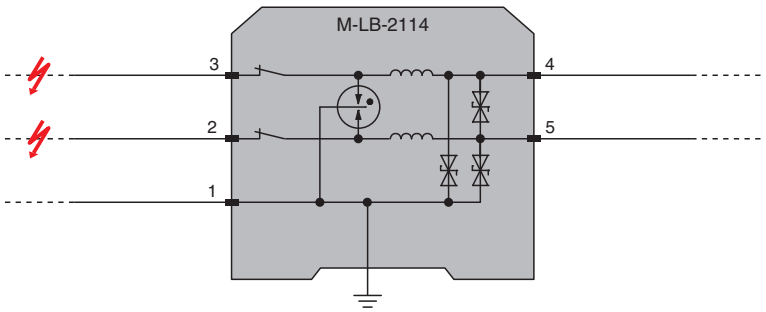
M-LB-2114

- Surge protection barrier for 2 signal lines
- Nominal voltage 1 V DC
- Surge protection barrier for grounded signal lines
- Max. surge current (8/20 µs) 20 kA
- Connection via screw terminals
- DIN rail mountable
- Up to SIL 3 acc. to IEC/EN 61508

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device is HART transparent.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.

Connection



Zone 2
Div. 2

Technical Data

General specifications		
Number of protected signal lines		2
Topology		grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 4, 5 unprotected area: terminals 2, 3 shielding/grounding: terminal 1 (optional)
Rated current	I_r	500 mA , restrictions see derating tables UL : 400 mA , restrictions see derating tables
Leakage current		< 10 µA at 1 V and 25 °C (77 °F) , line-line
Nominal voltage		1 V DC

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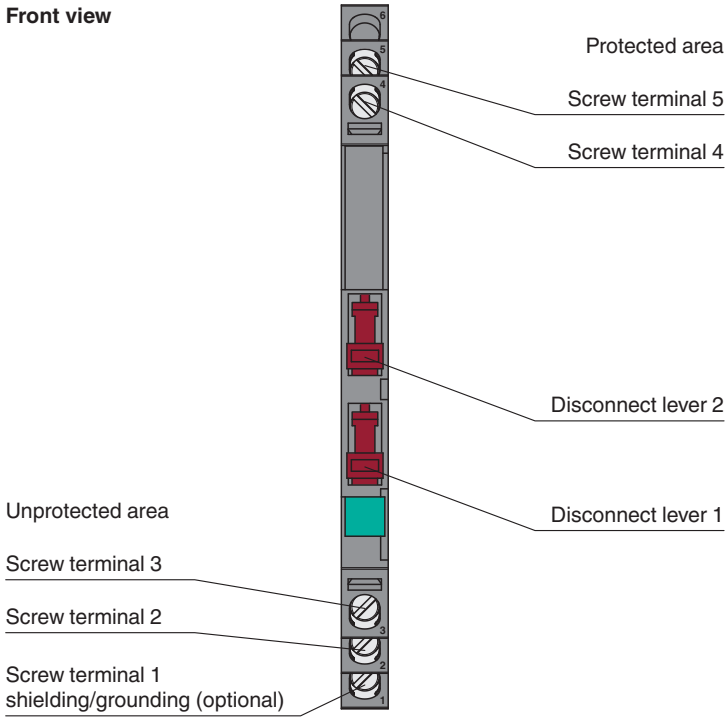
Technical Data

Maximum continuous operating voltage	U_c	6 V DC
Series resistance		≤ 3 Ω per line
Impulse rating		1 kV/0.5 kA (category C1) 10 kV/5 kA (category C2) 1 kA (category D1)
Impulse discharge current (10/350 µs)	I_{imp}	1 kA per line (2x)
Nominal discharge current (8/20 µs)	I_n	5 kA per line (10x)
Total discharge current (8/20 µs)	I_{total}	20 kA (1x) , overstressed fault mode 3 acc. to IEC 61643-21
Voltage protection level	U_p	max. 12 V line-line for nominal discharge current I_n max. 31 V line-earth for nominal discharge current I_n
Impulse reset time		< 500 ms
Insertion loss		≤ 3 dB at 0 ... 250 kHz in 100 Ω system
Conformity		
Electromagnetic compatibility		EN 61326-3-1:2017
Degree of protection		IEC 60529:2013
Functional safety		IEC/EN 61508:2010
Surge protective devices for low voltage		IEC 61643-21:2000+A1:2008+A2:2012
Ambient conditions		
Ambient temperature		-40 ... 80 °C (-40 ... 176 °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
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20 , after mounting of the insulation spacer
Connection		screw terminals , max. core cross section 1 x 2.5 mm^2
Material		Polyamide (PA)
Mass		approx. 32 g
Dimensions		6.2 x 93 x 72.4 mm (0.24 x 3.7 x 2.8 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
Certificate		KIWA 19 ATEX 0002 X
Marking		Ⓔx II 3G Ex ec IIC T6...T4 Gc
Temperature class		T6, T5 or T4 , restrictions see derating tables
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 , EN 60079-7:2015+A1:2018
International approvals		
UL approval		E501704 E501881
Breakdown voltage	U_{BR}	6 ... 12 V line-line at 100 V/s acc. to UL 497B 6 ... 12 V line-earth at 100 V/s acc. to UL 497B < 1000 V at 100 V/µs acc. to UL 497B
IECEx approval		
IECEx certificate		IECEx KIWA 19.0002X
IECEx marking		Ex ec IIC T6...T4 Gc
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 313280_eng.pdf

Assembly

Front view



Matching System Components

	**USLKG6N**	Terminal block for equipotential bonding

Accessories

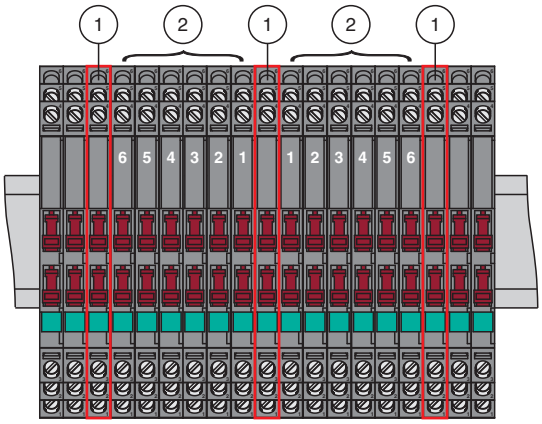
	**M-LB-2800**	Insulation spacer for surge protection system M-LB-2000

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 313280_eng.pdf

Operation

Derating of the Rated Current

This derating is valid for mounting in areas requiring explosion protection level Gc and temperature class T4 or in a non-hazardous area under following special conditions:
The increased rated current of 0.5 A is only applicable for a device (1) if the current in at least 6 adjacent devices (2) from both sides of the device is < 80 % of the increased current, see figure.



Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	500 mA	420 mA	340 mA	260 mA	180 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in areas requiring explosion protection level Gc and temperature class T4 or in a non-hazardous area.

Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	400 mA	340 mA	280 mA	220 mA	160 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in areas requiring explosion protection level Gc and temperature class T5 or T6.

Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	280 mA	224 mA	168 mA	112 mA	56 mA	0 mA

Linear interpolation allowed, extrapolation not allowed.

Derating for Mounting According to UL

This derating is valid for mounting in Zone 2 or Division 2 areas requiring temperature class T4 or in a non-hazardous area.

Max. ambient temperature	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	400 mA	325 mA	250 mA	175 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in Zone 2 or Division 2 areas requiring temperature class T5.

Max. ambient temperature	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	280 mA	210 mA	140 mA	70 mA	0 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in Zone 2 or Division 2 areas requiring temperature class T6.

Max. ambient temperature	40 °C	50 °C	60 °C	70 °C
I_r	280 mA	210 mA	140 mA	70 mA

Linear interpolation allowed, extrapolation not allowed.

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

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Surge Protection Barrier

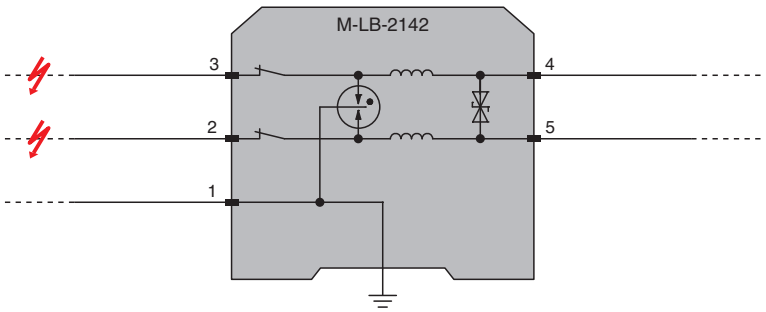
M-LB-2142

- Surge protection barrier for 2 signal lines
- Nominal voltage 24 V DC
- Surge protection barrier for non-grounded signal lines
- Max. surge current (8/20 µs) 20 kA
- Connection via screw terminals
- DIN rail mountable
- Up to SIL 3 acc. to IEC/EN 61508

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device is HART transparent.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.

Connection



Zone 2
Div. 2

Technical Data

General specifications		
Number of protected signal lines		2
Topology		non-grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 4, 5 unprotected area: terminals 2, 3 shielding/grounding: terminal 1 (optional)
Rated current	I_r	500 mA , restrictions see derating tables UL : 400 mA , restrictions see derating tables
Leakage current		< 3 µA at 24 V and 25 °C (77 °F) , line-line
Nominal voltage		24 V DC

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 313281_eng.pdf

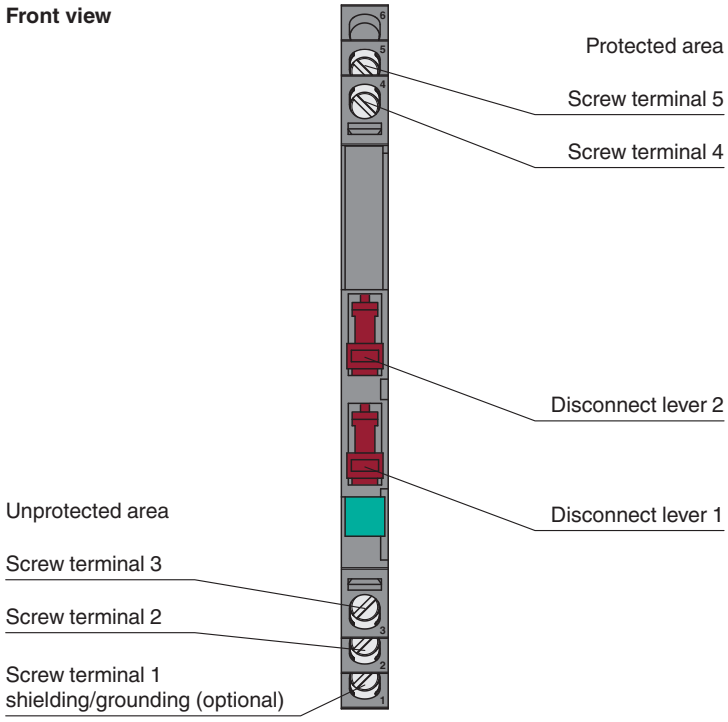
Technical Data

Maximum continuous operating voltage	U_c	30 V DC
Series resistance		≤ 3 Ω per line
Impulse rating		1 kV/0.5 kA (category C1) 10 kV/5 kA (category C2) 1 kA (category D1)
Impulse discharge current (10/350 µs)	I_{imp}	1 kA per line (2x)
Nominal discharge current (8/20 µs)	I_n	5 kA per line (10x)
Total discharge current (8/20 µs)	I_{total}	20 kA (1x) , overstressed fault mode 3 acc. to IEC 61643-21
Voltage protection level	U_p	max. 45 V line-line for nominal discharge current I_n max. 1400 V line-earth for nominal discharge current I_n
Impulse reset time		< 500 ms
Insertion loss		≤ 3 dB at 0 ... 900 kHz in 100 Ω system
Conformity		
Electromagnetic compatibility		EN 61326-3-1:2017
Degree of protection		IEC 60529:2013
Functional safety		IEC/EN 61508:2010
Surge protective devices for low voltage		IEC 61643-21:2000+A1:2008+A2:2012
Ambient conditions		
Ambient temperature		-40 ... 80 °C (-40 ... 176 °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
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20 , after mounting of the insulation spacer
Connection		screw terminals , max. core cross section 1 x 2.5 mm²
Material		Polyamide (PA)
Mass		approx. 32 g
Dimensions		6.2 x 93 x 72.4 mm (0.24 x 3.7 x 2.8 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
Certificate		KIWA 19 ATEX 0002 X
Marking		Ⓔx II 3G Ex ec IIC T6...T4 Gc
Temperature class		T6, T5 or T4 , restrictions see derating tables
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 , EN 60079-7:2015+A1:2018
International approvals		
UL approval		E501704 E501881
Breakdown voltage	U_{BR}	30 ... 45 V line-line at 100 V/s acc. to UL 497B < 1000 V at 100 V/µs acc. to UL 497B
IECEx approval		
IECEx certificate		IECEx KIWA 19.0002X
IECEx marking		Ex ec IIC T6...T4 Gc
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 313281_eng.pdf

Assembly

Front view



Matching System Components

	**USLKG6N**	Terminal block for equipotential bonding

Accessories

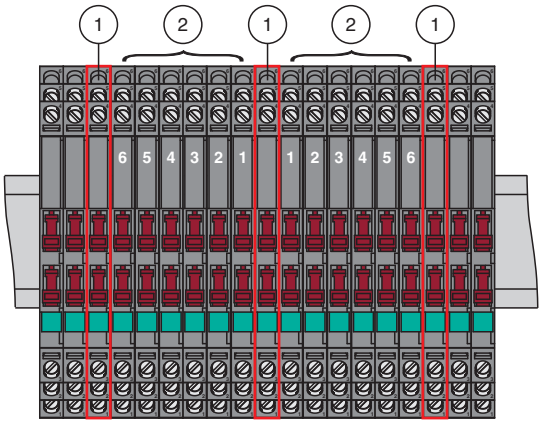
	**M-LB-2800**	Insulation spacer for surge protection system M-LB-2000

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 313281_eng.pdf

Operation

Derating of the Rated Current

This derating is valid for mounting in areas requiring explosion protection level Gc and temperature class T4 or in a non-hazardous area under following special conditions:
The increased rated current of 0.5 A is only applicable for a device (1) if the current in at least 6 adjacent devices (2) from both sides of the device is < 80 % of the increased current, see figure.



Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	500 mA	420 mA	340 mA	260 mA	180 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in areas requiring explosion protection level Gc and temperature class T4 or in a non-hazardous area.

Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	400 mA	340 mA	280 mA	220 mA	160 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in areas requiring explosion protection level Gc and temperature class T5 or T6.

Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	280 mA	224 mA	168 mA	112 mA	56 mA	0 mA

Linear interpolation allowed, extrapolation not allowed.

Derating for Mounting According to UL

This derating is valid for mounting in Zone 2 or Division 2 areas requiring temperature class T4 or in a non-hazardous area.

Max. ambient temperature	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	400 mA	325 mA	250 mA	175 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in Zone 2 or Division 2 areas requiring temperature class T5.

Max. ambient temperature	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	280 mA	210 mA	140 mA	70 mA	0 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in Zone 2 or Division 2 areas requiring temperature class T6.

Max. ambient temperature	40 °C	50 °C	60 °C	70 °C
I_r	280 mA	210 mA	140 mA	70 mA

Linear interpolation allowed, extrapolation not allowed.

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

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Surge Protection Barrier

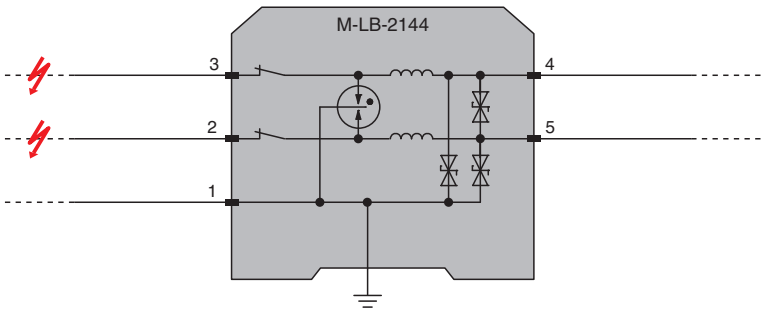
M-LB-2144

- Surge protection barrier for 2 signal lines
- Nominal voltage 24 V DC
- Surge protection barrier for grounded signal lines
- Max. surge current (8/20 µs) 20 kA
- Connection via screw terminals
- DIN rail mountable
- Up to SIL 3 acc. to IEC/EN 61508

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device is HART transparent.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.

Connection



Zone 2
Div. 2

Technical Data

General specifications		
Number of protected signal lines		2
Topology		grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 4, 5 unprotected area: terminals 2, 3 shielding/grounding: terminal 1 (optional)
Rated current	I_r	500 mA , restrictions see derating tables UL : 400 mA , restrictions see derating tables
Leakage current		< 6 µA at 24 V and 25 °C (77 °F) , line-line
Nominal voltage		24 V DC

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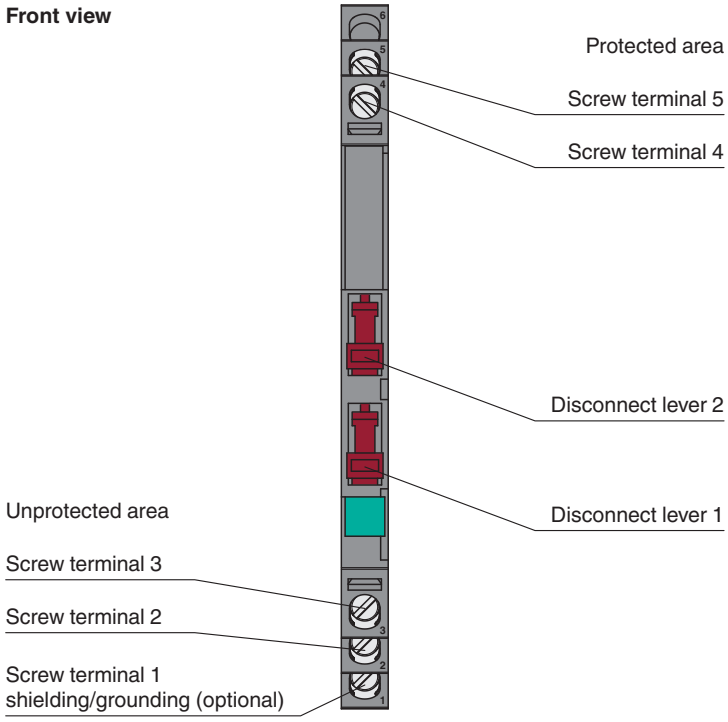
Technical Data

Maximum continuous operating voltage	U_c	30 V DC
Series resistance		≤ 3 Ω per line
Impulse rating		1 kV/0.5 kA (category C1) 10 kV/5 kA (category C2) 1 kA (category D1)
Impulse discharge current (10/350 µs)	I_{imp}	1 kA per line (2x)
Nominal discharge current (8/20 µs)	I_n	5 kA per line (10x)
Total discharge current (8/20 µs)	I_{total}	20 kA (1x) , overstressed fault mode 3 acc. to IEC 61643-21
Voltage protection level	U_p	max. 45 V line-line for nominal discharge current I_n max. 60 V line-earth for nominal discharge current I_n
Impulse reset time		< 500 ms
Insertion loss		≤ 3 dB at 0 ... 700 kHz in 100 Ω system
Conformity		
Electromagnetic compatibility		EN 61326-3-1:2017
Degree of protection		IEC 60529:2013
Functional safety		IEC/EN 61508:2010
Surge protective devices for low voltage		IEC 61643-21:2000+A1:2008+A2:2012
Ambient conditions		
Ambient temperature		-40 ... 80 °C (-40 ... 176 °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
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20 , after mounting of the insulation spacer
Connection		screw terminals , max. core cross section 1 x 2.5 mm²
Material		Polyamide (PA)
Mass		approx. 32 g
Dimensions		6.2 x 93 x 72.4 mm (0.24 x 3.7 x 2.8 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
Certificate		KIWA 19 ATEX 0002 X
Marking		Ⓔx II 3G Ex ec IIC T6...T4 Gc
Temperature class		T6, T5 or T4 , restrictions see derating tables
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 , EN 60079-7:2015+A1:2018
International approvals		
UL approval		E501704 E501881
Breakdown voltage	U_{BR}	30 ... 45 V line-line at 100 V/s acc. to UL 497B 30 ... 45 V line-earth at 100 V/s acc. to UL 497B < 1000 V at 100 V/µs acc. to UL 497B
IECEx approval		
IECEx certificate		IECEx KIWA 19.0002X
IECEx marking		Ex ec IIC T6...T4 Gc
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 313282_eng.pdf

Assembly

Front view



Matching System Components

	**USLKG6N**	Terminal block for equipotential bonding

Accessories

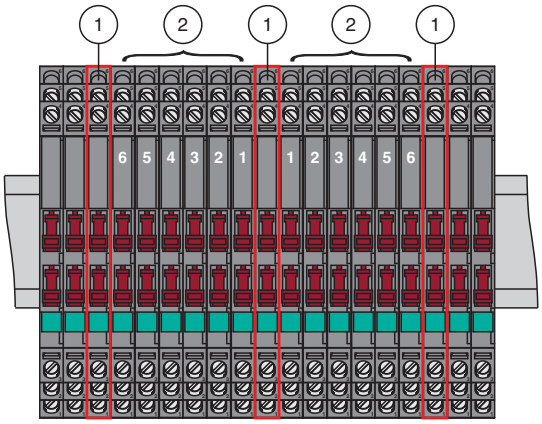
	**M-LB-2800**	Insulation spacer for surge protection system M-LB-2000

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 313282_eng.pdf

Operation

Derating of the Rated Current

This derating is valid for mounting in areas requiring explosion protection level Gc and temperature class T4 or in a non-hazardous area under following special conditions:
The increased rated current of 0.5 A is only applicable for a device (1) if the current in at least 6 adjacent devices (2) from both sides of the device is < 80 % of the increased current, see figure.



Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	500 mA	420 mA	340 mA	260 mA	180 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in areas requiring explosion protection level Gc and temperature class T4 or in a non-hazardous area.

Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	400 mA	340 mA	280 mA	220 mA	160 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in areas requiring explosion protection level Gc and temperature class T5 or T6.

Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	280 mA	224 mA	168 mA	112 mA	56 mA	0 mA

Linear interpolation allowed, extrapolation not allowed.

Derating for Mounting According to UL

This derating is valid for mounting in Zone 2 or Division 2 areas requiring temperature class T4 or in a non-hazardous area.

Max. ambient temperature	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	400 mA	325 mA	250 mA	175 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in Zone 2 or Division 2 areas requiring temperature class T5.

Max. ambient temperature	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	280 mA	210 mA	140 mA	70 mA	0 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in Zone 2 or Division 2 areas requiring temperature class T6.

Max. ambient temperature	40 °C	50 °C	60 °C	70 °C
I_r	280 mA	210 mA	140 mA	70 mA

Linear interpolation allowed, extrapolation not allowed.

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

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Surge Protection Barrier

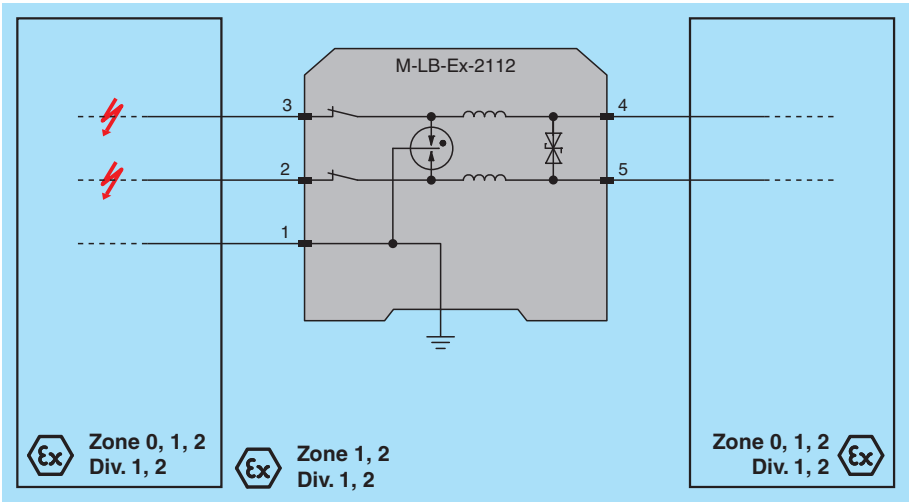
M-LB-Ex-2112

- Surge protection barrier for 2 signal lines
- Nominal voltage 1 V DC
- Surge protection barrier for non-grounded signal lines
- Max. surge current (8/20 µs) 20 kA
- Connection via screw terminals
- DIN rail mountable
- Up to SIL 3 acc. to IEC/EN 61508

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device is used for intrinsic safety applications.
The device is HART transparent.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.

Connection



Technical Data

General specifications		
Number of protected signal lines		2
Topology		non-grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 4, 5 unprotected area: terminals 2, 3 shielding/grounding: terminal 1 (optional)
Rated current	I_r	500 mA , restrictions see derating tables UL : 400 mA , restrictions see control drawing
Leakage current		< 5 µA at 1 V and 25 °C (77 °F) , line-line
Nominal voltage		1 V DC

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Technical Data

Maximum continuous operating voltage	U_c	6 V DC
Series resistance		≤ 3 Ω per line
Impulse rating		1 kV/0.5 kA (category C1) 10 kV/5 kA (category C2) 1 kA (category D1)
Impulse discharge current (10/350 µs)	I_{imp}	1 kA per line (2x)
Nominal discharge current (8/20 µs)	I_n	5 kA per line (10x)
Total discharge current (8/20 µs)	I_{total}	20 kA (1x) , overstressed fault mode 3 acc. to IEC 61643-21
Voltage protection level	U_p	max. 12 V line-line for nominal discharge current I_n max. 1400 V line-earth for nominal discharge current I_n
Impulse reset time		< 500 ms
Insertion loss		≤ 3 dB at 0 ... 400 kHz in 100 Ω system
Conformity		
Electromagnetic compatibility		EN 61326-3-1:2017
Degree of protection		IEC 60529:2013
Functional safety		IEC/EN 61508:2010
Surge protective devices for low voltage		IEC 61643-21:2000+A1:2008+A2:2012
Ambient conditions		
Ambient temperature		-40 ... 80 °C (-40 ... 176 °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
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20 , after mounting of the insulation spacer
Connection		screw terminals , max. core cross section 1 x 2.5 mm^2
Material		Polyamide (PA)
Mass		approx. 32 g
Dimensions		6.2 x 93 x 72.4 mm (0.24 x 3.7 x 2.8 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
EU-type examination certificate		KIWA 19 ATEX 0003 X
Marking		⟨Ex⟩ II 2(1)G Ex ia [ia Ga] IIC T6...T4 Gb ⟨Ex⟩ II (1)D [Ex ia Da] IIIC ⟨Ex⟩ I (M1) [Ex ia Ma] I
Temperature class		T6, T5 or T4 , restrictions see derating tables
Voltage	U_i	6 V
Current	I_i	500 mA , restrictions see derating tables
Internal capacitance	C_i	negligible
Internal inductance	L_i	20 µH
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 , EN 60079-11:2012
International approvals		
UL approval		E501704 E501881
Control drawing		116-0479
Current	I_i	400 mA , restrictions see control drawing
Breakdown voltage	U_{BR}	6 ... 12 V line-line at 100 V/s acc. to UL 497B < 1000 V at 100 V/µs acc. to UL 497B
IECEx approval		
IECEx certificate		IECEx KIWA 19.0003X
IECEx marking		Ex ia [ia Ga] IIC T6...T4 Gb [Ex ia Da] IIIC [Ex ia Ma] I
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

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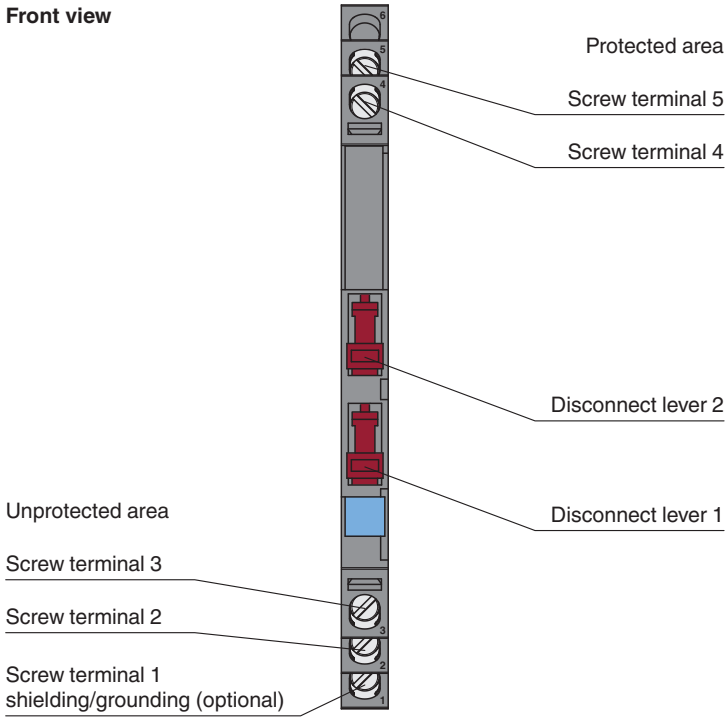
Assembly

Front view



Matching System Components

	**USLKG6N**	Terminal block for equipotential bonding

Accessories

	**M-LB-2800**	Insulation spacer for surge protection system M-LB-2000

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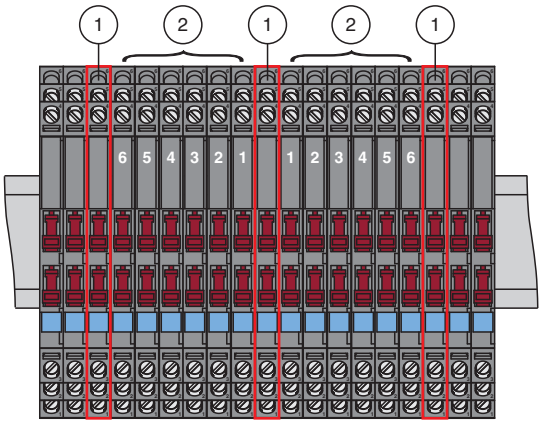
Operation

Derating of the Rated Current

This derating is valid for mounting in areas requiring explosion protection level Gb or Gc and temperature class T4 or in a non-hazardous area under following special conditions:
The increased rated current of 0.5 A is only applicable for a device (1) if the current in at least 6 adjacent devices (2) from both sides of the device is < 80 % of the increased current, see figure.



Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_i (I_r)	500 mA	420 mA	340 mA	260 mA	180 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in areas requiring explosion protection level Gb or Gc and temperature class T4 or in a non-hazardous area.

Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_i (I_r)	400 mA	340 mA	280 mA	220 mA	160 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in areas requiring explosion protection level Gb or Gc and temperature class T5 or T6.

Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_i (I_r)	280 mA	224 mA	168 mA	112 mA	56 mA	0 mA

Linear interpolation allowed, extrapolation not allowed.

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

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Surge Protection Barrier

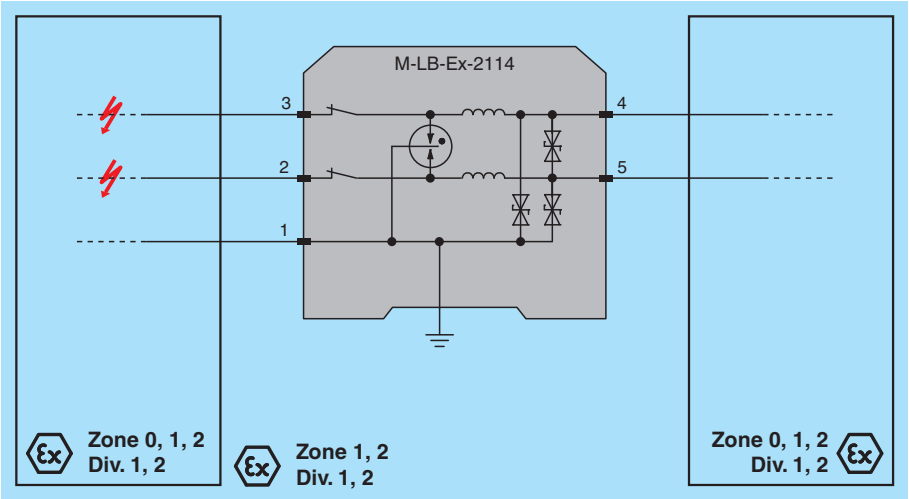
M-LB-Ex-2114

- Surge protection barrier for 2 signal lines
- Nominal voltage 1 V DC
- Surge protection barrier for grounded signal lines
- Max. surge current (8/20 µs) 20 kA
- Connection via screw terminals
- DIN rail mountable
- Up to SIL 3 acc. to IEC/EN 61508

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device is used for intrinsic safety applications.
The device is HART transparent.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.

Connection



Technical Data

General specifications		
Number of protected signal lines		2
Topology		grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 4, 5 unprotected area: terminals 2, 3 shielding/grounding: terminal 1 (optional)
Rated current	I_r	500 mA , restrictions see derating tables UL : 400 mA , restrictions see control drawing
Leakage current		< 10 µA at 1 V and 25 °C (77 °F) , line-line
Nominal voltage		1 V DC

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Technical Data

Maximum continuous operating voltage	U_c	6 V DC
Series resistance		≤ 3 Ω per line
Impulse rating		1 kV/0.5 kA (category C1) 10 kV/5 kA (category C2) 1 kA (category D1)
Impulse discharge current (10/350 µs)	I_{imp}	1 kA per line (2x)
Nominal discharge current (8/20 µs)	I_n	5 kA per line (10x)
Total discharge current (8/20 µs)	I_{total}	20 kA (1x) , overstressed fault mode 3 acc. to IEC 61643-21
Voltage protection level	U_p	max. 12 V line-line for nominal discharge current I_n max. 31 V line-earth for nominal discharge current I_n
Impulse reset time		< 500 ms
Insertion loss		≤ 3 dB at 0 ... 250 kHz in 100 Ω system
Conformity		
Electromagnetic compatibility		EN 61326-3-1:2017
Degree of protection		IEC 60529:2013
Functional safety		IEC/EN 61508:2010
Surge protective devices for low voltage		IEC 61643-21:2000+A1:2008+A2:2012
Ambient conditions		
Ambient temperature		-40 ... 80 °C (-40 ... 176 °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
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20 , after mounting of the insulation spacer
Connection		screw terminals , max. core cross section 1 x 2.5 mm²
Material		Polyamide (PA)
Mass		approx. 32 g
Dimensions		6.2 x 93 x 72.4 mm (0.24 x 3.7 x 2.8 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
EU-type examination certificate		KIWA 19 ATEX 0003 X
Marking		⟨Ex⟩ II 2(1)G Ex ia [ia Ga] IIC T6...T4 Gb ⟨Ex⟩ II (1)D [Ex ia Da] IIIC ⟨Ex⟩ I (M1) [Ex ia Ma] I
Temperature class		T6, T5 or T4 , restrictions see derating tables
Voltage	U_i	6 V
Current	I_i	500 mA , restrictions see derating tables
Internal capacitance	C_i	negligible
Internal inductance	L_i	20 µH
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 , EN 60079-11:2012
International approvals		
UL approval		E501704 E501881
Control drawing		116-0479
Current	I_i	400 mA , restrictions see control drawing
Breakdown voltage	U_{BR}	6 ... 12 V line-line at 100 V/s acc. to UL 497B 6 ... 12 V line-earth at 100 V/s acc. to UL 497B < 1000 V at 100 V/µs acc. to UL 497B
IECEx approval		
IECEx certificate		IECEx KIWA 19.0003X
IECEx marking		Ex ia [ia Ga] IIC T6...T4 Gb [Ex ia Da] IIIC [Ex ia Ma] I
General information		

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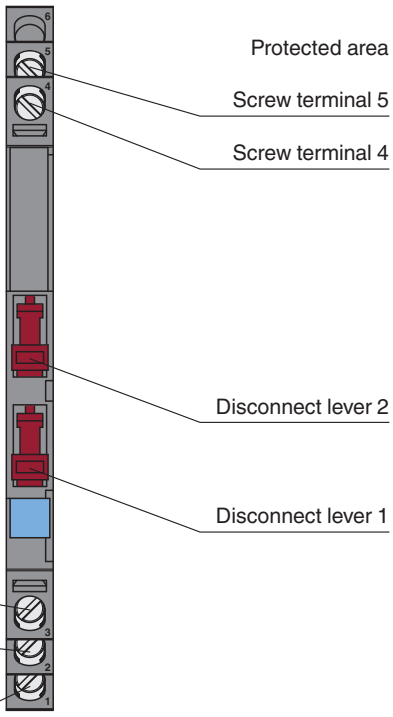
Technical Data

Supplementary information	Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Assembly

Front view



Matching System Components

	**USLKG6N**	Terminal block for equipotential bonding

Accessories

	**M-LB-2800**	Insulation spacer for surge protection system M-LB-2000

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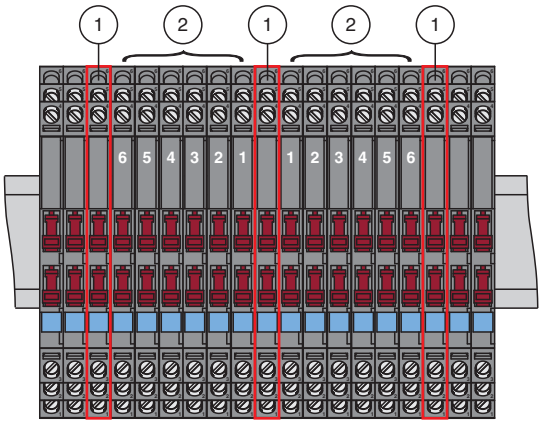
Operation

Derating of the Rated Current

This derating is valid for mounting in areas requiring explosion protection level Gb or Gc and temperature class T4 or in a non-hazardous area under following special conditions:
The increased rated current of 0.5 A is only applicable for a device (1) if the current in at least 6 adjacent devices (2) from both sides of the device is < 80 % of the increased current, see figure.



Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_i (I_r)	500 mA	420 mA	340 mA	260 mA	180 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in areas requiring explosion protection level Gb or Gc and temperature class T4 or in a non-hazardous area.

Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_i (I_r)	400 mA	340 mA	280 mA	220 mA	160 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in areas requiring explosion protection level Gb or Gc and temperature class T5 or T6.

Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_i (I_r)	280 mA	224 mA	168 mA	112 mA	56 mA	0 mA

Linear interpolation allowed, extrapolation not allowed.

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

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Surge Protection Barrier

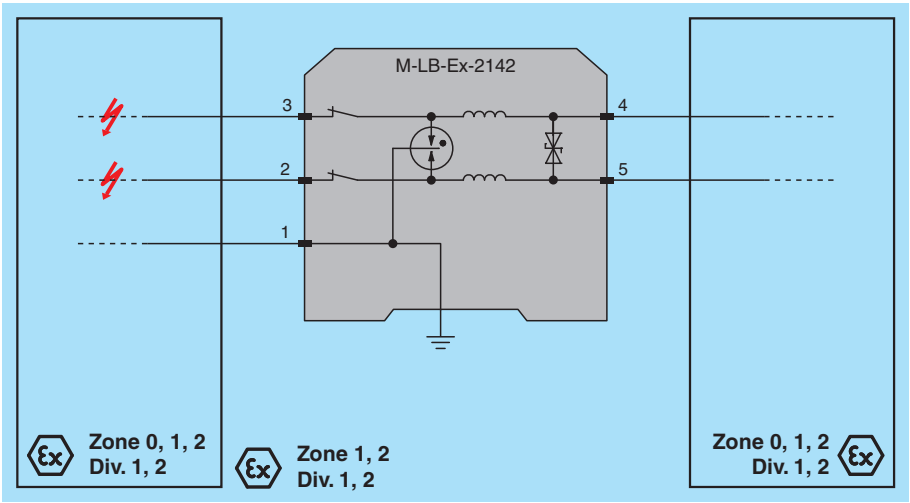
M-LB-Ex-2142

- Surge protection barrier for 2 signal lines
- Nominal voltage 24 V DC
- Surge protection barrier for non-grounded signal lines
- Max. surge current (8/20 µs) 20 kA
- Connection via screw terminals
- DIN rail mountable
- Up to SIL 3 acc. to IEC/EN 61508

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device is used for intrinsic safety applications.
The device is HART transparent.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.

Connection



Technical Data

General specifications		
Number of protected signal lines		2
Topology		non-grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 4, 5 unprotected area: terminals 2, 3 shielding/grounding: terminal 1 (optional)
Rated current	I_r	500 mA , restrictions see derating tables UL : 400 mA , restrictions see control drawing
Leakage current		< 3 µA at 24 V and 25 °C (77 °F) , line-line
Nominal voltage		24 V DC

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Technical Data

Maximum continuous operating voltage	U_c	30 V DC
Series resistance		≤ 3 Ω per line
Impulse rating		1 kV/0.5 kA (category C1) 10 kV/5 kA (category C2) 1 kA (category D1)
Impulse discharge current (10/350 µs)	I_{imp}	1 kA per line (2x)
Nominal discharge current (8/20 µs)	I_n	5 kA per line (10x)
Total discharge current (8/20 µs)	I_{total}	20 kA (1x) , overstressed fault mode 3 acc. to IEC 61643-21
Voltage protection level	U_p	max. 45 V line-line for nominal discharge current I_n max. 1400 V line-earth for nominal discharge current I_n
Impulse reset time		< 500 ms
Insertion loss		≤ 3 dB at 0 ... 900 kHz in 100 Ω system
Conformity		
Electromagnetic compatibility		EN 61326-3-1:2017
Degree of protection		IEC 60529:2013
Functional safety		IEC/EN 61508:2010
Surge protective devices for low voltage		IEC 61643-21:2000+A1:2008+A2:2012
Ambient conditions		
Ambient temperature		-40 ... 80 °C (-40 ... 176 °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
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20 , after mounting of the insulation spacer
Connection		screw terminals , max. core cross section 1 x 2.5 mm²
Material		Polyamide (PA)
Mass		approx. 32 g
Dimensions		6.2 x 93 x 72.4 mm (0.24 x 3.7 x 2.8 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
EU-type examination certificate		KIWA 19 ATEX 0003 X
Marking		⟨Ex⟩ II 2(1)G Ex ia [ia Ga] IIC T6...T4 Gb ⟨Ex⟩ II (1)D [Ex ia Da] IIIC ⟨Ex⟩ I (M1) [Ex ia Ma] I
Temperature class		T6, T5 or T4 , restrictions see derating tables
Voltage	U_i	30 V
Current	I_i	500 mA , restrictions see derating tables
Internal capacitance	C_i	negligible
Internal inductance	L_i	20 µH
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 , EN 60079-11:2012
International approvals		
UL approval		E501704 E501881
Control drawing		116-0479
Current	I_i	400 mA , restrictions see control drawing
Breakdown voltage	U_{BR}	30 ... 45 V line-line at 100 V/s acc. to UL 497B < 1000 V at 100 V/µs acc. to UL 497B
IECEx approval		
IECEx certificate		IECEx KIWA 19.0003X
IECEx marking		Ex ia [ia Ga] IIC T6...T4 Gb [Ex ia Da] IIIC [Ex ia Ma] I
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

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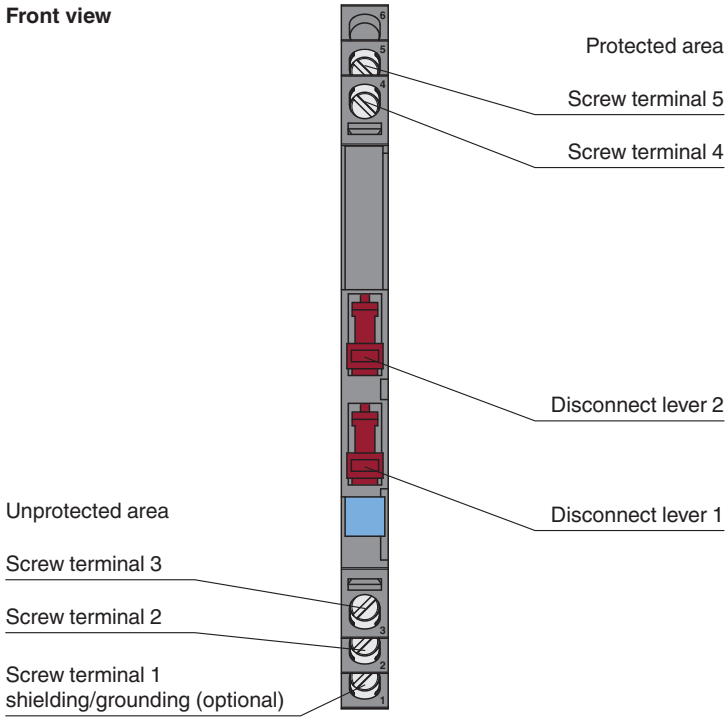
Assembly

Front view



Matching System Components

	**USLKG6N**	Terminal block for equipotential bonding

Accessories

	**M-LB-2800**	Insulation spacer for surge protection system M-LB-2000

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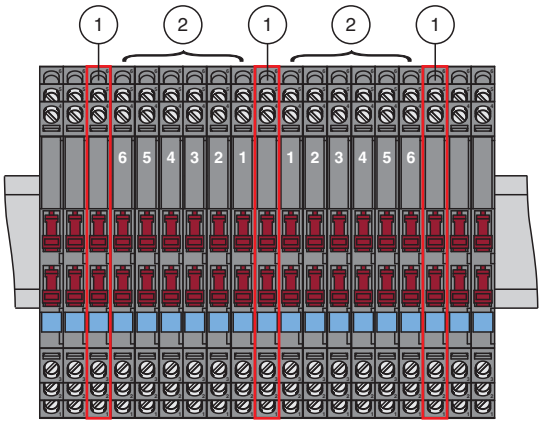
Operation

Derating of the Rated Current

This derating is valid for mounting in areas requiring explosion protection level Gb or Gc and temperature class T4 or in a non-hazardous area under following special conditions:
The increased rated current of 0.5 A is only applicable for a device (1) if the current in at least 6 adjacent devices (2) from both sides of the device is < 80 % of the increased current, see figure.



Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_i (I_r)	500 mA	420 mA	340 mA	260 mA	180 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in areas requiring explosion protection level Gb or Gc and temperature class T4 or in a non-hazardous area.

Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_i (I_r)	400 mA	340 mA	280 mA	220 mA	160 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in areas requiring explosion protection level Gb or Gc and temperature class T5 or T6.

Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_i (I_r)	280 mA	224 mA	168 mA	112 mA	56 mA	0 mA

Linear interpolation allowed, extrapolation not allowed.

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

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Surge Protection Barrier

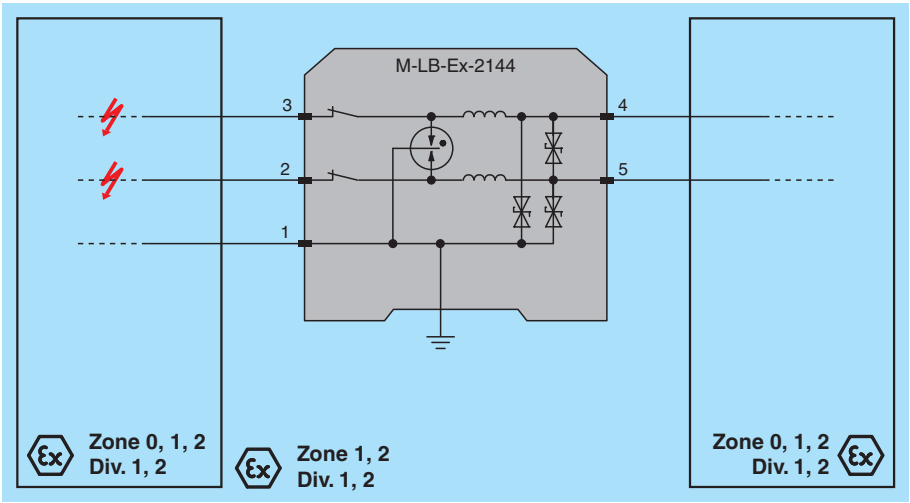
M-LB-Ex-2144

- Surge protection barrier for 2 signal lines
- Nominal voltage 24 V DC
- Surge protection barrier for grounded signal lines
- Max. surge current (8/20 µs) 20 kA
- Connection via screw terminals
- DIN rail mountable
- Up to SIL 3 acc. to IEC/EN 61508

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device is used for intrinsic safety applications.
The device is HART transparent.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.

Connection



Technical Data

General specifications		
Number of protected signal lines		2
Topology		grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 4, 5 unprotected area: terminals 2, 3 shielding/grounding: terminal 1 (optional)
Rated current	I_r	500 mA , restrictions see derating tables UL : 400 mA , restrictions see control drawing
Leakage current		< 6 µA at 24 V and 25 °C (77 °F) , line-line
Nominal voltage		24 V DC

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Technical Data

Maximum continuous operating voltage	U_c	30 V DC
Series resistance		≤ 3 Ω per line
Impulse rating		1 kV/0.5 kA (category C1) 10 kV/5 kA (category C2) 1 kA (category D1)
Impulse discharge current (10/350 µs)	I_{imp}	1 kA per line (2x)
Nominal discharge current (8/20 µs)	I_n	5 kA per line (10x)
Total discharge current (8/20 µs)	I_{total}	20 kA (1x) , overstressed fault mode 3 acc. to IEC 61643-21
Voltage protection level	U_p	max. 45 V line-line for nominal discharge current I_n max. 60 V line-earth for nominal discharge current I_n
Impulse reset time		< 500 ms
Insertion loss		≤ 3 dB at 0 ... 700 kHz in 100 Ω system
Conformity		
Electromagnetic compatibility		EN 61326-3-1:2017
Degree of protection		IEC 60529:2013
Functional safety		IEC/EN 61508:2010
Surge protective devices for low voltage		IEC 61643-21:2000+A1:2008+A2:2012
Ambient conditions		
Ambient temperature		-40 ... 80 °C (-40 ... 176 °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
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20 , after mounting of the insulation spacer
Connection		screw terminals , max. core cross section 1 x 2.5 mm^2
Material		Polyamide (PA)
Mass		approx. 32 g
Dimensions		6.2 x 93 x 72.4 mm (0.24 x 3.7 x 2.8 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
EU-type examination certificate		KIWA 19 ATEX 0003 X
Marking		⟨Ex⟩ II 2(1)G Ex ia [ia Ga] IIC T6...T4 Gb ⟨Ex⟩ II (1)D [Ex ia Da] IIIC ⟨Ex⟩ I (M1) [Ex ia Ma] I
Temperature class		T6, T5 or T4 , restrictions see derating tables
Voltage	U_i	30 V
Current	I_i	500 mA , restrictions see derating tables
Internal capacitance	C_i	negligible
Internal inductance	L_i	20 µH
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 , EN 60079-11:2012
International approvals		
UL approval		E501704 E501881
Control drawing		116-0479
Current	I_i	400 mA , restrictions see control drawing
Breakdown voltage	U_{BR}	30 ... 45 V line-line at 100 V/s acc. to UL 497B 30 ... 45 V line-earth at 100 V/s acc. to UL 497B < 1000 V at 100 V/µs acc. to UL 497B
IECEx approval		
IECEx certificate		IECEx KIWA 19.0003X
IECEx marking		Ex ia [ia Ga] IIC T6...T4 Gb [Ex ia Da] IIIC [Ex ia Ma] I
General information		

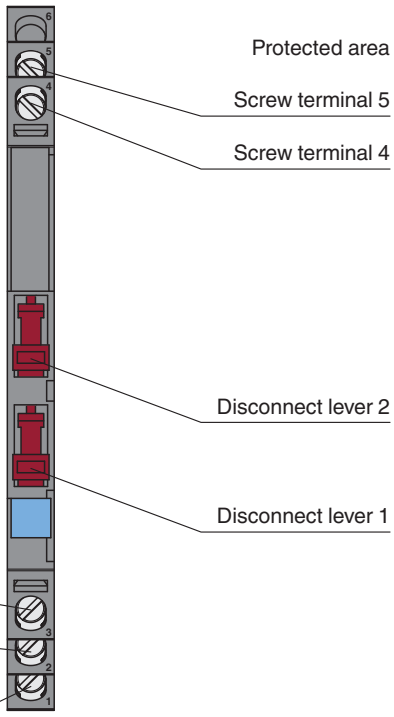
Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 313286_eng.pdf

Technical Data

Supplementary information	Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Assembly

Front view



Matching System Components

	**USLKG6N**	Terminal block for equipotential bonding

Accessories

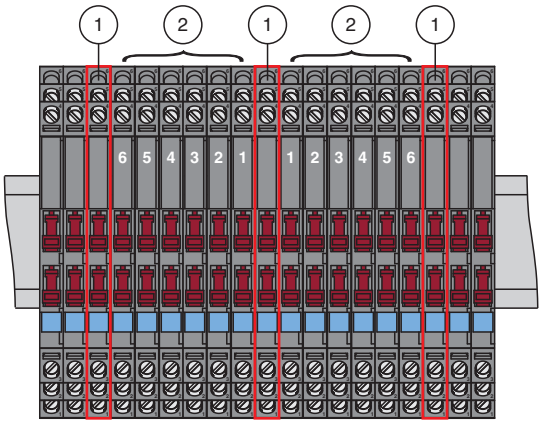
	**M-LB-2800**	Insulation spacer for surge protection system M-LB-2000

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 313286_eng.pdf

Operation

Derating of the Rated Current

This derating is valid for mounting in areas requiring explosion protection level Gb or Gc and temperature class T4 or in a non-hazardous area under following special conditions:
The increased rated current of 0.5 A is only applicable for a device (1) if the current in at least 6 adjacent devices (2) from both sides of the device is < 80 % of the increased current, see figure.



Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_i (I_r)	500 mA	420 mA	340 mA	260 mA	180 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in areas requiring explosion protection level Gb or Gc and temperature class T4 or in a non-hazardous area.

Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_i (I_r)	400 mA	340 mA	280 mA	220 mA	160 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in areas requiring explosion protection level Gb or Gc and temperature class T5 or T6.

Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_i (I_r)	280 mA	224 mA	168 mA	112 mA	56 mA	0 mA

Linear interpolation allowed, extrapolation not allowed.

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

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Surge Protection Barrier

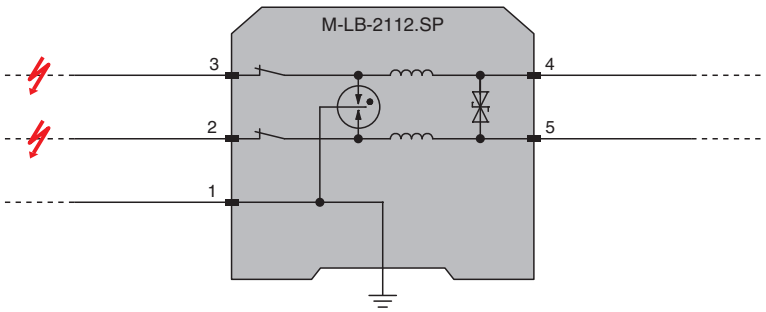
M-LB-2112.SP

- Surge protection barrier for 2 signal lines
- Nominal voltage 1 V DC
- Surge protection barrier for non-grounded signal lines
- Max. surge current (8/20 µs) 20 kA
- Connection via spring terminals with push-in connection technology
- DIN rail mountable
- Up to SIL 3 acc. to IEC/EN 61508

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device is HART transparent.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.

Connection



Zone 2
Div. 2

Technical Data

General specifications		
Number of protected signal lines		2
Topology		non-grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 4, 5 unprotected area: terminals 2, 3 shielding/grounding: terminal 1 (optional)
Rated current	I_r	500 mA , restrictions see derating tables UL : 400 mA , restrictions see derating tables
Leakage current		< 5 µA at 1 V and 25 °C (77 °F) , line-line
Nominal voltage		1 V DC

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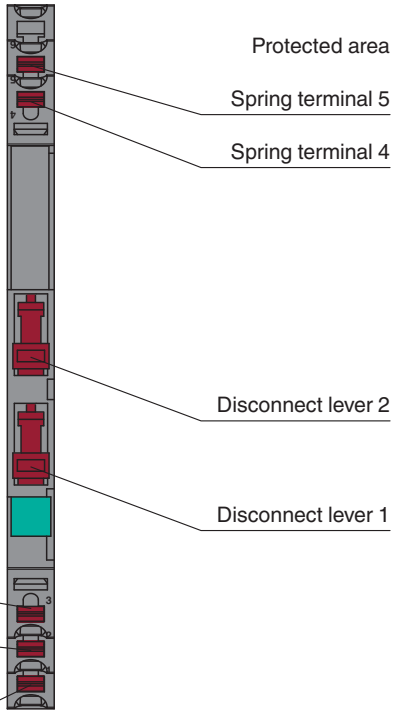
Technical Data

Maximum continuous operating voltage	U_c	6 V DC
Series resistance		≤ 3 Ω per line
Impulse rating		1 kV/0.5 kA (category C1) 10 kV/5 kA (category C2) 1 kA (category D1)
Impulse discharge current (10/350 µs)	I_{imp}	1 kA per line (2x)
Nominal discharge current (8/20 µs)	I_n	5 kA per line (10x)
Total discharge current (8/20 µs)	I_{total}	20 kA (1x) , overstressed fault mode 3 acc. to IEC 61643-21
Voltage protection level	U_p	max. 12 V line-line for nominal discharge current I_n max. 1400 V line-earth for nominal discharge current I_n
Impulse reset time		< 500 ms
Insertion loss		≤ 3 dB at 0 ... 400 kHz in 100 Ω system
Conformity		
Electromagnetic compatibility		EN 61326-3-1:2017
Degree of protection		IEC 60529:2013
Functional safety		IEC/EN 61508:2010
Surge protective devices for low voltage		IEC 61643-21:2000+A1:2008+A2:2012
Ambient conditions		
Ambient temperature		-40 ... 80 °C (-40 ... 176 °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
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20 , after mounting of the insulation spacer
Connection		spring terminals , max. core cross section 1 x 2.5 mm²
Material		Polyamide (PA)
Mass		approx. 32 g
Dimensions		6.2 x 93 x 72.4 mm (0.24 x 3.7 x 2.8 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
Certificate		KIWA 19 ATEX 0002 X
Marking		⟨Ex⟩ II 3G Ex ec IIC T6...T4 Gc
Temperature class		T6, T5 or T4 , restrictions see derating tables
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 , EN 60079-7:2015+A1:2018
International approvals		
UL approval		E501704 E501881
Breakdown voltage	U_{BR}	6 ... 12 V line-line at 100 V/s acc. to UL 497B < 1000 V at 100 V/µs acc. to UL 497B
IECEx approval		
IECEx certificate		IECEx KIWA 19.0002X
IECEx marking		Ex ec IIC T6...T4 Gc
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 313287_eng.pdf

Assembly

Front view



Matching System Components

	**USLKG6N**	Terminal block for equipotential bonding

Accessories

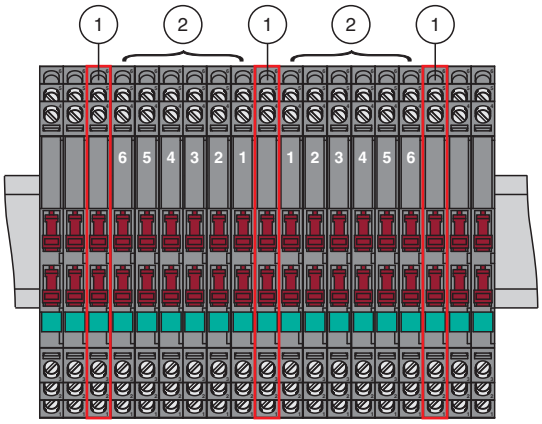
	**M-LB-2800**	Insulation spacer for surge protection system M-LB-2000

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 313287_eng.pdf

Operation

Derating of the Rated Current

This derating is valid for mounting in areas requiring explosion protection level Gc and temperature class T4 or in a non-hazardous area under following special conditions:
The increased rated current of 0.5 A is only applicable for a device (1) if the current in at least 6 adjacent devices (2) from both sides of the device is < 80 % of the increased current, see figure.



Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	500 mA	420 mA	340 mA	260 mA	180 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in areas requiring explosion protection level Gc and temperature class T4 or in a non-hazardous area.

Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	400 mA	340 mA	280 mA	220 mA	160 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in areas requiring explosion protection level Gc and temperature class T5 or T6.

Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	280 mA	224 mA	168 mA	112 mA	56 mA	0 mA

Linear interpolation allowed, extrapolation not allowed.

Derating for Mounting According to UL

This derating is valid for mounting in Zone 2 or Division 2 areas requiring temperature class T4 or in a non-hazardous area.

Max. ambient temperature	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	400 mA	325 mA	250 mA	175 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in Zone 2 or Division 2 areas requiring temperature class T5.

Max. ambient temperature	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	280 mA	210 mA	140 mA	70 mA	0 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in Zone 2 or Division 2 areas requiring temperature class T6.

Max. ambient temperature	40 °C	50 °C	60 °C	70 °C
I_r	280 mA	210 mA	140 mA	70 mA

Linear interpolation allowed, extrapolation not allowed.

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

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Surge Protection Barrier

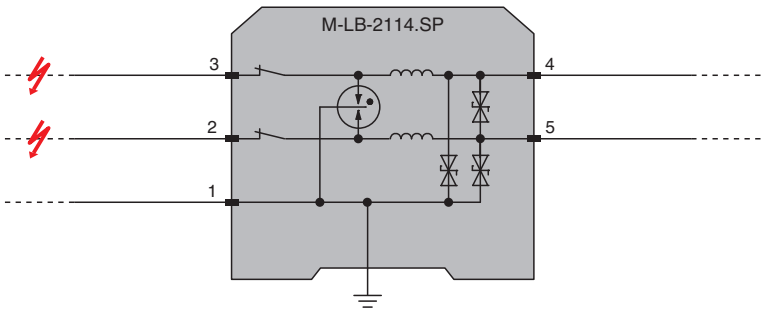
M-LB-2114.SP

- Surge protection barrier for 2 signal lines
- Nominal voltage 1 V DC
- Surge protection barrier for grounded signal lines
- Max. surge current (8/20 µs) 20 kA
- Connection via spring terminals with push-in connection technology
- DIN rail mountable
- Up to SIL 3 acc. to IEC/EN 61508

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device is HART transparent.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.

Connection



Zone 2
Div. 2

Technical Data

General specifications		
Number of protected signal lines		2
Topology		grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 4, 5 unprotected area: terminals 2, 3 shielding/grounding: terminal 1 (optional)
Rated current	I_r	500 mA , restrictions see derating tables UL : 400 mA , restrictions see derating tables
Leakage current		< 10 µA at 1 V and 25 °C (77 °F) , line-line
Nominal voltage		1 V DC

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Technical Data

Maximum continuous operating voltage	U_c	6 V DC
Series resistance		≤ 3 Ω per line
Impulse rating		1 kV/0.5 kA (category C1) 10 kV/5 kA (category C2) 1 kA (category D1)
Impulse discharge current (10/350 µs)	I_{imp}	1 kA per line (2x)
Nominal discharge current (8/20 µs)	I_n	5 kA per line (10x)
Total discharge current (8/20 µs)	I_{total}	20 kA (1x) , overstressed fault mode 3 acc. to IEC 61643-21
Voltage protection level	U_p	max. 12 V line-line for nominal discharge current I_n max. 31 V line-earth for nominal discharge current I_n
Impulse reset time		< 500 ms
Insertion loss		≤ 3 dB at 0 ... 250 kHz in 100 Ω system
Conformity		
Electromagnetic compatibility		EN 61326-3-1:2017
Degree of protection		IEC 60529:2013
Functional safety		IEC/EN 61508:2010
Surge protective devices for low voltage		IEC 61643-21:2000+A1:2008+A2:2012
Ambient conditions		
Ambient temperature		-40 ... 80 °C (-40 ... 176 °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
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20 , after mounting of the insulation spacer
Connection		spring terminals , max. core cross section 1 x 2.5 mm²
Material		Polyamide (PA)
Mass		approx. 32 g
Dimensions		6.2 x 93 x 72.4 mm (0.24 x 3.7 x 2.8 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
Certificate		KIWA 19 ATEX 0002 X
Marking		Ⓔx II 3G Ex ec IIC T6...T4 Gc
Temperature class		T6, T5 or T4 , restrictions see derating tables
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 , EN 60079-7:2015+A1:2018
International approvals		
UL approval		E501704 E501881
Breakdown voltage	U_{BR}	6 ... 12 V line-line at 100 V/s acc. to UL 497B 6 ... 12 V line-earth at 100 V/s acc. to UL 497B < 1000 V at 100 V/µs acc. to UL 497B
IECEx approval		
IECEx certificate		IECEx KIWA 19.0002X
IECEx marking		Ex ec IIC T6...T4 Gc
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

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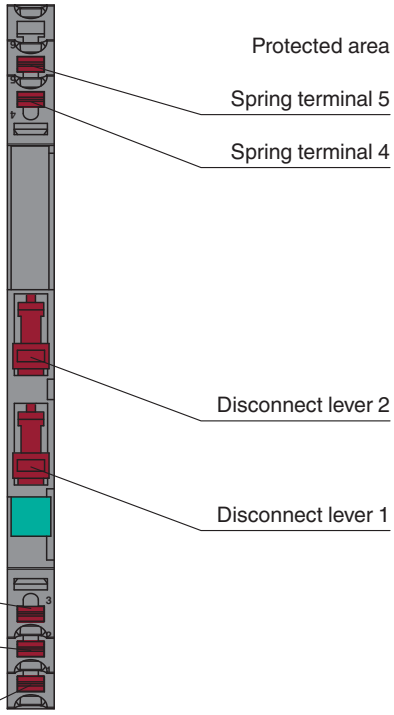
Assembly

Front view



Matching System Components

	**USLKG6N**	Terminal block for equipotential bonding

Accessories

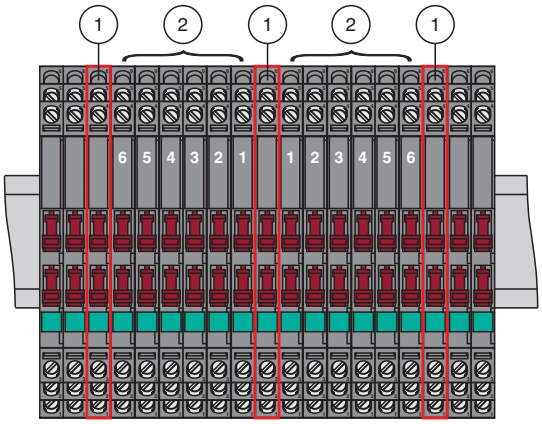
	**M-LB-2800**	Insulation spacer for surge protection system M-LB-2000

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 313288_eng.pdf

Operation

Derating of the Rated Current

This derating is valid for mounting in areas requiring explosion protection level Gc and temperature class T4 or in a non-hazardous area under following special conditions:
The increased rated current of 0.5 A is only applicable for a device (1) if the current in at least 6 adjacent devices (2) from both sides of the device is < 80 % of the increased current, see figure.



Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	500 mA	420 mA	340 mA	260 mA	180 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in areas requiring explosion protection level Gc and temperature class T4 or in a non-hazardous area.

Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	400 mA	340 mA	280 mA	220 mA	160 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in areas requiring explosion protection level Gc and temperature class T5 or T6.

Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	280 mA	224 mA	168 mA	112 mA	56 mA	0 mA

Linear interpolation allowed, extrapolation not allowed.

Derating for Mounting According to UL

This derating is valid for mounting in Zone 2 or Division 2 areas requiring temperature class T4 or in a non-hazardous area.

Max. ambient temperature	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	400 mA	325 mA	250 mA	175 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in Zone 2 or Division 2 areas requiring temperature class T5.

Max. ambient temperature	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	280 mA	210 mA	140 mA	70 mA	0 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in Zone 2 or Division 2 areas requiring temperature class T6.

Max. ambient temperature	40 °C	50 °C	60 °C	70 °C
I_r	280 mA	210 mA	140 mA	70 mA

Linear interpolation allowed, extrapolation not allowed.

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

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Surge Protection Barrier

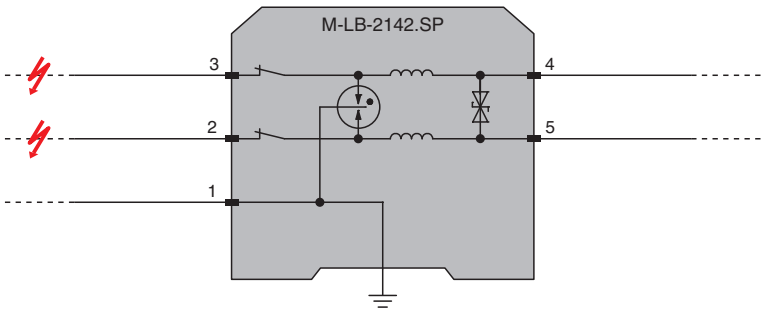
M-LB-2142.SP

- Surge protection barrier for 2 signal lines
- Nominal voltage 24 V DC
- Surge protection barrier for non-grounded signal lines
- Max. surge current (8/20 µs) 20 kA
- Connection via spring terminals with push-in connection technology
- DIN rail mountable
- Up to SIL 3 acc. to IEC/EN 61508

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device is HART transparent.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.

Connection



Zone 2
Div. 2

Technical Data

General specifications		
Number of protected signal lines		2
Topology		non-grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 4, 5 unprotected area: terminals 2, 3 shielding/grounding: terminal 1 (optional)
Rated current	I_r	500 mA , restrictions see derating tables UL : 400 mA , restrictions see derating tables
Leakage current		< 3 µA at 24 V and 25 °C (77 °F) , line-line
Nominal voltage		24 V DC

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Technical Data

Maximum continuous operating voltage	U_c	30 V DC
Series resistance		≤ 3 Ω per line
Impulse rating		1 kV/0.5 kA (category C1) 10 kV/5 kA (category C2) 1 kA (category D1)
Impulse discharge current (10/350 µs)	I_{imp}	1 kA per line (2x)
Nominal discharge current (8/20 µs)	I_n	5 kA per line (10x)
Total discharge current (8/20 µs)	I_{total}	20 kA (1x) , overstressed fault mode 3 acc. to IEC 61643-21
Voltage protection level	U_p	max. 45 V line-line for nominal discharge current I_n max. 1400 V line-earth for nominal discharge current I_n
Impulse reset time		< 500 ms
Insertion loss		≤ 3 dB at 0 ... 900 kHz in 100 Ω system
Conformity		
Electromagnetic compatibility		EN 61326-3-1:2017
Degree of protection		IEC 60529:2013
Functional safety		IEC/EN 61508:2010
Surge protective devices for low voltage		IEC 61643-21:2000+A1:2008+A2:2012
Ambient conditions		
Ambient temperature		-40 ... 80 °C (-40 ... 176 °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
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20 , after mounting of the insulation spacer
Connection		spring terminals , max. core cross section 1 x 2.5 mm²
Material		Polyamide (PA)
Mass		approx. 32 g
Dimensions		6.2 x 93 x 72.4 mm (0.24 x 3.7 x 2.8 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
Certificate		KIWA 19 ATEX 0002 X
Marking		Ⓔx II 3G Ex ec IIC T6...T4 Gc
Temperature class		T6, T5 or T4 , restrictions see derating tables
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 , EN 60079-7:2015+A1:2018
International approvals		
UL approval		E501704 E501881
Breakdown voltage	U_{BR}	30 ... 45 V line-line at 100 V/s acc. to UL 497B < 1000 V at 100 V/µs acc. to UL 497B
IECEx approval		
IECEx certificate		IECEx KIWA 19.0002X
IECEx marking		Ex ec IIC T6...T4 Gc
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

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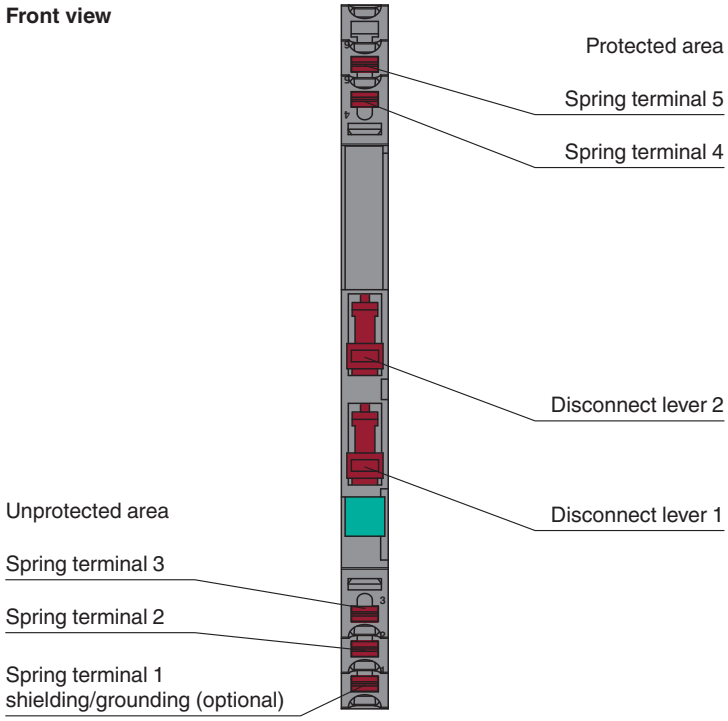
Assembly

Front view



Matching System Components

	**USLKG6N**	Terminal block for equipotential bonding

Accessories

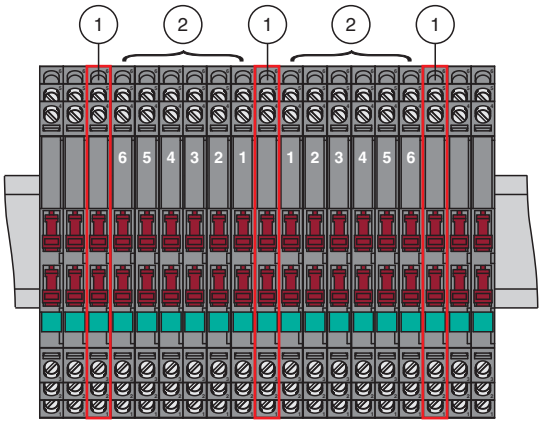
	**M-LB-2800**	Insulation spacer for surge protection system M-LB-2000

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 313289_eng.pdf

Operation

Derating of the Rated Current

This derating is valid for mounting in areas requiring explosion protection level Gc and temperature class T4 or in a non-hazardous area under following special conditions:
The increased rated current of 0.5 A is only applicable for a device (1) if the current in at least 6 adjacent devices (2) from both sides of the device is < 80 % of the increased current, see figure.



Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	500 mA	420 mA	340 mA	260 mA	180 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in areas requiring explosion protection level Gc and temperature class T4 or in a non-hazardous area.

Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	400 mA	340 mA	280 mA	220 mA	160 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in areas requiring explosion protection level Gc and temperature class T5 or T6.

Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	280 mA	224 mA	168 mA	112 mA	56 mA	0 mA

Linear interpolation allowed, extrapolation not allowed.

Derating for Mounting According to UL

This derating is valid for mounting in Zone 2 or Division 2 areas requiring temperature class T4 or in a non-hazardous area.

Max. ambient temperature	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	400 mA	325 mA	250 mA	175 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in Zone 2 or Division 2 areas requiring temperature class T5.

Max. ambient temperature	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	280 mA	210 mA	140 mA	70 mA	0 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in Zone 2 or Division 2 areas requiring temperature class T6.

Max. ambient temperature	40 °C	50 °C	60 °C	70 °C
I_r	280 mA	210 mA	140 mA	70 mA

Linear interpolation allowed, extrapolation not allowed.

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

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Surge Protection Barrier

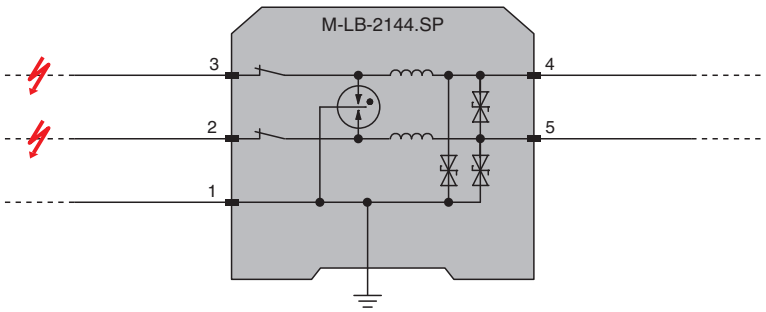
M-LB-2144.SP

- Surge protection barrier for 2 signal lines
- Nominal voltage 24 V DC
- Surge protection barrier for grounded signal lines
- Max. surge current (8/20 µs) 20 kA
- Connection via spring terminals with push-in connection technology
- DIN rail mountable
- Up to SIL 3 acc. to IEC/EN 61508

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device is HART transparent.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.

Connection



Zone 2
Div. 2

Technical Data

General specifications		
Number of protected signal lines		2
Topology		grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 4, 5 unprotected area: terminals 2, 3 shielding/grounding: terminal 1 (optional)
Rated current	I_r	500 mA , restrictions see derating tables UL : 400 mA , restrictions see derating tables
Leakage current		< 6 µA at 24 V and 25 °C (77 °F) , line-line
Nominal voltage		24 V DC

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Technical Data

Maximum continuous operating voltage	U_c	30 V DC
Series resistance		≤ 3 Ω per line
Impulse rating		1 kV/0.5 kA (category C1) 10 kV/5 kA (category C2) 1 kA (category D1)
Impulse discharge current (10/350 µs)	I_{imp}	1 kA per line (2x)
Nominal discharge current (8/20 µs)	I_n	5 kA per line (10x)
Total discharge current (8/20 µs)	I_{total}	20 kA (1x) , overstressed fault mode 3 acc. to IEC 61643-21
Voltage protection level	U_p	max. 45 V line-line for nominal discharge current I_n max. 60 V line-earth for nominal discharge current I_n
Impulse reset time		< 500 ms
Insertion loss		≤ 3 dB at 0 ... 700 kHz in 100 Ω system
Conformity		
Electromagnetic compatibility		EN 61326-3-1:2017
Degree of protection		IEC 60529:2013
Functional safety		IEC/EN 61508:2010
Surge protective devices for low voltage		IEC 61643-21:2000+A1:2008+A2:2012
Ambient conditions		
Ambient temperature		-40 ... 80 °C (-40 ... 176 °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
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20 , after mounting of the insulation spacer
Connection		spring terminals , max. core cross section 1 x 2.5 mm²
Material		Polyamide (PA)
Mass		approx. 32 g
Dimensions		6.2 x 93 x 72.4 mm (0.24 x 3.7 x 2.8 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
Certificate		KIWA 19 ATEX 0002 X
Marking		Ⓔx II 3G Ex ec IIC T6...T4 Gc
Temperature class		T6, T5 or T4 , restrictions see derating tables
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 , EN 60079-7:2015+A1:2018
International approvals		
UL approval		E501704 E501881
Breakdown voltage	U_{BR}	30 ... 45 V line-line at 100 V/s acc. to UL 497B 30 ... 45 V line-earth at 100 V/s acc. to UL 497B < 1000 V at 100 V/µs acc. to UL 497B
IECEx approval		
IECEx certificate		IECEx KIWA 19.0002X
IECEx marking		Ex ec IIC T6...T4 Gc
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

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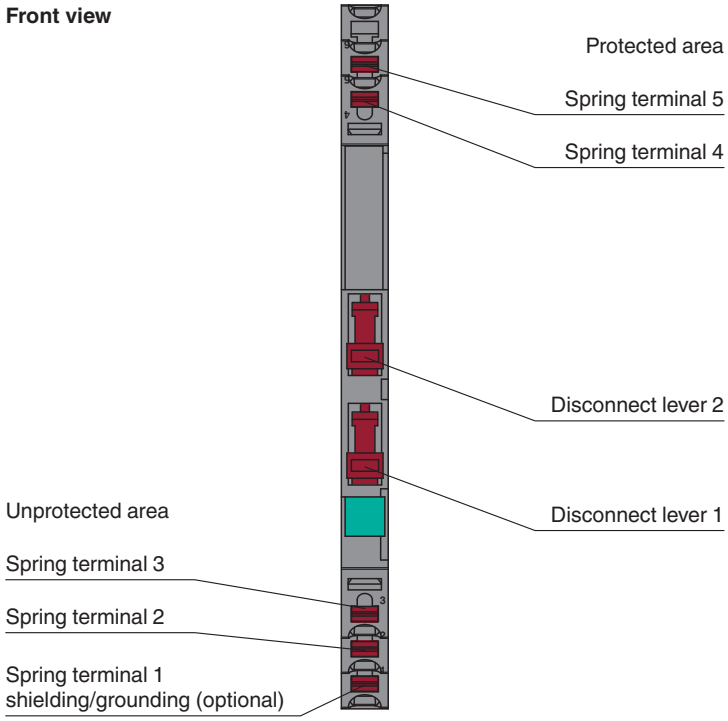
Assembly

Front view



Matching System Components

	**USLKG6N**	Terminal block for equipotential bonding

Accessories

	**M-LB-2800**	Insulation spacer for surge protection system M-LB-2000

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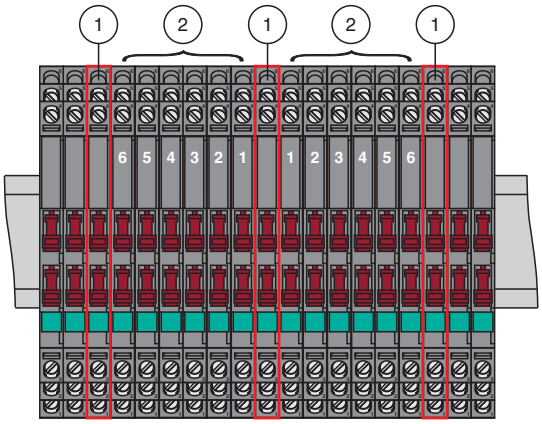
Operation

Derating of the Rated Current

This derating is valid for mounting in areas requiring explosion protection level Gc and temperature class T4 or in a non-hazardous area under following special conditions:
The increased rated current of 0.5 A is only applicable for a device (1) if the current in at least 6 adjacent devices (2) from both sides of the device is < 80 % of the increased current, see figure.



Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	500 mA	420 mA	340 mA	260 mA	180 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in areas requiring explosion protection level Gc and temperature class T4 or in a non-hazardous area.

Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	400 mA	340 mA	280 mA	220 mA	160 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in areas requiring explosion protection level Gc and temperature class T5 or T6.

Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	280 mA	224 mA	168 mA	112 mA	56 mA	0 mA

Linear interpolation allowed, extrapolation not allowed.

Derating for Mounting According to UL

This derating is valid for mounting in Zone 2 or Division 2 areas requiring temperature class T4 or in a non-hazardous area.

Max. ambient temperature	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	400 mA	325 mA	250 mA	175 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in Zone 2 or Division 2 areas requiring temperature class T5.

Max. ambient temperature	40 °C	50 °C	60 °C	70 °C	80 °C
I_r	280 mA	210 mA	140 mA	70 mA	0 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in Zone 2 or Division 2 areas requiring temperature class T6.

Max. ambient temperature	40 °C	50 °C	60 °C	70 °C
I_r	280 mA	210 mA	140 mA	70 mA

Linear interpolation allowed, extrapolation not allowed.

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

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Surge Protection Barrier

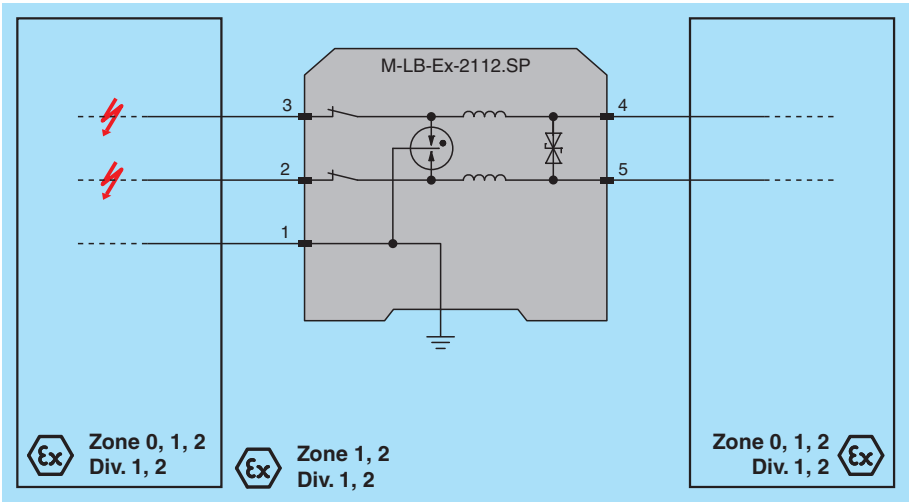
M-LB-Ex-2112.SP

- Surge protection barrier for 2 signal lines
- Nominal voltage 1 V DC
- Surge protection barrier for non-grounded signal lines
- Max. surge current (8/20 µs) 20 kA
- Connection via spring terminals with push-in connection technology
- DIN rail mountable
- Up to SIL 3 acc. to IEC/EN 61508

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device is used for intrinsic safety applications.
The device is HART transparent.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.

Connection



Technical Data

General specifications		
Number of protected signal lines		2
Topology		non-grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 4, 5 unprotected area: terminals 2, 3 shielding/grounding: terminal 1 (optional)
Rated current	I_r	500 mA , restrictions see derating tables UL : 400 mA , restrictions see control drawing
Leakage current		< 5 µA at 1 V and 25 °C (77 °F) , line-line
Nominal voltage		1 V DC

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Technical Data

Maximum continuous operating voltage	U_c	6 V DC
Series resistance		≤ 3 Ω per line
Impulse rating		1 kV/0.5 kA (category C1) 10 kV/5 kA (category C2) 1 kA (category D1)
Impulse discharge current (10/350 µs)	I_{imp}	1 kA per line (2x)
Nominal discharge current (8/20 µs)	I_n	5 kA per line (10x)
Total discharge current (8/20 µs)	I_{total}	20 kA (1x) , overstressed fault mode 3 acc. to IEC 61643-21
Voltage protection level	U_p	max. 12 V line-line for nominal discharge current I_n max. 1400 V line-earth for nominal discharge current I_n
Impulse reset time		< 500 ms
Insertion loss		≤ 3 dB at 0 ... 400 kHz in 100 Ω system
Conformity		
Electromagnetic compatibility		EN 61326-3-1:2017
Degree of protection		IEC 60529:2013
Functional safety		IEC/EN 61508:2010
Surge protective devices for low voltage		IEC 61643-21:2000+A1:2008+A2:2012
Ambient conditions		
Ambient temperature		-40 ... 80 °C (-40 ... 176 °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
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20 , after mounting of the insulation spacer
Connection		spring terminals , max. core cross section 1 x 2.5 mm^2
Material		Polyamide (PA)
Mass		approx. 32 g
Dimensions		6.2 x 93 x 72.4 mm (0.24 x 3.7 x 2.8 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
EU-type examination certificate		KIWA 19 ATEX 0003 X
Marking		⟨Ex⟩ II 2(1)G Ex ia [ia Ga] IIC T6...T4 Gb ⟨Ex⟩ II (1)D [Ex ia Da] IIIC ⟨Ex⟩ I (M1) [Ex ia Ma] I
Temperature class		T6, T5 or T4 , restrictions see derating tables
Voltage	U_i	6 V
Current	I_i	500 mA , restrictions see derating tables
Internal capacitance	C_i	negligible
Internal inductance	L_i	20 µH
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 , EN 60079-11:2012
International approvals		
UL approval		E501704 E501881
Control drawing		116-0479
Current	I_i	400 mA , restrictions see control drawing
Breakdown voltage	U_{BR}	6 ... 12 V line-line at 100 V/s acc. to UL 497B < 1000 V at 100 V/µs acc. to UL 497B
IECEx approval		
IECEx certificate		IECEx KIWA 19.0003X
IECEx marking		Ex ia [ia Ga] IIC T6...T4 Gb [Ex ia Da] IIIC [Ex ia Ma] I
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

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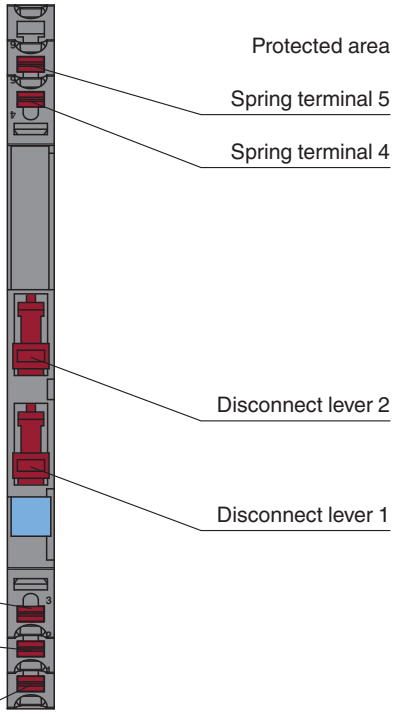
Assembly

Front view



Matching System Components

	**USLKG6N**	Terminal block for equipotential bonding

Accessories

	**M-LB-2800**	Insulation spacer for surge protection system M-LB-2000

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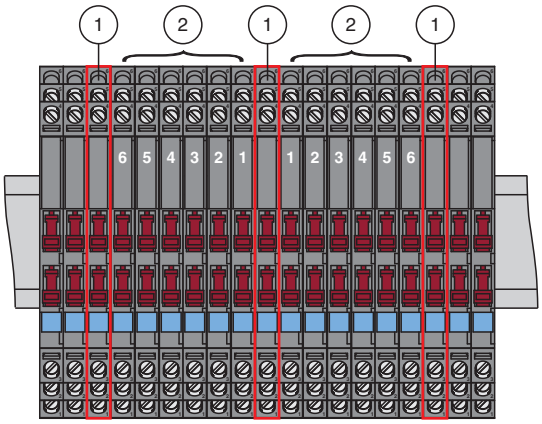
Operation

Derating of the Rated Current

This derating is valid for mounting in areas requiring explosion protection level Gb or Gc and temperature class T4 or in a non-hazardous area under following special conditions:
The increased rated current of 0.5 A is only applicable for a device (1) if the current in at least 6 adjacent devices (2) from both sides of the device is < 80 % of the increased current, see figure.



Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_i (I_r)	500 mA	420 mA	340 mA	260 mA	180 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in areas requiring explosion protection level Gb or Gc and temperature class T4 or in a non-hazardous area.

Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_i (I_r)	400 mA	340 mA	280 mA	220 mA	160 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in areas requiring explosion protection level Gb or Gc and temperature class T5 or T6.

Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_i (I_r)	280 mA	224 mA	168 mA	112 mA	56 mA	0 mA

Linear interpolation allowed, extrapolation not allowed.

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

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Surge Protection Barrier

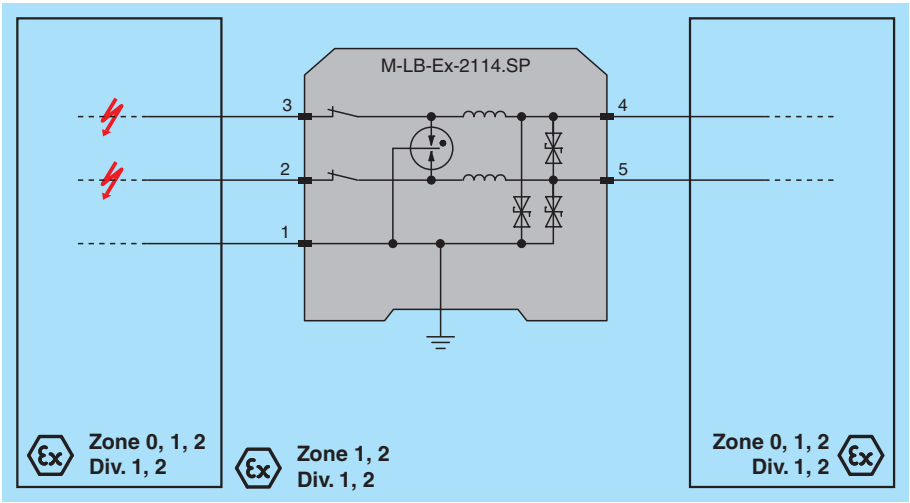
M-LB-Ex-2114.SP

- Surge protection barrier for 2 signal lines
- Nominal voltage 1 V DC
- Surge protection barrier for grounded signal lines
- Max. surge current (8/20 µs) 20 kA
- Connection via spring terminals with push-in connection technology
- DIN rail mountable
- Up to SIL 3 acc. to IEC/EN 61508

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device is used for intrinsic safety applications.
The device is HART transparent.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.

Connection



Technical Data

General specifications		
Number of protected signal lines		2
Topology		grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 4, 5 unprotected area: terminals 2, 3 shielding/grounding: terminal 1 (optional)
Rated current	I_r	500 mA , restrictions see derating tables UL : 400 mA , restrictions see control drawing
Leakage current		< 10 µA at 1 V and 25 °C (77 °F) , line-line
Nominal voltage		1 V DC

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Technical Data

Maximum continuous operating voltage	U_c	6 V DC
Series resistance		≤ 3 Ω per line
Impulse rating		1 kV/0.5 kA (category C1) 10 kV/5 kA (category C2) 1 kA (category D1)
Impulse discharge current (10/350 µs)	I_{imp}	1 kA per line (2x)
Nominal discharge current (8/20 µs)	I_n	5 kA per line (10x)
Total discharge current (8/20 µs)	I_{total}	20 kA (1x) , overstressed fault mode 3 acc. to IEC 61643-21
Voltage protection level	U_p	max. 12 V line-line for nominal discharge current I_n max. 31 V line-earth for nominal discharge current I_n
Impulse reset time		< 500 ms
Insertion loss		≤ 3 dB at 0 ... 250 kHz in 100 Ω system
Conformity		
Electromagnetic compatibility		EN 61326-3-1:2017
Degree of protection		IEC 60529:2013
Functional safety		IEC/EN 61508:2010
Surge protective devices for low voltage		IEC 61643-21:2000+A1:2008+A2:2012
Ambient conditions		
Ambient temperature		-40 ... 80 °C (-40 ... 176 °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
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20 , after mounting of the insulation spacer
Connection		spring terminals , max. core cross section 1 x 2.5 mm^2
Material		Polyamide (PA)
Mass		approx. 32 g
Dimensions		6.2 x 93 x 72.4 mm (0.24 x 3.7 x 2.8 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
EU-type examination certificate		KIWA 19 ATEX 0003 X
Marking		⟨Ex⟩ II 2(1)G Ex ia [ia Ga] IIC T6...T4 Gb ⟨Ex⟩ II (1)D [Ex ia Da] IIIC ⟨Ex⟩ I (M1) [Ex ia Ma] I
Temperature class		T6, T5 or T4 , restrictions see derating tables
Voltage	U_i	6 V
Current	I_i	500 mA , restrictions see derating tables
Internal capacitance	C_i	negligible
Internal inductance	L_i	20 µH
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 , EN 60079-11:2012
International approvals		
UL approval		E501704 E501881
Control drawing		116-0479
Current	I_i	400 mA , restrictions see control drawing
Breakdown voltage	U_{BR}	6 ... 12 V line-line at 100 V/s acc. to UL 497B 6 ... 12 V line-earth at 100 V/s acc. to UL 497B < 1000 V at 100 V/µs acc. to UL 497B
IECEx approval		
IECEx certificate		IECEx KIWA 19.0003X
IECEx marking		Ex ia [ia Ga] IIC T6...T4 Gb [Ex ia Da] IIIC [Ex ia Ma] I
General information		

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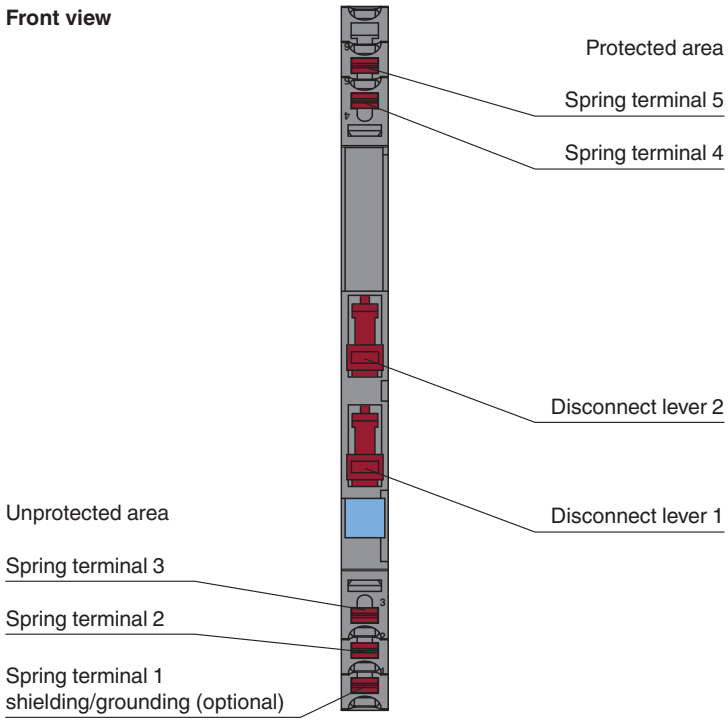
Technical Data

Supplementary information	Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Assembly

Front view



Matching System Components

	**USLKG6N**	Terminal block for equipotential bonding

Accessories

	**M-LB-2800**	Insulation spacer for surge protection system M-LB-2000

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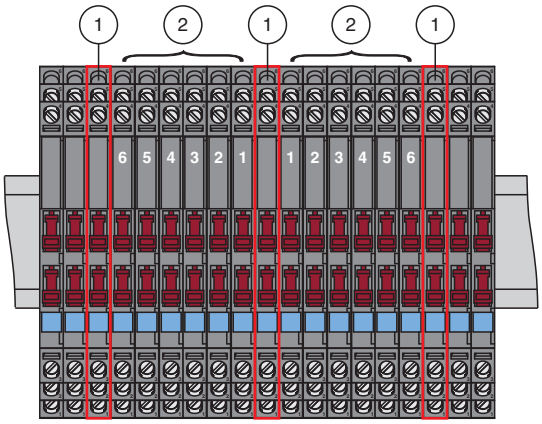
Operation

Derating of the Rated Current

This derating is valid for mounting in areas requiring explosion protection level Gb or Gc and temperature class T4 or in a non-hazardous area under following special conditions:
The increased rated current of 0.5 A is only applicable for a device (1) if the current in at least 6 adjacent devices (2) from both sides of the device is < 80 % of the increased current, see figure.



Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_i (I_r)	500 mA	420 mA	340 mA	260 mA	180 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in areas requiring explosion protection level Gb or Gc and temperature class T4 or in a non-hazardous area.

Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_i (I_r)	400 mA	340 mA	280 mA	220 mA	160 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in areas requiring explosion protection level Gb or Gc and temperature class T5 or T6.

Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_i (I_r)	280 mA	224 mA	168 mA	112 mA	56 mA	0 mA

Linear interpolation allowed, extrapolation not allowed.

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

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Surge Protection Barrier

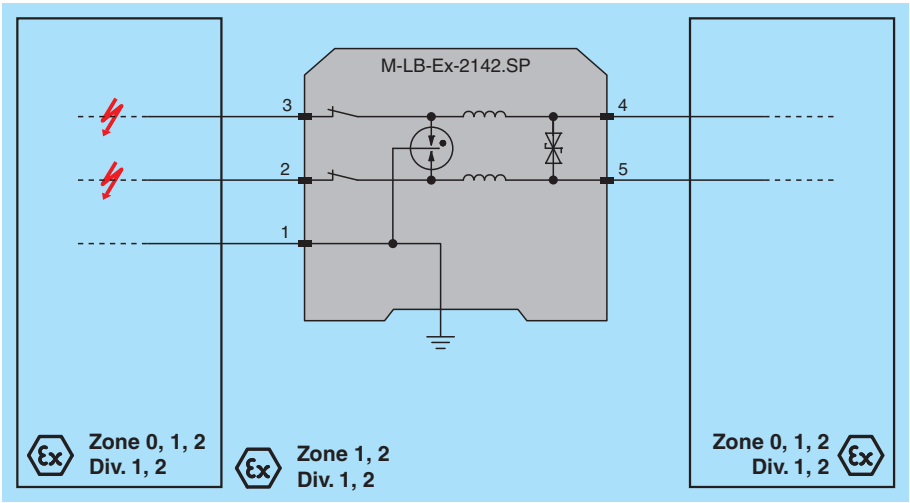
M-LB-Ex-2142.SP

- Surge protection barrier for 2 signal lines
- Nominal voltage 24 V DC
- Surge protection barrier for non-grounded signal lines
- Max. surge current (8/20 µs) 20 kA
- Connection via spring terminals with push-in connection technology
- DIN rail mountable
- Up to SIL 3 acc. to IEC/EN 61508

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device is used for intrinsic safety applications.
The device is HART transparent.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.

Connection



Technical Data

General specifications		
Number of protected signal lines		2
Topology		non-grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 4, 5 unprotected area: terminals 2, 3 shielding/grounding: terminal 1 (optional)
Rated current	I_r	500 mA , restrictions see derating tables UL : 400 mA , restrictions see control drawing
Leakage current		< 3 µA at 24 V and 25 °C (77 °F) , line-line
Nominal voltage		24 V DC

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Technical Data

Maximum continuous operating voltage	U_c	30 V DC
Series resistance		≤ 3 Ω per line
Impulse rating		1 kV/0.5 kA (category C1) 10 kV/5 kA (category C2) 1 kA (category D1)
Impulse discharge current (10/350 µs)	I_{imp}	1 kA per line (2x)
Nominal discharge current (8/20 µs)	I_n	5 kA per line (10x)
Total discharge current (8/20 µs)	I_{total}	20 kA (1x) , overstressed fault mode 3 acc. to IEC 61643-21
Voltage protection level	U_p	max. 45 V line-line for nominal discharge current I_n max. 1400 V line-earth for nominal discharge current I_n
Impulse reset time		< 500 ms
Insertion loss		≤ 3 dB at 0 ... 900 kHz in 100 Ω system
Conformity		
Electromagnetic compatibility		EN 61326-3-1:2017
Degree of protection		IEC 60529:2013
Functional safety		IEC/EN 61508:2010
Surge protective devices for low voltage		IEC 61643-21:2000+A1:2008+A2:2012
Ambient conditions		
Ambient temperature		-40 ... 80 °C (-40 ... 176 °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
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20 , after mounting of the insulation spacer
Connection		spring terminals , max. core cross section 1 x 2.5 mm²
Material		Polyamide (PA)
Mass		approx. 32 g
Dimensions		6.2 x 93 x 72.4 mm (0.24 x 3.7 x 2.8 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
EU-type examination certificate		KIWA 19 ATEX 0003 X
Marking		⟨Ex⟩ II 2(1)G Ex ia [ia Ga] IIC T6...T4 Gb ⟨Ex⟩ II (1)D [Ex ia Da] IIIC ⟨Ex⟩ I (M1) [Ex ia Ma] I
Temperature class		T6, T5 or T4 , restrictions see derating tables
Voltage	U_i	30 V
Current	I_i	500 mA , restrictions see derating tables
Internal capacitance	C_i	negligible
Internal inductance	L_i	20 µH
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 , EN 60079-11:2012
International approvals		
UL approval		E501704 E501881
Control drawing		116-0479
Current	I_i	400 mA , restrictions see control drawing
Breakdown voltage	U_{BR}	30 ... 45 V line-line at 100 V/s acc. to UL 497B < 1000 V at 100 V/µs acc. to UL 497B
IECEx approval		
IECEx certificate		IECEx KIWA 19.0003X
IECEx marking		Ex ia [ia Ga] IIC T6...T4 Gb [Ex ia Da] IIIC [Ex ia Ma] I
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

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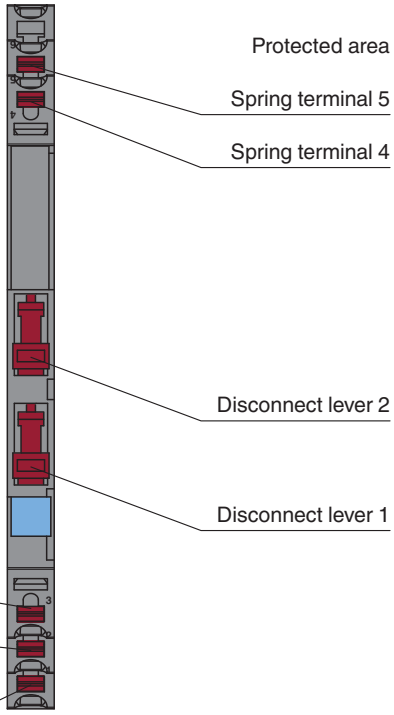
Assembly

Front view



Matching System Components

	**USLKG6N**	Terminal block for equipotential bonding

Accessories

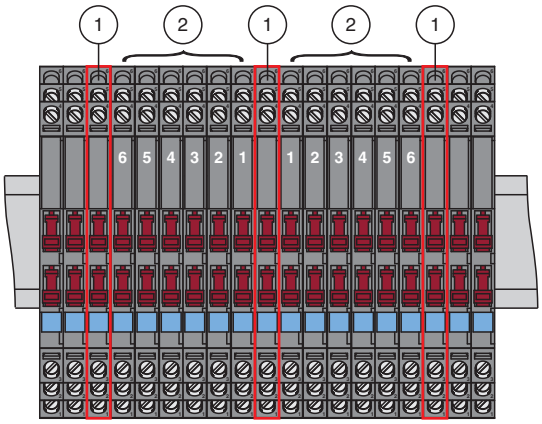
	**M-LB-2800**	Insulation spacer for surge protection system M-LB-2000

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 313295_eng.pdf

Operation

Derating of the Rated Current

This derating is valid for mounting in areas requiring explosion protection level Gb or Gc and temperature class T4 or in a non-hazardous area under following special conditions:
The increased rated current of 0.5 A is only applicable for a device (1) if the current in at least 6 adjacent devices (2) from both sides of the device is < 80 % of the increased current, see figure.



Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_i (I_r)	500 mA	420 mA	340 mA	260 mA	180 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in areas requiring explosion protection level Gb or Gc and temperature class T4 or in a non-hazardous area.

Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_i (I_r)	400 mA	340 mA	280 mA	220 mA	160 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in areas requiring explosion protection level Gb or Gc and temperature class T5 or T6.

Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_i (I_r)	280 mA	224 mA	168 mA	112 mA	56 mA	0 mA

Linear interpolation allowed, extrapolation not allowed.

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

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Surge Protection Barrier

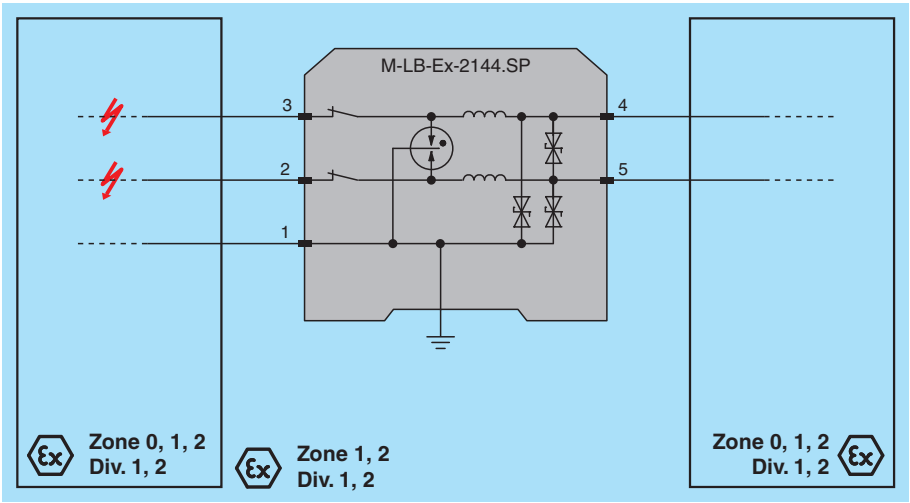
M-LB-Ex-2144.SP

- Surge protection barrier for 2 signal lines
- Nominal voltage 24 V DC
- Surge protection barrier for grounded signal lines
- Max. surge current (8/20 µs) 20 kA
- Connection via spring terminals with push-in connection technology
- DIN rail mountable
- Up to SIL 3 acc. to IEC/EN 61508

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device is used for intrinsic safety applications.
The device is HART transparent.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.

Connection



Technical Data

General specifications		
Number of protected signal lines		2
Topology		grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 4, 5 unprotected area: terminals 2, 3 shielding/grounding: terminal 1 (optional)
Rated current	I_r	500 mA , restrictions see derating tables UL : 400 mA , restrictions see control drawing
Leakage current		< 6 µA at 24 V and 25 °C (77 °F) , line-line
Nominal voltage		24 V DC

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Technical Data

Maximum continuous operating voltage	U_c	30 V DC
Series resistance		≤ 3 Ω per line
Impulse rating		1 kV/0.5 kA (category C1) 10 kV/5 kA (category C2) 1 kA (category D1)
Impulse discharge current (10/350 µs)	I_{imp}	1 kA per line (2x)
Nominal discharge current (8/20 µs)	I_n	5 kA per line (10x)
Total discharge current (8/20 µs)	I_{total}	20 kA (1x) , overstressed fault mode 3 acc. to IEC 61643-21
Voltage protection level	U_p	max. 45 V line-line for nominal discharge current I_n max. 60 V line-earth for nominal discharge current I_n
Impulse reset time		< 500 ms
Insertion loss		≤ 3 dB at 0 ... 700 kHz in 100 Ω system
Conformity		
Electromagnetic compatibility		EN 61326-3-1:2017
Degree of protection		IEC 60529:2013
Functional safety		IEC/EN 61508:2010
Surge protective devices for low voltage		IEC 61643-21:2000+A1:2008+A2:2012
Ambient conditions		
Ambient temperature		-40 ... 80 °C (-40 ... 176 °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
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20 , after mounting of the insulation spacer
Connection		spring terminals , max. core cross section 1 x 2.5 mm^2
Material		Polyamide (PA)
Mass		approx. 32 g
Dimensions		6.2 x 93 x 72.4 mm (0.24 x 3.7 x 2.8 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
EU-type examination certificate		KIWA 19 ATEX 0003 X
Marking		⟨Ex⟩ II 2(1)G Ex ia [ia Ga] IIC T6...T4 Gb ⟨Ex⟩ II (1)D [Ex ia Da] IIIC ⟨Ex⟩ I (M1) [Ex ia Ma] I
Temperature class		T6, T5 or T4 , restrictions see derating tables
Voltage	U_i	30 V
Current	I_i	500 mA , restrictions see derating tables
Internal capacitance	C_i	negligible
Internal inductance	L_i	20 µH
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 , EN 60079-11:2012
International approvals		
UL approval		E501704 E501881
Control drawing		116-0479
Current	I_i	400 mA , restrictions see control drawing
Breakdown voltage	U_{BR}	30 ... 45 V line-line at 100 V/s acc. to UL 497B 30 ... 45 V line-earth at 100 V/s acc. to UL 497B < 1000 V at 100 V/µs acc. to UL 497B
IECEx approval		
IECEx certificate		IECEx KIWA 19.0003X
IECEx marking		Ex ia [ia Ga] IIC T6...T4 Gb [Ex ia Da] IIIC [Ex ia Ma] I
General information		

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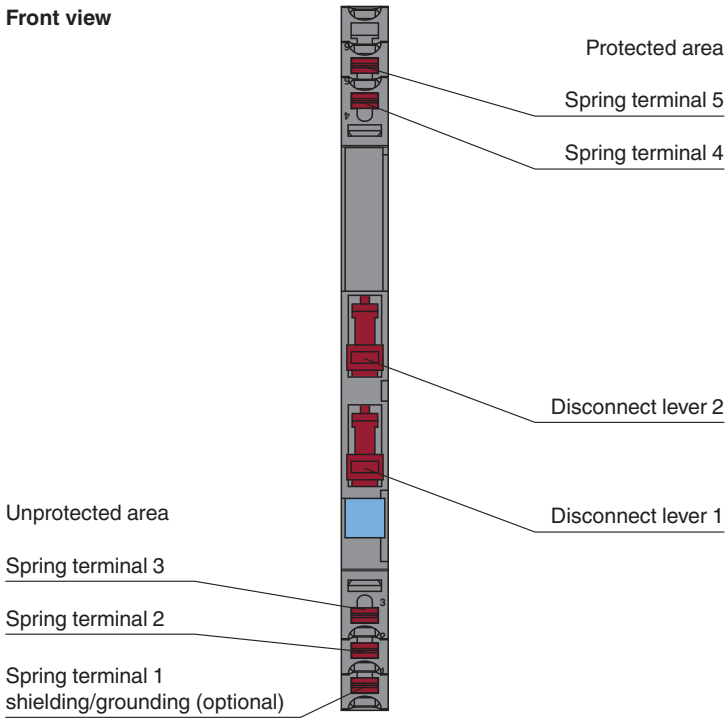
Technical Data

Supplementary information	Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Assembly

Front view



Matching System Components

	**USLKG6N**	Terminal block for equipotential bonding

Accessories

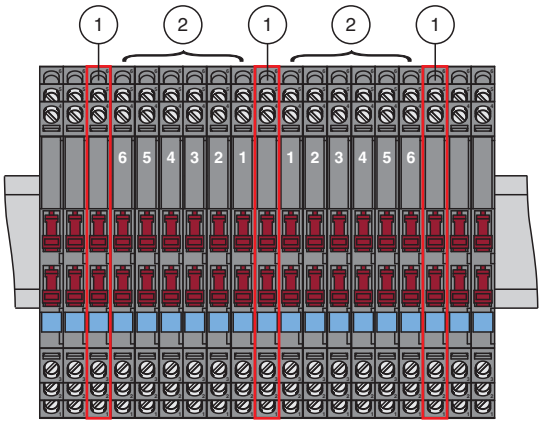
	**M-LB-2800**	Insulation spacer for surge protection system M-LB-2000

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 313296_eng.pdf

Operation

Derating of the Rated Current

This derating is valid for mounting in areas requiring explosion protection level Gb or Gc and temperature class T4 or in a non-hazardous area under following special conditions:
The increased rated current of 0.5 A is only applicable for a device (1) if the current in at least 6 adjacent devices (2) from both sides of the device is < 80 % of the increased current, see figure.



Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_i (I_r)	500 mA	420 mA	340 mA	260 mA	180 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

This derating is valid for mounting in areas requiring explosion protection level Gb or Gc and temperature class T4 or in a non-hazardous area.

Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_i (I_r)	400 mA	340 mA	280 mA	220 mA	160 mA	100 mA

Linear interpolation allowed, extrapolation not allowed.

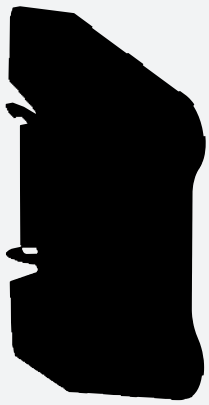
This derating is valid for mounting in areas requiring explosion protection level Gb or Gc and temperature class T5 or T6.

Max. ambient temperature	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C
I_i (I_r)	280 mA	224 mA	168 mA	112 mA	56 mA	0 mA

Linear interpolation allowed, extrapolation not allowed.

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

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 313296_eng.pdf



Insulation Spacer

M-LB-2800

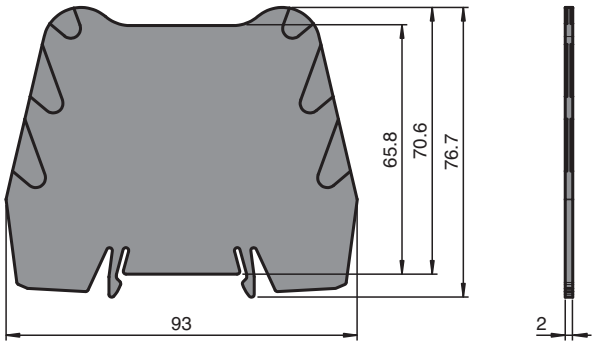
- For surge protection system M-LB-2000
- Color black
- DIN rail mountable

Insulation spacer for surge protection system M-LB-2000

Function

The component is used to terminate terminal sections or to separate individual terminal sections from each other.
The component is mounted on a 35 mm DIN mounting rail according to EN 60715.

Dimensions



Technical Data

Ambient conditions		
Ambient temperature		-40 ... 80 °C (-40 ... 176 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
Relative humidity		max. 95 % , without condensation
Mechanical specifications		
Material		Polyamide (PA)
Mass		approx. 40 g
Dimensions		2 x 93 x 77 mm (0.08 x 3.7 x 3 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001

Release date: 2022-01-14 Date of issue: 2022-01-14 Filename: 70101641_eng.pdf

Surge Protection Barrier

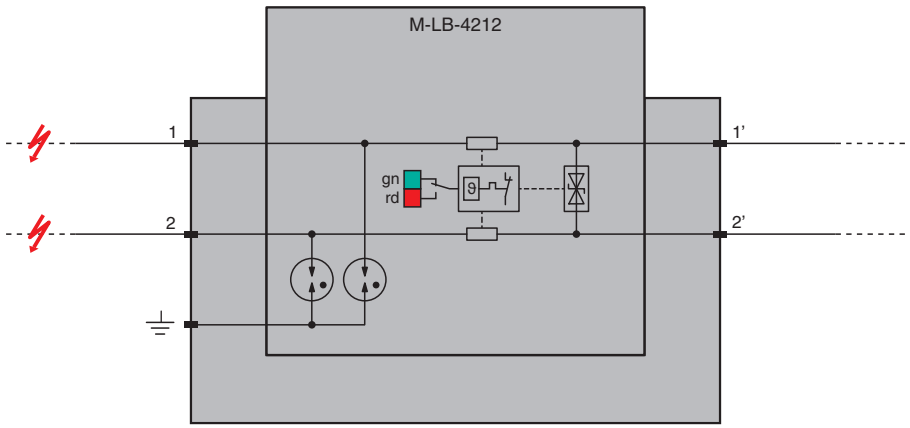
M-LB-4212

- Surge protection for 2 signal lines
- Nominal voltage 5 V
- Surge protection barrier for non-grounded signal lines
- Max. surge current (8/20 µs) 20 kA
- Uninterruptable operation (auto reset)
- Status indication
- Modular design, pluggable
- Up to SIL 3 acc. to IEC/EN 61508

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device consists of base module and protection module.The protection module can be replaced without tools.
The device has a status indication at the front.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.

Connection



Zone 2

Technical Data

General specifications		
Number of protected signal lines		2
Topology		non-grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 1', 2' unprotected area: terminals 1, 2
Leakage current		< 10 µA bei U_c , line-line < 10 nA bei U_c , line-earth
Nominal voltage		5 V
Maximum continuous operating voltage	U_c	6 V AC and 8.5 V DC

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155078_eng.pdf

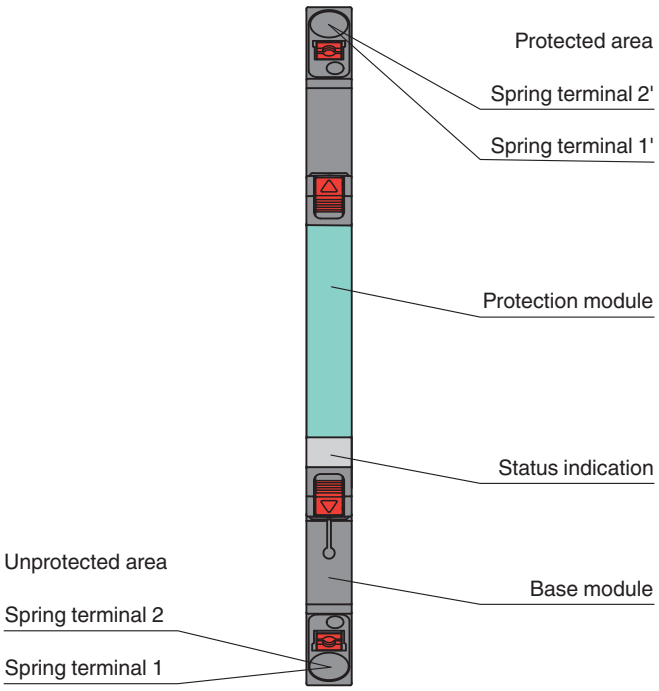
Technical Data

Nominal load current	I_L	0.75 A at 70 °C (158 °F)
Series resistance		1 Ω per line
Impulse discharge current (10/350 µs)	I_{imp}	1.5 kA per line
Nominal discharge current (8/20 µs)	I_n	5 kA per line
Max. surge current (8/20 µs)	I_{max}	20 kA
Total discharge current (8/20 µs)	I_{total}	10 kA
Voltage protection level	U_p	max. 42 V line-line for nominal discharge current I_n max. 600 V line-earth for nominal discharge current I_n
Impulse reset time		< 30 ms
Cut-off frequency	f_G	100 MHz , line-line
Indicators/settings		
Display elements		status display operating state (green) fault indication (red)
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 ... 80 °C (-40 ... 176 °F)
Storage temperature		-40 ... 80 °C (-40 ... 176 °F)
Relative humidity		max. 95 % , without condensation
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20
Connection		spring terminals with push-in connection technology
Core cross section		0.2 ... 2.5 mm² one wire 0.2 ... 2.5 mm² fine-strand
Material		
Housing		Polyamide PA 6.6
Mass		approx. 35 g
Dimensions		6 x 90 x 69 mm (0.24 x 3.5 x 2.7 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
Certificate		TÜV 22 ATEX 8881 X
Marking		⟨Ex⟩ II 3G Ex ec IIC T4 Gc
Temperature class		T4 for ambient temperature ≤ 80 °C
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2018 , EN IEC 60079-7:2015+A1:2018
International approvals		
UL approval		E501704
IECEx approval		
IECEx certificate		IECEx TUR 22.0051X
IECEx marking		Ex ec IIC T4 Gc
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155078_eng.pdf

Assembly

Front view



Accessories

	**M-LB-4800**	Separation Wall
	**M-LB-4212.M**	Protection Module for Surge Protection Barrier

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155078_eng.pdf

Surge Protection Barrier

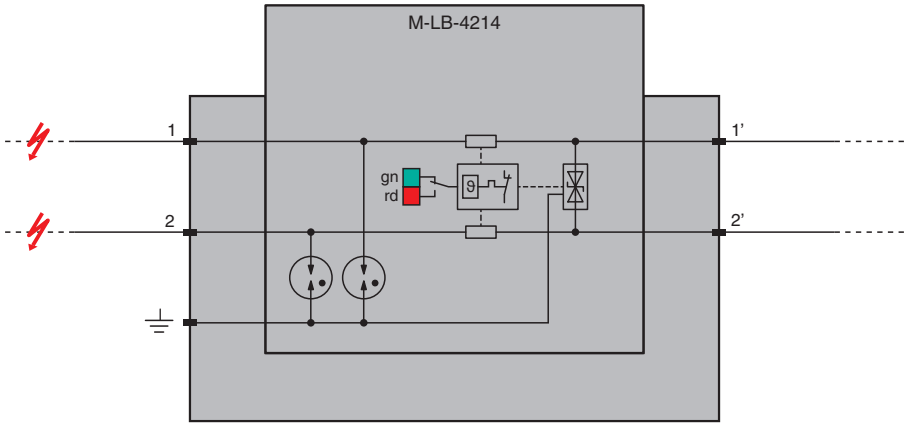
M-LB-4214

- Surge protection for 2 signal lines
- Nominal voltage 5 V
- Surge protection barrier for grounded signal lines
- Max. surge current (8/20 µs) 20 kA
- Uninterruptable operation (auto reset)
- Status indication
- Modular design, pluggable
- Up to SIL 3 acc. to IEC/EN 61508

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device consists of base module and protection module.The protection module can be replaced without tools.
The device has a status indication at the front.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.

Connection



Zone 2

Technical Data

General specifications		
Number of protected signal lines		2
Topology		grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 1', 2' unprotected area: terminals 1, 2
Leakage current		< 5 µA bei U_c , line-line < 5 µA bei U_c , line-earth
Nominal voltage		5 V
Maximum continuous operating voltage	U_c	6 V AC and 8.5 V DC

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155079_eng.pdf

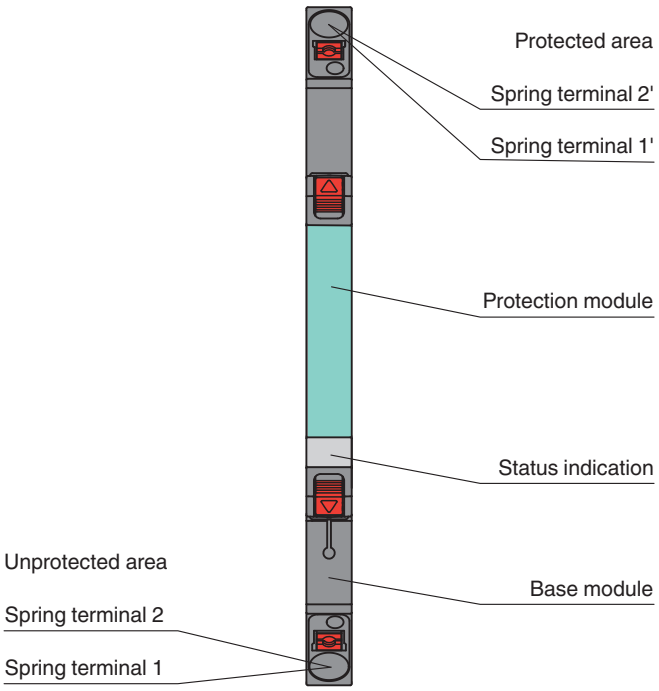
Technical Data

Nominal load current	I_L	0.75 A at 70 °C (158 °F)
Series resistance		1 Ω per line
Impulse discharge current (10/350 µs)	I_{imp}	1.5 kA per line
Nominal discharge current (8/20 µs)	I_n	5 kA per line
Max. surge current (8/20 µs)	I_{max}	20 kA
Total discharge current (8/20 µs)	I_{total}	10 kA
Voltage protection level	U_p	max. 50 V line-line for nominal discharge current I_n max. 70 V line-earth for nominal discharge current I_n
Impulse reset time		< 30 ms
Cut-off frequency	f_G	100 MHz , line-line
Indicators/settings		
Display elements		status display operating state (green) fault indication (red)
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 ... 80 °C (-40 ... 176 °F)
Storage temperature		-40 ... 80 °C (-40 ... 176 °F)
Relative humidity		max. 95 % , without condensation
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20
Connection		spring terminals with push-in connection technology
Core cross section		0.2 ... 2.5 mm² one wire 0.2 ... 2.5 mm² fine-strand
Material		
Housing		Polyamide PA 6.6
Mass		approx. 35 g
Dimensions		6 x 90 x 69 mm (0.24 x 3.5 x 2.7 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
Certificate		TÜV 22 ATEX 8881 X
Marking		⟨Ex⟩ II 3G Ex ec IIC T4 Gc
Temperature class		T4 for ambient temperature ≤ 80 °C
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2018 , EN IEC 60079-7:2015+A1:2018
International approvals		
UL approval		E501704
IECEx approval		
IECEx certificate		IECEx TUR 22.0051X
IECEx marking		Ex ec IIC T4 Gc
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155079_eng.pdf

Assembly

Front view



Accessories

	**M-LB-4800**	Separation Wall
	**M-LB-4214.M**	Protection Module for Surge Protection Barrier

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155079_eng.pdf

Surge Protection Barrier

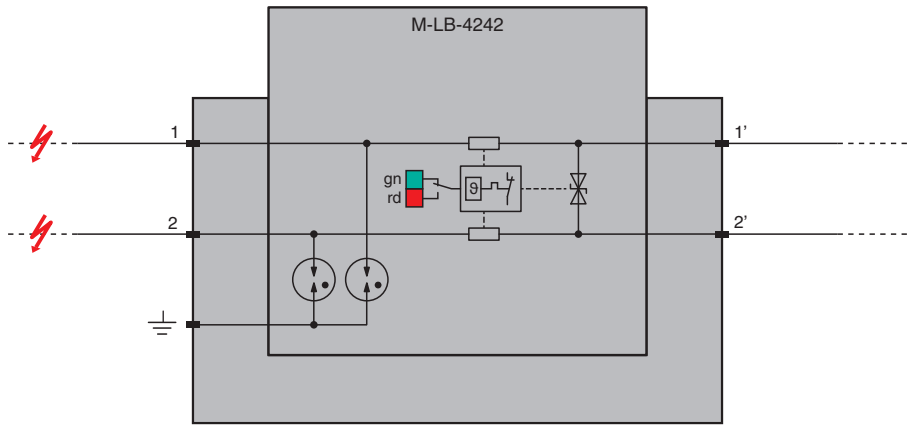
M-LB-4242

- Surge protection for 2 signal lines
- Nominal voltage 24 V
- Surge protection barrier for non-grounded signal lines
- Max. surge current (8/20 µs) 20 kA
- Uninterruptable operation (auto reset)
- Status indication
- Modular design, pluggable
- Up to SIL 3 acc. to IEC/EN 61508

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device consists of base module and protection module.The protection module can be replaced without tools.
The device has a status indication at the front.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.

Connection



Zone 2

Technical Data

General specifications		
Number of protected signal lines		2
Topology		non-grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 1', 2' unprotected area: terminals 1, 2
Leakage current		< 30 µA bei U_c , line-line < 10 nA bei U_c , line-earth
Nominal voltage		24 V
Maximum continuous operating voltage	U_c	25.4 V AC and 36 V DC

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155080_eng.pdf

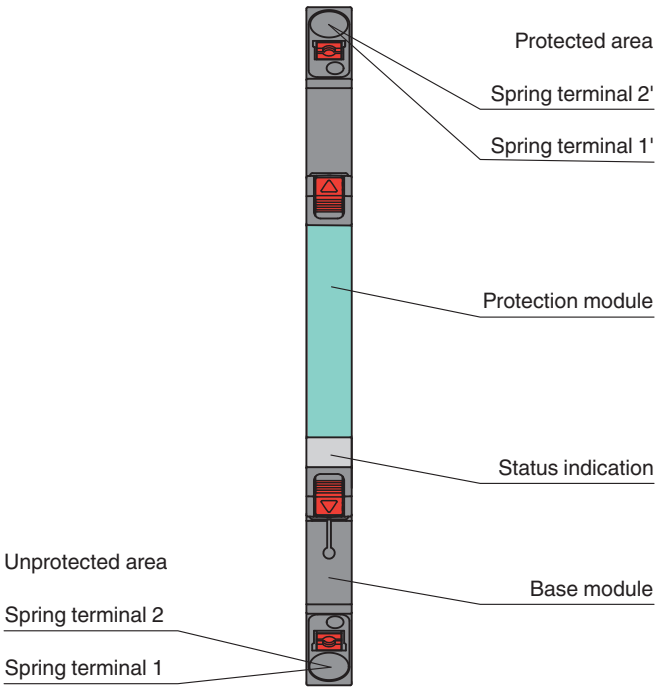
Technical Data

Nominal load current	I_L	0.75 A at 70 °C (158 °F)
Series resistance		1 Ω per line
Impulse discharge current (10/350 µs)	I_{imp}	1.5 kA per line
Nominal discharge current (8/20 µs)	I_n	5 kA per line
Max. surge current (8/20 µs)	I_{max}	20 kA
Total discharge current (8/20 µs)	I_{total}	10 kA
Voltage protection level	U_p	max. 57 V line-line for nominal discharge current I_n max. 600 V line-earth for nominal discharge current I_n
Impulse reset time		< 30 ms
Cut-off frequency	f_G	5.8 MHz , line-line
Indicators/settings		
Display elements		status display operating state (green) fault indication (red)
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 ... 80 °C (-40 ... 176 °F)
Storage temperature		-40 ... 80 °C (-40 ... 176 °F)
Relative humidity		max. 95 % , without condensation
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20
Connection		spring terminals with push-in connection technology
Core cross section		0.2 ... 2.5 mm² one wire 0.2 ... 2.5 mm² fine-strand
Material		
Housing		Polyamide PA 6.6
Mass		approx. 35 g
Dimensions		6 x 90 x 69 mm (0.24 x 3.5 x 2.7 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
Certificate		TÜV 22 ATEX 8881 X
Marking		⟨Ex⟩ II 3G Ex ec IIC T4 Gc
Temperature class		T4 for ambient temperature ≤ 80 °C
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2018 , EN IEC 60079-7:2015+A1:2018
International approvals		
UL approval		E501704
IECEx approval		
IECEx certificate		IECEx TUR 22.0051X
IECEx marking		Ex ec IIC T4 Gc
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155080_eng.pdf

Assembly

Front view



Accessories

	**M-LB-4800**	Separation Wall

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155080_eng.pdf

Surge Protection Barrier

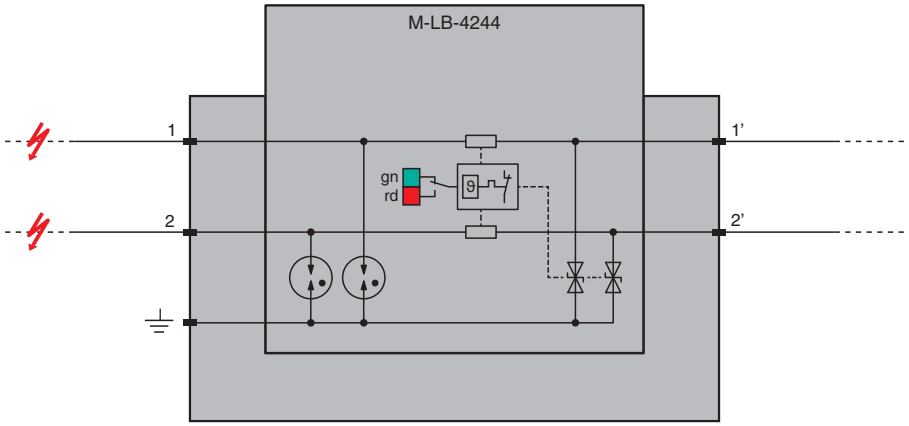
M-LB-4244

- Surge protection for 2 signal lines
- Nominal voltage 24 V
- Surge protection barrier for grounded signal lines
- Max. surge current (8/20 µs) 20 kA
- Uninterruptable operation (auto reset)
- Status indication
- Modular design, pluggable
- Up to SIL 3 acc. to IEC/EN 61508

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device consists of base module and protection module.The protection module can be replaced without tools.
The device has a status indication at the front.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.

Connection



Zone 2

Technical Data

General specifications		
Number of protected signal lines		2
Topology		grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 1', 2' unprotected area: terminals 1, 2
Leakage current		< 10 nA bei U_c , line-line < 70 nA bei U_c , line-earth
Nominal voltage		24 V
Maximum continuous operating voltage	U_c	23.3 V AC and 33 V DC

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155081_eng.pdf

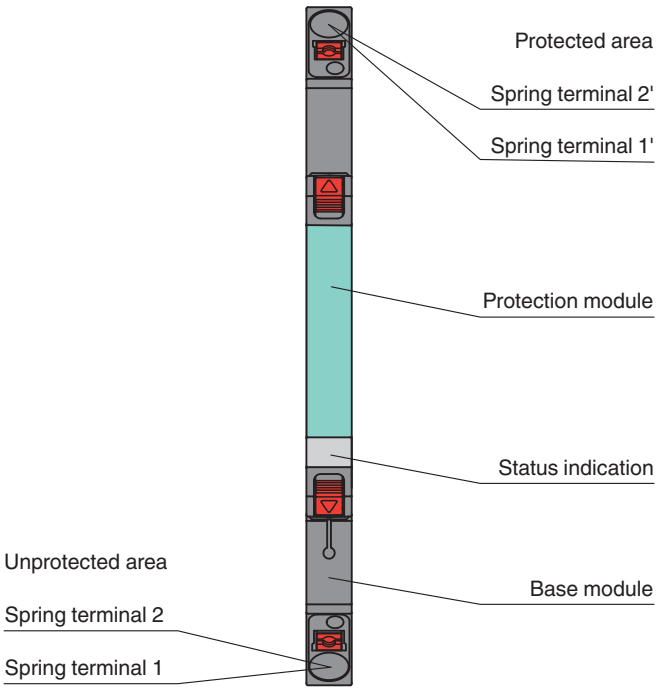
Technical Data

Nominal load current	I_L	0.75 A at 70 °C (158 °F)
Series resistance		1 Ω per line
Impulse discharge current (10/350 µs)	I_{imp}	1.5 kA per line
Nominal discharge current (8/20 µs)	I_n	5 kA per line
Max. surge current (8/20 µs)	I_{max}	20 kA
Total discharge current (8/20 µs)	I_{total}	10 kA
Voltage protection level	U_p	max. 90 V line-line for nominal discharge current I_n max. 75 V line-earth for nominal discharge current I_n
Impulse reset time		< 30 ms
Cut-off frequency	f_G	3.4 MHz , line-line
Indicators/settings		
Display elements		status display operating state (green) fault indication (red)
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 ... 80 °C (-40 ... 176 °F)
Storage temperature		-40 ... 80 °C (-40 ... 176 °F)
Relative humidity		max. 95 % , without condensation
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20
Connection		spring terminals with push-in connection technology
Core cross section		0.2 ... 2.5 mm² one wire 0.2 ... 2.5 mm² fine-strand
Material		
Housing		Polyamide PA 6.6
Mass		approx. 35 g
Dimensions		6 x 90 x 69 mm (0.24 x 3.5 x 2.7 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
Certificate		TÜV 22 ATEX 8881 X
Marking		⟨Ex⟩ II 3G Ex ec IIC T4 Gc
Temperature class		T4 for ambient temperature ≤ 80 °C
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2018 , EN IEC 60079-7:2015+A1:2018
International approvals		
UL approval		E501704
IECEx approval		
IECEx certificate		IECEx TUR 22.0051X
IECEx marking		Ex ec IIC T4 Gc
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155081_eng.pdf

Assembly

Front view



Matching System Components

	**M-LB-4400**	Fault Status Module

Accessories

	**M-LB-4800**	Separation Wall

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155081_eng.pdf

Surge Protection Barrier

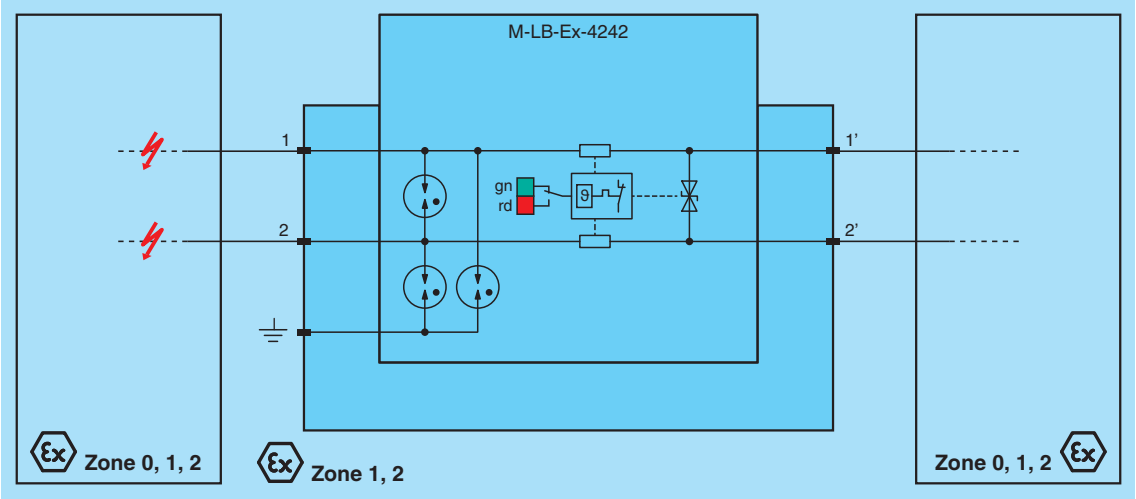
M-LB-Ex-4242

- Surge protection for 2 signal lines
- Nominal voltage 24 V
- Surge protection barrier for non-grounded signal lines
- Max. surge current (8/20 µs) 20 kA
- Uninterruptable operation (auto reset)
- Status indication
- Modular design, pluggable
- Up to SIL 3 acc. to IEC/EN 61508

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device consists of base module and protection module.The protection module can be replaced without tools.
The device is HART transparent.
The device has a status indication at the front.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.

Connection



Technical Data

General specifications		
Number of protected signal lines		2
Topology		non-grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 1', 2' unprotected area: terminals 1, 2
Leakage current		< 30 µA bei U_c , line-line < 10 nA bei U_c , line-earth
Nominal voltage		24 V
Maximum continuous operating voltage	U_c	25.4 V AC and 36 V DC

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155082_eng.pdf

Technical Data

Nominal load current	I_L	0.5 A at 80 °C (176 °F)
Series resistance		1 Ω per line
Impulse discharge current (10/350 µs)	I_{imp}	1.5 kA per line
Nominal discharge current (8/20 µs)	I_n	5 kA per line
Max. surge current (8/20 µs)	I_{max}	20 kA
Total discharge current (8/20 µs)	I_{total}	10 kA
Voltage protection level	U_p	max. 65 V line-line for nominal discharge current I_n max. 1100 V line-earth for nominal discharge current I_n
Impulse reset time		< 30 ms
Cut-off frequency	f_G	3.5 MHz , line-line
Indicators/settings		
Display elements		status display operating state (green) fault indication (red)
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 ... 80 °C (-40 ... 176 °F) For usage in hazardous area observe the EU-type examination certificate.
Storage temperature		-40 ... 80 °C (-40 ... 176 °F)
Relative humidity		max. 95 % , without condensation
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20
Connection		spring terminals with push-in connection technology
Core cross section		0.2 ... 2.5 mm² one wire 0.2 ... 2.5 mm² fine-strand
Material		
Housing		Polyamide PA 6.6
Mass		approx. 35 g
Dimensions		6 x 90 x 69 mm (0.24 x 3.5 x 2.7 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
EU-type examination certificate		TÜV 22 ATEX 8880 X
Marking		⟨Ex⟩ II (1)2G Ex ia [ia Ga] IIC T6...T4 Gb ⟨Ex⟩ II 2G Ex ib IIC T6...T4 Gb ⟨Ex⟩ II (1)D [Ex ia Da] IIIC
Temperature class		T6 for ambient temperature ≤ 50 °C T5 for ambient temperature ≤ 70 °C T4 for ambient temperature ≤ 80 °C
Voltage	U_i	30 V
Current	I_i	500 mA , restrictions see certificate
Power	P_i	5.32 W
Internal capacitance	C_i	negligible
Internal inductance	L_i	negligible
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2018 , EN IEC 60079-7:2015+A1:2018 , EN 60079-11:2012
International approvals		
IECEx approval		
IECEx certificate		IECEx TUR 22.0050X
IECEx marking		Ex ia [ia Ga] IIC T6...T4 Gb Ex ib IIC T6...T4 Gb [Ex ia Da] IIIC
General information		

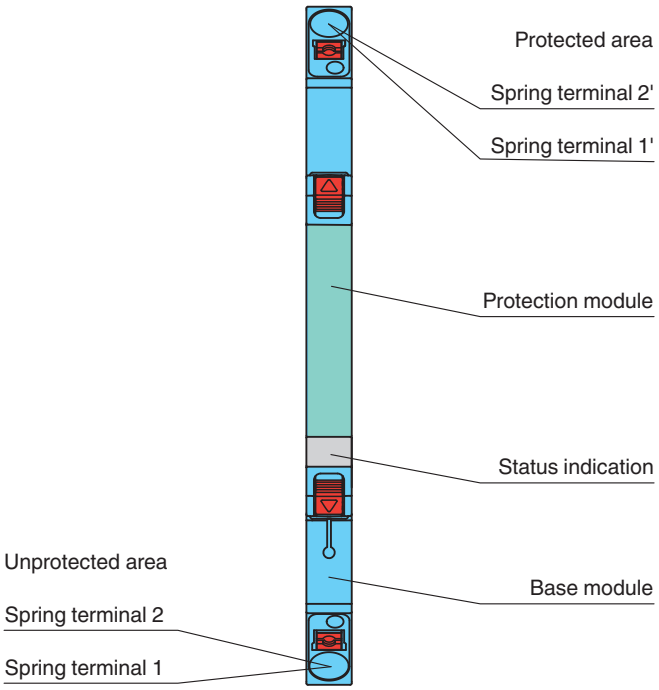
Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155082_eng.pdf

Technical Data

Supplementary information	Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Assembly

Front view



Matching System Components

	**M-LB-4400**	Fault Status Module

Accessories

	**M-LB-4800**	Separation Wall

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155082_eng.pdf

Surge Protection Barrier

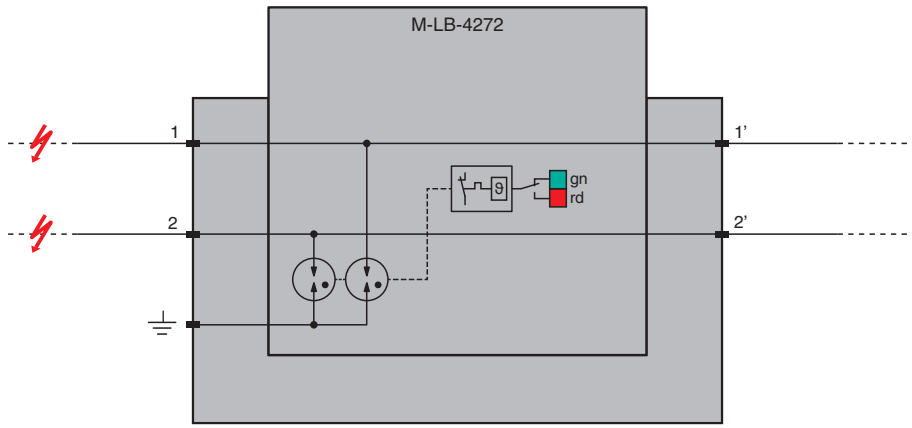
M-LB-4272

- Surge protection for 2 signal lines
- Nominal voltage 180 V
- Surge protection barrier for non-grounded signal lines
- Max. surge current (8/20 µs) 12.5 kA
- Uninterruptable operation (auto reset)
- Status indication
- Modular design, pluggable
- Up to SIL 3 acc. to IEC/EN 61508

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device consists of base module and protection module.The protection module can be replaced without tools.
The device has a status indication at the front.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.

Connection



Zone 2

Technical Data

General specifications		
Number of protected signal lines		2
Topology		non-grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 1', 2' unprotected area: terminals 1, 2
Leakage current		< 50 nA bei U_c , line-line < 50 nA bei U_c , line-earth
Nominal voltage		180 V
Maximum continuous operating voltage	U_c	127 V AC and 180 V DC

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155083_eng.pdf

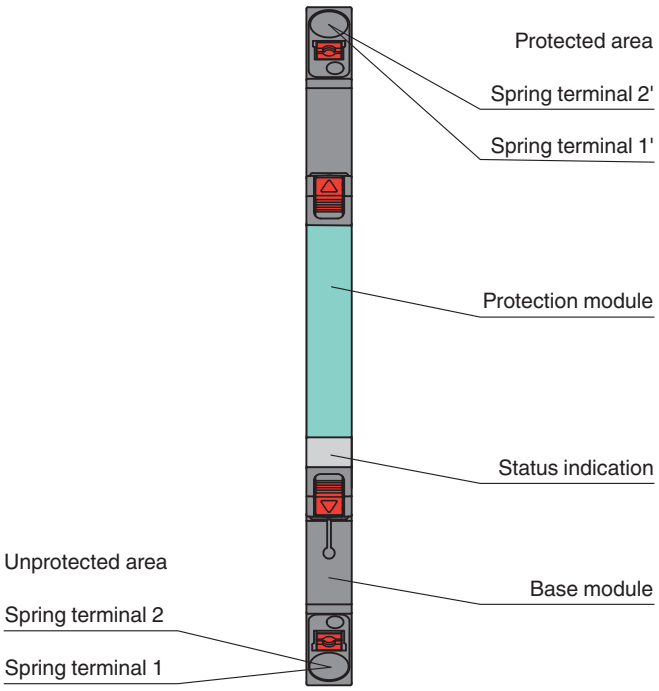
Technical Data

Nominal load current	I_L	1.2 A at 80 °C (176 °F)
Series resistance		0 Ω per line
Impulse discharge current (10/350 µs)	I_{imp}	1.5 kA per line
Nominal discharge current (8/20 µs)	I_n	5 kA per line
Max. surge current (8/20 µs)	I_{max}	12.5 kA
Total discharge current (8/20 µs)	I_{total}	10 kA
Voltage protection level	U_p	max. 1100 V line-line for nominal discharge current I_n max. 800 V line-earth for nominal discharge current I_n
Impulse reset time		< 30 ms
Cut-off frequency	f_G	150 MHz , line-line
Indicators/settings		
Display elements		status display operating state (green) fault indication (red)
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 ... 80 °C (-40 ... 176 °F)
Storage temperature		-40 ... 80 °C (-40 ... 176 °F)
Relative humidity		max. 95 % , without condensation
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20
Connection		spring terminals with push-in connection technology
Core cross section		0.2 ... 2.5 mm² one wire 0.2 ... 2.5 mm² fine-strand
Material		
Housing		Polyamide PA 6.6
Mass		approx. 35 g
Dimensions		6 x 90 x 69 mm (0.24 x 3.5 x 2.7 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
Certificate		TÜV 22 ATEX 8881 X
Marking		⟨Ex⟩ II 3G Ex ec IIC T4 Gc
Temperature class		T4 for ambient temperature ≤ 80 °C
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2018 , EN IEC 60079-7:2015+A1:2018
International approvals		
UL approval		E501704
IECEx approval		
IECEx certificate		IECEx TUR 22.0051X
IECEx marking		Ex ec IIC T4 Gc
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155083_eng.pdf

Assembly

Front view



Matching System Components

	**M-LB-4400**	Fault Status Module

Accessories

	**M-LB-4800**	Separation Wall

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155083_eng.pdf

Surge Protection Barrier

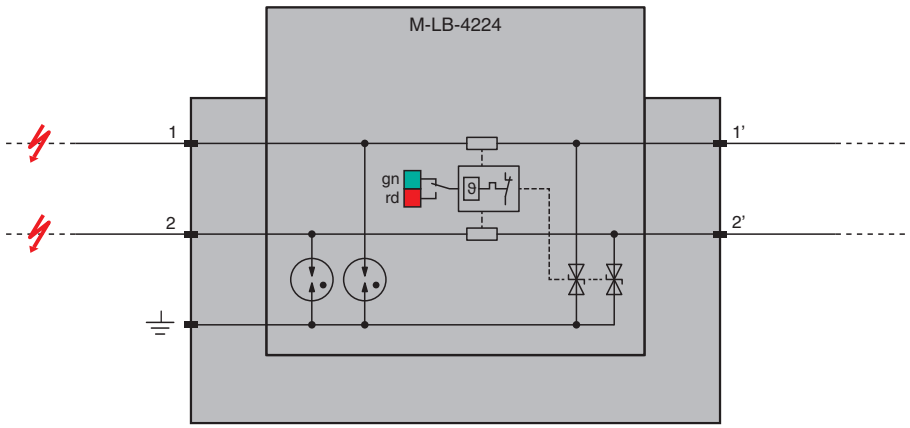
M-LB-4224

- Surge protection for 2 signal lines
- Nominal voltage 12 V
- Surge protection barrier for grounded signal lines
- Max. surge current (8/20 µs) 20 kA
- Uninterruptable operation (auto reset)
- Status indication
- Modular design, pluggable
- Up to SIL 3 acc. to IEC/EN 61508

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device consists of base module and protection module.The protection module can be replaced without tools.
The device has a status indication at the front.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.

Connection



Zone 2

Technical Data

General specifications		
Number of protected signal lines		2
Topology		grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 1', 2' unprotected area: terminals 1, 2
Leakage current		< 10 nA bei U_c , line-line < 70 nA bei U_c , line-earth
Nominal voltage		12 V
Maximum continuous operating voltage	U_c	10.6 V AC and 15 V DC

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155084_eng.pdf

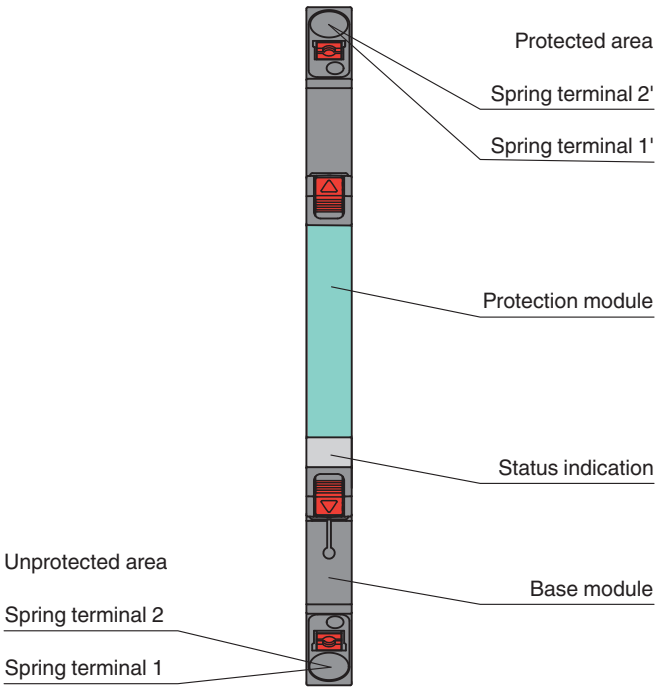
Technical Data

Nominal load current	I_L	0.75 A at 70 °C (158 °F)
Series resistance		1 Ω per line
Impulse discharge current (10/350 µs)	I_{imp}	1.5 kA per line
Nominal discharge current (8/20 µs)	I_n	5 kA per line
Max. surge current (8/20 µs)	I_{max}	20 kA
Total discharge current (8/20 µs)	I_{total}	10 kA
Voltage protection level	U_p	max. 48 V line-line for nominal discharge current I_n max. 45 V line-earth for nominal discharge current I_n
Impulse reset time		< 30 ms
Cut-off frequency	f_G	1.4 MHz , line-line
Indicators/settings		
Display elements		status display operating state (green) fault indication (red)
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 ... 80 °C (-40 ... 176 °F)
Storage temperature		-40 ... 80 °C (-40 ... 176 °F)
Relative humidity		max. 95 % , without condensation
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20
Connection		spring terminals with push-in connection technology
Core cross section		0.2 ... 2.5 mm² one wire 0.2 ... 2.5 mm² fine-strand
Material		
Housing		Polyamide PA 6.6
Mass		approx. 35 g
Dimensions		6 x 90 x 69 mm (0.24 x 3.5 x 2.7 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
Certificate		TÜV 22 ATEX 8881 X
Marking		⟨Ex⟩ II 3G Ex ec IIC T4 Gc
Temperature class		T4 for ambient temperature ≤ 80 °C
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2018 , EN IEC 60079-7:2015+A1:2018
International approvals		
UL approval		E501704
IECEx approval		
IECEx certificate		IECEx TUR 22.0051X
IECEx marking		Ex ec IIC T4 Gc
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155084_eng.pdf

Assembly

Front view



Matching System Components

	**M-LB-4400**	Fault Status Module

Accessories

	**M-LB-4800**	Separation Wall

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155084_eng.pdf

Surge Protection Barrier

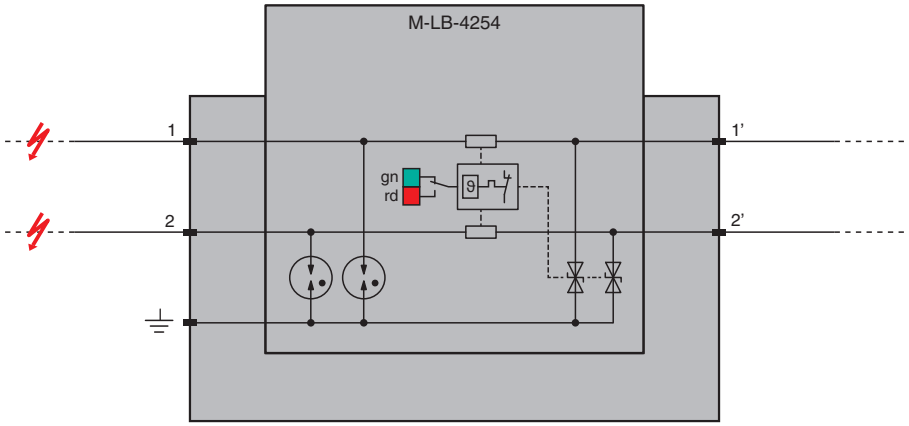
M-LB-4254

- Surge protection for 2 signal lines
- Nominal voltage 48 V
- Surge protection barrier for grounded signal lines
- Max. surge current (8/20 µs) 20 kA
- Uninterruptable operation (auto reset)
- Status indication
- Modular design, pluggable
- Up to SIL 3 acc. to IEC/EN 61508

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device consists of base module and protection module.The protection module can be replaced without tools.
The device has a status indication at the front.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.

Connection



Zone 2

Technical Data

General specifications		
Number of protected signal lines		2
Topology		grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 1', 2' unprotected area: terminals 1, 2
Leakage current		< 20 nA bei U_c , line-line < 100 nA bei U_c , line-earth
Nominal voltage		48 V
Maximum continuous operating voltage	U_c	38.1 V AC and 54 V DC

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155085_eng.pdf

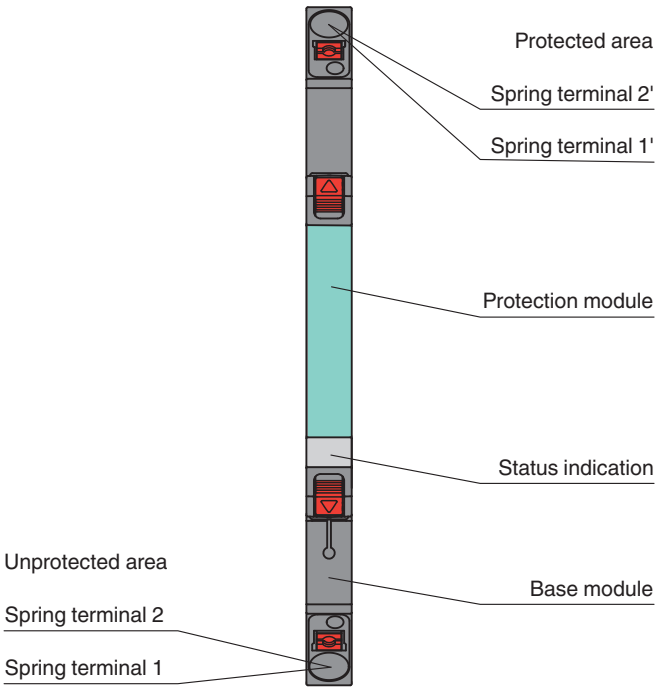
Technical Data

Nominal load current	I_L	0.75 A at 70 °C (158 °F)
Series resistance		1 Ω per line
Impulse discharge current (10/350 µs)	I_{imp}	1.5 kA per line
Nominal discharge current (8/20 µs)	I_n	5 kA per line
Max. surge current (8/20 µs)	I_{max}	20 kA
Total discharge current (8/20 µs)	I_{total}	10 kA
Voltage protection level	U_p	max. 140 V line-line for nominal discharge current I_n max. 90 V line-earth for nominal discharge current I_n
Impulse reset time		< 30 ms
Cut-off frequency	f_G	5 MHz , line-line
Indicators/settings		
Display elements		status display operating state (green) fault indication (red)
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 ... 80 °C (-40 ... 176 °F)
Storage temperature		-40 ... 80 °C (-40 ... 176 °F)
Relative humidity		max. 95 % , without condensation
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20
Connection		spring terminals with push-in connection technology
Core cross section		0.2 ... 2.5 mm² one wire 0.2 ... 2.5 mm² fine-strand
Material		
Housing		Polyamide PA 6.6
Mass		approx. 35 g
Dimensions		6 x 90 x 69 mm (0.24 x 3.5 x 2.7 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
Certificate		TÜV 22 ATEX 8881 X
Marking		⟨Ex⟩ II 3G Ex ec IIC T4 Gc
Temperature class		T4 for ambient temperature ≤ 80 °C
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2018 , EN IEC 60079-7:2015+A1:2018
International approvals		
UL approval		E501704
IECEx approval		
IECEx certificate		IECEx TUR 22.0051X
IECEx marking		Ex ec IIC T4 Gc
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155085_eng.pdf

Assembly

Front view



Matching System Components

	**M-LB-4400**	Fault Status Module

Accessories

	**M-LB-4800**	Separation Wall

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155085_eng.pdf

Surge Protection Barrier

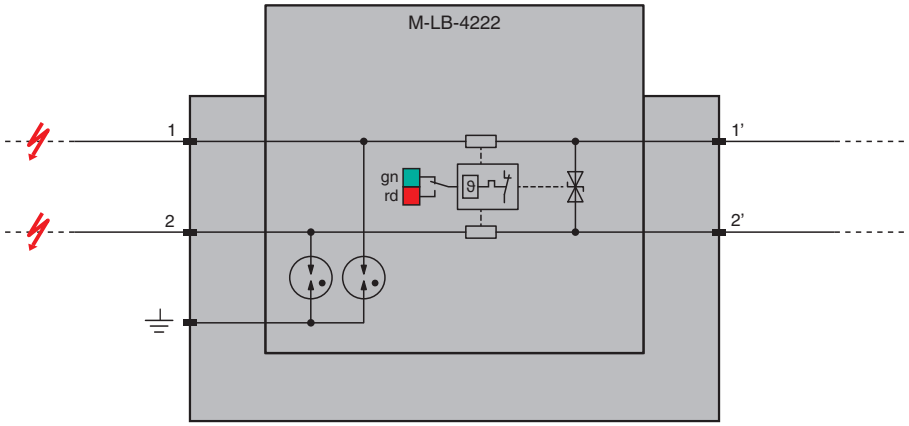
M-LB-4222

- Surge protection for 2 signal lines
- Nominal voltage 12 V
- Surge protection barrier for non-grounded signal lines
- Max. surge current (8/20 µs) 20 kA
- Uninterruptable operation (auto reset)
- Status indication
- Modular design, pluggable
- Up to SIL 3 acc. to IEC/EN 61508

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device consists of base module and protection module.The protection module can be replaced without tools.
The device has a status indication at the front.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.

Connection



Zone 2

Technical Data

General specifications		
Number of protected signal lines		2
Topology		non-grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 1', 2' unprotected area: terminals 1, 2
Leakage current		< 30 µA bei U_c , line-line < 10 nA bei U_c , line-earth
Nominal voltage		12 V
Maximum continuous operating voltage	U_c	10.6 V AC and 15 V DC

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155086_eng.pdf

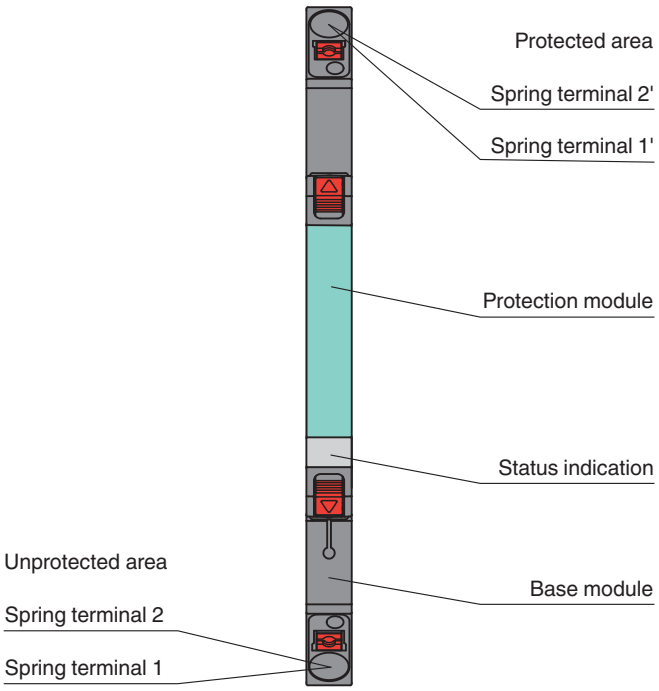
Technical Data

Nominal load current	I_L	0.75 A at 70 °C (158 °F)
Series resistance		1 Ω per line
Impulse discharge current (10/350 µs)	I_{imp}	1.5 kA per line
Nominal discharge current (8/20 µs)	I_n	5 kA per line
Max. surge current (8/20 µs)	I_{max}	20 kA
Total discharge current (8/20 µs)	I_{total}	10 kA
Voltage protection level	U_p	max. 32 V line-line for nominal discharge current I_n max. 600 V line-earth for nominal discharge current I_n
Impulse reset time		< 30 ms
Cut-off frequency	f_G	2.6 MHz , line-line
Indicators/settings		
Display elements		status display operating state (green) fault indication (red)
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 ... 80 °C (-40 ... 176 °F)
Storage temperature		-40 ... 80 °C (-40 ... 176 °F)
Relative humidity		max. 95 % , without condensation
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20
Connection		spring terminals with push-in connection technology
Core cross section		0.2 ... 2.5 mm² one wire 0.2 ... 2.5 mm² fine-strand
Material		
Housing		Polyamide PA 6.6
Mass		approx. 35 g
Dimensions		6 x 90 x 69 mm (0.24 x 3.5 x 2.7 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
Certificate		TÜV 22 ATEX 8881 X
Marking		⟨Ex⟩ II 3G Ex ec IIC T4 Gc
Temperature class		T4 for ambient temperature ≤ 80 °C
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2018 , EN IEC 60079-7:2015+A1:2018
International approvals		
UL approval		E501704
IECEx approval		
IECEx certificate		IECEx TUR 22.0051X
IECEx marking		Ex ec IIC T4 Gc
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155086_eng.pdf

Assembly

Front view



Matching System Components

	**M-LB-4400**	Fault Status Module

Accessories

	**M-LB-4800**	Separation Wall

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155086_eng.pdf

Surge Protection Barrier

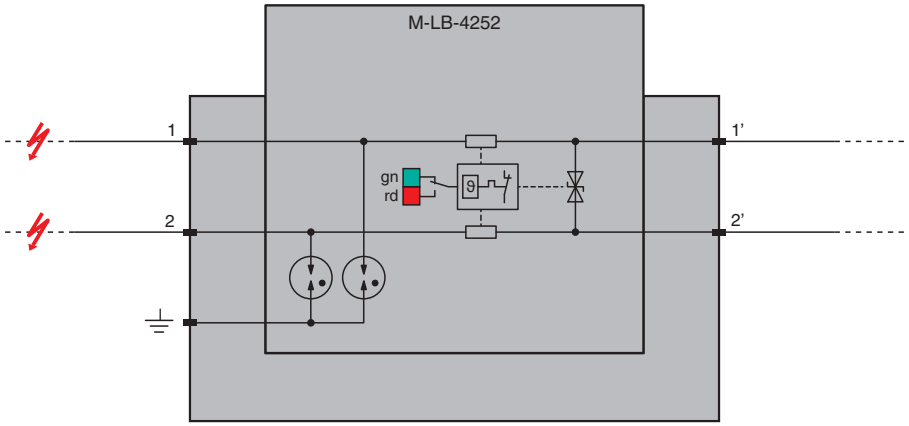
M-LB-4252

- Surge protection for 2 signal lines
- Nominal voltage 48 V
- Surge protection barrier for non-grounded signal lines
- Max. surge current (8/20 µs) 20 kA
- Uninterruptable operation (auto reset)
- Status indication
- Modular design, pluggable
- Up to SIL 3 acc. to IEC/EN 61508

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device consists of base module and protection module.The protection module can be replaced without tools.
The device has a status indication at the front.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.

Connection



Zone 2

Technical Data

General specifications		
Number of protected signal lines		2
Topology		non-grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 1', 2' unprotected area: terminals 1, 2
Leakage current		< 30 µA bei U_c , line-line < 10 nA bei U_c , line-earth
Nominal voltage		48 V
Maximum continuous operating voltage	U_c	39.6 V AC and 56 V DC

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155087_eng.pdf

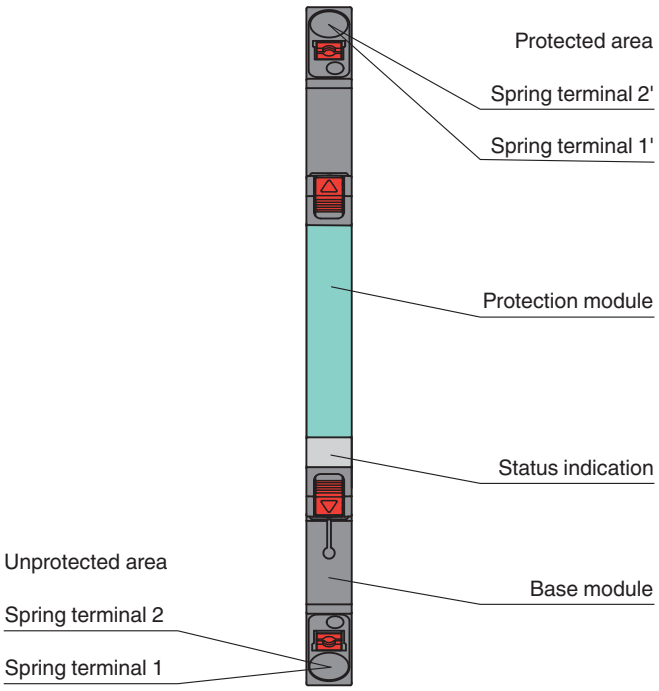
Technical Data

Nominal load current	I_L	0.75 A at 70 °C (158 °F)
Series resistance		1 Ω per line
Impulse discharge current (10/350 µs)	I_{imp}	1.5 kA per line
Nominal discharge current (8/20 µs)	I_n	5 kA per line
Max. surge current (8/20 µs)	I_{max}	20 kA
Total discharge current (8/20 µs)	I_{total}	10 kA
Voltage protection level	U_p	max. 90 V line-line for nominal discharge current I_n max. 600 V line-earth for nominal discharge current I_n
Impulse reset time		< 30 ms
Cut-off frequency	f_G	3.6 MHz , line-line
Indicators/settings		
Display elements		status display operating state (green) fault indication (red)
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 ... 80 °C (-40 ... 176 °F)
Storage temperature		-40 ... 80 °C (-40 ... 176 °F)
Relative humidity		max. 95 % , without condensation
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20
Connection		spring terminals with push-in connection technology
Core cross section		0.2 ... 2.5 mm² one wire 0.2 ... 2.5 mm² fine-strand
Material		
Housing		Polyamide PA 6.6
Mass		approx. 35 g
Dimensions		6 x 90 x 69 mm (0.24 x 3.5 x 2.7 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
Certificate		TÜV 22 ATEX 8881 X
Marking		⟨Ex⟩ II 3G Ex ec IIC T4 Gc
Temperature class		T4 for ambient temperature ≤ 80 °C
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2018 , EN IEC 60079-7:2015+A1:2018
International approvals		
UL approval		E501704
IECEx approval		
IECEx certificate		IECEx TUR 22.0051X
IECEx marking		Ex ec IIC T4 Gc
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155087_eng.pdf

Assembly

Front view



Matching System Components

	**M-LB-4400**	Fault Status Module

Accessories

	**M-LB-4800**	Separation Wall

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155087_eng.pdf

Surge Protection Barrier

M-LB-4282

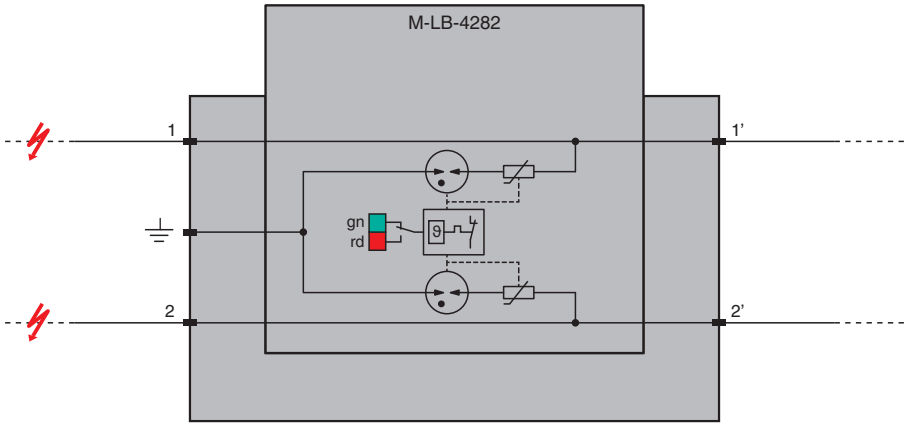
- Surge protection for 2 signal lines
- Nominal voltage 230 V
- Surge protection barrier for non-grounded signal lines
- Max. surge current (8/20 µs) 6 kA
- Uninterruptable operation (auto reset)
- Status indication
- Modular design, pluggable
- Up to SIL 3 acc. to IEC/EN 61508

CE SIL 3

Function

The device 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 loop voltage during the duration of the overvoltage pulse.
The device consists of base module and protection module.The protection module can be replaced without tools.
The device has a status indication at the front.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.

Connection



Zone 2

Technical Data

General specifications		
Number of protected signal lines		2
Topology		non-grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		protected area: terminals 1', 2' unprotected area: terminals 1, 2
Leakage current		< 50 nA bei U_c , line-line < 50 nA bei U_c , line-earth
Nominal voltage		230 V
Maximum continuous operating voltage	U_c	250 V AC and 320 V DC

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155088_eng.pdf

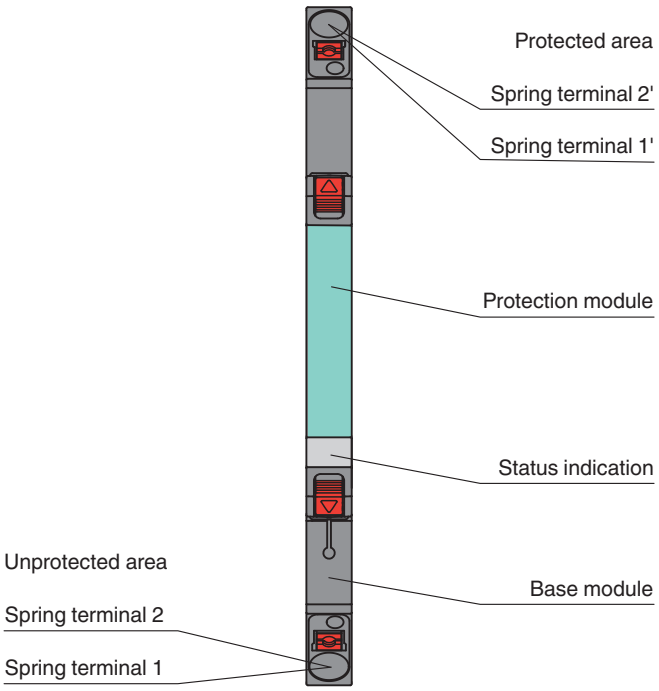
Technical Data

Nominal load current	I_L	3 A at 80 °C (176 °F)
Series resistance		0 Ω per line
Impulse discharge current (10/350 µs)	I_{imp}	0.5 kA per line
Nominal discharge current (8/20 µs)	I_n	3 kA per line
Total discharge current (8/20 µs)	I_{total}	6 kA
Voltage protection level	U_p	max. 1100 V line-earth for nominal discharge current I_n
Impulse reset time		< 30 ms
Cut-off frequency	f_G	200 MHz , line-line
Indicators/settings		
Display elements		status display operating state (green) fault indication (red)
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 ... 80 °C (-40 ... 176 °F)
Storage temperature		-40 ... 80 °C (-40 ... 176 °F)
Relative humidity		max. 95 % , without condensation
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20
Connection		spring terminals with push-in connection technology
Core cross section		0.2 ... 2.5 mm² one wire 0.2 ... 2.5 mm² fine-strand
Material		
Housing		Polyamide PA 6.6
Mass		approx. 40 g
Dimensions		6 x 90 x 69 mm (0.24 x 3.5 x 2.7 inch) (W x H x D)
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155088_eng.pdf

Assembly

Front view



Matching System Components

	**M-LB-4400**	Fault Status Module

Accessories

	**M-LB-4800**	Separation Wall

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155088_eng.pdf

Protection Module for Surge Protection Barrier

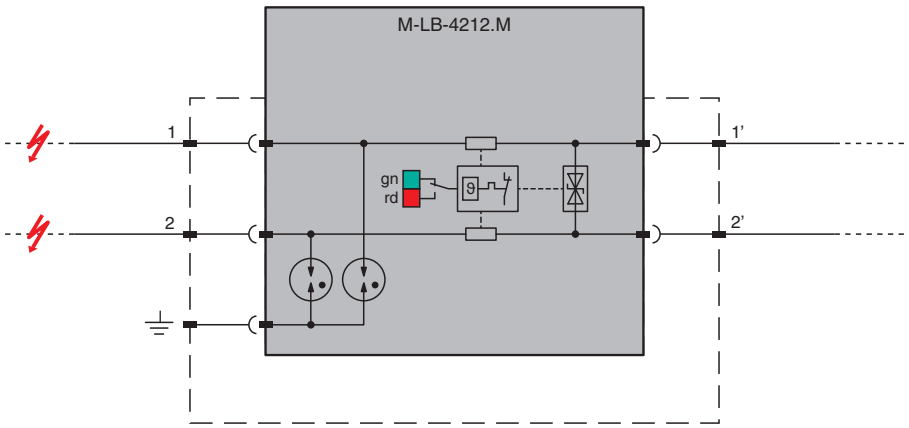
M-LB-4212.M

- Protection module for 2 signal lines
- Nominal voltage 5 V
- Protection module for non-grounded signal lines
- Max. surge current (8/20 µs) 20 kA
- Uninterruptable operation (auto reset)
- Status indication
- Mounting on base module, pluggable
- Up to SIL 3 acc. to IEC/EN 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 is a spare part for the corresponding 2-part surge protection barrier. The device is not to be used as a stand-alone device.
The device has a status indication at the front.
The device can be replaced without tools by locking levers.

Connection



Zone 2

Technical Data

General specifications		
Number of protected signal lines		2
Topology		non-grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		via base module
Leakage current		< 10 µA bei U_c , line-line < 10 nA bei U_c , line-earth
Nominal voltage		5 V
Maximum continuous operating voltage	U_c	6 V AC and 8.5 V DC
Nominal load current	I_L	0.75 A at 70 °C (158 °F)

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155089_eng.pdf

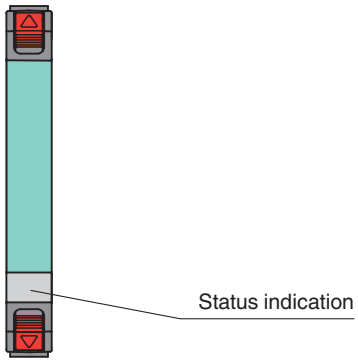
Technical Data

Series resistance		1 Ω per line
Impulse discharge current (10/350 µs)	I_{imp}	1.5 kA per line
Nominal discharge current (8/20 µs)	I_n	5 kA per line
Max. surge current (8/20 µs)	I_{max}	20 kA
Total discharge current (8/20 µs)	I_{total}	10 kA
Voltage protection level	U_p	max. 42 V line-line for nominal discharge current I_n max. 600 V line-earth for nominal discharge current I_n
Impulse reset time		< 30 ms
Cut-off frequency	f_G	100 MHz , line-line
Indicators/settings		
Display elements		status display operating state (green) fault indication (red)
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 ... 80 °C (-40 ... 176 °F)
Storage temperature		-40 ... 80 °C (-40 ... 176 °F)
Relative humidity		max. 95 % , without condensation
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20
Connection		via base module
Material		
Housing		Polyamide PA 6.6
Mass		approx. 14 g
Dimensions		6 x 45 x 54 mm (0.24 x 1.77 x 2.15 inch) (W x H x D)
Mounting		pluggable in base module for mounting on 35 mm DIN mounting rail
Data for application in connection with hazardous areas		
Certificate		TÜV 22 ATEX 8881 X
Marking		⟨Ex⟩ II 3G Ex ec IIC T4 Gc
Temperature class		T4 for ambient temperature ≤ 80 °C
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2018 , EN IEC 60079-7:2015+A1:2018
International approvals		
UL approval		E501704
IECEx approval		
IECEx certificate		IECEx TUR 22.0051X
IECEx marking		Ex ec IIC T4 Gc
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155089_eng.pdf

Assembly

Front view



Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155089_eng.pdf

Protection Module for Surge Protection Barrier

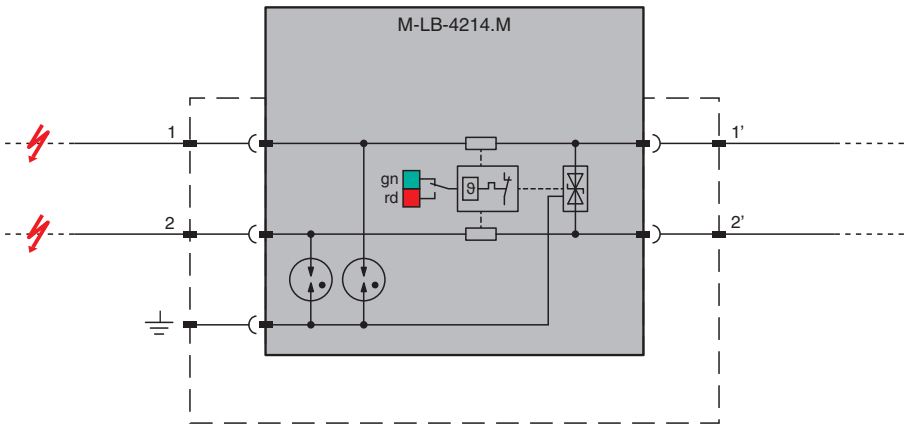
M-LB-4214.M

- Protection module for 2 signal lines
- Nominal voltage 5 V
- Protection module for grounded signal lines
- Max. surge current (8/20 µs) 20 kA
- Uninterruptable operation (auto reset)
- Status indication
- Mounting on base module, pluggable
- Up to SIL 3 acc. to IEC/EN 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 is a spare part for the corresponding 2-part surge protection barrier. The device is not to be used as a stand-alone device.
The device has a status indication at the front.
The device can be replaced without tools by locking levers.

Connection



Zone 2

Technical Data

General specifications		
Number of protected signal lines		2
Topology		grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		via base module
Leakage current		< 5 µA bei U_c , line-line < 5 µA bei U_c , line-earth
Nominal voltage		5 V
Maximum continuous operating voltage	U_c	6 V AC and 8.5 V DC
Nominal load current	I_L	0.75 A at 70 °C (158 °F)

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155090_eng.pdf

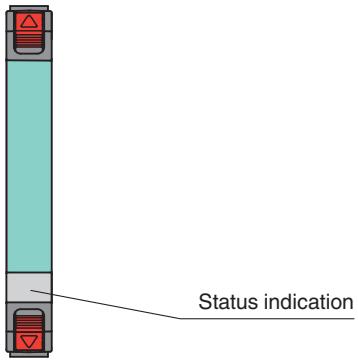
Technical Data

Series resistance		1 Ω per line
Impulse discharge current (10/350 µs)	I_{imp}	1.5 kA per line
Nominal discharge current (8/20 µs)	I_n	5 kA per line
Max. surge current (8/20 µs)	I_{max}	20 kA
Total discharge current (8/20 µs)	I_{total}	10 kA
Voltage protection level	U_p	max. 50 V line-line for nominal discharge current I_n max. 70 V line-earth for nominal discharge current I_n
Impulse reset time		< 30 ms
Cut-off frequency	f_G	100 MHz , line-line
Indicators/settings		
Display elements		status display operating state (green) fault indication (red)
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 ... 80 °C (-40 ... 176 °F)
Storage temperature		-40 ... 80 °C (-40 ... 176 °F)
Relative humidity		max. 95 % , without condensation
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20
Connection		via base module
Material		
Housing		Polyamide PA 6.6
Mass		approx. 14 g
Dimensions		6 x 45 x 54 mm (0.24 x 1.77 x 2.15 inch) (W x H x D)
Mounting		pluggable in base module for mounting on 35 mm DIN mounting rail
Data for application in connection with hazardous areas		
Certificate		TÜV 22 ATEX 8881 X
Marking		⟨Ex⟩ II 3G Ex ec IIC T4 Gc
Temperature class		T4 for ambient temperature ≤ 80 °C
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2018 , EN IEC 60079-7:2015+A1:2018
International approvals		
UL approval		E501704
IECEx approval		
IECEx certificate		IECEx TUR 22.0051X
IECEx marking		Ex ec IIC T4 Gc
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155090_eng.pdf

Assembly

Front view



Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155090_eng.pdf

Protection Module for Surge Protection Barrier

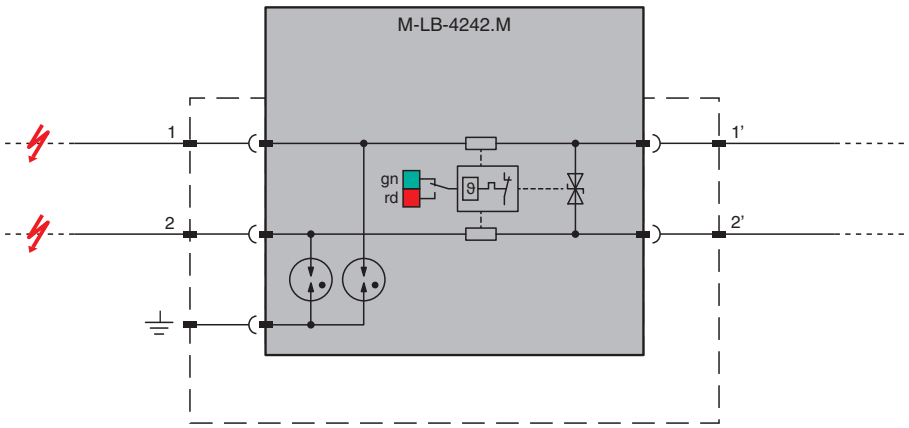
M-LB-4242.M

- Protection module for 2 signal lines
- Nominal voltage 24 V
- Protection module for non-grounded signal lines
- Max. surge current (8/20 µs) 20 kA
- Uninterruptable operation (auto reset)
- Status indication
- Mounting on base module, pluggable
- Up to SIL 3 acc. to IEC/EN 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 is a spare part for the corresponding 2-part surge protection barrier. The device is not to be used as a stand-alone device.
The device has a status indication at the front.
The device can be replaced without tools by locking levers.

Connection



Zone 2

Technical Data

General specifications		
Number of protected signal lines		2
Topology		non-grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		via base module
Leakage current		< 30 µA bei U_c , line-line < 10 nA bei U_c , line-earth
Nominal voltage		24 V
Maximum continuous operating voltage	U_c	25.4 V AC and 36 V DC
Nominal load current	I_L	0.75 A at 70 °C (158 °F)

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155091_eng.pdf

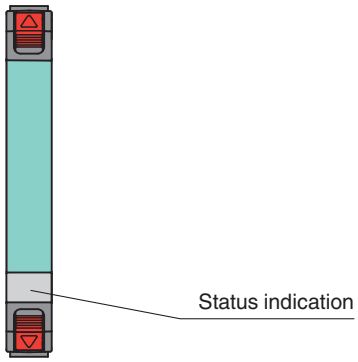
Technical Data

Series resistance		1 Ω per line
Impulse discharge current (10/350 µs)	I_{imp}	1.5 kA per line
Nominal discharge current (8/20 µs)	I_n	5 kA per line
Max. surge current (8/20 µs)	I_{max}	20 kA
Total discharge current (8/20 µs)	I_{total}	10 kA
Voltage protection level	U_p	max. 57 V line-line for nominal discharge current I_n max. 600 V line-earth for nominal discharge current I_n
Impulse reset time		< 30 ms
Cut-off frequency	f_G	5.8 MHz , line-line
Indicators/settings		
Display elements		status display operating state (green) fault indication (red)
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 ... 80 °C (-40 ... 176 °F)
Storage temperature		-40 ... 80 °C (-40 ... 176 °F)
Relative humidity		max. 95 % , without condensation
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20
Connection		via base module
Material		
Housing		Polyamide PA 6.6
Mass		approx. 14 g
Dimensions		6 x 45 x 54 mm (0.24 x 1.77 x 2.15 inch) (W x H x D)
Mounting		pluggable in base module for mounting on 35 mm DIN mounting rail
Data for application in connection with hazardous areas		
Certificate		TÜV 22 ATEX 8881 X
Marking		⟨Ex⟩ II 3G Ex ec IIC T4 Gc
Temperature class		T4 for ambient temperature ≤ 80 °C
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2018 , EN IEC 60079-7:2015+A1:2018
International approvals		
UL approval		E501704
IECEx approval		
IECEx certificate		IECEx TUR 22.0051X
IECEx marking		Ex ec IIC T4 Gc
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155091_eng.pdf

Assembly

Front view



Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155091_eng.pdf

Protection Module for Surge Protection Barrier

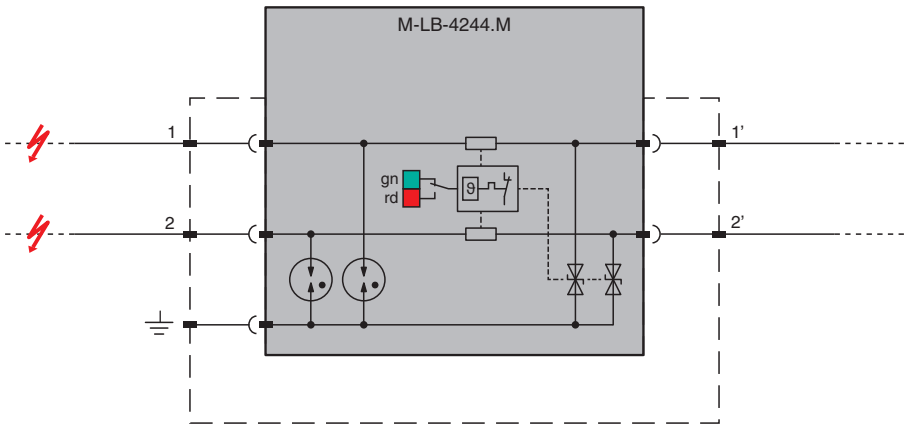
M-LB-4244.M

- Protection module for 2 signal lines
- Nominal voltage 24 V
- Protection module for grounded signal lines
- Max. surge current (8/20 µs) 20 kA
- Uninterruptable operation (auto reset)
- Status indication
- Mounting on base module, pluggable
- Up to SIL 3 acc. to IEC/EN 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 is a spare part for the corresponding 2-part surge protection barrier. The device is not to be used as a stand-alone device.
The device has a status indication at the front.
The device can be replaced without tools by locking levers.

Connection



Zone 2

Technical Data

General specifications		
Number of protected signal lines		2
Topology		grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		via base module
Leakage current		< 10 nA bei U_c , line-line < 70 nA bei U_c , line-earth
Nominal voltage		24 V
Maximum continuous operating voltage	U_c	23.3 V AC and 33 V DC
Nominal load current	I_L	0.75 A at 70 °C (158 °F)

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155092_eng.pdf

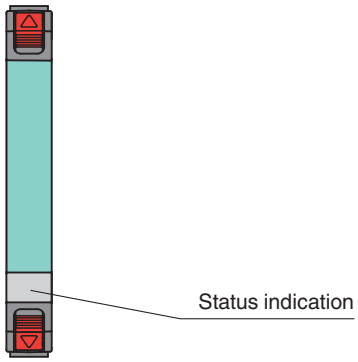
Technical Data

Series resistance		1 Ω per line
Impulse discharge current (10/350 µs)	I_{imp}	1.5 kA per line
Nominal discharge current (8/20 µs)	I_n	5 kA per line
Max. surge current (8/20 µs)	I_{max}	20 kA
Total discharge current (8/20 µs)	I_{total}	10 kA
Voltage protection level	U_p	max. 90 V line-line for nominal discharge current I_n max. 75 V line-earth for nominal discharge current I_n
Impulse reset time		< 30 ms
Cut-off frequency	f_G	3.4 MHz , line-line
Indicators/settings		
Display elements		status display operating state (green) fault indication (red)
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 ... 80 °C (-40 ... 176 °F)
Storage temperature		-40 ... 80 °C (-40 ... 176 °F)
Relative humidity		max. 95 % , without condensation
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20
Connection		via base module
Material		
Housing		Polyamide PA 6.6
Mass		approx. 14 g
Dimensions		6 x 45 x 54 mm (0.24 x 1.77 x 2.15 inch) (W x H x D)
Mounting		pluggable in base module for mounting on 35 mm DIN mounting rail
Data for application in connection with hazardous areas		
Certificate		TÜV 22 ATEX 8881 X
Marking		Ⓔx II 3G Ex ec IIC T4 Gc
Temperature class		T4 for ambient temperature ≤ 80 °C
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2018 , EN IEC 60079-7:2015+A1:2018
International approvals		
UL approval		E501704
IECEx approval		
IECEx certificate		IECEx TUR 22.0051X
IECEx marking		Ex ec IIC T4 Gc
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155092_eng.pdf

Assembly

Front view



Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155092_eng.pdf

Protection Module for Surge Protection Barrier

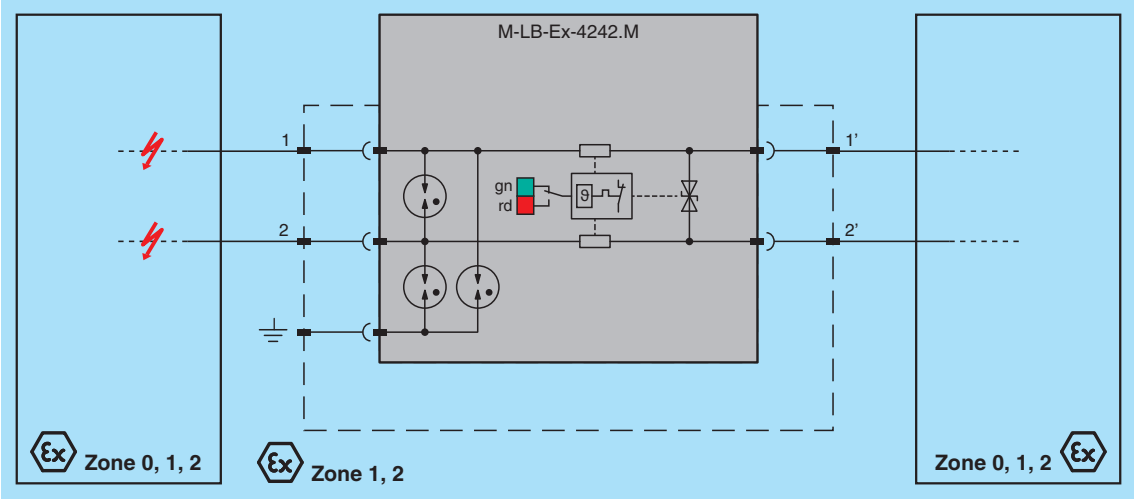
M-LB-Ex-4242.M

- Protection module for 2 signal lines
- Nominal voltage 24 V
- Protection module for non-grounded signal lines
- Max. surge current (8/20 µs) 20 kA
- Uninterruptable operation (auto reset)
- Status indication
- Mounting on base module, pluggable
- Up to SIL 3 acc. to IEC/EN 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 is a spare part for the corresponding 2-part surge protection barrier. The device is not to be used as a stand-alone device.
The device is HART transparent.
The device has a status indication at the front.
The device can be replaced without tools by locking levers.

Connection



Technical Data

General specifications		
Number of protected signal lines		2
Topology		non-grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		via base module
Leakage current		< 30 µA bei U_c , line-line < 10 nA bei U_c , line-earth
Nominal voltage		24 V
Maximum continuous operating voltage	U_c	25.4 V AC and 36 V DC

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155093_eng.pdf

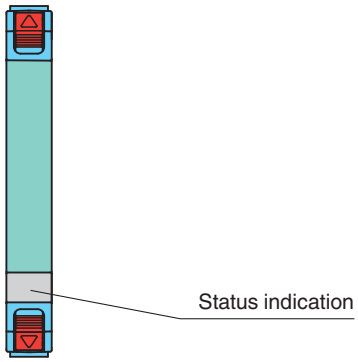
Technical Data

Nominal load current	I_L	0.5 A at 80 °C (176 °F)
Series resistance		1 Ω per line
Impulse discharge current (10/350 µs)	I_{imp}	1.5 kA per line
Nominal discharge current (8/20 µs)	I_n	5 kA per line
Max. surge current (8/20 µs)	I_{max}	20 kA
Total discharge current (8/20 µs)	I_{total}	10 kA
Voltage protection level	U_p	max. 65 V line-line for nominal discharge current I_n max. 1100 V line-earth for nominal discharge current I_n
Impulse reset time		< 30 ms
Cut-off frequency	f_G	3.5 MHz , line-line
Indicators/settings		
Display elements		status display operating state (green) fault indication (red)
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 ... 80 °C (-40 ... 176 °F) For usage in hazardous area observe the EU-type examination certificate.
Storage temperature		-40 ... 80 °C (-40 ... 176 °F)
Relative humidity		max. 95 % , without condensation
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20
Connection		via base module
Material		
Housing		Polyamide PA 6.6
Mass		approx. 14 g
Dimensions		6 x 45 x 54 mm (0.24 x 1.77 x 2.15 inch) (W x H x D)
Mounting		pluggable in base module for mounting on 35 mm DIN mounting rail
Data for application in connection with hazardous areas		
EU-type examination certificate		TÜV 22 ATEX 8880 X
Marking		⟨Ex⟩ II (1)2G Ex ia [ia Ga] IIC T6...T4 Gb ⟨Ex⟩ II 2G Ex ib IIC T6...T4 Gb ⟨Ex⟩ II (1)D [Ex ia Da] IIIC
Temperature class		T6 for ambient temperature ≤ 50 °C T5 for ambient temperature ≤ 70 °C T4 for ambient temperature ≤ 80 °C
Voltage	U_i	30 V
Current	I_i	500 mA , restrictions see certificate
Power	P_i	5.32 W
Internal capacitance	C_i	negligible
Internal inductance	L_i	negligible
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2018 , EN IEC 60079-7:2015+A1:2018 , EN 60079-11:2012
International approvals		
IECEx approval		
IECEx certificate		IECEx TUR 22.0050X
IECEx marking		Ex ia [ia Ga] IIC T6...T4 Gb Ex ib IIC T6...T4 Gb [Ex ia Da] IIIC
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155093_eng.pdf

Assembly

Front view



Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155093_eng.pdf

Protection Module for Surge Protection Barrier

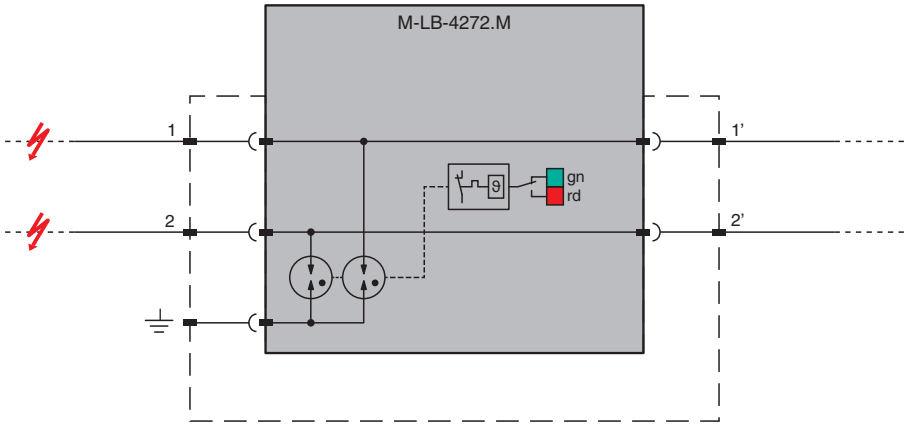
M-LB-4272.M

- Protection module for 2 signal lines
- Nominal voltage 180 V
- Protection module for non-grounded signal lines
- Max. surge current (8/20 µs) 12.5 kA
- Uninterruptable operation (auto reset)
- Status indication
- Mounting on base module, pluggable
- Up to SIL 3 acc. to IEC/EN 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 is a spare part for the corresponding 2-part surge protection barrier. The device is not to be used as a stand-alone device.
The device has a status indication at the front.
The device can be replaced without tools by locking levers.

Connection



Zone 2

Technical Data

General specifications		
Number of protected signal lines		2
Topology		non-grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		via base module
Leakage current		< 50 nA bei U_c , line-line < 50 nA bei U_c , line-earth
Nominal voltage		180 V
Maximum continuous operating voltage	U_c	127 V AC and 180 V DC
Nominal load current	I_L	1.2 A at 80 °C (176 °F)

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155094_eng.pdf

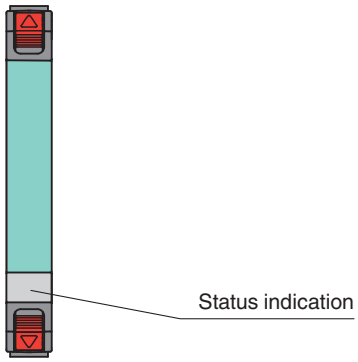
Technical Data

Series resistance		0 Ω per line
Impulse discharge current (10/350 µs)	I_{imp}	1.5 kA per line
Nominal discharge current (8/20 µs)	I_n	5 kA per line
Max. surge current (8/20 µs)	I_{max}	12.5 kA
Total discharge current (8/20 µs)	I_{total}	10 kA
Voltage protection level	U_p	max. 1100 V line-line for nominal discharge current I_n max. 800 V line-earth for nominal discharge current I_n
Impulse reset time		< 30 ms
Cut-off frequency	f_G	150 MHz , line-line
Indicators/settings		
Display elements		status display operating state (green) fault indication (red)
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 ... 80 °C (-40 ... 176 °F)
Storage temperature		-40 ... 80 °C (-40 ... 176 °F)
Relative humidity		max. 95 % , without condensation
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20
Connection		via base module
Material		
Housing		Polyamide PA 6.6
Mass		approx. 14 g
Dimensions		6 x 45 x 54 mm (0.24 x 1.77 x 2.15 inch) (W x H x D)
Mounting		pluggable in base module for mounting on 35 mm DIN mounting rail
Data for application in connection with hazardous areas		
Certificate		TÜV 22 ATEX 8881 X
Marking		⟨Ex⟩ II 3G Ex ec IIC T4 Gc
Temperature class		T4 for ambient temperature ≤ 80 °C
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2018 , EN IEC 60079-7:2015+A1:2018
International approvals		
UL approval		E501704
IECEx approval		
IECEx certificate		IECEx TUR 22.0051X
IECEx marking		Ex ec IIC T4 Gc
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155094_eng.pdf

Assembly

Front view



Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155094_eng.pdf

Protection Module for Surge Protection Barrier

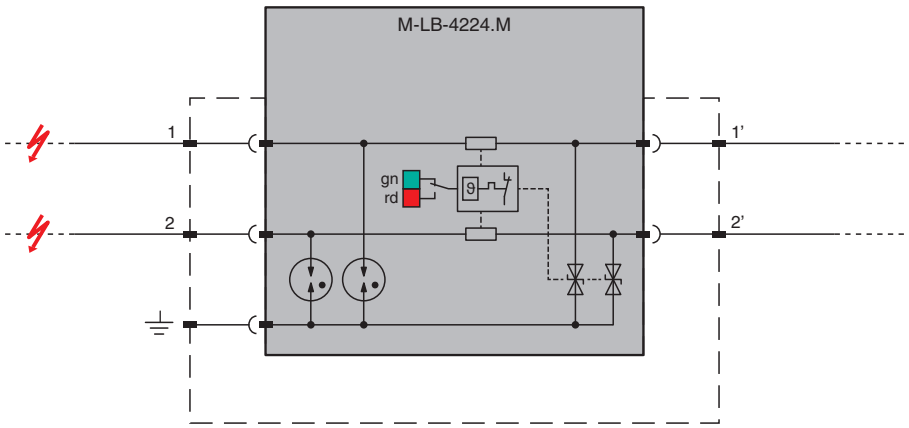
M-LB-4224.M

- Protection module for 2 signal lines
- Nominal voltage 12 V
- Protection module for grounded signal lines
- Max. surge current (8/20 µs) 20 kA
- Uninterruptable operation (auto reset)
- Status indication
- Mounting on base module, pluggable
- Up to SIL 3 acc. to IEC/EN 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 is a spare part for the corresponding 2-part surge protection barrier. The device is not to be used as a stand-alone device.
The device has a status indication at the front.
The device can be replaced without tools by locking levers.

Connection



Zone 2

Technical Data

General specifications		
Number of protected signal lines		2
Topology		grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		via base module
Leakage current		< 10 nA bei U_c , line-line < 70 nA bei U_c , line-earth
Nominal voltage		12 V
Maximum continuous operating voltage	U_c	10.6 V AC and 15 V DC
Nominal load current	I_L	0.75 A at 70 °C (158 °F)

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155095_eng.pdf

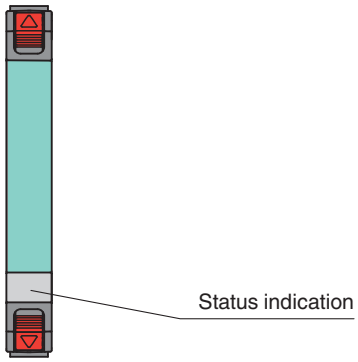
Technical Data

Series resistance		1 Ω per line
Impulse discharge current (10/350 µs)	I_{imp}	1.5 kA per line
Nominal discharge current (8/20 µs)	I_n	5 kA per line
Max. surge current (8/20 µs)	I_{max}	20 kA
Total discharge current (8/20 µs)	I_{total}	10 kA
Voltage protection level	U_p	max. 48 V line-line for nominal discharge current I_n max. 45 V line-earth for nominal discharge current I_n
Impulse reset time		< 30 ms
Cut-off frequency	f_G	1.4 MHz , line-line
Indicators/settings		
Display elements		status display operating state (green) fault indication (red)
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 ... 80 °C (-40 ... 176 °F)
Storage temperature		-40 ... 80 °C (-40 ... 176 °F)
Relative humidity		max. 95 % , without condensation
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20
Connection		via base module
Material		
Housing		Polyamide PA 6.6
Mass		approx. 14 g
Dimensions		6 x 45 x 54 mm (0.24 x 1.77 x 2.15 inch) (W x H x D)
Mounting		pluggable in base module for mounting on 35 mm DIN mounting rail
Data for application in connection with hazardous areas		
Certificate		TÜV 22 ATEX 8881 X
Marking		⟨Ex⟩ II 3G Ex ec IIC T4 Gc
Temperature class		T4 for ambient temperature ≤ 80 °C
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2018 , EN IEC 60079-7:2015+A1:2018
International approvals		
UL approval		E501704
IECEx approval		
IECEx certificate		IECEx TUR 22.0051X
IECEx marking		Ex ec IIC T4 Gc
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155095_eng.pdf

Assembly

Front view



Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155095_eng.pdf

Protection Module for Surge Protection Barrier

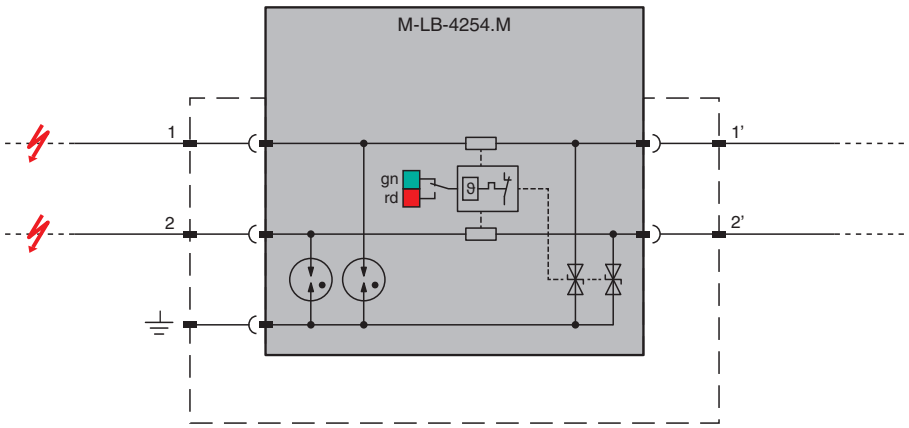
M-LB-4254.M

- Protection module for 2 signal lines
- Nominal voltage 48 V
- Protection module for grounded signal lines
- Max. surge current (8/20 µs) 20 kA
- Uninterruptable operation (auto reset)
- Status indication
- Mounting on base module, pluggable
- Up to SIL 3 acc. to IEC/EN 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 is a spare part for the corresponding 2-part surge protection barrier. The device is not to be used as a stand-alone device.
The device has a status indication at the front.
The device can be replaced without tools by locking levers.

Connection



Zone 2

Technical Data

General specifications		
Number of protected signal lines		2
Topology		grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		via base module
Leakage current		< 20 nA bei U_c , line-line < 100 nA bei U_c , line-earth
Nominal voltage		48 V
Maximum continuous operating voltage	U_c	38.1 V AC and 54 V DC
Nominal load current	I_L	0.75 A at 70 °C (158 °F)

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155096_eng.pdf

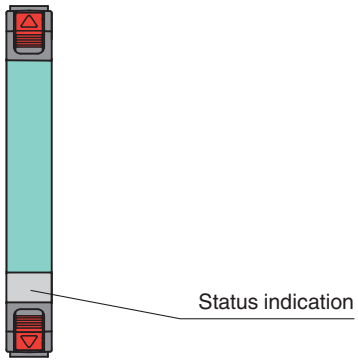
Technical Data

Series resistance		1 Ω per line
Impulse discharge current (10/350 µs)	I_{imp}	1.5 kA per line
Nominal discharge current (8/20 µs)	I_n	5 kA per line
Max. surge current (8/20 µs)	I_{max}	20 kA
Total discharge current (8/20 µs)	I_{total}	10 kA
Voltage protection level	U_p	max. 140 V line-line for nominal discharge current I_n max. 90 V line-earth for nominal discharge current I_n
Impulse reset time		< 30 ms
Cut-off frequency	f_G	5 MHz , line-line
Indicators/settings		
Display elements		status display operating state (green) fault indication (red)
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 ... 80 °C (-40 ... 176 °F)
Storage temperature		-40 ... 80 °C (-40 ... 176 °F)
Relative humidity		max. 95 % , without condensation
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20
Connection		via base module
Material		
Housing		Polyamide PA 6.6
Mass		approx. 14 g
Dimensions		6 x 45 x 54 mm (0.24 x 1.77 x 2.15 inch) (W x H x D)
Mounting		pluggable in base module for mounting on 35 mm DIN mounting rail
Data for application in connection with hazardous areas		
Certificate		TÜV 22 ATEX 8881 X
Marking		⟨Ex⟩ II 3G Ex ec IIC T4 Gc
Temperature class		T4 for ambient temperature ≤ 80 °C
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2018 , EN IEC 60079-7:2015+A1:2018
International approvals		
UL approval		E501704
IECEx approval		
IECEx certificate		IECEx TUR 22.0051X
IECEx marking		Ex ec IIC T4 Gc
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155096_eng.pdf

Assembly

Front view



Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155096_eng.pdf

Protection Module for Surge Protection Barrier

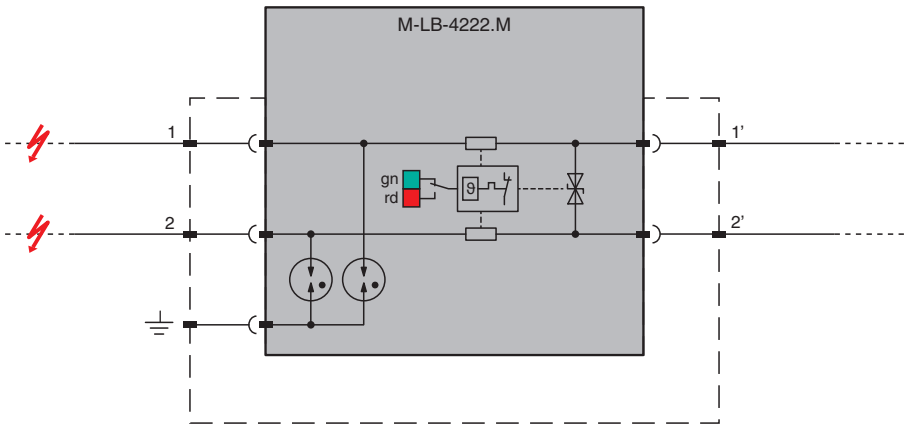
M-LB-4222.M

- Protection module for 2 signal lines
- Nominal voltage 12 V
- Protection module for non-grounded signal lines
- Max. surge current (8/20 µs) 20 kA
- Uninterruptable operation (auto reset)
- Status indication
- Mounting on base module, pluggable
- Up to SIL 3 acc. to IEC/EN 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 is a spare part for the corresponding 2-part surge protection barrier. The device is not to be used as a stand-alone device.
The device has a status indication at the front.
The device can be replaced without tools by locking levers.

Connection



Zone 2

Technical Data

General specifications		
Number of protected signal lines		2
Topology		non-grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		via base module
Leakage current		< 30 µA bei U_c , line-line < 10 nA bei U_c , line-earth
Nominal voltage		12 V
Maximum continuous operating voltage	U_c	10.6 V AC and 15 V DC
Nominal load current	I_L	0.75 A at 70 °C (158 °F)

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155097_eng.pdf

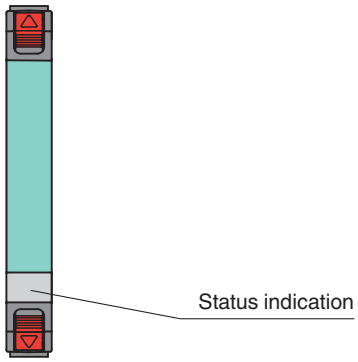
Technical Data

Series resistance		1 Ω per line
Impulse discharge current (10/350 µs)	I_{imp}	1.5 kA per line
Nominal discharge current (8/20 µs)	I_n	5 kA per line
Max. surge current (8/20 µs)	I_{max}	20 kA
Total discharge current (8/20 µs)	I_{total}	10 kA
Voltage protection level	U_p	max. 32 V line-line for nominal discharge current I_n max. 600 V line-earth for nominal discharge current I_n
Impulse reset time		< 30 ms
Cut-off frequency	f_G	2.6 MHz , line-line
Indicators/settings		
Display elements		status display operating state (green) fault indication (red)
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 ... 80 °C (-40 ... 176 °F)
Storage temperature		-40 ... 80 °C (-40 ... 176 °F)
Relative humidity		max. 95 % , without condensation
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20
Connection		via base module
Material		
Housing		Polyamide PA 6.6
Mass		approx. 14 g
Dimensions		6 x 45 x 54 mm (0.24 x 1.77 x 2.15 inch) (W x H x D)
Mounting		pluggable in base module for mounting on 35 mm DIN mounting rail
Data for application in connection with hazardous areas		
Certificate		TÜV 22 ATEX 8881 X
Marking		Ⓔx II 3G Ex ec IIC T4 Gc
Temperature class		T4 for ambient temperature ≤ 80 °C
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2018 , EN IEC 60079-7:2015+A1:2018
International approvals		
UL approval		E501704
IECEx approval		
IECEx certificate		IECEx TUR 22.0051X
IECEx marking		Ex ec IIC T4 Gc
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155097_eng.pdf

Assembly

Front view



Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70155097_eng.pdf

Protection Module for Surge Protection Barrier

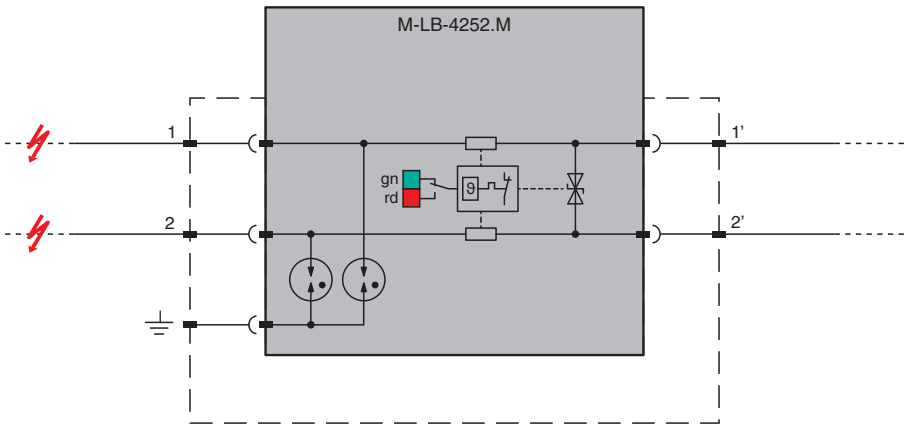
M-LB-4252.M

- Protection module for 2 signal lines
- Nominal voltage 48 V
- Protection module for non-grounded signal lines
- Max. surge current (8/20 µs) 20 kA
- Uninterruptable operation (auto reset)
- Status indication
- Mounting on base module, pluggable
- Up to SIL 3 acc. to IEC/EN 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 is a spare part for the corresponding 2-part surge protection barrier. The device is not to be used as a stand-alone device.
The device has a status indication at the front.
The device can be replaced without tools by locking levers.

Connection



Zone 2

Technical Data

General specifications		
Number of protected signal lines		2
Topology		non-grounded
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Electrical specifications		
Connection		via base module
Leakage current		< 30 µA bei U_c , line-line < 10 nA bei U_c , line-earth
Nominal voltage		48 V
Maximum continuous operating voltage	U_c	39.6 V AC and 56 V DC
Nominal load current	I_L	0.75 A at 70 °C (158 °F)

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Technical Data

Series resistance		1 Ω per line
Impulse discharge current (10/350 µs)	I_{imp}	1.5 kA per line
Nominal discharge current (8/20 µs)	I_n	5 kA per line
Max. surge current (8/20 µs)	I_{max}	20 kA
Total discharge current (8/20 µs)	I_{total}	10 kA
Voltage protection level	U_p	max. 90 V line-line for nominal discharge current I_n max. 600 V line-earth for nominal discharge current I_n
Impulse reset time		< 30 ms
Cut-off frequency	f_G	3.6 MHz , line-line
Indicators/settings		
Display elements		status display operating state (green) fault indication (red)
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 ... 80 °C (-40 ... 176 °F)
Storage temperature		-40 ... 80 °C (-40 ... 176 °F)
Relative humidity		max. 95 % , without condensation
Corrosion resistance		acc. to ISA-S71.04, severity level G3
Mechanical specifications		
Degree of protection		IP20
Connection		via base module
Material		
Housing		Polyamide PA 6.6
Mass		approx. 14 g
Dimensions		6 x 45 x 54 mm (0.24 x 1.77 x 2.15 inch) (W x H x D)
Mounting		pluggable in base module for mounting on 35 mm DIN mounting rail
Data for application in connection with hazardous areas		
Certificate		TÜV 22 ATEX 8881 X
Marking		⟨Ex⟩ II 3G Ex ec IIC T4 Gc
Temperature class		T4 for ambient temperature ≤ 80 °C
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2018 , EN IEC 60079-7:2015+A1:2018
International approvals		
UL approval		E501704
IECEx approval		
IECEx certificate		IECEx TUR 22.0051X
IECEx marking		Ex ec IIC T4 Gc
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

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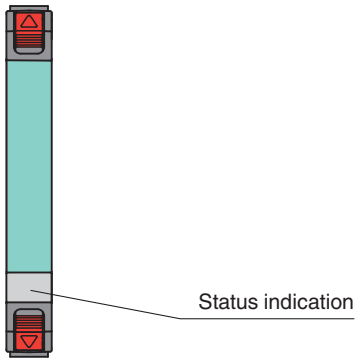
Assembly

Front view



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Fault Status Module

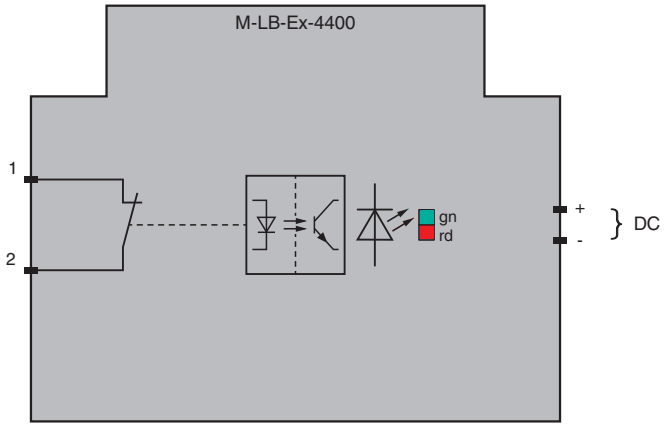
M-LB-4400

- Two-part monitoring device
- Device set with transmitter/receiver and reverse unit
- Fault indication via LED
- Status indication output

Function

The fault status module monitors the status of several surge protection barriers. The device set consists of 2 parts, the visual transmitter/receiver and the visual reverse unit.
The device has a status indication at the front.
The status indication is transmitted to the control via the remote signalling contact. The status indication output is performed as normally-closed contact.
The device is mounted on a 35 mm DIN mounting rail according to EN 60715.

Connection



Zone 2

Technical Data

Input		
Voltage range		6 ... 35 V DC
Rated current	I_r	≤ 10 mA
Output		
Connection		terminals 11, 12
Switching power		48 V DC/500 mA/P_{max} 300 mW
Output		signal ; remote signalling contact (NC contact)
Leakage current		< 1 µA
Resistor		contact resistance : < 2.5 Ω
Test cycle		continuous
Indicators/settings		

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Technical Data

Display elements	status display operating state (green) fault indication (red)
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
Ambient conditions	
Ambient temperature	-30 ... 70 °C (-22 ... 158 °F)
Storage temperature	-30 ... 70 °C (-22 ... 158 °F)
Relative humidity	max. 95 % , without condensation
Corrosion resistance	acc. to ISA-S71.04, severity level G3
Mechanical specifications	
Degree of protection	IP20
Connection	spring terminals with push-in connection technology
Core cross section	0.2 ... 2.5 mm² one wire 0.2 ... 2.5 mm² fine-strand
Material	
Housing	Polyamide PA 6.6
Mass	approx. 52 g
Dimensions	6 x 90 x 69 mm (0.24 x 3.5 x 2.7 inch) (W x H x D)
Mounting	on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas	
Certificate	TÜV 22 ATEX 8882 X
Marking	Ⓔx II 3G Ex ec IIC T4 Gc
Directive conformity	
Directive 2014/34/EU	EN 60079-0:2018 , EN IEC 60079-7:2015+A1:2018
International approvals	
UL approval	E223772
IECEx approval	
IECEx certificate	IECEx TUR 22.0052X
IECEx marking	Ex ec IIC T4 Gc
General information	
Supplementary information	Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable.

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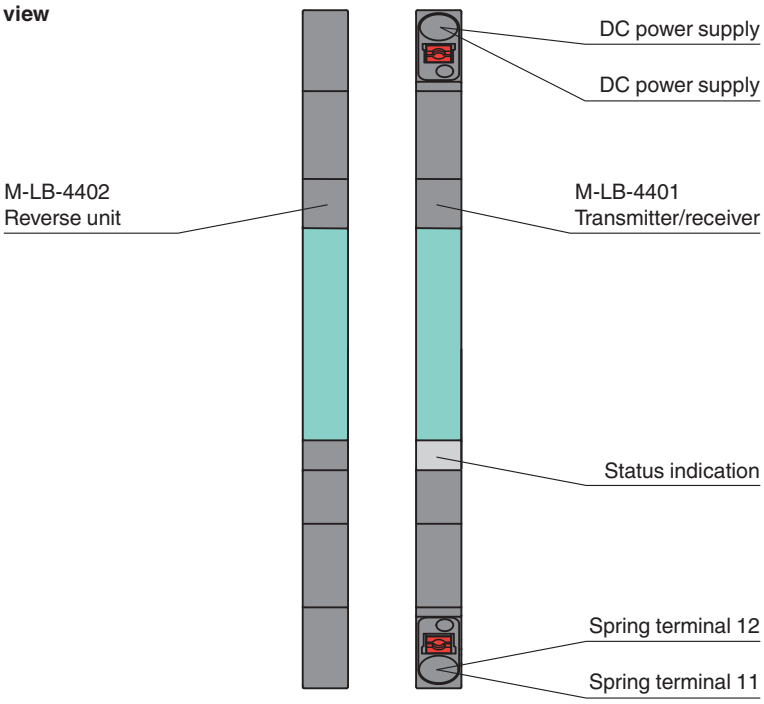
Assembly

Front view



Matching System Components

	**M-LB-4272**	Surge Protection Barrier
	**M-LB-4282**	Surge Protection Barrier
	**M-LB-4252**	Surge Protection Barrier
	**M-LB-4222**	Surge Protection Barrier
	**M-LB-4254**	Surge Protection Barrier
	**M-LB-4224**	Surge Protection Barrier
	**M-LB-4212**	Surge Protection Barrier
	**M-LB-4214**	Surge Protection Barrier
	**M-LB-4242**	Surge Protection Barrier
	**M-LB-4244**	Surge Protection Barrier
	**M-LB-Ex-4242**	Surge Protection Barrier

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Matching System Components

	**M-LB-4800**	Separation Wall

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