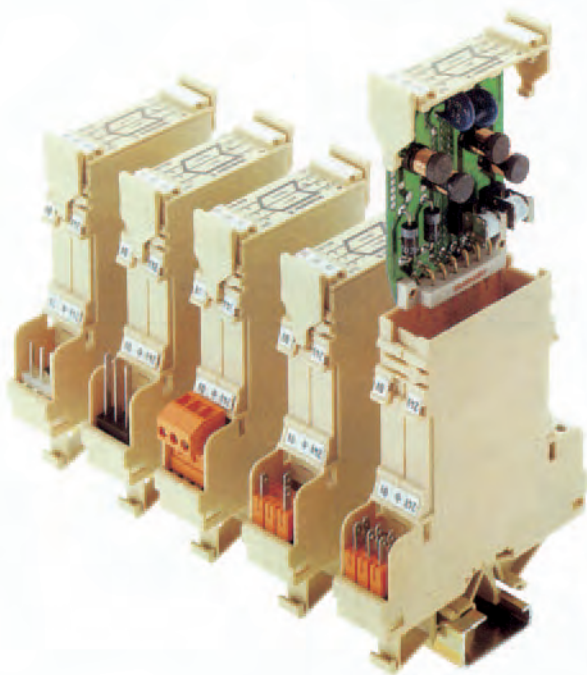


Overvoltage protection for measurement and control engineering

Overvoltage protection for measurement and control engineering, pluggable protection



Pluggable overvoltage protection

Weidmüller's LPU series consists of a module and an SEG-U integral housing, which must be ordered separately. These tried-and-tested protective components can be used in process, industrial and building services automation. The SEG-U housing can be connected in different ways to satisfy the user's requirements. The screw connection is standard, but screw/plug, thermipoint, core-wrap and spade connections are also possible. The plug-in module offers test functions if required: a visual check and electrical testing of the individual components is possible. The three-stage LPU boards work with gas charge eliminators, varistors, suppressor diodes (TAZ) and decoupling indicators. The LPU modules are characterised by a high protective function for currents up to 1.5 A. They are available in rated voltages of 24 V, 48 V, 115 V and 230 V.

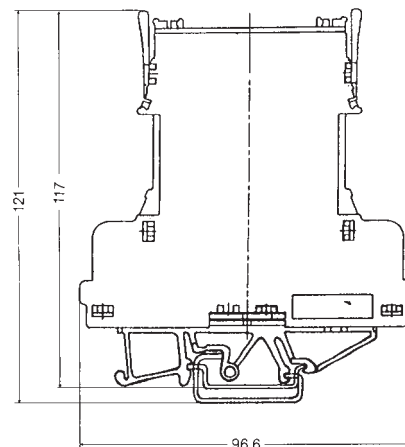
Three different LPU modules are available.

- a) Two signal lines are isolated from against earth (suitable for binary signals).
- b) One analogue signal is protected against each other and against earth (0 .. 20 mA circuits)
- c) One potential free signal is given high-ohm protection against earth and each other (suitable for thermocouple signals).

A test case is available for the electrical tests. The protective elements integrated in the PLU module, such as overvoltage protection terminal filled with gas, varistors and suppressor diodes, can be tested to check rated data and permissible tolerances. The integral inductors are also checked for continuity.

Test results are displayed as red/green LEDs or printed ou on the integral printer. A self-test is performed after switching on the test case. The LPU module automatically undergoes electric testing when the LPU overvoltage protection is plugged in.

SEG-U



Width 20 mm
 Screw connection
 flexible 0.5...2.5 mm²
 flexible 0.5...4 mm²

Test case



Overvoltage protection for instrumentation and control

3-step protection on circuit card

Pluggable overvoltage protection LPU

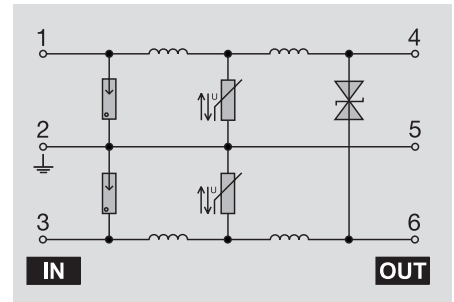
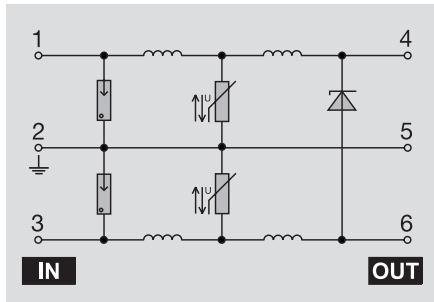
LPU 24Vdc 100mA

LPU 24Vdc/0.1A



LPU 48Vuc 100mA

LPU 48Vuc/0.1A



Technical data

Technical specification

Rated voltage Un (AC)
 Rated voltage (DC)
 Operating voltage U_c (ac), max.
 Operating current, I_{max}
 Volume resistance
 Gas discharger
 Varistor
 Suppressor diodes
 Cut-off freq. (-3dB) at load impedance
 Leakage current, max. (8/20 μs)
 On output side, sym. 1kV/μs input, typical
 On output side sym. at Input 8/20μs, typical
 On the output side, unsymmetrical, Input 1kV/μs, typ.
 On output side usym., Input 8/20μs, typical
 Design
 Type of connection
 Stor. temp. min./Storage temp., max.
 Oper. temp. min./Oper. temp. max.

24V
 29V
 0.10A
 12.50Ω
 Yes
 Yes
 Yes
 7.5kHz 240Ω
 6kA
 34V
 45V
 34V
 45V
 plug card
 push-on connection
 -25°C/85°C
 -25°C/60°C

48V
 48V
 53V
 0.10A
 12.50Ω
 Yes
 Yes
 Yes
 9.0kHz 480Ω
 6kA
 82V
 130V
 82V
 130V
 plug card
 push-on connection
 -25°C/85°C
 -25°C/60°C

Dimensions

Clamping range (rating- / min. / max.) mm²
 Length x width x height mm

push-on connection

96.60 x 20.0 x 117

push-on connection

96.60 x 20.0 x 117

Information

Height incl. housing SEG-U

Height incl. housing SEG-U

Ordering data

Version

Type	Qty.	Order No.
LPU 24VDC/100MA	1	8008300000

Type	Qty.	Order No.
LPU 48VUC/100MA	1	8008330000

Information

Testable with the test case

Testable with the test case

Accessories

Information

SEG-U 8007871001

SEG-U 8007871001

Articles with coloured order number are kept permanently in stock at the central warehouse in Germany.
 Delivery times see page X.2

Overvoltage protection for instrumentation and control

3-step protection on circuit card

Pluggable overvoltage protection LPU

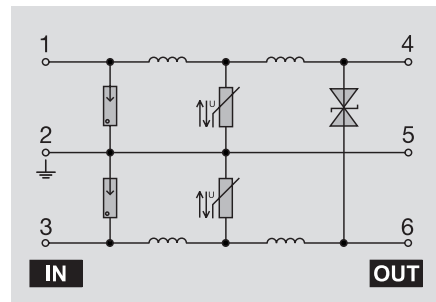
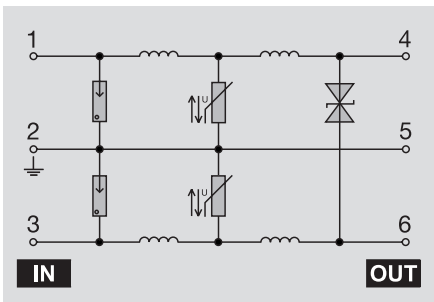
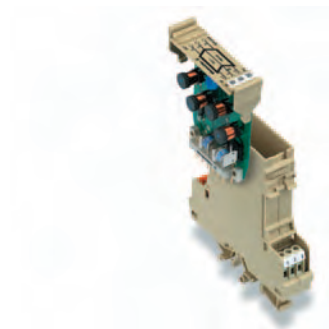
LPU 115Vuc 100mA

LPU 115Vuc/0.1A



LPU 230Vuc 100mA

LPU 230Vuc/0.1A



Technical data

Technical specification

Rated voltage Un (AC)
 Rated voltage (DC)
 Operating voltage Uc (ac), max.
 Operating current, I_{max}
 Volume resistance
 Gas discharger
 Varistor
 Suppressor diodes
 Cut-off freq. (-3dB) at load impedance
 Leakage current, max. (8/20 μs)
 On output side, sym. 1kV/μs input, typical
 On output side sym. at Input 8/20μs, typical
 On the output side, unsymmetrical, Input 1kV/μs, typ.
 On output side usym., Input 8/20μs, typical
 Design
 Type of connection
 Stor. temp. min./Storage temp., max.
 Oper. temp. min./Oper. temp. max.

115V
 115V
 130V
 0.10A
 12.50Ω
 Yes
 Yes
 Yes
 9.0kHz 1100Ω
 6kA
 200V
 250V
 200V
 250V
 plug card
 push-on connection
 -25°C/85°C
 -25°C/60°C

230V
 230V
 240V
 0.10A
 12.50Ω
 Yes
 Yes
 Yes
 40.0kHz 2200Ω
 6kA
 400V
 420V
 400V
 420V
 plug card
 push-on connection
 -25°C/85°C
 -25°C/60°C

Dimensions

Clamping range (rating- / min. / max.) mm²
 Length x width x height mm

push-on connection

96.60 x 20.0 x 117

push-on connection

96.60 x 20.0 x 117

Information

Height incl. housing SEG-U

Height incl. housing SEG-U

Ordering data

Version

Type	Qty.	Order No.
LPU 115VUC/100MA	1	8008350000

Type	Qty.	Order No.
LPU 230VUC/100MA	1	8008380000

Information

Testable with the test case

Testable with the test case

Accessories

Information

SEG-U 8007871001

SEG-U 8007871001

Articles with coloured order number are kept permanently in stock at the central warehouse in Germany.
 Delivery times see page X.2

Overvoltage protection for instrumentation and control

3-step protection on circuit card

Pluggable overvoltage protection LPU

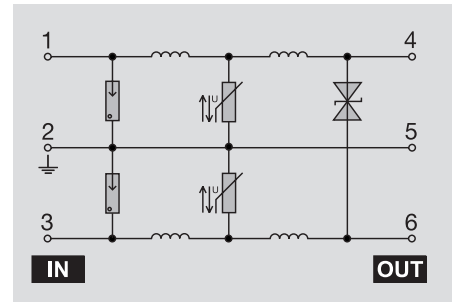
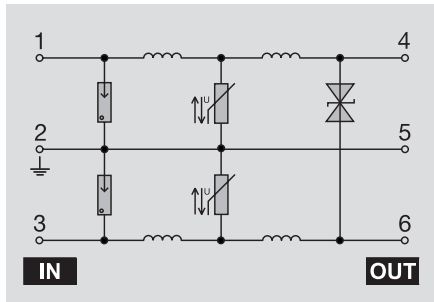
LPU 24Vuc 1.5A

LPU 24Vuc/1.5A



LPU 48Vuc 1.5A

LPU 48Vuc/1.5A



Technical data

Technical specification

Rated voltage Un (AC)
 Rated voltage (DC)
 Operating voltage Uc (ac), max.
 Operating current, I_{max}
 Volume resistance
 Gas discharger
 Varistor
 Suppressor diodes
 Cut-off freq. (-3dB) at load impedance
 Leakage current, max. (8/20 μs)
 On output side, sym. 1kV/μs input, typical
 On output side sym. at Input 8/20μs, typical
 On the output side, unsymmetrical, Input 1kV/μs, typ.
 On output side usym., Input 8/20μs, typical
 Design
 Type of connection
 Stor. temp. min./Storage temp., max.
 Oper. temp. min./Oper. temp. max.

24V
 24V
 27V
 1.50A
 0.20Ω
 Yes
 Yes
 Yes
 150.0kHz 16Ω
 6kA
 34V
 45V
 34V
 45V
 plug card
 push-on connection
 -25°C/85°C
 -25°C/50°C

48V
 48V
 53V
 1.50A
 0.20Ω
 Yes
 Yes
 Yes
 300.0kHz 32Ω
 6kA
 82V
 130V
 82V
 130V
 plug card
 push-on connection
 -25°C/85°C
 -25°C/50°C

Dimensions

Clamping range (rating- / min. / max.) mm²
 Length x width x height mm

push-on connection

96.60 x 20.0 x 117

push-on connection

96.60 x 20.0 x 117

Information

Height incl. housing SEG-U

Height incl. housing SEG-U

Ordering data

Version

Type	Qty.	Order No.
LPU 24VUC/1,5A	1	8008430000

Type	Qty.	Order No.
LPU 48VUC/1,5A	1	8008440000

Information

Testable with the test case

Testable with the test case

Accessories

Information

SEG-U 8007871001

SEG-U 8007871001

Articles with coloured order number are kept permanently in stock at the central warehouse in Germany.
 Delivery times see page X.2

Overvoltage protection for instrumentation and control

3-step protection on circuit card

Pluggable overvoltage protection LPU

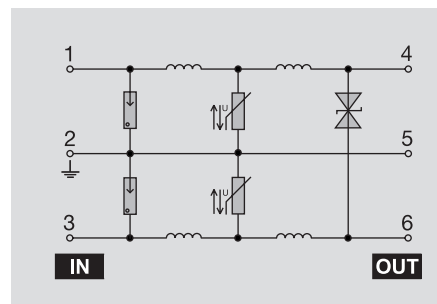
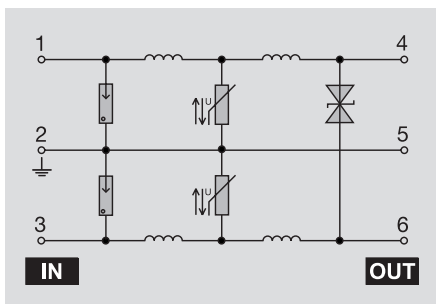
LPU 115Vuc 1.5A

LPU 115Vuc/1.5A



LPU 230Vuc 1.5A

LPU 230Vuc/1.5A



Technical data

Technical specification

Rated voltage Un (AC)
 Rated voltage (DC)
 Operating voltage Uc (ac), max.
 Operating current, I_{max}
 Volume resistance
 Gas discharger
 Varistor
 Suppressor diodes
 Cut-off freq. (-3dB) at load impedance
 Leakage current, max. (8/20 μs)
 On output side, sym. 1kV/μs input, typical
 On output side sym. at Input 8/20μs, typical
 On the output side, unsymmetrical, Input 1kV/μs, typ.
 On output side usym., Input 8/20μs, typical
 Design
 Type of connection
 Stor. temp. min./Storage temp., max.
 Oper. temp. min./Oper. temp. max.

115V
 115V
 130V
 1.50A
 0.20Ω
 Yes
 Yes
 Yes
 600.0kHz 70kΩ
 6kA
 200V
 250V
 200V
 250V
 plug card
 push-on connection
 -25°C/85°C
 -25°C/50°C

230V
 230V
 250V
 1.50A
 0.20Ω
 Yes
 Yes
 Yes
 1.0MHz 150kΩ
 6kA
 400V
 420V
 400V
 420V
 plug card
 push-on connection
 -25°C/85°C
 -25°C/50°C

Dimensions

Clamping range (rating- / min. / max.) mm²
 Length x width x height mm

push-on connection

96.60 x 20.0 x 117
 Height incl. housing SEG-U

push-on connection

96.60 x 20.0 x 117
 Height incl. housing SEG-U

Ordering data

Version

Type	Qty.	Order No.
LPU 115VUC/1,5A	1	8008450000

Type	Qty.	Order No.
LPU 230VUC/1,5A	1	8008460000

Information

Testable with the test case

Testable with the test case

Accessories

Information

SEG-U 8007871001

SEG-U 8007871001

Articles with coloured order number are kept permanently in stock at the central warehouse in Germany.
 Delivery times see page X.2

Overvoltage protection for instrumentation and control

3-step protection on circuit card

Pluggable overvoltage protection LPU

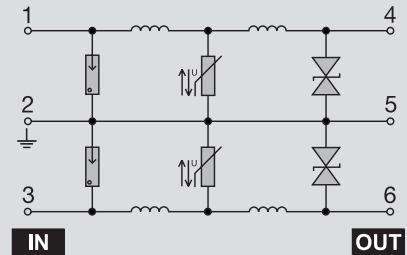
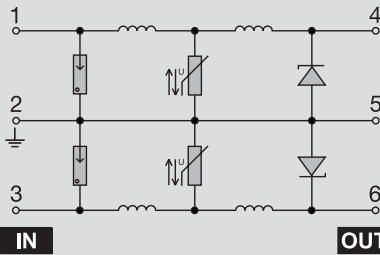
LPU 24Vdc 100mA SL

LPU 24Vdc/0.1A



LPU 48 Vuc 100mA SL

LPU 48Vuc/0.1A



Technical data

Technical specification

Rated voltage Un (AC)
 Rated voltage (DC)
 Operating voltage U_c (ac), max.
 Operating current, I_{max}
 Volume resistance
 Gas discharger
 Varistor
 Suppressor diodes
 Cut-off freq. (-3dB) at load impedance
 Leakage current, max. (8/20 μs)
 On output side, sym. 1kV/μs input, typical
 On output side sym. at Input 8/20μs, typical
 On the output side, unsymmetrical, Input 1kV/μs, typ.
 On output side usym., Input 8/20μs, typical
 Design
 Type of connection
 Stor. temp. min./Storage temp., max.
 Oper. temp. min./Oper. temp. max.

24V
 29V
 0.10A
 12.50Ω
 Yes
 Yes
 Yes
 7.5kHz 240Ω
 6kA
 34V
 45V
 60V
 90V
 plug card
 push-on connection
 -25°C/85°C
 -25°C/60°C

48V
 48V
 53V
 0.10A
 12.50Ω
 Yes
 Yes
 Yes
 17.0kHz 480Ω
 6kA
 82V
 130V
 160V
 260V
 plug card
 push-on connection
 -25°C/85°C
 -25°C/60°C

Dimensions

Clamping range (rating- / min. / max.) mm²
 Length x width x height mm

push-on connection

96.60 x 20.0 x 117

push-on connection

96.60 x 20.0 x 117

Information

Height incl. housing SEG-U

Height incl. housing SEG-U

Ordering data

Version

Type	Qty.	Order No.
LPU 24VDC/100MA	1	8008230000

Type	Qty.	Order No.
LPU 48VUC/100MA	1	8008250000

Information

Testable with the test case

Testable with the test case

Accessories

Information

SEG-U 8007871001

SEG-U 8007871001

Articles with coloured order number are kept permanently in stock at the central warehouse in Germany.
 Delivery times see page X.2

Overvoltage protection for instrumentation and control

3-step protection on circuit card

Pluggable overvoltage protection LPU

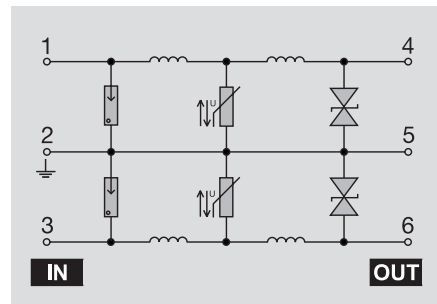
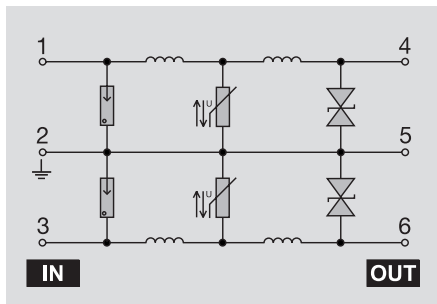
LPU 230Vuc 100mA SL

LPU 230V/uc/0.1A



LPU 115Vuc 100mA SL

LPU 115Vuc/0.1A



Technical data

Technical specification

Rated voltage Un (AC)
 Rated voltage (DC)
 Operating voltage Uc (ac), max.
 Operating current, I_{max}
 Volume resistance
 Gas discharger
 Varistor
 Suppressor diodes
 Cut-off freq. (-3dB) at load impedance
 Leakage current, max. (8/20 μs)
 On output side, sym. 1kV/μs input, typical
 On output side sym. at Input 8/20μs, typical
 On the output side, unsymmetrical, Input 1kV/μs, typ.
 On output side usym., Input 8/20μs, typical
 Design
 Type of connection
 Stor. temp. min./Storage temp., max.
 Oper. temp. min./Oper. temp. max.

230V
 230V
 250V
 0.10A
 12.50Ω
 Yes
 Yes
 Yes
 80.0kHz 2200Ω
 6kA
 400V
 420V
 800V
 820V
 plug card
 push-on connection
 -25°C/85°C
 -25°C/60°C

115V
 115V
 130V
 0.10A
 12.50Ω
 Yes
 Yes
 Yes
 40.0kHz 1100Ω
 6kA
 200V
 250V
 400V
 500V
 plug card
 push-on connection
 -25°C/85°C
 -25°C/60°C

Dimensions

Clamping range (rating- / min. / max.) mm²
 Length x width x height mm

push-on connection

96.60 x 20.0 x 117
 Height incl. housing SEG-U

push-on connection

96.60 x 20.0 x 117
 Height incl. housing SEG-U

Ordering data

Version

Type	Qty.	Order No.
LPU 230VUC/100MA	1	8008280000

Type	Qty.	Order No.
LPU 115VUC/100MA	1	8008260000

Information

Testable with the test case

Testable with the test case

Accessories

Information

SEG-U 8007871001

SEG-U 8007871001

Articles with coloured order number are kept permanently in stock at the central warehouse in Germany.
 Delivery times see page X.2

Overvoltage protection for instrumentation and control

3-step protection on circuit card

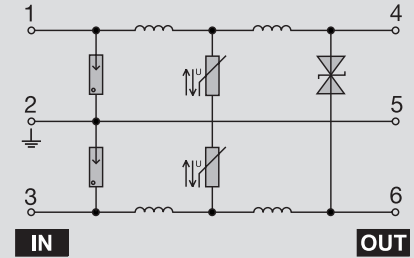
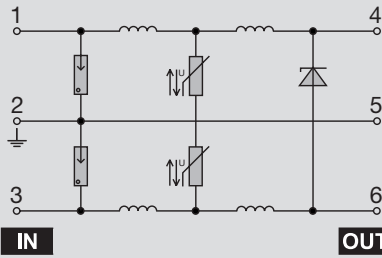
Pluggable overvoltage protection LPU

LPU 24Vdc/0,1A

LPU 24Vdc 100mA floating

LPU 48Vuc/0,1A

LPU 48Vuc 100mA floating



Technical data

Technical specification

Rated voltage Un (AC)
 Rated voltage (DC)
 Operating voltage U_c (ac), max.
 Operating current, I_{max}
 Volume resistance
 Gas discharger
 Varistor
 Suppressor diodes
 Cut-off freq. (-3dB) at load impedance
 Leakage current, max. (8/20 μs)
 On output side, sym. 1kV/μs input, typical
 On output side sym. at Input 8/20μs, typical
 On the output side, unsymmetrical, Input 1kV/μs, typ.
 On output side usym., Input 8/20μs, typical
 Design
 Type of connection
 Stor. temp. min./Storage temp., max.
 Oper. temp. min./Oper. temp. max.

24V
 29V
 0.10A
 12.50Ω
 Yes
 Yes
 Yes
 7.5kHz 240Ω
 6kA
 34V
 45V
 600V
 700V
 plug card
 push-on connection
 -25°C/85°C
 -25°C/60°C

48V
 48V
 53V
 0.10A
 12.50Ω
 Yes
 Yes
 Yes
 17.0kHz 480Ω
 6kA
 82V
 130V
 600V
 700V
 plug card
 push-on connection
 -25°C/85°C
 -25°C/60°C

Dimensions

Clamping range (rating- / min. / max.) mm²
 Length x width x height mm

push-on connection

96.60 x 20.0 x 117
 Height incl. housing SEG-U

push-on connection

96.60 x 20.0 x 117
 Height incl. housing SEG-U

Ordering data

Version

Type	Qty.	Order No.
LPU 24VDC/100MA	1	8008390000

Type	Qty.	Order No.
LPU 48VUC/100MA	1	8008400000

Information

Testable with the test case

Testable with the test case

Accessories

Information

SEG-U 8007871001

SEG-U 8007871001

Articles with coloured order number are kept permanently in stock at the central warehouse in Germany.
 Delivery times see page X.2

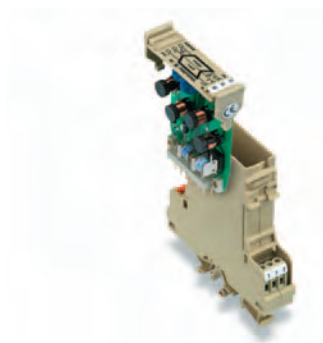
Overvoltage protection for instrumentation and control

3-step protection on circuit card

Pluggable overvoltage protection LPU

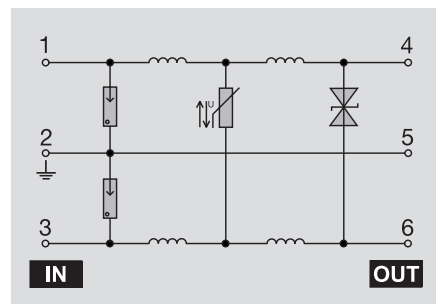
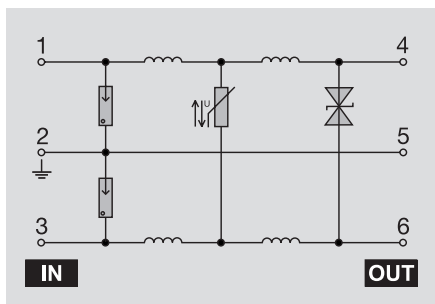
LPU 115Vuc/0,1A

LPU 115Vuc 100mA floating



LPU 230Vuc/0,1A

LPU 230Vuc 100mA floating



Technical data

Technical specification

Rated voltage Un (AC)
 Rated voltage (DC)
 Operating voltage Uc (ac), max.
 Operating current, I_{max}
 Volume resistance
 Gas discharger
 Varistor
 Suppressor diodes
 Cut-off freq. (-3dB) at load impedance
 Leakage current, max. (8/20 μs)
 On output side, sym. 1kV/μs input, typical
 On output side sym. at Input 8/20μs, typical
 On the output side, unsymmetrical, Input 1kV/μs, typ.
 On output side usym., Input 8/20μs, typical
 Design
 Type of connection
 Stor. temp. min./Storage temp., max.
 Oper. temp. min./Oper. temp. max.

115V
 115V
 130V
 0.10A
 12.50Ω
 Yes
 Yes
 Yes
 Yes
 40.0kHz 1100Ω
 6kA
 200V
 220V
 600V
 700V
 plug card
 push-on connection
 -25°C/85°C
 -25°C/60°C

230V
 230V
 250V
 0.10A
 12.50Ω
 Yes
 Yes
 Yes
 Yes
 80.0kHz 2200Ω
 6kA
 400V
 420V
 600V
 700V
 plug card
 push-on connection
 -25°C/85°C
 -25°C/60°C

Dimensions

Clamping range (rating- / min. / max.) mm²
 Length x width x height mm

Information

push-on connection

96.60 x 20.0 x 117

Height incl. housing SEG-U

push-on connection

96.60 x 20.0 x 117

Height incl. housing SEG-U

Ordering data

Version

Type	Qty.	Order No.
LPU 115VUC/100MA	1	8008410000

Type	Qty.	Order No.
LPU 230VUC/100MA	1	8008420000

Information

Testable with the test case

Testable with the test case

Accessories

Information

SEG-U 8007871001

SEG-U 8007871001

Articles with coloured order number are kept permanently in stock at the central warehouse in Germany.
 Delivery times see page X.2

Surge protection for instrumentation and control equipment with ATEX approval

LPU pluggable surge protection

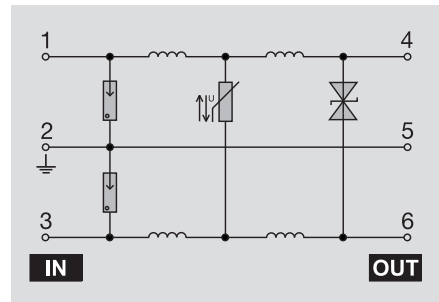
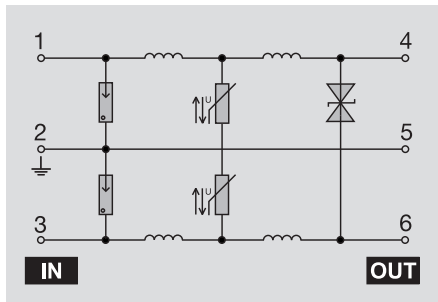
with ATEX approval

LPU 24 V 0.5 A

LPU 29 V 0.062 A



D



Technical data

Technical data

DC voltage
 Volume resistance 1/3
 Rated current per path
 Inductance of 4-pole network L_i
 Capacitance of 4-pole network C_i
 Source impedance frequency response at 50 Ω / -3 dB
 \varnothing Tü at 0.1 A and 60 °C ambient temperature, typical
 Sparkover voltage of gas discharge tube at 1 kV/ μ s, typical
 Interference voltage at output for 1 kV/ μ s at input, typical
 Interference voltage at output for 8/20 μ s and 2.5 kA at input, typical
 max. leakage current to PE
 Ingress protection class
 Storage temperature
 Operating temperature
 Circuit earthed for safety
 Clamping point with self-locking screw
 Approval
 Registered design No.

24 V
 0.15 Ω
 0.5 A
 < 0.1 mH
 7.5 nF
 150 kHz at $R_i = 16 \Omega$
 < 15 K
 700 V
 39 V
 65 V
 10 μ A
 IP20
 -25 °C ... +85 °C
 -25 °C ... +60 °C
 yes
 yes
 II 2 G EEx ia IIC T6 or II 2 D T85 °C IP6X
 TÜV 04 ATEX 2551 X

29 V
 0.15 Ω
 62 mA
 9.5 mH
 6 nF
 4.5 kHz at $R_i = 240 \Omega$
 < 15 K
 800 V
 33 V
 38 V
 10 μ A
 IP20
 -25 °C ... +85 °C
 -25 °C ... +60 °C
 no
 yes
 II 2 G EEx ia IIC T6 or II 2 D T85 °C IP6X
 TÜV 04 ATEX 2551 X

Connect the earth terminal to the equipotential bonding.
 When using the surge protection component in areas at risk of dust explosion, provide a housing that complies with class of protection IP 6X at least (to EN 60529) and also satisfies the conditions of EN 50281-1-1 points 4, 8 and 9.

Connect the earth terminal to the equipotential bonding.
 When using the surge protection component in areas at risk of dust explosion, provide a housing that complies with class of protection IP 6X at least (to EN 60529) and also satisfies the conditions of EN 50281-1-1 points 4, 8 and 9.

Notes

Ordering data

Version

Type	Qty	Order No
LPU 24 VUC 0.5A		8008430000

Type	Qty	Order No
LPU 24 V DC 62 mA		8225240000

Notes

Accessories

Version

Type	Qty	Order No
Gehäuse SEG-U		8007871001

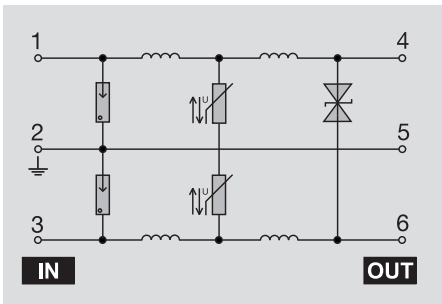
Type	Qty	Order No
Gehäuse SEG-U		8007871001

Notes

LPU pluggable surge protection LPU

LPU 60 V 0.5 A

with ATEX approval



Technical data

Technical data

DC voltage
 Volume resistance 1/3
 Rated current per path
 Inductance of 4-pole network L_i
 Capacitance of 4-pole network C_i
 Source impedance frequency response at 50 Ω / -3 dB
 \varnothing $T_{\text{Ü}}$ at 0.1 A and 60 °C ambient temperature, typical
 Sparkover voltage of gas discharge tube at 1 kV/ μ s, typical
 Interference voltage at output for 1 kV/ μ s at input, typical
 Interference voltage at output for 8/20 μ s and 2.5 kA at input, typical
 max. leakage current to PE
 Ingress protection class
 Storage temperature
 Operating temperature
 Circuit earthed for safety
 Clamping point with self-locking screw
 Approval
 Registered design No.

60 V
13 Ω
0.5 A
< 0.1 mH
3.5 nF
300 kHz at $R_i = 32 \Omega$
< 15 K
700 V
82 V
115 V
10 μ A
IP20
-25 °C ... +85 °C
-25 °C ... +60 °C
yes
yes
II 2 G EEx ia IIC T6 to II 2 D T85 °C IP6X
TÜV 04 ATEX 2551 X

Connect the earth terminal to the equipotential bonding.
 When using the surge protection component in areas at risk of dust explosion, provide a housing that complies with class of protection IP 6X at least (to EN 60529) and also satisfies the conditions of EN 50281-1-1 points 4, 8 and 9.

Notes

Ordering data

Version

Notes

Type	Qty	Order No.
LPU 60V 0,5A		8008440000

Accessories

Version

Notes

Type	Qty	Order No.
Gehäuse SEG-U		8007871001