

Slim Surge protection terminals for instrumentation and control engineering

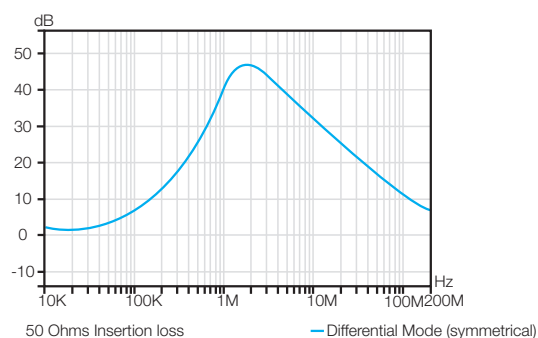
Weidmüller MCZ surge protection terminals are characterized by their maximum protective function concentrated in a compact design of 6 mm. The tension spring connection and direct earthing via the terminal rail contact results in time-savings during installation. The MCZ OVP terminals are suitable for installing in the narrowest of places in automated process, industrial and building services systems.



The three-stage surge protection terminals are fitted with gas discharge tubes, varistors, suppression diodes (TAZ) and decoupling inductors. Individual protective components such as varistors and suppression diodes complement the range. The MCZ OVP surge protection terminals are available with rated voltages of 24, 48, 115 and 230 V. The response time for the 3-stage MCZ OVP is typically 100 ps. The earth contact is produced by clipping the terminal to an earthed terminal rail. To guarantee a safe energy discharge of up to 10 kA (8/20 μ s) via these terminals, the TS 35 rail must therefore be earthed.

EMC regulations require the terminal rail to be securely screwed to an earthed mounting plate. Optimum protection is achieved when the PE contact is made via a tension spring terminal every 600 mm.

Attenuation chart MCZ OVP Filter



The different models

MCZ OVP HF is a two-stage protective combination with a bridge circuit consisting of suppressor diodes. With this circuitry, high transmission rates of up to 100 Mhz can be reached in 100-Ohm systems.

The protective circuitry is particularly suitable for protecting high-speed data transmission system and high-speed analogue systems.

MCZ OVP CL is a three-stage protective combination with a suppression diode between the current paths. It limits the surge in analogue signal circuits, e.g. current loops.

MCZ OVP SL is a three-stage protective combination with two suppression diodes, each from the signal line to earth. It limits the surge in binary circuits, e.g. for actuators.

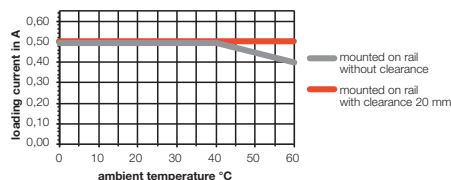
MCZ OVP CL FG is a three-stage protective combination with a suppression diode between the current paths. It limits the surge in analogue signal circuits. A high-resistance earth connection is achieved with a gas discharge tube.

MCZ OVP SL FG is a three-stage protective combination with two suppression diodes, each from the signal line to earth. It limits the surge in binary circuits, e.g. for actuators.

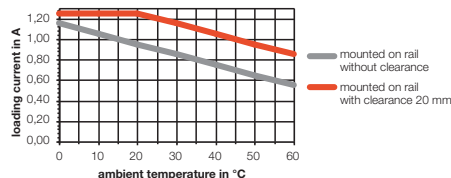
A high-resistance earth connection is achieved with three gas discharge tubes.

MCZ OVP filter terminals contain selected varistors, capacitors and series inductances. They form reliable noise filters. Coupled interference in the kHz range is safely discharged to earth. For example, the signal inputs of a PLC, which can be protected against interference voltages and RF interference.

Derating curve MCZ OVP



Derating curve MCZ OVP

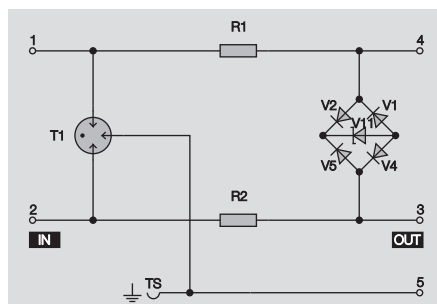
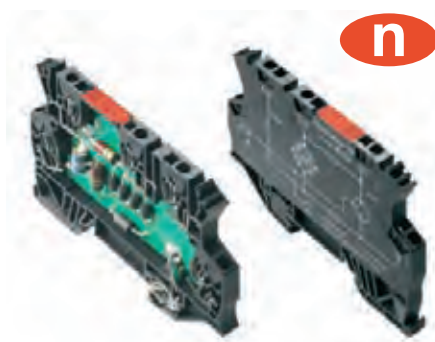


MC series

2- stage protection with tension clamp connection

- Slimline surge protection terminal with tension clamp connection
- 6 mm slimline fine surge protection
- fast wiring thanks to TS contact and tension clamp connections
- can be cross-connected using ZQV

MCZ OVP HF 24V 0.3A



Technical data

Technical data

Rated voltage (AC/DC)

max. continuous voltage, U_c (DC)max. continuous voltage, U_c (AC)Operating current, $I_{\max}$

Volume resistivity

Gas discharge tube

Varistor

Suppression diodes

Cut-off frequency (-3 dB) at load impedance

Discharge current, max. (8/20 μ s)

Protection level on output side sym., input 1 kV/μs, typ.

Protection level on output side sym., input 8/20 μ s, typ.

Protection level on output side unsym., input 1kV/μs, typ.

Protection level on output side unsym., input 8/20 μ s, typ.

Protection level on output side sym., input 10/350 μ s, typ.

Protection level on output side unsym., input 10/350 μ s, typ.

Lightning test voltage I imp (10/350 μ s)

Specification class to IEC 61643-21

Design

Storage temperature, min./max.

Operating temperature, min./max.

Approvals

24 V
40 V
28 V
0.3 A
2.50 Ω
90 V
100.0 MHz (measured in 100 Ω system)
5 kA
80 V
80 V
80 V
150 V
C1 ;C2 ;C3 ;D1
terminal
-40 °C/85 °C
-40 °C/60 °C
CF

Dimensions

Clamping range (rating- / min. / max.)	mm ²
Length x width x height	mm

Note

Ordering data

Version

Type	Qty.	Order No.
MCZ OVP HF 24V 0,3A	10	8948600000

Note

Accessories

Note

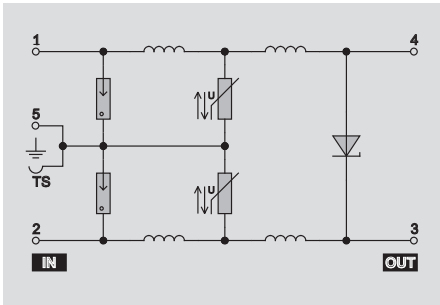
End plate
AP MCZ 1.5: 1046410000

3- or 1-stage protection with
tension clamp connection

- Slimline surge protection terminal with tension clamp connection
- 6 mm slimline fine surge protection
- fast wiring thanks to TS contact and tension clamp connections
- can be cross-connected using ZQV

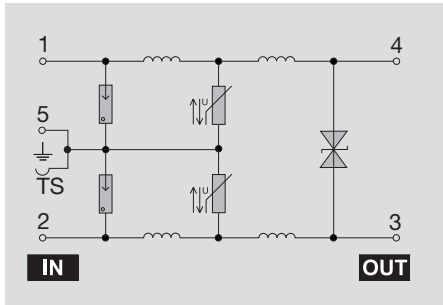
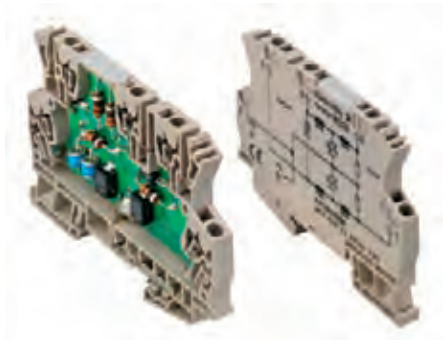
MCZ OVP CL 24 V DC 0.5 A

Protection for current loops



MCZ OVP CL 24 V AC 0.5 A

Protection for current loops



Technical data

Technical data	
Rated voltage (AC)	24 V
Rated voltage (DC)	28 V
max. continuous voltage, U _c (AC)	38 V
Operating current, I _{max}	0.5 A
Volume resistivity	2.50 Ω
Gas discharge tube	yes
Varistor	yes
Suppression diodes	yes
Cut-off frequency (-3 dB) at load impedance	500.0 kHz 240 Ω
Discharge current, max. (8/20 μs)	5 kA
Protection level on output side sym., input 1 kV/μs, typ.	40 V
Protection level on output side sym., input 8/20 μs, typ.	65 V
Protection level on output side unsym., input 1kV/μs, typ.	40 V
Protection level on output side unsym., input 8/20 μs, typ.	65 V
Protection level on output side sym., input 10/350 μs, typ.	
Protection level on output side unsym., input 10/350 μs, typ.	
Lightning test voltage I _{imp} (10/350 μs)	1 kA
Specification class to IEC 61643-21	D1
Design	terminal
Ambient temperature (operational)	-40 ... 60°C
Storage temperature	-40 ... 85°C
Approvals	CE;UL listed

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

Note

tension clamp connection	
1.5 / 0.5 / 1.5	
91 x 6 x 63.5	

Refer to derating curve

tension clamp connection	
1.5 / 0.5 / 1.5	
91 x 6 x 63.5	

Refer to derating curve

Ordering data

Version

Type	Qty.	Order No.
MCZ OVP CL 24VDC 0,5A	10	8448920000

Note

Type	Qty.	Order No.
MCZ OVP CL 24VAC 0,5A	10	8472880000

Accessories

Note

End plate AP MCZ 1.5: 8389030000

End plate AP MCZ 1.5: 8389030000

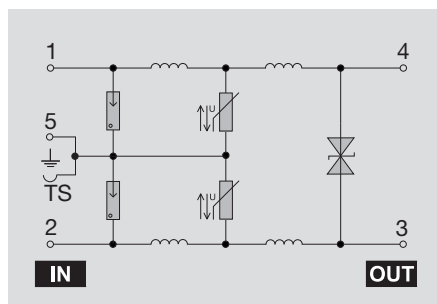
MC series

3- or 1-stage protection with tension clamp connection

- Slimline surge protection terminal with tension clamp connection
- 6 mm slimline fine surge protection
- fast wiring thanks to TS contact and tension clamp connections
- can be cross-connected using ZQV

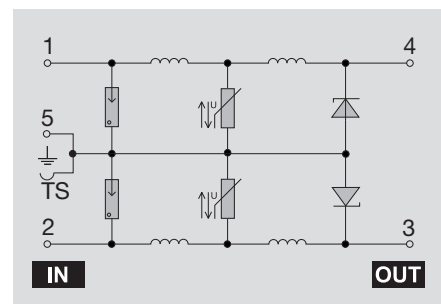
MCZ OVP CL 24 V UC 1.25 A

Protection for current loops



MCZ OVP SL 24 V DC 0.5 A

Protection for binary signals



Technical data

Technical data

Rated voltage (AC)
Rated voltage (DC)
max. continuous voltage, U_c (AC)
Operating current, I_{max}
Volume resistivity
Gas discharge tube
Varistor
Suppression diodes
Cut-off frequency (-3 dB) at load impedance
Discharge current, max. (8/20 μ s)
Protection level on output side sym., input 1 kV/ μ s, typ.
Protection level on output side sym., input 8/20 μ s, typ.
Protection level on output side unsym., input 1 kV/ μ s, typ.
Protection level on output side unsym., input 8/20 μ s, typ.
Protection level on output side sym., input 10/350 μ s, typ.
Protection level on output side unsym., input 10/350 μ s, typ.
Lightning test voltage I_{imp} (10/350 μ s)
Specification class to IEC 61643-21
Design
Ambient temperature (operational)
Storage temperature
Approvals

Dimensions

Clamping range (rating- / min. / max.)	mm ²
Length x width x height	mm

Note

Ordering data

Version

Note

Accessories

Note

24 V
24 V
27 V
1.3 A
1.00 Ω
yes
yes
yes
500.0 kHz 240 Ω
5 kA
80 V
130 V
40 V
65 V
58 V
76 V
1 kA
D1
terminal
-40 ... 60°C
-40 ... 85°C
CE;UL listed

tension clamp connection

$$\frac{1.5 / 0.5 / 1.5}{91 \times 6 \times 63.5}$$

Refer to derating curve

Type	Qty.	Order No.
MCZ OVP CL 24VUC 1,25A	10	8448960000

End plate
AP MCZ 1.5: 8389030000

24 V
28 V
0.5 A
2.50 Ω
yes
yes
yes
500.0 kHz 240 Ω
5 kA
80 V
130 V
40 V
65 V
40 V
42 V
1 kA
D1
terminal
-40 ... 60°C
-40 ... 85°C
CE;UL listed

tension clamp connection

$$\frac{1.5 / 0.5 / 1.5}{91 \times 6 \times 63.5}$$

Refer to derating curve

Type	Qty.	Order No.
MCZ OVP SL 24VDC 0,5A	10	8448940000

End plate
AP MCZ 1.5: 8389030000

3- or 1-stage protection with
tension clamp connection

- Slimline surge protection terminal with tension clamp connection
- 6 mm slimline fine surge protection
- fast wiring thanks to TS contact and tension clamp connections
- can be cross-connected using ZQV

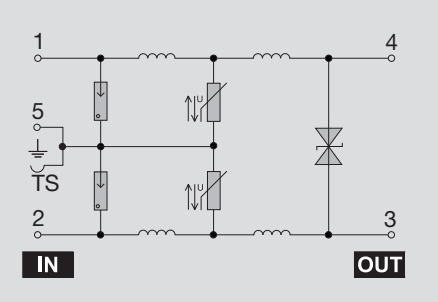
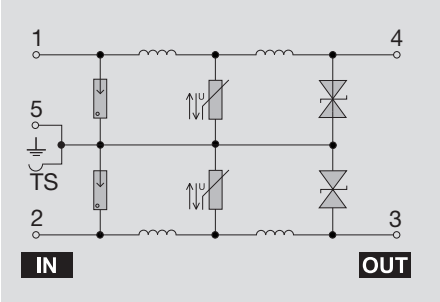
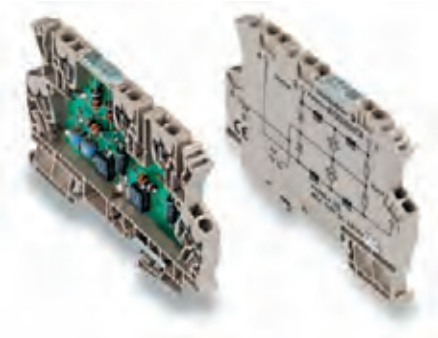
MCZ OVP SL 24 V UC 1.25 A

Protection for binary signals



MCZ OVP CL 48 V UC 0.5 A

Protection for current loops



Technical data

Technical data	
Rated voltage (AC)	24 V
Rated voltage (DC)	24 V
max. continuous voltage, U _c (AC)	28 V
Operating current, I _{max}	1.3 A
Volume resistivity	1.00 Ω
Gas discharge tube	yes
Varistor	yes
Suppression diodes	yes
Cut-off frequency (-3 dB) at load impedance	500.0 kHz 240 Ω
Discharge current, max. (8/20 μs)	5 kA
Protection level on output side sym., input 1 kV/μs, typ.	80 V
Protection level on output side sym., input 8/20 μs, typ.	130 V
Protection level on output side unsym., input 1kV/μs, typ.	40 V
Protection level on output side unsym., input 8/20 μs, typ.	65 V
Protection level on output side sym., input 10/350 μs, typ.	108 V
Protection level on output side unsym., input 10/350 μs, typ.	56 V
Lightning test voltage I imp (10/350 μs)	1 kA
Specification class to IEC 61643-21	D1
Design	terminal
Ambient temperature (operational)	-40 ... 60°C
Storage temperature	-40 ... 85°C
Approvals	CE;UL listed

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

Note

tension clamp connection	
1.5 / 0.5 / 1.5	
91 x 6 x 63.5	

Refer to derating curve

tension clamp connection	
1.5 / 0.5 / 1.5	
91 x 6 x 63.5	

Refer to derating curve

Ordering data

Version

Type	Qty.	Order No.
MCZ OVP SL 24VUC 1,25A	10	8448970000

Note

Type	Qty.	Order No.
MCZ OVP CL 48VUC 0,5A	10	8449000000

Accessories

Note

End plate AP MCZ 1.5: 8389030000

End plate AP MCZ 1.5: 8389030000

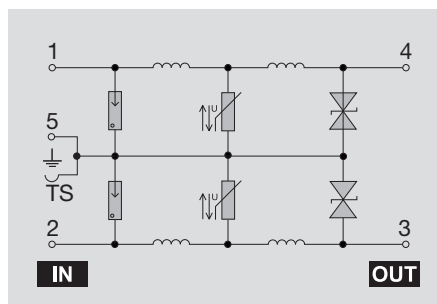
MC series

3- or 1-stage protection with tension clamp connection

- Slimline surge protection terminal with tension clamp connection
- 6 mm slimline fine surge protection
- fast wiring thanks to TS contact and tension clamp connections
- can be cross-connected using ZQV

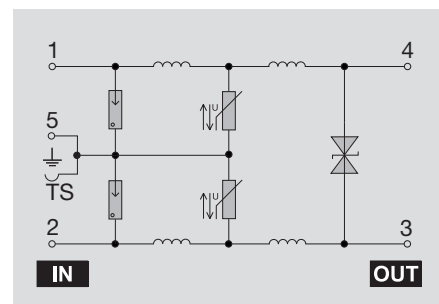
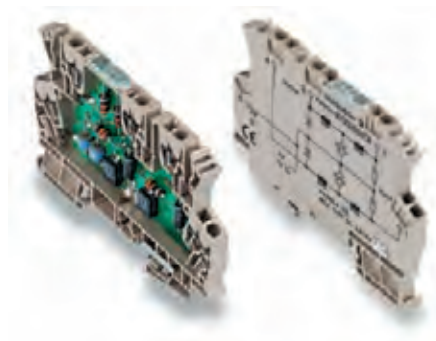
MCZ OVP SL 48 V UC 0.5 A

Protection for binary signals



MCZ OVP CL 48 V UC 1.25 A

Protection for current loops



Technical data

Technical data

Rated voltage (AC)
Rated voltage (DC)
max. continuous voltage, U_c (AC)
Operating current, I_{max}
Volume resistivity
Gas discharge tube
Varistor
Suppression diodes
Cut-off frequency (-3 dB) at load impedance
Discharge current, max. (8/20 μ s)
Protection level on output side sym., input 1 kV/ μ s, typ.
Protection level on output side sym., input 8/20 μ s, typ.
Protection level on output side unsym., input 1 kV/ μ s, typ.
Protection level on output side unsym., input 8/20 μ s, typ.
Protection level on output side sym., input 10/350 μ s, typ.
Protection level on output side unsym., input 10/350 μ s, typ.
Lightning test voltage I_{imp} (10/350 μ s)
Specification class to IEC 61643-21
Design
Ambient temperature (operational)
Storage temperature
Approvals

Dimensions

Clamping range (rating- / min. / max.)	mm ²
Length x width x height	mm

Note

Ordering data

Version

Note

Accessories

Note

48 V
48 V
53 V
0.5 A
2.50 Ω
yes
yes
yes
500.0 kHz 240 Ω
5 kA
160 V
300 V
82 V
150 V
145 V
81 V
1 kA
D1
terminal
-40 ... 60°C
-40 ... 85°C
CE:UL listed

tension clamp connection

1.5 / 0.5 / 1.5
91 x 6 x 63.5

Refer to derating curve

Type	Qty.	Order No.
MCZ OVP SL 48VUC 0,5A	10	8449030000

End plate
AP MCZ 1.5: 8389030000

48 V
48 V
53 V
1.3 A
1.00 Ω
yes
yes
yes
500.0 kHz 240 Ω
5 kA
82 V
150 V
82 V
150 V
94 V
193 V
1 kA
D1
terminal
-40 ... 60°C
-40 ... 85°C
CE:UL listed

tension clamp connection

1.5 / 0.5 / 1.5
91 x 6 x 63.5

Refer to derating curve

Type	Qty.	Order No.
MCZ OVP CL 48VUC 1,25A	10	8449040000

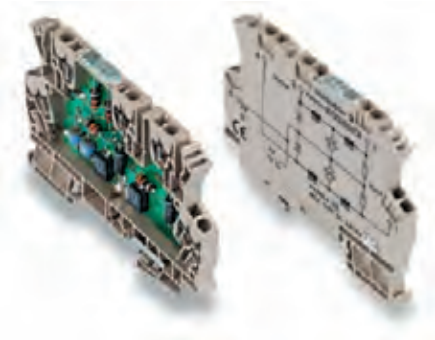
End plate
AP MCZ 1.5: 8389030000

3- or 1-stage protection with
tension clamp connection

- Slimline surge protection terminal with tension clamp connection
- 6 mm slimline fine surge protection
- fast wiring thanks to TS contact and tension clamp connections
- can be cross-connected using ZQV

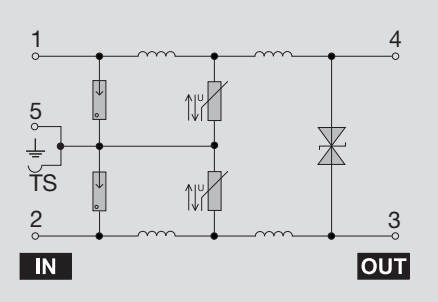
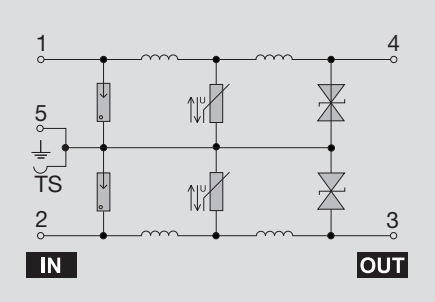
MCZ OVP SL 48 V UC 1.25 A

Protection for binary signals



MCZ OVP CL 115 V UC 1.25 A

Protection for current loops



Technical data

Technical data	
Rated voltage (AC)	48 V
Rated voltage (DC)	48 V
max. continuous voltage, U _c (AC)	53 V
Operating current, I _{max}	1.3 A
Volume resistivity	1.00 Ω
Gas discharge tube	yes
Varistor	yes
Suppression diodes	yes
Cut-off frequency (-3 dB) at load impedance	500.0 kHz 240 Ω
Discharge current, max. (8/20 μs)	5 kA
Protection level on output side sym., input 1 kV/μs, typ.	160 V
Protection level on output side sym., input 8/20 μs, typ.	300 V
Protection level on output side unsym., input 1kV/μs, typ.	80 V
Protection level on output side unsym., input 8/20 μs, typ.	150 V
Protection level on output side sym., input 10/350 μs, typ.	197 V
Protection level on output side unsym., input 10/350 μs, typ.	119 V
Lightning test voltage I imp (10/350 μs)	2.5 kA
Specification class to IEC 61643-21	D1
Design	terminal
Ambient temperature (operational)	-40 ... 60°C
Storage temperature	-40 ... 85°C
Approvals	CE;UL listed

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

Note

tension clamp connection	
1.5 / 0.5 / 1.5	
91 x 6 x 63.5	

Refer to derating curve

tension clamp connection	
1.5 / 0.5 / 1.5	
91 x 6 x 63.5	

Refer to derating curve

Ordering data

Version

Type	Qty.	Order No.
MCZ OVP SL 48VUC 1,25A	10	8449050000

Note

Type	Qty.	Order No.
MCZ OVP CL 115VUC 1,25A	10	8449060000

Accessories

Note

End plate AP MCZ 1.5: 8389030000

End plate AP MCZ 1.5: 8389030000

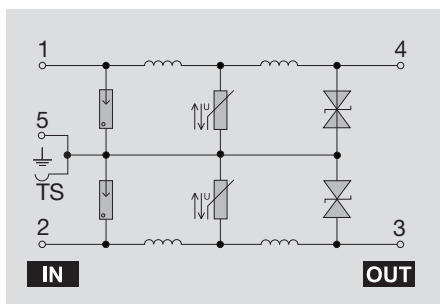
MC series

3- or 1-stage protection with tension clamp connection

- Slimline surge protection terminal with tension clamp connection
- 6 mm slimline fine surge protection
- fast wiring thanks to TS contact and tension clamp connections
- can be cross-connected using ZQV

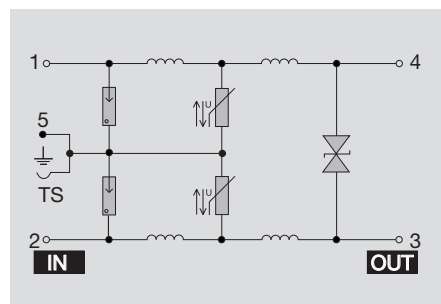
MCZ OVP SL 115 V UC 1.25 A

Protection for binary signals



MCZ OVP CL 230 V UC 1.25 A

Protection for current loops



Technical data

Technical data

Rated voltage (AC)
Rated voltage (DC)
max. continuous voltage, U_c (AC)
Operating current, I_{max}
Volume resistivity
Gas discharge tube
Varistor
Suppression diodes
Cut-off frequency (-3 dB) at load impedance
Discharge current, max. (8/20 μ s)
Protection level on output side sym., input 1 kV/ μ s, typ.
Protection level on output side sym., input 8/20 μ s, typ.
Protection level on output side unsym., input 1 kV/ μ s, typ.
Protection level on output side unsym., input 8/20 μ s, typ.
Protection level on output side sym., input 10/350 μ s, typ.
Protection level on output side unsym., input 10/350 μ s, typ.
Lightning test voltage I_{imp} (10/350 μ s)
Specification class to IEC 61643-21
Design
Ambient temperature (operational)
Storage temperature
Approvals

Dimensions

Clamping range (rating- / min. / max.)	mm ²
Length x width x height	mm

Note

Ordering data

Version

Note

Accessories

Note

115 V
115 V
127 V
1.3 A
1.00 Ω
yes
yes
yes
500.0 kHz 240 Ω
5 kA
440 V
720 V
220 V
360 V
249 V
322 V
2.5 kA
D1
terminal
-40 ... 60°C
-40 ... 85°C
CE:

tension clamp connection

1.5 / 0.5 / 1.5
91 x 6 x 63.5

Refer to derating curve

Type	Qty.	Order No.
MCZ OVP SL 115VUC 1,25A	10	8449070000

End plate
AP MCZ 1.5; 8389030000

230 V
230 V
250 V
1.3 A
1.00 Ω
yes
yes
yes
500.0 kHz 240 Ω
5 kA
420 V
710 V
420 V
710 V
497 V
945 V
0.5 kA
D1
terminal
-40 ... 60°C
-40 ... 85°C
CE:

tension clamp connection

1.5 / 0.5 / 1.5
91 x 6 x 63.5

Refer to derating curve

Type	Qty.	Order No.
MCZ OVP CL 230VUC 1,25A	10	8449080000

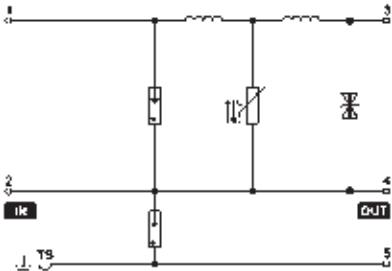
End plate
AP MCZ 1.5: 8389030000

3- or 1-stage protection with
tension clamp connection

- Slimline surge protection terminal with tension clamp connection
- 6 mm slimline fine surge protection
- fast wiring thanks to TS contact and tension clamp connections
- can be cross-connected using ZQV

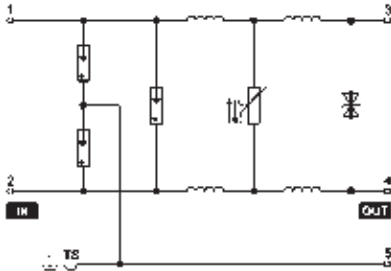
MCZ SL FG 24 V AC 0.5 A

not earthed



MCZ CL FG 24 V AC 0.5 A

not earthed



Technical data

Technical data	
Rated voltage (AC)	24 V
Rated voltage (DC)	24 V
max. continuous voltage, Uc (AC)	28 V
Operating current, I _{max}	0.5 A
Volume resistivity	1.00 Ω
Gas discharge tube	90 V / 10 kA
Varistor	30 V
Suppression diodes	
Cut-off frequency (-3 dB) at load impedance	500.0 kHz / 240 Ω
Discharge current, max. (8/20 μs)	5 kA
Protection level on output side sym., input 1 kV/μs, typ.	40 V
Protection level on output side sym., input 8/20 μs, typ.	65 V
Protection level on output side unsym., input 1kV/μs, typ.	40 V
Protection level on output side unsym., input 8/20 μs, typ.	65 V
Protection level on output side sym., input 10/350 μs, typ.	56 V
Protection level on output side unsym., input 10/350 μs, typ.	812 V
Lightning test voltage I _{imp} (10/350 μs)	1 kA
Specification class to IEC 61643-21	D1
Design	terminal
Ambient temperature (operational)	-40 ... 60°C
Storage temperature	-40 ... 85°C
Approvals	CE;UL listed

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

Ordering data

Version
Note

Accessories

Note

tension clamp connection		
1.5 / 0.5 / 1.5		
91 x 6 x 63.5		
Refer to derating curve		

Type	Qty.	Order No.
MCZ OVP SL FG 24VUC 0,5A	10	8823280000

End plate
AP MCZ 1.5: 8389030000

tension clamp connection		
1.5 / 0.5 / 1.5		
91 x 6 x 63.5		
Refer to derating curve		

Type	Qty.	Order No.
MCZ OVP CL FG 24VUC 0,5A	10	8704240000

End plate
AP MCZ 1.5: 8389030000

3- or 1-stage protection with
tension clamp connection

- Slimline surge protection terminal with tension clamp connection
- 6 mm slimline fine surge protection
- fast wiring thanks to TS contact and tension clamp connections
- can be cross-connected using ZQV

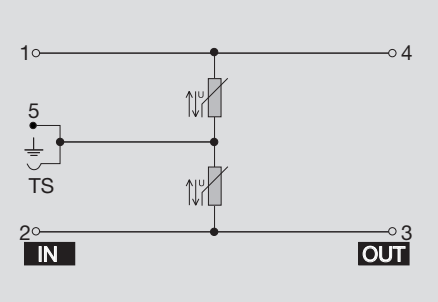
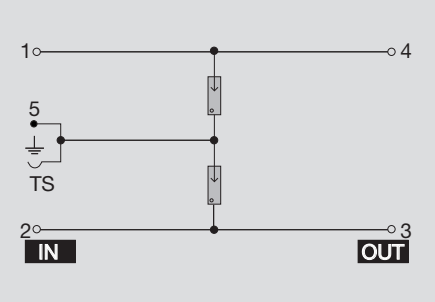
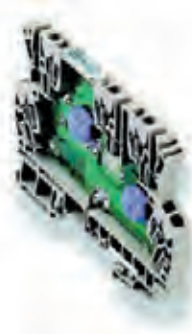
MCZ OVP 90 V

Gas discharge tube / EIB-capable



MCZ OVP S10K30

Varistor S10K30



Technical data

Technical data	
Rated voltage (AC)	50 V
Rated voltage (DC)	70 V
max. continuous voltage, U _c (AC)	72 V
Operating current, I _{max}	13 A
Volume resistivity	0.20 Ω
Gas discharge tube	90 V / 10 kA
Varistor	no
Suppression diodes	no
Cut-off frequency (-3 dB) at load impedance	
Discharge current, max. (8/20 μs)	5 kA
Protection level on output side sym., input 1 kV/μs, typ.	700 V
Protection level on output side sym., input 8/20 μs, typ.	800 V
Protection level on output side unsym., input 1kV/μs, typ.	700 V
Protection level on output side unsym., input 8/20 μs, typ.	800 V
Protection level on output side sym., input 10/350 μs, typ.	763 V
Protection level on output side unsym., input 10/350 μs, typ.	782 V
Lightning test voltage I _{imp} (10/350 μs)	1 kA
Specification class to IEC 61643-21	D1
Design	terminal
Ambient temperature (operational)	-40 ... 60 °C
Storage temperature	-40 ... 85 °C
Approvals	CE;UL listed

Dimensions	
Clamping range (rating- / min. / max.)	mm ²
Length x width x height	mm

Note

tension clamp connection	
1.5 / 0.5 / 1.5	
91 x 6 x 63.5	

Refer to derating curve

24 V
24 V
30 V
13 A
0.20 Ω
no
yes
no
125 A
45 V
55 V
45 V
55 V
263 V
136 V
0.5 kA
D1
terminal
-40 ... 60 °C
-40 ... 85 °C
CE;UL listed

tension clamp connection	
1.5 / 0.5 / 1.5	
91 x 6 x 63.5	

Refer to derating curve

Ordering data

Version

Type	Qty.	Order No.
MCZ OVP Gas charge eliminator 90V	10	8449130000

Note

Type	Qty.	Order No.
MCZ OVP VARISTOR S10K30	10	8449140000

Accessories

Note

End plate AP MCZ 1.5: 8389030000

End plate AP MCZ 1.5: 8389030000
