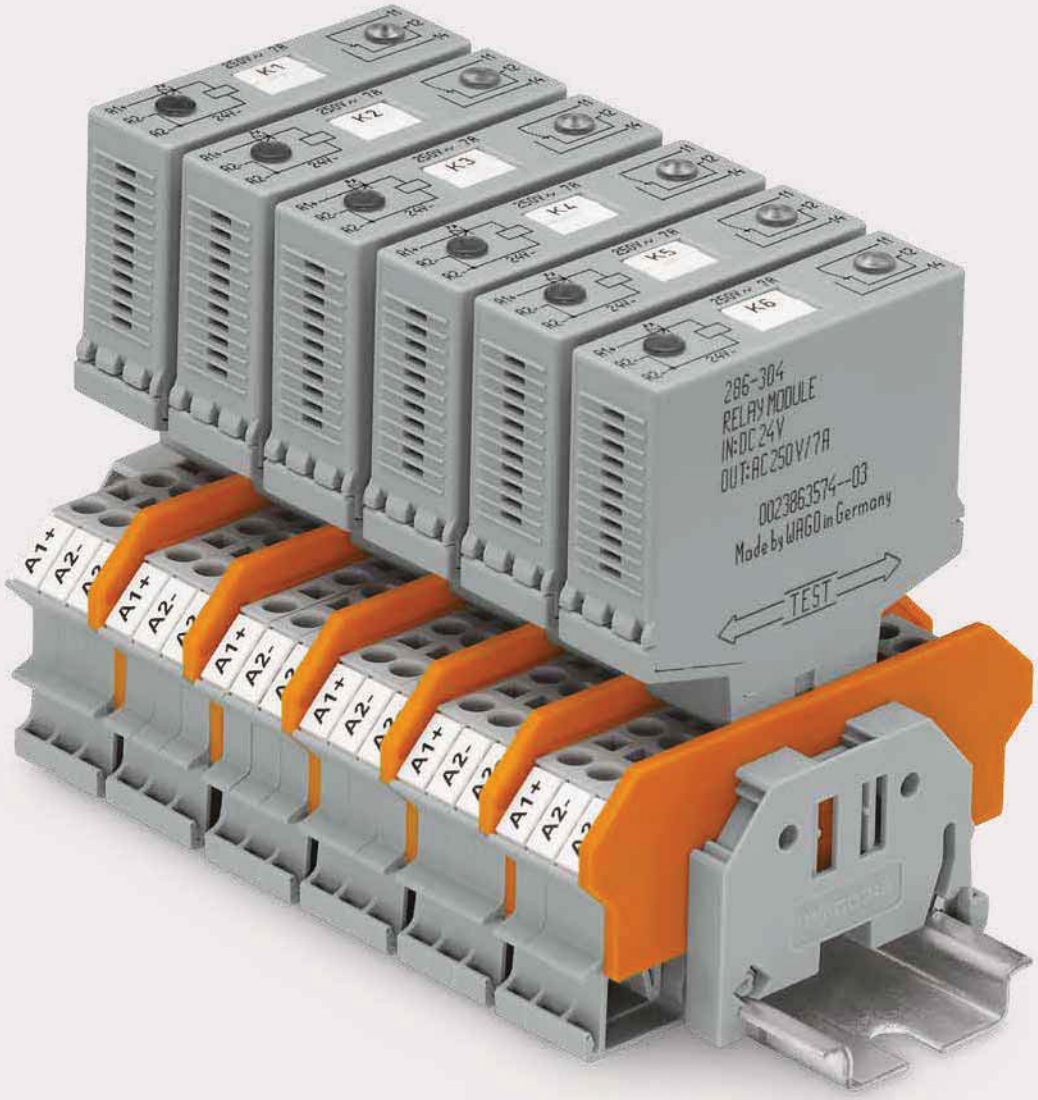
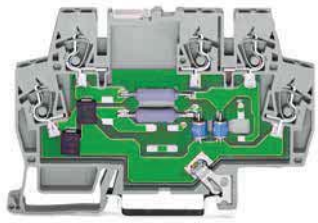


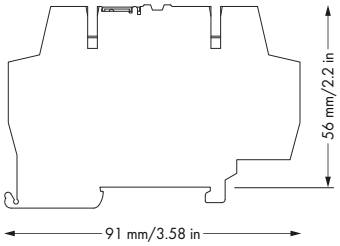
Overvoltage Protection

Overvoltage Protection

Rail-Mount Terminal Blocks with Overvoltage Protection, for DIN-35 Rails

792 Series





Short description:
Surge protection devices for IT systems and devices in the voltage range up to 60 V (except special solutions, e.g., telephone systems with call voltage)

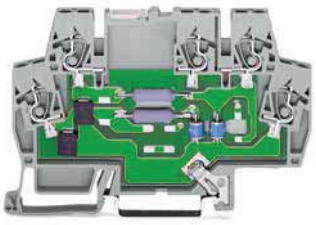
Overvoltage protection is also possible for DIN-35 rail-mount terminal blocks. Multi-stage surge suppression devices in rail-mount terminal blocks (792-80x Series) of just 6 mm width ensure cost-effective protection for control and bus technology (e.g., LON® network, PROFIBUS network, binary signals).

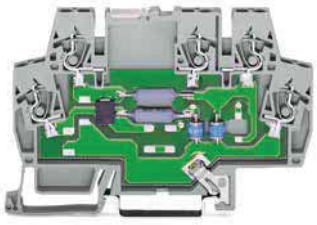
Features:
- Protect your system against overvoltage
- Slim, space-saving design
- Control operational costs by preventing expensive, unplanned downtime
- High operational reliability and system uptime

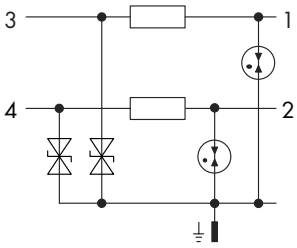
The coordination characteristics give information about the let-through energy of the overvoltage protector and the protection capacity.

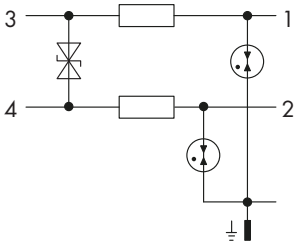
Technical Data	
Coordination characteristics	X / 1
Protection type	IP00
Degree of protection with end and intermediate plate	IP20
Operating temperature	–40 … +80 °C
Storage temperature	–40 … +80 °C
Dimensions W x H x D	6 x 56 x 91 mm, height from upper-edge of DIN-rail
Connection technology	CAGE CLAMP®
Conductor range	0.08 … 2.5 mm² / 28 … 14 AWG
Strip length	5 … 6 mm / 0.2 … 0.24 inch
Standards/approvals	IEC 61643-21

Accessories,
page 550









Surge suppression module, for signal circuits, 24 VDC nominal voltage, for two signal paths with common discharge connection, for symmetrical interfaces, 2-stage, 6 mm wide

Nominal voltage	Item No.	Pack. Unit
24 VDC	792-800	1

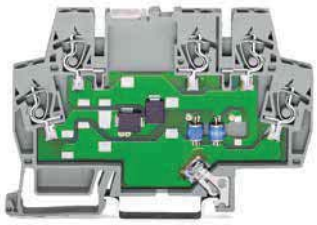
Surge suppression module, for signal circuits, 24 VDC nominal voltage, for two signal paths with common discharge connection, for asymmetrical interfaces, 2-stage, 6 mm wide

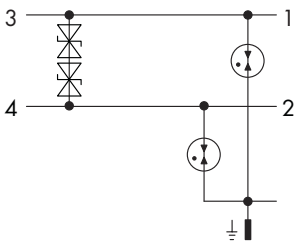
Nominal voltage	Item No.	Pack. Unit
24 VDC	792-801	1

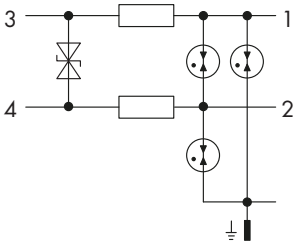
Specific Electrical Data		
Nominal voltage	24 VDC	24 VDC
Max. continuous operating voltage	33 VDC / 23 VAC	33 VDC / 23 VAC
Max. input voltage per EN 50020 Ui		
Max. input current per EN 50020 Ii		
Nominal current	0.5 A	0.5 A
Nominal discharge current I_{SN} (8/20) µs	5 kA per line; 10 kA total	5 kA per line; 10 kA total
Voltage protection level at I_N category C2	≤ 65 V (line/PG); ≤ 110 V (line/line)	≤ 50 V (line/line); ≤ 750 V (line/PG)
Voltage protection level at 1 kV/µs category C3	≤ 45 V (line/PG); ≤ 90 V (line/line)	≤ 45 V (line/line); ≤ 650 V (line/PG)
Series impedance per line	1.8 Ω	1.8 Ω
Response time t_a	≤ 1 ns	≤ 100 ns (line/PG); ≤ 1 ns (line/line)
Limiting frequency	6 MHz (line/PG)	6 MHz (line/PG)
Capacitance C	≤ 1.0 nF (line/PG); ≤ 0.5 nF (line/line)	≤ 5 pF (line/PG); ≤ 1 nF (line/line)

Rail-Mount Terminal Blocks with Overvoltage Protection, for DIN-35 Rails

792 Series







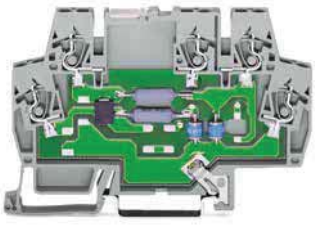
Surge suppression module, for signal circuits, 24 VDC nominal voltage, for two signal paths with common discharge connection, for supply lines, 1-stage, 6 mm wide

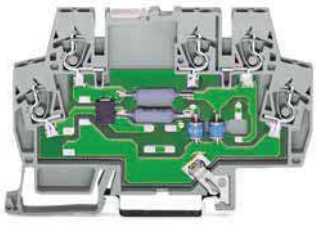
Nominal voltage	Item No.	Pack. Unit
24 VDC	792-802	1

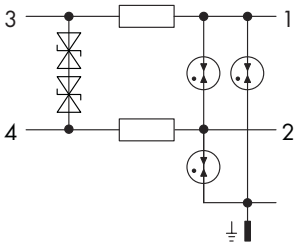
Surge suppression module, for signal circuits, 24 VDC nominal voltage, for two signal paths with common discharge connection, for symmetrical interfaces, 2-stage, for protecting intrinsically safe circuits, 6 mm wide

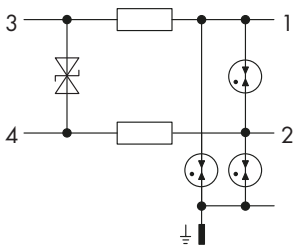
Nominal voltage	Item No.	Pack. Unit
24 VDC	792-803	1

Specific Electrical Data		
Nominal voltage	24 VDC	24 VDC
Max. continuous operating voltage	33 VDC / 23 VAC	33 VDC / 23 VAC
Max. input voltage per EN 50020 Ui		30 V
Max. input current per EN 50020 Ii		0.5 A
Nominal current	10 A	0.5 A
Nominal discharge current I_{SN} (8/20) µs	5 kA (line/PG); 300 A (line/line)	5 kA per line; 10 kA total
Voltage protection level at I_N category C2	≤ 50 V (line/line); ≤ 750 V (line/PG)	≤ 1500 V (line/PG); ≤ 50 V (line/line)
Voltage protection level at 1 kV/µs category C3	≤ 45 V (line/line); ≤ 650 V (line/PG)	≤ 1400 V (line/PG); ≤ 45 V (line/line)
Series impedance per line		1.8 Ω
Response time t_a	≤ 100 ns (line/PG); ≤ 1 ns (line/line)	≤ 100 ns (line/PG); ≤ 1 ns (line/line)
Limiting frequency	7 MHz	6 MHz
Capacitance C	≤ 12 pF (line/PG); ≤ 1 nF (line/line)	≤ 6 pF (line/PG); ≤ 1 nF (line/line)









Surge suppression module, for signal circuits, 48 VDC nominal voltage, for two signal paths with common discharge connection, for symmetrical interfaces, 2-stage, 6 mm wide

Nominal voltage	Item No.	Pack. Unit
48 VDC	792-804	1

Surge suppression module, for signal circuits, 5 VDC nominal voltage, for two signal paths with common discharge connection, for interfaces with high data rates, 2-stage, 6 mm wide

Nominal voltage	Item No.	Pack. Unit
5 VDC	792-805	1

Specific Electrical Data		
Nominal voltage	48 VDC	5 VDC
Max. continuous operating voltage	55 VDC / 38.5 VAC	6 VDC / 4.2 VAC
Max. input voltage per EN 50020 Ui		
Max. input current per EN 50020 Ii		
Nominal current	1.7 A	0.1 A
Nominal discharge current I_{SN} (8/20) µs	5 kA per line; 10 kA total	5 kA per line; 10 kA total
Voltage protection level at I_N category C2	≤ 100 V (line/line); ≤ 750 V (line/PG)	≤ 27 V (line/line); ≤ 50 V (line/PG)
Voltage protection level at 1 kV/µs category C3	≤ 70 V (line/line); ≤ 650 V (line/PG)	≤ 14 V (line/line); ≤ 14 V (line/PG)
Series impedance per line	0.4 Ω	1 Ω
Response time t_a	≤ 100 ns (line/line); ≤ 1 ns (line/PG)	≤ 1 ns
Limiting frequency	10 MHz	250 MHz / 180 MHz (line/PG)
Capacitance C	≤ 0.6 pF (line/PG); ≤ 10 pF (line/line)	≤ 16 pF (line/PG); ≤ 19 pF (line/line)

Accessories
792 Series

End and intermediate plate, 1 mm thick

Color	Item No.	Pack. Unit
gray	859-525	100 (4*25)

Push-in type jumper bar, light gray, insulated, 18 A

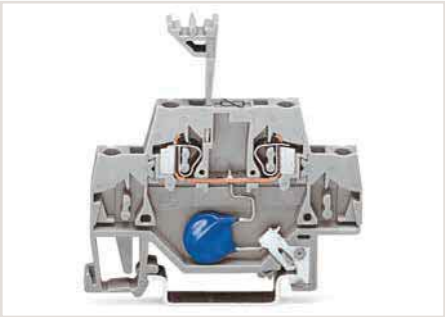
	Item No.	Pack. Unit
2-way	859-402	200 (8x25)
3-way	859-403	200 (8x25)
4-way	859-404	200 (8x25)
5-way	859-405	200 (8x25)
6-way	859-406	100 (4x25)
7-way	859-407	100 (4x25)
8-way	859-408	100 (4x25)
9-way	859-409	100 (4x25)
10-way	859-410	100 (4x25)

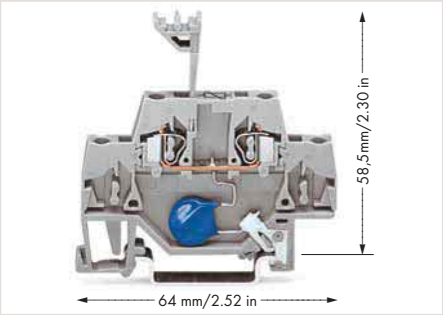
Item no. suffixes for colored push-in type jumper bars	Item No.
yellow	.../000-029
red	.../000-005
blue	.../000-006

Miniature WSB Quick marking system, 10 strips with 10 markers each, white with black printing

		Item No.	Pack. Unit
plain		248-501	5
Marking	1 ...10 (10 x)	248-502	5
	11 ... 20 (10 x)	248-503	5
	21 ... 30 (10 x)	248-504	5
	31 ... 40 (10 x)	248-505	5
	41 ... 50 (10 x)	248-506	5
	1 ... 50 (2 x)	248-566	5
	K 1 ... K 10 (10 x)	248-450	5
	K 11 ... K 20 (10 x)	248-451	5
	K 100 (10 x)	248-452	5
	U 1 ... U 10 (10 x)	248-453	5
	U 11 ... U 20 (10 x)	248-454	5
	U 100 (10 x)	248-455	5

Terminal Blocks with Surge Suppression Device and Direct Connection to the DIN-35 Rail
280 Series





General Specifications	
Connection technology	CAGE CLAMP®
Conductor range	0.08 … 2.5 mm² / 28 … 14 AWG
Strip length	8 … 9 mm / 0.31 … 0.35 inch
Terminal block width	5 mm/0.197 inch

Short description:
Terminal blocks with surge suppression device and direct connection to the DIN-35 rail; these single-stage surge suppression devices are equipped either with 280 Series gas-filled surge arrester (coarse), varistor (medium) or suppressor diode (fine).

Features:
- Protect your system against overvoltage
- Slim, space-saving design
- Control operational costs by preventing expensive, unplanned downtime
- High operational reliability and system uptime

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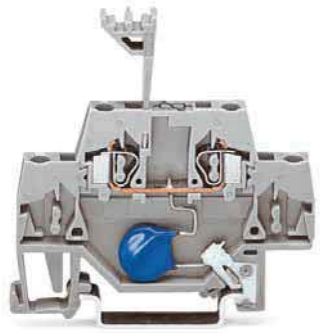
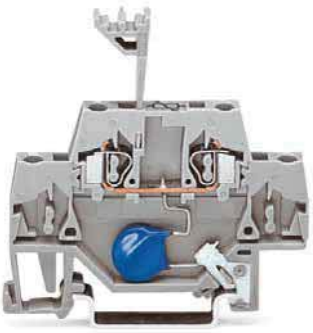
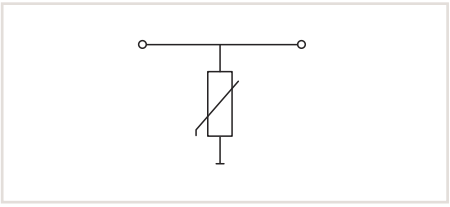
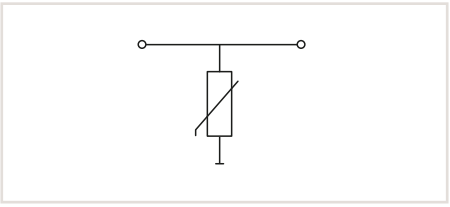
Accessories,
see page 578







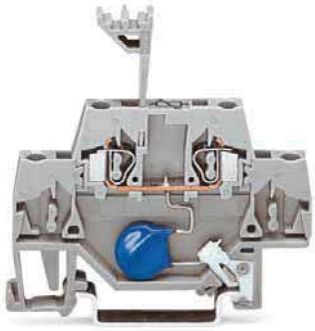


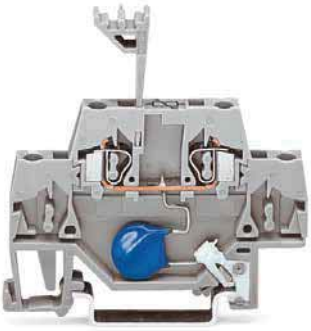
Terminal block, with varistor		
U_{BN}	Item No.	Pack. Unit
24 VDC	280-502/281-609	50

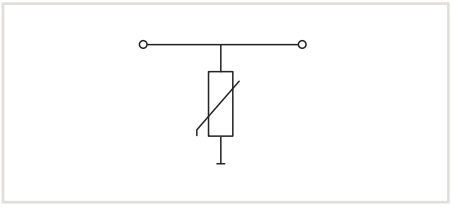
Terminal block, with varistor		
U_{BN}	Item No.	Pack. Unit
48 VDC	280-502/281-610	50

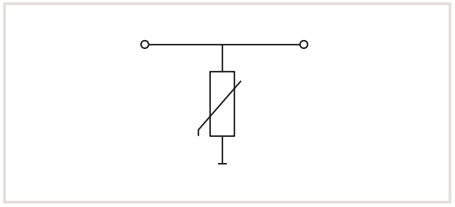
Specific Technical Data		
Nominal operating voltage U_{BN}	24 VDC	48 VDC
Maximum continuous operating voltage U_C	31 VDC	65 VDC
Nominal discharge current (8/20 µs) per line I_N	60 A	300 A
Max. discharge current (8/20 µs) I_{max}	250 A	1.2 kA
Capacitance	≤ 1.25 nF	≤ 0.5 nF
Voltage protection level (8/20 µs) U_P	77 VDC	135 VDC

Terminal Blocks with Surge Suppression Device and Direct Connection to the DIN-35 Rail
280 Series





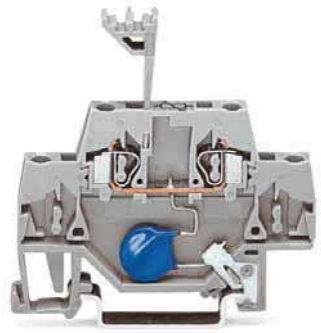


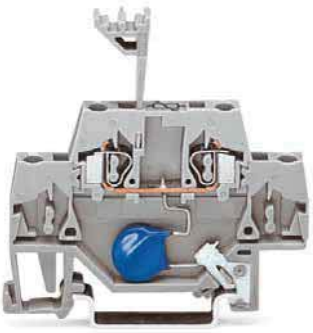


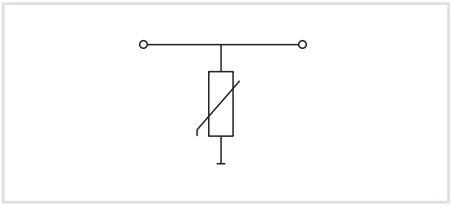
Terminal block, with varistor		
U_{BN}	**Item No.**	Pack. Unit
60 VDC	**280-502/281-611**	50

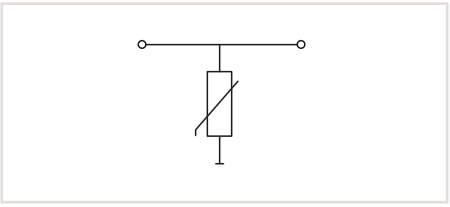
Terminal block, with varistor		
U_{BN}	**Item No.**	Pack. Unit
110 VDC	**280-502/281-612**	50

Specific Technical Data		
Nominal operating voltage U_{BN}	60 VDC	110 VDC
Maximum continuous operating voltage U_C	85 VDC	150 VDC
Nominal discharge current (8/20 µs) per line I_N	300 A	300 A
Max. discharge current (8/20 µs) I_{max}	1.2 kA	1.2 kA
Capacitance	≤ 0.48 nF	≤ 0.22 nF
Voltage protection level (8/20 µs) U_P	165 VDC	300 VAC







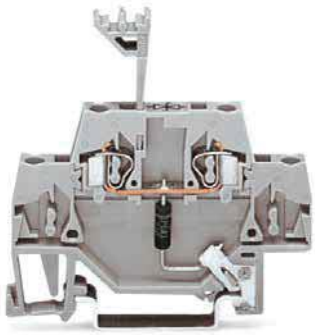


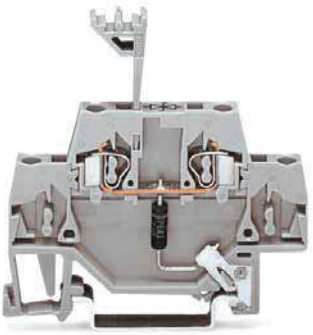
Terminal block, with varistor		
U_{BN}	Item No.	Pack. Unit
24 VAC	280-502/281-613	50

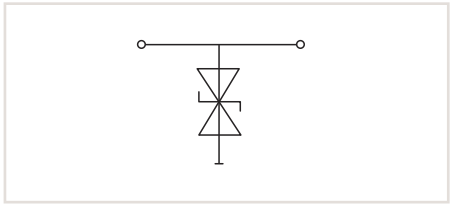
Terminal block, with varistor		
U_{BN}	Item No.	Pack. Unit
115 VAC	280-502/281-614	50

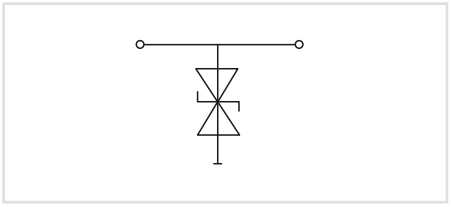
Specific Technical Data		
Nominal operating voltage U_{BN}	24 VAC	115 VAC
Maximum continuous operating voltage U_C	30 VAC	140 VAC
Nominal discharge current (8/20 µs) per line I_N	60 A	300 A
Max. discharge current (8/20 µs) I_{max}	250 A	1.2 kA
Capacitance	≤ 1.05 nF	≤ 0.18 nF
Voltage protection level (8/20 µs) U_P	93 VAC	360 VAC

Terminal Blocks with Surge Suppression Device and Direct Connection to the DIN-35 Rail
280 Series









Terminal block, with suppressor		
U_{BN}	**Item No.**	Pack. Unit
24 VDC	**280-502/281-602**	50

Terminal block, with suppressor		
U_{BN}	**Item No.**	Pack. Unit
48 VDC	**280-502/281-603**	50

Specific Technical Data		
Nominal operating voltage U_{BN}	24 VDC	48 VDC
Maximum continuous operating voltage U_C	30.8 VDC	58 VDC
Nominal discharge current (8/20 µs) per line I_N	12 A	6.5 A
Capacitance	≤ 1 nF	≤ 0.63 nF
Voltage protection level (8/20 µs) U_P	50 VDC	92 VDC

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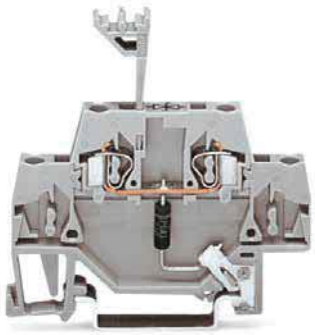
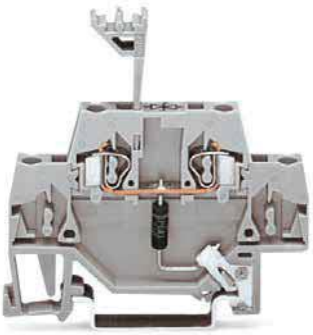
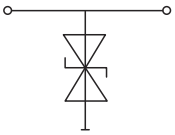
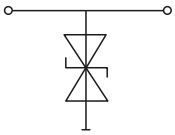






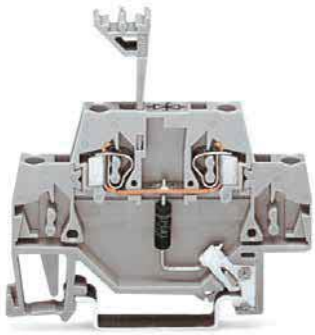


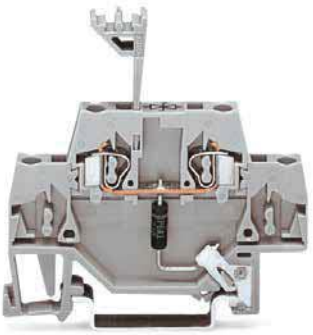
Terminal block, with suppressor		
U_{BN}	Item No.	Pack. Unit
60 VDC	280-502/281-604	50

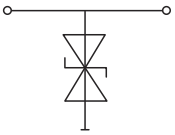
Terminal block, with suppressor		
U_{BN}	Item No.	Pack. Unit
110 VDC	280-502/281-605	50

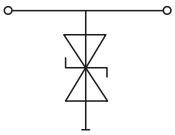
Specific Technical Data		
Nominal operating voltage U_{BN}	60 VDC	110 VDC
Maximum continuous operating voltage U_C	77 VDC	136 VDC
Nominal discharge current (8/20 µs) per line I_N	4.8 A	2.7 A
Capacitance	≤ 0.55 nF	≤ 0.4 nF
Voltage protection level (8/20 µs) U_P	125 VDC	219 VDC

Terminal Blocks with Surge Suppression Device and Direct Connection to the DIN-35 Rail
280 Series









Terminal block, with suppressor		
U_{BN}	**Item No.**	Pack. Unit
24 VAC	**280-502/281-606**	50

Terminal block, with suppressor		
U_{BN}	**Item No.**	Pack. Unit
115 VAC	**280-502/281-607**	50

Specific Technical Data		
Nominal operating voltage U_{BN}	24 VAC	115 VAC
Maximum continuous operating voltage U_C	28 VAC	133 VAC
Nominal discharge current (8/20 µs) per line I_N	9.3 A	1.7 A
Capacitance	≤ 0.8 nF	≤ 0.35 nF
Voltage protection level (8/20 µs) U_P	65 VAC	384 VAC

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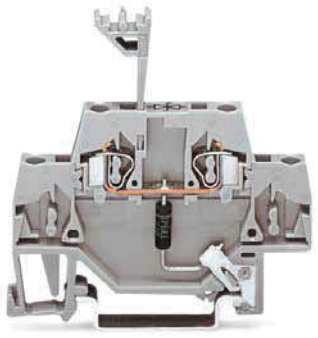
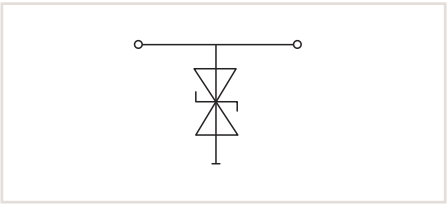
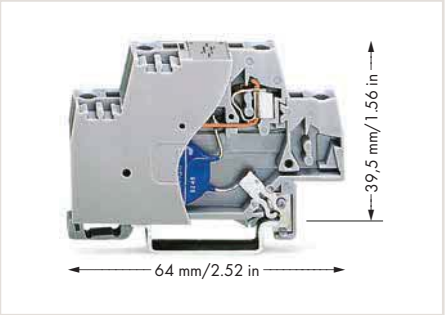




Terminal block, with suppressor		
U_{BN}	**Item No.**	Pack. Unit
230 VAC	**280-502/281-608**	50

Specific Technical Data	
Nominal operating voltage U_{BN}	230 VAC
Maximum continuous operating voltage U_C	253 VAC
Nominal discharge current (8/20 µs) per line I_N	1.1 A
Capacitance	≤ 0.36 nF
Voltage protection level (8/20 µs) U_P	548 VAC

Terminal Blocks with Surge Suppression Device and Direct Connection to the DIN-35 Rail
280 Series



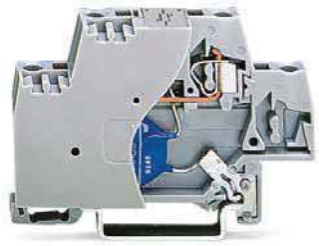
General Specifications	
Connection technology	CAGE CLAMP®
Conductor range	0.08 … 2.5 mm² / 28 … 14 AWG
Strip length	8 … 9 mm / 0.31 … 0.35 inch
Terminal block width	10 mm / 0.394 inch

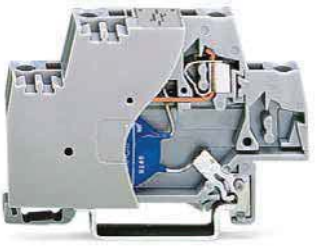
Short description:
Terminal blocks with surge suppression device and direct connection to the DIN-35 rail; these single-stage surge suppression devices are equipped either with 280 Series gas-filled surge arrester (coarse), varistor (medium) or suppressor diode (fine).

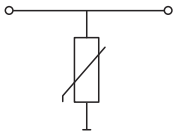
Features:
- Protect your system against overvoltage
- Slim, space-saving design
- Control operational costs by preventing expensive, unplanned downtime
- High operational reliability and system uptime

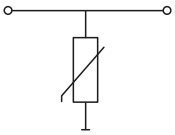
10

Accessories,
see page 578







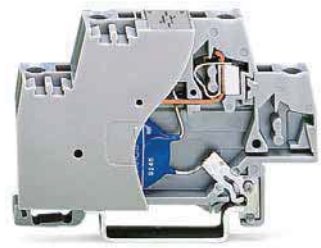


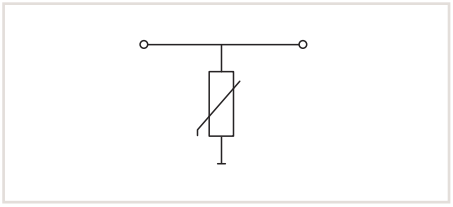
Terminal block, with varistor and end plate		
U_{BN}	Item No.	Pack. Unit
24 VDC	280-502/281-582	25

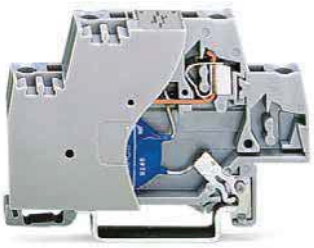
Terminal block, with varistor and end plate		
U_{BN}	Item No.	Pack. Unit
48 VDC	280-502/281-583	25

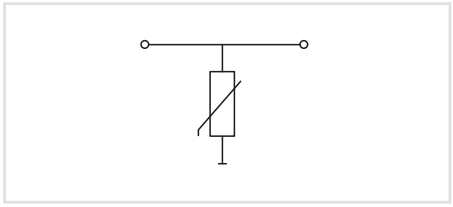
Specific Technical Data		
Nominal operating voltage U_{BN}	24 VDC	48 VDC
Maximum continuous operating voltage U_C	31 VDC	56 VDC
Nominal discharge current (8/20 µs) per line I_N	300 A	300 A
Max. discharge current (8/20 µs) I_{max}	1 kA	1 kA
Capacitance	≤ 4.6 nF	≤ 2.8 nF
Voltage protection level (8/20 µs) U_P	77 VDC	135 VDC

Terminal Blocks with Surge Suppression Device and Direct Connection to the DIN-35 Rail
280 Series





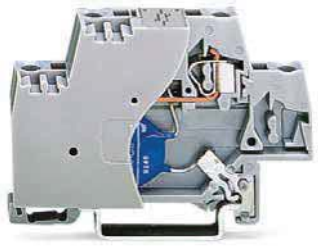


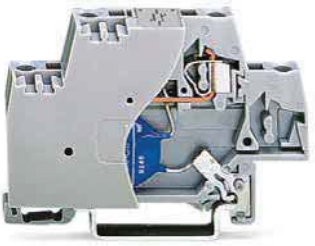


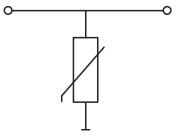
Terminal block, with varistor and end plate		
U_{BN}	**Item No.**	Pack. Unit
60 VDC	**280-502/281-584**	25

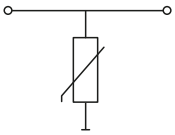
Terminal block, with varistor and end plate		
U_{BN}	**Item No.**	Pack. Unit
110 VDC	**280-502/281-585**	25

Specific Technical Data		
Nominal operating voltage U_{BN}	60 VDC	110 VDC
Maximum continuous operating voltage U_C	85 VDC	150 VDC
Nominal discharge current (8/20 µs) per line I_N	1 kA	1 kA
Max. discharge current (8/20 µs) I_{max}	4.5 kA	4.5 kA
Capacitance	≤ 1.7 nF	≤ 0.8 nF
Voltage protection level (8/20 µs) U_P	165 VDC	300 VDC







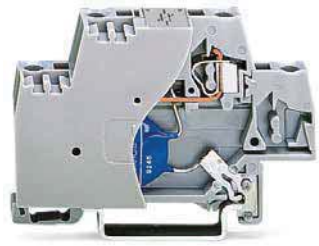


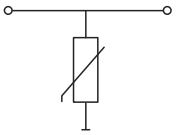
Terminal block, with varistor and end plate		
U_{BN}	Item No.	Pack. Unit
24 VAC	280-502/281-586	25

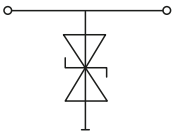
Terminal block, with varistor and end plate		
U_{BN}	Item No.	Pack. Unit
115 VAC	280-502/281-587	25

Specific Technical Data		
Nominal operating voltage U_{BN}	24 VAC	115 VAC
Maximum continuous operating voltage U_C	30 VAC	150 VAC
Nominal discharge current (8/20 µs) per line I_N	300 A	1 kA
Max. discharge current (8/20 µs) I_{max}	1 kA	4.5 kA
Capacitance	≤ 3.5 nF	≤ 0.57 nF
Voltage protection level (8/20 µs) U_P	93 VAC	395 VAC

Terminal Blocks with Surge Suppression Device and Direct Connection to the DIN-35 Rail
280 Series







Terminal block, with varistor and end plate		
U_{BN}	**Item No.**	Pack. Unit
230 VAC	**280-502/281-588**	25

Terminal block, with suppressor diode and end plate		
U_{BN}	**Item No.**	Pack. Unit
24 VDC	**280-502/281-589**	25

Specific Technical Data		
Nominal operating voltage U_{BN}	230 VAC	24 VDC
Maximum continuous operating voltage U_C	275 VAC	28 VDC
Nominal discharge current (8/20 µs) per line I_N	1 kA	169 A
Max. discharge current (8/20 µs) I_{max}	4.5 kA	
Capacitance	≤ 0.32 nF	≤ 2.7 nF
Voltage protection level (8/20 µs) U_P	710 VAC	59 VDC

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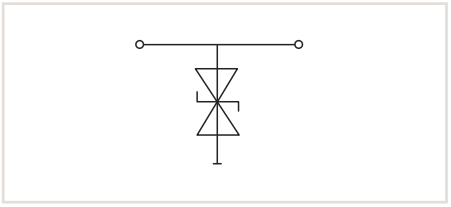
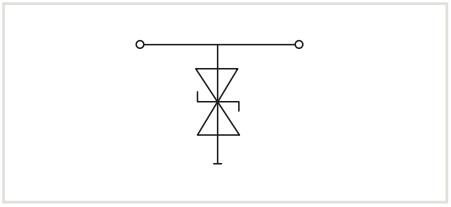


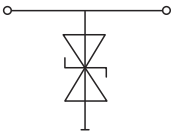


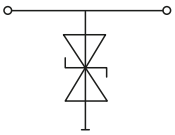
Terminal block, with suppressor diode and end plate		
U_{BN}	**Item No.**	Pack. Unit
48 VDC	**280-502/281-590**	25

Terminal block, with suppressor diode and end plate		
U_{BN}	**Item No.**	Pack. Unit
60 VDC	**280-502/281-591**	25

Specific Technical Data		
Nominal operating voltage U_{BN}	48 VDC	60 VDC
Maximum continuous operating voltage U_C	53 VDC	70 VDC
Nominal discharge current (8/20 µs) per line I_N	90 A	69 A
Max. discharge current (8/20 µs) I_{max}		
Capacitance	≤ 1.7 nF	≤ 1.35 nF
Voltage protection level (8/20 µs) U_P	111 VDC	146 VDC

Terminal Blocks with Surge Suppression Device and Direct Connection to the DIN-35 Rail
280 Series

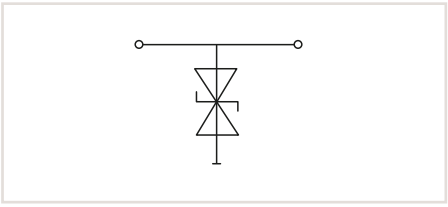


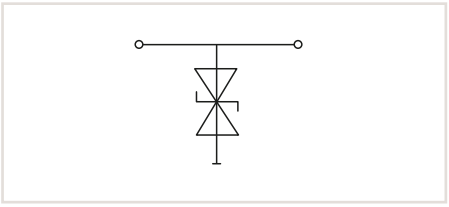


Terminal block, with suppressor diode and end plate		
U_{BN}	**Item No.**	Pack. Unit
110 VDC	**280-502/281-592**	25

Terminal block, with suppressor diode and end plate		
U_{BN}	**Item No.**	Pack. Unit
24 VAC	**280-502/281-593**	25

Specific Technical Data		
Nominal operating voltage U_{BN}	110 VDC	24 VAC
Maximum continuous operating voltage U_C	128 VDC	26 VAC
Nominal discharge current (8/20 µs) per line I_N	38 A	143 A
Capacitance	≤ 0.85 nF	≤ 2.4 nF
Voltage protection level (8/20 µs) U_P	265 VDC	70 VAC



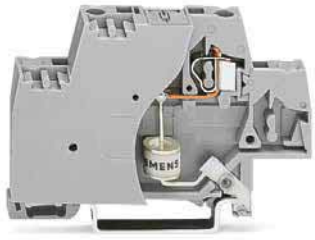


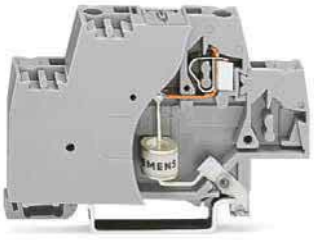
Terminal block, with suppressor diode and end plate		
U_{BN}	Item No.	Pack. Unit
115 VAC	280-502/281-594	25

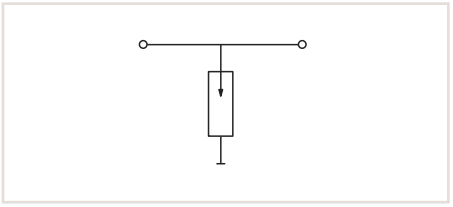
Terminal block, with suppressor diode and end plate		
U_{BN}	Item No.	Pack. Unit
230 VAC	280-502/281-595	25

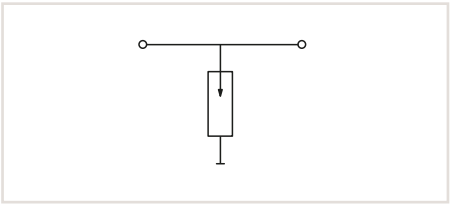
Specific Technical Data		
Nominal operating voltage U_{BN}	115 VAC	230 VAC
Maximum continuous operating voltage U_C	133 VAC	253 VAC
Nominal discharge current (8/20 µs) per line I_N	26 A	14 A
Capacitance	≤ 0.63 nF	≤ 0.4 nF
Voltage protection level (8/20 µs) U_P	388 VAC	706 VAC

Terminal Blocks with Surge Suppression Device and Direct Connection to the DIN-35 Rail
280 Series





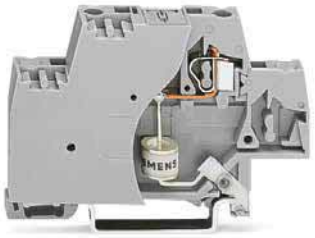


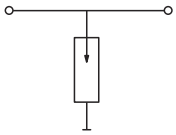


Terminal block, with gas-filled surge arrester		
U_{BN}	**Item No.**	Pack. Unit
24 VAC/DC	**280-503/281-579**	25

Terminal block, with gas-filled surge arrester		
U_{BN}	**Item No.**	Pack. Unit
115 VAC/DC	**280-503/281-580**	25

Specific Technical Data		
Maximum continuous operating voltage U_C	70 VAC/90 VDC	180 VAC/230 VDC
Nominal discharge current (8/20 µs) per line I_N	5 kA	5 kA
Capacitance	≤ 2 pF	≤ 2 pF
Voltage protection level (8/20 µs) U_P	600 VAC	650 VAC

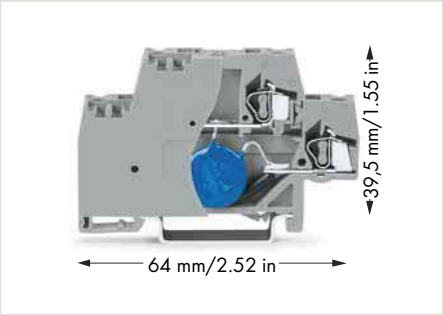




Terminal block, with gas-filled surge arrester		
U_{BN}	**Item No.**	Pack. Unit
230 VAC/DC	**280-503/281-581**	25

Specific Technical Data	
Maximum continuous operating voltage U_C	450 VAC/600 VDC
Nominal discharge current (8/20 µs) per line I_N	5 kA
Capacitance	≤ 2 pF
Voltage protection level (8/20 µs) U_P	1100 VAC

Double-Deck Terminal Blocks with a Surge Suppression Device
280 Series



General Specifications	
Connection technology	CAGE CLAMP®
Conductor range	0.08 … 2.5 mm² / 28 … 14 AWG
Strip length	8 … 9 mm / 0.31 … 0.35 inch
Terminal block width	10 mm / 0.394 inch

Short description:
These single-stage surge suppression devices are equipped either with 280 Series gas-filled surge arrester (coarse), varistor (medium) or suppressor diode (fine).

Features:
- Protect your system against overvoltage
- Slim, space-saving design
- Control operational costs by preventing expensive, unplanned downtime
- High operational reliability and system uptime

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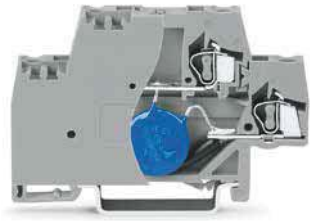
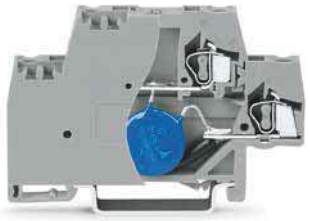
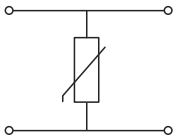
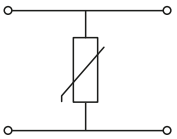
Accessories,
see page 578







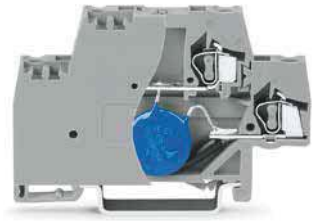


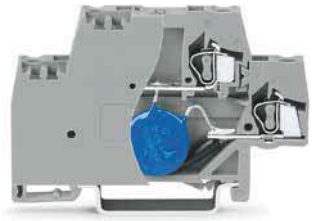
Terminal block, with varistor and end plate		
U_{BN}	Item No.	Pack. Unit
24 VDC	280-504/281-582	25

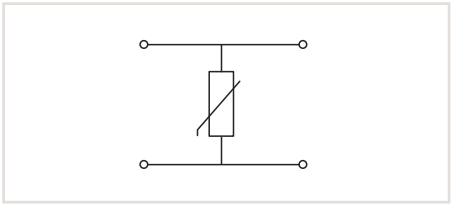
Terminal block, with varistor and end plate		
U_{BN}	Item No.	Pack. Unit
48 VDC	280-504/281-583	25

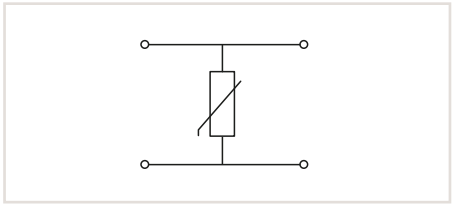
Specific Technical Data		
Nominal operating voltage U_{BN}	24 VDC	48 VDC
Maximum continuous operating voltage U_C	31 VDC	56 VDC
Nominal discharge current (8/20 µs) per line I_N	300 A	300 A
Max. discharge current (8/20 µs) I_{max}	1 kA	1 kA
Capacitance	≤ 4.6 nF	≤ 2.8 nF
Voltage protection level (8/20 µs) U_P	77 VDC	135 VDC

Double-Deck Terminal Blocks with a Surge Suppression Device
280 Series





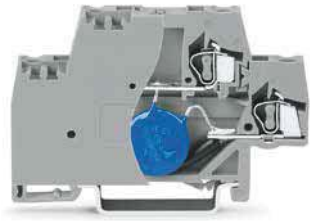


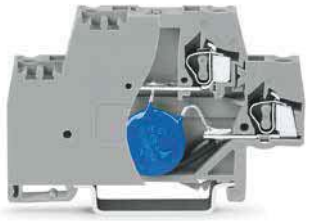


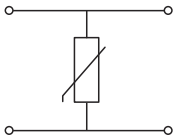
Terminal block, with varistor and end plate		
U_{BN}	**Item No.**	Pack. Unit
60 VDC	**280-504/281-584**	25

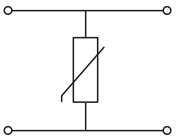
Terminal block, with varistor and end plate		
U_{BN}	**Item No.**	Pack. Unit
110 VDC	**280-504/281-585**	25

Specific Technical Data		
Nominal operating voltage U_{BN}	60 VDC	110 VDC
Maximum continuous operating voltage U_C	85 VDC	150 VDC
Nominal discharge current (8/20 µs) per line I_N	1 kA	1 kA
Max. discharge current (8/20 µs) I_{max}	4.5 kA	4.5 kA
Capacitance	≤ 1.7 nF	≤ 0.8 nF
Voltage protection level (8/20 µs) U_P	165 VDC	300 VDC







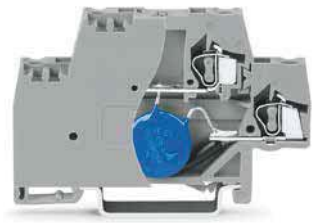


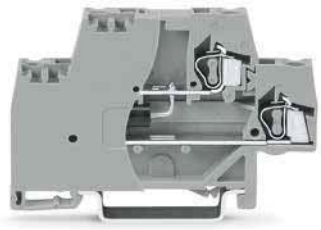
Terminal block, with varistor and end plate		
U_{BN}	Item No.	Pack. Unit
24 VAC	280-504/281-586	25

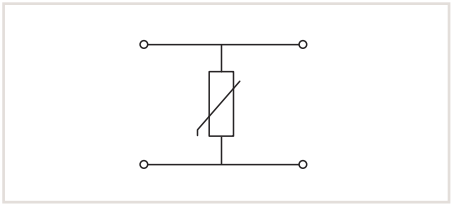
Terminal block, with varistor and end plate		
U_{BN}	Item No.	Pack. Unit
115 VAC	280-504/281-587	25

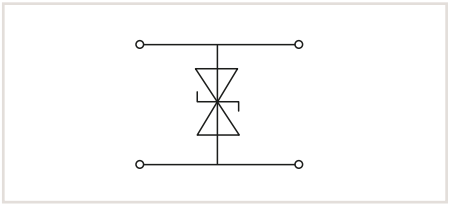
Specific Technical Data		
Nominal operating voltage U_{BN}	24 VAC	115 VAC
Maximum continuous operating voltage U_C	30 VAC	150 VAC
Nominal discharge current (8/20 µs) per line I_N	300 A	1 kA
Max. discharge current (8/20 µs) I_{max}	1 kA	4.5 kA
Capacitance	≤ 3.5 nF	≤ 0.57 nF
Voltage protection level (8/20 µs) U_P	93 VAC	395 VAC

Double-Deck Terminal Blocks with a Surge Suppression Device
280 Series





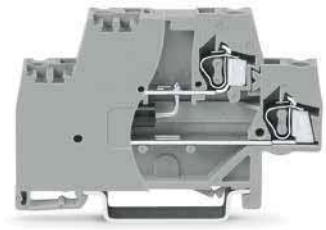


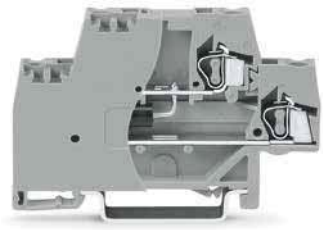


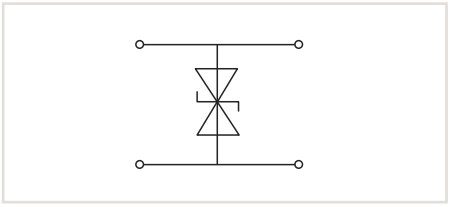
Terminal block, with varistor and end plate		
U_{BN}	**Item No.**	Pack. Unit
230 VAC	**280-504/281-588**	25

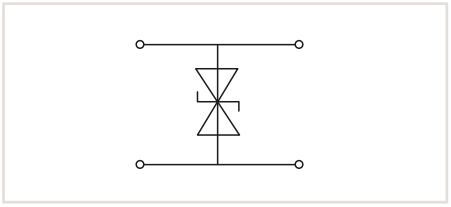
Terminal block, with suppressor diode and end plate		
U_{BN}	**Item No.**	Pack. Unit
24 VDC	**280-944/281-589**	25

Specific Technical Data		
Nominal operating voltage U_{BN}	230 VAC	24 VDC
Maximum continuous operating voltage U_C	275 VAC	28 VDC
Nominal discharge current (8/20 µs) per line I_N	1 kA	169 A
Max. discharge current (8/20 µs) I_{max}	4.5 kA	
Capacitance	≤ 0.32 nF	≤ 2.7 nF
Voltage protection level (8/20 µs) U_P	710 VAC	59 VDC







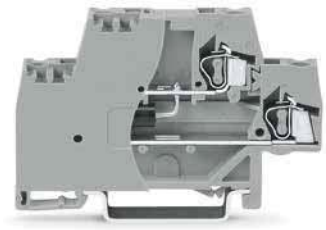


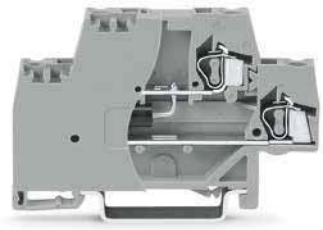
Terminal block, with suppressor diode and end plate		
U_{BN}	**Item No.**	Pack. Unit
48 VDC	**280-944/281-590**	25

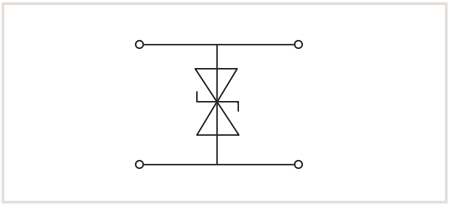
Terminal block, with suppressor diode and end plate		
U_{BN}	**Item No.**	Pack. Unit
60 VDC	**280-944/281-591**	25

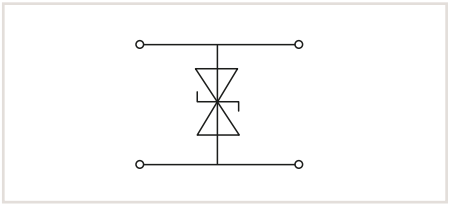
Specific Technical Data		
Nominal operating voltage U_{BN}	48 VDC	60 VDC
Maximum continuous operating voltage U_C	53 VDC	70 VDC
Nominal discharge current (8/20 µs) per line I_N	90 A	69 A
Max. discharge current (8/20 µs) I_{max}		
Capacitance	≤ 1.7 nF	≤ 1.35 nF
Voltage protection level (8/20 µs) U_P	111 VDC	146 VDC

Double-Deck Terminal Blocks with a Surge Suppression Device
280 Series





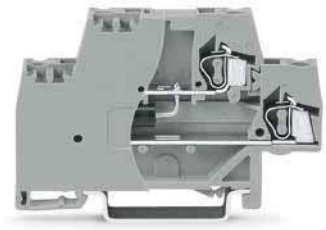


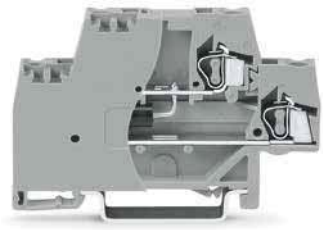


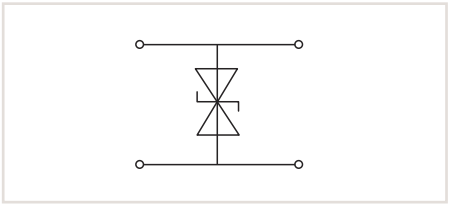
Terminal block, with suppressor diode and end plate		
U_{BN}	**Item No.**	Pack. Unit
110 VDC	**280-944/281-592**	25

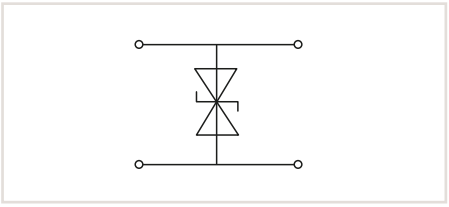
Terminal block, with suppressor diode and end plate		
U_{BN}	**Item No.**	Pack. Unit
24 VAC	**280-944/281-593**	25

Specific Technical Data		
Nominal operating voltage U_{BN}	110 VDC	24 VAC
Maximum continuous operating voltage U_C	128 VDC	26 VAC
Nominal discharge current (8/20 µs) per line I_N	38 A	143 A
Max. discharge current (8/20 µs) I_{max}		
Capacitance	≤ 0.85 nF	≤ 2.4 nF
Voltage protection level (8/20 µs) U_P	265 VDC	70 VAC









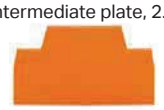
Terminal block, with suppressor diode and end plate		
U_{BN}	Item No.	Pack. Unit
115 VAC	280-944/281-594	25

Terminal block, with suppressor diode and end plate		
U_{BN}	Item No.	Pack. Unit
230 VAC	280-944/281-595	25

Specific Technical Data		
Nominal operating voltage U_{BN}	115 VAC	230 VAC
Maximum continuous operating voltage U_C	133 VAC	253 VAC
Nominal discharge current (8/20 µs) per line I_N	26 A	14 A
Max. discharge current (8/20 µs) I_{max}		
Capacitance	≤ 0.63 nF	≤ 0.4 nF
Voltage protection level (8/20 µs) U_P	388 VAC	706 VAC

Accessories
280 Series

End and intermediate plate, 2.5 mm thick



Color	Item No.	Pack. Unit
orange	280-341	100 (4x25)
gray	280-340	100 (4x25)

Insulation stop, 5 pcs/strip

Color	Diameter	Item No.	Pack. Unit
white	0.08 … 0.2 mm² “s” (0.14 mm² “f-st”)	280-470	200 (8x25)
light gray	0.25 … 0.5 mm²	280-471	200 (8x25)
dark gray	0.75 … 1 mm²	280-472	200 (8x25)

Comb-style jumper bar, insulated, $I_N = I_N$ of terminal block

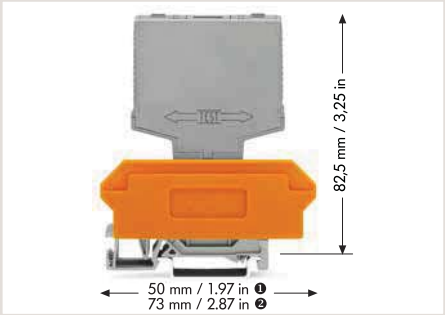
	Item No.	Pack. Unit
2-way	280-482	200 (8x25)
3-way	280-483	200 (8x25)
10-way	280-490	50 (2x25)

Alternate comb-style jumper bar, insulated, $I_N = I_N$ of terminal block

	Item No.	Pack. Unit
2-way	280-492	200 (8x25)

Pluggable Surge Suppression Modules for Carrier Terminal Blocks

286 Series

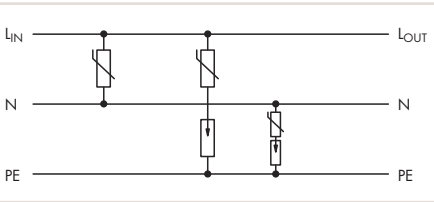


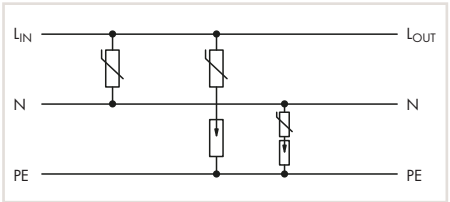
General Specifications	
Nominal current	10 A
Response time between L/N and PE	1 µs
Response time between L and N	25 ns
Rated nominal voltage	250 V
Rated surge voltage	4 kV
Pollution degree	2
Permissible ambient operating temperature	–25 … +85 °C
Dimensions (mm) W x H x D incl. terminal block for pluggable modules	17 x 82.5 x 73 mm
Module width	15 mm / 0.591 inch

Short description:
Two- and three-stage pluggable surge suppression modules (286 Series) for data, measurement, control, or power circuits are also available.

Features:
- Protect your system against overvoltage
- Slim, space-saving design
- Control operational costs by preventing expensive, unplanned downtime
- High operational reliability and system uptime

Note:
For isolation measurement, the ground contact at the transient suppression module must be disconnected.





Surge suppression module, for signal circuits, 24 VAC/DC nominal voltage, for two signal paths with common discharge connection, pluggable on rail-mounted terminal block, 15 mm wide

U_{BN}	Item No.	Pack. Unit
24 VAC/DC	286-836	1

Surge suppression module, for signal circuits, 115 VAC nominal voltage, for two signal paths with common discharge connection, pluggable on rail-mount terminal block, 15 mm wide

U_{BN}	U_{max}	Item No.	Pack. Unit
115 VAC	150 VAC	286-835/115-000	1

Specific Technical Data

Nominal operating voltage U_{BN}	24 VAC/DC	115 VAC
Operating voltage U_{max}	35 VAC/45 VDC	150 VAC
Nominal discharge current between L/N and PE	300 A	1 kA
Nominal discharge current between L and N	300 A	1 kA
Max. surge current between L/N and PE	1 kA	4.5 kA
Max. surge current between L and N	1 kA	4.5 kA
Protection level between L/N and PE	700 V	1 kV
Protection level between L and N	100 V	400 V

Accessories

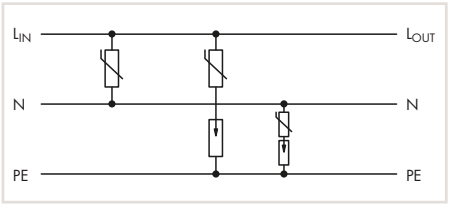
WMB marker card,
10 strips with 10 markers per card

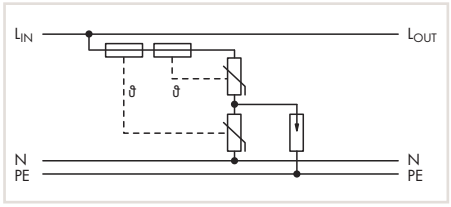
Marking	Item No.	Pack. Unit
F	209-791	5
1 … 10	209-702	5
Lin, N, PE Lout, N, PE, Lin, N, PE	249-655	5

Marking	Item No.	Pack. Unit
F	209-791	5
1 … 10	209-702	5
Lin, N, PE Lout, N, PE, Lin, N, PE	249-655	5

Pluggable Surge Suppression Modules for Carrier Terminal Blocks

286 Series





Surge suppression module, for signal circuits, 230 VAC nominal voltage, for two signal paths with common discharge connection, pluggable on rail-mount terminal block, 15 mm wide

U_{BN}	U_{max}	Item No.	Pack. Unit
230 VAC	275 VAC	286-835	1

Surge suppression module, for signal circuits, 115 VAC nominal voltage, for two signal paths with common discharge connection, with optical indication, 15 mm wide

U_{BN}	Item No.	Pack. Unit
115 VAC	286-838/115-000	1

Specific Technical Data

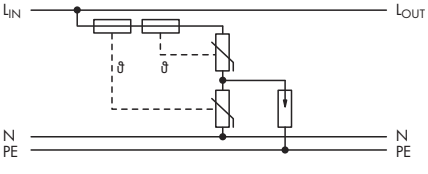
Nominal operating voltage U_{BN}	230 VAC	115 VAC
Operating voltage U_{max}	275 VAC	150 VAC
Nominal discharge current between L/N and PE	1 kA	1 kA
Nominal discharge current between L and N	1 kA	1 kA
Max. surge current between L/N and PE	4.5 kA	2.5 kA
Max. surge current between L and N	4.5 kA	2.5 kA
Protection level between L/N and PE	1.3 kV	800 V
Protection level between L and N	700 V	400 V

Accessories

WMB marker card,
10 strips with 10 markers per card

Marking	Item No.	Pack. Unit
F	209-791	5
1 … 10	209-702	5
Lin, N, PE Lout, N, PE, Lin, N, PE	249-655	5

Marking	Item No.	Pack. Unit
F	209-791	5
1 … 10	209-702	5
Lin, N, PE Lout, N, PE, Lin, N, PE	249-655	5



Surge suppression module, for signal circuits, 230 VAC nominal voltage, for two signal paths with common discharge connection, with optical indication, pluggable on rail-mount terminal block, 15 mm wide

U_{BN}	Item No.	Pack. Unit
230 VAC	286-838	1

Specific Technical Data

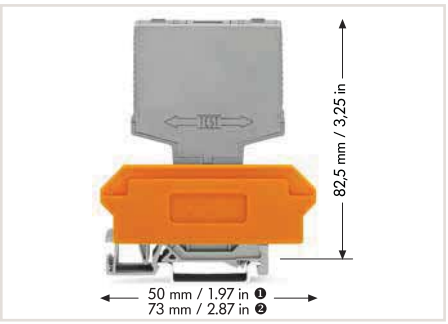
Nominal operating voltage U_{BN}	230 VAC
Operating voltage U_{max}	300 VAC
Nominal discharge current between L/N and PE	1 kA
Nominal discharge current between L and N	1 kA
Max. surge current between L/N and PE	2.5 kA
Max. surge current between L and N	2.5 kA
Protection level between L/N and PE	1 kV
Protection level between L and N	800 V

Accessories

WMB marker card,
10 strips with 10 markers per card

Marking	Item No.	Pack. Unit
F	209-791	5
1 … 10	209-702	5
Lin, N, PE Lout, N, PE, Lin, N, PE	249-655	5

Pluggable Surge Suppression Modules for Carrier Terminal Blocks
286 Series



General Specifications	
Permissible ambient operating temperature	–25 … +85 °C
Dimensions (mm) W x H x D	Module width* x 50 x 51

*Type-dependent

Short description:
Two- and three-stage pluggable surge suppression modules (286 Series) for data, measurement, control, or power circuits are also available.

Features:
- Protect your system against overvoltage
- Slim, space-saving design
- Control operational costs by preventing expensive, unplanned downtime
- High operational reliability and system uptime

Note:
For isolation measurement, the ground contact at the transient suppression module must be disconnected.

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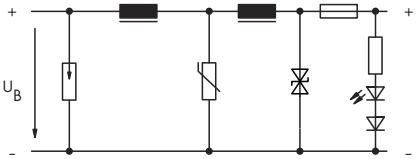


Surge suppression module, for signal circuits, 24 VDC nominal voltage, for one signal path, plugged on rail-mount terminal block, 20 mm wide

U_{BN}	Item No.	Pack. Unit
24 VDC	286-833	1

Specific Technical Data

Nominal operating voltage U_{BN}	24 VDC
Operating voltage U_{max}	30 VDC
Nominal current	0.1 A
Nominal voltage per EN 60664-1	
Nominal discharge current between L/N and PE	
Nominal discharge current between L and N	5 kA
Max. surge current between L/N and PE	
Max. surge current between L and N	5 kA
Protection level between L/N and PE	
Protection level between L and N	≤ 59 V
Response time between L/N and PE	
Response time between L and N	≤ 10 ns
Contact resistance/inductivity	20 mΩ / 2 x 7 µH

10

Accessories

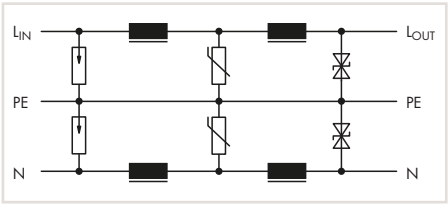
WMB marker card,
10 strips with 10 markers per card

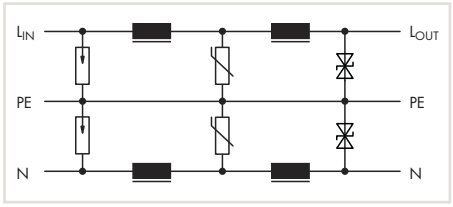
Marking	Item No.	Pack. Unit
F	209-791	5
1 … 10	209-702	5
+/-	209-652	5
Lin, PE, PE, N, Lout, PE, PE, N	249-652	5

Terminal block for pluggable modules	Width	Item No.	Pack. Unit
with 2-conductor terminals blocks, orange separator ❶	22 mm	280-638	1
with 4-conductor terminals blocks, orange separator ❷	22 mm	280-628	1
with 4-conductor terminals blocks, marker plate ❷	25 mm	280-764	1
Conductor range: 0.08 … 2.5 mm² / 28 … 14 AWG; Strip length: 8 … 9 mm / 0.31 … 0.35 inch			

Pluggable Surge Suppression Modules for Carrier Terminal Blocks

286 Series





Surge suppression module, for signal circuits, 12 VDC nominal voltage, for two signal paths with common discharge connection, 20 mm wide

U_{BN}	Item No.	Pack. Unit
12 VDC	286-834	1

Surge suppression module, for signal circuits, 24 VDC nominal voltage, for two signal paths with common discharge connection, plugged on rail-mount terminal block, 20 mm wide

U_{BN}	Item No.	Pack. Unit
24 VDC	286-834/024-000	1

Specific Technical Data

Nominal operating voltage U_{BN}	12 VDC	24 VDC
Operating voltage U_{max}	14 VDC	30 VDC
Nominal current	6 A	6 A
Nominal voltage per EN 60664-1		
Nominal discharge current between L/N and PE	1.5 kA	1.5 kA
Nominal discharge current between L and N		
Max. surge current between L and N		
Max. surge current between L/N and PE	1.5 kA	1.5 kA
Protection level between L and N		
Protection level between L/N and PE	≤ 22 V	≤ 59 V
Response time between L/N and PE	≤ 10 ns	≤ 10 ns
Response time between L and N		
Contact resistance/inductivity	50 mΩ / 14 µH	50 mΩ / 14 µH

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Accessories

WMB marker card, 10 strips with 10 markers per card

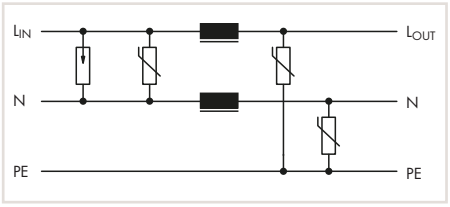
Marking	Item No.	Pack. Unit
F	209-791	5
1 … 10	209-702	5
+/-	209-652	5
Lin, PE, PE, N, Lout, PE, PE, N	249-652	5

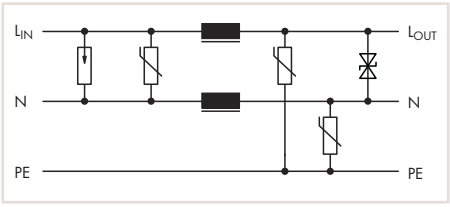
Marking	Item No.	Pack. Unit
F	209-791	5
1 … 10	209-702	5
+/-	209-652	5
Lin, PE, PE, N, Lout, PE, PE, N	249-652	5

Terminal block for pluggable modules

	Width	Item No.	Pack. Unit
with 2-conductor terminals blocks, orange separator ❶	22 mm	280-638	1
with 4-conductor terminals blocks, orange separator ❷	22 mm	280-628	1
with 4-conductor terminals blocks, marker plate ❷	25 mm	280-764	1
Conductor range: 0.08 … 2.5 mm² / 28 … 14 AWG; Strip length: 8 … 9 mm / 0.31 … 0.35 inch			

	Width	Item No.	Pack. Unit
with 2-conductor terminals blocks, orange separator ❶	22 mm	280-638	1
with 4-conductor terminals blocks, orange separator ❷	22 mm	280-628	1
with 4-conductor terminals blocks, marker plate ❷	25 mm	280-764	1
Conductor range: 0.08 … 2.5 mm² / 28 … 14 AWG; Strip length: 8 … 9 mm / 0.31 … 0.35 inch			





Surge suppression module, for signal circuits, 24 VAC/DC nominal voltage, for two signal paths with common discharge connection, plugged on rail-mount terminal block, 20 mm wide

U_{BN}	Item No.	Pack. Unit
24 VAC/DC	286-831	1

Surge suppression module, for signal circuits, 24 VAC/DC nominal voltage, for two signal paths with common discharge connection, plugged on rail-mount terminal block, 20 mm wide

U_{BN}	Item No.	Pack. Unit
24 VAC/DC	286-832	1

Specific Technical Data

Nominal operating voltage U_{BN}	24 VAC/DC	24 VAC/DC
Operating voltage U_{max}	30 VAC / 38 VDC	30 VAC / 38 VDC
Nominal current	6 A	6 A
Rated nominal voltage	250 V	250 V
Rated surge voltage	4 kV	4 kV
Pollution degree	2	2
Nominal discharge current between L/N and PE	200 A	200 A
Nominal discharge current between L and N	1.5 kA	1.5 kA
Max. surge current between L and N	1.5 kA	1.5 kA
Max. surge current between L/N and PE	500 A	500 A
Protection level between L/N and PE	≤ 93 V	≤ 93 V
Protection level between L and N	≤ 93 V	≤ 59 V
Response time between L/N and PE	≤ 25 ns	≤ 25 ns
Response time between L and N	≤ 25 ns	≤ 5 ns
Contact resistance/inductivity	25 mΩ / 2 x 7 µH	25 mΩ / 2 x 7 µH

Accessories

WMB marker card, 10 strips with 10 markers per card

Marking	Item No.	Pack. Unit
F	209-791	5
1 … 10	209-702	5
PE, N, Lin, PE, N, Lout	209-911	5

Marking	Item No.	Pack. Unit
F	209-791	5
1 … 10	209-702	5
PE, N, Lin, PE, N, Lout	209-911	5

Terminal block for pluggable modules*

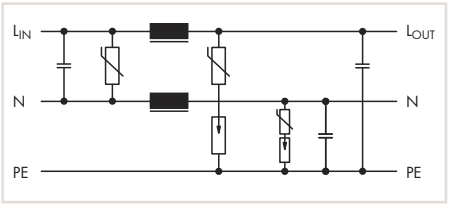
	Width	Item No.	Pack. Unit
with 2-conductor terminals blocks, orange separator ❶	22 mm	280-638	1
with 4-conductor terminals blocks, orange separator ❷	22 mm	280-628	1
with 4-conductor terminals blocks, marker plate ❷	25 mm	280-764	1

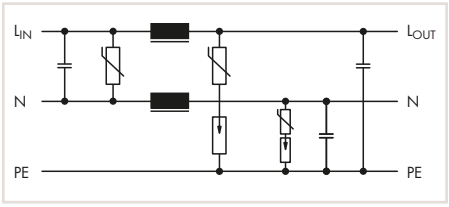
	Width	Item No.	Pack. Unit
with 2-conductor terminals blocks, orange separator ❶	22 mm	280-638	1
with 4-conductor terminals blocks, orange separator ❷	22 mm	280-628	1
with 4-conductor terminals blocks, marker plate ❷	25 mm	280-764	1

Conductor range: 0.08 … 2.5 mm² / 28 … 14 AWG; Strip length: 8 … 9 mm / 0.31 … 0.35 inch

Pluggable Surge Suppression Modules for Carrier Terminal Blocks

286 Series





Surge suppression module, for signal circuits, 110 VDC nominal voltage, for two signal paths with common discharge connection, 2-stage, plugged on rail-mount terminal block, 25 mm wide

Item No.	Pack. Unit
286-844	1

Surge suppression module, for signal circuits, 220 VDC nominal voltage, for two signal paths with common discharge connection, 2-stage, pluggable on rail-mount terminal block, 25 mm wide

Item No.	Pack. Unit
286-841	1

Specific Technical Data

Nominal operating voltage U_{BN}	110 VDC	220 VDC
Operating voltage U_{max}	180 VDC	320 VDC
Nominal current	6 A	6 A
Rated nominal voltage	250 V	250 V
Rated surge voltage	4 kV	4 kV
Pollution degree	2	2
Nominal discharge current between L/N and PE	600 A	600 A
Nominal discharge current between L and N	600A	600A
Max. surge current between L and N	1.5 kA	1.5 kA
Max. surge current between L/N and PE	1.5 kA	1.5 kA
Protection level between L/N and PE	≤ 900 V	≤ 900 V
Protection level between L and N	≤ 650 V	≤ 650 V
Response time between L/N and PE	≤ 1 µs	≤ 1 µs
Response time between L and N	≤ 25 ns	≤ 25 ns
Contact resistance/inductivity	- / 2 x 0.8 mH	- / 2 x 0.8 mH

Accessories

WMB marker card, 10 strips with 10 markers per card

Marking	Item No.	Pack. Unit
F	209-791	5
1 … 10	209-702	5
PE, N, Lin, PE, N, Lout	209-911	5

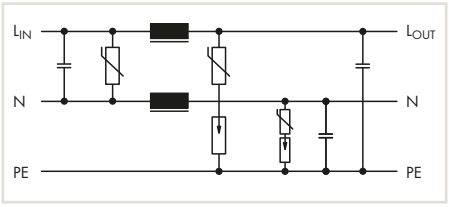
Marking	Item No.	Pack. Unit
F	209-791	5
1 … 10	209-702	5
PE, N, Lin, PE, N, Lout	209-911	5

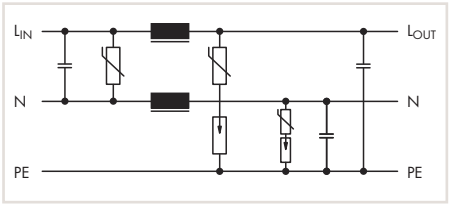
Terminal block for pluggable modules

Width	Item No.	Pack. Unit
with 2-conductor terminals blocks, orange separator ❶	27 mm	280-639	1
with 4-conductor terminals blocks, orange separator ❷	27 mm	280-629	1
with 4-conductor terminals blocks, marker plate ❷	30 mm	280-765	1

Width	Item No.	Pack. Unit
with 2-conductor terminals blocks, orange separator ❶	27 mm	280-639	1
with 4-conductor terminals blocks, orange separator ❷	27 mm	280-629	1
with 4-conductor terminals blocks, marker plate ❷	30 mm	280-765	1

Conductor range: 0.08 … 2.5 mm² / 28 … 14 AWG; Strip length: 8 … 9 mm / 0.31 … 0.35 inch





Surge suppression module, for signal circuits, 115 VAC nominal voltage, for two signal paths with common discharge connection, 2-stage, pluggable on rail-mount terminal block, 25 mm wide

Item No.	Pack. Unit
286-843	1

Surge suppression module, for signal circuits, 230 VAC nominal voltage, for two signal paths with common discharge connection, 2-stage, pluggable on rail-mount terminal block, 25 mm wide

Item No.	Pack. Unit
286-842	1

Specific Technical Data

Nominal operating voltage U_{BN}	115 VAC	230 VAC
Operating voltage U_{max}	140 VAC	250 VAC
Nominal current	6 A	6 A
Rated nominal voltage	250 V	250 V
Rated surge voltage	4 kV	4 kV
Pollution degree	2	2
Nominal discharge current between L/N and PE	600 A	600 A
Nominal discharge current between L and N	600A	600A
Max. surge current between L and N	1.5 kA	1.5 kA
Max. surge current between L/N and PE	1.5 kA	1.5 kA
Protection level between L/N and PE	≤ 900 V	≤ 900 V
Protection level between L and N	≤ 650 V	≤ 650 V
Response time between L/N and PE	≤ 1 µs	≤ 1 µs
Response time between L and N	≤ 25 ns	≤ 25 ns
Contact resistance/inductivity	- / 2 x 0.8 mH	- / 2 x 0.8 mH

Accessories

WMB marker card, 10 strips with 10 markers per card

Marking	Item No.	Pack. Unit
F	209-791	5
1 … 10	209-702	5
PE, N, Lin, PE, N, Lout	209-911	5

Marking	Item No.	Pack. Unit
F	209-791	5
1 … 10	209-702	5
PE, N, Lin, PE, N, Lout	209-911	5

Terminal block for pluggable modules

	Width	Item No.	Pack. Unit
with 2-conductor terminals blocks, orange separator ❶	27 mm	280-639	1
with 4-conductor terminals blocks, orange separator ❷	27 mm	280-629	1
with 4-conductor terminals blocks, marker plate ❷	30 mm	280-765	1

	Width	Item No.	Pack. Unit
with 2-conductor terminals blocks, orange separator ❶	27 mm	280-639	1
with 4-conductor terminals blocks, orange separator ❷	27 mm	280-629	1
with 4-conductor terminals blocks, marker plate ❷	30 mm	280-765	1

Conductor range: 0.08 … 2.5 mm² / 28 … 14 AWG; Strip length: 8 … 9 mm / 0.31 … 0.35 inch