

VAL-US-120/40/1+1-FM - Type 1 surge protection device



2910349

<https://www.phoenixcontact.com/us/products/2910349>

Please be informed that the data shown in this PDF document is generated from our online catalog. Please find the complete data in the user documentation. Our general terms of use for downloads are valid.



Surge protective device, two channel with remote indicator contact for 120 V AC, 2-wire plus ground.

Commercial data

Item number	2910349
Packing unit	1 pc
Sales key	CL17
Product key	CL132U
Catalog page	Page 93 (C-4-2019)
GTIN	4055626444901
Weight per piece (including packing)	225.2 g
Weight per piece (excluding packing)	225.2 g
Customs tariff number	85363030
Country of origin	DE

VAL-US-120/40/1+1-FM - Type 1 surge protection device



2910349

<https://www.phoenixcontact.com/us/products/2910349>

Technical data

Product properties

IEC test classification	II
	T2
EN type	T2
IEC power supply system	TN-S
	TT
Type	DIN rail module, two-section, divisible
Product type	Surge protection for NEMA power supply units
Product family	VALVETRAB US
Number of positions	2
Surge protection fault message	Optical, remote indicator contact

Insulation characteristics

Overvoltage category	III
Pollution degree	2

Electrical properties

Nominal frequency f_N	50 Hz (60 Hz)
-------------------------	---------------

Indicator/remote signaling

Connection name	Remote fault indicator contact
Switching function	Changeover contact
Operating voltage	5 V AC ... 250 V AC
	30 V DC
Operating current	5 mA AC ... 1.5 A AC
	1 A DC

Connection data

Connection method	Screw connection
Screw thread	M5
Tightening torque	4.5 Nm (1.5 mm ² ... 16 mm ²)
	4.5 Nm (25 mm ² ... 35 mm ²)
Stripping length	16 mm
Conductor cross section flexible	1.5 mm ² ... 25 mm ²
Conductor cross section rigid	1.5 mm ² ... 35 mm ²
Conductor cross section AWG	15 ... 2

Remote fault indicator contact

Connection method	Screw connection
Screw thread	M2
Tightening torque	0.25 Nm
Stripping length	7 mm
Conductor cross section flexible	0.14 mm ² ... 1.5 mm ²

VAL-US-120/40/1+1-FM - Type 1 surge protection device



2910349

<https://www.phoenixcontact.com/us/products/2910349>

Conductor cross section rigid	0.14 mm ² ... 1.5 mm ²
Conductor cross section AWG	28 ... 16

Dimensions

Dimensional drawing	
Width	35.6 mm
Height	96.8 mm
Depth	65.7 mm (incl. DIN rail 7.5 mm)
Horizontal pitch	2 Div.

Material specifications

Flammability rating according to UL 94	V-0
CTI value of material	600
Insulating material	PA 6.6/PBT
Material group	I
Housing material	PA 6.6 PBT

Protective circuit

Mode of protection	L-N
	L-PE
	N-PE
Direction of action	1L-N & N-GND
Nominal voltage U_N	120 V AC (TN-S)
	120 V AC (TT)
Nominal frequency f_N	50 Hz (60 Hz)
Rated load current I_L	80 A
Residual current I_{PE}	≤ 5 μA
Nominal discharge current I_n (8/20) μs	20 kA
Follow current interrupt rating I_{fi} (N-PE)	100 A (305 V AC)
Short-circuit current rating I_{SCCR}	25 kA
Voltage protection level U_p (L-N)	≤ 0.9 kV
Voltage protection level U_p (L-PE)	≤ 1.6 kV
Voltage protection level U_p (N-PE)	≤ 1.5 kV
Residual voltage U_{res} (L-N)	≤ 0.9 kV (at I_n)
	≤ 0.75 kV (at 10 kA)
	≤ 0.6 kV (at 5 kA)
	≤ 0.55 kV (at 3 kA)
Residual voltage U_{res} (L-PE)	≤ 1.6 kV (at I_n)
	≤ 1.2 kV (at 10 kA)

VAL-US-120/40/1+1-FM - Type 1 surge protection device



2910349

<https://www.phoenixcontact.com/us/products/2910349>

	≤ 1 kV (at 5 kA)
	≤ 0.9 kV (at 3 kA)
Residual voltage U_{res} (N-PE)	≤ 0.4 kV (at I_n)
	≤ 0.25 kV (at 10 kA)
	≤ 0.15 kV (at 5 kA)
	≤ 0.1 kV (at 3 kA)
TOV behavior at U_T (L-N)	208 V AC (5 s / withstand mode)
	240 V AC (120 min / safe failure mode)
TOV behavior at U_T (N-PE)	1200 V AC (200 ms / withstand mode)
Response time t_A (L-N)	≤ 25 ns
Response time t_A (L-PE)	≤ 100 ns
Response time t_A (N-PE)	≤ 100 ns
Max. backup fuse with V-type through wiring	80 A (gG)
Max. backup fuse with branch wiring	125 A (gG)

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20 (only when all terminal points are used)
Ambient temperature (operation)	-40 °C ... 80 °C
Ambient temperature (storage/transport)	-40 °C ... 80 °C
Altitude	≤ 2000 m (amsl)
Permissible humidity (operation)	5 % ... 95 %
Shock (operation)	25g (Half-sine / 11 ms / 3x ±X, ±Y, ±Z)
Vibration (operation)	5g (10 ... 500 Hz / 2.5 h / X, Y, Z)

Approvals

UL specifications

Maximum continuous operating voltage MCOV (L-N)	175 V AC
Maximum continuous operating voltage MCOV (L-G)	175 V AC
Maximum continuous operating voltage MCOV (N-G)	305 V AC
Short-circuit current rating (SCCR)	200 kA
Voltage protection rating VPR (L-N)	700 V
Voltage protection rating VPR (L-G)	1800 V
Voltage protection rating VPR (N-G)	1200 V
UL type	type 1
Nominal discharge current I_n	20 kA
Maximum Surge Current per Phase	40 kA
Mode of protection	L-N
	L-G
	N-G
Nominal voltage	120 V AC
Power distribution system	Single phase
Nominal frequency	50/60 Hz

VAL-US-120/40/1+1-FM - Type 1 surge protection device



2910349

<https://www.phoenixcontact.com/us/products/2910349>

SPD Type	1
UL indicator/remote signaling	
Operating voltage	125 V AC
AC operating current	1 A AC
UL connection data	
Tightening torque	30 lb _F in.
Conductor cross section AWG	14 ... 2

Standards and regulations

Air clearances and creepage distances

Standards/regulations	EN 60664-1 / EN 61643-11
Standards/specifications	IEC 61643-11
Note	2011
Standards/specifications	EN 61643-11
Note	2012

Mounting

Mounting type	DIN rail: 35 mm
---------------	-----------------

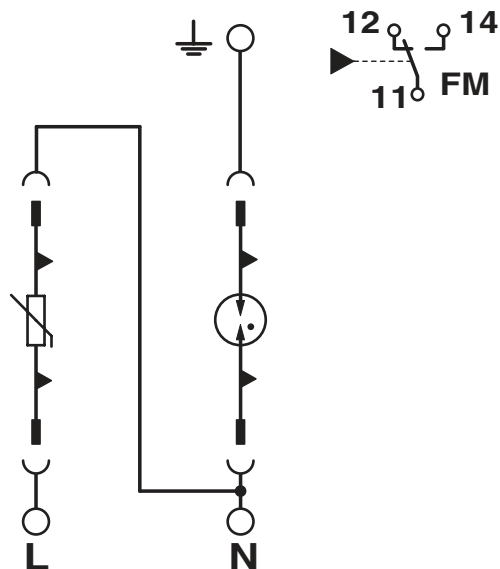
VAL-US-120/40/1+1-FM - Type 1 surge protection device

2910349

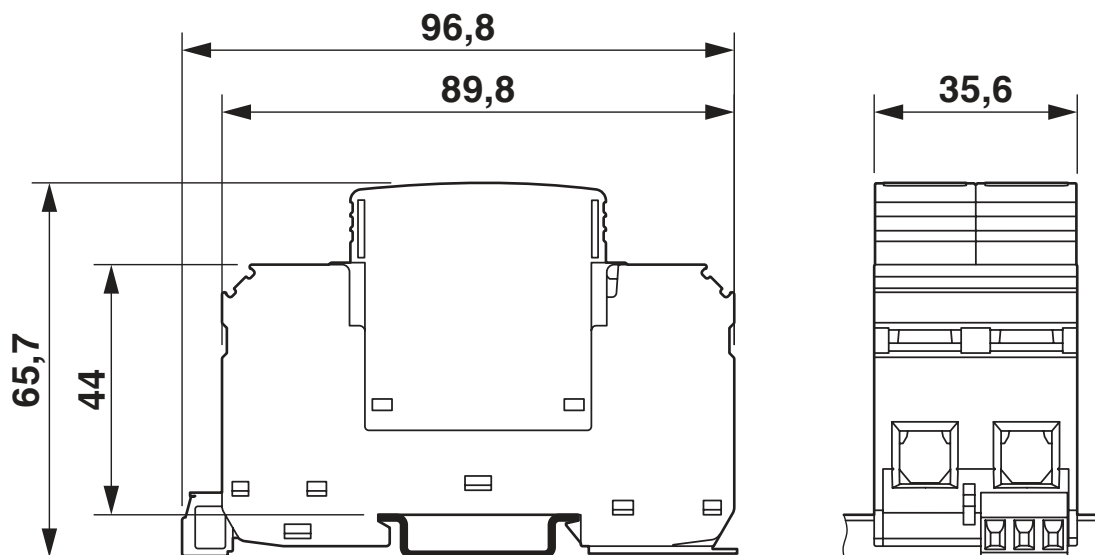
<https://www.phoenixcontact.com/us/products/2910349>

Drawings

Circuit diagram



Dimensional drawing



VAL-US-120/40/1+1-FM - Type 1 surge protection device



2910349

<https://www.phoenixcontact.com/us/products/2910349>

Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2910349>



UL Listed

Approval ID: FILE E 330181



cUL Listed

Approval ID: FILE E 330181

cULus Listed

VAL-US-120/40/1+1-FM - Type 1 surge protection device



2910349

<https://www.phoenixcontact.com/us/products/2910349>

Classifications

ECLASS

ECLASS-11.0	27130805
ECLASS-13.0	27171202

ETIM

ETIM 8.0	EC000941
----------	----------

UNSPSC

UNSPSC 21.0	39121600
-------------	----------

VAL-US-120/40/1+1-FM - Type 1 surge protection device



2910349

<https://www.phoenixcontact.com/us/products/2910349>

Accessories

MPB F600X16/ 1GS - Wiring bridge

2818355

<https://www.phoenixcontact.com/us/products/2818355>



Wiring bridge flexible, diameter: 16 mm², with a fork-type cable lug on one side, length: 600 mm

MPB F200X16/ 1GS - Wiring bridge

2818339

<https://www.phoenixcontact.com/us/products/2818339>



Wiring bridge flexible, diameter 16 mm², with a fork-type cable lug on one side, length: 200 mm

VAL-US-120/40/1+1-FM - Type 1 surge protection device



2910349

<https://www.phoenixcontact.com/us/products/2910349>

MPB 18/1-10/1.0.0 - Wiring bridge

2830443

<https://www.phoenixcontact.com/us/products/2830443>



Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 10 pitches with contact sequence 1-0-0

MPB 18/4-12 - Wiring bridge

2809296

<https://www.phoenixcontact.com/us/products/2809296>



Wiring bridge for modules with connecting pitch 17.5 mm, 4-phase, 12-pos.

VAL-US-120/40/1+1-FM - Type 1 surge protection device

2910349

<https://www.phoenixcontact.com/us/products/2910349>

MPB 18/4- 8 - Wiring bridge

2809283

<https://www.phoenixcontact.com/us/products/2809283>

Wiring bridge for modules with connecting pitch 17.5 mm, 4-phase, 8-pos.



MPB 18/3- 6 - Wiring bridge

2809241

<https://www.phoenixcontact.com/us/products/2809241>

Wiring bridge for modules with connecting pitch 17.5 mm, 3-phase, 6-pos.



VAL-US-120/40/1+1-FM - Type 1 surge protection device

2910349

<https://www.phoenixcontact.com/us/products/2910349>

MPB 18/1-57 - Wiring bridge

2809238

<https://www.phoenixcontact.com/us/products/2809238>



Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 57-pos.

MPB 18/1-12 - Wiring bridge

2748593

<https://www.phoenixcontact.com/us/products/2748593>



Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 12-pos.

VAL-US-120/40/1+1-FM - Type 1 surge protection device

2910349

<https://www.phoenixcontact.com/us/products/2910349>

MPB 18/1- 9 - Wiring bridge

2748580

<https://www.phoenixcontact.com/us/products/2748580>



Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 9-pos.

MPB 18/1- 8 - Wiring bridge

2748577

<https://www.phoenixcontact.com/us/products/2748577>



Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 8-pos.

VAL-US-120/40/1+1-FM - Type 1 surge protection device

2910349

<https://www.phoenixcontact.com/us/products/2910349>

MPB 18/1- 6 - Wiring bridge

2748564

<https://www.phoenixcontact.com/us/products/2748564>

Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 6-pos.



MPB 18/1- 4 - Wiring bridge

2809225

<https://www.phoenixcontact.com/us/products/2809225>

Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 4-pos.



VAL-US-120/40/1+1-FM - Type 1 surge protection device

2910349

<https://www.phoenixcontact.com/us/products/2910349>

MPB 18/1- 3 - Wiring bridge

2809212

<https://www.phoenixcontact.com/us/products/2809212>

Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 3-pos.



MPB 18/1- 2 - Wiring bridge

2809209

<https://www.phoenixcontact.com/us/products/2809209>

Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 2-pos.



VAL-US-120/40/1+1-FM - Type 1 surge protection device



2910349

<https://www.phoenixcontact.com/us/products/2910349>

ZBN 18,LGS:ERDE - Marker for terminal blocks

2749589

<https://www.phoenixcontact.com/us/products/2749589>



Marker for terminal blocks, Strip, white, labeled, horizontal: Grounding symbol, mounting type: snapped, for terminal block width: 18 mm, lettering field size: 18 x 5 mm, Number of individual labels: 5

ZBN 18,LGS:L1-N,ERDE - Marker for terminal blocks

2749576

<https://www.phoenixcontact.com/us/products/2749576>



Marker for terminal blocks, Strip, white, labeled, horizontal: L1, L2, L3, N, GND, mounting type: snapped, for terminal block width: 18 mm, lettering field size: 18 x 5 mm, Number of individual labels: 5

VAL-US-120/40/1+1-FM - Type 1 surge protection device



2910349

<https://www.phoenixcontact.com/us/products/2910349>

ZBN 18:UNBEDRUCKT - Zack marker strip

2809128

<https://www.phoenixcontact.com/us/products/2809128>



Zack marker strip, Strip, white, unlabeled, can be labeled with: CMS-P1-PLOTTER, PLOTMARK, mounting type: snapped, for terminal block width: 18 mm, lettering field size: 18 x 5 mm, Number of individual labels: 5

B-STIFT - Marker pen

1051993

<https://www.phoenixcontact.com/us/products/1051993>



Marker pen, for manual labeling of unprinted Zack strips, smear-proof and waterproof, line thickness 0.5 mm

VAL-US-120/40/1+1-FM - Type 1 surge protection device

2910349

<https://www.phoenixcontact.com/us/products/2910349>

DK-BIC-35 - Feed-through terminal block

2749880

<https://www.phoenixcontact.com/us/products/2749880>

Feed-through terminal block for VAL and FLT applications



VAL-US-120/40-P - Type 1 surge protection plug

2910335

<https://www.phoenixcontact.com/us/products/2910335>

UL Recognized type 1 SPD and IEC type 2 surge protection plug with a varistor and thermal disconnect for use with VAL-US base elements, mechanical and visual fault warning



VAL-US-120/40/1+1-FM - Type 1 surge protection device



2910349

<https://www.phoenixcontact.com/us/products/2910349>

GDT-US-NG/40-P - Type 1 surge protection plug

2910342

<https://www.phoenixcontact.com/us/products/2910342>



UL Recognized type 1 SPD and IEC type 2 surge protection plug with a gas discharge tube and thermal disconnect for use with VAL-US base elements, mechanical and visual fault warning

Phoenix Contact 2023 © - all rights reserved

<https://www.phoenixcontact.com>

Phoenix Contact USA
586 Fulling Mill Road
Middletown, PA 17057, United States
(+717) 944-1300
info@phoenixcon.com