

## Ultra Compact and Versatile Filtered Power Entry Module



Dual stage filter
Ultra compact design
Rated currents up to 10 A
Dual fuse holder
2-pole rocker switch
Good attenuation performance
Faston or spring cage terminals



Check the video of our IEC Inlet Filters FN 9280 and FN 9290 on Youtube!

### Performance indicators

#### Attenuation performance



### Approvals & Compliances



(CQC except HI-types; Patent US 20110227692/US 8766761; CN ZL201080069589.0)

Choosing FN 9280/90 product line brings you the rapid availability of a standard filter associated with the necessary safety acceptances and a high attenuation performance. For higher attenuation performance the FN 9290 family with a dual stage filter and identical panel cut-out can be used.

Standard IEC connector filters are a practical solution to pass EMI system approval in a short time. A wide selection of amperage ratings, mounting possibilities and also filters for medical applications are designed to offer you the best solution.

### Features and benefits

Best conducted attenuation performance, based on chokes with high saturation resistance and excellent thermal behavior

Deep-drawn iron-sheet housing for best possible shielding against magnetic fields

Rear/front flange mounting or snap-in versions

Dual and additional spare fuse holder

2-pole rocker switch

Faston or spring cage terminals for more flexible assembly

FN 929X B versions comply with the requirements of 1MOP acc. to IEC/EN 60601-1

All versions according IEC/EN 62368-1

### Typical applications

Portable electrical and electronic equipment

Consumer goods

EDP and office equipment

Single-phase and switch-mode power supplies

Test and measurement equipment

Medical electrical devices (MD) and *In-Vitro*-Diagnostics (IVD) equipment

Audio/Video, information and communication technologies

### Technical specifications

#### Maximum continuous operating voltage

#### Rated currents

#### Operating frequency

#### Leakage current

#### High potential test voltage

#### Design corresponding to

#### Flammability corresponding to

#### Temperature range (operation and storage)

#### Protection category

#### Terminals

#### Spring cage wire range

#### MTBF @ 40°C/230 V (Mil-HB-217F)

#### Switch ratings

#### Rocker switch

#### USA (UL) and Canada (C-UL)

#### Europe (ENEC)

#### Mechanical life

#### Electrical specifications

#### Fuse holder

#### Power acceptance @ amb. temperature

250 VAC, 50/60 Hz

1 to 10 A @ 40°C max.

DC to 400 Hz

Standard: <500 uA at 250 VAC/50 Hz

Medical: <5 uA at 250 VAC/50 Hz

P → PE 2000 VAC for 2 sec (standard types)

P → PE 2500 VAC for 2 sec (B types)

P → N 760 VAC for 2 sec

UL 1283, CSA 22.2 No. 8 1986, EN 60939, EN 60950, EN 60601-1, UL 544, EN 60320

UL 94 V-2 or better

– 25°C to +85°C (25/85/21)

IP 40 according to IEC 60529 (front side)

IP 20 spring cage safe against finger touch

0.2 – 1.5 mm<sup>2</sup>/24 – 16 AWG single or flexible wire

> 1,000,000 hours

2-pole, dark not illuminated, Marking I - 0

10 A, 125 VAC; 10 A, 250 VAC; 1/3 HP

10 A (4 A), 250 VAC\*\*

50,000 cycles

Inrush current 82 A

6,000 on-off operations according to UL 1054

10,000 on-off operations according to ENEC

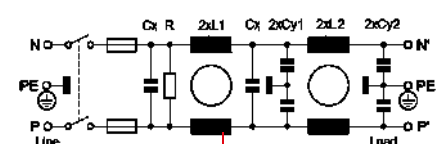
2 fuses (Ø5 x 20 mm) max. 250 V (certified to IEC 60127-6)

\* 10 A version is 8 A UL and CSA approved



\*\* Value in () relates to the inductive current charge: cos  $\gamma$  = 0.65

### Typical electrical schematic

#### FN 9290 standard types (B types without Cy)



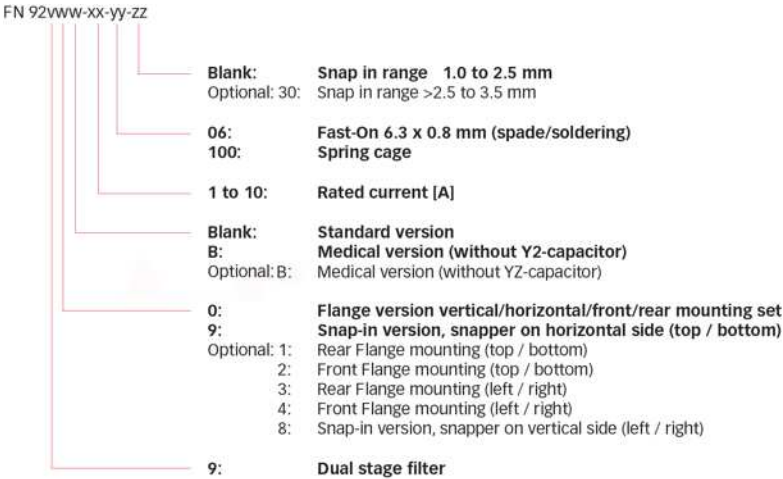
Filter selection table

Filter*	Rated current	Leakage current**	Inductance		Capacitance			Resistance	Output connections		Weight
	@ 40°C	@ 250 VAC /50 Hz (@ 120 VAC /60 Hz)	L1	L2	Cx	Cy1	Cy2	R			
	[A]	[mA]	[mH]	[mH]	[nF]	[nF]	[nF]	[kOhm]			[g]
FN 9290-1-..	1	0.28 (0.16)	10.9	10.9	220	1.5	0.47	1000	-06	-100	147
FN 9290-2-..	2	0.28 (0.16)	4.4	4.4	220	1.5	0.47	1000	-06	-100	148
FN 9290-4-..	4	0.28 (0.16)	1.7	1.7	220	1.5	0.47	1000	-06	-100	148
FN 9290-6-..	6	0.28 (0.16)	0.78	0.78	220	1.5	0.47	1000	-06	-100	153
FN 9290-10-..	10	0.28 (0.16)	0.32	0.32	220	1.5	0.47	1000	-06	-100	154
FN 9290 B-1-..	1	0.00	10.9	10.9	220	0	0	1000	-06	-100	147
FN 9290 B-2-..	2	0.00	4.4	4.4	220	0	0	1000	-06	-100	148
FN 9290 B-4-..	4	0.00	1.7	1.7	220	0	0	1000	-06	-100	148
FN 9290 B-6-..	6	0.00	0.78	0.78	220	0	0	1000	-06	-100	153
FN 9290 B-10-..	10	0.00	0.32	0.32	220	0	0	1000	-06	-100	154
FN 9299-1-..	1	0.28 (0.16)	10.9	10.9	220	1.5	0.47	1000	-06	-100	147
FN 9299-2-..	2	0.28 (0.16)	4.4	4.4	220	1.5	0.47	1000	-06	-100	148
FN 9299-4-..	4	0.28 (0.16)	1.7	1.7	220	1.5	0.47	1000	-06	-100	148
FN 9299-6-..	6	0.28 (0.16)	0.78	0.78	220	1.5	0.47	1000	-06	-100	153
FN 9299-10-..	10	0.28 (0.16)	0.32	0.32	220	1.5	0.47	1000	-06	-100	154
FN 9299 B-1-..	1	0.00	10.9	10.9	220	0	0	1000	-06	-100	147
FN 9299 B-2-..	2	0.00	4.4	4.4	220	0	0	1000	-06	-100	148
FN 9299 B-4-..	4	0.00	1.7	1.7	220	0	0	1000	-06	-100	148
FN 9299 B-6-..	6	0.00	0.78	0.78	220	0	0	1000	-06	-100	153
FN 9299 B-10-..	10	0.00	0.32	0.32	220	0	0	1000	-06	-100	154

\* To compile a complete part number, please replace the .. with the required output connection style (e.g. FN 9289-1-06, FN 9282-4-100)

\*\* Maximum leakage current under normal conditions (according to IEC60939-3)

Product selector:



All FN 9280/FN 9290 are equipped with a dual fuse holder with a spare fuse holder.

**Note: All FN 9280/FN 9280 B/FN 9289/FN 9289 B/FN 9290/FN 9290 B/FN 9299/FN 9299 B are stock types from our distribution partners.**

Order Examples:

FN 9280 B-6-100: Medical version of single stage, dual fuse EMC/EMI filter, flange set for vertical/horizontal/front/rear mounting, 6 A, spring cage terminals, from stock available.

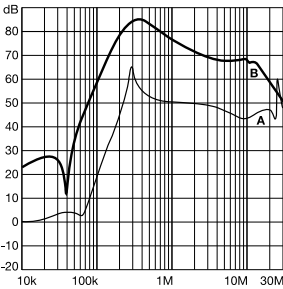
FN 9298-6-06-30: Dual stage, dual fuse EMC/EMI filter, snap-in version, snappers for snap-in panel thickness range >2.5 to 3.5 mm, snapper on vertical side, 6 A, fast-on terminals, non-stock order type

Accessories: The 4D flanges can be ordered separately. The order number is 427532. Please note that the minimum order quantity is one box of 50 pieces. One item includes both type of flanges (vertical and horizontal).

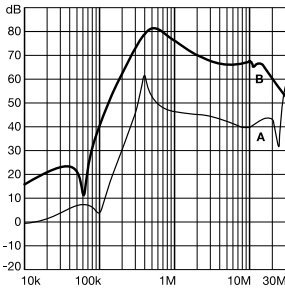
Typical filter attenuation

**FN 9290 Series | Typical filter attenuation |** Per CISPR 17; A=50 Ω/50 Ω sym; B=50 Ω/50 Ω asym

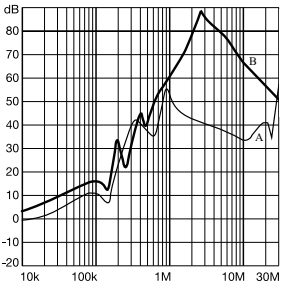
1 A types



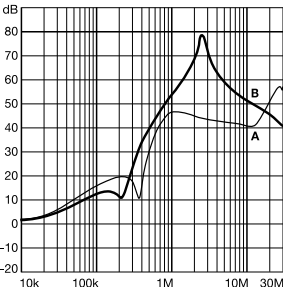
2 A types



4 – 6 A types

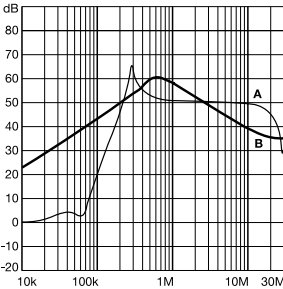


10 A types

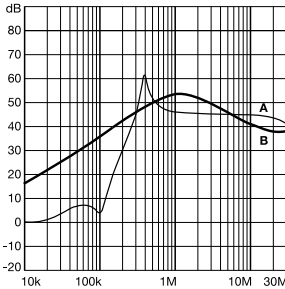


**FN 9290 B Series | Typical filter attenuation |** Per CISPR 17; A=50 Ω/50 Ω sym; B=50 Ω/50 Ω asym

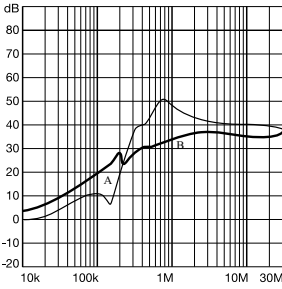
1 A types



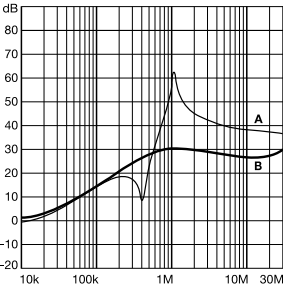
2 A types



4 – 6 A types



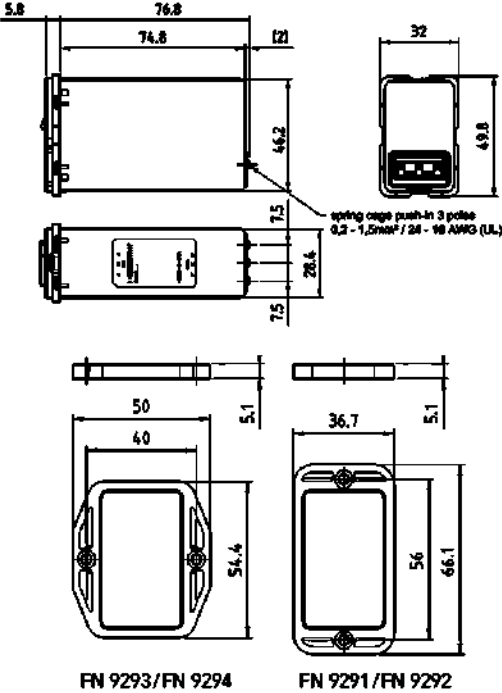
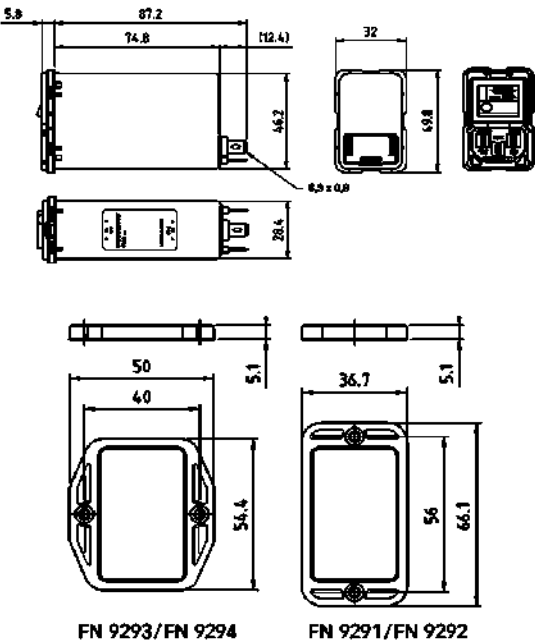
10 A types



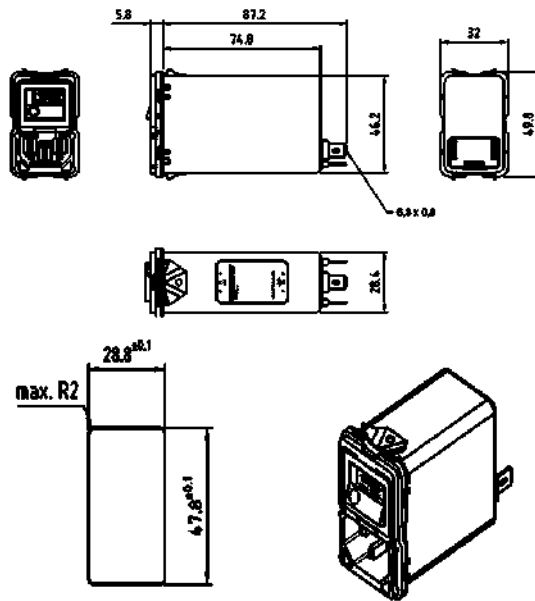
Mechanical Data

FN 9290-x-06/FN 9290 B-x-06

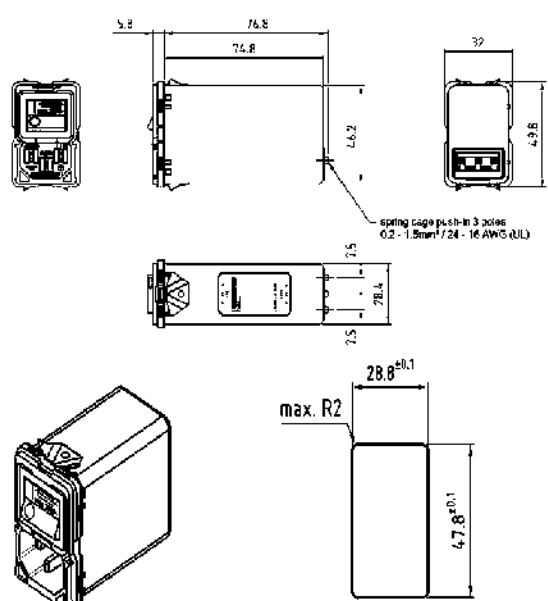
FN 9290-x-100/FN 9290 B-x-100

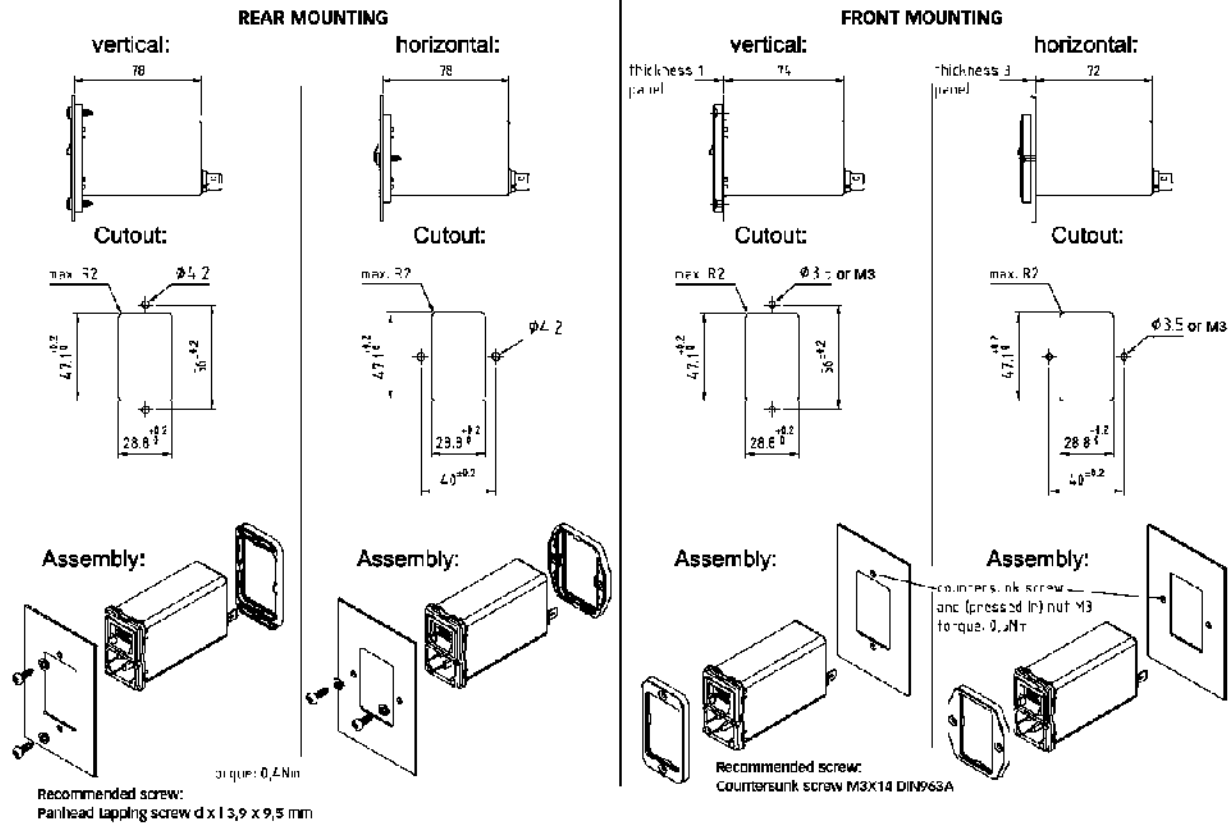


FN 9299-x-06/FN 9299 B-x-06



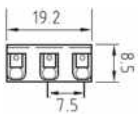
FN 9299-x-100/FN 9299 B-x-100





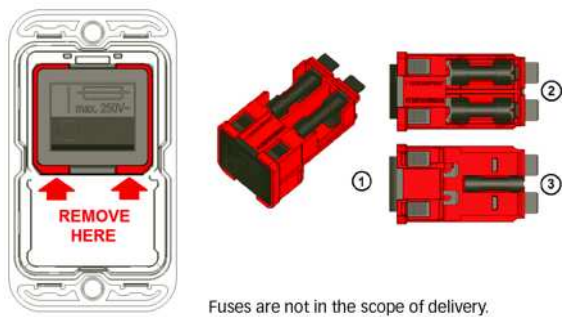
**Terminal -100**  
**clamping range, solid wire / flex wire**  
**operating force of slider**  
**recommended stripped length**

0,20 mm² –1,5 mm², AWG24 –AWG16  
max. 40 N  
8 mm



Push the knob above the terminal to insert the wire.

Removal of the combined switch / fuse holder unit



Fuses are not in the scope of delivery.

An additional fuse mark on the switch indicates the fuses holders behind the switch. The red frame shows the outline of the removable unit.

With a simple tool like a Swiss Army knife or a screwdriver No 1 or smaller the unit (1) can be removed from the filter. On the topside (2) behind the switch there are two fuse holders for each live connection. On the bottom side (3) is a clip to carry an additional spare fuse.

Please visit [www.schaffner.com](http://www.schaffner.com) to find more details on filter connectors.

Accessories for IEC Inlet Filters and Power Entry Modules

The accessories displayed are a selection of available accessories for IEC Inlet filters and IEC Power entry modules. As they are displayed in a general way there might be variants of the filters where the accessories are not available.  
For further information please ask your local Schaffner Sales Partner and visit our homepage <https://www.schaffner.com/>.

The locking system has a tensile force of typical 200N.

The locking system has a tensile force of typical 300N. It is recommended to

### Power Cord with Locking System for Inlet Filters IL 13, IL 13 P, IL 19



Link to Datasheet: [Datasheet IEC C13/C19 locking cable](#)

It is recommended to use it with flange mount filters. Lock Power Cords with IEC Inlets and Filters" Schaffner power cords with IEC lock guard against accidental disconnection of all electrical appliances with an IEC inlet. No exchange or modification of the IEC inlet or IEC inlet filter system is needed. Easy retrofit for all electronic equipments and devices.

### FN 9290

### IEC C13 Rewireable Connector for individual Power Cord with Locking System



Link to Datasheet: [Datasheet IEC C13 rewireable](#)

use it with flange mount filters. For details refer to our Application Note "Using IEC Lock Power Cords with IEC Inlets and Filters" Schaffner power connector with IEC lock guard against accidental disconnection of all electrical appliances with an IEC inlet. No exchange or modification of the IEC inlet or IEC inlet filter system is needed. Easy retrofit for all electronic equipments and devices.



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