Ultra Compact and Versatile Filtered Power Entry Module



- Single stage filter
- Ultra compact design
- Rated currents up to 10 A
- dual-fuse holder
- Fuses ø5 x 20 mm
- 2-pole rocker switch
- Good attenuation performance
- Faston or spring cage terminals

Performance indicators

Attenuation performance



Rated current [A]



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

- Good 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
- FN 928X 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

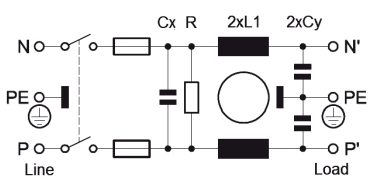
Technical Specifications

Maximum continuous operating voltage	250 VAC, 50/60 Hz
Nominal operating voltage	230 VAC
Rated currents	1 to 10 A @ 40°C
Operating frequency	DC to 400 Hz
Temperature range (operation and storage)	– 25°C to +85°C (25/85/21)
Protection category	IP 40 according to IEC 60529 (front side)
Flammability corresponding to	UL 94 V-2 or better
Design corresponding to	UL 1283, CSA 22.2 No. 8 1986, EN 60939, EN 60950, EN 60601-1, UL 544, EN 60320
MTBF (Mil-HB-217F)	>1,000,000 h @ 40°C/230 V
Terminals/Housing	Spare part mounting flanges available with order number: SAP427532
Fuse holder	2 fuses (Ø5 x 20 mm) max. 250 V (certified to IEC 60127-6), power acceptance 1.6W @ Ta 23°C per pole
Switch ratings	
Electrical specifications	Inrush current 82 A 6,000 on-off operations according to UL 1054 10,000 on-off operations according to ENEC
Europe (ENEC)	10 A (4 A), 250 VAC*

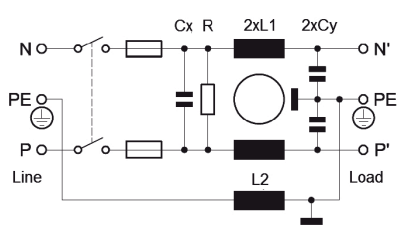
* Value in () relates to the inductive current charge: cos (phi) = 0.65

Typical electrical schematic

FN 9280 Standard types (B types without Cy)



FN 9280 E types (B types without Cy)



Filter Selection Table

Filter*	Rated current @ 40°C	Leakage current** @ 250 VAC /50 Hz (@ 120 VAC /60 Hz)	Inductance		Capacitance		Resistance	Output connections		Weight
			L1	L2	Cx	Cy	R			
	[A]	[mA]	[mH]	[mH]	[nF]	[nF]	[kOhm]			[g]
FN 9280-1-..	1	0.31 (0.18)	10.9	0	220	2.2	1000	-06	-100	101
FN 9280-2-..	2	0.31 (0.18)	4.4	0	220	2.2	1000	-06	-100	102
FN 9280-4-..	4	0.31 (0.18)	1.7	0	220	2.2	1000	-06	-100	105
FN 9280-6-..	6	0.31 (0.18)	0.78	0	220	2.2	1000	-06	-100	104
FN 9280-10-..	10	0.31 (0.18)	0.32	0	220	2.2	1000	-06	-100	106
FN 9280 B-1-..	1	0.00	10.9	0	220	0	1000	-06	-100	101
FN 9280 B-2-..	2	0.00	4.4	0	220	0	1000	-06	-100	102
FN 9280 B-4-..	4	0.00	1.7	0	220	0	1000	-06	-100	105
FN 9280 B-6-..	6	0.00	0.78	0	220	0	1000	-06	-100	104
FN 9280 B-10-..	10	0.00	0.32	0	220	0	1000	-06	-100	106
FN 9289-1-..	1	0.31 (0.18)	10.9	0	220	2.2	1000	-06	-100	101
FN 9289-2-..	2	0.31 (0.18)	4.4	0	220	2.2	1000	-06	-100	102
FN 9289-4-..	4	0.31 (0.18)	1.7	0	220	2.2	1000	-06	-100	105
FN 9289-6-..	6	0.31 (0.18)	0.78	0	220	2.2	1000	-06	-100	104
FN 9289-10-..	10	0.31 (0.18)	0.32	0	220	2.2	1000	-06	-100	106
FN 9289 B-1-..	1	0.00	10.9	0	220	0	1000	-06	-100	101
FN 9289 B-2-..	2	0.00	4.4	0	220	0	1000	-06	-100	102
FN 9289 B-4-..	4	0.00	1.7	0	220	0	1000	-06	-100	105
FN 9289 B-6-..	6	0.00	0.78	0	220	0	1000	-06	-100	104
FN 9289 B-10-..	10	0.00	0.32	0	220	0	1000	-06	-100	106
FN 9280 E-1-..	1	0.31 (0.18)	10.9	0.4	220	2.2	1000	-06	-100	135
FN 9280 E-2-..	2	0.31 (0.18)	4.4	0.4	220	2.2	1000	-06	-100	136
FN 9280 E-4-..	4	0.31 (0.18)	1.66	0.4	220	2.2	1000	-06	-100	137
FN 9280 E-6-..	6	0.31 (0.18)	0.78	0.4	220	2.2	1000	-06	-100	138
FN 9280 E-10-..	10	0.31 (0.18)	0.32	0.4	220	2.2	1000	-06	-100	139
FN 9280 EB-1-..	1	0.00	10.9	0.4	220	0	1000	-06	-100	135
FN 9280 EB-2-..	2	0.00	4.4	0.4	220	0	1000	-06	-100	136
FN 9280 EB-4-..	4	0.00	1.66	0.4	220	0	1000	-06	-100	137
FN 9280 EB-6-..	6	0.00	0.78	0.4	220	0	1000	-06	-100	138
FN 9280 EB-10-..	10	0.00	0.32	0.4	220	0	1000	-06	-100	139
FN 9289 E-1-..	1	0.31 (0.18)	10.9	0.4	220	2.2	1000	-06	-100	135
FN 9289 E-2-..	2	0.31 (0.18)	4.4	0.4	220	2.2	1000	-06	-100	136
FN 9289 E-4-..	4	0.31 (0.18)	1.66	0.4	220	2.2	1000	-06	-100	137
FN 9289 E-6-..	6	0.31 (0.18)	0.78	0.4	220	2.2	1000	-06	-100	138
FN 9289 E-10-..	10	0.31 (0.18)	0.32	0.4	220	2.2	1000	-06	-100	139
FN 9289 EB-1-..	1	0.00	10.9	0.4	220	0	1000	-06	-100	135
FN 9289 EB-2-..	2	0.00	4.4	0.4	220	0	1000	-06	-100	136
FN 9289 EB-4-..	4	0.00	1.66	0.4	220	0	1000	-06	-100	137
FN 9289 EB-6-..	6	0.00	0.78	0.4	220	0	1000	-06	-100	138
FN 9289 EB-10-..	10	0.00	0.32	0.4	220	0	1000	-06	-100	139

* 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

FN 92vww-xx-yy-zz

xx:	**Blank:**	**Snap in range 1.0 to 2.5 mm**
	Optional: 30:	Snap in range >2.5 to 3.5 mm
yy:	**06:**	**Fast-On 6.3 x 0.8 mm (spade/soldering)**
	100:	**Spring cage**
zz:	**1 to 10:**	**Rated current [A]**
vww:	**Blank:**	**Standard version**
	B:	**Medical version (without Y2-capacitor)**
	Optional: E:	Earth line choke
	EB:	Medical version (without YZ-capacitor) with earth line choke
vww:	**0:**	**Flange version vertical/horizontal/front/rear mounting set**
	9:	**Snap-in version, snapper on horizontal side (top / bottom)**
	Optional: 1:	Rear Flange mounting (top / bottom)
	2:	Front Flange mounting (top / bottom)
	3:	Rear Flange mounting (left / right)
	4:	Front Flange mounting (left / right)
	8:	Snap-in version, snapper on vertical side (left / right)
vww:	**8:**	**Single stage filter**

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.

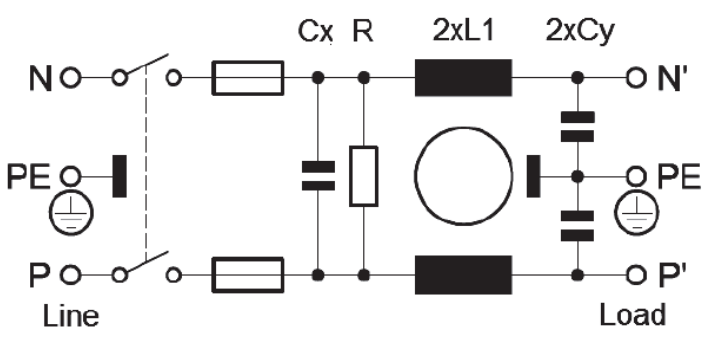
Order Examples:

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.

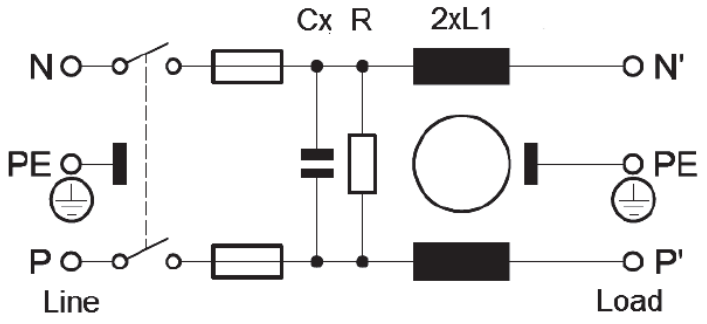
FN 9298-6-06-30: Dual stage, dual fuse EMC/EMI filter, snap-in version, snappers for snap-in panel thickness range >2.5 to 3.5 mm, snapper on vertical side, 6 A, fast-on terminals, non-stock order type

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).

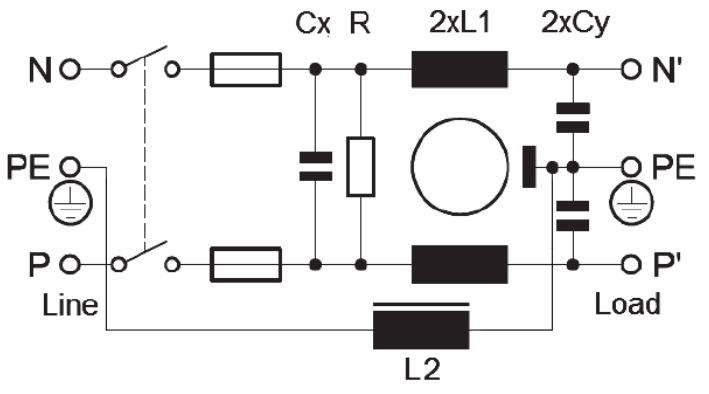
Standard type filters*



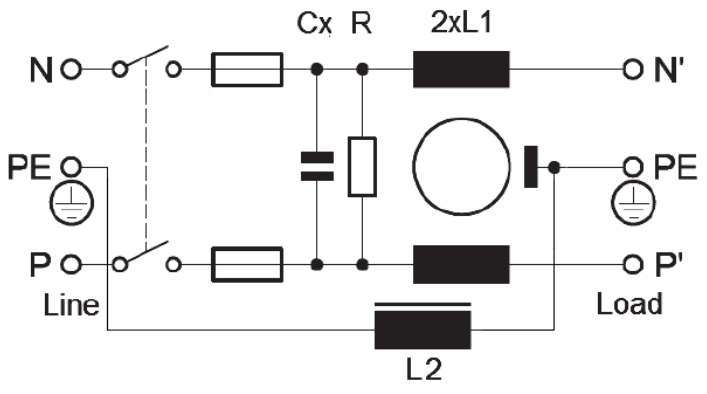
B-type filters* (without Cy)



E-type filters* (with earth line choke)



EB-type filters* (with earth line choke and without Cy)

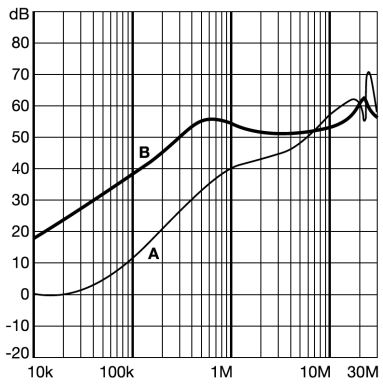


* Fuses are not included

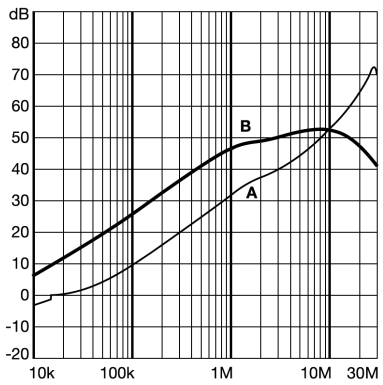
Typical Filter Attenuation

FN 9280 Series | Per CISPR 17; A=50 Ω/50 Ω sym; B=50 Ω/50 Ω asym

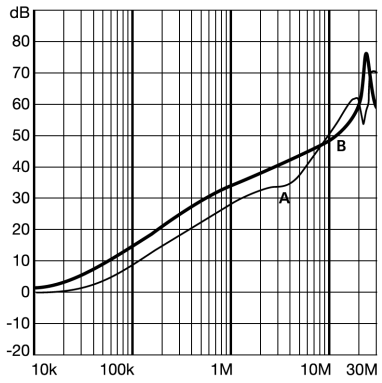
1 A types



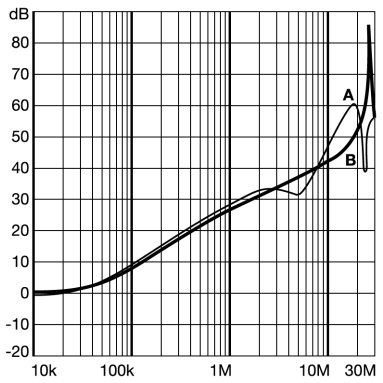
2 A types



4 – 6 A types

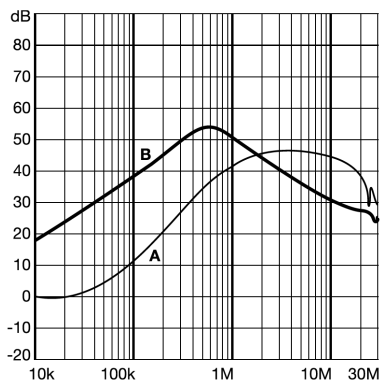


10 A types

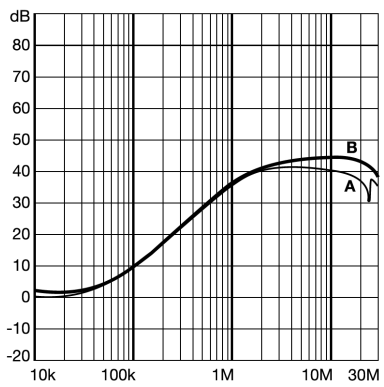


FN 9280 B Series | Per CISPR 17; A=50 Ω/50 Ω sym; B=50 Ω/50 Ω asym

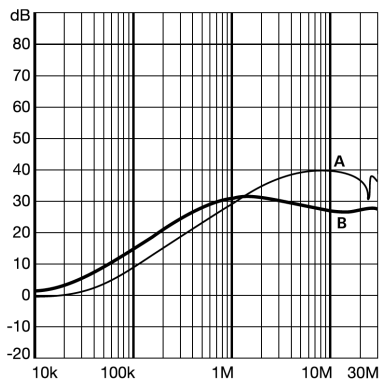
1 A types



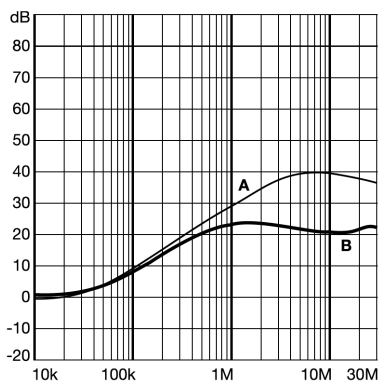
2 A types



4 – 6 A types

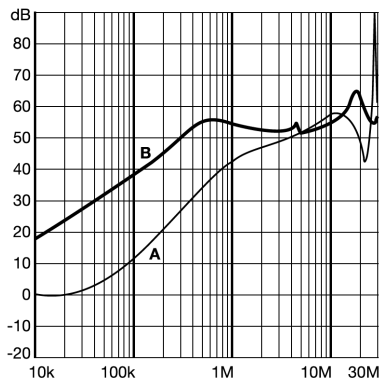


10 A types

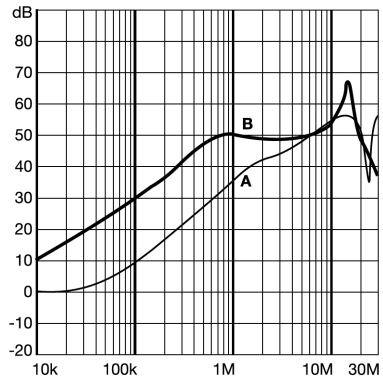


FN 9280 E Series | Per CISPR 17; A=50 Ω/50 Ω sym; B=50 Ω/50 Ω asym

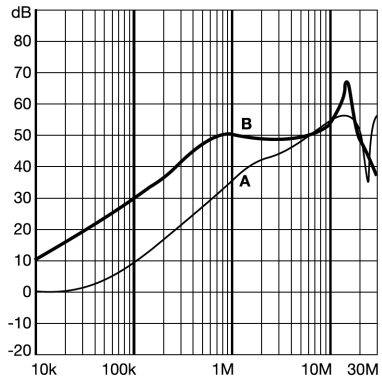
1 A types



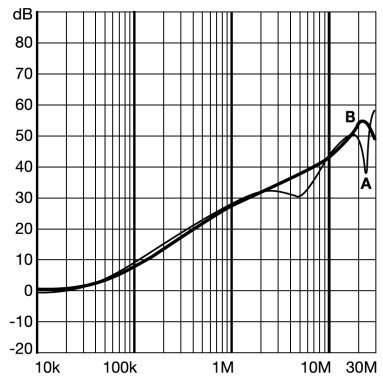
2 A types



4 – 6 A types

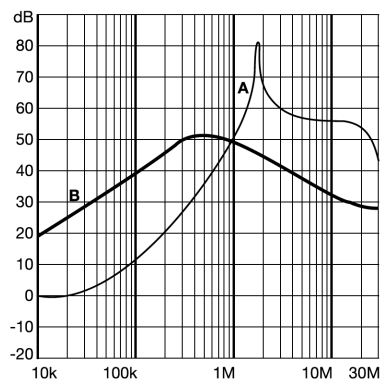


10 A types

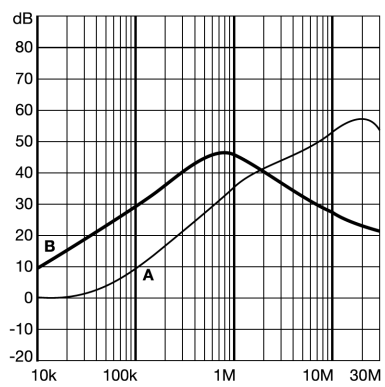


FN 9280 EB Series | Per CISPR 17; A=50 Ω/50 Ω sym; B=50 Ω/50 Ω asym

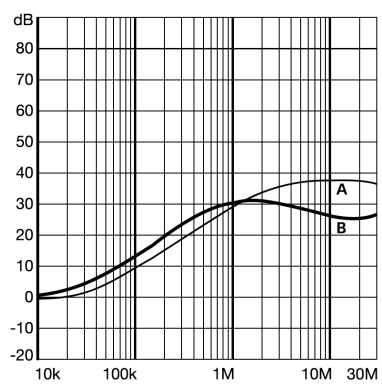
1 A types



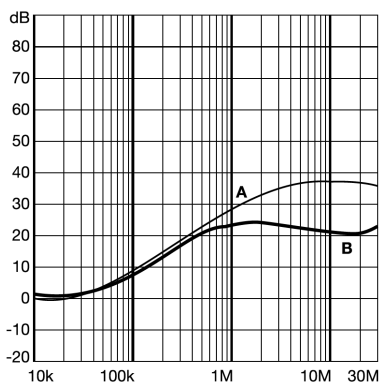
2 A types



4 – 6 A types

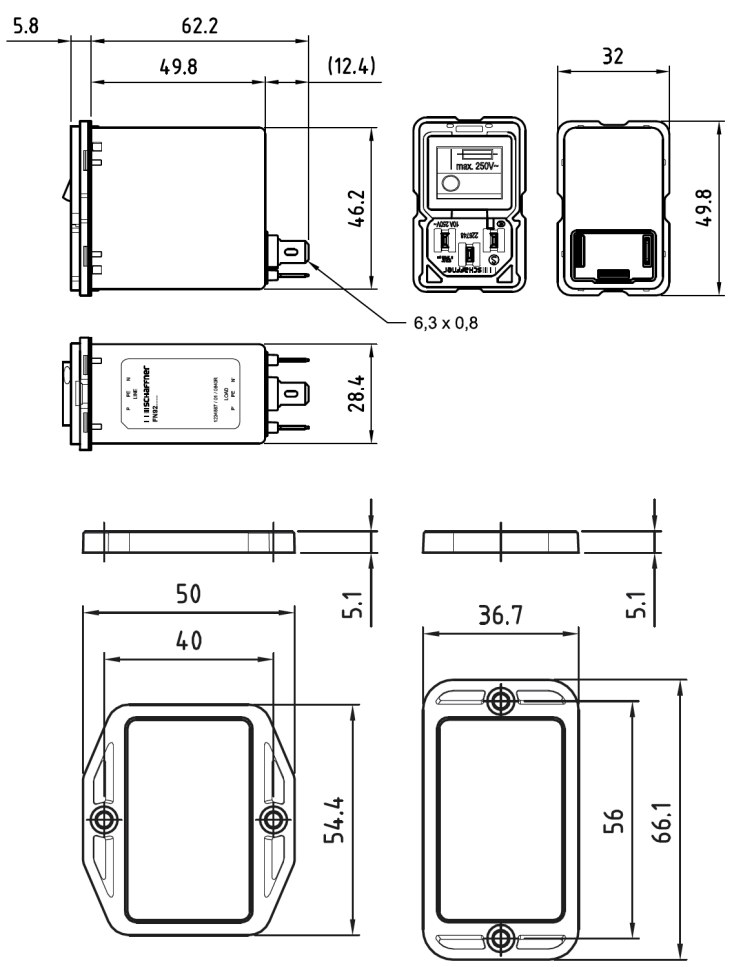


10 A types

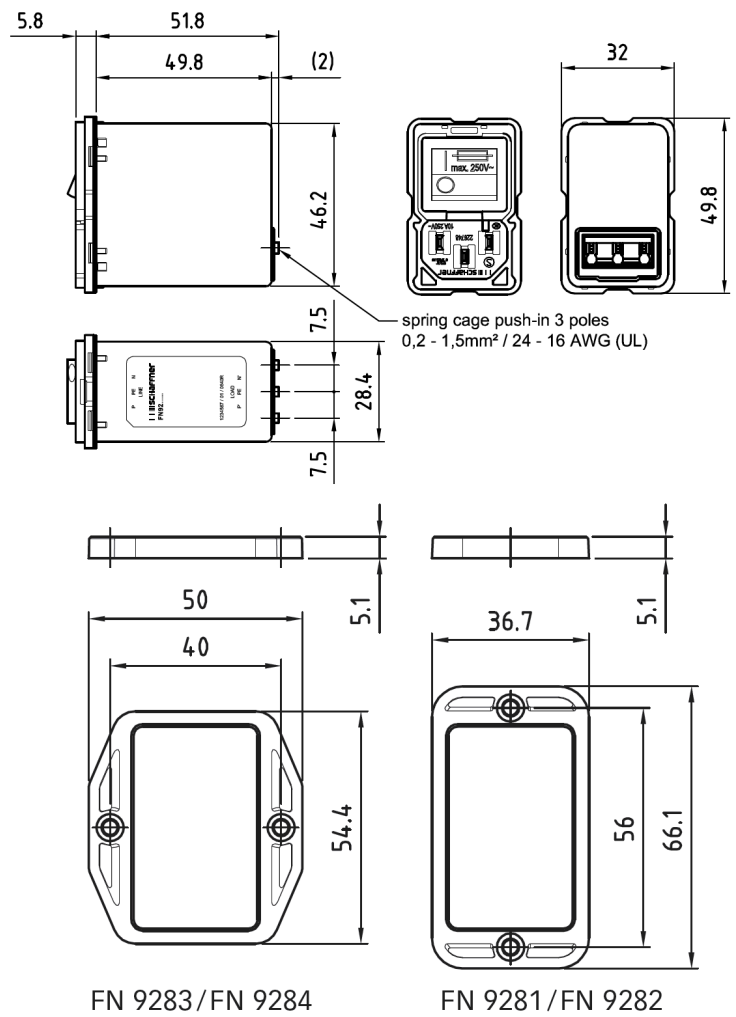


Mechanical Data

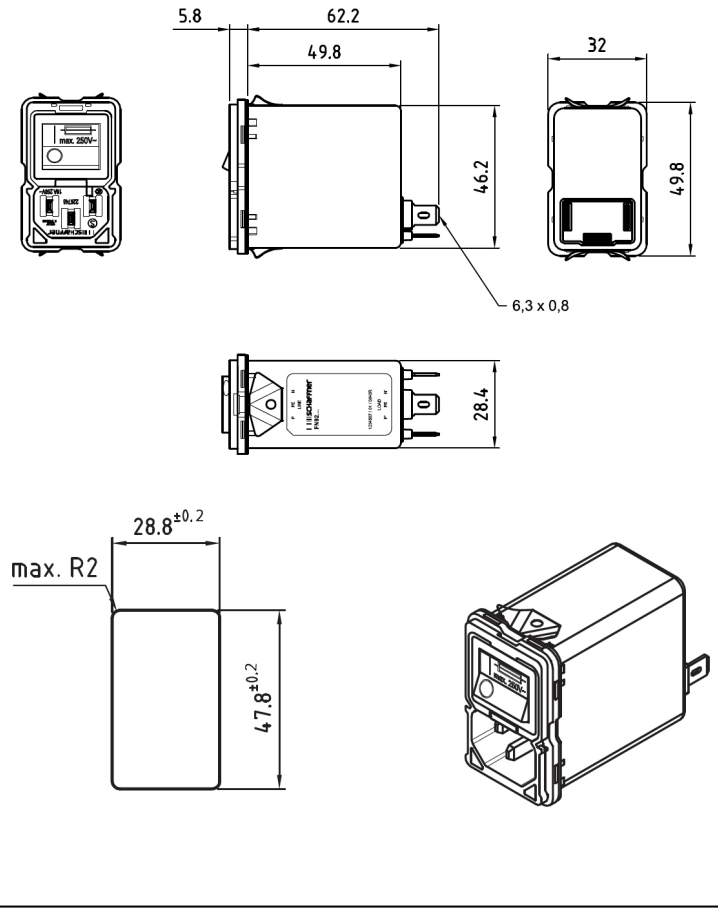
FN 9280-x-06/FN 9280 B-x-06



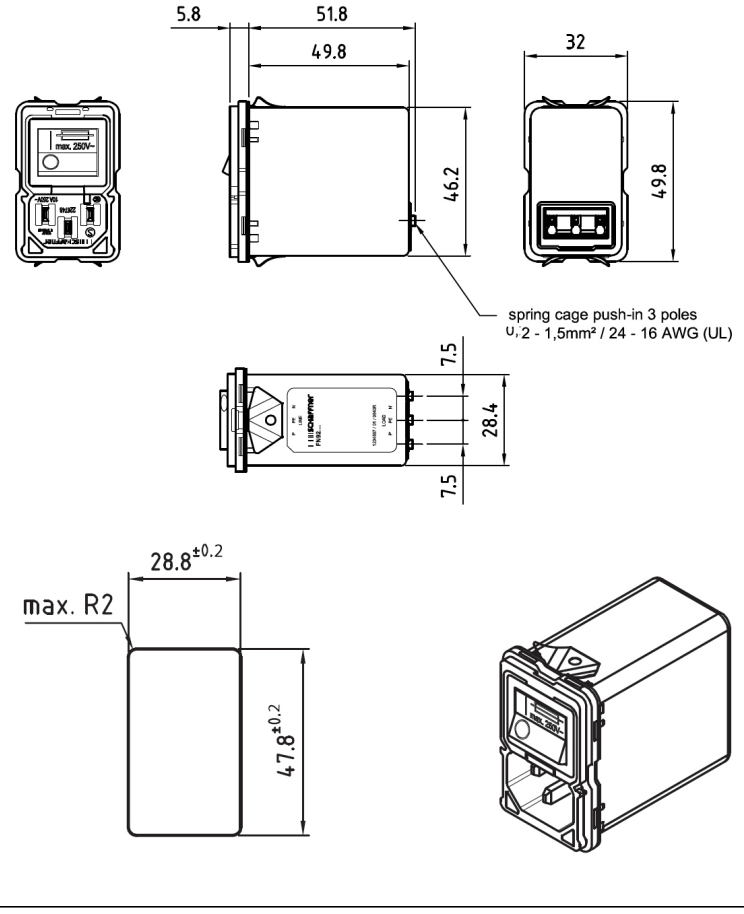
FN 9280-X-100/FN 9280 B-X-100



FN 9289-x-06/FN 9289 B-x-06

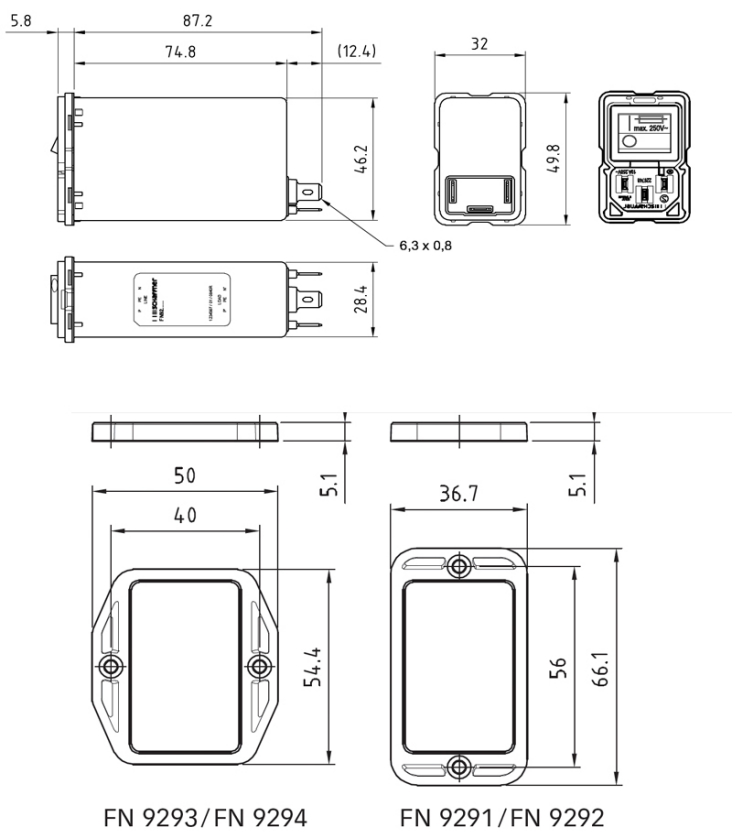


FN 9289-X-100/FN 9289 B-X-100

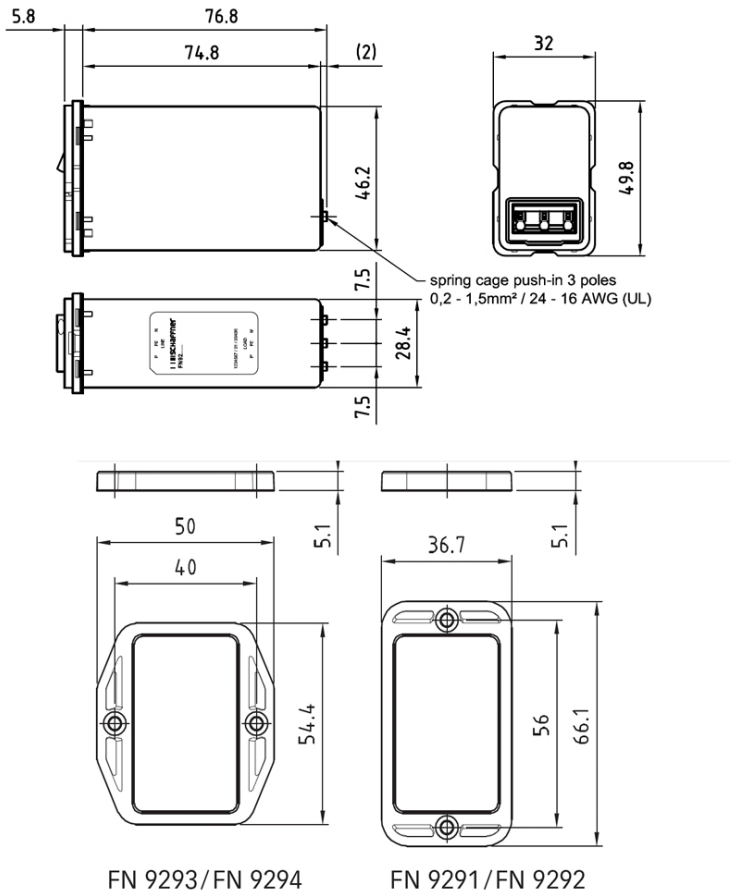


Mechanical Data

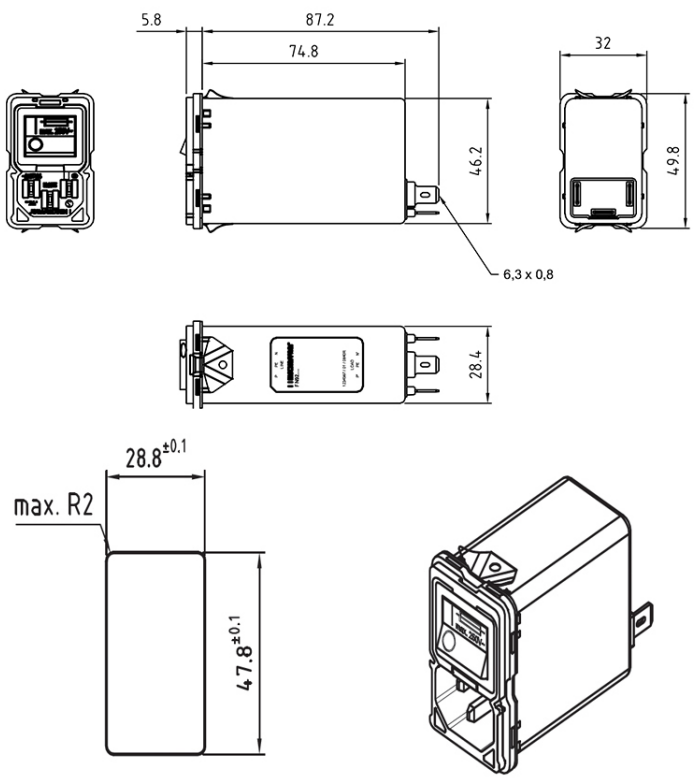
FN 9280 E-x-06/FN 9280 EB-x-06



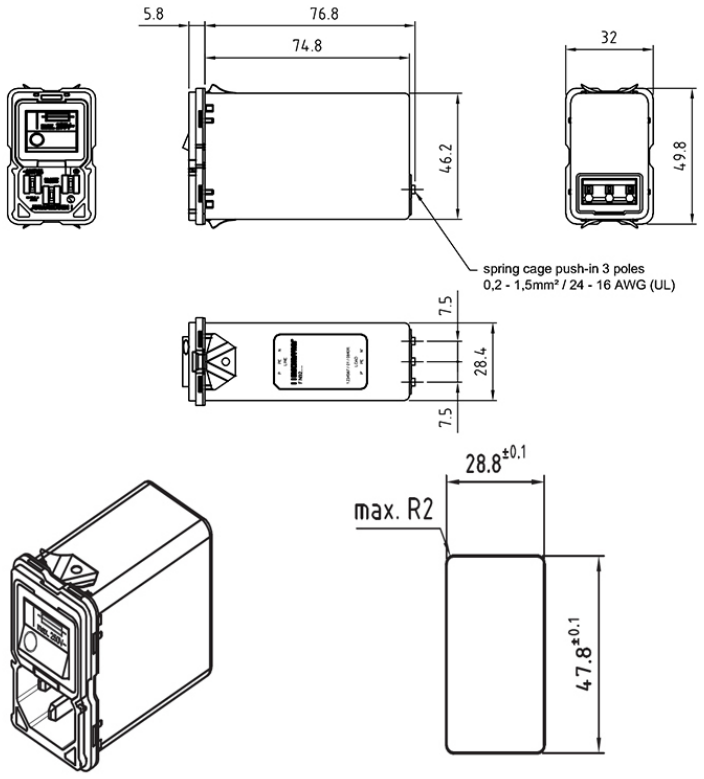
FN 9280 E-x-100/FN 9280 EB-x-100



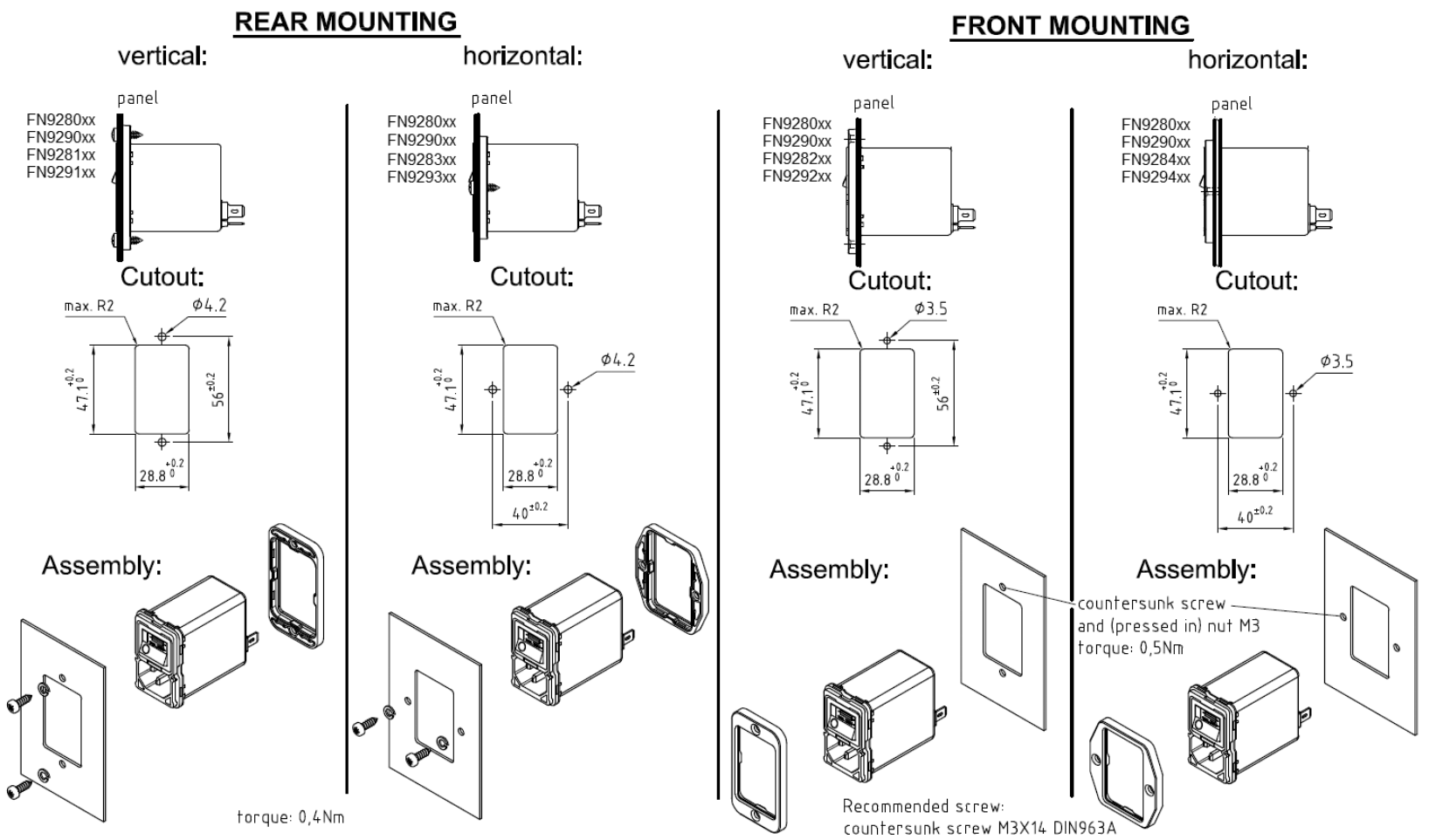
FN 9289 E-x-06/FN 9289 EB-x-06



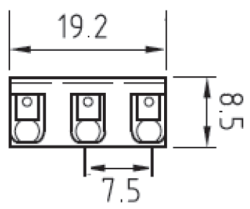
FN 9289E-x-100 / FN 9289EB-x-100



Assembly Instructions

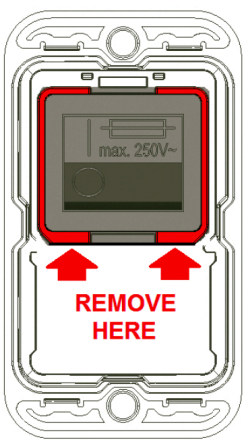


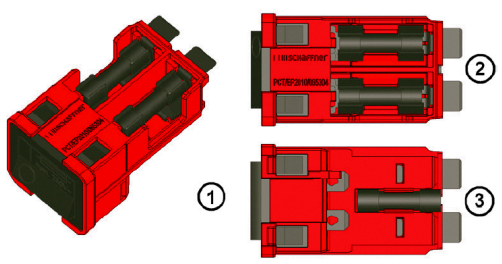
Terminal -100	
clamping range, solid wire / flex wire	0,20 mm² –1,5 mm², AWG24 –AWG16
operating force of slider	max. 40 N
recommended stripped length	8 mm



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.

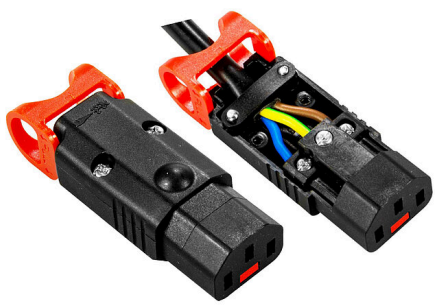
An additional fuse mark on the switch indicates the fuses holders behind the switch. The red frame shows the outline of the removable unit.

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 to find more details on filter connectors.

Accessories

IL 13P IEC C13 Rewireable Connectors with Locking System



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

IL 13P IEC C13 Rewireable Angled Connectors with Locking System



- Protects appliances that are vulnerable to vibration
- Connector cannot be accidentally pulled or vibrated out of the inlet
- Space availability/constraints
- Different angles for ease of access
- Space saving
- Release locking mechanism
- Prevents accidental disconnection

Power Cord with angled Locking System C13



- Protects appliances that are vulnerable to vibration
- Connector cannot be accidentally pulled or vibrated out of the inlet
- Space availability/constraints
- Different angles for ease of access
- Space saving
- Release locking mechanism
- Prevents accidental disconnection

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