

# IEC Inlet Filters FN 280

## Compact Filtered Power Entry Module

**SCHAFNER**  
energy efficiency and reliability



- Rated currents up to 10A
- Single or dual-fuse holder
- Fuses Ø5 x 20mm
- 2-pole rocker switch
- General purpose application
- Optional earth line choke (E type)
- Optional medical version (B type)

### Approvals



**ROHS**

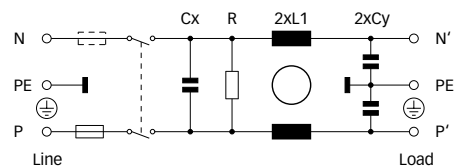
### Technical specifications

Maximum continuous operating voltage:	250VAC, 50/60Hz
Operating frequency:	50 to 400Hz
Rated currents:	1 to 10A @ 40°C max.
High potential test voltage:	P → PE 2000VAC for 2 sec (standard types) P → PE 2500VAC for 2 sec (B types) P → N 760VAC for 2 sec
Protection category:	IP40 according to IEC 60529
Temperature range (operation and storage):	-25°C to +85°C (25/85/21)
Design corresponding to:	UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939
Flammability corresponding to:	UL 94V-2 or better
MTBF @ 40°C/230V (Mil-HB-217F):	1,500,000 hours
Fuse holder:	1 or 2 fuses (Ø5 x 20mm)
Marking:	— max. 250V ~ (text is print. below fuse symbol)
Rocker switch description:	
Function:	2-pole, dark not illuminated Marking I - 0
Electrical specifications:	Inrush current 82A 6,000 on-off operations according to UL 1054, TV 5 10,000 on-off operations according to ENEC
Mechanical life:	50,000 cycles
Switch ratings:	
USA (UL) and Canada (C-UL):	10A, 125VAC; 10A, 250VAC; 1/3HP
Europe (ENEC):	10A (4A), 250VAC*

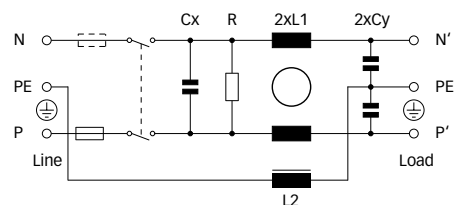
\* Value in () relates to the inductive current charge:  $\cos \varphi = 0.65$

### Typical electrical schematic

#### Standard types



#### E types



The FN 280 power entry module combines an IEC inlet, a mains filter with single or dual-fuse holder and a 2-pole rocker switch in a small form factor. Choosing FN 280 product line brings you the rapid availability of a standard filter associated with the necessary safety acceptances. Standard IEC connector filters are a practical solution helping you to pass EMI system approval in a short time. A wide selection on amperage ratings, fuse options, mounting possibilities and filters for medical applications are designed to offer you the desired solution.


### Features and benefits

- High conducted attenuation performance, based on chokes with high saturation resistance and excellent thermal behavior.
- Rear/front or snap-in mounting.
- Single or dual-fuse holder.
- 2-pole rocker switch.
- Custom-specific versions are available on request.

### Typical applications

- Portable electrical and electronic equipment
- Consumer goods
- EDP and office equipment
- Single-phase power supplies, switch-mode power supplies
- Test and measurement equipment
- Medical equipment

Filter selection table

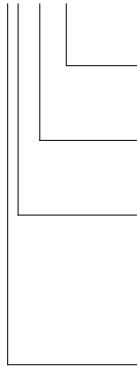
Filter	Rated current @ 40°C (25°C) [A]	Leakage current* @ 230VAC/50Hz [µA]	Inductance		Capacitance		Resistance R [kΩ]	Output connections 	Fuses** [Qty]	Weight [g]
			L1 [mH]	L2 [mH]	Cx [nF]	Cy [nF]				
FN 281-1-06	1 (1.2)	373	7.5		220	2.2	1000	-06	1	90
FN 281-2-06	2 (2.4)	373	2		220	2.2	1000	-06	1	90
FN 281-4-06	4 (4.8)	373	1		220	2.2	1000	-06	1	90
FN 281-6-06	6 (7.2)	373	0.45		220	2.2	1000	-06	1	90
FN 281-10-06	10 (11.6)	373	0.34		220	2.2	1000	-06	1	90
FN 282-1-06	1 (1.2)	373	7.5		220	2.2	1000	-06	2	90
FN 282-2-06	2 (2.4)	373	2		220	2.2	1000	-06	2	90
FN 282-4-06	4 (4.8)	373	1		220	2.2	1000	-06	2	90
FN 282-6-06	6 (7.2)	373	0.45		220	2.2	1000	-06	2	90
FN 282-10-06	10 (11.6)	373	0.34		220	2.2	1000	-06	2	90
FN 283-1-06	1 (1.2)	373	7.5		220	2.2	1000	-06	1	90
FN 283-2-06	2 (2.4)	373	2		220	2.2	1000	-06	1	90
FN 283-4-06	4 (4.8)	373	1		220	2.2	1000	-06	1	90
FN 283-6-06	6 (7.2)	373	0.45		220	2.2	1000	-06	1	90
FN 283-10-06	10 (11.6)	373	0.34		220	2.2	1000	-06	1	90
FN 284-1-06	1 (1.2)	373	7.5		220	2.2	1000	-06	2	90
FN 284-2-06	2 (2.4)	373	2		220	2.2	1000	-06	2	90
FN 284-4-06	4 (4.8)	373	1		220	2.2	1000	-06	2	90
FN 284-6-06	6 (7.2)	373	0.45		220	2.2	1000	-06	2	90
FN 284-10-06	10 (11.6)	373	0.34		220	2.2	1000	-06	2	90
FN 285-1-06	1 (1.2)	373	7.5		220	2.2	1000	-06	1	90
FN 285-2-06	2 (2.4)	373	2		220	2.2	1000	-06	1	90
FN 285-4-06	4 (4.8)	373	1		220	2.2	1000	-06	1	90
FN 285-6-06	6 (7.2)	373	0.45		220	2.2	1000	-06	1	90
FN 285-10-06	10 (11.6)	373	0.34		220	2.2	1000	-06	1	90
FN 286-1-06	1 (1.2)	373	7.5		220	2.2	1000	-06	2	90
FN 286-2-06	2 (2.4)	373	2		220	2.2	1000	-06	2	90
FN 286-4-06	4 (4.8)	373	1		220	2.2	1000	-06	2	90
FN 286-6-06	6 (7.2)	373	0.45		220	2.2	1000	-06	2	90
FN 286-10-06	10 (11.6)	373	0.34		220	2.2	1000	-06	2	90
FN 283E-1-06	1 (1.2)	373	7.5	0.4	220	2.2	1000	-06	1	100
FN 283E-2-06	2 (2.4)	373	2	0.4	220	2.2	1000	-06	1	100
FN 283E-4-06	4 (4.8)	373	1	0.4	220	2.2	1000	-06	1	100
FN 283E-6-06	6 (7.2)	373	0.45	0.4	220	2.2	1000	-06	1	100
FN 284E-1-06	1 (1.2)	373	7.5	0.4	220	2.2	1000	-06	2	100
FN 284E-2-06	2 (2.4)	373	2	0.4	220	2.2	1000	-06	2	100
FN 284E-4-06	4 (4.8)	373	1	0.4	220	2.2	1000	-06	2	100
FN 284E-6-06	6 (7.2)	373	0.45	0.4	220	2.2	1000	-06	2	100
FN 282B-1-06	1 (1.2)	2	7.5		220		1000	-06	2	90
FN 282B-2-06	2 (2.4)	2	2		220		1000	-06	2	90
FN 282B-4-06	4 (4.8)	2	1		220		1000	-06	2	90
FN 282B-6-06	6 (7.2)	2	0.45		220		1000	-06	2	90
FN 282B-10-06	10 (11.6)	2	0.34		220		1000	-06	2	90
FN 284B-1-06	1 (1.2)	2	7.5		220		1000	-06	2	90
FN 284B-2-06	2 (2.4)	2	2		220		1000	-06	2	90
FN 284B-4-06	4 (4.8)	2	1		220		1000	-06	2	90
FN 284B-6-06	6 (7.2)	2	0.45		220		1000	-06	2	90
FN 284B-10-06	10 (11.6)	2	0.34		220		1000	-06	2	90
FN 286B-1-06	1 (1.2)	2	7.5		220		1000	-06	2	90
FN 286B-2-06	2 (2.4)	2	2		220		1000	-06	2	90
FN 286B-4-06	4 (4.8)	2	1		220		1000	-06	2	90
FN 286B-6-06	6 (7.2)	2	0.45		220		1000	-06	2	90
FN 286B-10-06	10 (11.6)	2	0.34		220		1000	-06	2	90

\* Maximum leakage under normal operating conditions. Note: if the neutral line is interrupted, worst case leakage could reach twice this level.

\*\* Filters are delivered without fuse.

**Product selector**

FN 28xx-yy-zz



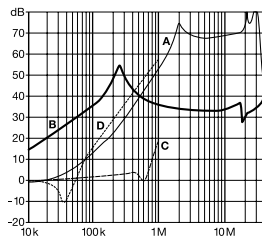
- 06: Faston 6.3 x 0.8mm (spade/soldering)
- 1 to 10: Rated current
- Blank: Standard version
- E: Optional earth line choke
- B: Medical version (with bleed resistor and without Y2-capacitor)
- 1: Flange mounting version top/bottom, single-fuse
- 2: Flange mounting version top/bottom, dual-fuse
- 3: Flange mounting version left/right, single-fuse
- 4: Flange mounting version left/right, dual-fuse
- 5: Snap-in version, single-fuse
- 6: Snap-in version, dual-fuse

For example: FN 281-6-06, FN 283B-04-06, FN 283E-1-06

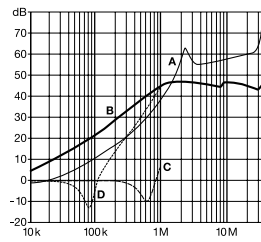
**Typical filter attenuation**

Per CISPR 17; A = 50Ω/50Ω sym; B = 50Ω/50Ω asym; C = 0.1Ω/100Ω sym; D = 100Ω/0.1Ω sym

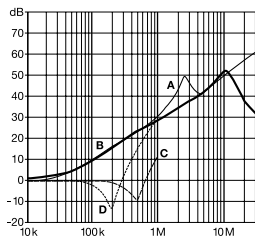
1A types



2 to 6A types

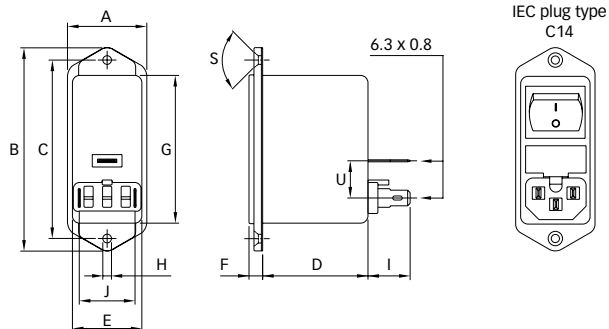


10A types

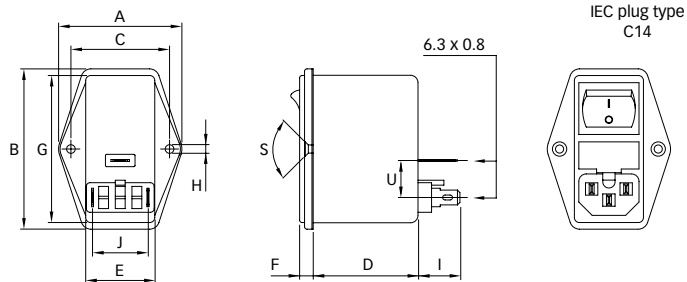


**Mechanical data**

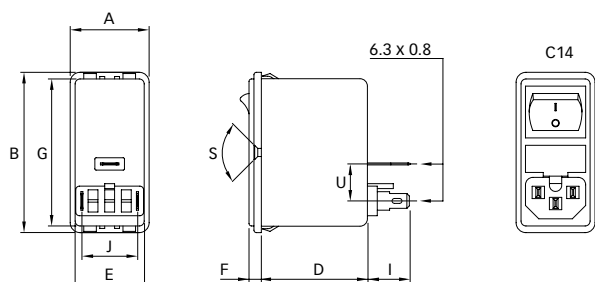
FN 281 / FN 282



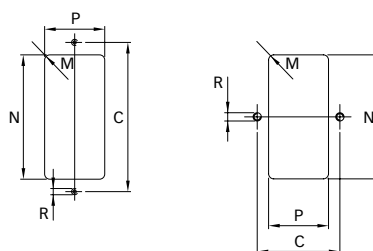
FN 283 / FN 284



FN 285 / FN 286



Panel cut out



**Dimensions**

	FN 281	FN 282	FN 283	FN 284	FN 285	FN 286	Tolerances
<b>A</b>	32	32	50	50	32	32	±0.3
<b>B</b>	82	82	65	65	65	65	±0.3
<b>C</b>	72	72	40	40			±0.1
<b>D</b>	43.1	43.1	43.1	43.1	43.6	43.6	±0.3
<b>E</b>	28.5	28.5	28.5	28.5	28.5	28.5	±0.25
<b>F</b>	5.5	5.5	5.5	5.5	5	5	±0.3
<b>G</b>	59.95 max.	59.95 max.	59.95 max.	59.95 max.	59.95 max.	59.95 max.	
<b>H</b>	Ø3.5	Ø3.5	Ø3.3	Ø3.3			
<b>I</b>	13.4	16.2	13.4	16.2	13.9	16.7	±0.3
<b>J</b>	22.5	22.5	22.5	22.5	22.5	22.5	
<b>M</b>	R ≤ 2.5	R ≤ 2.5	R ≤ 2.5	R ≤ 2.5	R ≤ 2.5	R ≤ 2.5	
<b>N</b>	60	60	60	60	61.5 +0.2/-0*	61.5 +0.2/-0*	+0.5/-0
<b>P</b>	29	29	29	29	29	29	+0.5/-0
<b>R</b>	M3	M3	M3	M3			
<b>S</b>	90°	90°	90°	90°			

\* For a panel thickness between 0.8 and 3mm  
 All dimensions in mm; 1 inch = 25.4mm  
 Tolerances according: ISO 2768-m / EN 22768-m

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