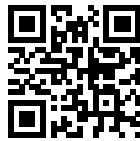


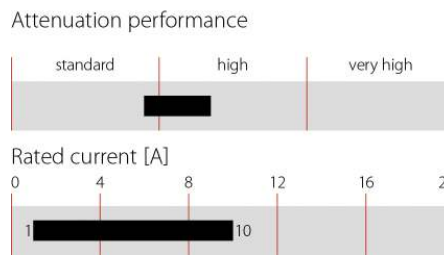
# Compact filtered power entry module



- Complies with IEC/EN 60601-1
- Rated currents up to 10 A
- Single or dual-fuse holder
- Fuses Ø 5 x 20 mm
- 2-pole rocker switch
- General purpose application
- Optional earth line choke (E type)
- Optional medical versions (B type)



### Performance indicators



### Approvals



### ROHS

(CQC except HI-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

### Technical specifications

<b>Maximum continuous operating voltage</b>	250 V, 50/60 Hz
<b>Operating frequency</b>	50 to 400 Hz
<b>Rated currents</b>	1 to 10 A @ 40 °C max.
<b>High potential test voltage</b>	P → PE 2000 VAC for 2 sec (standard types) P → N 760 VAC for 2 sec P → PE 2500 VAC for 2 sec (B types)
<b>Protection category</b>	IP40 according to IEC 60529
<b>Temperature range (operation and storage)</b>	-25 °C to +85 °C (25/85/21)
<b>Design corresponding to</b>	UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939
<b>Flammability corresponding to</b>	UL 94 V-2 or better
<b>MTBF @ 40°C/230V (Mil-HB-217F)</b>	1,500,000 hours
<b>Fuse holder</b>	1 or 2 fuses (Ø5 x 20mm)
<b>Marking</b>	max. 250 V ~ (text is print. below fuse symbol)
<b>Rocker switch description</b>	
<b>Function</b>	2-pole, dark not illuminated Marking I - 0
<b>Electrical specifications</b>	Inrush current 82 A 6,000 on-off operations according to UL 1054, TV5 10,000 on-off operations according to ENEC
<b>Mechanical life:</b>	50,000 cycles
<b>Switch ratings</b>	
<b>USA (UL) and Canada (C-UL)</b>	10 A, 125 VAC; 10 A, 250 VAC; 1/3 HP
<b>Europe (ENEC)</b>	10 A (4 A), 250 VAC*
<b>Operating frequency</b>	50 to 400 Hz

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

### 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** @ 230 VAC/50 Hz [µA]	Inductance		Capacitance		Resistance R [kΩ]	Output connections	Fuses** [Qty]	Weight [g]	
			L1 [mH]	L2 [mH]	Cx [nF]	Cy [nF]					
<b>FN 281-1-06</b>	1 (1.2)	373	7.5			220	2.2	1000	-06	1	140
<b>FN 281-2-06</b>	2 (2.4)	373	2			220	2.2	1000	-06	1	140
<b>FN 281-4-06</b>	4 (4.8)	373	1			220	2.2	1000	-06	1	140
<b>FN 281-6-06</b>	6 (7.2)	373	0.45			220	2.2	1000	-06	1	140
<b>FN 281-10-06</b>	10 (11.6)	373	0.34			220	2.2	1000	-06	1	140
<b>FN 282-1-06</b>	1 (1.2)	373	7.5			220	2.2	1000	-06	2	90
<b>FN 282-2-06</b>	2 (2.4)	373	2			220	2.2	1000	-06	2	90
<b>FN 282-4-06</b>	4 (4.8)	373	1			220	2.2	1000	-06	2	90
<b>FN 282-6-06</b>	6 (7.2)	373	0.45			220	2.2	1000	-06	2	90
<b>FN 282-10-06</b>	10 (11.6)	373	0.34			220	2.2	1000	-06	2	140
<b>FN 283-1-06</b>	1 (1.2)	373	7.5			220	2.2	1000	-06	1	140
<b>FN 283-2-06</b>	2 (2.4)	373	2			220	2.2	1000	-06	1	140
<b>FN 283-4-06</b>	4 (4.8)	373	1			220	2.2	1000	-06	1	140
<b>FN 283-6-06</b>	6 (7.2)	373	0.45			220	2.2	1000	-06	1	140
<b>FN 283-10-06</b>	10 (11.6)	373	0.34			220	2.2	1000	-06	1	140
<b>FN 284-1-06</b>	1 (1.2)	373	7.5			220	2.2	1000	-06	2	90
<b>FN 284-2-06</b>	2 (2.4)	373	2			220	2.2	1000	-06	2	90
<b>FN 284-4-06</b>	4 (4.8)	373	1			220	2.2	1000	-06	2	90
<b>FN 284-6-06</b>	6 (7.2)	373	0.45			220	2.2	1000	-06	2	90
<b>FN 284-10-06</b>	10 (11.6)	373	0.34			220	2.2	1000	-06	2	140
<b>FN 285-1-06</b>	1 (1.2)	373	7.5			220	2.2	1000	-06	1	140
<b>FN 285-2-06</b>	2 (2.4)	373	2			220	2.2	1000	-06	1	140
<b>FN 285-4-06</b>	4 (4.8)	373	1			220	2.2	1000	-06	1	140
<b>FN 285-6-06</b>	6 (7.2)	373	0.45			220	2.2	1000	-06	1	140
<b>FN 285-10-06</b>	10 (11.6)	373	0.34			220	2.2	1000	-06	1	140
<b>FN 286-1-06</b>	1 (1.2)	373	7.5			220	2.2	1000	-06	2	90
<b>FN 286-2-06</b>	2 (2.4)	373	2			220	2.2	1000	-06	2	90
<b>FN 286-4-06</b>	4 (4.8)	373	1			220	2.2	1000	-06	2	90
<b>FN 286-6-06</b>	6 (7.2)	373	0.45			220	2.2	1000	-06	2	90
<b>FN 286-10-06</b>	10 (11.6)	373	0.34			220	2.2	1000	-06	2	140
<b>FN 283E-1-06</b>	1 (1.2)	373	7.5	0.4		220	2.2	1000	-06	1	140
<b>FN 283E-2-06</b>	2 (2.4)	373	2	0.4		220	2.2	1000	-06	1	140
<b>FN 283E-4-06</b>	4 (4.8)	373	1	0.4		220	2.2	1000	-06	1	140
<b>FN 283E-6-06</b>	6 (7.2)	373	0.45	0.4		220	2.2	1000	-06	1	140
<b>FN 284E-1-06</b>	1 (1.2)	373	7.5	0.4		220	2.2	1000	-06	2	90
<b>FN 284E-2-06</b>	2 (2.4)	373	2	0.4		220	2.2	1000	-06	2	90
<b>FN 284E-4-06</b>	4 (4.8)	373	1	0.4		220	2.2	1000	-06	2	90
<b>FN 284E-6-06</b>	6 (7.2)	373	0.45	0.4		220	2.2	1000	-06	2	90
<b>FN 282B-1-06</b>	1 (1.2)	2	7.5			220		1000	-06	2	90
<b>FN 282B-2-06</b>	2 (2.4)	2	2			220		1000	-06	2	90
<b>FN 282B-4-06</b>	4 (4.8)	2	1			220		1000	-06	2	90
<b>FN 282B-6-06</b>	6 (7.2)	2	0.45			220		1000	-06	2	90
<b>FN 282B-10-06</b>	10 (11.6)	2	0.34			220		1000	-06	2	140

\* 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.

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 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	140
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	140

\* 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)

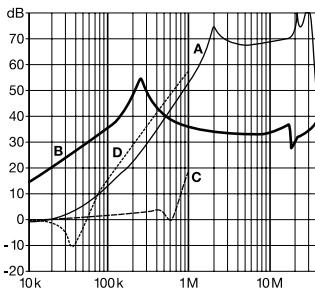
- 1: Flange mounting version top/bottom, single-fuse
- 2: Flange mounting version top/bottom, dual-fuse
- 3: Flange mounting version left/right, single-fuse
- 4: Flange mounting version left/right, dual-fuse
- 5: Snap-in version, single-fuse
- 6: Snap-in version, dual-fuse

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

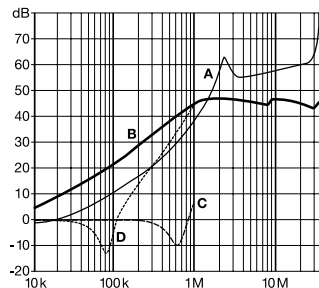
### Typical filter attenuation

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

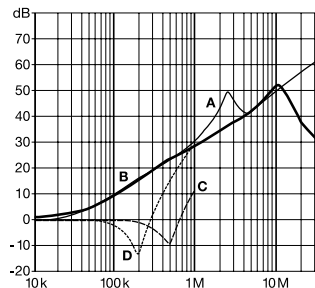
1 A types



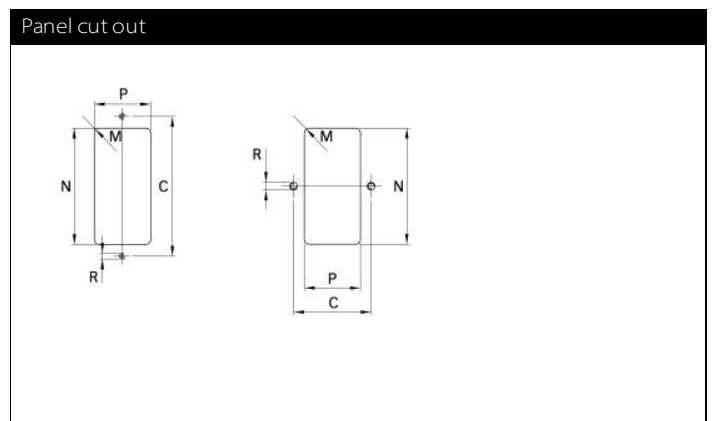
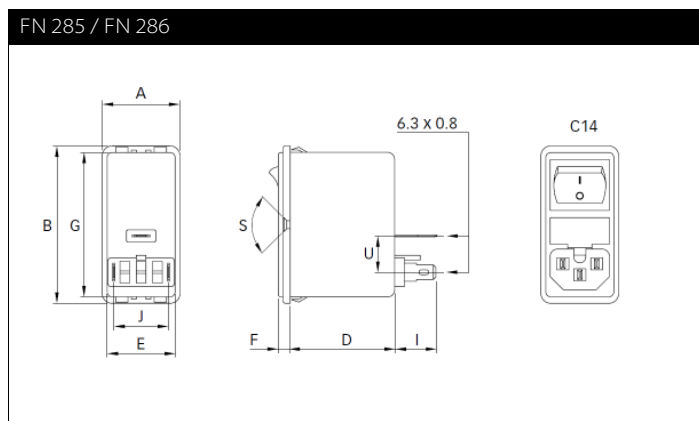
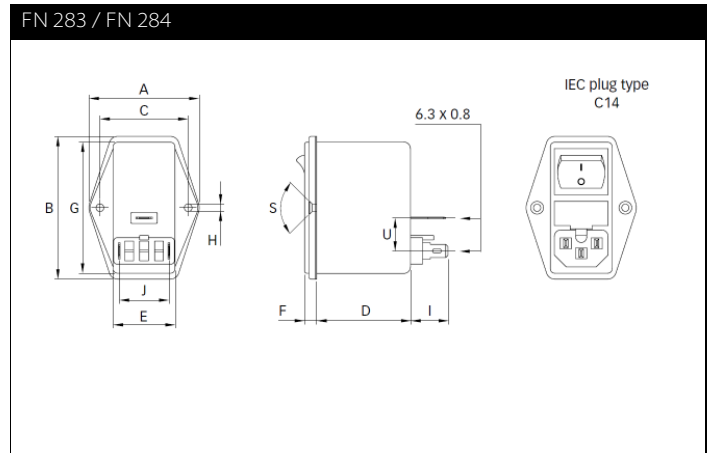
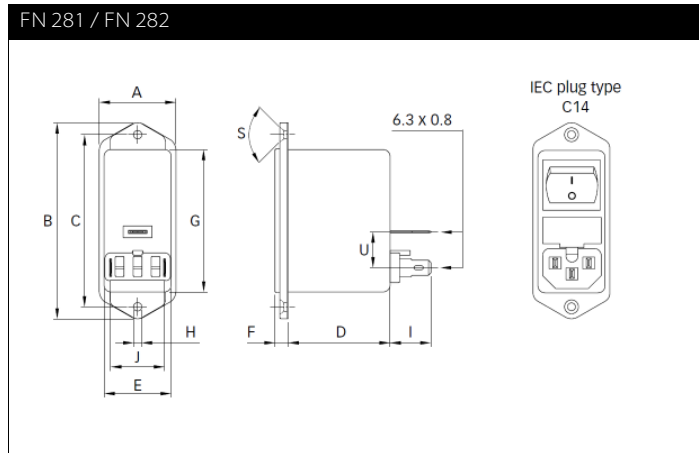
2 to 6 A types



10 A types



## Mechanical data



## 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>	∅ 3.5	∅ 3.5	∅ 3.3	∅ 3.3			
<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 3 mm

All dimensions in mm; 1 inch = 25.4mm

Tolerances according: ISO 2768-m / EN 22768-m

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



## Headquarters, global innovation and development center

### Switzerland

#### Schaffner Group

Nordstrasse 11  
4542 Luterbach  
T +41 32 6816 626  
F +41 32 6816 630  
[info@schaffner.com](mailto:info@schaffner.com)  
<http://www.schaffner.com>



## Sales and application centers

### China

#### Schaffner EMC Ltd. Shanghai

T20-3, No 565 Chuangye Road  
Pudong New Area  
201201 Shanghai  
T +86 21 3813 9500  
F +86 21 3813 9501 / 02  
[cschina@schaffner.com](mailto:cschina@schaffner.com)  
<http://www.schaffner.com.cn/>

### Finland

#### Schaffner Oy

Sauvonrinne 19 H  
08500 Lohja  
T +358 19 35 72 71  
[finlandsales@schaffner.com](mailto:finlandsales@schaffner.com)

### France

#### Schaffner EMC S.A.S.

112, Quai de Bezons  
Boîte postale 133  
95103 Argenteuil  
T +33 1 34 34 30 60  
F +33 1 39 47 02 28  
[francesales@schaffner.com](mailto:francesales@schaffner.com)

### Germany

#### Schaffner Deutschland GmbH

Schoemperlenstrasse 12B  
76185 Karlsruhe  
T +49 721 56910  
F +49 721 569110  
[germanysales@schaffner.com](mailto:germanysales@schaffner.com)

### Italy

#### Schaffner EMC S.r.l.

Via Galileo Galilei 47  
20092 Cinisello Balsamo (MI)  
T +39 02 66 04 30 45/47  
F +39 02 61 23 943  
[italysales@schaffner.com](mailto:italysales@schaffner.com)

### Japan

#### Schaffner EMC K.K.

1-32-12, Kamiyama, Setagaya-ku  
7F Mitsui-seimei Sangenjaya Bldg.  
154-0011 Tokyo  
T +81 3 5712 3650  
F +81 3 5712 3651  
[japansales@schaffner.com](mailto:japansales@schaffner.com)  
<http://www.schaffner.jp>

### Singapore

#### Schaffner EMC Pte Ltd.

Blk 3015A Ubi Road 1  
05-09 Kampong Ubi Industrial Estate  
408705 Singapore  
T +65 6377 3283  
F +65 6377 3281  
[singaporesales@schaffner.com](mailto:singaporesales@schaffner.com)

### Spain

#### Schaffner EMC España

Calle Caléndula 93  
Miniparc III, Edificio E  
El Soto de la Moraleja  
Alcobendas  
28109 Madrid  
T +34 618 176 133  
[spainsales@schaffner.com](mailto:spainsales@schaffner.com)

### Sweden

#### Schaffner EMC AB

Turebergstorg 1, 6  
19147 Sollentuna  
T +46 8 5792 1121 / 22  
F +46 8 92 96 90  
[swedensales@schaffner.com](mailto:swedensales@schaffner.com)

### Switzerland

#### Schaffner EMV AG

Nordstrasse 11  
4542 Luterbach  
T +41 32 6816 626  
F +41 32 6816 641  
[sales@schaffner.ch](mailto:sales@schaffner.ch)

### Taiwan R.O.C.

#### Schaffner EMV Ltd.

6 Floor, No. 413  
Rui Guang Road  
114 Neihu District Taipei City  
T +886 2 87525050  
F +886 2 87518086  
[taiwansales@schaffner.com](mailto:taiwansales@schaffner.com)

### Thailand

#### Schaffner EMC Co. Ltd.

Northern Region Industrial Estate  
67 Moo 4 Tambon Ban Klang  
Amphur Muang P.O. Box 14  
51000 Lamphun  
T +66 53 58 11 04  
F +66 53 58 10 19  
[thailandsales@schaffner.com](mailto:thailandsales@schaffner.com)

### UK

#### Schaffner Ltd.

5 Ashville Way  
Molly Millars Lane  
Wokingham  
RG41 2PL Berkshire  
T +44 118 9770070  
F +44 118 9792969  
[uksales@schaffner.com](mailto:uksales@schaffner.com)  
<http://www.schaffner.uk.com>

### USA

#### Schaffner EMC Inc.

52 Mayfield Avenue  
08837 Edison, New Jersey  
T +1 800 367 5566  
T +1 732 225 9533  
F +1 732 225 4789  
[usasales@schaffner.com](mailto:usasales@schaffner.com)  
<http://www.schaffner.com/us>

#### Schaffner MTC LLC

6722 Thirlane Road  
24019 Roanoke, Virginia  
T +1 276 228 7943  
F +1 276 228 7953  
<http://www.schaffner-mtc.com>

#### Schaffner Trencos LLC

2550 Brookpark Road  
44134 Cleveland, Ohio  
T +1 216 741 5282  
F +1 216 741 4860  
[www.schaffner-trencos.com](http://www.schaffner-trencos.com)

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