

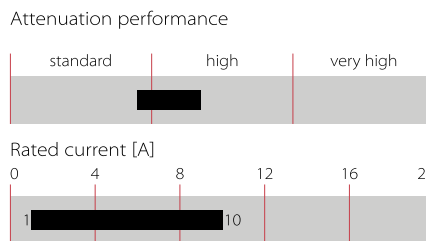
# Compact filtered power entry module



- Complies with IEC/EN 60601-1
- Rated currents up to 10 A
- Single or dual-fuse holder
- Fuses Ø5 x 20 mm
- 2-pole rocker switch
- General purpose application
- Optional earth line choke (E type)
- Optional medical versions (B type)



### Performance indicators



### Approvals & Compliances



(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

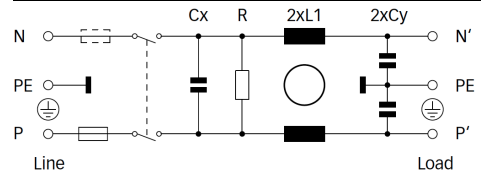
<b>Maximum continuous operating voltage</b>	250 V, 50/60 Hz
<b>Operating frequency</b>	DC to 400 Hz
<b>Rated currents</b>	1 to 10 A @ 40°C max.
<b>High potential test voltage</b>	P → PE 2000 VAC for 2 sec (standard types) P → PE 2500 VAC for 2 sec (B types) P → N 760 VAC for 2 sec
<b>Protection category</b>	IP 40 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/230 V (Mil-HB-217F)</b>	1,500,000 hours
<b>Fuse holder</b>	1 or 2 fuses (Ø5 x 20 mm) (certified to IEC 60127-6)
<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>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>Mechanical life</b>	50,000 cycles

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

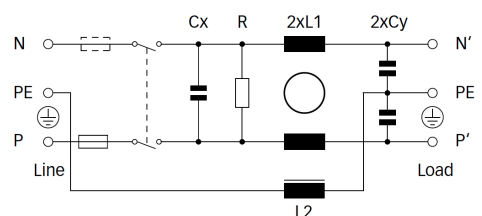
### Typical applications

- 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

### Typical electrical schematic



### E types



## Filter selection table

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

\*\* Tolerances apply: Inductance: -30/+50%, Capacitance: ±20%, Resistance: ±10%

\*\*\* Filters are delivered without fuse.

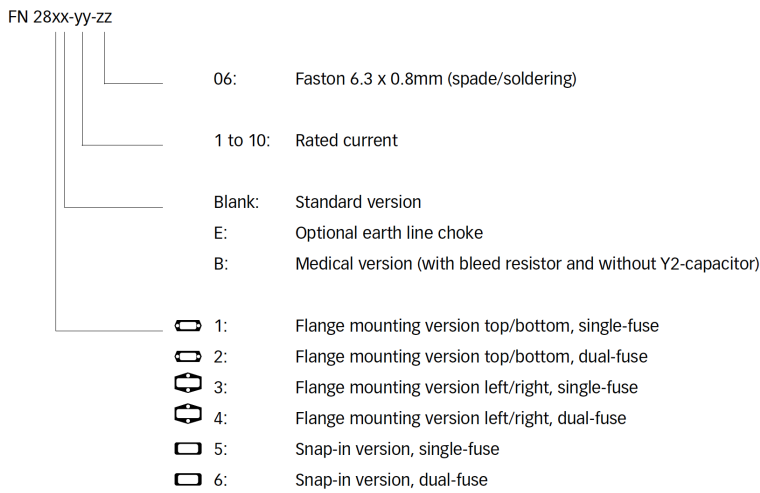
Filter	Rated current @ 40°C (25°C) [A]	Leakage current* @ 230 VAC/50 Hz [µA]	Inductance**		Capacitance**		Resistance** R [kΩ]	Output connections	Fuses*** [Qty]	Weight [g]
			L1 [mH]	L2 [mH]	Cx [nF]	Cy [nF]				
FN 284 B-1-06	1 (1.2)	2	7.5		220		1000	-06	2	90
FN 284 B-2-06	2 (2.4)	2	2		220		1000	-06	2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

\*\* Tolerances apply: Inductance: -30/+50%, Capacitance: ±20%, Resistance: ±10%

\*\*\* Filters are delivered without fuse.

### Product selector

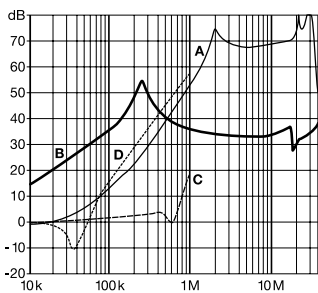


For example: FN 281-6-06, FN 283 B-04-06, FN 283 E-1-06

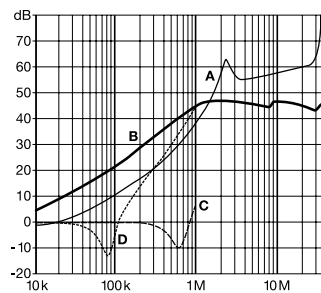
### Typical filter attenuation

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

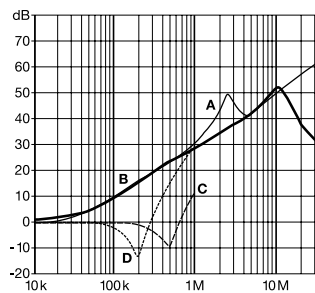
1 A types



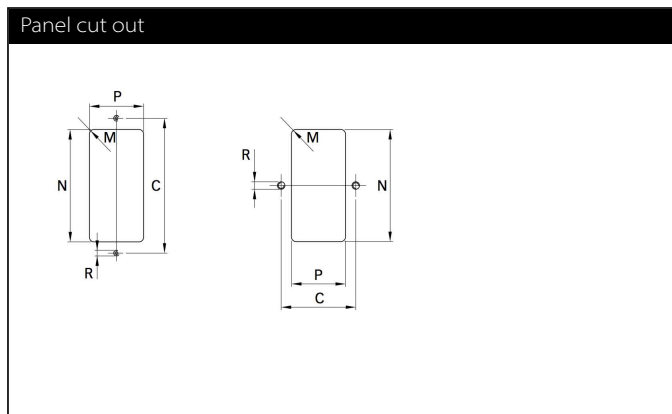
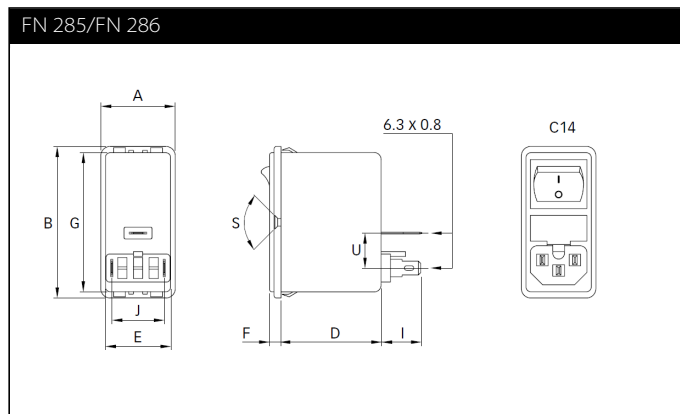
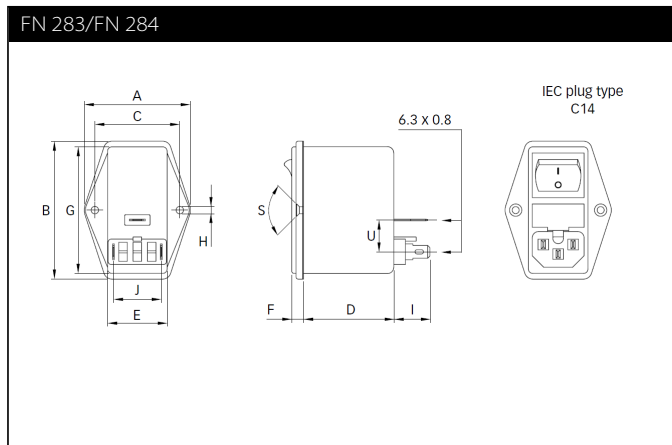
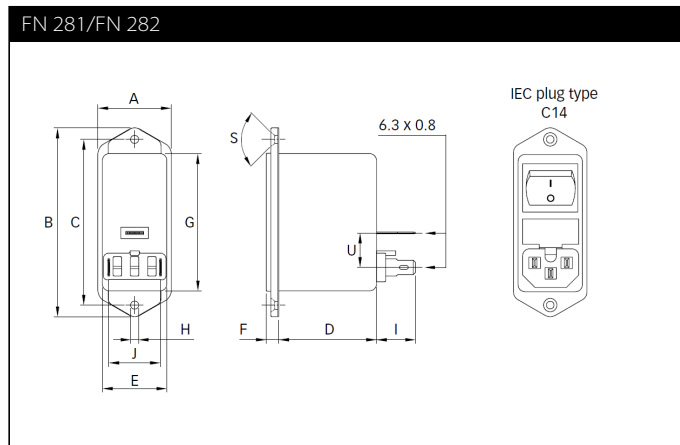
2 to 6 A types



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>	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 3 mm

All dimensions in mm; 1 inch = 25.4 mm  
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

### Switzerland

#### Schaffner Group

Industrie Nord  
Nordstrasse 11e  
4542 Luterbach  
T +41 32 681 66 26  
[info@schaffner.com](mailto:info@schaffner.com)



## Sales and application centers

### China

#### Schaffner EMC Ltd. Shanghai

T20-3 C, No 565 Chuangye Road,  
Pudong district  
201201 Shanghai  
T +86 21 3813 9500  
[cschina@schaffner.com](mailto:cschina@schaffner.com)  
[www.schaffner.com.cn](http://www.schaffner.com.cn)

### Finland

#### Schaffner Oy

Sauvonrinne 19 H  
08500 Lohja  
T +358 50 468 7284  
[finlandsales@schaffner.com](mailto:finlandsales@schaffner.com)

### France

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

16-20 Rue Louis Rameau  
95875 Bezons  
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  
[germanysales@schaffner.com](mailto:germanysales@schaffner.com)

### India

#### Schaffner India Pvt. Ltd

REGUS WORLD TRADE CENTRE  
WTC, 22nd Floor Unit No 2238, Brigade  
Gateway Campus, 26/1, Dr. Rajkumar Road  
Malleshwaram (W)  
560055 Bangalore  
T +91 80 67935355  
[indiasales@schaffner.com](mailto:indiasales@schaffner.com)

### Italy

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

Via Ticino, 30  
20900 Monza (MB)  
T +39 039 21 41 070  
[italysales@schaffner.com](mailto:italysales@schaffner.com)

### Japan

#### Schaffner EMC K.K.

Taiju-Seimei Sangenjaya Bldg.  
1-32-12, Kamiyuma, Setagaya-ku  
154-0011 Tokyo  
T +81 3 5712 3650  
F +81 3 5712 3651  
[japansales@schaffner.com](mailto:japansales@schaffner.com)  
[www.schaffner.jp](http://www.schaffner.jp)

### Singapore

#### Schaffner EMC Pte Ltd.

#05-09, Kg Ubi Ind. 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 Moraleja, Alcobendas  
28109 Madrid  
T +34 917 912 900  
F +34 917 912 901  
[spainsales@schaffner.com](mailto:spainsales@schaffner.com)

### Sweden

#### Schaffner EMC AB

Östermalmstorg 1  
114 42 Stockholm  
T +46 8 5050 2425  
[swedensales@schaffner.com](mailto:swedensales@schaffner.com)  
[www.schaffner.com](http://www.schaffner.com)

### Switzerland

#### Schaffner EMV AG

Industrie Nord  
Nordstrasse 11e  
4542 Luterbach  
T +41 32 681 66 88  
T +41 32 681 66 26  
[switzerlandsales@schaffner.com](mailto:switzerlandsales@schaffner.com)

### Taiwan

#### Schaffner EMV Ltd.

20 Floor-2, No 97, Section 1, XinTai 5th Road  
22175 XiZhi District New Taipei City 22175  
T +886 2 2697 5500  
F +886 2 2697 5533  
[taiwansales@schaffner.com](mailto:taiwansales@schaffner.com)  
[www.schaffner.com.tw](http://www.schaffner.com.tw)

### Thailand

#### Schaffner EMC Co. Ltd.

Northern Region Industrial Estate  
67 Moo 4 Tambon Ban Klang  
Amphur Muangng 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)

### United Kingdom

#### Schaffner Ltd.

1, Oakmede Place  
Binfield  
RG42 4JF Berkshire  
T +44 118 9770070  
F +44 118 9792969  
[uksales@schaffner.com](mailto:uksales@schaffner.com)

### USA

#### Schaffner EMC Inc.

52 Mayfield Avenue  
Edison, New Jersey  
T +1 732 225 9533  
F +1 732 225 4789  
[usasales@schaffner.com](mailto:usasales@schaffner.com)  
[www.schaffnerusa.com](http://www.schaffnerusa.com)

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