

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

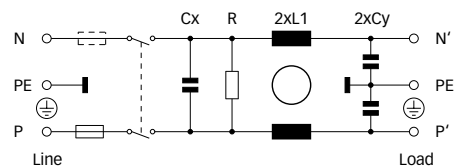
Technical specifications

| | |
|--|--|
| 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* |

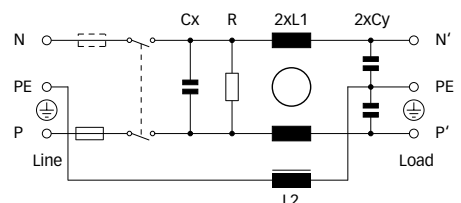
* Value in () relates to the inductive current charge: $\cos \varphi = 0.65$

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

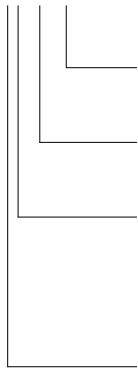
| Filter | Rated current @ 40°C (25°C) [A] | Leakage current* @ 230VAC/50Hz [µA] | Inductance | | Capacitance | | Resistance R [kΩ] | Output connections  | Fuses** [Qty] | Weight [g] |
|---------------|---------------------------------------|---|------------|------------|-------------|------------|-------------------------|--|------------------|---------------|
| | | | 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



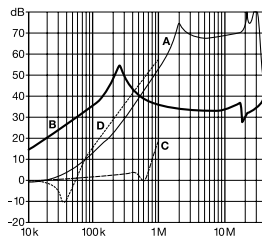
- 06: Faston 6.3 x 0.8mm (spade/soldering)
- 1 to 10: Rated current
- Blank: Standard version
- E: Optional earth line choke
- B: Medical version (with bleed resistor and without Y2-capacitor)
-  1: Flange mounting version top/bottom, single-fuse
-  2: Flange mounting version top/bottom, dual-fuse
-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

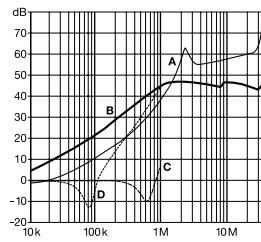
Typical filter attenuation

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

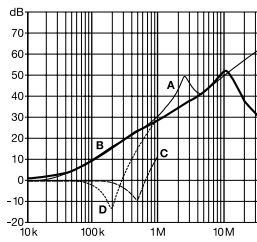
1A types



2 to 6A types

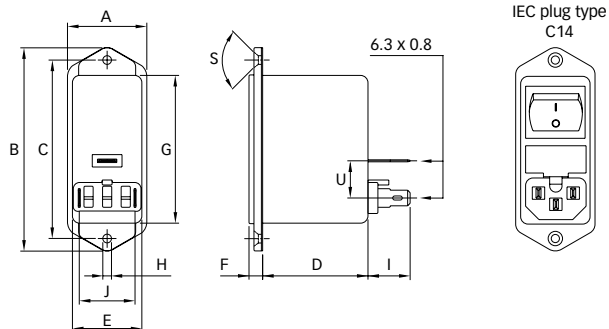


10A types

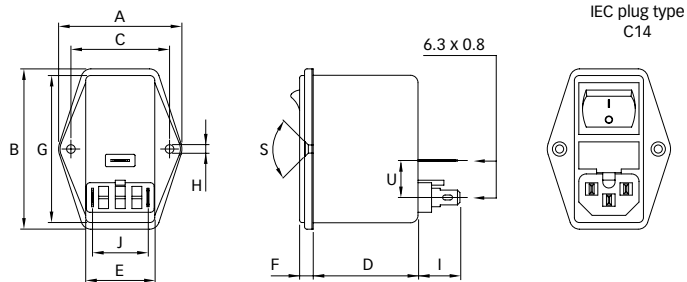


Mechanical data

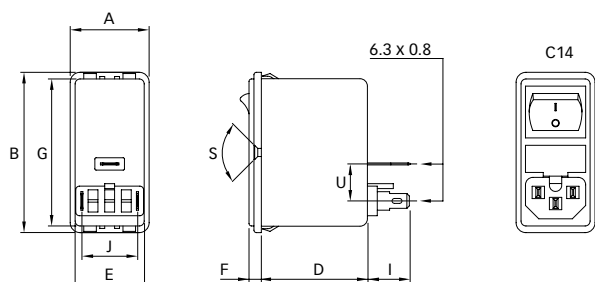
FN 281 / FN 282



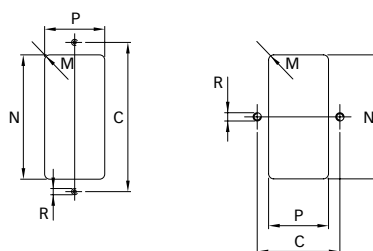
FN 283 / FN 284



FN 285 / FN 286



Panel cut out



Dimensions

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

**Headquarters, global innovation
and development center**

Schaffner Group
Nordstrasse 11
4542 Luterbach
Schweiz
T +41 32 681 66 26
F +41 32 681 66 30
info@schaffner.com
www.schaffner.com

To find your local partner within
Schaffner's global network, please go to
www.schaffner.com

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Sales and application centers

China
Schaffner EMC Ltd. Shanghai
T20-3, No 565 Chuangye Road
Pudong New Area
Shanghai 201201
T +86 21 3813 9500
F +86 21 3813 9501 / 02
cschina@schaffner.com
www.schaffner.com

Finland
Schaffner Oy
Sauvonrinne 19 H
08500 Lohja
T +358 19 35 72 71
F +358 19 32 66 10
finlandsales@schaffner.com

France
Schaffner EMC S.A.S.
112, Quai de Bezons
95103 Argenteuil
T +33 1 34 34 30 60
F +33 1 39 47 02 28
francesales@schaffner.com

Germany
Schaffner Deutschland GmbH
Schoemperlenstrasse 12B
76185 Karlsruhe
T +49 721 56910
F +49 721 569110
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

Japan
Schaffner EMC K.K.
Mitsui-Seimei Sangenjaya Bldg. 7F
1-32-12, Kamiyuma, Setagaya-ku
Tokyo 154-0011
T +81 3 5712 3650
F +81 3 5712 3651
japansales@schaffner.com
www.schaffner.jp

Singapore
Schaffner EMC Pte Ltd.
Blk 3015A Ubi Road 1
05-09 Kampong Ubi Industrial Estate
T +65 6377 3283
F +65 6377 3281
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

Sweden
Schaffner EMC AB
Turebergstorg 1, 6
19147 Sollentuna
T +46 8 5792 1121 / 22
F +46 8 92 96 90
swedensales@schaffner.com

Switzerland
Schaffner EMV AG
Nordstrasse 11
4542 Luterbach
T +41 32 681 66 26
F +41 32 681 66 41
sales@schaffner.ch

Taiwan
Schaffner EMV Ltd.
6th Floor, No 413
Rui Guang Road
Neihu District
Taipei City 114
T +886 2 87525050
F +886 2 87518086
taiwansales@schaffner.com

Thailand
Schaffner EMC Co. Ltd.
Northern Region Industrial Estate
67 Moo 4 Tambon Ban Klang
Amphur Muang P.O. Box 14
Lamphun 51000
T +66 53 58 11 04
F +66 53 58 10 19
thailandsales@schaffner.com

UK
Schaffner Ltd.
5 Ashville Way
Molly Millars Lane
Wokingham
Berkshire RG41 2PL
T +44 118 9770070
F +44 118 9792969
uksales@schaffner.com
www.schaffner.uk.com

USA
Schaffner EMC Inc.
52 Mayfield Avenue
Edison, New Jersey 08837
T +1 732 225 9533
F +1 732 225 4789
usasales@schaffner.com
www.schaffner.com/us