



IEC Inlet Filters / Power Entry Modules FN 280

SCHAFFNER
energy efficiency and reliability

Compact filtered power entry module



- 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 versions (B type)

Approvals



Technical specifications

| | |
|---|---|
| Design corresponding to : | UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939 |
| Electrical specifications : | Inrush current 82A 6,000 on-off operations according to UL 1054, TV5 10,000 on-off operations according to ENEC |
| Europe (ENEC) : | 10A (4A), 250VAC* |
| Flammability corresponding to: | UL 94V-2 or better |
| Function : | 2-pole, dark not illuminated Marking I - 0 |
| Fuse holder: | 1 or 2 fuses (Ø5 x 20mm) |
| 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 |
| Marking: | max. 250V ~ (text is print. below fuse symbol) |
| Maximum continuous operating voltage : | 250V, 50/60Hz |
| Mechanical life:: | 50,000 cycles |
| MTBF @ 40°C/230V (Mil-HB-217F) : | 1,500,000 hours |
| Operating frequency: | 50 to 400 Hz |
| Operating frequency: | 50 to 400 Hz |
| Performance indicators: | FN280.jpg |
| Protection category : | IP40 according to IEC 60529 |
| Rated currents : | 1 to 10 A @ 40°C max. |
| Rocker switch description: | |
| Switch ratings: | |
| Temperature range (operation and storage) : | -25°C to +85°C (25/85/21) |
| USA (UL) and Canada (C-UL): | 10A, 125VAC; 10A, 250VAC; 1/3HP |

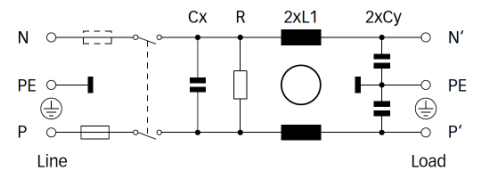
* Value in () relates to the inductive current charge: $\cos\phi = 0.65$

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.

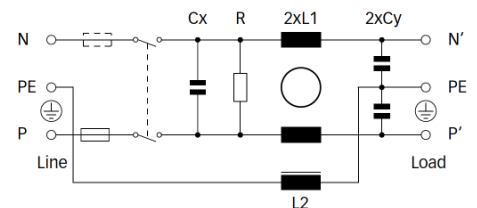
Features and benefits

- 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 electrical schematic



E types



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 |
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| 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 |
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| FN 284-10-06 | 10 (11.6) | 373 | 0.34 | | 220 | 2.2 | 1000 | -06 | 2 | 90 |
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| 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 |
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| 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

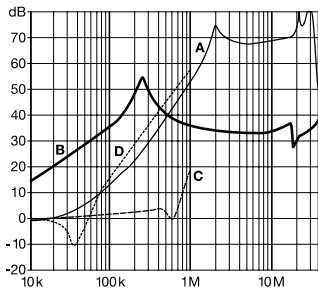
| | | | | |
|--|--|--|--|--|
| | | | 06: | Faston 6.3 x 0.8mm (spade/soldering) |
| | | | 1 to 10: | Rated current |
| | | | Blank: | Standard version |
| | | | E: | Optional earth line choke |
| | | | B: | Medical version (with bleed resistor and without Y2-capacitor) |
| | | |  1: | Flange mounting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

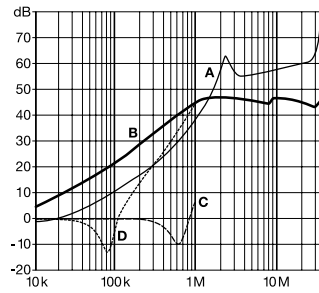
Typical filter attenuation

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

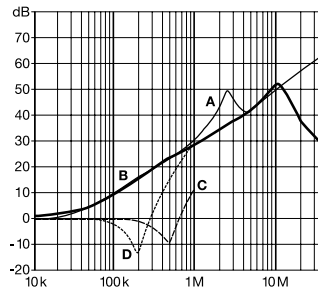
1A types



2 to 6A types

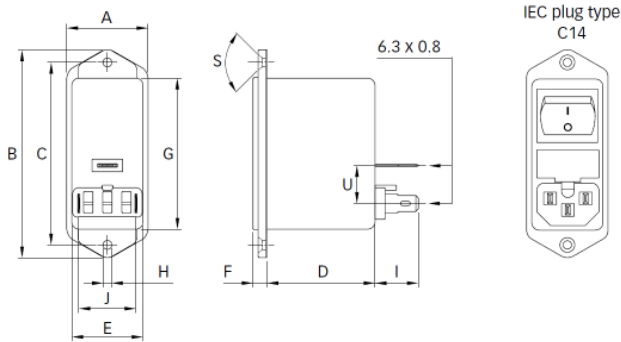


10A types

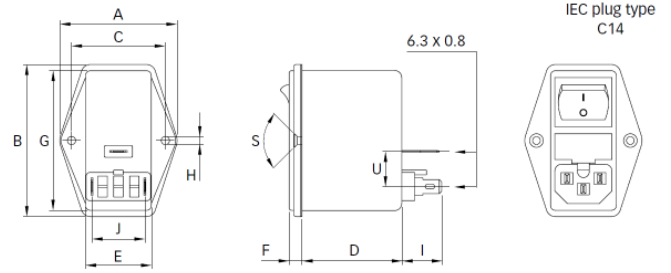


Mechanical data

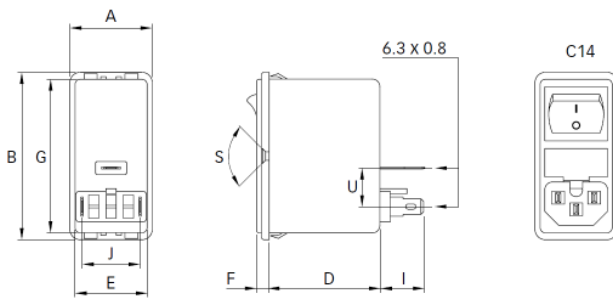
FN 281 / FN 282



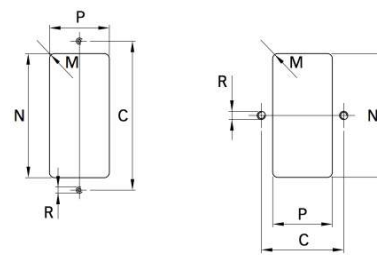
FN 283 / FN 284



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

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