

# IEC Inlet Filters FN 390

## Versatile Filtered Power Entry Module

**SCHAFNER**  
energy efficiency and reliability



- Rated currents up to 10A
- For one or two fuses
- Fuses Ø6.3 x 32mm or Ø5 x 20mm
- 2-pole rocker switch
- Voltage selector
- Optional earth line choke (E type)

### Approvals



RoHS  
2002/95/EC

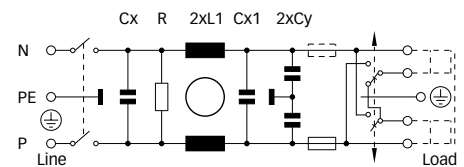
### Technical specifications

|                                            |                                                    |
|--------------------------------------------|----------------------------------------------------|
| 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<br>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):            | 2,200,000 hours                                    |
| <b>Voltage selector description:</b>       |                                                    |
| Function:                                  | Series/parallel                                    |
| Voltage marking:                           |                                                    |
| Series:                                    | 110-120V                                           |
| Parallel:                                  | 220-240V                                           |
| <b>Rocker switch description:</b>          |                                                    |
| Function:                                  | 2-pole, dark not illuminated                       |
|                                            | Marking I - 0                                      |
| <b>Electrical specifications:</b>          |                                                    |
|                                            | Inrush current 51A                                 |
|                                            | 6,000 on-off operations according to UL 1054, TV 5 |
|                                            | 10,000 on-off operations according to ENEC         |
| <b>Mechanical life:</b>                    |                                                    |
|                                            | 50,000 cycles                                      |
| <b>Switch ratings:</b>                     |                                                    |
| USA (UL) and Canada (C-UL):                | 10A, 125VAC; 10A, 250VAC; 1/3HP                    |
| Europe (ENEC):                             | 10A (4A), 250VAC*                                  |

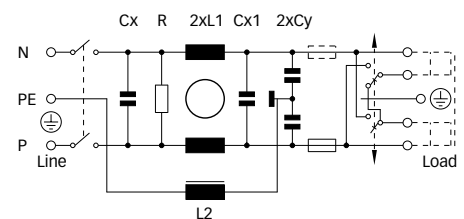
\* Value in () relates to the inductive current charge:  $\cos \gamma = 0.65$

### Typical electrical schematic

#### Standard types



#### E types



### Features and benefits

- High conducted attenuation performance, based on chokes with high saturation resistance and excellent thermal behavior.
- Rear or front mounting.
- Single or dual-fuse holder.
- USA Ø6.3 x 32mm or EU Ø5 x 20mm fuses.
- 2-pole rocker switch.
- Voltage selector 110-120V / 220-240V.
- 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

The FN 390 power entry module combines an IEC inlet, mains filter with single or dual-fuse holder, voltage selector and 2-pole rocker switch. Choosing FN 390 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. Multiple options designed to offer you the desired solution.

## Filter selection table

| Filter            | Rated current<br>@ 40°C (25°C) | Leakage current*<br>@ 230VAC/50Hz | Inductance |            | Cx  | Capacitance |            | Resistance<br>R | Output<br>connections<br> | Fuses**<br>[Qty] | Weight<br>[g] |
|-------------------|--------------------------------|-----------------------------------|------------|------------|-----|-------------|------------|-----------------|--------------------------------------------------------------------------------------------------------------|------------------|---------------|
|                   | [A]                            | [µA]                              | L1<br>[mH] | L2<br>[mH] |     | Cx1<br>[nF] | Cy<br>[nF] |                 |                                                                                                              |                  |               |
| FN 393-1-05-11    | 1 (1.2)                        | 560                               | 7.5        |            | 220 |             | 3.3        | 1000            | 05-11                                                                                                        | 1                | 200           |
| FN 393-2.5-05-11  | 2.5 (3)                        | 560                               | 2          |            | 220 |             | 3.3        | 1000            | 05-11                                                                                                        | 1                | 200           |
| FN 393-6-05-11    | 6 (7.2)                        | 560                               | 0.45       |            | 220 |             | 3.3        | 1000            | 05-11                                                                                                        | 1                | 200           |
| FN 394-1-05-11    | 1 (1.2)                        | 560                               | 7.5        |            | 220 |             | 3.3        | 1000            | 05-11                                                                                                        | 2                | 200           |
| FN 394-2.5-05-11  | 2.5 (3)                        | 560                               | 2          |            | 220 |             | 3.3        | 1000            | 05-11                                                                                                        | 2                | 200           |
| FN 394-6-05-11    | 6 (7.2)                        | 560                               | 0.45       |            | 220 |             | 3.3        | 1000            | 05-11                                                                                                        | 2                | 200           |
|                   |                                |                                   |            |            |     |             |            |                 |                                                                                                              |                  |               |
| FN 393E-1-05-11   | 1 (1.2)                        | 560                               | 7.5        | 0.4        | 220 |             | 3.3        | 1000            | 05-11                                                                                                        | 1                | 205           |
| FN 393E-2.5-05-11 | 2.5 (3)                        | 560                               | 2          | 0.4        | 220 |             | 3.3        | 1000            | 05-11                                                                                                        | 1                | 205           |
| FN 393E-6-05-11   | 6 (7.2)                        | 560                               | 0.45       | 0.4        | 220 |             | 3.3        | 1000            | 05-11                                                                                                        | 1                | 205           |
| FN 394E-1-05-11   | 1 (1.2)                        | 560                               | 7.5        | 0.4        | 220 |             | 3.3        | 1000            | 05-11                                                                                                        | 2                | 205           |
| FN 394E-2.5-05-11 | 2.5 (3)                        | 560                               | 2          | 0.4        | 220 |             | 3.3        | 1000            | 05-11                                                                                                        | 2                | 205           |
| FN 394E-6-05-11   | 6 (7.2)                        | 560                               | 0.45       | 0.4        | 220 |             | 3.3        | 1000            | 05-11                                                                                                        | 2                | 205           |
|                   |                                |                                   |            |            |     |             |            |                 |                                                                                                              |                  |               |
| FN 1393-1-05-11   | 1 (1.2)                        | 797                               | 16         |            | 220 | 100         | 4.7        | 470             | 05-11                                                                                                        | 1                | 210           |
| FN 1393-2.5-05-11 | 2.5 (3)                        | 797                               | 8          |            | 220 | 100         | 4.7        | 470             | 05-11                                                                                                        | 1                | 210           |
| FN 1393-6-05-11   | 6 (7.2)                        | 797                               | 2.5        |            | 220 | 100         | 4.7        | 470             | 05-11                                                                                                        | 1                | 210           |
| FN 1393-10-05-11  | 10 (12)                        | 797                               | 0.6        |            | 220 | 100         | 4.7        | 470             | 05-11                                                                                                        | 1                | 210           |
| FN 1394-1-05-11   | 1 (1.2)                        | 797                               | 16         |            | 220 | 100         | 4.7        | 470             | 05-11                                                                                                        | 2                | 210           |
| FN 1394-2.5-05-11 | 2.5 (3)                        | 797                               | 8          |            | 220 | 100         | 4.7        | 470             | 05-11                                                                                                        | 2                | 210           |
| FN 1394-6-05-11   | 6 (7.2)                        | 797                               | 2.5        |            | 220 | 100         | 4.7        | 470             | 05-11                                                                                                        | 2                | 210           |
| FN 1394-10-05-11  | 10 (12)                        | 797                               | 0.6        |            | 220 | 100         | 4.7        | 470             | 05-11                                                                                                        | 2                | 210           |

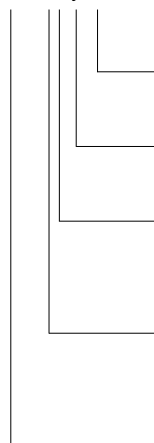
\* Maximum leakage under normal operating conditions. Note: if the neutral line is interrupted, worst case leakage could reach twice this level.

\*\* Filters are delivered without fuse.

Note: for medical versions please contact your local partner within Schaffner's global network.

## Product selector

FN (1)39xx-y-zz



05-11: Faston 6.3 x 0.8mm

1 to 10: Rated current

Blank: Standard version

E: Optional earth line choke

3: 1 fuse (Ø5 x 20mm or Ø6.3 x 32mm)

4: 2 fuses (Ø5 x 20mm or Ø6.3 x 32mm)

Blank: Standard version

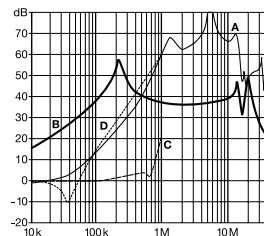
1: Additional Cx1 capacitor and higher inductivity

For example: FN 393-1-05-11, FN 394E-2.5-05-11, FN 1394-10-05-11

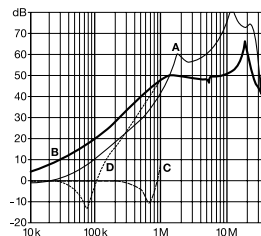
## Typical filter attenuation

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

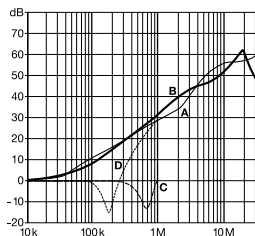
FN 39x: 1A types



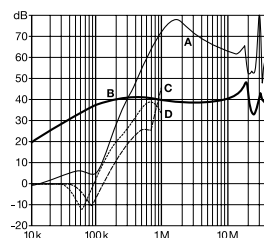
FN 39x: 2.5A types



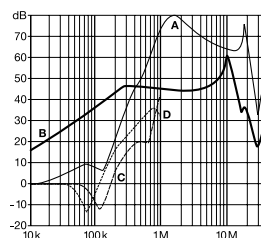
FN 39x: 6A types



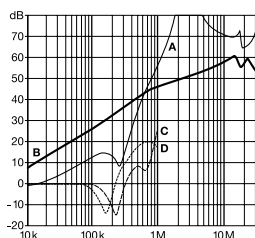
FN 139x: 1A types



FN 139x: 2.5A types

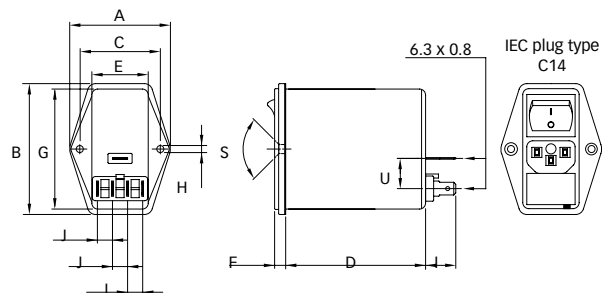


FN 139x: 6 and 10A types

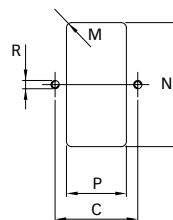


## Mechanical data

1 to 10A types



Panel cut out



## Dimensions

|   | 1 to 10A | Tolerances |
|---|----------|------------|
| A | 50       | ±0.3       |
| B | 65       | ±0.3       |
| C | 40       | ±0.1       |
| D | 69.5     | ±0.3       |
| E | 28       |            |
| F | 5.5      | ±0.3       |
| G | 59.6     |            |
| H | Ø3.3     |            |
| I | 15       |            |
| J | 7.5      |            |
| M | R ≤ 2.5  |            |
| N | 60.03    | ±0.2       |
| P | 29.03    | ±0.2       |
| R | M3       |            |
| S | 90°      |            |
| U | 15       |            |

All dimensions in mm; 1 inch = 25.4mm  
Tolerances according: ISO 2768-m / EN 22768-m

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