

AC/DC Filter 2-Stage, DIN Rail Mounting, Overcurrent and Overvoltage Protection



Housing RI



Housing RI with Circuit Breaker



Housing TI

See below:  
[Approvals and Compliances](#)

**Description**

- Single-phase line filter in standard and medical versions
- 2- Stages filter
- Very high attenuation
- broadband
- Fuseholder
- Thermal circuit breaker
- Surge protection

**Unique Selling Proposition**

- Slim filter for DIN-rail mounting or chassis mounting
- With fuse holder or circuit breaker for equipment
- With overvoltage protection
- Quick wiring with cage clamp terminals

**Characteristics**

- Protection against interference voltage from the mains
- Possible interferences generated in the equipment are strongly attenuated
- Especially designed for electric switch and control cabinets
- Suitable for use in equipment according to IEC/UL 62368-1
- Suitable for use in medical equipment according to IEC/UL 60601-1

**Weblinks**

[pdf data sheet](#), [html datasheet](#), [General Product Information](#), [Approvals](#), [Distributor-Stock-Check](#), [Detailed request for product](#), [Microsite](#), [Landing Page](#)

**Technical Data**

|                                 |   |
|---------------------------------|---|
| Ratings IEC                     | 1 - 16A @ Ta 40 °C / 250VAC; 50Hz<br>48/250 VDC                         |
| Ratings UL/CSA                  | 1 - 16A @ Ta 40 °C / 125/250VAC;<br>60Hz<br>48/250 VDC                  |
| Leakage Current                 | standard < 1 mA (250V / 50Hz)   |
| Dielectric Strength             | 1.7 kVDC between L-N<br>2.7 kVDC between L/N-PE<br>Test voltage (2 sec) |
| Allowable Operation Temperature | -40 °C to 100 °C  |
| Climatic Category               | 40/100/21 acc. to IEC 60068-1   |
| IP-Protection                   | IP20 IEC 60529  |
| Protection Class                | Suitable for appliances with protection class I acc. to IEC 61140       |
| Terminal                        | Spring cage terminals ,<br>0.2 - 2.5 mm <sup>2</sup> , 24 - 12 AWG      |
| Material: Housing               | Plastics, black, UL 94V-0   |

|                                   |  |
|-----------------------------------|--|
| Circuit Breakers                  | Acc. IEC/EN 60934, UL 1077, CSA 22.2 no. 235<br>3 - 15 A<br>Short circuit capacity Icn:<br>2000 A<br>Climatic Category 05 / 060 / 21 acc. to IEC 60068-1 |
| Fuseholder                        | 1-pole, Shocksafe category PC2 acc. to IEC 60127-6<br>for fuse-links 5 x 20mm  |
| Rated Power Acceptance @ Ta 23 °C | 5 x 20: 2.5W   |
| Power Acceptance @ Ta > 23°C      | Admissible power acceptance at higher ambient temperature see derating curves  |
| Surge protection                  | Climatic Category 40 / 085 / 21 acc. to IEC 60068-1<br>320 VAC , 420 VDC , 0.4 W   |
| Line Filter                       | Standard and Industrial Version, IEC 60939, UL 60939-3, CSA C22.2 no. 8<br><a href="#">Technical Details</a>   |
| MTBF                              | > 200'000h acc. to MIL-HB-217 F  |

**Approvals and Compliances**

Detailed information on product approvals, code requirements, usage instructions and detailed test conditions can be looked up in [Details about Approvals](#)

SCHURTER products are designed for use in industrial environments. They have approvals from independent testing bodies according to national and international standards. Products with specific characteristics and requirements such as required in the automotive sector according to IATF 16949, medical technology according to ISO 13485 or in the aerospace industry can be offered exclusively with customer-specific, individual agreements by SCHURTER.

## Approvals

The approval mark is used by the testing authorities to certify compliance with the safety requirements placed on electronic products.

Approval Reference Type: FPBB Rail

| Approval Logo  | Certificates                  | Certification Body | Description                  |
|--|-------------------------------|--------------------|------------------------------|
|  | <a href="#">VDE Approvals</a> | VDE                | Certificate Number: 40047767 |
|  | <a href="#">UL Approvals</a>  | UL                 | UL File Number: E495089      |

## Product standards

Product standards that are referenced

| Organization   | Design                | Standard         | Description   |
|--|-----------------------|------------------|---|
|  | Designed according to | IEC 60320-1      | Appliance couplers for household and similar general purposes         |
|  | Designed according to | IEC 60939        | Passive filters for suppressing electromagnetic interference          |
|  | Designed according to | IEC 60127-6      | Miniature fuses. Part 6. Fuse-holders for miniature fuse-links        |
|  | Designed according to | UL 498           | Standard for Attachment Plugs and Receptacles                         |
|  | Designed according to | UL 60939-3       | Electromagnetic interference filters                                  |
|  | Designed according to | CSA C22.2 no. 42 | General Use Receptacles, Attachment Plugs, and Similar Wiring Devices |
|  | Designed according to | CSA C22.2 no. 8  | Electromagnetic interference (EMI) filters                            |

## Application standards

Application standards where the product can be used

| Organization   | Design                         | Standard       | Description  |
|--|--------------------------------|----------------|--|
|  | Designed for applications acc. | IEC/UL 62368-1 | IEC 62368-1 includes the basic requirements for safety of audio, video, information technology and office equipment. |
|  | Designed for applications acc. | IEC 60601-1    | Medical electrical equipment - Part 1: General requirements for basic safety and essential performance               |

## Compliances

The product complies with following Guide Lines

| Identification   | Details                                      | Initiator   | Description   |
|--|--|-------------|---|
|  | <a href="#">CE declaration of conformity</a> | SCHURTER AG | The CE marking declares that the product complies with the applicable requirements laid down in the harmonisation of Community legislation on its affixing in accordance with EU Regulation 765/2008. |
|  | RoHS   | SCHURTER AG | Directive RoHS 2011/65/EU, Amendment (EU) 2015/863  |
|  | China RoHS                                   | SCHURTER AG | The law SJ / T 11363-2006 (China RoHS) has been in force since 1 March 2007. It is similar to the EU directive RoHS.  |
|  | REACH  | SCHURTER AG | On 1 June 2007, Regulation (EC) No 1907/2006 on the Registration, Evaluation, Authorization and Restriction of Chemicals 1 (abbreviated as "REACH") entered into force.                               |
|  | Medical Technology                           | SCHURTER AG | Suitable for use in medical equipment according to IEC/UL 60601-1   |

Dimension [mm]  
Housing RI



Housing TI



## Diagrams

Diagram S1



1) Line, 2) Load  
 VDR only for versions with overvoltage protection

Diagram S2



1) Line, 2) Load  
 VDR only for versions with overvoltage protection

Diagram S3



1) Line, 2) Load  
 VDR only for versions with overvoltage protection

Diagram S4



1) Line, 2) Load  
 VDR only for versions with overvoltage protection

Diagram S5



1) Line, 2) Load  
 VDR only for versions with overvoltage protection

Diagram S6



1) Line, 2) Load  
 VDR only for versions with overvoltage protection

## Attenuation Loss

--- 50Ω differential mode \_\_\_\_ 50Ω common mode

Standard version



Medical version (M5)

1 A



3 A



6 A



10 A



12 A



16 A



Medical version (M80)

1 A



3 A



6 A



10 A



12 A



16 A



All Variants

| Rated current | Rated voltage | Rated voltage | Filter-Type          | Lea-<br>kage<br>Current | Ri   | Power<br>Loss | Fuseholder | Circuit-<br>breaker for<br>equipment | Surge protection | Dia-<br>gram | Housings | Weight | Order Number              |
|---------------|---------------|---------------|----------------------|-------------------------|------|---------------|------------|--------------------------------------|------------------|--------------|----------|--------|---------------------------|
| [A]           | [VAC]         | [VDC]         |                      | [mA]                    | [mΩ] | [W]           |            |                                      |                  |              |          | [g]    |                           |
| 1             | 250           | 250           | Standard version     | 0.5                     | 770  | 1.3           |            |                                      | -                | S1           | RI       | 115    | <a href="#">3-103-673</a> |
| 1             | 250           | 250           | Standard version     | 0.5                     | 770  | 1.3           |            |                                      | -                | S1           | TI       | 115    | <a href="#">3-103-714</a> |
| 1             | 250           | 250           | Standard version     | 0.5                     | 780  | 1.3           | ●          |                                      | -                | S2           | RI       | 115    | <a href="#">3-103-679</a> |
| 1             | 250           | 250           | Standard version     | 0.5                     | 770  | 1.3           |            |                                      | VDR              | S1           | RI       | 115    | <a href="#">3-103-699</a> |
| 1             | 250           | 250           | Standard version     | 0.5                     | 780  | 1.3           | ●          |                                      | VDR              | S2           | RI       | 115    | <a href="#">3-103-705</a> |
| 1             | 250           | 250           | Standard version     | 0.5                     | 780  | 1.3           | ●          |                                      | VDR              | S2           | TI       | 115    | <a href="#">3-103-736</a> |
| 1             | 250           | 250           | Medical Version (M5) | 0.005                   | 770  | 1.3           |            |                                      | -                | S4           | TI       | 115    | <a href="#">3-103-980</a> |
| 1             | 250           | 250           | Medical Version (M5) | 0.005                   | 780  | 1.3           | ●          |                                      | -                | S5           | TI       | 115    | <a href="#">3-103-986</a> |
| 3             | 250           | 250           | Standard version     | 0.5                     | 88   | 1.3           |            |                                      | -                | S1           | RI       | 115    | <a href="#">3-103-674</a> |

| Rated current | Rated voltage | Rated voltage | Filter-Type          | Leakage Current | Ri   | Power Loss | Fuseholder | Circuit-breaker for equipment | Surge protection | Diagram | Housings | Weight | Order Number |
|---------------|---------------|---------------|----------------------|-----------------|------|------------|------------|-------------------------------|------------------|---------|----------|--------|--------------|
| [A]           | [VAC]         | [VDC]         |                      | [mA]            | [mΩ] | [W]        |            |                               |                  |         |          | [g]    |              |
| 3             | 250           | 250           | Standard version     | 0.5             | 88   | 1.3        |            |                               | -                | S1      | TI       | 115    | 3-103-715    |
| 3             | 240           | 48            | Standard version     | 0.5             | 250  | 1.3        |            | ●                             | -                | S3      | RI       | 120    | 3-103-693    |
| 3             | 250           | 250           | Standard version     | 0.5             | 88   | 1.3        |            |                               | VDR              | S1      | RI       | 115    | 3-103-700    |
| 3             | 250           | 250           | Standard version     | 0.5             | 98   | 1.3        | ●          |                               | VDR              | S2      | RI       | 115    | 3-103-706    |
| 3             | 250           | 250           | Standard version     | 0.5             | 98   | 1.3        | ●          |                               | VDR              | S2      | TI       | 115    | 3-103-737    |
| 3             | 240           | 48            | Standard version     | 0.5             | 250  | 1.3        |            | ●                             | VDR              | S3      | RI       | 120    | 3-103-709    |
| 3             | 240           | 48            | Standard version     | 0.5             | 250  | 1.3        |            | ●                             | VDR              | S3      | TI       | 120    | 3-103-720    |
| 3             | 250           | 250           | Medical Version (M5) | 0.005           | 88   | 1.3        |            |                               | -                | S4      | TI       | 115    | 3-103-981    |
| 3             | 250           | 250           | Medical Version (M5) | 0.005           | 98   | 1.3        | ●          |                               | -                | S5      | TI       | 115    | 3-103-987    |
| 6             | 250           | 250           | Standard version     | 0.5             | 30   | 1.73       |            |                               | -                | S1      | RI       | 115    | 3-103-675    |
| 6             | 250           | 250           | Standard version     | 0.5             | 30   | 1.73       |            |                               | -                | S1      | TI       | 115    | 3-103-716    |
| 6             | 250           | 250           | Standard version     | 0.5             | 40   | 1.73       | ●          |                               | -                | S2      | RI       | 115    | 3-103-681    |
| 6             | 250           | 250           | Standard version     | 0.5             | 30   | 1.73       |            |                               | VDR              | S1      | RI       | 115    | 3-103-701    |
| 6             | 250           | 250           | Standard version     | 0.5             | 40   | 1.73       | ●          |                               | VDR              | S2      | RI       | 115    | 3-103-707    |
| 6             | 250           | 250           | Standard version     | 0.5             | 40   | 1.73       | ●          |                               | VDR              | S2      | TI       | 115    | 3-103-738    |
| 6             | 240           | 48            | Standard version     | 0.5             | 60   | 1.3        |            | ●                             | VDR              | S3      | RI       | 120    | 3-103-710    |
| 6             | 240           | 48            | Standard version     | 0.5             | 60   | 1.73       |            | ●                             | VDR              | S3      | TI       | 120    | 3-103-721    |
| 6             | 250           | 250           | Medical Version (M5) | 0.005           | 30   | 1.73       |            |                               | -                | S4      | TI       | 115    | 3-103-982    |
| 6             | 250           | 250           | Medical Version (M5) | 0.005           | 40   | 1.73       | ●          |                               | -                | S5      | TI       | 115    | 3-103-988    |
| 10            | 250           | 250           | Standard version     | 0.5             | 25   | 2.64       |            |                               | -                | S1      | RI       | 115    | 3-103-676    |
| 10            | 250           | 250           | Standard version     | 0.5             | 25   | 2.64       |            |                               | -                | S1      | TI       | 115    | 3-103-717    |
| 10            | 240           | 48            | Standard version     | 0.5             | 30   | 2.64       |            | ●                             | -                | S3      | RI       | 120    | 3-103-695    |
| 10            | 250           | 250           | Standard version     | 0.5             | 25   | 2.64       |            |                               | VDR              | S1      | RI       | 115    | 3-103-702    |
| 10            | 250           | 250           | Standard version     | 0.5             | 35   | 2.64       | ●          |                               | VDR              | S2      | RI       | 115    | 3-103-708    |
| 10            | 250           | 250           | Standard version     | 0.5             | 35   | 2.64       | ●          |                               | VDR              | S2      | TI       | 115    | 3-103-739    |
| 10            | 240           | 48            | Standard version     | 0.5             | 30   | 2.64       |            | ●                             | VDR              | S3      | RI       | 120    | 3-103-711    |
| 10            | 240           | 48            | Standard version     | 0.5             | 30   | 2.64       |            | ●                             | VDR              | S3      | TI       | 120    | 3-103-752    |
| 10            | 250           | 250           | Medical Version (M5) | 0.005           | 25   | 2.64       |            |                               | -                | S4      | TI       | 115    | 3-103-983    |
| 10            | 250           | 250           | Medical Version (M5) | 0.005           | 35   | 2.64       | ●          |                               | -                | S5      | TI       | 115    | 3-103-989    |
| 12            | 250           | 250           | Standard version     | 0.5             | 12   | 1.6        |            |                               | -                | S1      | RI       | 115    | 3-103-677    |
| 12            | 250           | 250           | Standard version     | 0.5             | 12   | 1.6        |            |                               | -                | S1      | TI       | 115    | 3-103-718    |
| 12            | 250           | 250           | Standard version     | 0.5             | 12   | 1.6        |            |                               | VDR              | S1      | RI       | 115    | 3-103-703    |
| 12            | 240           | 48            | Standard version     | 0.5             | 25   | 1.6        |            | ●                             | VDR              | S3      | RI       | 120    | 3-103-712    |

| Rated current | Rated voltage | Rated voltage | Filter-Type          | Leakage Current | Ri   | Power Loss | Fuseholder | Circuit-breaker for equipment | Surge protection | Diagram | Housings | Weight | Order Number |
|---------------|---------------|---------------|----------------------|-----------------|------|------------|------------|-------------------------------|------------------|---------|----------|--------|--------------|
| [A]           | [VAC]         | [VDC]         |                      | [mA]            | [mΩ] | [W]        |            |                               |                  |         |          | [g]    |              |
| 12            | 240           | 48            | Standard version     | 0.5             | 25   | 1.6        |            | ●                             | VDR              | S3      | TI       | 120    | 3-103-753    |
| 12            | 250           | 250           | Medical Version (M5) | 0.005           | 12   | 1.6        |            |                               | -                | S4      | TI       | 115    | 3-103-984    |
| 15            | 240           | 32            | Standard version     | 0.5             | 20   | 1.55       |            | ●                             | VDR              | S3      | RI       | 120    | 3-103-713    |
| 15            | 240           | 32            | Standard version     | 0.5             | 20   | 1.55       |            | ●                             | VDR              | S3      | TI       | 120    | 3-103-754    |
| 16            | 250           | 250           | Standard version     | 0.5             | 8    | 1.55       |            |                               | -                | S1      | RI       | 115    | 3-103-678    |
| 16            | 250           | 250           | Standard version     | 0.5             | 8    | 1.55       |            |                               | -                | S1      | TI       | 115    | 3-103-719    |
| 16            | 250           | 250           | Standard version     | 0.5             | 8    | 1.55       |            |                               | VDR              | S1      | RI       | 115    | 3-103-704    |
| 16            | 250           | 250           | Medical Version (M5) | 0.005           | 8    | 1.55       |            |                               | -                | S4      | TI       | 115    | 3-103-985    |

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