

1- stage filter for 3-phase systems



See below:

**Approvals and Compliances**

**Description**

- 3 phase line filter with standard attenuation
- Available as high voltage filter (up to 520 VAC)

**Applications**

- Voltage rating 480 and 520 VAC for world wide acceptance
- Protection against interference voltage from the mains
- For photovoltaic systems and industrial applications
- Suitable for use in equipment according to IEC/UL 60950

**Weblinks**

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

**Technical Data**

|                         |   |
|-------------------------|---|
| Rated Current           | 6 - 1100A   |
| Rated voltage           | 480/520 VAC, 50/60 Hz   |
| Approval for            | 6 - 1100A @ Ta 40 (75) °C / 480 VAC; 50Hz                           |
| Overload Current        | 1.5 x Ir  |
| Leakage Current         | industrial < 15mA (440V / 50 Hz)                                    |
| Dielectric Strength     | 480 VAC:  |
|                         | 2.25kVDC between L-L  |
|                         | 3kVDC between L-PE  |
|                         | 520 VAC:  |
|                         | 2.25kVDC between L-L<br>4 kVDC between L-PE<br>Test voltage (2 sec) |
| Number of Filter Stages | 1-stage   |
| Weight                  | 0.9 - 47 kg   |
| Material: Housing       | Metal   |
| Sealing Compound        | UL 94V-0  |

|                       |   |
|-----------------------|---|
| Mounting              | Screw-on mounting on chassis, from top                            |
| Terminal              | Screw clamps  |
| Operating Temperature | -25 °C to 100 °C  |
| Climatic Category     | 25/100/21 acc. to IEC 60068-1                                     |
| Degree of Protection  | IP 20 acc. to IEC 60529   |
| Protection Class      | Suitable for appliances with protection class I acc. to IEC 61140 |
| 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](#)

**Approvals**

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

Approval Reference Type: FMAC

| Approval Logo | Certificates  | Certification Body | Description                             |
|---------------|---------------|--------------------|---|
|               | VDE Approvals | VDE                | Certificate Number: 40004666 + 40004673 |
|               | UL Approvals  | UL                 | UL File Number: E72928                  |

**Product standards**

Product standards that are referenced

| Organization | Design                | Standard  | Description  |
|--------------|-----------------------|-----------|--|
|              | Designed according to | IEC 60939 | Passive filters for suppressing electromagnetic interference |
|              | Designed according to | UL 1283   | Electromagnetic interference filters                         |





**Application standards**

Application standards where the product can be used

| Organization   | Design                         | Standard     | Description   |
|--|--------------------------------|--------------|---|
|  | Designed for applications acc. | IEC/UL 60950 | IEC 60950-1 includes the basic requirements for the safety of information technology equipment. |

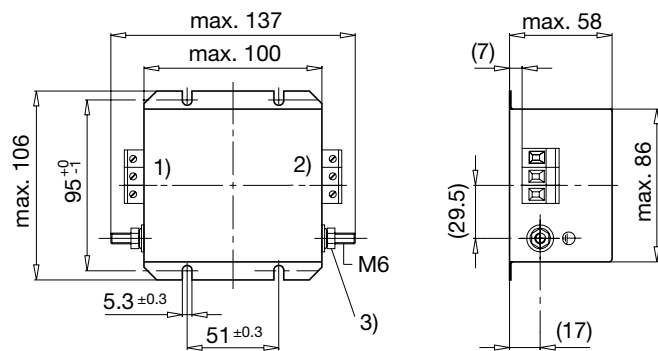
**Compliances**

The product complies with following Guide Lines

| Identification   | Details                      | Initiator   | Description   |
|--|------------------------------|-------------|---|
|  | CE declaration of conformity | 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 | EU Directive RoHS 2011/65/EU  |
|  | 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.                               |

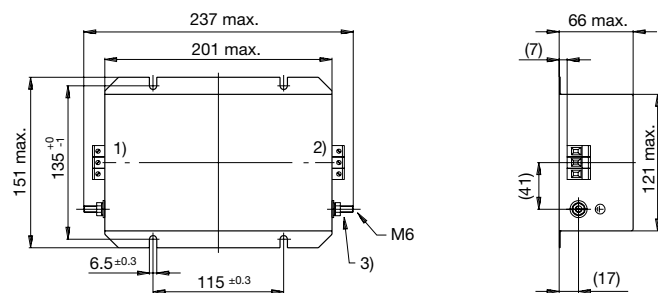
**Dimension [mm]**

Case 24-3

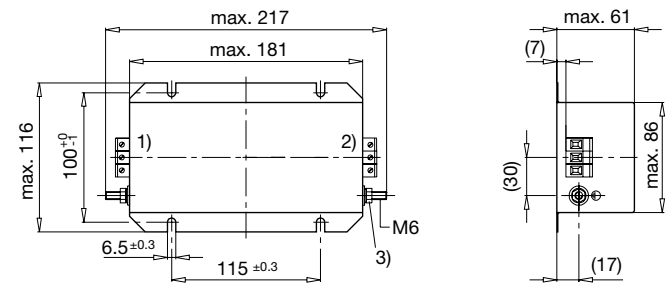


- 1) Line
- 2) Load
- 3) Nut torque 3...4 Nm

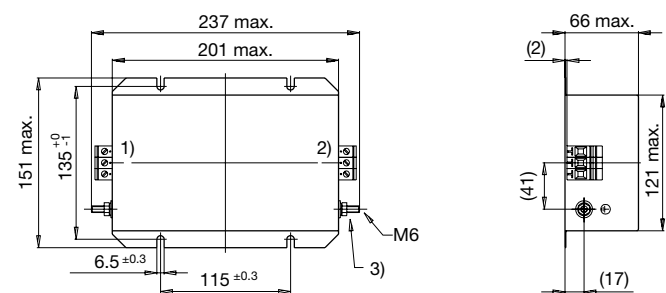
Case 32-3



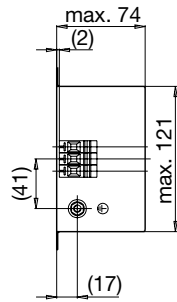
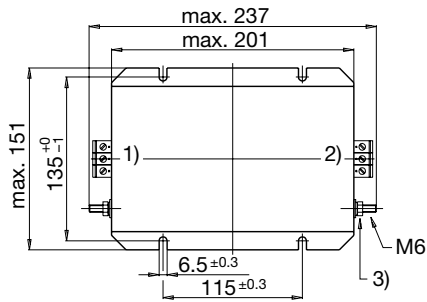
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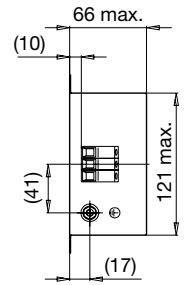
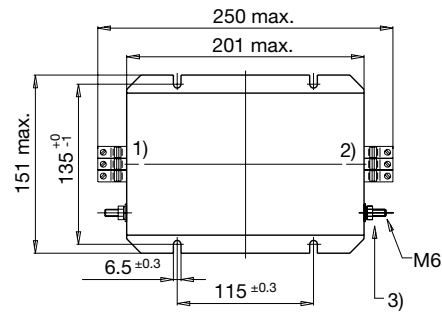
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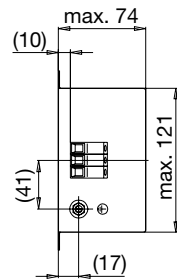
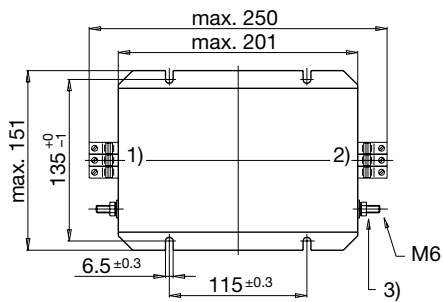
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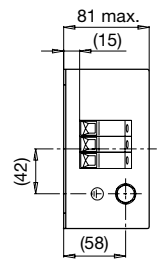
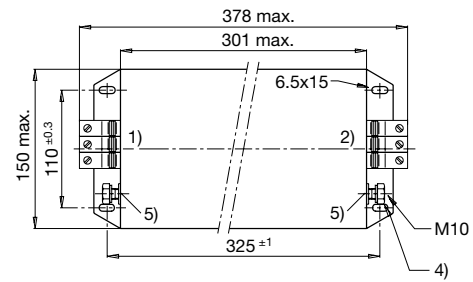
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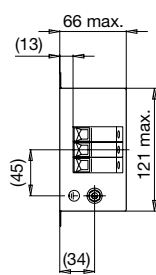
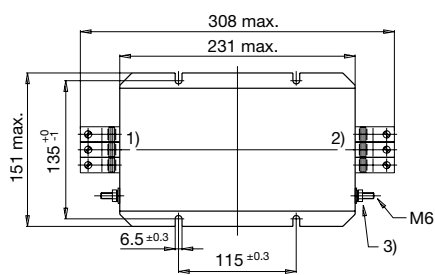
Case 34-C



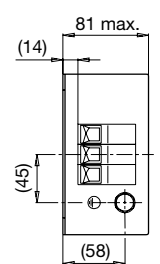
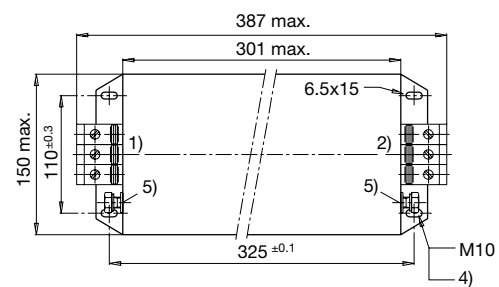
Case 37-3



Case 53-3



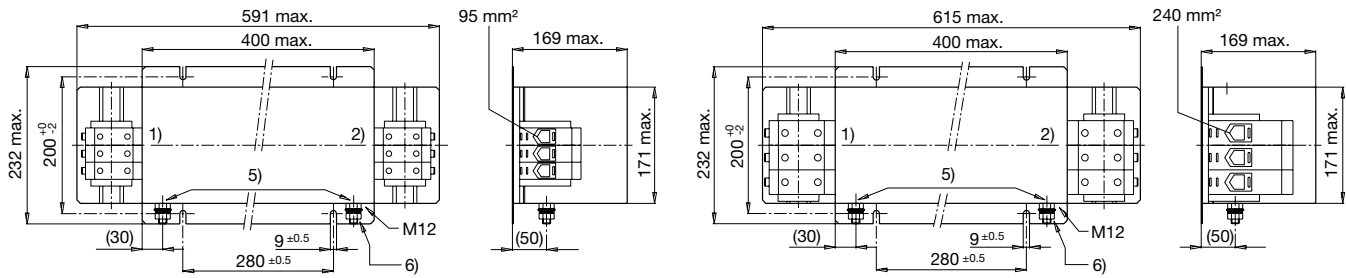
Case 54-3



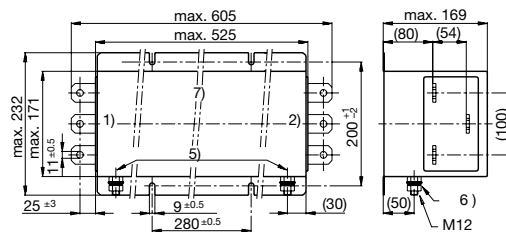
- 1) Line
- 2) Load
- 3) Tightening torque 3...4 Nm
- 4) Tightening torque 10...17 Nm
- 5) Do not unscrew lock-nut

Case 55-3

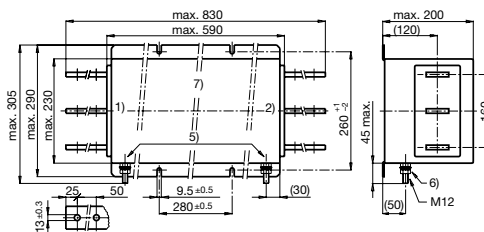
Case 56-3



Case 57



Case 74



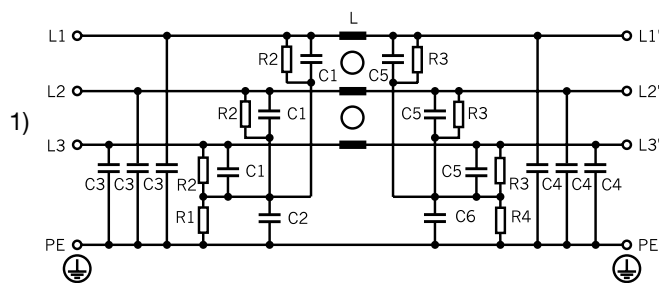
- 1) Line
- 2) Load
- 5) Do not unscrew lock-nut
- 6) Tightening torque 14...30 Nm
- 7) Current plates 720 mm<sup>2</sup> (60x12)

**Technical data to the filter components**

| Bemessungsstrom<br>@ Tu 40°C (75°C) [A] | Characteristic        | Rated Voltage [VAC] | L [mH] | C1 [µF] | C2 [µF] | C3 [nF] | C4 [nF] | C5 [µF] | C6 [µF] | R1 [MΩ] | R2 [MΩ] | R3 [MΩ] | R4 [MΩ] |
|---|-----------------------|---------------------|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 6 (6)                                   | Excellent attenuation | 480                 | 10     | 1.0     | -       | 100     | 10      | 2.2     | -       | -       | -       | 1       | 1       |
| 8 (5)                                   | Excellent attenuation | 480                 | 10     | 1.0     | -       | 100     | 10      | 2.2     | -       | -       | -       | 1       | 1       |
| 16 (10)                                 | Excellent attenuation | 480                 | 6      | 1.0     | -       | 100     | 10      | 2.2     | -       | -       | -       | 1       | 1       |
| 16 (Pending)                            | High voltage filter   | 520                 | 6      | 1.5     | -       | 50      | 11      | 1.5     | -       | 2       | 1       | 1       | 2       |
| 16 (10)                                 | Excellent attenuation | 480                 | 6      | 1.0     | -       | 100     | 10      | 2.2     | -       | -       | -       | 1       | 1       |
| 25 (15)                                 | Excellent attenuation | 480                 | 3      | 4.4     | 1       | 10      | 47      | 4.4     | 1       | 2.2     | 1       | 1       | 2.2     |
| 25 (14)                                 | High attenuation      | 480                 | 2.4    | 4.4     | 1       | 10      | 47      | 4.4     | 1       | 2.2     | -       | 1       | 2       |
| 25 (Pending)                            | High voltage filter   | 520                 | 3      | 3       | 1.1     | 50      | 11      | 3       | 1.1     | 2       | 1       | 1       | 2       |
| 36 (20)                                 | High attenuation      | 480                 | 1.5    | 4.4     | 1       | 10      | 47      | 4.4     | 1       | 2.2     | -       | 1       | 2       |
| 36 (Pending)                            | High voltage filter   | 520                 | 2      | 3       | 1.1     | 50      | 11      | 3       | 1.1     | 2       | 1       | 1       | 2       |
| 50 (32)                                 | Excellent attenuation | 480                 | 1      | 4.4     | 1       | 10      | 100     | 4.4     | 1       | 2.2     | 1       | 1       | 2.2     |
| 50 (30)                                 | High attenuation      | 480                 | 1      | 4.4     | 1       | 10      | 100     | 4.4     | 1       | 2.2     | -       | 1       | 2       |
| 50 (Pending)                            | High voltage filter   | 520                 | 1      | 3       | 1.1     | 50      | 11      | 3       | 1.1     | 2       | 1       | 1       | 2       |
| 64 (37)                                 | High attenuation      | 480                 | 0.6    | 4.4     | 1       | 10      | 100     | 4.4     | 1       | 2.2     | -       | 1       | 2       |
| 80 (45)                                 | Excellent attenuation | 480                 | 1      | 6.6     | 1       | 47      | 100     | 6.6     | 1       | 2.2     | 1       | 1       | 2.2     |
| 80 (Pending)                            | High voltage filter   | 520                 | 1      | 4.5     | 1.1     | 50      | 50      | 4.5     | 1.1     | 2       | 1       | 1       | 2       |

| Bemessungsstrom<br>@ Tu 40°C (75°C) [A] | Characteristic        | Rated Voltage [VAC] | L [mH] | C1 [μF] | C2 [μF] | C3 [nF] | C4 [nF] | C5 [μF] | C6 [μF] | R1 [MΩ] | R2 [MΩ] | R3 [MΩ] | R4 [MΩ] |
|---|-----------------------|---------------------|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 64 (37)                                 | Excellent attenuation | 480                 | 0.6    | 4.4     | 1       | 10      | 100     | 4.4     | 1       | 2.2     | 1       | 1       | 2.2     |
| 64 (Pending)                            | High voltage filter   | 520                 | 0.6    | 3       | 1.1     | 50      | 11      | 3       | 1.1     | 2       | 1       | 1       | 2       |
| 110 (70)                                | Excellent attenuation | 480                 | 0.7    | 6.6     | 1       | 47      | 100     | 6.6     | 1       | 2.2     | 1       | 1       | 2.2     |
| 110 (Pending)                           | High voltage filter   | 520                 | 0.7    | 4.5     | 1.1     | 50      | 50      | 4.5     | 1.1     | 2       | 1       | 1       | 2       |
| 180 (Pending)                           | Excellent attenuation | 480                 | 0.4    | 6.6     | 1       | 47      | 100     | 6.6     | 1       | 2.2     | 1       | 1       | 2.2     |
| 180 (Pending)                           | High voltage filter   | 520                 | 0.4    | 4.5     | 1.1     | 50      | 50      | 4.5     | 1.1     | 2       | 1       | 1       | 2       |
| 250 (Pending)                           | Excellent attenuation | 480                 | 0.3    | 11      | 1       | 100     | 100     | 11      | 1       | 2.2     | 0.5     | 0.5     | 2.2     |
| 250 (Pending)                           | High voltage filter   | 520                 | 0.3    | 7.5     | 1.1     | 50      | 50      | 7.5     | 1.1     | 2       | 1       | 1       | 2       |
| 340 (Pending)                           | Excellent attenuation | 480                 | 0.2    | 11      | 1       | 100     | 100     | 22      | 1       | 2.2     | 0.33    | 0.33    | 2.2     |
| 340 (Pending)                           | High voltage filter   | 520                 | 0.2    | 7.5     | 1.1     | 50      | 50      | 15      | 1.1     | 2       | 1       | 1       | 2       |
| 450 (Pending)                           | Excellent attenuation | 480                 | 0.2    | 11      | 1       | 100     | 100     | 22      | 1       | 2.2     | 0.33    | 0.33    | 2.2     |
| 550 (Pending)                           | Excellent attenuation | 480                 | 0.2    | 11      | 1       | 100     | 100     | 22      | 1       | 2.2     | 0.33    | 0.33    | 2.2     |
| 1100 (Pending)                          | High voltage filter   | 520                 | 0.12   | 11      | 1.1     | 50      | -       | 22      | 1.1     | 2       | 0.5     | 0.25    | 2       |

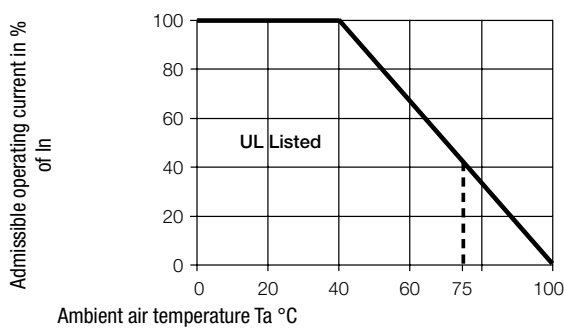
Diagrams



1) Line

Derating Curves

Permissible Working Current as a Function of Ambient Temperature

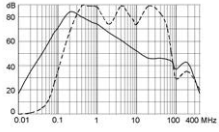


**Attenuation Loss**

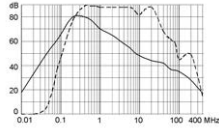
--- 50Ω differential mode    \_\_\_ 50Ω common mode

Industrial version

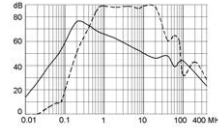
6A (FMAC-0924-0610)



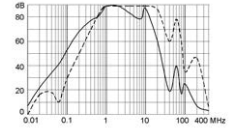
8A (FMAC-0931-0810)



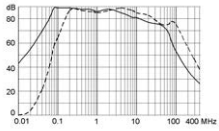
16A (FMAC-0931-1610)  
16A (FMAC-0932-1610)



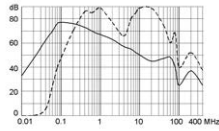
16A (FMAC-0931-1612I)



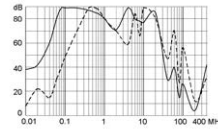
25A (FMAC-0932-2510)



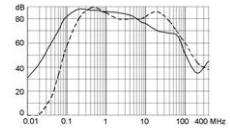
25A (FMAC-0932-2510L)



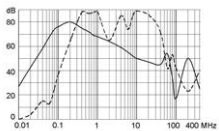
25A (FMAC-0932-2512I)



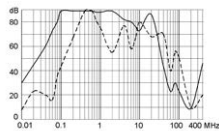
36A (FMAC-0934-3610)



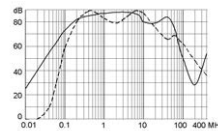
36A (FMAC-0932-3610L)



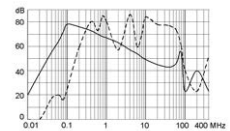
36A (FMAC-0932-3612I)



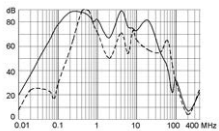
50A (FMAC-0934-5010)



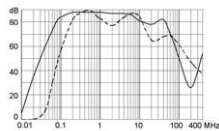
50A (FMAC-0934-5010L)



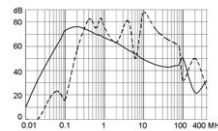
50A (FMAC-0934-5012I)



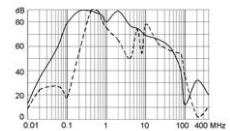
64A (FMAC-0953-6410)



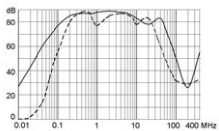
64A (FMAC-0934-6410L)



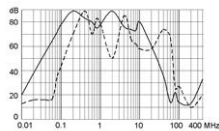
64A (FMAC-0953-6412I)



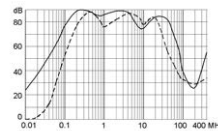
80A (FMAC-0937-8010)



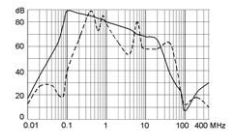
80A (FMAC-0937-8012I)



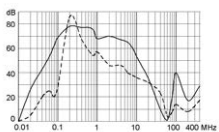
110A (FMAC-0954-H110)



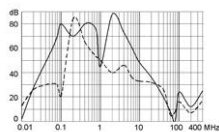
110A (FMAC-0954-H112I)



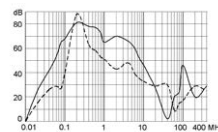
180A (FMAC-0955-H210)



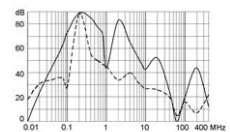
180A (FMAC-0955-H212I)



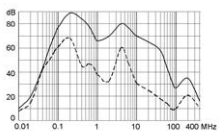
250A (FMAC-0956-H310)



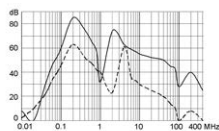
250A (FMAC-0956-H312I)



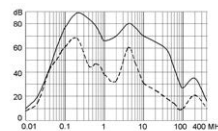
340A (FMAC-0956-H410)



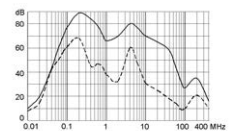
340A (FMAC-0956-H412I)



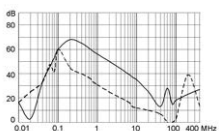
450A (FMAC-0957-H550)



550A (FMAC-0957-H650)



1100A (FMAC-0974-K152I)



All Variants

| Bemessungsstrom @ Tu 40°C (75°C) [A] | Characteristic        | Rated Voltage [VAC] | Tripped Power Dissipation [W] | Leakage Current [mA] @ 440V, | Contact Resistance [mΩ] | Weight [kg] | Screw clamps [mm <sup>2</sup> 2) | Housings | Order Number    |
|--------------------------------------|-----------------------|---------------------|-------------------------------|------------------------------|-------------------------|-------------|----------------------------------|----------|-----------------|
| 6 (6)                                | Excellent attenuation | 480                 | 2.48                          | 1.3                          | 23                      | 0.9 kg      | 4                                | 24-3     | FMAC-0924-0610  |
| 8 (5)                                | Excellent attenuation | 480                 | 5.38                          | 1.3                          | 28                      | 1.8 kg      | 4                                | 31-3     | FMAC-0931-0810  |
| 16 (10)                              | Excellent attenuation | 480                 | 8.83                          | 1.3                          | 11.5                    | 1.8 kg      | 4                                | 31-3     | FMAC-0931-1610  |
| 16 (Pending)                         | High voltage filter   | 520                 | 8.83                          | 0.7                          | 11.5                    | 1.8 kg      | 4                                | 31-3     | FMAC-0931-1612I |
| 16 (10)                              | Excellent attenuation | 480                 | 8.83                          | 1.3                          | 11.5                    | 2.8 kg      | 4                                | 32-3     | FMAC-0932-1610  |
| 25 (15)                              | Excellent attenuation | 480                 | 8.25                          | 8.4                          | 4.4                     | 3.4 kg      | 6                                | 32-7     | FMAC-0932-2510  |
| 25 (14)                              | High attenuation      | 480                 | 9.86                          | 8.4                          | 5.26                    | 3.5 kg      | 4                                | 32-7     | FMAC-0932-2510L |
| 25 (Pending)                         | High voltage filter   | 520                 | 8.25                          | 8.6                          | 4.4                     | 3.35 kg     | 6                                | 32-7     | FMAC-0932-2512I |
| 36 (20)                              | High attenuation      | 480                 | 10.55                         | 8.4                          | 2.71                    | 3.75 kg     | 6                                | 32-C     | FMAC-0932-3610L |
| 36 (20)                              | Excellent attenuation | 480                 | 12.91                         | 8.6                          | 3.32                    | 3.5 kg      | 6                                | 34-3     | FMAC-0934-3610  |
| 36 (Pending)                         | High voltage filter   | 520                 | 12.91                         | 8.6                          | 3.32                    | 3.3 kg      | 6                                | 34-3     | FMAC-0934-3612I |
| 50 (32)                              | Excellent attenuation | 480                 | 9.75                          | 9.0                          | 1.3                     | 3.4 kg      | 6                                | 34-3     | FMAC-0934-5010  |
| 50 (30)                              | High attenuation      | 480                 | 12.63                         | 9.0                          | 1.68                    | 3.6 kg      | 6                                | 34-C     | FMAC-0934-5010L |
| 50 (Pending)                         | High voltage filter   | 520                 | 9.75                          | 9.0                          | 1.3                     | 3.35 kg     | 6                                | 34-3     | FMAC-0934-5012I |
| 64 (37)                              | High attenuation      | 480                 | 18.23                         | 8.6                          | 1.48                    | 4.2 kg      | 6                                | 34-C     | FMAC-0934-6410L |
| 80 (45)                              | Excellent attenuation | 480                 | 22.6                          | 9.7                          | 1.17                    | 7 kg        | 25                               | 37-3     | FMAC-0937-8010  |
| 80 (Pending)                         | High voltage filter   | 520                 | 22.6                          | 9.7                          | 1.17                    | 7.28 kg     | 25                               | 37-3     | FMAC-0937-8012I |
| 64 (37)                              | Excellent attenuation | 480                 | 13.52                         | 9.0                          | 1.1                     | 3.9 kg      | 25                               | 53-3     | FMAC-0953-6410  |
| 64 (Pending)                         | High voltage filter   | 520                 | 13.52                         | 9.0                          | 1.1                     | 3.8 kg      | 25                               | 53-3     | FMAC-0953-6412I |
| 110 (70)                             | Excellent attenuation | 480                 | 27.23                         | 9.7                          | 0.75                    | 7.5 kg      | 50                               | 54-3     | FMAC-0954-H110  |
| 110 (Pending)                        | High voltage filter   | 520                 | 27.23                         | 9.7                          | 0.75                    | 7.45 kg     | 50                               | 54-3     | FMAC-0954-H112I |
| 180 (Pending)                        | Excellent attenuation | 480                 | 36                            | 9.7                          | 0.37                    | 22 kg       | 95                               | 55-3     | FMAC-0955-H210  |
| 180 (Pending)                        | High voltage filter   | 520                 | 36                            | 9.7                          | 0.37                    | 23 kg       | 95                               | 55-3     | FMAC-0955-H212I |
| 250 (Pending)                        | Excellent attenuation | 480                 | 36                            | 10.5                         | 0.2                     | 23.7 kg     | 240                              | 56-3     | FMAC-0956-H310  |
| 250 (Pending)                        | High voltage filter   | 520                 | 36                            | 9.1                          | 0.2                     | 25 kg       | 240                              | 56-3     | FMAC-0956-H312I |
| 340 (Pending)                        | Excellent attenuation | 480                 | 45                            | 10.5                         | 0.13                    | 27 kg       | 240                              | 56-3     | FMAC-0956-H410  |
| 340 (Pending)                        | High voltage filter   | 520                 | 45                            | 5.6                          | 0.13                    | 30 kg       | 240                              | 56-3     | FMAC-0956-H412I |
| 450 (Pending)                        | Excellent attenuation | 480                 | 40                            | 10.5                         | 0.06                    | 33 kg       | (B)                              | 57       | FMAC-0957-H550  |
| 550 (Pending)                        | Excellent attenuation | 480                 | 45                            | 10.5                         | 0.046                   | 32 kg       | (B)                              | 57       | FMAC-0957-H650  |
| 1100 (Pending)                       | High voltage filter   | 520                 | 80                            | 9.5                          | 0.022                   | 47 kg       | (A)                              | 74       | FMAC-0974-K152I |

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6A version: packing unit 2 pcs.

(A): Connecting straps for M12

(B): Connecting straps for M10

1) Nominal leakage current acc. to IEC60950 - 5.2.5. under normal operating conditions. Note: worst case leakage current acc. to IEC60950 - Annex G4 (situation with two interrupted lines) can be much higher.

2) Maximum conductor cross section (wire gauge) to be used; a comparative table for AWG and mm<sup>2</sup> values can be found in the general product information [www.schurter.com/emc\\_info](http://www.schurter.com/emc_info)

**Packaging unit** 1 Pcs

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