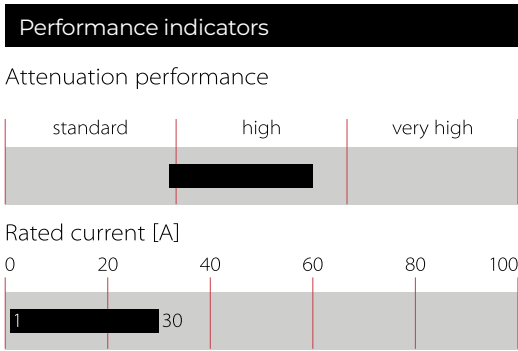
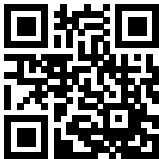


# General Purpose AC/DC EMI Filter with High Attenuation Performance



- Rated currents from 1 to 30 A
- High performance filter attenuation
- High differential-mode attenuation
- Optional medical versions (B type)
- Optional safety versions (A type)
- Optional enhanced performance versions
- Optional overvoltage protection (Z type)



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## Technical Specifications

|                                           |                                                                                                                                                                   |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rated voltage*                            | 250 VAC, 50/60 Hz; 250 VDC                                                                                                                                        |
| Operating frequency                       | DC to 400 Hz                                                                                                                                                      |
| Rated currents                            | 1 to 30 A @ 40°C max                                                                                                                                              |
| High potential test voltage               | P → N 1100 VDC for 2 sec<br>P → PE 2000 VAC for 2 sec (equiv. cap <88 nF)<br>P → PE 2550 VDC for 2 sec (equiv. cap >88 nF)<br>P → PE 2500 VAC for 2 sec (B types) |
| Temperature range (operation and storage) | -25°C to +100°C (25/100/21)**                                                                                                                                     |
| Certified to                              | UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939 (applies to AC and DC applications)                                                                                    |
| Flammability corresponding to             | Laces for -07 version: UL 94 VW-1<br>Terminal plastic for -06/-08 version: UL 94 V-0<br>Grommet for -07 version: UL 94 V-0                                        |
| Overvoltage category                      | II acc. IEC 60664-1                                                                                                                                               |
| Pollution degree                          | 2 acc. IEC 60664-1                                                                                                                                                |
| Altitude                                  | 2000m (above derating applies)**                                                                                                                                  |
| MTBF @ 40°C/230 V (Mil-HB-217F)           | 2,200,000 hours (1 to 10 A types)<br>1,200,000 hours (12 to 30 A types)                                                                                           |
| Surge pulse protection (Z type)           | Helps compliance to IEC61000-4-5 (Differential Mode only)                                                                                                         |

\* maximum RMS operating voltage at rated frequency or the maximum DC operating voltage  
\*\* for dedicated requests exceeding this specification (e.g. -40 °C or higher altitude) please contact your local Schaffner Sales office

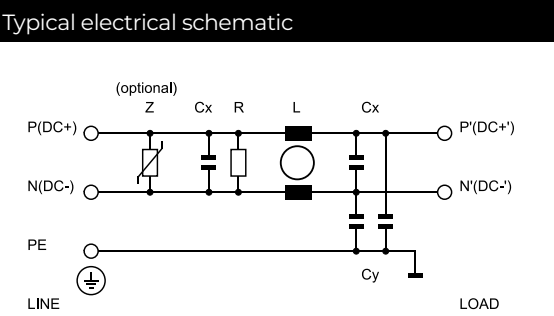
Approvals & Compliances

## Features and Benefits

- FN 2030 filters are designed for easy and fast chassis mounting
- FN 2030 B versions without capacitors to earth comply to 1MOP for ME (medical equipment) acc. IEC 60601-1
- FN 2030 A versions with low capacitance to earth for safety critical applications with a requirement for low leakage currents
- FN 2030 filters offer an optimized filter range for high performance AC and DC applications , in same compact size (M, N1 types)
- All filters provide an exceptional conducted attenuation performance, based on chokes with high permeable core material and excellent thermal behavior
- The higher inductivity versus amperage offers increased attenuation performance with same form factor compared to FN 2010 and FN 2020 filter series
- All FN 2030 filters can be delivered with optional surge pulse protection (Z type).
- Various terminal options allow you to select the desired connection style

## Typical Applications

- Electrical and electronic equipment
- Consumer goods
- Household equipment
- Medical equipment
- Electronic data processing equipment
- Office automation and datacom equipment
- Various noisy applications requiring high filter performance



Filter Selection Table

| Filter*              | Buy                                                                                 | Rated current<br>@ 40°C (25°C) | Leakage current**<br>@ 250 VAC/50 Hz<br>(@ 120 VAC/60 Hz) | Power Loss<br>@25°C/DC | Inductance***<br>L | Capacitance*** |      | Resistance***<br>R | Input/Output<br>connections |                                                                                     |                                                                                     | Weight |                                                                                     |
|----------------------|-------------------------------------------------------------------------------------|--------------------------------|-----------------------------------------------------------|------------------------|--------------------|----------------|------|--------------------|-----------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------|-------------------------------------------------------------------------------------|
|                      |                                                                                     |                                |                                                           |                        |                    | Cx             | Cy   |                    | R                           |  |  |        |  |
|                      |                                                                                     |                                |                                                           |                        |                    |                |      |                    |                             |                                                                                     |                                                                                     |        |                                                                                     |
|                      |                                                                                     | [A]                            | [mA]                                                      | [W]                    | [mH]               | [µF]           | [nF] | [kΩ]               |                             |                                                                                     |                                                                                     | [g]    |                                                                                     |
| FN2030-1-..          |    | 1 (1.1)                        | 0.31 (0.18)                                               | 0.9                    | 20                 | 0.22           | 2.2  | 1000               | -06                         | -07                                                                                 |                                                                                     | 58     |                                                                                     |
| FN2030-3-..          |    | 3 (3.4)                        | 0.47 (0.27)                                               | 2.2                    | 14                 | 0.33           | 3.3  | 1000               | -06                         | -07                                                                                 |                                                                                     | 87     |                                                                                     |
| FN2030-4-..          |    | 4 (4.5)                        | 0.47 (0.27)                                               | 2.9                    | 14                 | 0.33           | 3.3  | 1000               | -06                         | -07                                                                                 |                                                                                     | 92     |                                                                                     |
| FN2030-6-..          |    | 6 (6.7)                        | 0.66 (0.38)                                               | 3.2                    | 8                  | 0.47           | 4.7  | 680                | -06                         | -07                                                                                 |                                                                                     | 100    |                                                                                     |
| FN2030-8-..          |    | 8 (8.9)                        | 0.66 (0.38)                                               | 3.1                    | 8                  | 0.47           | 4.7  | 680                | -06                         | -07                                                                                 |                                                                                     | 170    |                                                                                     |
| FN2030-10-..         |    | 10 (11.2)                      | 0.66 (0.38)                                               | 5.3                    | 8                  | 0.47           | 4.7  | 680                | -06                         | -07                                                                                 |                                                                                     | 196    |                                                                                     |
| FN2030-12-..         |    | 12 (13.4)                      | 0.79 (0.45)                                               | 7.6                    | 4                  | 1.0            | 10   | 330                | -06                         | -07                                                                                 |                                                                                     | 185    |                                                                                     |
| FN2030-16-..         |    | 16 (17.9)                      | 0.79 (0.45)                                               | 6.1                    | 4                  | 1.0            | 10   | 330                | -06                         | -07                                                                                 | -08                                                                                 | 225    |                                                                                     |
| FN2030-20-..         |    | 20 (22.4)                      | 0.79 (0.45)                                               | 4.6                    | 4                  | 1.0            | 10   | 330                | -06                         |                                                                                     | -08                                                                                 | 285    |                                                                                     |
| FN2030-30-08         |    | 30 (33.5)                      | 0.79 (0.45)                                               | 6.0                    | 2                  | 1.0            | 10   | 330                |                             |                                                                                     | -08                                                                                 | 326    |                                                                                     |
|                      |                                                                                     |                                |                                                           |                        |                    |                |      |                    |                             |                                                                                     |                                                                                     |        |                                                                                     |
| FN2030A-1-..         |    | 1 (1.1)                        | 0.07 (0.04)                                               | 0.9                    | 20                 | 0.22           | 0.47 | 1000               | -06                         | -07                                                                                 |                                                                                     | 58     |                                                                                     |
| FN2030A-3-..         |    | 3 (3.4)                        | 0.07 (0.04)                                               | 2.2                    | 14                 | 0.33           | 0.47 | 1000               | -06                         | -07                                                                                 |                                                                                     | 87     |                                                                                     |
| FN2030A-4-..         |    | 4 (4.5)                        | 0.07 (0.04)                                               | 2.9                    | 14                 | 0.33           | 0.47 | 1000               | -06                         | -07                                                                                 |                                                                                     | 92     |                                                                                     |
| FN2030A-6-..         |    | 6 (6.7)                        | 0.07 (0.04)                                               | 3.2                    | 8                  | 0.47           | 0.47 | 680                | -06                         | -07                                                                                 |                                                                                     | 100    |                                                                                     |
| FN2030A-8-..         |   | 8 (8.9)                        | 0.07 (0.04)                                               | 3.1                    | 8                  | 0.47           | 0.47 | 680                | -06                         | -07                                                                                 |                                                                                     | 170    |                                                                                     |
| FN2030A-10-..        |  | 10 (11.2)                      | 0.07 (0.04)                                               | 5.3                    | 8                  | 0.47           | 0.47 | 680                | -06                         | -07                                                                                 |                                                                                     | 196    |                                                                                     |
| FN2030A-12-..        |  | 12 (13.4)                      | 0.07 (0.04)                                               | 7.6                    | 4                  | 1.0            | 0.47 | 330                | -06                         | -07                                                                                 |                                                                                     | 185    |                                                                                     |
| FN2030A-16-..        |  | 16 (17.9)                      | 0.07 (0.04)                                               | 6.1                    | 4                  | 1.0            | 0.47 | 330                | -06                         | -07                                                                                 | -08                                                                                 | 225    |                                                                                     |
| FN2030A-20-..        |  | 20 (22.4)                      | 0.07 (0.04)                                               | 4.6                    | 4                  | 1.0            | 0.47 | 330                | -06                         |                                                                                     | -08                                                                                 | 285    |                                                                                     |
| FN2030A-30-08        |  | 30 (33.5)                      | 0.07 (0.04)                                               | 6.0                    | 2                  | 1.0            | 0.47 | 330                |                             |                                                                                     | -08                                                                                 | 326    |                                                                                     |
|                      |                                                                                     |                                |                                                           |                        |                    |                |      |                    |                             |                                                                                     |                                                                                     |        |                                                                                     |
| FN2030B-1-..         |  | 1 (1.1)                        | 0.00                                                      | 0.9                    | 20                 | 0.22           |      | 1000               | -06                         | -07                                                                                 |                                                                                     | 58     |                                                                                     |
| FN2030B-3-..         |  | 3 (3.4)                        | 0.00                                                      | 2.2                    | 14                 | 0.33           |      | 1000               | -06                         | -07                                                                                 |                                                                                     | 87     |                                                                                     |
| FN2030B-4-..         |  | 4 (4.5)                        | 0.00                                                      | 2.9                    | 14                 | 0.33           |      | 1000               | -06                         | -07                                                                                 |                                                                                     | 92     |                                                                                     |
| FN2030B-6-..         |  | 6 (6.7)                        | 0.00                                                      | 3.2                    | 8                  | 0.47           |      | 680                | -06                         | -07                                                                                 |                                                                                     | 100    |                                                                                     |
| FN2030B-8-..         |  | 8 (8.9)                        | 0.00                                                      | 3.1                    | 8                  | 0.47           |      | 680                | -06                         | -07                                                                                 |                                                                                     | 170    |                                                                                     |
| FN2030B-10-..        |  | 10 (11.2)                      | 0.00                                                      | 5.3                    | 8.45               | 0.47           |      | 680                | -06                         | -07                                                                                 |                                                                                     | 196    |                                                                                     |
| FN2030B-12-..        |  | 12 (13.4)                      | 0.00                                                      | 7.6                    | 4                  | 1.0            |      | 330                | -06                         | -07                                                                                 |                                                                                     | 185    |                                                                                     |
| FN2030B-16-..        |  | 16 (17.9)                      | 0.00                                                      | 6.1                    | 4                  | 1.0            |      | 330                | -06                         | -07                                                                                 | -08                                                                                 | 225    |                                                                                     |
| FN2030B-20-..        |  | 20 (22.4)                      | 0.00                                                      | 4.6                    | 4                  | 1.0            |      | 330                | -06                         |                                                                                     | -08                                                                                 | 285    |                                                                                     |
| FN2030B-30-08        |  | 30 (33.5)                      | 0.00                                                      | 6.0                    | 2                  | 1.0            |      | 330                |                             |                                                                                     | -08                                                                                 | 326    |                                                                                     |
|                      |                                                                                     |                                |                                                           |                        |                    |                |      |                    |                             |                                                                                     |                                                                                     |        |                                                                                     |
| Enhanced performance |                                                                                     |                                |                                                           |                        |                    |                |      |                    |                             |                                                                                     |                                                                                     |        |                                                                                     |
| FN2030N1-1-06        |  | 1 (1.1)                        | 5.34 (3.08)                                               | 0.9                    | 20                 | 0.22           | 68   | 1000               | -06                         |                                                                                     |                                                                                     | 65     |                                                                                     |
| FN2030M-3-06         |  | 3 (3.4)                        | 3.69 (2.28)                                               | 2.2                    | 14                 | 0.33           | 47   | 1000               | -06                         |                                                                                     |                                                                                     | 110    |                                                                                     |
| FN2030M-4-06         |  | 4 (4.5)                        | 3.69 (2.28)                                               | 2.9                    | 14                 | 0.33           | 47   | 1000               | -06                         |                                                                                     |                                                                                     | 110    |                                                                                     |
| FN2030M-6-06         |  | 6 (6.7)                        | 3.69 (2.28)                                               | 3.2                    | 8                  | 0.47           | 47   | 680                | -06                         |                                                                                     |                                                                                     | 120    |                                                                                     |
| FN2030N1-8-06        |  | 8 (8.9)                        | 5.34 (3.08)                                               | 3.1                    | 8                  | 0.47           | 68   | 3680               | -06                         |                                                                                     |                                                                                     | 200    |                                                                                     |
| FN2030N1-10-06       |  | 10 (11.2)                      | 5.34 (3.08)                                               | 5.3                    | 8                  | 0.47           | 68   | 680                | -06                         |                                                                                     |                                                                                     | 200    |                                                                                     |
| FN2030N1-12-06       |  | 12 (13.4)                      | 5.34 (3.08)                                               | 7.6                    | 4                  | 1.0            | 68   | 330                | -06                         |                                                                                     |                                                                                     | 210    |                                                                                     |
| FN2030M-16-..        |  | 16 (17.9)                      | 3.69 (2.28)                                               | 6.1                    | 4                  | 1.0            | 47   | 330                | -06                         |                                                                                     | -08                                                                                 | 265    |                                                                                     |
| FN2030M-20-..        |  | 20 (22.4)                      | 3.69 (2.28)                                               | 4.6                    | 4                  | 1.0            | 47   | 330                | -06                         |                                                                                     | -08                                                                                 | 326    |                                                                                     |
| FN2030M-30-08        |  | 30 (33.5)                      | 3.69 (2.28)                                               | 6.0                    | 2                  | 1.0            | 47   | 330                |                             |                                                                                     | -08                                                                                 | 346    |                                                                                     |

\* To compile a complete part number, please replace the -.. with the required I/O connection style. For surge pulse protection, please add Z (e.g. FN 2030Z-10-06, FN 2030BZ-20-08).

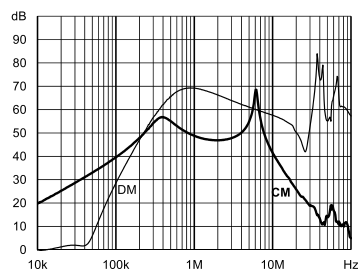
\*\* Maximum leakage under usual AC operating conditions (acc. IEC60939-3). Note: if the neutral line is interrupted, worst case leakage could reach twice this level.

\*\*\* Tolerances apply: Inductance: -30/+50%, Capacitance: ±20%, Resistance: ±10%

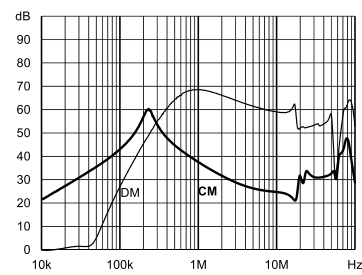
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## Typical Filter Attenuation

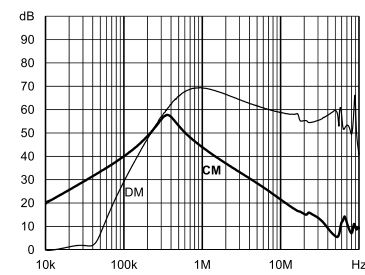
Per CISPR 17; CM=50  $\Omega$ /50  $\Omega$  sym; DM=50  $\Omega$ /50  $\Omega$  asym



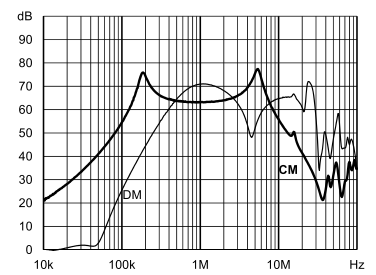
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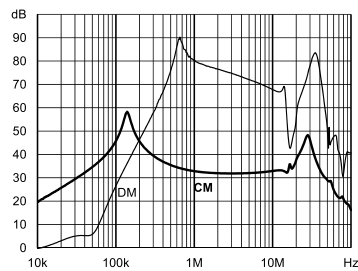
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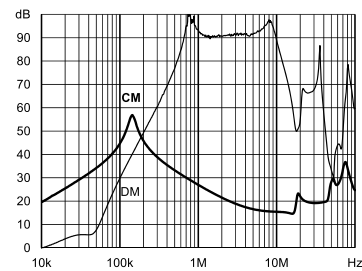
B type



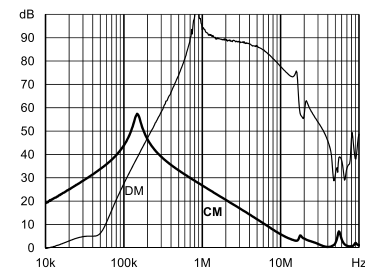
Enhanced performance



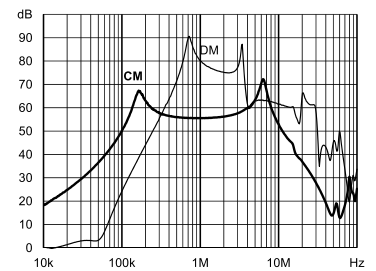
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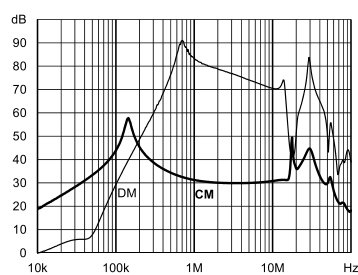
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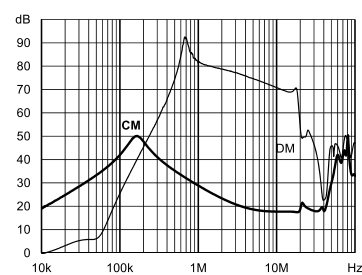
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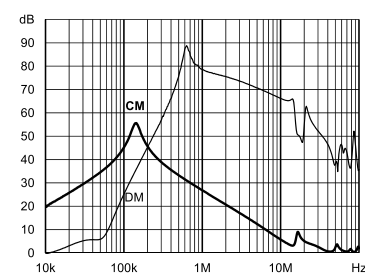
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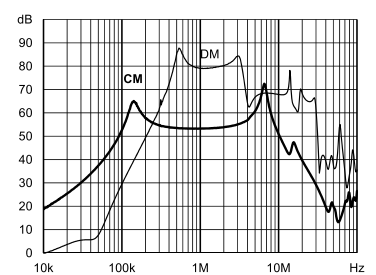
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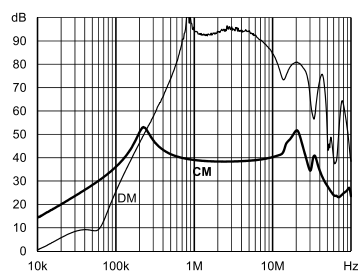
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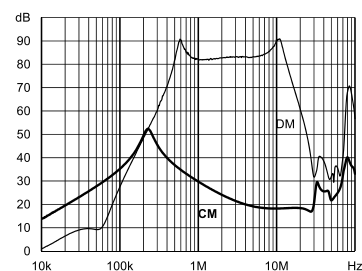
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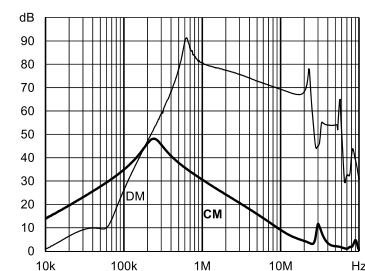
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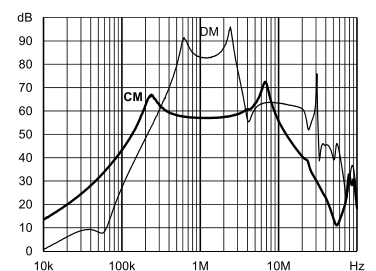
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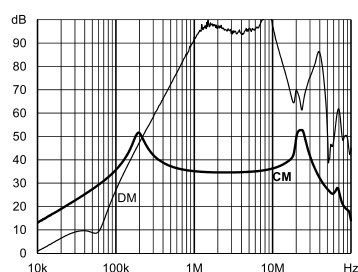
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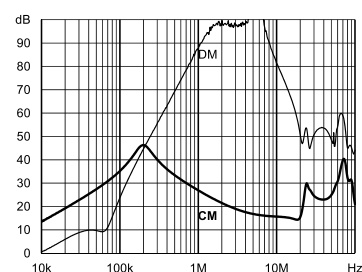
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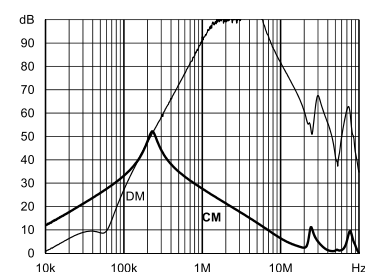
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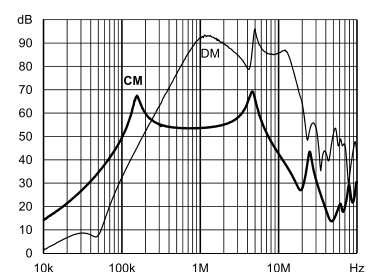
8 A: Standard type



A type

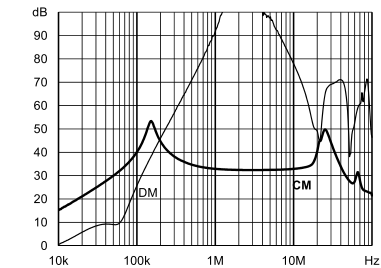


B type

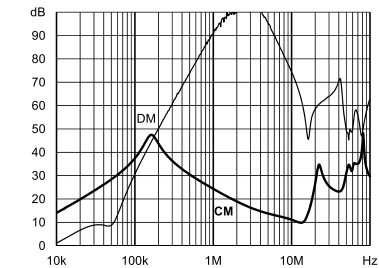


### Enhanced performance

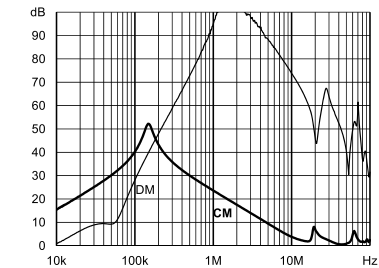
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勝特力電子(上海) 86-21-34970699  
勝特力電子(深圳) 86-755-83298787  
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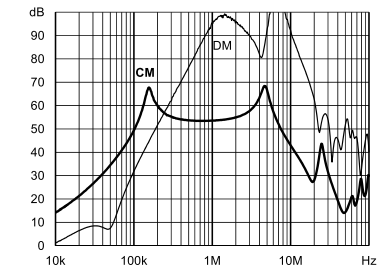
10 A: Standard type



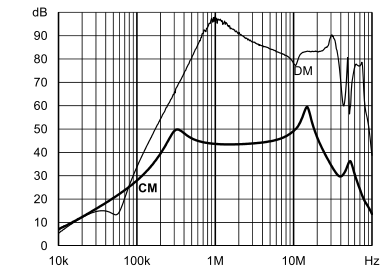
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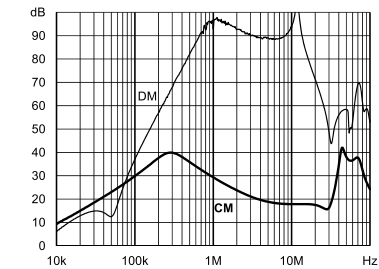
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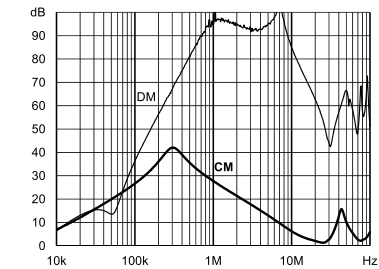
Enhanced performance



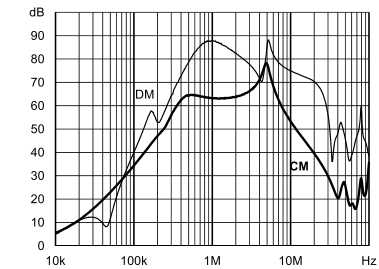
12 A: Standard type



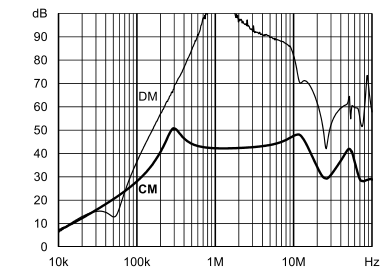
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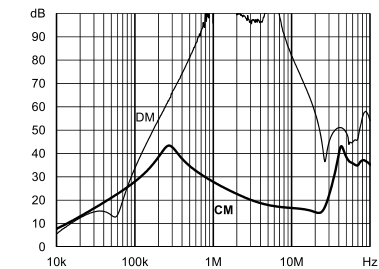
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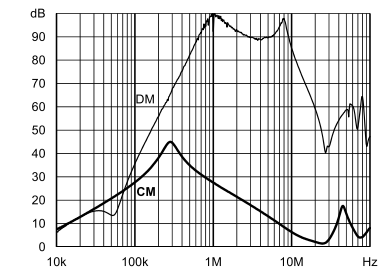
Enhanced performance



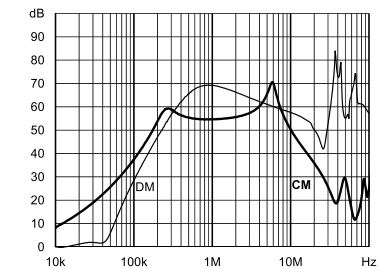
16 A: Standard type



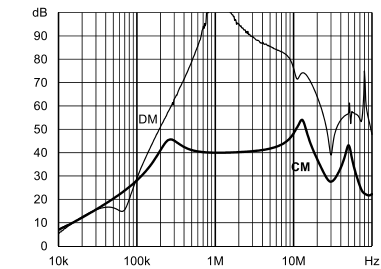
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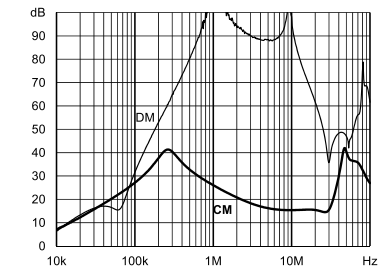
B type



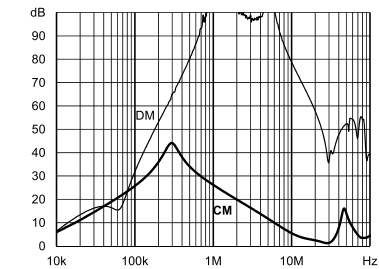
Enhanced performance



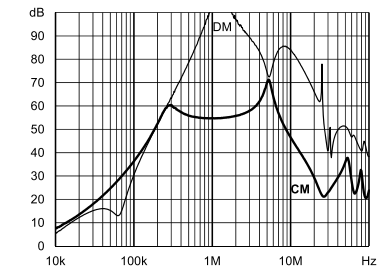
20 A: Standard type



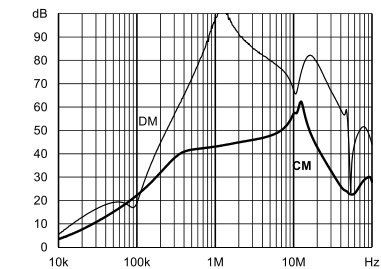
A type



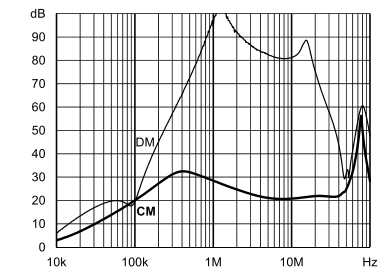
B type



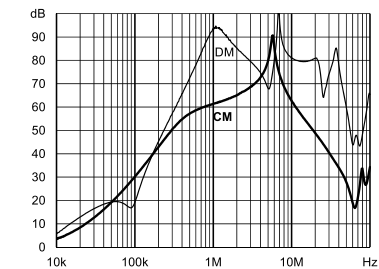
Enhanced performance



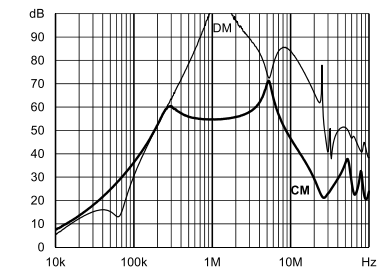
30 A: Standard type



A type



B type



Enhanced performance

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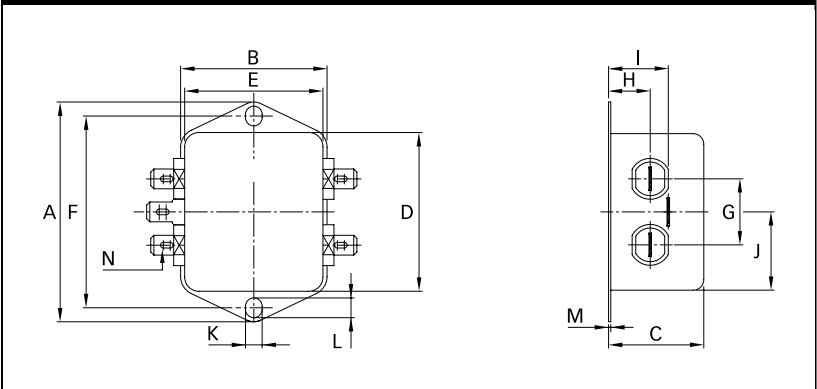
Product Selector

|                  |         |                                       |
|------------------|---------|---------------------------------------|
| FN 2030 xy-xx-yy |         |                                       |
|                  | 06      | Faston 6.3 × 0.8 mm (spade/soldering) |
|                  | 07      | Wire leads                            |
|                  | 08      | Studs (M4 screws)                     |
|                  | 1 to 60 | Rated current                         |
|                  | Blank   | Standard version                      |
|                  | Z       | With surge protection                 |
|                  | Blank   | Standard version                      |
|                  | A       | Safety version                        |
|                  | B       | Medical version                       |
|                  | N1/M    | High performance version              |

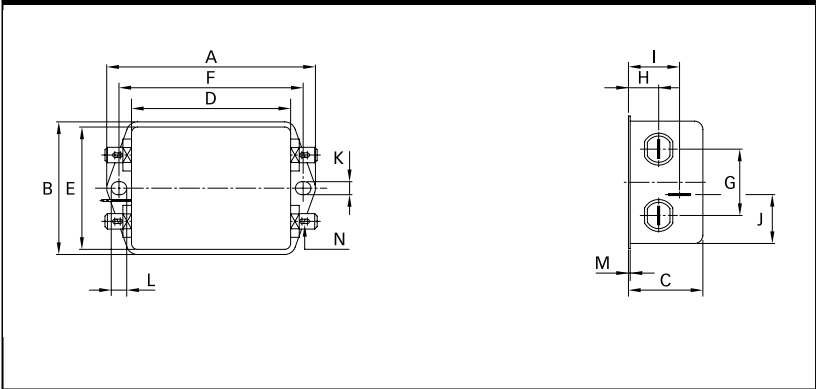
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Mechanical data

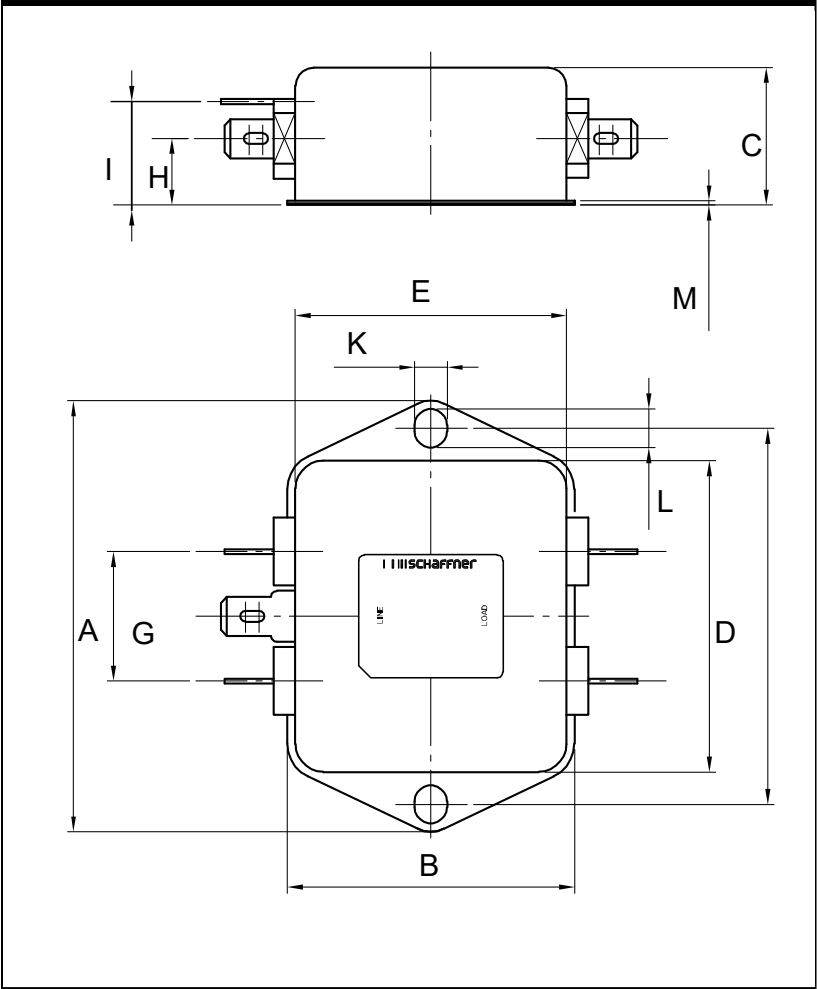
Connection style -06, 1 A types



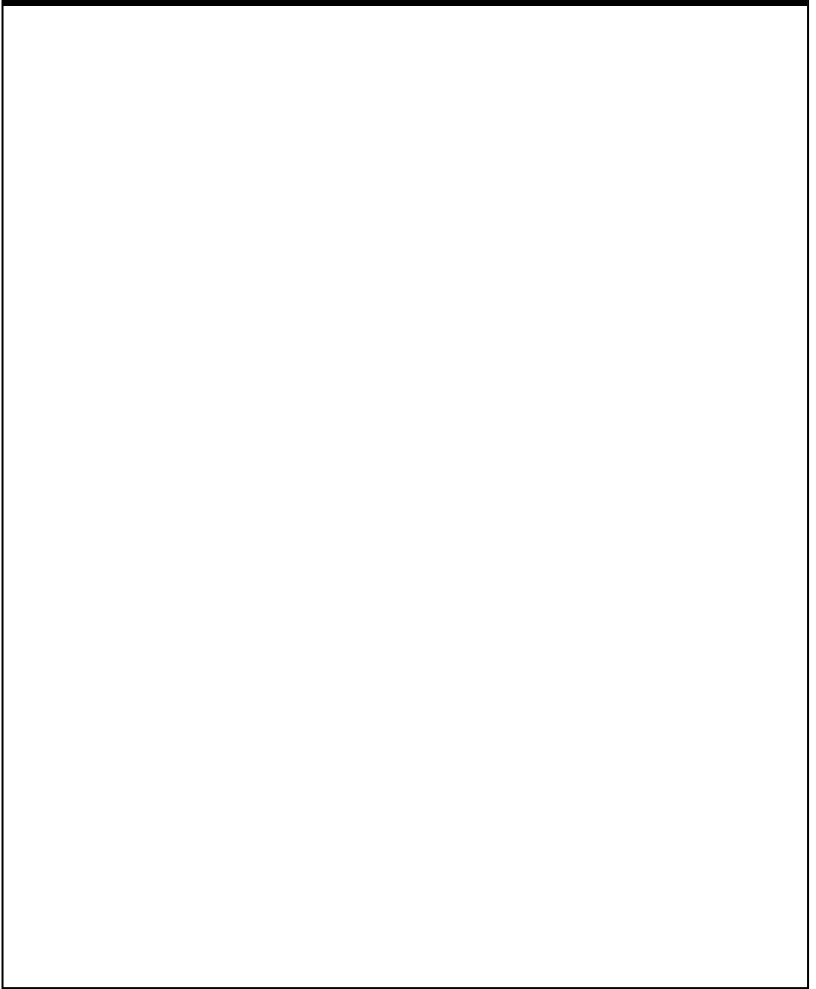
Connection style -06, 8 to 20 A types



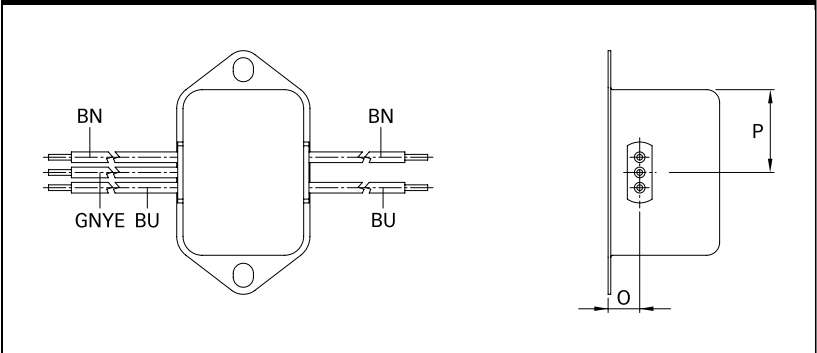
Connection style -06, 3 to 6 A types



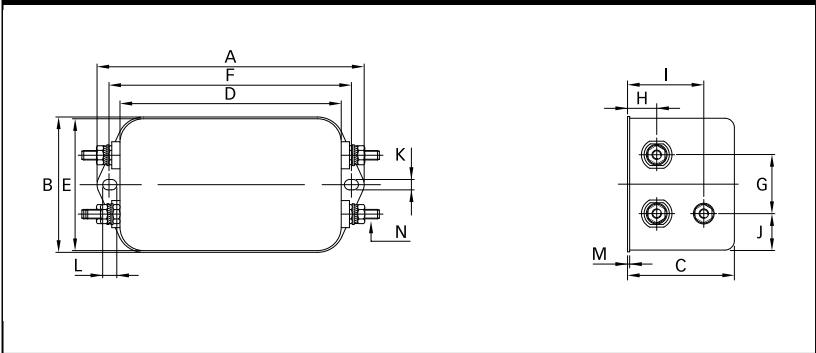
Connection style -07, 8 to 16 A types (same dimensions as style -06)



Connection style -07, 1 to 6 A types (same dimensions as style -06)



Connection style -08, 16 to 30 A types



Dimensions

|                         | 1 A       | 3 A       | 4 A       | 6 A       | 8 A       | 10 A      | 12 A      | 16 A      | 20 A      | 30 A      | Tolerances |
|-------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|
| A                       | 64        | 71        | 71        | 71        | 85        | 85        | 85        | 85        | 85        | 85        | ±0.5       |
| B                       | 35        | 46.6      | 46.6      | 46.6      | 54        | 54        | 54        | 54        | 54        | 54        | ±0.5       |
| C                       | 24.3      | 22.3      | 22.3      | 22.3      | 30.3      | 30.3      | 30.3      | 40.3      | 40.3      | 40.3      | ±0.5       |
| D                       | 43.5      | 50.5      | 50.5      | 50.5      | 64.8      | 64.8      | 64.8      | 64.8      | 64.8      | 64.8      | ±0.5       |
| E                       | 32.5      | 44.5      | 44.5      | 44.5      | 49.8      | 49.8      | 49.8      | 49.8      | 49.8      | 49.8      | ±0.5       |
| F                       | 54        | 61        | 61        | 61        | 75        | 75        | 75        | 75        | 75        | 75        | ±0.3       |
| G                       | 21        | 21        | 21        | 21        | 27        | 27        | 27        | 27        | 27        | 27        | ±0.2       |
| H                       | 9.3       | 10.8      | 10.8      | 10.8      | 12.3      | 12.3      | 12.3      | 12.3      | 12.3      | 12.3      | ±0.5       |
| I                       | 15.3      | 16.8      | 16.8      | 16.8      | 20.8      | 20.8      | 20.8      | 29.8      | 29.8      | 29.8      | ±0.5       |
| J                       | 21.8      | 25.25     | 25.25     | 25.25     | 19.9      | 19.9      | 19.9      | 11.4      | 11.4      | 11.4      | ±0.5       |
| K                       | 5.3       | 5.3       | 5.3       | 5.3       | 5.3       | 5.3       | 5.3       | 5.3       | 5.3       | 5.3       |            |
| L                       | 6.3       | 6.3       | 6.3       | 6.3       | 6.3       | 6.3       | 6.3       | 6.3       | 6.3       | 6.3       |            |
| M                       | 0.7       | 0.7       | 0.7       | 0.7       | 0.7       | 0.7       | 0.7       | 0.7       | 0.7       | 0.7       |            |
|                         |           |           |           |           |           |           |           |           |           |           |            |
| Connection style -06    |           |           |           |           |           |           |           |           |           |           |            |
| N                       | 6.3 x 0.8 | 6.3 x 0.8 | 6.3 x 0.8 | 6.3 x 0.8 | 6.3 x 0.8 | 6.3 x 0.8 | 6.3 x 0.8 | 6.3 x 0.8 | 6.3 x 0.8 |           |            |
| Connection style -07    |           |           |           |           |           |           |           |           |           |           |            |
| O                       | 8.3       | 8.3       | 8.3       | 8.3       | 8.3       | 8.3       | 8.3       | 8.3       |           |           | ±0.5       |
| P                       | 21.8      | 14        | 14        | 14        | 14.9      | 14.9      | 14.9      | 14.9      |           |           | ±0.5       |
| AWG type wire           | AWG 20    | AWG 20    | AWG 20    | AWG 18    | AWG 18    | AWG 18    | AWG 16    | AWG 16    |           |           |            |
| Wire length             | 140       | 140       | 140       | 140       | 140       | 140       | 140       | 140       |           |           | +5         |
| Connection style -08    |           |           |           |           |           |           |           |           |           |           |            |
| N                       |           |           |           |           |           |           |           | M4        | M4        | M4        |            |
| Recommended torque (Nm) |           |           |           |           |           |           |           | 1.2 - 1.3 | 1.2 - 1.3 | 1.2 - 1.3 |            |
| Earth terminal          |           |           |           |           |           |           |           | 1.5 - 1.7 | 1.5 - 1.7 | 1.5 - 1.7 |            |

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

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