

# High Performance RFI Power Line Filters for SMPS Emission Control



## AMI-M11P/M11Q/M11R Series

### Metal Enclosure Single Phase Single Stage Filters

| AMI Designation        | Input/output Style    |            |                |     | Current Rating | Inductance | Capacitance |      | Resistor | Leakage Current @ 120 VAC 60Hz/250 VAC 50 Hz | TIL Insertion Loss | Case Style |
|------------------------|-----------------------|------------|----------------|-----|----------------|------------|-------------|------|----------|----------------------------------------------|--------------------|------------|
|                        | 6.3mm Spade Terminals | Wire Leads | Threaded Bolts | IEC |                |            | mH          | Cx   |          |                                              |                    |            |
| Available Part Numbers |                       |            |                |     |                |            | nF          | pF   |          | mA                                           |                    |            |
| AMI-M11P-1-3-B-1       | 1                     | -          | -              | -   | 3              | 7.06       | 540         | 5500 | 330      | 0.4/0.7                                      | 001                | A          |
| AMI-M11P-3-3-B-1       | -                     | 3          | -              | -   | 3              | 7.06       | 540         | 5500 | 330      | 0.4/0.7                                      | 001                | B          |
| AMI-M11R-7-3-B-1       | -                     | -          | -              | 7   | 3              | 7.06       | 540         | 5500 | 330      | 0.4/0.7                                      | 001                | H          |
| AMI-M11R-7M-3-B-1      | -                     | -          | -              | 7   | 3              | 7.06       | 540         | 5500 | 330      | 0.4/0.7                                      | 001                | H          |
| AMI-M11P-1-6-B-1       | 1                     | -          | -              | -   | 6              | 8.73       | 540         | 5500 | 330      | 0.4/0.7                                      | 001                | A          |
| AMI-M11P-3-6-B-1       | -                     | 3          | -              | -   | 6              | 8.73       | 540         | 5500 | 330      | 0.4/0.7                                      | 001                | C          |
| AMI-M11R-7-6-B-1       | -                     | -          | -              | 7   | 6              | 7.8        | 540         | 5500 | 330      | 0.4/0.7                                      | 001                | H          |
| AMI-M11R-7M-6-B-1      | -                     | -          | -              | 7   | 6              | 7.8        | 540         | 5500 | 330      | 0.4/0.7                                      | 001                | H          |
| AMI-M11P-1-10-B-1      | 1                     | -          | -              | -   | 10             | 7.13       | 540         | 5500 | 330      | 0.4/0.7                                      | 003                | A          |
| AMI-M11P-3-10-B-1      | -                     | 3          | -              | -   | 10             | 7.13       | 540         | 5500 | 330      | 0.4/0.7                                      | 003                | C          |
| AMI-M11R-7-10-B-1      | -                     | -          | -              | 7   | 10             | 7.13       | 540         | 5500 | 330      | 0.4/0.7                                      | 003                | H          |
| AMI-M11R-7M-10-B-1     | -                     | -          | -              | 7   | 10             | 7.13       | 540         | 5500 | 330      | 0.4/0.7                                      | 003                | H          |
| AMI-M11P-1-3-B-2       | 1                     | -          | -              | -   | 3              | 7.06       | 540         | 2800 | 330      | 0.21/0.36                                    | 002                | A          |
| AMI-M11P-3-3-B-2       | -                     | 3          | -              | -   | 3              | 7.06       | 540         | 2800 | 330      | 0.21/0.36                                    | 002                | B          |
| AMI-M11R-7-3-B-2       | -                     | -          | -              | 7   | 3              | 7.06       | 540         | 2800 | 330      | 0.21/0.36                                    | 002                | H          |
| AMI-M11R-7M-3-B-2      | -                     | -          | -              | 7   | 3              | 7.06       | 540         | 2800 | 330      | 0.21/0.36                                    | 002                | H          |
| AMI-M11P-1-6-B-2       | 1                     | -          | -              | -   | 6              | 8.73       | 540         | 2800 | 330      | 0.21/0.36                                    | 002                | C          |
| AMI-M11P-3-6-B-2       | -                     | 3          | -              | -   | 6              | 8.73       | 540         | 2800 | 330      | 0.21/0.36                                    | 002                | C          |

# High Performance RFI Power Line Filters for SMPS Emission Control

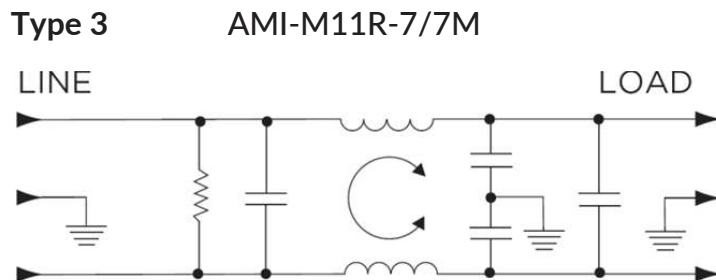
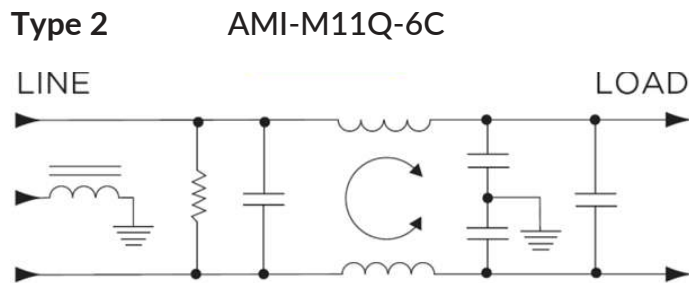
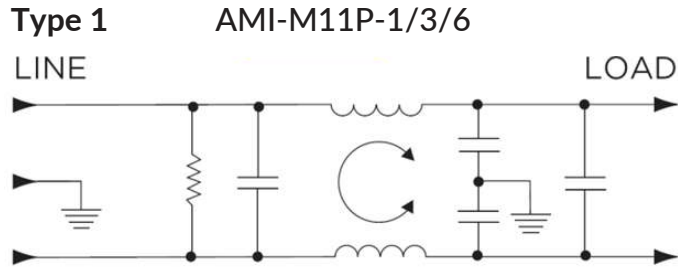
| AMI Designation        | Input/output Style    |            |                |     | Current Rating | Inductance | Capacitance |       | Resistor | Leakage Current @ 120 VAC 60Hz/250 VAC 50 Hz | TIL Insertion Loss | Case Style |
|------------------------|-----------------------|------------|----------------|-----|----------------|------------|-------------|-------|----------|----------------------------------------------|--------------------|------------|
|                        | 6.3mm Spade Terminals | Wire Leads | Threaded Bolts | IEC |                |            | mH          | Cx    |          |                                              |                    |            |
| Available Part Numbers |                       |            |                |     |                | nF         | pF          |       | mA       |                                              |                    |            |
| AMI-M11R-7-6-B-2       | -                     | -          | -              | 7   | 6              | 7.8        | 540         | 2800  | 330      | 0.21/0.36                                    | 002                | H          |
| AMI-M11R-7M-6-B-2      | -                     | -          | -              | 7   | 6              | 7.8        | 540         | 2800  | 330      | 0.21/0.36                                    | 002                | H          |
| AMI-M11P-1-10-B-2      | 1                     | -          | -              | -   | 10             | 7.13       | 540         | 2800  | 330      | 0.21/0.36                                    | 004                | A          |
| AMI-M11P-3-10-B-2      | -                     | 3          | -              | -   | 10             | 7.13       | 540         | 2800  | 330      | 0.21/0.36                                    | 004                | C          |
| AMI-M11R-7-10-B-2      | -                     | -          | -              | 7   | 10             | 7.13       | 540         | 2800  | 330      | 0.21/0.36                                    | 004                | H          |
| AMI-M11R-7M-10-B/C-2   | -                     | -          | -              | 7   | 10             | 7.13       | 540         | 2800  | 330      | 0.21/0.36                                    | 004                | H          |
| AMI-M11P-6-20-B        | -                     | -          | 6              | -   | 20             | 6.06       | 540         | 4000  | 470      | 0.3/0.5                                      | 004                | D          |
| AMI-M11P-6-20-C        | -                     | -          | 6              | -   | 20             | 6.06       | 540         | 10000 | 470      | 0.75/1.25                                    | 003                | D          |
| AMI-M11P-6-30-B        | -                     | -          | 6              | -   | 30             | 1.73       | 940         | 4000  | 235      | 0.3/0.5                                      | 006                | E          |
| AMI-M11Q-6C-30-B       | -                     | -          | 6              | -   | 30             | 0.529      | 940         | 4000  | 235      | 0.3/0.5                                      | 006                | F          |
| AMI-M11P-6-30-C        | -                     | -          | 6              | -   | 30             | 1.73       | 940         | 10000 | 235      | 0.75/1.25                                    | 005                | E          |
| AMI-M11Q-6C-30-C       | -                     | -          | 6              | -   | 30             | 1.73       | 940         | 10000 | 235      | 0.75/1.25                                    | 005                | F          |
| AMI-M11P-6-40-C        | -                     | -          | 6              | -   | 40             | 2.3        | 2000        | 10000 | 165      | 0.75/1.25                                    | 007                | G          |

\*(M) = Metric Inserts

\*\* (C) = Ground Choke

# High Performance RFI Power Line Filters for SMPS Emission Control

## Electrical Schematic



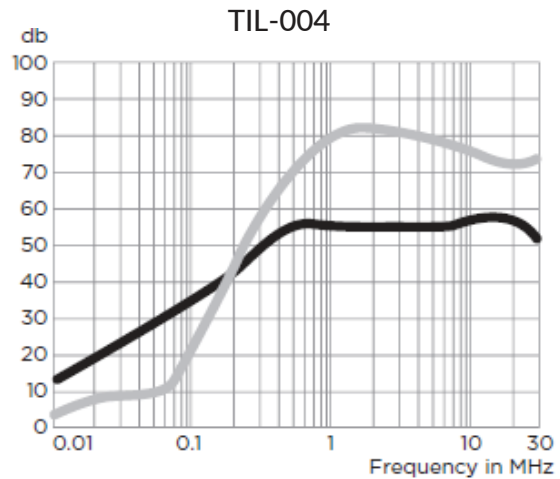
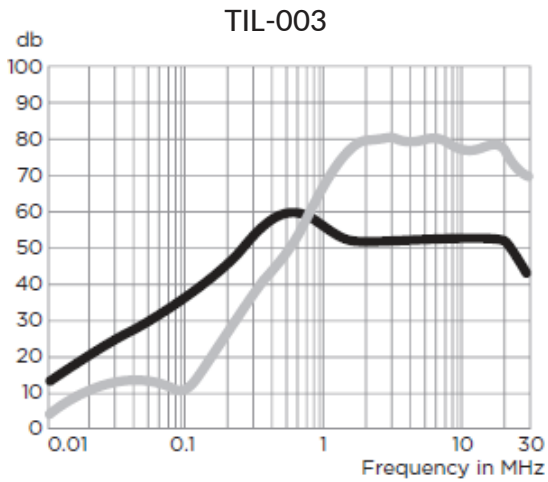
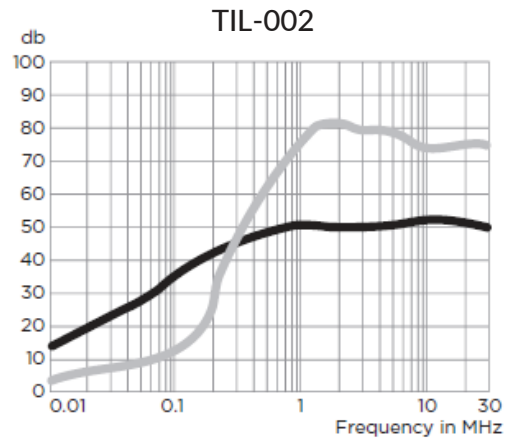
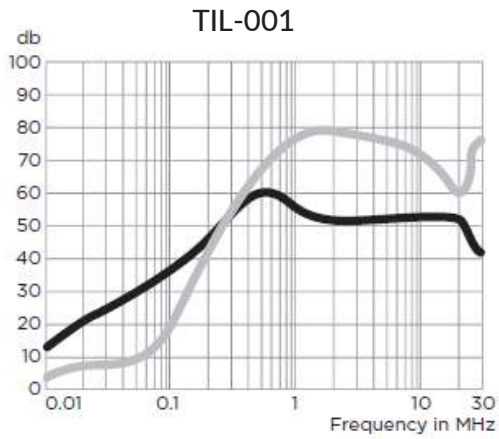
## Specifications:

- Rated Voltage (max): 250 VAC
- Operating Frequency: 50/60 Hz
- Operating Current: 3 to 40 A
- Hi-pot Rating (one minute): Line to Ground: 2250 VDC  
Line to Line: 1450 VDC
- Operating Ambient Temperature Range (at rated current  $I_r$ ): -10°C to +40°C. In an ambient temperature ( $T_a$ ) higher than +40°C the maximum operating current ( $I_o$ ) is calculated as follows:  $I_o = I_r \sqrt{[(85 - T_a) / 45]}$

# High Performance RFI Power Line Filters for SMPS Emission Control

## Performance Data Typical Insertion Loss

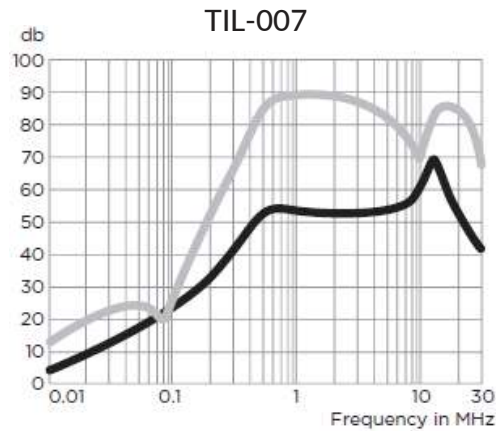
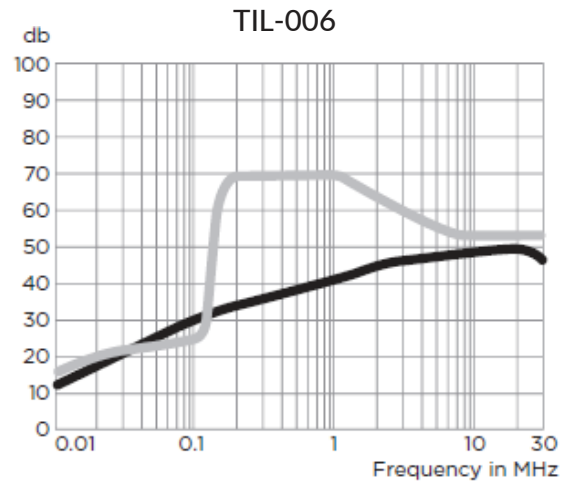
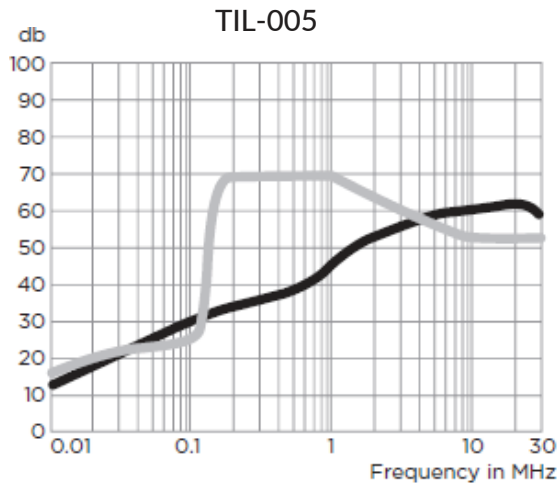
Measured in closed 50 Ohm system



# High Performance RFI Power Line Filters for SMPS Emission Control

## Performance Data Typical Insertion Loss

Measured in closed 50 Ohm system



— Common Mode / Asymmetrical (L-G)  
— Differential Mode / Symmetrical (L-L)

# High Performance RFI Power Line Filters for SMPS Emission Control

## Minimum Insertion Loss

Measured in closed 50 Ohm system

### Common Mode/Asymmetrical (Line to Ground)

| Current Rating            | Frequency-MHz |     |    |     |    |    |    |    |    |
|---------------------------|---------------|-----|----|-----|----|----|----|----|----|
|                           | .01           | .08 | .1 | .15 | .5 | 1  | 5  | 10 | 30 |
| <i>AMI-M11P/R-X-X-B-1</i> |               |     |    |     |    |    |    |    |    |
| 3A, 6A                    | 4             | 23  | 25 | 29  | 43 | 44 | 42 | 42 | 30 |
| 10A                       | 4             | 23  | 25 | 29  | 43 | 44 | 42 | 42 | 30 |
| <i>AMI-M11P/Q-X-X-B</i>   |               |     |    |     |    |    |    |    |    |
| 20A                       | 7             | 23  | 25 | 29  | 43 | 44 | 48 | 48 | 48 |
| 30A                       | 2             | 13  | 14 | 15  | 27 | 31 | 46 | 51 | 39 |
| 40A                       | 2             | 15  | 18 | 22  | 40 | 43 | 45 | 50 | 30 |
| <i>AMI-M11P/Q-X-X-B</i>   |               |     |    |     |    |    |    |    |    |
| 3A, 6A                    | 4             | 22  | 24 | 28  | 42 | 40 | 36 | 36 | 27 |
| 10A                       | 4             | 22  | 24 | 28  | 42 | 40 | 36 | 36 | 27 |
| <i>AMI-M11P/Q-X-X-C</i>   |               |     |    |     |    |    |    |    |    |
| 20A                       | 7             | 22  | 24 | 28  | 35 | 38 | 45 | 45 | 45 |
| 30A                       | 2             | 13  | 15 | 15  | 27 | 31 | 40 | 41 | 36 |

# High Performance RFI Power Line Filters for SMPS Emission Control

## Minimum Insertion Loss

Measured in closed 50 Ohm system

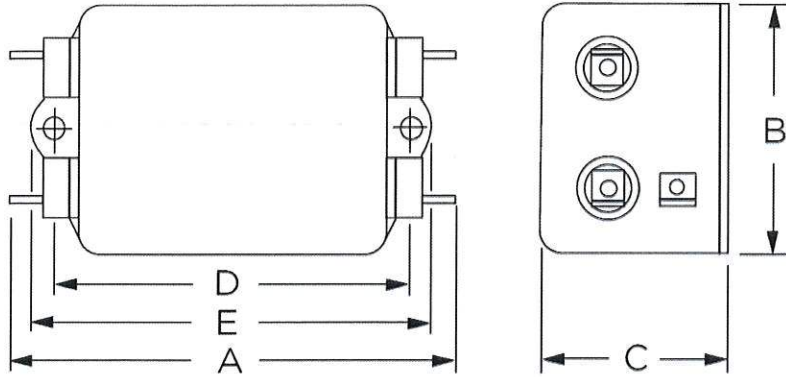
### Differential Mode/Symmetrical (Line to Line)

| Current Rating            | Frequency-MHz |     |    |     |    |    |    |    |    |
|---------------------------|---------------|-----|----|-----|----|----|----|----|----|
|                           | .01           | .08 | .1 | .15 | .5 | 1  | 5  | 10 | 30 |
| <i>AMI-M11P/R-X-X-B-1</i> |               |     |    |     |    |    |    |    |    |
| 3A, 6A                    | 1             | 3   | 10 | 25  | 59 | 65 | 62 | 40 | 40 |
| 10A                       | 1             | 3   | 3  | 10  | 55 | 65 | 65 | 50 | 50 |
| <i>AMI-M11P/Q-X-X-B</i>   |               |     |    |     |    |    |    |    |    |
| 20A                       | 1             | 10  | 8  | 8   | 45 | 60 | 65 | 60 | 60 |
| 30A                       | 5             | 13  | 13 | 13  | 60 | 60 | 51 | 43 | 43 |
| 40A                       | 7             | 14  | 16 | 30  | 65 | 65 | 65 | 57 | 50 |
| <i>AMI-M11P/Q-X-X-B</i>   |               |     |    |     |    |    |    |    |    |
| 3A, 6A                    | 1             | 3   | 10 | 25  | 59 | 65 | 62 | 40 | 40 |
| 10A                       | 1             | 3   | 3  | 10  | 55 | 65 | 65 | 65 | 45 |
| <i>AMI-M11P/Q-X-X-C</i>   |               |     |    |     |    |    |    |    |    |
| 20A                       | 1             | 10  | 8  | 8   | 45 | 60 | 65 | 60 | 60 |
| 30A                       | 5             | 12  | 12 | 13  | 60 | 60 | 51 | 43 | 43 |

# High Performance RFI Power Line Filters for SMPS Emission Control

## Case Styles

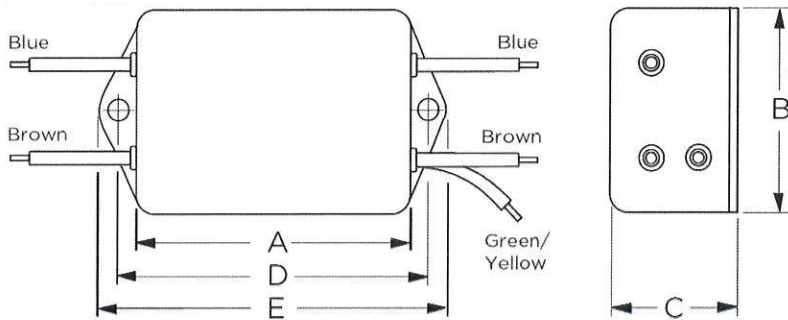
### STYLE A



Typical Dimensions:

Line/Load Terminals (4): .250 [6.3] with .07 [1.8] Dia. hole  
Ground Terminal (1): .250 [6.3] with .07 x .16 [1.8 x 3.8] slot  
Mounting Holes (2): .188 [4.78] Dia.

### STYLE B



Typical Dimensions:

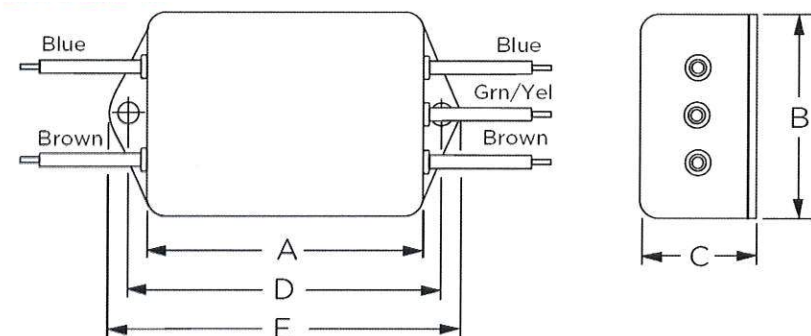
Wire Leads (5): 4.0 [101.6] Min., AWG18  
Mounting Holes (2): .188 [4.78] Dia.



# High Performance RFI Power Line Filters for SMPS Emission Control

## Case Styles

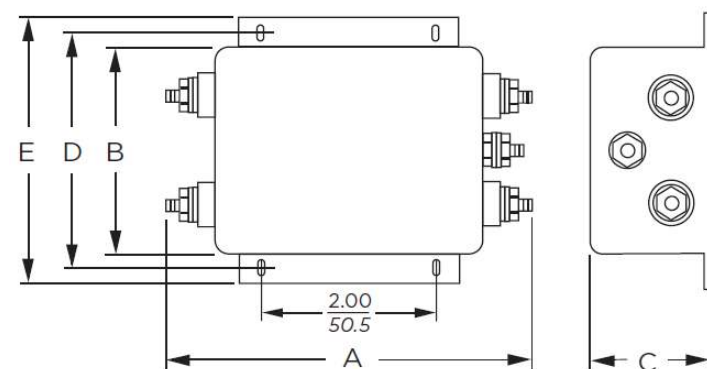
### STYLE C



Typical Dimensions:

Wire Leads (5): 4.0 [101.6] Min., AWG18 (AWG16 for 10A)  
Mounting Holes (2): .188 [4.78] Dia.

### STYLE D



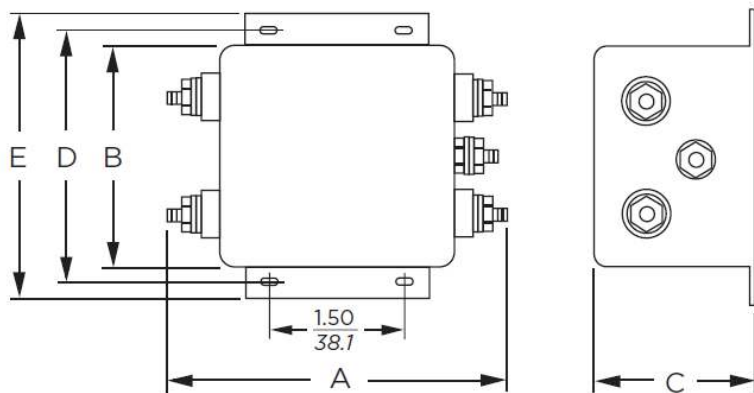
Typical Dimensions:

Terminals (5): 10-32, Torque 27 lbf-in. [3.05 N-m] max.  $\pm 2$  [.22]  
Mounting Slots (4): .203 x .156 [5.15 x 3.96] Dia.

# High Performance RFI Power Line Filters for SMPS Emission Control

## Case Styles

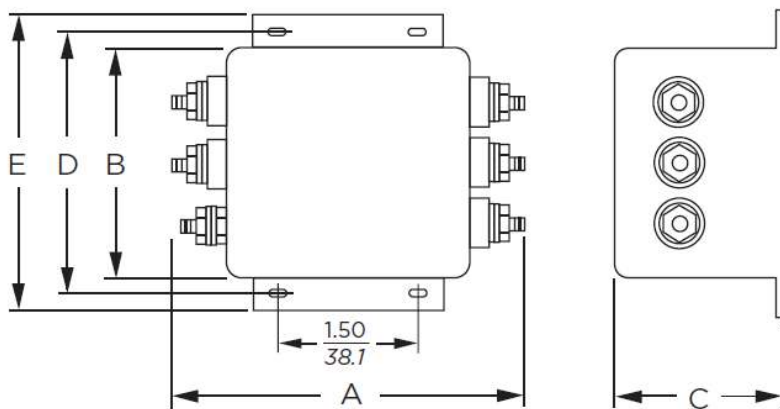
### STYLE E



Typical Dimensions:

Terminals (5): 10-32, Torque 27 lbf-in. [3.05 N-m] max.  $\pm 2$  [.22]  
Mounting Slots (4): .250 x .156 [6.35 x 3.96] Dia.

### STYLE F



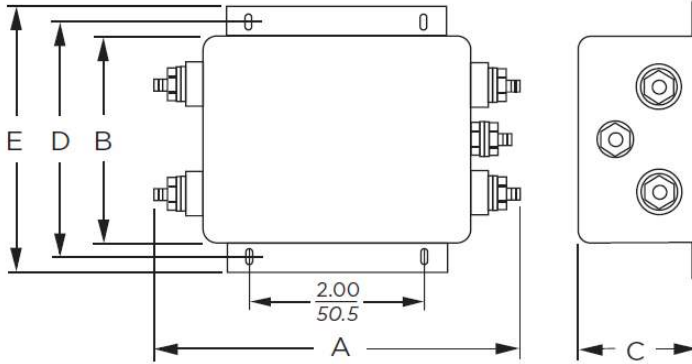
Typical Dimensions:

Terminals (5): 10-32, Torque 27 lbf-in. [3.05 N-m] max.  $\pm 2$  [.22]  
Mounting Slots (4): .250 x .156 [6.35 x 3.96] Dia.

# High Performance RFI Power Line Filters for SMPS Emission Control

## Case Styles

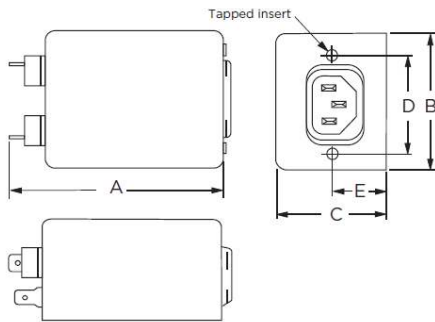
### STYLE G



Typical Dimensions:

|                     |                                                   |
|---------------------|---------------------------------------------------|
| Terminals (5):      | 10-32, Torque 27 lbf-in. [3.05 N-m] max. ± 2 [22] |
| Mounting Slots (4): | .203 x .156 [5.15 x 3.96] Dia.                    |

### STYLE H

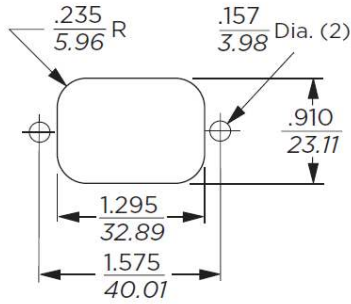


Typical Dimensions:

|                         |                                            |
|-------------------------|--------------------------------------------|
| Load Terminals (2):     | .250 [6.3] with .07 [1.8] Dia. hole        |
| Ground Terminal (1):    | .250 [6.3] with .07 x .16 [1.8 x 3.8] slot |
| Line Inlet (1):         | IEC 60320-1 C14                            |
| K7 Tapped Inserts (2):  | 6-32 x 1/4                                 |
| K7M Tapped Inserts (2): | M3 x .5                                    |

# High Performance RFI Power Line Filters for SMPS Emission Control

## Recommended Panel Cutout



Tolerance  $\pm .005$  [0.13]  
Back Mount Only

## Case Dimensions:

| Model Number                   | A max          | B max         | C max         | D $\pm \frac{.15}{.38}$ | E max         |
|--------------------------------|----------------|---------------|---------------|-------------------------|---------------|
| AMI-M11P-1-3                   | 3.85"/97.8mm   | 2.07"/52.6mm  | 1.16"/29.5mm  | 2.938"/74.63mm          | 3.35"/85.1mm  |
| AMI-M11P-3-3                   | 2.56"/65.0mm   | 2.07"/52.6mm  | 1.16"/29.5mm  | 2.938"/74.63mm          | 3.35"/85.1mm  |
| AMI-M11R-7-3                   | 3.21"/81.5mm   | 2.25"/57.2mm  | 1.53"/38.9mm  | 1.575"/40.01mm          | 0.63"/16.0*mm |
| AMI-M11P-1-6                   | 4.34"/110.2mm  | 2.25"/57.2mm  | 1.28"/32.5mm  | 3.427"/87.05mm          | 3.83"/97.3mm  |
| AMI-M11P-3-6                   | 3.05"/77.5mm   | 2.25"/57.2mm  | 1.78"/45.2mm  | 3.427"/87.05mm          | 3.83"/97.3mm  |
| AMI-M11R-7-6                   | 3.21"/81.5mm   | 2.25"/57.2mm  | 1.78"/45.2mm  | 1.575"/40.01mm          | 0.63"/16.0*mm |
| AMI-M11P-1-10                  | 4.97"/126.2mm  | 2.25"/57.2mm  | 1.78"/45.2mm  | 4.063"/103.2mm          | 4.46"/113.3mm |
| AMI-M11P-3-10                  | 3.69"/93.7mm   | 2.25"/57.2mm  | 1.78"/45.2mm  | 4.063"/103.2mm          | 4.46"/113.3mm |
| AMI-M11R-7-10                  | 4.34"/110.2mm  | 2.25"/57.2mm  | 1.78"/45.2mm  | 1.575"/40.01mm          | 0.63"/16.0*mm |
| AMI-M11P-6-20                  | 5.09"/127.3mm  | 2.25"/57.2mm  | 1.28"/32.5mm  | 4.063"/103.2mm          | 4.46"/113.3mm |
| AMI-M11P-6-30,<br>AMI-MQ-6C-30 | 4.92"/125.0mm  | 3.12"/79.2mm  | 2.75"/69.85mm | 3.437"/87.3mm           | 4.00"/101.6mm |
| AMI-M11P-6-40                  | 6.45"/163.83mm | 3.12"/79.25mm | 2.18"/55.4mm  | 3.5"/88.9mm             | 3.96"/100.6mm |

\* $\pm 0.02$  [0.5]