

## Q Series



**UL Recognized**  
**CSA Certified**  
**VDE Approved**

### Q Series

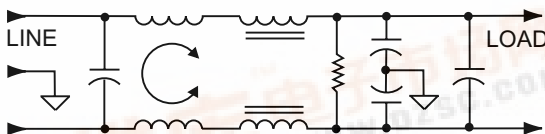
This series of RFI power line filters has been developed specifically for switching power supplies and is designed to be all the power line filtering needed to control conducted emissions *all the way down to 10kHz*. High attenuation is provided for both common mode and differential mode interference throughout the frequency range with no degradation of performance due to the large peak currents drawn by switching power supplies.

These filters are an ideal choice for applications that must meet emission limits below 150kHz, as well as the mandated limits above 150kHz. In most cases they will bring such equipment into compliance with the B-level limits of CISPR 22. They are also well suited for bringing ISM equipment (such as ultrasonic cleaners) into compliance with the limits of FCC Part 18, from 10kHz to 30MHz.

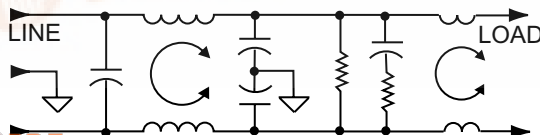
The EQ models meet the very low leakage current requirements VDE portable equipment, and (120 Volt) UL544 non-patient medical equipment. The VQ models offer higher common mode performance at the expense of higher leakage current, but still meet the leakage current limits of UL, CSA, and VDE non-portable equipment.

### Electrical Schematics

#### 3EQ & 3VQ Models



#### 6EQ & 20EQ Models



Resistor location for reference only.



### Specifications

#### Maximum leakage current, each line-to-ground

|                            | VQ Models | EQ Models |
|----------------------------|-----------|-----------|
| @ 120 VAC 60 Hz (3A, 20A): | .73 mA    | .22 mA    |
| @ 120 VAC 60 Hz (6A):      | —         | .29 mA    |
| @ 250 VAC 50 Hz (3A, 20A): | 1.27 mA   | .38 mA    |
| @ 250 VAC 50 Hz (6A):      | —         | .51 mA    |

#### Hipot rating (one minute):

|                |          |
|----------------|----------|
| line-to-ground | 2250 VDC |
| line-to-line   | 1450 VDC |

#### Operating frequency:

50/60 Hz

#### Rated voltage (max.):

250 VAC

#### Rated current:

|             |     |
|-------------|-----|
| 3VQ/3EQ     | 3A  |
| 6EQ         | 6A  |
| 20EQ1/20VQ1 | 20A |

#### Minimum insertion loss in dB:

Line-to-ground in 50 ohm circuit

| Current Rating | Frequency—MHz |     |     |     |    |    |    |    |    |
|----------------|---------------|-----|-----|-----|----|----|----|----|----|
|                | .01           | .02 | .05 | .15 | .5 | 1  | 5  | 10 | 30 |
| 3VQ            | 22            | 27  | 37  | 50  | 55 | 55 | 55 | 50 | 55 |
| 3EQ            | 22            | 27  | 36  | 47  | 47 | 43 | 45 | 45 | 45 |
| 6EQ            | 26            | 31  | 20  | 68  | 72 | 72 | 65 | 65 | 65 |
| 20EQ1          | 6             | 10  | 8   | 39  | 60 | 65 | 65 | 65 | 55 |
| 20VQ1          | 6             | 3   | 17  | 52  | 65 | 70 | 70 | 70 | 70 |

#### Line-to-line in 50 ohm circuit

| Current Rating | Frequency—MHz |     |     |     |    |    |    |    |    |
|----------------|---------------|-----|-----|-----|----|----|----|----|----|
|                | .01           | .02 | .05 | .15 | .5 | 1  | 5  | 10 | 30 |
| 3VQ            | 1             | 17  | 42  | 65  | 75 | 75 | 60 | 65 | 65 |
| 3EQ            | 1             | 17  | 42  | 65  | 75 | 75 | 65 | 65 | 60 |
| 6EQ            | 6             | 10  | 43  | 70  | 75 | 75 | 65 | 55 | 55 |
| 20EQ1          | 15            | 20  | 20  | 46  | 65 | 70 | 65 | 60 | 60 |
| 20VQ1          | 15            | 20  | 20  | 46  | 65 | 70 | 65 | 60 | 60 |

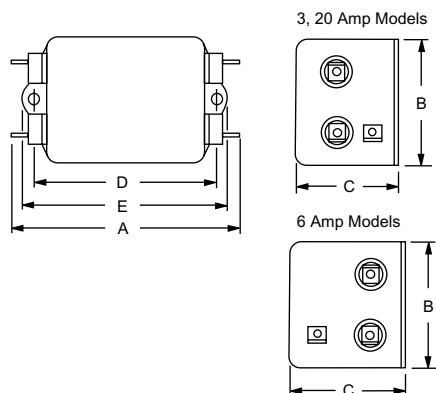
### Line Cord

Line Cord No. GA400: 7 1/2 foot, 3-conductor line cord to mate with Q8 models.

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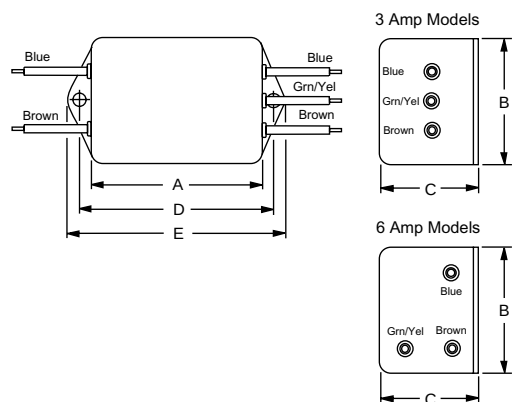
## Case Styles

### Q1



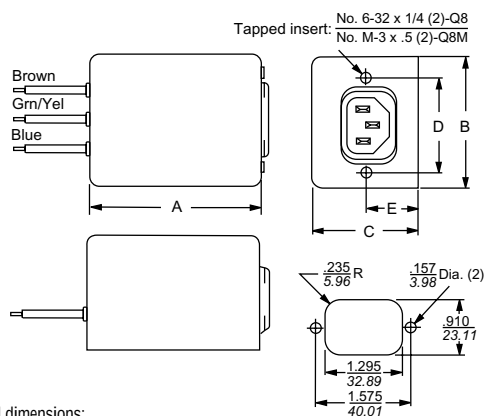
Typical dimensions:  
 Terminals: .250 [6.35] (5) Holes: .07 [1.8] Dia. (4)  
 Mounting Holes: .188 [4.78] Dia. (2) Slot: .07 x .16 [1.8 x 4.1]

### Q3



Typical dimensions:  
 Wire leads: 4.0 [101.6] Min. Mounting Holes: .188 [4.78] Dia. (2)

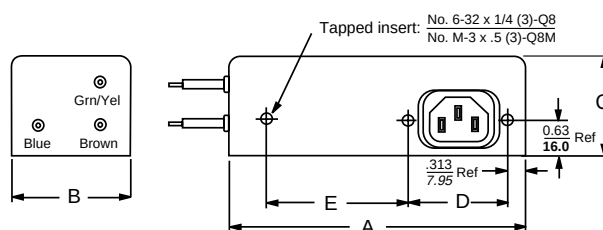
### 3A-Q8 & 8Q8M (with metric insert)



Typical dimensions:  
 Wire leads: 6.0 [152.4] Min.

**Panel Cutout (back mount)**  
 Tolerance  $\pm .005$  [0.13]

### 6A-Q8 & Q8M (with metric insert)



## Case Dimensions

| Part No.                   | A<br>(max)    | B<br>(max)   | C<br>(max)   | D<br>$\pm .015$<br>$\pm .38$ | E<br>(max)      |
|----------------------------|---------------|--------------|--------------|------------------------------|-----------------|
| 3VQ1, 3EQ1                 | 3.85<br>97.8  | 2.07<br>52.6 | 1.78<br>45.2 | 2.938<br>74.63               | 3.34<br>84.8    |
| 3VQ3, 3EQ3                 | 2.56<br>65.0  | 2.07<br>52.6 | 1.78<br>45.2 | 2.938<br>74.63               | 3.34<br>84.8    |
| 3VQ8, 3VQ8M<br>3EQ8, 3EQ8M | 3.07<br>78.0  | 2.25<br>57.2 | 1.78<br>45.2 | 1.575<br>40.01               | 0.63<br>16.0 †  |
| 6EQ1                       | 4.98<br>126.5 | 2.27<br>57.7 | 1.80<br>45.7 | 4.063<br>103.2               | 4.47<br>113.5   |
| 6EQ3                       | 3.69<br>93.7  | 2.27<br>57.7 | 1.80<br>45.7 | 4.063<br>103.2               | 4.47<br>113.5   |
| 6EQ8, 6EQ8M                | 5.47<br>138.9 | 2.07<br>52.6 | 1.78<br>45.2 | 1.575<br>40.01               | 2.70<br>68.0    |
| 20EQ1, 20VQ1               | 6.66<br>168.1 | 2.07<br>52.6 | 2.28<br>57.9 | 5.625<br>142.9               | 6.03<br>153.2 † |

†  $\pm .02$  [ $\pm .5$ ]

## Part Numbers

|                                                                         |                                        |
|-------------------------------------------------------------------------|----------------------------------------|
| 3EQ1<br>3EQ3<br>3EQ8<br>3EQ8M<br>6EQ1<br>6EQ3<br>6EQ8<br>6EQ8M<br>20EQ1 | 3VQ1<br>3VQ3<br>3VQ8<br>3VQ8M<br>20VQ1 |
| Line Cord:                                                              | GA400                                  |