#### General Purpose RFI Power Line Filters - Ideal for High Impedance Load

# **K** Series

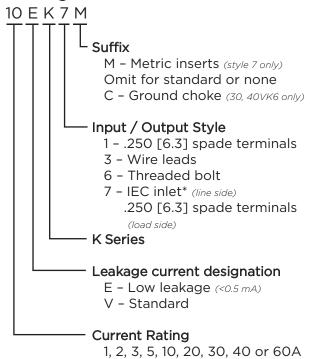


UL Recognized CSA Certified VDE Approved\*\*

# **K** Series

- Suitable for high impedance loads
- Well suited to applications where pulsed, continuous and/or intermittent RFI interference is present
- EK models meet the very low leakage current requirements for VDE portable equipment and non-patient care medical equipment
- Available with ground line inductor (choke)

# **Ordering Information**



\*1-15A: IEC 60320-1 C14 inlet mates with C13 connector 20VK7: C20 inlet mates with C19 connector



# Specifications

#### Maximum leakage current each Line to Ground:

	VK Models	<u>EK Models</u>				
@ 120 VAC 60 Hz:	.5 mA	.21 mA				
@250 VAC 50 Hz:	1.0 mA	.36 mA				
Hipot rating (one minute):						
Line to Ground:		2250 VDC				
Line to Line:		1450 VDC				
Rated Voltage (max):		250 VAC				
Operating Frequency:		50/60 Hz				
Rated Current:		1 to 60A*				
Operating Ambient Temperature Range						
(at rated current Ir):	-	-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:  $I_o = I_r \sqrt{(85-Ta)/45}$ 

### **Available Part Numbers**

1VK1 10VK6 2EK3   1VK3 10VK7 3EK1   2VK1 10VK7M 3EK3   2VK3 20VK1 3EK7   3VK1 20VK6 3EK7M   3VK3 20VK7* 5EK1   3VK7 30VK6 5EK3   3VK7M 30VK6C 5EK7   5VK1 40VK6 5EK7M   5VK3 40VK6C 10EK1   5VK7 60VK6 10EK3   5VK7M 1EK1 10EK7   10VK1 1EK3 10EK7M			
2VK1 10VK7M 3EK3   2VK3 20VK1 3EK7   3VK1 20VK6 3EK7M   3VK3 20VK7* 5EK1   3VK7 30VK6 5EK3   3VK7 30VK6C 5EK7   5VK1 40VK6 5EK7M   5VK3 40VK6C 10EK1   5VK7 60VK6 10EK3   5VK7M 1EK1 10EK7   10VK1 1EK3 10EK7M	1VK1	10VK6	2EK3
2VK3 20VK1 3EK7   3VK1 20VK6 3EK7M   3VK3 20VK7* 5EK1   3VK7 30VK6 5EK3   3VK7M 30VK6C 5EK7   5VK1 40VK6 5EK7M   5VK3 40VK6C 10EK1   5VK7 60VK6 10EK3   5VK7M 1EK1 10EK7   10VK1 1EK3 10EK7M	1VK3	10VK7	3EK1
3VK1 20VK6 3EK7M   3VK3 20VK7* 5EK1   3VK7 30VK6 5EK3   3VK7M 30VK6C 5EK7   5VK1 40VK6 5EK7M   5VK3 40VK6C 10EK1   5VK7 60VK6 10EK3   5VK7M 1EK1 10EK7   10VK1 1EK3 10EK7M	2VK1	10VK7M	3EK3
3VK3 20VK7* 5EK1   3VK7 30VK6 5EK3   3VK7M 30VK6C 5EK7   5VK1 40VK6 5EK7M   5VK3 40VK6C 10EK1   5VK7 60VK6 10EK3   5VK7M 1EK1 10EK7   10VK1 1EK3 10EK7M	2VK3	20VK1	3EK7
3VK7 3OVK6 5EK3   3VK7M 3OVK6C 5EK7   5VK1 4OVK6 5EK7M   5VK3 4OVK6C 10EK1   5VK7 6OVK6 10EK3   5VK7M 1EK1 10EK7   10VK1 1EK3 10EK7M	3VK1	20VK6	3EK7M
3VK7M 30VK6C 5EK7   5VK1 40VK6 5EK7M   5VK3 40VK6C 10EK1   5VK7 60VK6 10EK3   5VK7M 1EK1 10EK7   10VK1 1EK3 10EK7M	3VK3	20VK7*	5EK1
5VK1 40VK6 5EK7M   5VK3 40VK6C 10EK1   5VK7 60VK6 10EK3   5VK7M 1EK1 10EK7   10VK1 1EK3 10EK7M	3VK7	30VK6	5EK3
5VK3 40VK6C 10EK1   5VK7 60VK6 10EK3   5VK7M 1EK1 10EK7   10VK1 1EK3 10EK7M	3VK7M	30VK6C	5EK7
5VK7 60VK6 10EK3   5VK7M 1EK1 10EK7   10VK1 1EK3 10EK7M	5VK1	40VK6	5EK7M
5VK7M 1EK1 10EK7   10VK1 1EK3 10EK7M	5VK3	40VK6C	10EK1
10VK1 1EK3 10EK7M	5VK7	60VK6	10EK3
	5VK7M	1EK1	10EK7
	10VK1	1EK3	10EK7M
10VK3 2EK1 20EK1	10VK3	2EK1	20EK1

\*\*20VK7, 20A model tested by Underwriters Laboratories to US and Canadian requirements and is VDE approved at 16A, 250VAC

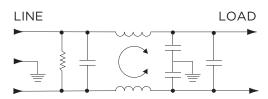
Dimensions are in inches and millimeters unless otherwise specified. Values in italics are metric equivalents. Dimensions are shown for reference purposes only. Specifications subject to change.



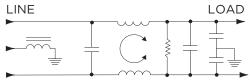
#### General Purpose RFI Power Line Filters (continued)

# **K** Series

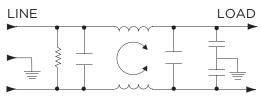
#### **Electrical Schematics**



30 & 40VK6C (Inductor in Ground Line)

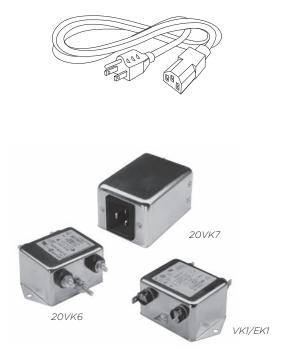


#### 60VK6

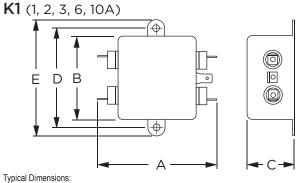


#### Accessories

GA400: NEMA 5-15P to IEC 60320-1 C-13 line cord

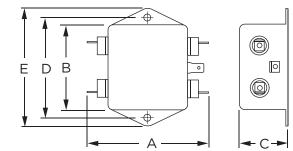


# Case Styles



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

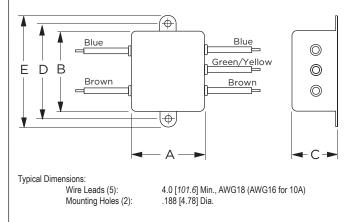
**K1** (20A)



Typical Dimensions:

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

K3



50

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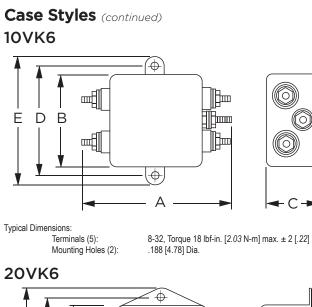
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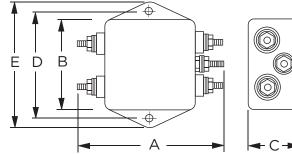
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#### General Purpose RFI Power Line Filters (continued)

60VK6

# **K** Series



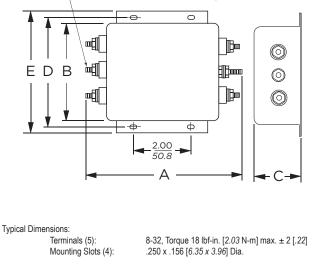


Typical Dimensions: Terminals (5): Mounting Holes (2):

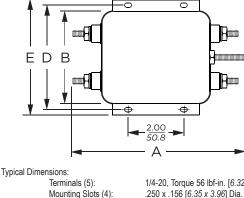
8-32, Torque 18 lbf-in. [2.03 N-m] max. ± 2 [.22] .188 [4.78] Dia.

## 30VK6/6C & 40VK6/6C

Terminal on 30VK6C and 40VK6C only

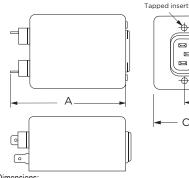


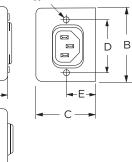
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#### K7 & K7M (3, 5, 10A)





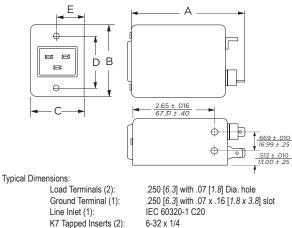
Typical Dimensions:

Load Terminals (2): Ground Terminal (1): Line Inlet (1): K7 Tapped Inserts (2): K7M Tapped Inserts (2):

K7M Tapped Inserts (2):

.250 [6.3] with .07 [1.8] Dia. hole .250 [6.3] with .07 x .16 [1.8 x 3.8] slot IEC 60320-1 C14 6-32 x 1/4 M3 x .5

#### 20VK7



M3 x .5

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General Purpose RFI Power Line Filters (continued)

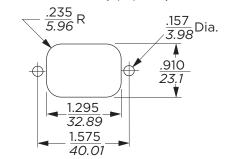
# **K** Series

#### **Case Dimensions**

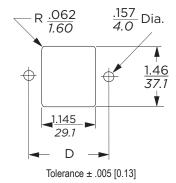
Part No.	Α	В	С	D	Е
Fait NO.	(max)	(max)	(max)	<u>± .015</u> ± .38	(max)
1VK1, 1EK1,	3.1	2.07	0.91	2.375	2.81
2VK1, 2EK1	78.7	52.6	23.1	60.33	74.1
1VK3, 1EK3,	1.81	2.07	0.91	2.375	2.81
2VK3, 2EK3	46.0	52.6	23.1	60.33	74.1
3VK1, 3EK1,	3.10	2.07	1.16	2.375	2.81
5VK1, 5EK1	78.7	52.6	29.5	60.33	74.1
3VK3, 3EK3,	1.81	2.07	1.16	2.375	2.81
5VK5, 5EK3	46.0	52.6	29.5	60.33	74.4
3VK7/7M,	3.21	2.25	1.28	1.575	0.63*
3EK7/7M	81.5	57.2	32.5	40.01	16.0*
5VK7/7M,	3.21	2.25	1.28	1.575	0.63*
5EK7/7M	81.5	57.2	32.5	40.01	16.0*
10VK1,	3.35	2.07	1.16	2.375	2.81
10EK1	85.1	52.6	29.5	60.33	71.4
10VK3,	2.07	2.07	1.16	2.375	2.81
10EK3	52.6	52.6	29.5	60.33	71.4
10VK6	3.46	2.07	1.16	2.375	2.81
10 V KO	87.9	52.6	29.5	60.33	71.4
10VK7/7M,	3.71	2.25	1.28	1.575	0.63*
10EK7/7M	94.2	57.2	32.5	40.01	16.0*
20VK1,	3.35	2.56	1.53	2.938	3.35
20EK1	85.1	65.0	38.9	74.63	85.1
201///	3.46	2.56	1.53	2.938	3.35
20VK6	87.9	65.0	38.9	74.63	85.1
201/1/7	3.8	2.28	1.78	1.575	.846
20VK7	90.4	54.6	39.6	74.63	85.8'
30VK6,	5.34	3.38	1.53	3.75	4.20
30VK6C	135.6	85.9	38.9	95.25	106.7
40VK6,	5.34	3.38	1.53	3.75	4.20
40VK6C	135.6	85.9	38.9	95.25	106.7
60VK6	6.0	3.38	1.53	3.75	4.20

### **Recommended Panel Cutouts**

K7 & K7M Cutout (3, 5, 10A)



### 20VK7 Cutout



# **Performance Data**

### **Typical Insertion Loss**

Measured in closed 50 Ohm system

10 30

Frequency in MHz

10 30 Frequency in MHz

1 & 3EK db 100 90 80 70 60 50 40 30 20



10

0

5EK

db 100

90

80

70

60

50

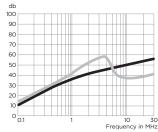
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30

20

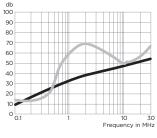
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0 [\_\_\_\_\_



20EK

2 & 10EK



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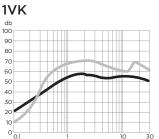
#### General Purpose RFI Power Line Filters (continued)

# **K** Series

#### Performance Data (continued)

### **Typical Insertion Loss**

Measured in closed 50 Ohm system



10VK

db 100

90

80

70

60

50

40

30

20

10

db 100

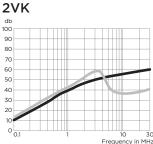
90

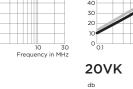
80

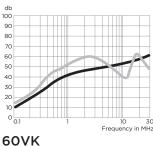
70

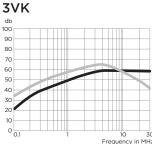
60

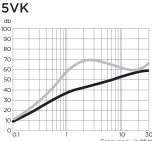
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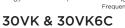


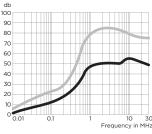


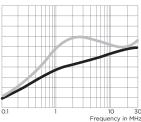




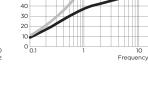








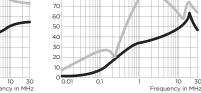




Common Mode / Asymmetrical (L-G) Differential Mode / Symmetrical (L-L)

#### 50 40 30 20 10 0.1 Freque

40VK & 40VK6C



db 100

90

80

# Minimum Insertion Loss

Frequency in MHz

Measured in closed 50 Ohm system Common Mode / Asymmetrical (Line to Ground)

Current	Frequency – MHz					
Rating	.15	.5	1	5	10	30
VK Models						
1A, 3A	15	30	38	50	50	50
2A, 5A, 10A	6	19	28	42	45	50
20A	6	19	28	42	45	50
30A, 40A	6	19	28	42	45	50
60A	6	22	28	32	39	35
EK Models						
1A, 3A	15	29	35	45	45	50
2A, 5A, 10A	8	19	25	38	40	45
20A	8	19	25	38	40	45

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

Current		Frequency – MHz					
Rating	.15	.5	1	5	10	30	
VK Models							
1A, 3A	-	-	48	55	50	35	
2A, 5A, 10A	-	-	30	50	30	30	
20A	6	6	30	50	30	30	
30A, 40A	2	40	60	65	57	55	
60A	13	49	67	57	53	53	
EK Models							
1A, 3A	-	-	48	55	50	35	
2A, 5A, 10A	-	-	30	50	30	30	
20A	6	6	30	50	30	30	

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