

M Series

Power Entry Modules Patent No. 4,488,201
with Optional RFI Power Line Filters
for General and Medical Applications



UL Recognized
CSA Certified
VDE Approved

M Series

The M series power entry modules offer the most choices of power entry components and filtering options to fit a specific need. The fully configured M series expands the options of a manufacturer whose products are marketed worldwide. One component, fully assembled and tested, provides the capability of interfacing a multi-voltage power supply to any common voltage or fusing scheme in the world, without modification.

- The IEC connector provides an internationally accepted power entry termination, which can be used with a variety of line cords.
- The selectable fuseholder allows use of single or dual European fuses, or a single North American fuse.
- The optional DPST on/off switch breaks both sides of the line and is labeled with the international I/O markings.
- The optional voltage selector provides a convenient means to change transformer primary connection, and it is available in both 2-voltage and 4-voltage configurations.
- The series is available with four filter circuits to meet a variety of applications, and convenient connections are provided on unfiltered models to allow wiring of a separate RFI filter.

The M series is a family of components offering maximum flexibility and cost-effectiveness in the selection of primary power components. Wiring to the modules is accomplished via .110" terminals for labor savings and convenience.

Four filter circuits provide a choice of attenuation tailored to specific categories of susceptibility and emissions needs.

HM Models – This medical filter provides susceptibility protection without the leakage current associated with line-to-ground capacitors. Designed to allow equipment to meet UL544 for patient care and nonpatient care equipment, the HMfilter has a maximum leakage current of 2 µA at 120 VAC60 Hz. See Appendix C for more information on medical applications and UL standards.

FM Models – General purpose RFI filter designed for susceptibility applications, effectively providing RFI control of line-to-ground noise. The design is compact and meets the very low leakage current requirements of VDE portable equipment as well as (120 Volt) UL544 nonpatient medical equipment.

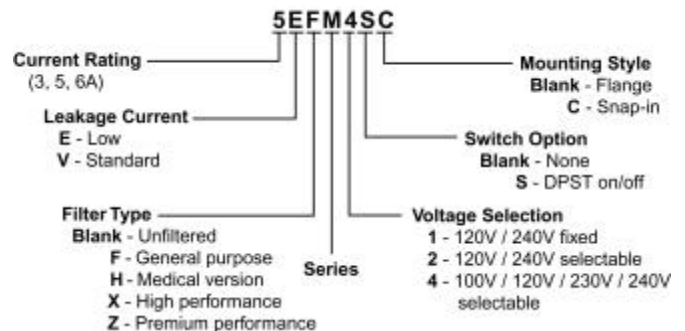


XM Models – High performance RFI filter designed to bring most digital equipment (including switching power supplies) into compliance with FCC Part 15J, Class B conducted emissions limits.

ZM Models – Premium RFI filter designed to bring most digital equipment (including switching power supplies) into compliance with EN55022, Level B (as well as FCC Part 15J, Class B) conducted emissions limits.

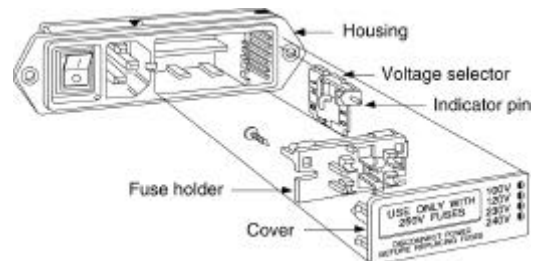
Ordering Information

Consult your local Corcom sales representative for pricing.

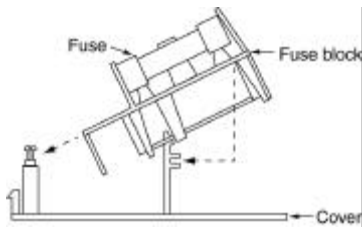


Available Part Numbers

Filtered		Unfiltered
5EHM1	3EXM1S	6VM1
5EHM1S	3EXM4	6VM1C
5EHM4	3EXM4S	6VM1S
5EHM4S	3EZM1S	6VM1SC
5EFM1	3EZM4	6VM2
5EFM1C	3EZM4S	6VM2S
5EFM1S		6VM4
5EFM1SC		6VM4C
5EFM4		6VM4S
5EFM4C		6VM4SC
5EFM4S		
5EFM4SC		



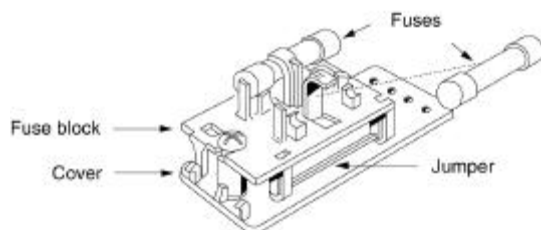
Fuse Block/Cover Assembly



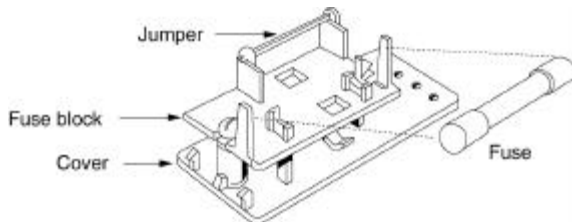
To change from North American to European fusing: open cover, using small blade screwdriver or similar tool; loosen Phillips screw two turns; remove fuse block by sliding up, then away from Phillips screw and lifting up from pedestal; change fuses; (note that *two* European fuses are required, although a dummy fuse may be used in the neutral [lower] holder); invert fuse block and slide back onto Phillips screw and pedestal; tighten Phillips screw, and replace cover (note that fuse(s) that go into the housing first are the active set).

Fuse Changing

European Fusing Arrangement



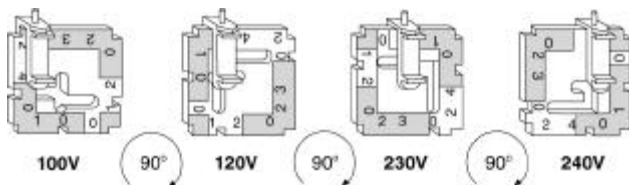
North American Fusing Arrangement



Voltage Selection

To change selected voltage: open cover, using small blade screwdriver or similar tool; set aside cover/fuse block assembly; pull voltage selector card straight out of housing, using indicator pin; orient selector card so that desired voltage is readable at the bottom; orient indicator pin to point up when desired voltage is readable at bottom (note that when indicator pin is fixed, successive voltages are selected by rotating the card 90° clockwise); insert voltage selector card into housing, *printed side of card facing forward toward IEC connector and edge containing the desired voltage first*; replace cover, and verify that indicator pin shows the desired voltage.

Voltage Selector Card Orientation



Specifications – Unfiltered Models

Hipot rating (one minute):
 line-to-ground 1500 VAC
 line-to-line 1450 VDC
 line-to-load (switch off) 2500 VAC

Operating voltages: 100, 120, 230, 240 VAC

Operating frequency: 50/60 Hz

Switch:

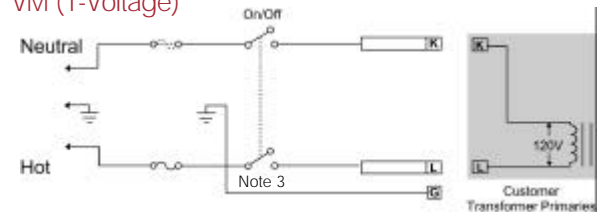
Double-insulated, rated for
 100,000 operations at full load;
 10,000 operations at 70 Amps inrush current.

Fuse (not included): Reversible fuseholder
 accepts one 1/4 x 1-1/4" fuse
 or two 5 x 20mm fuses.

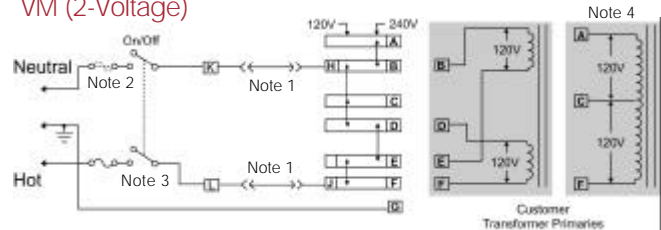
Terminals: .110" (2.79mm) terminals

Electrical Schematics – Unfiltered Models

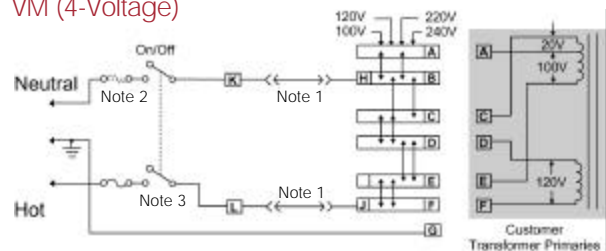
VM (1-Voltage)



VM (2-Voltage)



VM (4-Voltage)



Note 1: Jumpers required if no input filter is used.

Note 2: Provision for dual European style fusing.

Note 3: On/off switch present only with "S" suffix.

Note 4: When using a center-tapped transformer, the C-F winding should be the low voltage (high current) winding and must be capable of handling the full primary current in the 120V position.

230V Nomenclature relates to pending European CENELEC agreement.

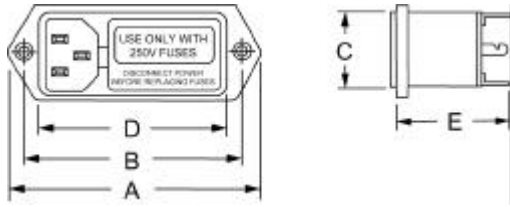
M Series

Case Styles – Unfiltered Models

Metric shown in italics.

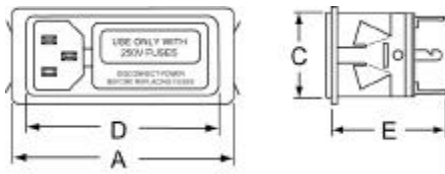
6VM1

IEC Connector, Selectable Fuseholder



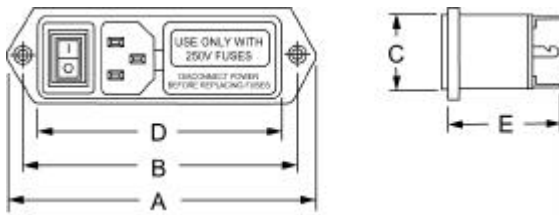
6VM1C

IEC Connector, Selectable Fuseholder, Snap-In



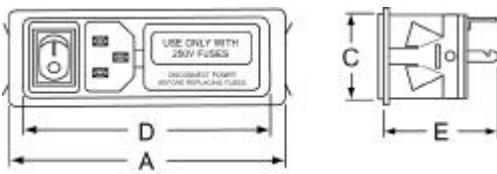
6VM1S

IEC Connector, DPST On/Off Switch, Selectable Fuseholder



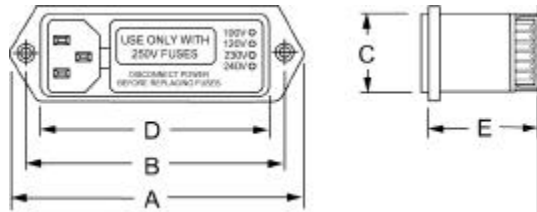
6VM1SC

IEC Connector, DPST On/Off Switch, Selectable Fuseholder, Snap-In



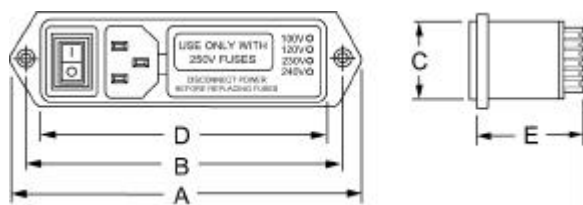
6VM2 & 6VM4

IEC Connector, Voltage Selector, Selectable Fuseholder



6VM2S & 6VM4S

IEC Connector, DPST On/Off Switch, Voltage Selector, Selectable Fuseholder



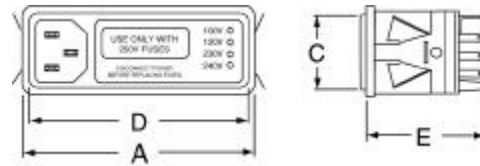
Case Dimensions – Unfiltered Models

Metric shown in italics.

Part No.	A (max)	B ± 0.01 ± 0.25	C (max)	D (max)	E (max)	F (max)
6VM1	3.39 <i>86.1</i>	2.84 <i>72.1</i>	1.14 <i>29.0</i>	2.44 <i>62.0</i>	1.45 <i>36.8</i>	2.5 <i>63.5</i>
6VM1C	2.56 <i>66.1</i>	—	1.14 <i>29.0</i>	2.44 <i>62.0</i>	1.45 <i>36.8</i>	2.5 <i>63.2</i>
6VM1S	4.17 <i>105.9</i>	3.62 <i>91.9</i>	1.14 <i>29.0</i>	3.22 <i>81.8</i>	1.45 <i>36.8</i>	3.28 <i>83.3</i>
6VM1SC	3.34 <i>84.8</i>	—	1.14 <i>29.0</i>	3.27 <i>83.1</i>	1.45 <i>36.8</i>	3.27 <i>83.1</i>
6VM2	3.88	3.32	1.14	2.92	1.45	2.98
6VM4	98.6	84.3	29.0	74.2	36.8	75.7
6VM4C	3.04 <i>98.6</i>	—	1.14 <i>29.0</i>	2.92 <i>74.2</i>	1.45 <i>36.8</i>	2.97 <i>75.4</i>
6VM2S	4.65	4.1	1.14	3.72	1.45	3.76
6VM4S	118.1	104.1	29.0	94.5	36.8	95.5
6VM4SC	3.82 <i>97.0</i>	—	1.14 <i>29.0</i>	3.7 <i>94.0</i>	1.45 <i>36.8</i>	3.75 <i>95.3</i>

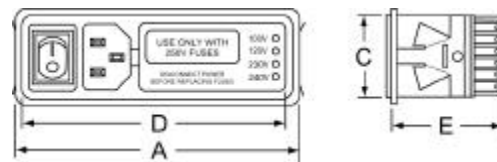
6VM4C

IEC Connector, Voltage Selector, Selectable Fuseholder, Snap-In



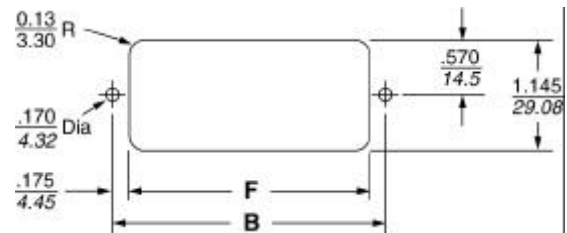
6VM4SC

IEC Connector, DPST On/Off Switch, Voltage Selector, Selectable Fuseholder, Snap-In



Recommended Panel Cutout

Unfiltered Models



Note: Snap-in models allow front mount only.

All mounting holes countersunk.

Typical Dimensions

Mounting holes: $\frac{.155}{3.94}$ Dia. (2) Terminals: $\frac{.110}{2.79}$ Torque: 7 in. lbs. max.

Holes: $\frac{.055}{1.40}$ Dia. $\pm \frac{.004}{.10}$, except solder lug ground tap with wire wrap.

Note: Mounting holes on tabs are countersunk and take #6 flathead screw.

A
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Specifications – Filtered Models

Maximum leakage current, each line-to-ground:

@ 120 VAC 60 Hz:	HM Models	2 μ A
	FM Models	0.25 mA
	XM/ZM Models	0.30 mA
@ 250 VAC 50 Hz:	HM Models	5 μ A
	FM/XM/ZM Models	0.50 mA

Hipot rating (one minute):

line-to-ground	HM Models	1500 VAC
	FM/XM/ZM	1500 VAC
line-to-line	All Models	1450 VDC

Operating voltages: 100, 120, 230, 240 VAC

Operating frequency: 50/60 Hz

Rated voltage: 120/250 VAC

Switch: Rated for 100,000 operations at full load; 10,000 operations at 70 Amps inrush current.

Fuse (not included): Reversible fuseholder accepts one 1/4 x 1-1/4" fuse or two 5 x 20 mm fuses.

Terminals: .110" (2.79mm) terminals

Minimum insertion loss in dB:

Line-to-ground in 50 ohm circuit:

Current Rating	Frequency-MHz							
	.01	.05	.15	.5	1	5	10	30

FM Models

5A	-	-	14	21	26	40	45	40
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HM Models

5A	-	-	14	18	19	22	22	17
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XM Models

3A	2	13	23	40	46	44	44	44
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ZM Models

3A	15	29	39	46	43	40	40	40
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Line-to-line in 50 ohm circuit

Current Rating	Frequency-MHz									
	.02	.03	.05	.07	.15	.5	1	5	10	30

XM Models

3A	-	-	-	5	34	62	68	60	50	40
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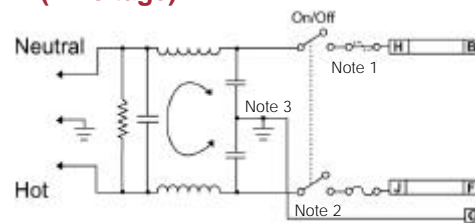
ZM Models

3A	5	13	28	37	55	75	75	62	54	44
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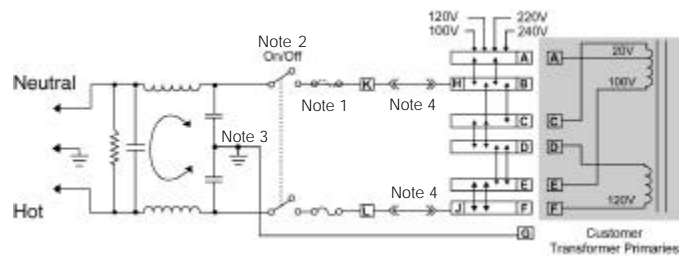
230V Nomenclature relates to pending European CENELEC agreement.

Electrical Schematics – Filtered Models

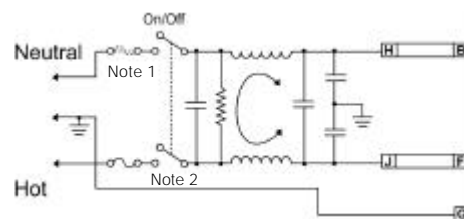
FM & HM (1-Voltage)



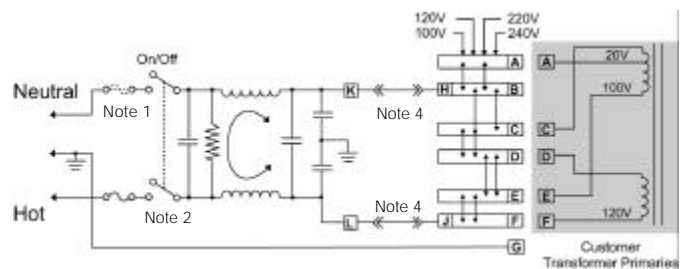
FM & HM (4-Voltage)



XM & ZM(1-Voltage)



XM & ZM (4-Voltage)



Note 1: Provision for dual fusing (Euro standard)

Note 2: Power on/off switch with suffix "S" only

Note 3: HM models without line-to-ground capacitors

Note 4: Models HM4, FM4, XM4, and ZM4 have added terminals K and L. External switch or jumper must be placed from K to H and L to J.

230V Nomenclature relates to pending European CENELEC agreement.

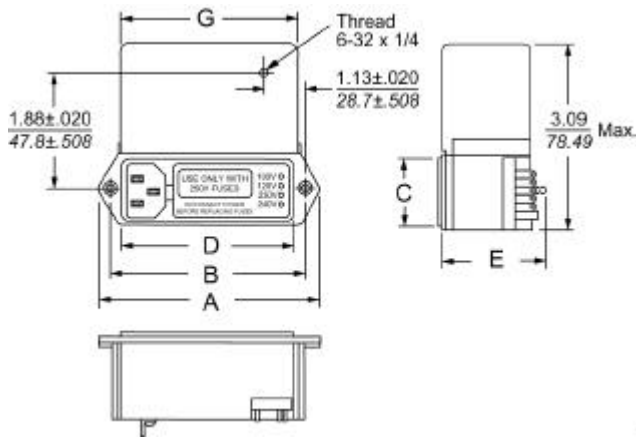
M Series

Case Styles – Filtered Models

Metric shown in italics.

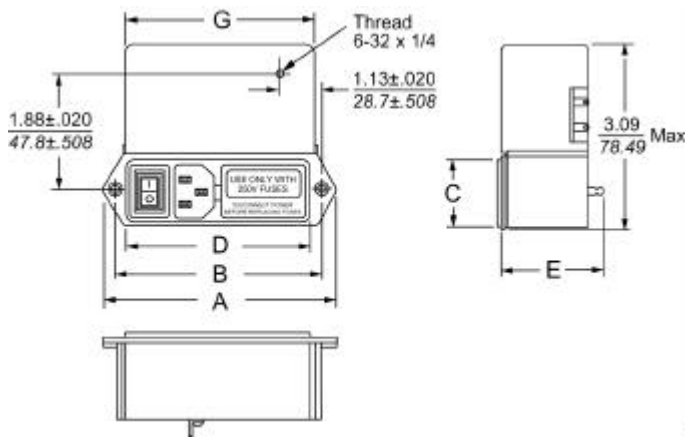
3EXM4 & 3EZM4

IEC Connector, Voltage Selector, Selectable Fuseholder



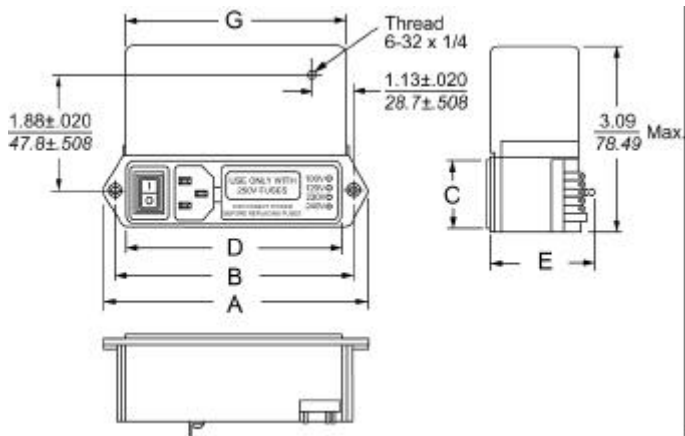
3EXM1S & 3EZM1S

IEC Connector, DPST On/Off Switch, Selectable Fuseholder



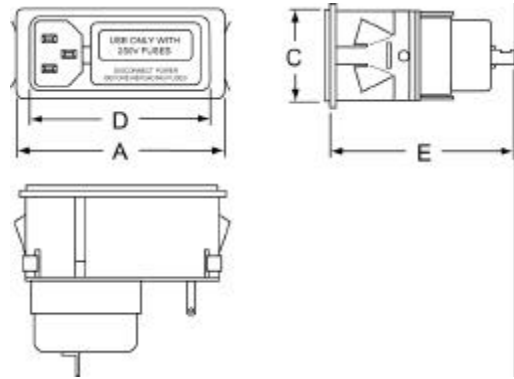
3EXM4S & 3EZM4S

IEC Connector, DPST On/Off Switch, Voltage Selector, Selectable Fuseholder



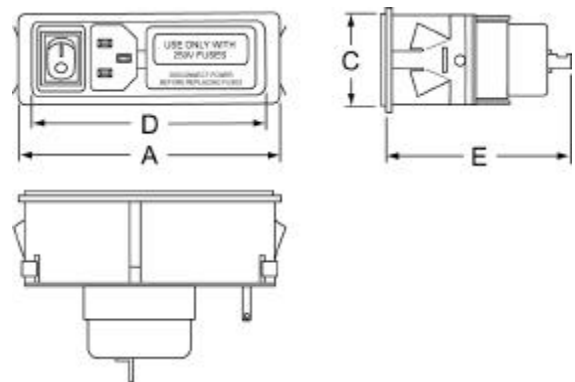
5EFM1C

IEC Connector, Selectable Fuseholder



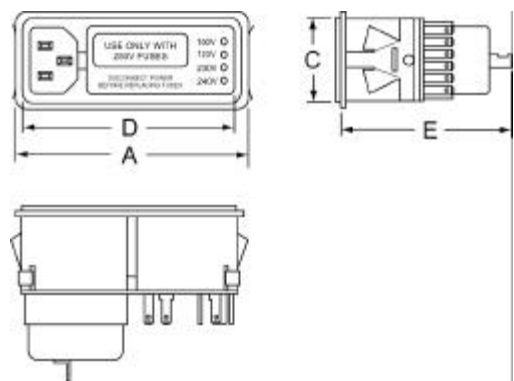
5EFM1SC

IEC Connector, DPST On/Off Switch, Selectable Fuseholder



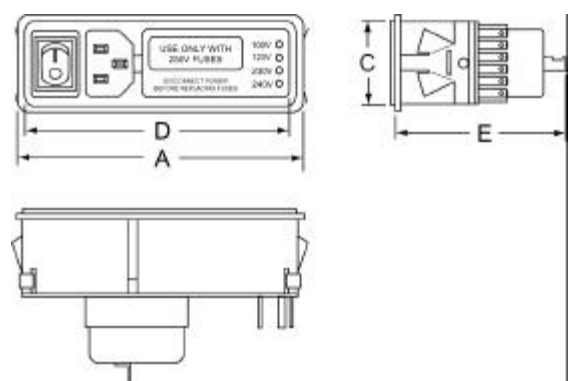
5EFM4C

IEC Connector, Voltage Selector, Selectable Fuseholder



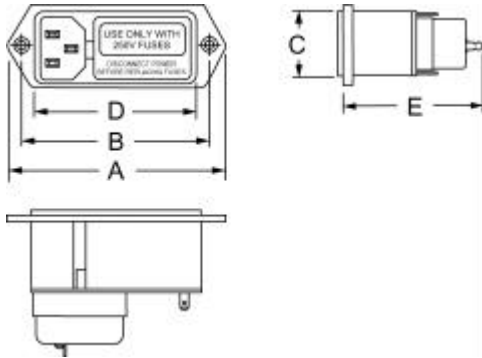
5EFM4SC

IEC Connector, DPST On/Off Switch, Voltage Selector, Selectable Fuseholder



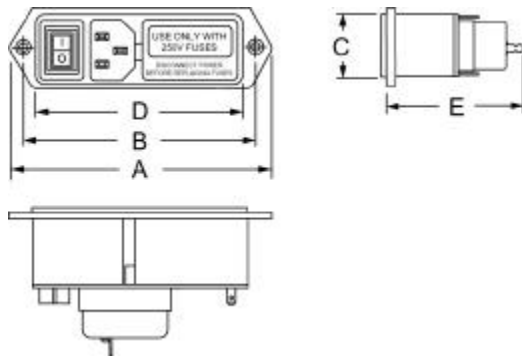
5EHM1 & 5EFM1

IEC Connector, Selectable Fuseholder



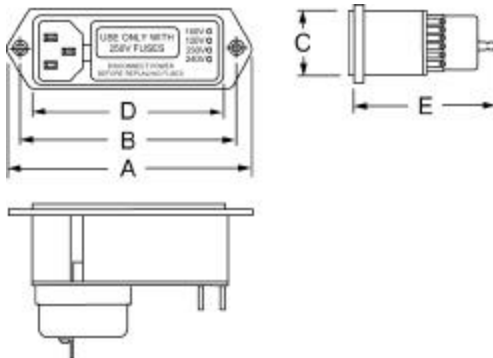
5EHM1S & 5EFM1S

IEC Connector, DPST On/Off Switch, Selectable Fuseholder



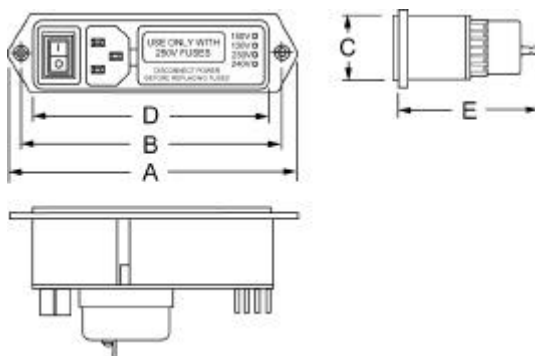
5EHM4 & 5EFM4

IEC Connector, DPST On/Off Switch, Selectable Fuseholder



5EHM4S & 5EFM4S

IEC Connector, DPST On/Off Switch, Voltage Selector, Selectable Fuseholder



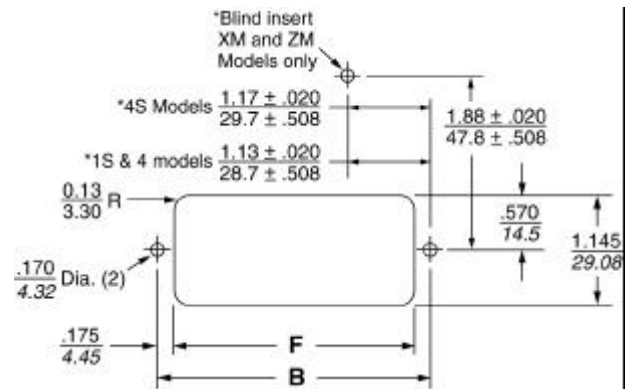
Case Dimensions – Filtered Models

Metric shown in italics.

Part No.	A (max)	B ± 0.01 ± 0.25	C (max)	D (max)	E (max)	F (max)	G
5EFM1	3.39	2.84	1.14	2.44	2.19	2.5	—
5EHM1	86.1	72.1	29.0	62.0	55.6	63.5	—
5EFM1C	2.56	—	1.14	2.44	2.19	2.49	—
	65.0	—	29.0	62.0	55.6	63.2	—
5EFM1S	4.17	3.62	1.14	3.22	2.19	3.28	—
5EHM1S	105.9	91.9	29.0	81.8	55.6	83.3	—
5EFM1SC	3.34	—	1.14	3.27	2.19	3.27	—
	84.8	—	29.0	83.1	55.6	83.1	—
5EFM4	3.88	3.32	1.14	2.92	2.19	2.98	—
5EHM4	98.6	84.3	29.0	74.2	55.6	75.7	—
5EFM4C	3.04	—	1.14	2.92	2.19	2.97	—
	77.2	—	29.0	74.2	55.6	75.4	—
5EFM4S	4.65	4.1	1.14	3.7	2.19	3.76	—
5EHM4S	118.1	104.1	29.0	94.0	55.6	95.5	—
5EFM4SC	3.82	—	1.14	3.7	2.19	3.75	—
	97.0	—	29.0	94.0	55.6	95.3	—
3EXM1S	4.17	3.62	1.14	3.22	1.72	3.28	3.3
3EZM1S	105.9	91.9	29.0	81.8	43.7	83.8	83.8
3EXM4	3.88	3.32	1.14	2.92	1.72	2.98	2.99
3EZM4	98.6	84.3	29.0	74.2	43.7	75.7	75.9
3EXM4S	4.65	4.1	1.14	3.72	1.72	3.76	3.8
3EZM4S	118.1	104.1	29.0	94.5	43.7	95.5	96.5

Recommended Panel Cutout

Filtered Models



Note: Snap-in models allow front mount only.
 XM and ZM models allow back mount only.
 FM and HM models allow front or back mount.

All mounting holes countersunk.

Typical Dimensions

Mounting holes: $\frac{.155}{3.94}$ Dia. (2) Terminals: $\frac{.110}{2.79}$ Torque: 7 in. lbs. max.

Holes: $\frac{.055}{1.40}$ Dia. $\pm \frac{.004}{.10}$, except solder lug ground tap with wire wrap.

Note: Mounting holes on tabs are countersunk and take #6 flathead screw.