

5EFM1 Product Details



5EFM1

TF Internal Number: 2-6609129-1



EMI/RFI Filters and Accessories

Always EU RoHS/ELV Compliant (Statement of Compliance)

Product Highlights:

- Filter EMI/RFI
- Filter Type = Power Entry (Filtered/Unfiltered)
 M (3-6 Amp) Series
- General Purpose ApplicationMount Style = Flanged

Documentation & Additional Information

Product Drawings:
• CUSTOMER DRAWING 5EFM1 (PDF, English)

Catalog Pages/Data Sheets:
• 1654001_CORCOM_PRODUCT_GUIDE_M_SERIES (PDF, English)

Product Specifications:

None Available

Application Specifications:

None Available

Instruction Sheets:

CAD Files: (CAD Format & Compression Information)

- 2D Drawing (DXF, Version E)
- 3D Model (IGES, Version E)
- 3D Model (STEP, Version E)

Additional Information:

• Product Line Information

Additional Product Images:

Insertion Loss/Specifications

Related Products:

Tooling

Product Features (Please use the Product Drawing for all design activity)

Product Type Features:

- Product Type = Filter EMI/RFI
- Filter Type = Power Entry (Filtered/Unfiltered)
- Series = M (3-6 Amp)
- Filtered = Yes
- Type of Connector = IEC 320/C-14

Electrical Characteristics:

- Input Voltage Select = Single AC Voltage
- Current Rating (A) = 5
- Voltage Selection = Single
- Voltage ≤ (VAC) = 120, 240
- Leakage Current (Line-to-Ground) Max. @ 250 VAC 50 Hz (mA) = 0.5
- Leakage Current (Line-to-Ground) Max. @ 120 VAC 60 Hz (mA) = 0.25

Termination Features:

Terminal Input - Output Combination = IEC - .110 Faston

Body Features:

- Mount Style = Flanged
- Switch Type = No Switch

Configuration Features:

- Fuse Options = Dual, Single
- Fuse Holder Type = Selectable

Industry Standards:

- RoHS/ELV Compliance = RoHS compliant, ELV compliant
- Lead Free Solder Processes = Not relevant for lead free
- RoHS/ELV Compliance History = Always was RoHS compliant
- Approved Standards = CSA Certified, VDE Approved, UL Recognized

Conditions for Usage:

- Facility Installation = No
- Need Min Size With IEC Connector = Yes
- Need Optional Switch, Fusing, Or Voltage Selector = Yes

Operation/Application:

• Application = General Purpose

Other:

- Brand = Corcom
- Comment = Voltage Fixed

Catalog: 1654001

Issue Date: 06.2011



Slim Power Entry Module Family with Multiple Options

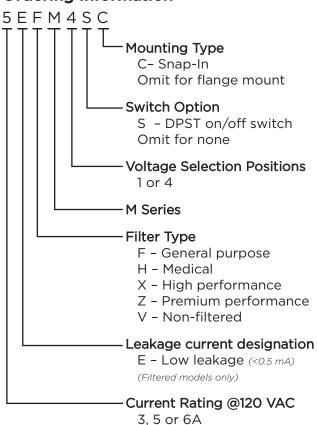
M Series

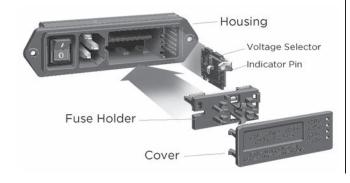


UL Recognized CSA Certified VDE Approved

XM / ZM

Ordering Information





M Series

- Family of slim power entry modules that consume minimal depth behind panel
- Four compact modules each provide a different option combination
- Available non-filtered or with one of four filter circuits designed to meet a wide variety of applications
- Optional voltage selector configured for either 2 or 4 voltage selection
- Optional DPST on/off switch
- Included fuseholder accepts either single 3AG fuse or dual metric fuses
- Snap-in or flange mounting styles

Filter Types

H Models provide a basic performance dual element circuit EMI filter with minimal leakage current, suitable for medical applications, with attenuation similar to the EAH Series power inlet filter.

F Models provide a basic performance dual element circuit EMI filter, with attenuation similar to the EEA Series Power Inlet Filter.

X Models provide a high performance three element differential circuit filter, with extended EMI attenuation similar to the X Series chassis filter, suitable for bringing most digital equipment (including switching power supplies) into compliance with FCC Part 15J, Class B conducted emissions limits.

Z Models provide a premium performance three element differential circuit filter, with enhanced EMI low frequency attenuation similar to the P Series Z models, suitable for bringing most digital equipment (including switching power supplies) into compliance with EN55022 Level B as well as FCC Part 15J. For minimum panel footprint, see the P series on page 192.



Slim Power Entry Module Family with Multiple Options (continued)

M Series

Specifications

Maximum leakage current each Line to Ground:

 HM
 FM
 XM/ZM

 @ 120 VAC 60 Hz:
 2 μA
 .25 mA
 .30 mA

 @ 250 VAC 50 Hz:
 5 μA
 .50 mA
 .50 mA

Hipot rating (one minute):

Line to Ground: 2250 VDC
Line to Line: 1450 VDC
Line to Load (switch off) non-filtered: 2500 VAC

Rated Voltage (max.): 250VAC

Operating Frequency: 50/60 Hz

Rated Current @ 120 VAC: 3 to 6A

Rated Current @ 250 VAC:

3A models: 2A 5A models: 4A 6A Switched models: 5A 6A non-switched models: 6A

Required Fuse(s): Reversible fuseholder accepts

one .25 x 1.25" (not included) or two 5 x 20mm (not included)

Switch: DPS1

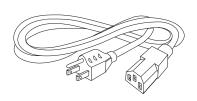
100,000 operations at 70A max. inrush

Available Part Numbers

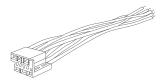
Non-Filtered Models										
Voltage Selections	Flange	Mount	Snap-In							
1	6VM1	6VM1S	6VM1S 6VM1C							
2	6VM2	6VM2S								
4	6VM4	6VM4S	6VM4C	6VM4SC						
General Purpose Filters										
1	5EFM1	5EFM1S	5EFM1C	5EFM1SC						
4	5EFM4	5EFM4S	5EFM4C	5EFM4SC						
Medical Filters										
1	5EHM1	5EHM1S								
4	5EHM4	5EHM4S								
	High Performance - FCC-B									
1		3EXM1S								
4	3EXM4	3EXM4S								
P	Premium Performance - EN55022-B									
1		3EZM1S								
4	3EZM4	3EZM4S								

Accessories

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



MA100: Power interconnect assembly For voltage select models. 8.5" wire leads



MA101: Plug only

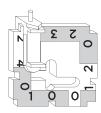
MA102: Strip of 100 pins for use with MA101 MA104: Individual pins for use with MA101

MA302: Two Voltage Selection Card

Marked 120V/240V. One card comes standard with every 2 voltage M series module

MA304: Four Voltage Selection Card

Marked 100V/120V/230V/240V. One card comes standard with every 4 voltage M series module



MA400: Medical safety bracket assembly
Prevents inadvertent removal of fuse(s)



MA401: Bracket only MA402: Standoff only



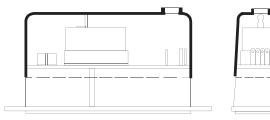
Slim Power Entry Module Family with Multiple Options (continued)

M Series

Accessories (continued)

MA601 - 604: Insulating Boot

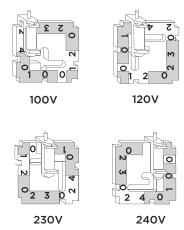
Plastic shroud for back of M series to prevent inadvertent access to connections



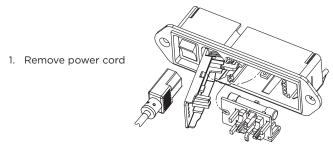
MA601: Fits M4S versions MA602: Fits M1S versions MA603: Fits M4 versions MA604: First M1 versions

Voltage Selection

- Open cover, using small blade screwdriver or similar tool (see illustration on right)
- 2. Set aside cover/fuse block assembly
- 3. Pull voltage selector card straight out of housing, using indicator pin
- 4. Orient selector card so that desired voltage is readable at the bottom
- 5. 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)
- 6. Insert voltage selector card into housing, printed side of card facing forward toward IEC connector and edge containing the desired voltage first
- 7. Replace cover, and verify that indicator pin shows the desired voltage



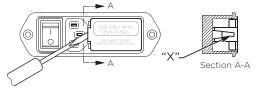
Fuse Installation Instructions



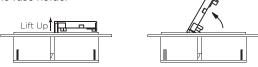
Catalog: 1654001

Issue Date: 06.2011

2. Insert a pocket screwdriver at point "X" as shown



Gently lift the entire door UP approximately 1/4" (minimum) Once lifted, the door will pivot on it's hinges to expose the fuse holder



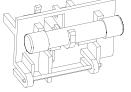
 When the fuse holder is installed in the single fuse position, apply the screwdriver as shown and gently lift up Use screwdriver as shown, do not use fingers

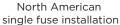


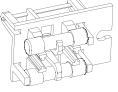
When the fuse holder is installed in the dual fuse position, it will normally release as soon as the door is opened

- 5. Install one (1) AG fuse or two (2) metric fuses (see below)
- 6. Replace fuse holder into housing
- 7. Swing and push to snap door back in place

Fuse Options







Metric dual fuse installation

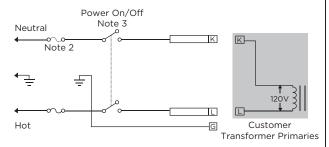
Install fuses on one side only, do not install both AG and metric fuses at the same time



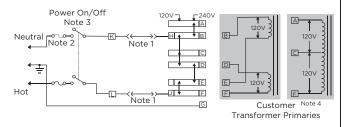
Slim Power Entry Module Family with Multiple Options (continued)

M Series

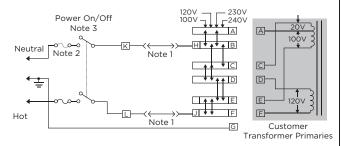
Electrical Schematics Non-Filtered Models VM1



VM₂



VM4



Note 1: Jumper required if no input filter is used Note 2: Provision for dual Metric style fusing

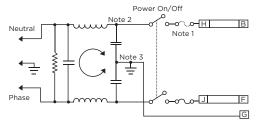
Note 3: On/off switch present only in "S" suffix models

Note 4: When using a center-tapped transformer, the C-F winding should be the

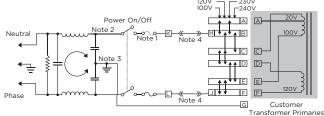
low voltage (high current) winding and must be capable of handling the full

primary current in the 120V position

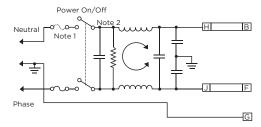
Filtered Models FM1 & HM1



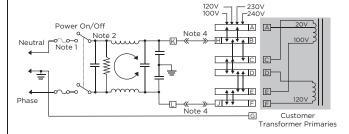
FM4 & HM4



XM1 & ZM1



XM4 & ZM4



Note 1: Provision for dual Metric style fusing

Note 2: On/off switch present only in "S" suffix models

Note 3: Line to ground capacitor not present on HM models

Note 4: Models HM4, FM4, XM4 and ZM4 have added terminals K and L.

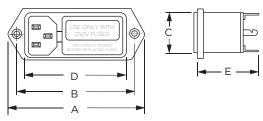
External switch or jumper must be placed from K to H and L to J



Slim Power Entry Module Family with Multiple Options (continued)

M Series

Case Styles - Non-filtered Models 6VM1



Typical Dimensions:

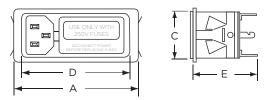
Line Inlet (1): Backplate Terminals:

Mounting holes (2):

IEC 60320-1 C14 .110 [2.79]

.155 [3.94] Dia. with .279 [7.08] Dia. x 82° countersink for #6 flathead screw

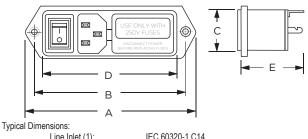
6VM1C



Typical Dimensions:

Line Inlet (1): IEC 60320-1 C14 Backplate Terminals: .110 [2.79]

6VM1S



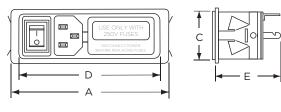
Line Inlet (1):

IEC 60320-1 C14

Backplate Terminals: Mounting holes (2):

.155 [3.94] Dia. with .279 [7.08] Dia. x 82° countersink for #6 flathead screw

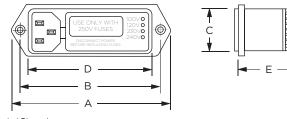
6VM1SC



Typical Dimensions:

IEC 60320-1 C14 Line Inlet (1): Backplate Terminals: .110 [2.79]

6VM2 & 6VM4



Typical Dimensions:

Line Inlet (1): Backplate Terminals: IEC 60320-1 C14 .110 [2.79]

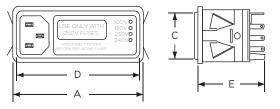
Mounting holes (2):

.155 [3.94] Dia. with .279 [7.08] Dia. x 82° countersink for #6 flathead screw

Catalog: 1654001

Issue Date: 06.2011

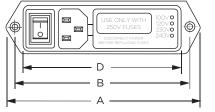
6VM4C

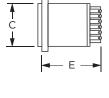


Typical Dimensions:

Line Inlet (1): IEC 60320-1 C14 Backplate Terminals: .110 [2.79]

6VM2S & 6VM4S





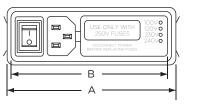
Typical Dimensions:

Line Inlet (1): Backplate Terminals: IEC 60320-1 C14 .110 [2.79]

Mounting holes (2):

.155 [3.94] Dia. with .279 [7.08] Dia. x 82° countersink for #6 flathead screw

6VM4SC





Typical Dimensions:

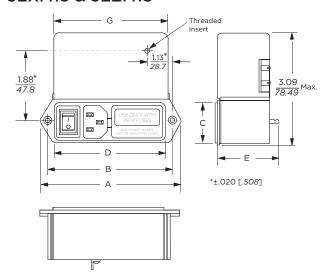
IEC 60320-1 C14 Line Inlet (1): Backplate Terminals: .110 [2.79]



Slim Power Entry Module Family with Multiple Options (continued)

M Series

Case Styles - Filtered Models 3EXM1S & 3EZM1S

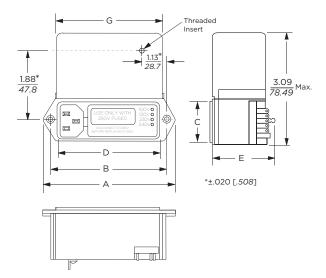


Typical Dimensions:

Line Inlet (1): IEC 60320-1 C14
Backplate Terminals: .110 [2.79]
Threaded insert: 6-32 x .25

Mounting holes (2): .155 [3.94] Dia. with .279 [7.08] Dia. x 82° countersink for #6 flathead screw

3EXM4 & 3EZM4

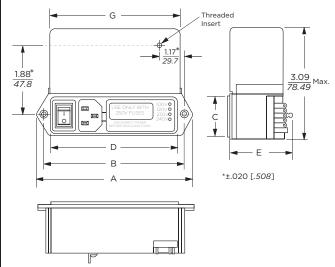


Typical Dimensions:

Line Inlet (1): IEC 60320-1 C14
Backplate Terminals: .110 [2.79]
Threaded insert: 6-32 x .25

Mounting holes (2): .155 [3.94] Dia. with .279 [7.08] Dia. x 82° countersink for #6 flathead screw

3EXM4S & 3EZM4S



Typical Dimensions:

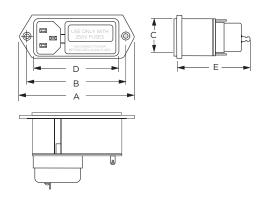
 Line Inlet (1):
 IEC 60320-1 C14

 Backplate Terminals:
 .110 [2.79]

 Threaded insert:
 6-32 x .25

Mounting holes (2): .155 [3.94] Dia. with .279 [7.08] Dia. x 82° countersink for #6 flathead screw

5EHM1 & 5EFM1



Typical Dimensions:

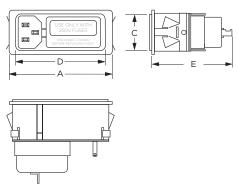
Line Inlet (1): IEC 60320-1 C14
Backplate Terminals: .110 [2.79]

Mounting holes (2): .155 [3.94] Dia. with .279 [7.08] Dia. x 82° countersink for #6 flathead screw

Slim Power Entry Module Family with Multiple Options (continued)

M Series

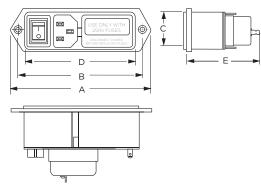
Case Styles - Filtered Models (continued) 5EFM1C



Typical Dimensions:

Line Inlet (1): Backplate Terminals: IEC 60320-1 C14 .110 [2.79]

5EHM1S & 5EFM1S



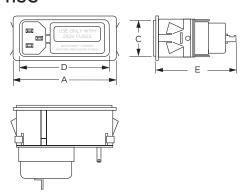
Typical Dimensions:

Line Inlet (1): IEC 60320-1 C14
Backplate Terminals: .110 [2.79]

Mounting holes (2):

.155 [3.94] Dia. with .279 [7.08] Dia. x 82° countersink for #6 flathead screw

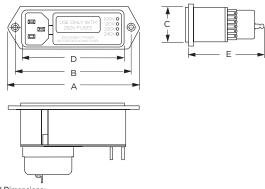
5EFM1SC



Typical Dimensions:

Line Inlet (1): Backplate Terminals: IEC 60320-1 C14 .110 [2.79]

5EHM4 & 5EFM4



Typical Dimensions:

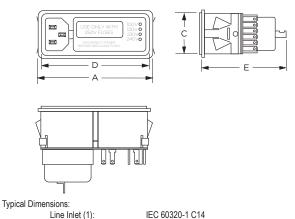
Line Inlet (1): Backplate Terminals: IEC 60320-1 C14 .110 [2.79]

Mounting holes (2):

.155 [3.94] Dia. with .279 [7.08] Dia. x 82°

countersink for #6 flathead screw

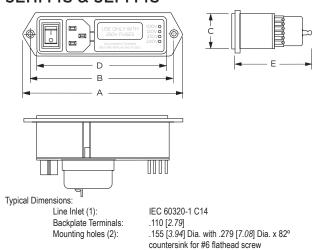
5EFM4C



.110 [2.79]

5EHM4S & 5EFM4S

Backplate Terminals:

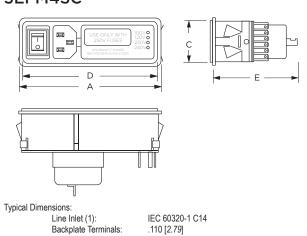




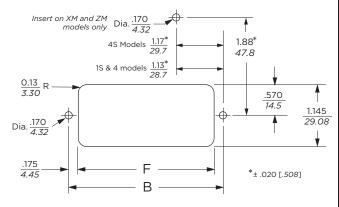
Slim Power Entry Module Family with Multiple Options (continued)

M Series

Case Styles - Filtered Models (continued) **5EFM4SC**



Recommended Panel Cutouts



Note: XM and ZM models allow back mount only
FM and HM models allow front or back mounting
Mounting holes on flange mount models only
Snap-In models allow front mounting only
Snap-In models panel thickness: .06 - .09 [1.53 - 2.29]

Case Dimensions

Part No.	Α	В	С	D	Ε	F	G				
	(max.)	(max.)	(max.)	± .015 ± .38	(max.)	(ref.)	(ref.)				
6VM1	3.39	2.84	1.14	2.44	1.45	2.5	_				
0 0 1411	86.1	72.1	29.0	62.0	36.8	63.5					
6VM1C	2.56	_	1.14	2.44	1.45	2.5	_				
6 VIMIC	86.1		29.0	62.0	36.8	63.2					
6\/M1C	4.17	3.62	1.14	3.22	1.45	3.28	_				
	105.9	91.9	29.0	81.8	36.8	83.3					
6VM1SC	3.34	_	1.14	3.27	1.45	3.27	_				
	84.8		29.0	83.1	36.8	83.1					
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	_	1.14	2.92	1.45 3.27 36.8 83.1 1.45 2.98						
6VMIS 105.9 91.9 29.0 8 6VMISC 3.34 - 1.14 3 6VM2 3.88 3.32 1.14 2 6VM4 98.6 84.3 29.0 3 6VM4C 3.04 - 1.14 2 6VM2S 4.65 4.1 1.14 3 6VM4S 118.1 104.1 29.0 3 6VM4SC 3.82 - 1.14 3 97.0 29.0 3 3 1.14 3 3EZM1S 105.9 91.9 29.0 3 3EXM4 3.88 3.32 1.14 3 3EXM4 3.88 3.32 1.14 3 3EXM4 98.6 84.3 29.0 3 3EXM4S 4.65 4.1 1.14 3 3EXM4S 118.1 104.1 29.0 3 5EHM1 3.39 2.84 1.14 2	74.2	36.8	75.4								
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	-				
6) () 4 4 6 6	3.82		1.14	3.7	1.45	3.75					
6VM4SC	97.0	-	29.0	94.0	36.8	95.3	-				
3EXM1S		3.62	1.14	3.22			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				
5EHM1	3.39		1.14	2.44	2.19	2.5					
5EFM1	86.1	72.1	29.0	62.0	55.6	63.5	-				
EEEM1C	2.56		1.14	2.44	2.19	2.49					
SEFMIC	65.0	-	29.0	62.0	55.6	63.2	-				
5EHM1S	4.17	3.62	1.14	3.22	2.19	3.28					
5EFM1S	105.9	91.9	29.0	81.8	55.6	83.3	-				
	3.34		1.14	3.27	2.19	3.27					
5EFM1SC	84.8	-	29.0	83.1	55.6	83.1	-				
5EHM4	3.88	3.32	1.14	2.92	2.19	2.98					
5EFM4	98.6	84.3	29.0	74.2	55.6	75.7	-				
		01.0				2.97					
5FFM4C 3.04 - 1.14 2.92 2.19 2.	74.4	-									
5EHM4S	4.65	4.1	1.14	3.7	2.19	3.76					
5EFM4S	118.1	104.1	29.0	94.0	55.6	95.5	-				
	3.82	107.1	1.14	3.7	2.19	3.75					
5EFM4SC		-	29.0				-				
	97.0		29.0	94.0	55.6	95.3					



Slim Power Entry Module Family with Multiple Options (continued)

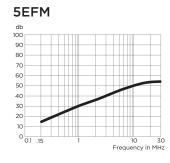
M Series

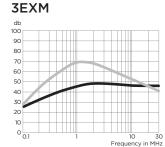
Performance Data

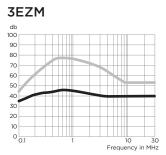
Typical Insertion Loss

Measured in closed 50 Ohm system









Catalog: 1654001

Issue Date: 06.2011

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

Minimum Insertion Loss

Measured in closed 50 Ohm system

Common Mode / Asymmetrical (Line to Ground)

	Frequency – MHz							
Part No.	.01	.05	.15	.5	1	5	10	30
5EHM Models	-	-	14	18	19	22	22	17
5EFM Models	-	-	14	21	26	40	45	40
3EXM Models	2	13	23	40	46	44	44	44
3EZM Models	15	29	39	46	43	40	40	40

Differential Mode / Symmetrical (Line to Line)

	Frequency – MHz									
Part No.	.02	.03	.05	.07	.15	.5	1	5	10	30
3EXM Models	-	-	-	5	34	62	68	60	50	40
3EZM Models	5	13	28	37	55	75	75	62	54	44

APP'D./DATE ECN# 10881 TAM 10/4/94 SAFETY ORGANIZATION(S): THIS FILTER HAS BEEN FORMALLY RECOGNIZED, CERTIFIED OR APPROVED RELIABILITY SPECIFICATIONS: BY THE LISTED AGENCY. THEREFORE, ALL TEST/REQUIREMENTS SPECIFIED IN THE LATEST REVISION OF THE FOLLOWING AGENCY STANDARDS STORAGE TEMPERATURE. -40°C TO +85°C 21 DAYS # 40°C 95% RH HUMIDITY: HAVE BEEN MET. CURRENT OVERLOAD TEST: 6 TIMES RATED CURRENT FOR 8 SECONDS UL RECOGNIZED UL 1283 TEST SPECIFICATIONS. CSA CERTIFIED CSA 22.2, NO.0, 0.4, 8 INDUCTANCE, .93mH NOMINAL VDE APPROVED VDE 565-3, 625

OPERATING SPECIFICATIONS: 5 AMP., 120 VAC LINE VOLTAGE/CURRENT: 4 AMP., 250 VAC 4 AMP./40°C, 250 VAC LINE FREQUENCY: 50-60Hz .25mA AT 120V 60Hz

MAX. LEAKAGE CURRENT, EACH LINE TO GROUND .42mA AT 250V 50Hz OPERATING AMBIENT TEMP. RANGE:

-10°C TO +40°C @ RATED CURRENT, I

IN AN AMBIENT, Ta, HIGHER THAN 40°C, THE MAXIMUM OPERATING CURRENT, I, IS AS FOLLOWS:

45

CAPACITANCE,

(MEASURED AT 1 KHz, 0.25 VAC MAX., 25°C ±1°C)

LINE TO LINE;

LINE TO GROUND;

DISCHARGE RESISTOR;

0.05µF ±20%

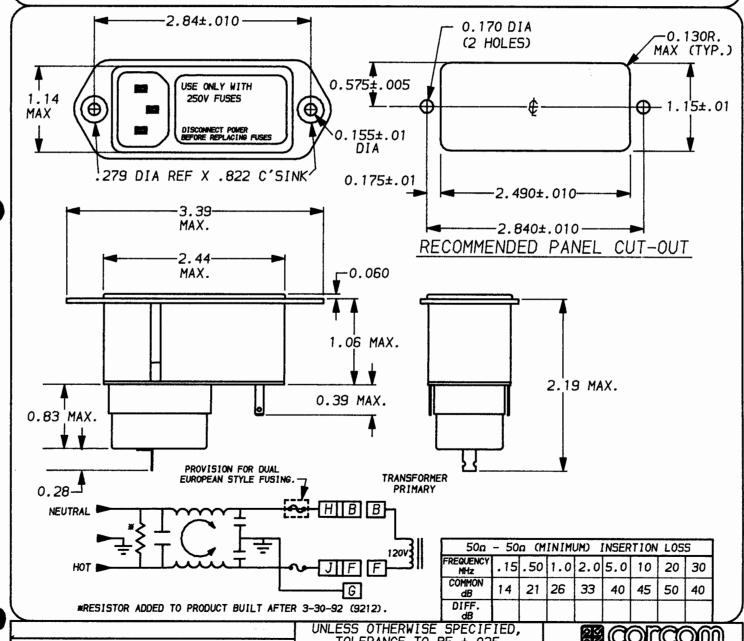
0.05µF ±20% LINE/GROUND AND LINE/LINE 6000 Ma (MIN) INSULATION RESISTANCE AT 100 VDC (W/O DISCHARGE RESISTOR) 20°C AND 50% RH

RECOMMENDED RECEIVING INSPECTION HIPOT.

LINES TO GROUND: 1500 VAC FOR 1 MINUTE LINE TO LINE: 1450 VDC FOR 1 MINUTE

FILTER APPROVAL:

THE BEST WAY TO SELECT AND QUALIFY A FILTER IS FOR YOUR ENGINEERING TO TEST THE UNIT IN YOUR EQUIPMENT.



TOLERANCE TO BE ±.025 MATERIAL & FINISH: AS SUPPLIED

This document is proprietary to CORCOM INC. and is not to be reproduced nor used for manufacturing purposes except on CORCOM'S prior written consent.

POWER LINE FILTER

DATE: 4-18-94 CATALOG NO. APPRVD. 5EFM1

> CAD NO. SEFM1.05