

# RFI/EMI/EMC FILTERS

## RFI SPECIALTY COMPONENTS PROGRAMS

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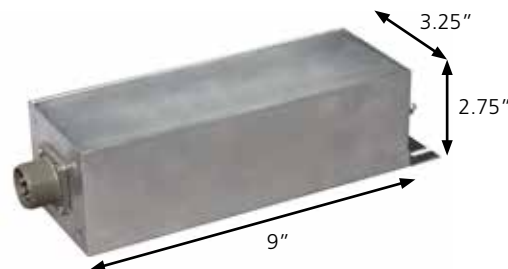
EMS

**Ultra**  
ELECTRONICS

## MIL-STD-461 COMPLIANT FILTERS FOR EMI NOISE REDUCTION

Ultra EMS can provide EMI filters specifically designed for reducing emissions and lessen susceptibility for compliance to Mil-STD-461. The filters will comply with the restrictions on Leakage Current for both 60Hz and 400 Hz power systems but are characterized with Insertion Loss data directly related to the Mil-STD-461 testing methods.

Insertion Loss for most filters is specified in accordance with Mil-STD-220. This test method uses a 50Ω source and load impedance. This is very useful information when evaluating the performance of one filter to another for Quality Control purposes. The results are accurate and repeatable. However, when you have a system that exceeds the noise limits of Mil-STD-461, and you are trying to select a filter to bring the system into compliance, Mil-STD-220 data will not accurately indicate how that filter will perform when installed into your system.



Mil-STD-461 uses a totally different test method for measuring system noise. Current probes are used to detect the noise level of the system. This method gives very different Insertion Loss data when compared to Mil-STD-220. It is almost impossible to predict how a filter will perform in a system when all you have is Mil-STD-220 performance data.

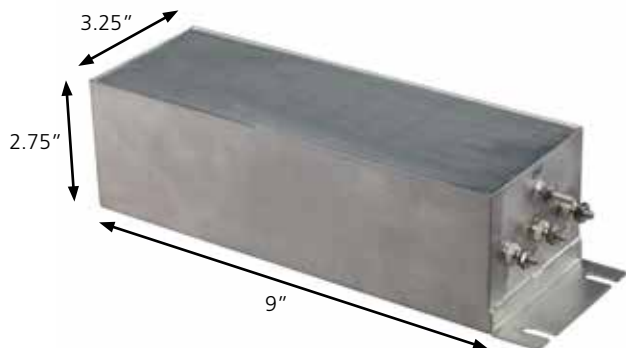
Ultra EMS designs filters to be compatible with the Mil-STD-461 method of noise measurement. All Insertion Loss data in the tables below represents typical Current Probe performance. Using ULTRA EMS' filter design, one is able to make direct comparisons between filter performance and system performance. In other words, filter db reduction equals system db reduction.

Ultra EMS can offer many options, including these six filters with different voltage and current configurations. These six will satisfy many applications. All are true "Double L" topologies with inductive inputs at the connector. The Operating Temperature Range is -55° C to +85° C without derating. Filters are designed and manufactured in accordance with all applicable sections of Mil-PRF-15733. Custom designs are also available; contact the factory or your representative.

**TABLE 1**

Part Number	Max. Voltage	Frequency	Max. Current	Circuit Topology	Input Connector	Case Size (WxHxL)
RF16747	250Vac/600Vdc	50/60Hz	2 x 20 Amps	Single Phase	MS3102R-16-10P	2.5" x 2.5" x 7"
RF16748	440Vac	50/60Hz	3 x 20 Amps	3 Phase - Delta	MS3102R-18-11P	3.25" x 2.75" x 9"
RF16749	250/440Vac	50/60Hz	4 x 20 Amps	3 Phase - Wye	MS3102R-18-11P	3.25" x 3.25" x 9"
RF16750	115Vac	400Hz	2 x 20 Amps	Single Phase	MS3102R-16-10P	2.5" x 2.5" x 7"
RF16751	200Vac	400Hz	3 x 20 Amps	3 Phase - Delta	MS3102R-18-11P	3.25" x 2.75" x 9"
RF16752	115/200Vac	400Hz	4 x 20 Amps	3 Phase - Wye	MS3102R-18-11P	3.25" x 3.25" x 9"

**TABLE 2 TYPICAL INSERTION LOSS (CI)**



Frequency	Common Mode	Differential Mode
10Khz	20db	3db
50Khz	35db	30db
100Khz	45db	50db
500Khz	60db	60db
1Mhz	70db	60db
10Mhz	70db	60db
50Mhz	70db	60db
100Mhz - 1Ghz	60db	~