

Type RF EMI/RFI Filters – Additional Technical Information

APPLICATION NOTE

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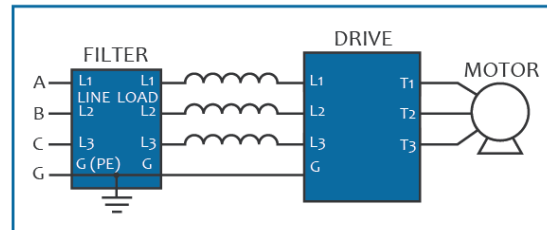
In addition to the Product Selection brochure, this Application Note contains useful information on how to properly connect an EMI/RFI filter, understand the current ratings, and parallel connections for higher ratings when necessary.

Type RF EMI/RFI filters are built with Touch Safe Construction.

- In compliance with international safety standards, and in conformance with the CE Low Voltage Directive, these filters are supplied as standard with touch safe terminations on all units rated 150 Amps and below.
- Units rated higher than 150 Amps provide tab terminals for customer addition of wiring devices.

Connection of the Type RF EMI/RFI filters is intended for use at the input side of a variable speed drive or inverter ONLY.

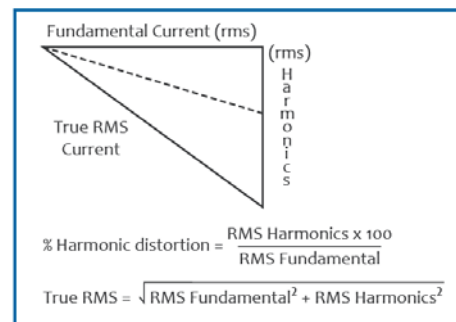
- DO NOT use these filters on the output (load side) of an inverter or drive.
- Good wiring practices will minimize RFI problems, including:
 - Route all conductors as close to the panel as possible.
 - Physically separate the filter input and output conductors.
 - Keep drive input and output leads separated.
 - Always keep power and control wiring separated.
 - Use shielded wiring where possible.
 - Use single point grounding (connect system ground to filter).



- Connect the incoming power conductors to the “Line” side terminals of the filter.
- Connect the “Load” side terminals to the line reactor or drive input terminals.
- The ground termination “G” may also be designated by “PE” or “N”.
- Keep all wiring as close as possible to the grounded panel (ground plane).

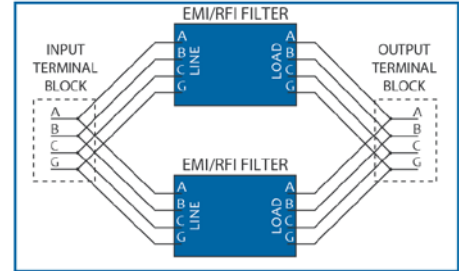
Type RF EMI/RFI filters are rated in True RMS (trms) amperes.

- Harmonic current distortion will increase the **trms** current of a system above the fundamental - current (typically motor FLA) of the connected loads.
- Line reactors (3% or 5% impedance) are useful in reducing harmonic current distortion and the **trms** current.
- If minimum 3% impedance line reactors are included in the installation, then the **trms** amperes will be lower and the filter can be sized for the reduced load current.
- If the **trms** amperes of the load to be connected to the filter are known, then select the filter directly from the RMS amperes selection tables.
- If the **trms** amperes are unknown, you can select the filters based on the horsepower (or kW) rating of the load to be connected.
- Determine if a reactor (minimum 3% impedance) will be used in addition to the Type RF filter and select accordingly.



Parallel connection to achieve higher current ratings is possible with the Type RF EMI/RFI filters provided that identical models are used and the connection allows each individual filter to share current equality.

- Two separate terminal blocks will make this easier.
- Derate each filter by 10% when connecting in a parallel configuration, and always follow the NEC or local electrical codes.
- Make ground connections first.
- For each filter to be parallel connected, pre-cut three leads of equal wire type and gauge to the same exact length. Connect the filter input terminals L₁, L₂, and L₃ to the respective terminal on a separate terminal block. Repeat this procedure for the output terminals.
- For higher current single phase applications use an appropriately rate three phase filter. Connect the outer terminals of the three phase filter to the single phase connections.



Single phase applications are also available.

- For single phase selection, please contact factory.

