Recommendations for Paralleling Output Filters

This document is intended to serve as a guideline in the application of MTE Output filters for use in a parallel configuration to increase the current / power rating. This is a guideline only and is to be used along with installation information from the dV Sentry Technical Reference Manual. Information provided here does not supersede local or national electrical codes or the drive manufacturer installation or fusing instructions.

General Guidelines for DVSentry, DV E-Series, Sinewave Guardian and Sinewave High Frequency

1. Use Matching filter ratings:

   Only exact matching catalog number filters should be paralleled and limited to no more than 3 parallel units. Never parallel mismatched or unlike voltage, frequency, or current ratings. Part numbers should match and preferably be from same manufacturing series or date run.

2. De-rate to 90%:

   To allow for slight variations due to manufacturing tolerance, all filter configurations must run at no more than 90% of the total parallel filter rating sum. Meaning, a de-rating of at least 10% should be applied to the total current rating of the filter system.

3. Over-Temperature Protection:

   Thermal switches for each filter should be run in series and integrated into the drive control circuit to shut the system down in the event of any single filter over-temperature condition. Refer to Temperature Switch configuration connection in the appropriate Technical Reference Manual.

4. Cable sizing and length considerations

   a. Filters shall be placed within 50 feet away from the output of the Variable Frequency Drive (VFD).
   b. The cables used to connect from the output of the filter to the motor terminals should be VFD rated cable and sized appropriately for each filter.

   DV/DT product family example.

   For example: if a system has an f.l.a. rating of 1,000 amps, two DVSP0515E filters would not work:
   (515 * 2) * 0.9 = (yields) only 927 amps
   Rather two DVSP0600E filters should be used:
   (600 * 2) * 0.9 = 1,080 amps

   Sinewave Guardian product family example

   For example: if a system has an f.l.a. rating of 1,000 amps, two SWGM0515D filters would not work:
   (515 * 2) * 0.9 = (yields) only 927 amps
   Rather two SWGM0600E filters should be used
   (600 * 2) * 0.9 = 1,080 amps

For Sinewave Nexus

1. Same as above
2. Same as above
3. Same as above

4. Cable sizing and length considerations

   a. Filters shall be placed within 50 feet away from the output of the Variable Frequency Drive (VFD).
   b. VFD cable not required

Sinewave Nexus product family example

For example: if a system has an f.l.a. rating of 250 amps, two SWNM0130D filters would not work:
(260 * 2) * 0.9 = (yields) only 234 amps
Rather two SWNM0160D filters should be used
(160 * 2) * 0.9 = 288 amps

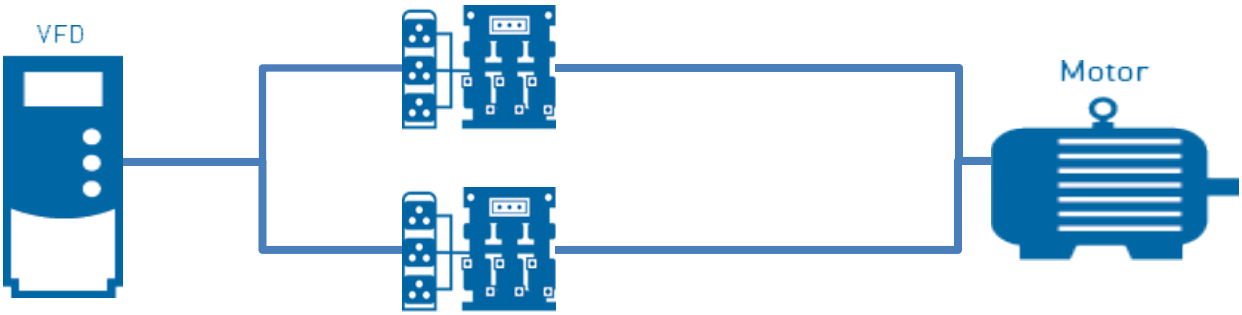

Figure 1: Block diagram of parallel output units*

DVS-TRM-E.pdf (mtecorp.com)
MTE SineWave Guardian Filter Technical Reference Manual (mtecorp.com)
SHF-TRM-E.pdf (mtecorp.com)
MTE SineWave Nexus Filter Technical Reference Manual (mtecorp.com)

The block diagram shown is not a wiring diagram or meant to be a visual representation of every product line listed above