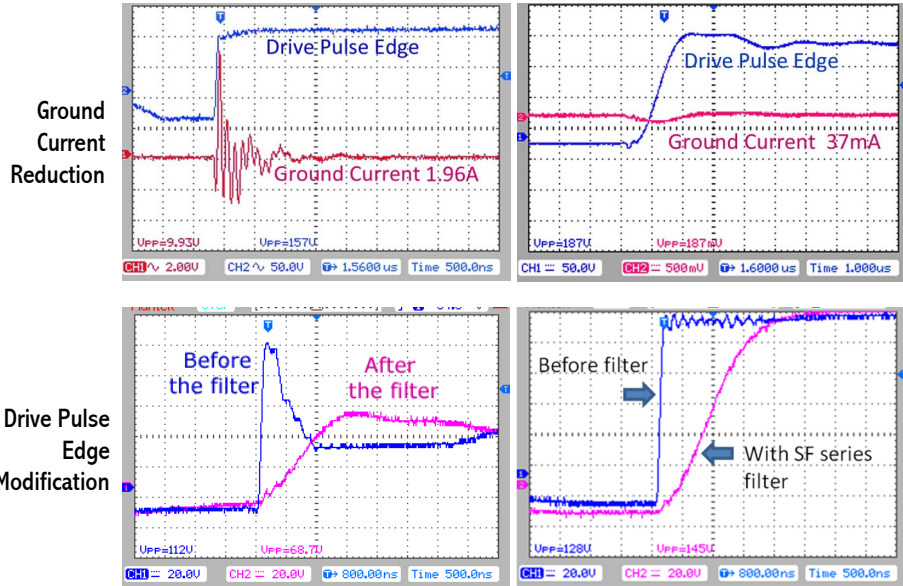


Specification	SF20031	SF20032	SF20101/SV20101	SF20201
DRIVE CIRCUIT				
Drive Voltage, max.	250V	250V	250V	250V
Drive Current, max.*	3A	3A	10A	20A
Rise/Fall Times, typ.	1.5µS	1.5µS	1.2µS	1.2µS
AC CIRCUIT				
AC Voltage, max.	N/A	250VAC	N/A	N/A
AC Current, max.	N/A	10A	N/A	N/A
Noise Reduction, typ.	N/A	>20dB	N/A	N/A
Nominal DC Resistance	<0.2Ω	<0.2Ω	<0.2Ω	<0.2Ω

Typical Performance



Filter Care

Normally, filter requires no maintenance and no calibration. It is recommended, though, to periodically inspect filter for overheating and to clean its surface with dry cloth.

During its normal operation filter may have elevated temperature which would feel "warm" to the touch, but not what is considered "hot." If the filter does feel "hot" to the touch (more than 70°C or 158°F), turn your equipment off, disconnect filter from the circuit and discontinue using it.

Warranty Information and Terms and Conditions of Sale: See links at the footer of www.onfilter.com

Life- and Mission-Critical Applications

OnFILTER products shall not be used in life- or mission-critical applications. See Terms and Conditions of Sale for details.

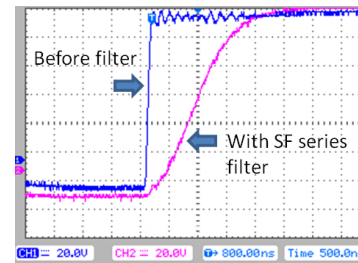


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Servo and VFD Motor EMI Filters

DIN Rail Mounted



User's Guide



Thank you for buying OnFILTER's servo/VFD EMI filter!

Your new filter will reduce unwanted interference caused by operation of your motor. Such interference causes numerous equipment malfunctions, including lock-up, erratic response, software errors, and other often "unexplained" behavior. These filters greatly reduce ground EMI current, protecting your motor's bearing from electrical discharge machining (EDM) pockmarks and fluting, prolonging your motor's life.

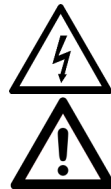
Excessive noise can also cause damage to sensitive components via induced electrical overstress (EOS). For more details on this subject please visit [Library](#) section on our web site www.onfilter.com.

Safety First!

Motor filters operate with high voltage that may cause property damage, injury, or death. Always observe safety measures when using power line filters. Here are some of the key safety precautions you should take:

WARNING

- Do not exceed maximum rating - it may cause overheating
- Allow sufficient space around this device for ventilation to avoid overheating
- No serviceable parts inside - do not open.
- High voltage is present inside
- Properly connect all wiring to avoid damage to equipment
- Firmly fasten this device to the mounting surface



Basics

Servo, variable frequency, and similar motors (for simplicity referred to further in this document as "motors") are driven by pulsed signals. Sharp edges of these pulses can cause the following problems:

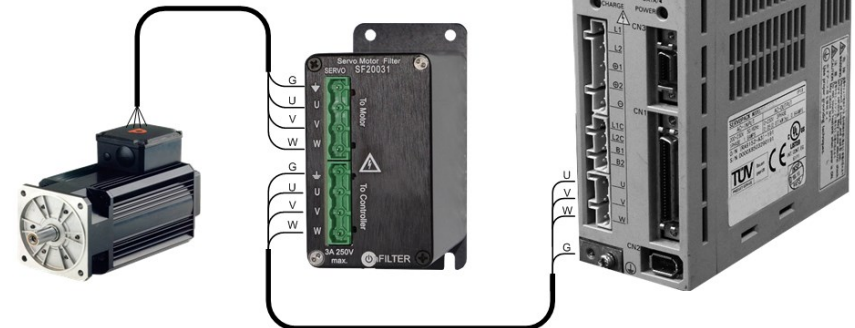
- damage to ball bearings in the motor due to capacitive coupling between stator and rotor of the motor
- vibrations due to damaged bearings
- ringing and overvoltage in wires going to the motor
- electromagnetic interference (EMI) inside the equipment
- electrical overstress (EOS) to sensitive electronic components

The SF/SV series of EMI filters substantially alter ultra-sharp rise and fall times of drive pulses. The spectrum of the signal of drive pulses loses significant portion of energy at the high end. This serves a number of purposes.

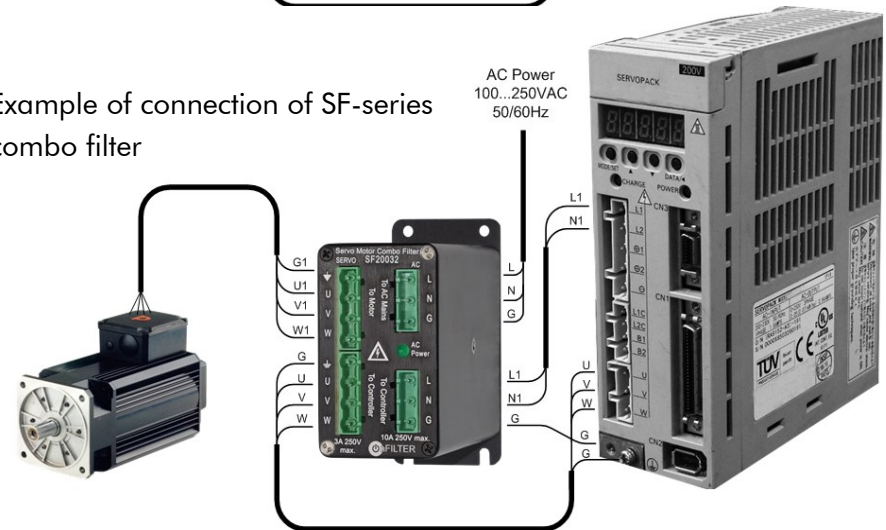
- The lower the frequency spectrum, the higher impedance is presented by the capacitive coupling between stator and rotor of the motor. This reduces high-frequency currents through the motor's bearing improving their longevity
- Lesser high-frequency component of the spectrum results in less ringing with high amplitude of the drive signal which reduces stress on the motor and wiring
- High frequency current on ground in the tool is reduced significantly which leads to less EOS (electrical overstress) exposure to sensitive components.

In addition to EMI problems with drive signals, motor drives (often called "controllers," "amplifiers, or "servo packs") also generate noise back to the power line which causes strong interference in the tool. Often, separate power line EMI filters are needed to alleviate this problem. One of SF series filter - SF20032 - combines servo motor filter with AC power line filter in one unit. This saves space inside of your tool and simplifies connections.

Example of connection of SF-series motor



Example of connection of SF-series combo filter



Example of connection of SV-series motor filter

