EMI dV/dt Filter for Servo Motors and VFD
DIN Rail Mounted

Reduce EMI in Your Equipment
Improve Reliability of Your Motor
Reduce EDM-Caused Vibrations

Operation of PWM-driven motors - servo and variable frequency drives (VFD) - causes a number of problems in equipment, including damage to the motor's bearings from leakage currents via electrical discharge machining (EDM), as well as resulting vibration. Strong EMI generated by PWM-driven motors causes errors in equipment.

OnFILTER' patented dV/dt SF-series filters are not just reactors—they are complete filters incorporating common mode, differential mode, and ground filtering providing reduction of ground currents in a range of typically 50 to 100 times.

SF series motor filters are designed for incorporation into automated equipment containing PWM drives. Filters are small in size and are placed next to the drives to assure that the cables to the motors don't carry excessive EMI that pollutes the tool causing interference

Applications

- Industrial robotics
- Automated tools
- Semiconductor fabrication
- Electronic assembly
- Reduction of vibration due to bearing damage
- Wherever EMI and EOS are a problem

Features

- Reduction of high-frequency currents
- Compliance with IEC60034-17/-25
- Prevention of EDM (Electrical Discharge Machining)
- Reduction of overall EMI
- Easy plug-in installation
- No mechanical attachments
- No software changes
- Optimized for most PWM motors
- Effective management of rise and fall times of drive pulses

Substantial Reduction of EMI

SF series filters greatly reduce overall EMI in the tool, reducing errors in automated equipment and testers, and improving precision and up-time

Reduction of EDM

High-frequency currents through bearings cause electrical discharge machining (EDM), literally eating into the bearings, irreversibly damaging them and causing vibrations. SF/SV series filters prevent EDM damage by blocking these currents from reaching motors.

IEC60034-17/-25 Compliance

dV/dt filters are required for PWM-driven motors to reduce EMI and to extend life of motors. SF/SV-series patented filters reduce noise from PWM drive pulses beyond capabilities of common reactors, substantially reducing leakage through the motor bearing preventing motor's failure

No Mechanical Attachments

SF/SV series filters require no mechanical attachments to a motor and no maintenance. Unlike mechanical approach, SF/SV-series filters provide complete EMI reduction, addressing PWM noise problem at its core.

No Software Changes

Simply plug-and-play, no changes needed.

VFD and Servo Motor EMI Filter
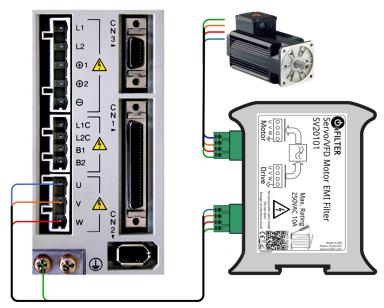# SV20101
DIN Rail Mount

Specification

OnFILTER servo/VFD filters utilize patented and proprietary technology to provide maximum noise suppression and reduce high-frequency currents from servo and variable frequency

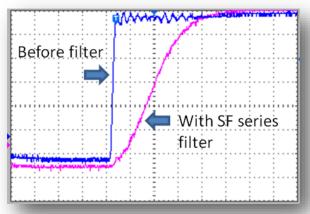| Parameter	SV20101
DRIVE FILTER	
Drive Voltage, max.	250V
Drive Current, max.*	10A
Rise/Fall Times, typ.	1.2µS
Ground Current Reduction (typ.)	50...100 times
Nominal DC Resistance	<0.2Ω
• at duty cycle (motor exerting max. torque) of 20%	
DIN Rail Case Width	45mm (1.77")

Typical Connection

Ordering Information

Servo/VFD Motor Filter SV20201

OnFILTER' VFD/servo motor EMI filters work with the majority of servo and variable frequency controllers and motors.
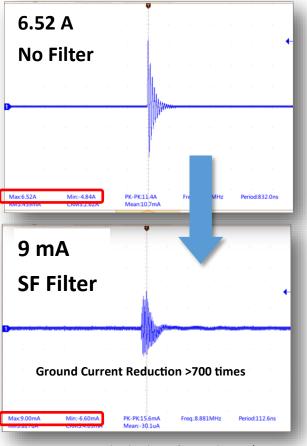
You would need to know just two parameters: max. drive voltage and current - both are typically indicated on a label of the motor itself, or on the servo/VFD drive. Do not exceed specified maximum rating of the filter as this may damage the filter itself, the motor, the motor controller and, possibly, your equipment.

For panel mount please see our SF series filters with identical performance

Servo/VFD Panel Mounted Filters

Smooth Pulse Edges

Before filter

With SF series filter

Bearings' Ground Current Reduced 50...100 Times (typ.)

6.52 A

No Filter

| Max:6.52A | Min:-4.84A | PK-PK:11.4A | Freq: MHz | Period:832.0ns |
| RMS:459mA | CRMS:2.62A | Mean:10.7mA | | |

9 mA

SF Filter

Ground Current Reduction >700 times

| Max:9.00mA | Min:-6.60mA | PK-PK:15.6mA | Freq:8.881MHz | Period:112.6ns |
| RMS:627uA | CRMS:4.05mA | Mean:-30.1uA | | |

Current is measured with Tektronix' CT1 probe 5mA/mV

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All specifications are subject to change without notice. U.S. Patent 10,263,591 Made in U.S.A.