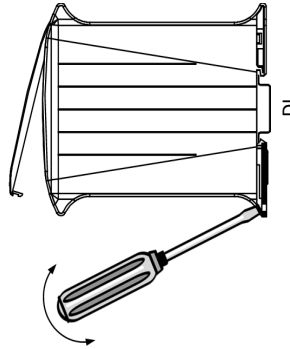


Installation

Proper placement of the filter helps to assure its continuous operation for a long time. Please follow these requirements for installation:

- Install filter in a dry location away from debris and from the possibility of spillage, including from floor cleaning
- Ambient temperature at the place of installation should not exceed 5°...40°C range
- Do not install filter in small confined spaces with restricted air circulation in order to avoid overheating. Allow some space on each side for proper ventilation



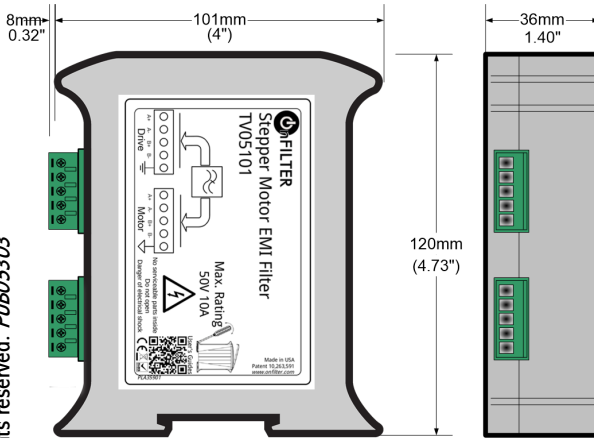
Mounting on DIN Rail

You will need a small-blade slot screwdriver, preferably long.

Set filter so that the top rail fits into the top slot of the enclosure. Gently snap the enclosure on the bottom rail. Don't force it. In case of any problem, use slot screwdriver, insert it into the slot in the red latch on the foot of the enclosure and leverage this latch slightly out. The enclosure should install easily.

Dismounting the Filter from DIN Rail

To remove the filter from DIN rail use the flat-head screwdriver, leverage the red latch out, gently pull out the bottom part of the filter away from DIN rail, lift it slightly, and remove it from the top rail.



Filter Care

TV05101 does not require calibration or maintenance. Once in a while you may want to check wire connections and whether the filter overheats during motor's operation, which is extremely unlikely.

Stepper Motor Filter TV05101 for bipolar stepper motors



Technical Support

For customer service and technical support contact factory at +1-831-824-4052 or via email at info@onfilter.com

Warranty

In short, OnFILTER products carry three (3) years limited warranty. Please see full text of our Warranty Statement at <https://www.onfilter.com/warranty-statement>



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User's Guide



Overview

Thank you for buying OnFILTER® stepper motor EMI filter. It will help to improve reliability of servo motor's bearings, reduce electromagnetic interference and EMI-caused electrical overstress to sensitive components. Please read this User's Guide carefully - improper use of stepper motor EMI filters can damage motors and controllers and cause injury or death.

WARNING



Failure to follow these warnings may cause equipment damage, personal injury or death

- 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 may be present inside

Basics

Stepper 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
- ringing and overvoltage in wires going to the motor
- electromagnetic interference (EMI) inside the equipment
- electrical overstress (EOS) to sensitive electronic components

The TV series of stepper motor EMI filters substantially increase rise and fall times of drive pulses. This way 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 on wiring
- High frequency current on ground in the tool is reduced significantly which leads to less EOS (electrical overstress) exposure to sensitive components.

Additionally, unique patented filtering in ground further suppresses EMI on ground and within the equipment, further reducing ground EMI currents while providing needed grounding.

Specification

Max. Motor Voltage	50V
Max. Motor Current (each winding)	10A
Stepper Motor Type	Bipolar
Connector	Removable Terminal Block
Wire Gauge	24-12 AWG / 0.205-3.31 mm ²
Ambient Temperature	+5°...40°C
Climatic Category	+05/040/00

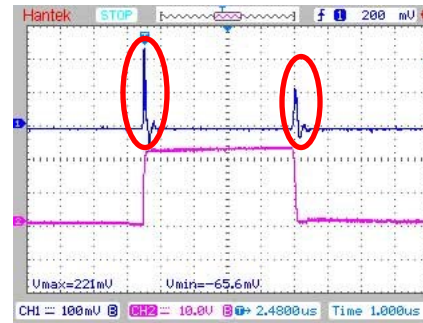
This filter qualifies for use in UL 508A panels for being low voltage, low energy circuit (the filter itself consumes very little power).

All specifications are subject to change without notice.

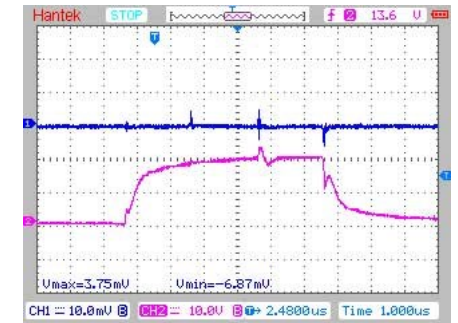


Recommended Connection Diagram

- Make sure that the ground connection to the motor goes through the filter for maximum performance.
- Locate filter closer to the drive, not to the motor—this way the wires to the motor will not be carrying strong high-frequency signals.



Without the Filter



With the Filter

Drive Pulses and Resulting Ground Current (Typical)