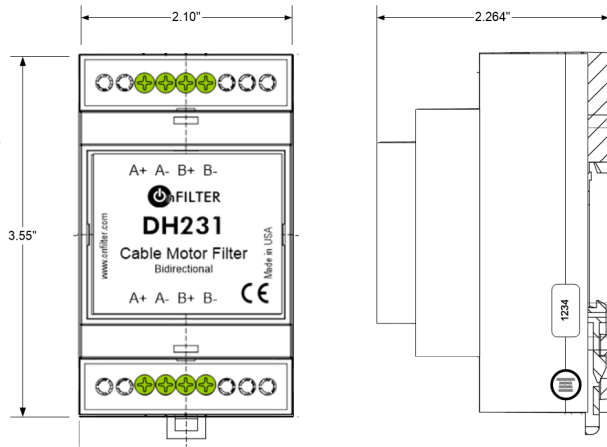


### Filter Mounting

Filter is designed for DIN Rail mount. Mounting dimensions are shown here. It is recommended to allow some space on the sides of the filter for wire routing.



DH231 Dimensions

### Filter Care

DH231 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.

### Technical Support

For customer service and technical support contact factory at +1-831-824-4052 (Pacific Time) 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>

# Stepper Motor Filter DH231 for Bipolar Stepper Motors



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## User's Guide



## Overview

Thank you for buying OnFILTER' stepper motor EMI filter. It will help to improve operability of the motors connected with long cables to their controller; increase 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 DF 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.

## Specification

Max. Motor Voltage	25V
Max. Motor Current (each winding)	0.5A
Stepper Motor Type	Bipolar
Connector	Terminal Block
Wire Gauge	AWG24...16 (0.205...1.31mm <sup>2</sup> )
Ambient Temperature	+5°...40°C
Climatic Category	+05/040/00

All specifications are subject to change without notice.

## Connection Diagram

- The filter is fully bi-directional—it doesn't matter which way it is connected
- Follow system manufacturer on color-coding of the wires
- 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.

