

dv/dt filter FN 5060- / FN5060HV- and customized FS- dv/dt filter

Mounting and Installation Guidelines

dv/dt filter series are for use with power conversion equipment only (e.g. AC drives).

Please read and follow the following mounting and installation notes.

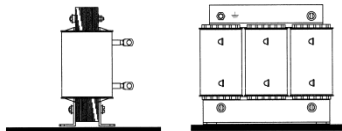
Filter placement and mounting

Lift the heavy IP00-filters of series FN 5060 which do have lifting eyes with appropriate lifting aids – smaller types may be lifted manually by two persons (no lifting eye bolt applicable).
 Never attempt to handle the filter with a fork lift!

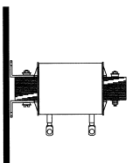


The dv/dt filter or the inductance unit (with separate resistors and capacitors) shall in principle be mounted vertically in order to respect a proper heat dissipation flow. To ensure an optimum ventilation and thermal radiation, it is recommended to leave enough space towards surrounding equipment, walls or components in all directions. A minimum free space below and above the filter of >150 mm and >50 mm aside is required. The separate capacitors can be mounted aside the inductance with a minimum air distance of 50 mm. Due to the heat dissipation of the inductance it is not recommended to mount the capacitors above or on top of the inductance.

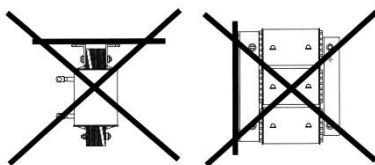
Recommended mounting positions:



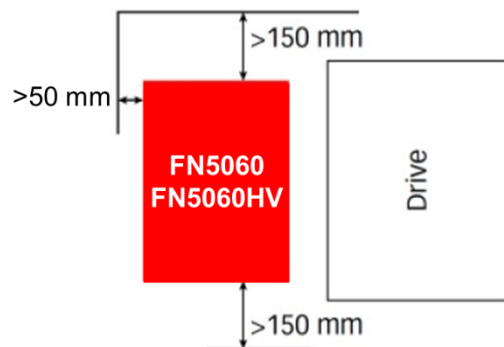
Permitted mounting positions:



Prohibited mounting positions:



FN 5060 / FN5060HV:



The pictures above show recommended, permitted and prohibited mounting positions. The mounting on a vertical plate (middle left picture) is limited to IP00 products with a maximum weight of 25 kg. Use all available mounting holes and select the correct screws and washers in order to ensure a reliable mounting and to do justice to the weight of these products. Apply torques appropriate for the strength class of the screws and washers you are using. Specifications can be obtained from the supplier of the screws and washers.

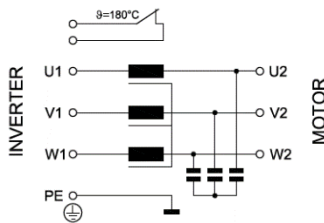
Wiring and connections

The filter rating has to be compatible with the drives to which it is to be connected. All drives manufacturer installation and safety instructions must be fulfilled. The typical block schematic is shown for a motor load, but the load can be also multiple motors (take into account the total cable length). Drives and load cable selection/placement should be in accordance with all local electrical standards and regulations.

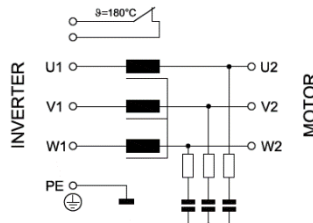
In many applications a shielded motor cable may not be required. Anyhow, due to other possible influences of common mode disturbances Schaffner does recommend to use shielded motor cables. This is to avoid back-coupling of radiated interferences to the mains cable at the frequency range from 1–30 MHz. This EMC measure however can only be considered to be efficient, if the ends of the cable shield of the motor cable are put in proper HF low-impedance contact with the ground of the motor and the frequency converter.

dv/dt filters with separate capacitors and/or resistors must be connected as follows:

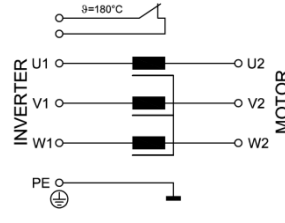
FN5060: <1100 A



FN5060:1100 A



FN5060HV

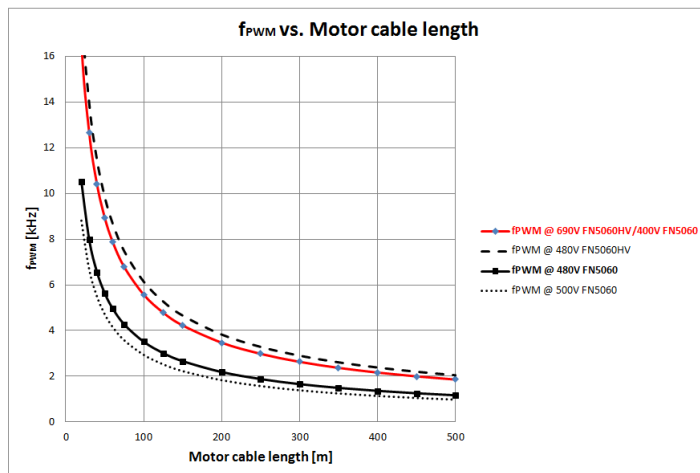


The temperature switch (normally closed) is mounted within the middle winding and opens at 180°C.

Required drives settings

Ensure the motor drive switching frequency is set to the required switching frequency (see filter selection table). Check the drives manual whether special settings are necessary. For any questions please contact the drives manufacturer.

Refer also to the “fPWM/cable length” diagram below:



If the drives settings are not correct, the dv/dt effect may not be sufficient to protect the motor winding insulation and the filter may be damaged!

Last update: July 2022