Data EMI Filters for 4...20mA Loops

Protect integrity of your data from EMI

Many sensors and actuators use 4...20mA current loop connection over large distances and, often, in an electrically-noisy environment. Long cables act as an antenna picking up from the air parasitic electromagnetic interference (EMI) signals emanating from virtually all equipment in the facility. Running wires next to power or ground cables is also a guaranteed way for sensor wires to get affected by induced EMI as such cables usually carry plenty of electric noise.

OnFILTER' data EMI filters block high-frequency interference while being completely transparent to the data signals within specified range. For sensors place filter close to the control circuit; for actuators—close to the actuators. This way the filter will block noise accumulated by the wires and provide data clean signal for proper operation.

Applications

- Industrial control
- Robotics
- Telemetry
- Semiconductor fabrication
- Electronic assembly
- Aerospace/Military
- Wherever EMI is a problem

Features

- Reduction of EMI on data lines
- Differential and common mode EMI suppression
- Easy installation
- Data bandwidth up to 10kHz (higher bandwidth models available)

Noise Suppression

OnFILTER' data EMI filter provides substantial noise suppression in both common and in differential modes on data cables

Transparent to Data

Data signals with the frequency up to 20kHz are unaffected by the filter and your sensors and actuators won't even know that the filter is there

Easy to Install

Data filter has removable screw-in terminal blocks for both data and for ground wires (if ground is utilized). Connection can be easily made on site

Small and Inobtrusive

DF420CDx filters are surface mounted and can fit anywhere. The filter's physical dimensions are 67mm x 50 mm x 20 mm (L x W x H). It can be fastened with screws, Velcro® or equivalent tape, or with tie-wraps.

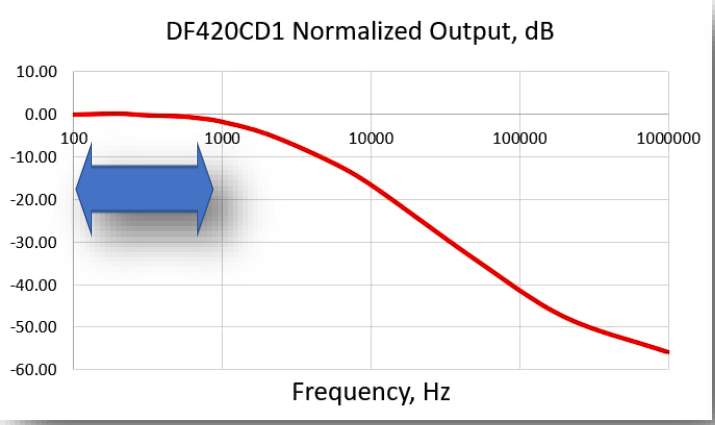
Data EMI Filters
DF420CD1
DF420CD2

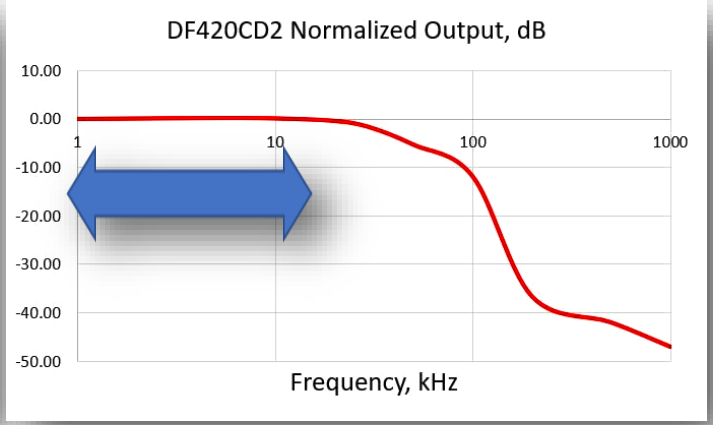
Notes on Data Bandwidth

Depending on the type of sensor and how fast the data need to be updated, the bandwidth of the signal may vary. Most of 4..20 mA sensors and actuators are fairly slow in comparison with digital data such as RS485 communication and alike.

A temperature sensor, for example, does need to send information thousand times per second. The lower the signal bandwidth, the better the filter can be configured so that it does not materially affect the useful signal but can effectively suppress EMI. This is why we have two models for different data speed. If you use slow data speed—within 500 Hz data rate — select DF420CD1 as it will provide better EMI suppression. For faster data signals—up to 10 kHz data rate —use DF420CD2 model.

Recommended Data Passbands for Data EMI Filters

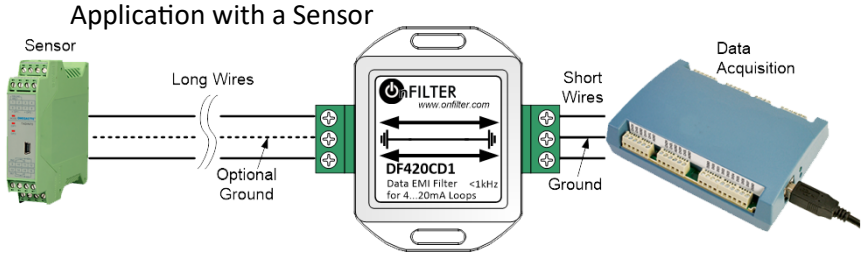




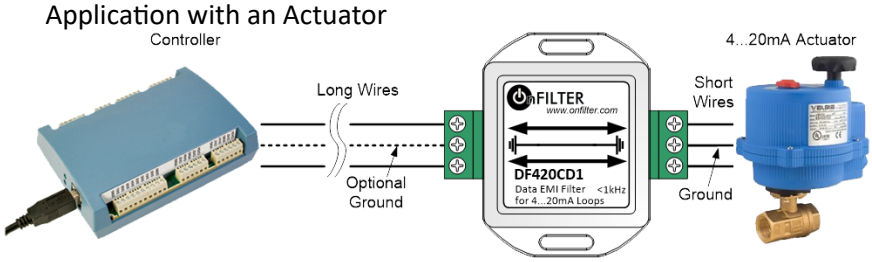
Important: Analog Data Only

DF420CDx data filters are designed for analog 4...20 mA data. Even if some cases they may accidently function with a particular digital interface, we do not recommend it as they absolutely not guaranteed to work with high-speed digital signals.

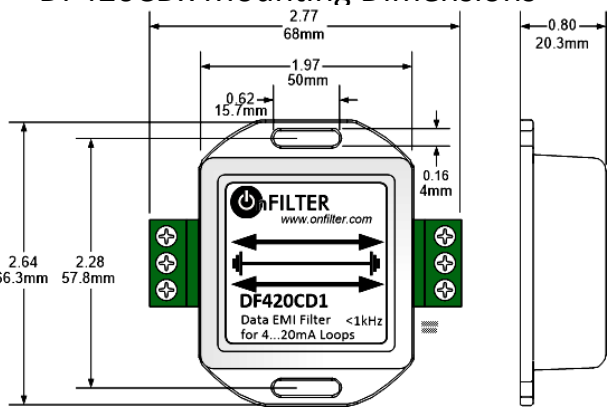
Application with a Sensor



Application with an Actuator



DF420CDx Mounting Dimensions



Ordering Information

Model	Included Cable Plug Type
DF420CD1	DC to 1kHz data rate
DF420CD2	DC to 20 kHz data rate

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