



# CO-04-SF & CO-10-SF

## Clamp-On Non-Intrusive Magnetic Field Concentrators



### Features

- Low hysteresis
- High Permeability
- Hall-Sensor Measurement
- High Linearity up to 200 A
- Temperature Range: 10 to 120 °C
- DC and AC compatible

### Applications

- IoT
- Industrial
- E-metering
- Photovoltaic
- Datacenter
- Telecommunication

### Description

The CO-04-SF and CO-10-SF magnetic field concentrators, are designed for non-intrusive and isolated measurement of electric currents. Thanks to the Clamp-On design, the contact less current sensor can be safely installed without the need to interrupt or cut the cable. Comprised of a soft ferromagnetic shield featuring superior material characteristics such as high linearity and very low hysteresis.

Applications include DC and AC current sensing up to 30 kHz, motor control, battery monitoring, charge control, white goods, and many more. These concentrators were designed to work with and should be paired with Melexis IMC-Hall® planar magnetic field sensor, to create an open loop current measurement system able to measure currents up to  $\pm 200$  A.

Thanks to its hollow bottom design, the concentrator enables the direct housing of a planar current sensor and its capacitors underneath, thus allowing for a compact and space-saving solution. The concentrator can be directly soldered to the PCB thanks to its 4 through-hole pins, granting a robust and secure hold.



## Specifications – Magnetic material

Parameter	Min	Typ.	Max.	Unit
Relative Permeability	-	100000	-	a.u.
Initial Relative Permeability	-	7000	-	a.u.
Saturation Flux Density	-	1	-	T
Hysteresis	-	2.8	-	A/m
Curie Temperature	-	450	-	°C

\* Based on material manufacturer specification

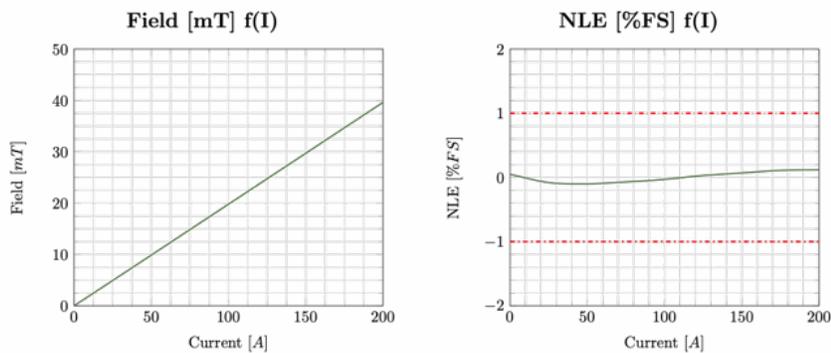
## Specifications – Plastic material

Parameter	Typ.	Unit
Material	Glass reinforced PA6	
Glass-Fiber content	15	%
Min. usage temperature	10	°C
Max. usage temperature	120	°C

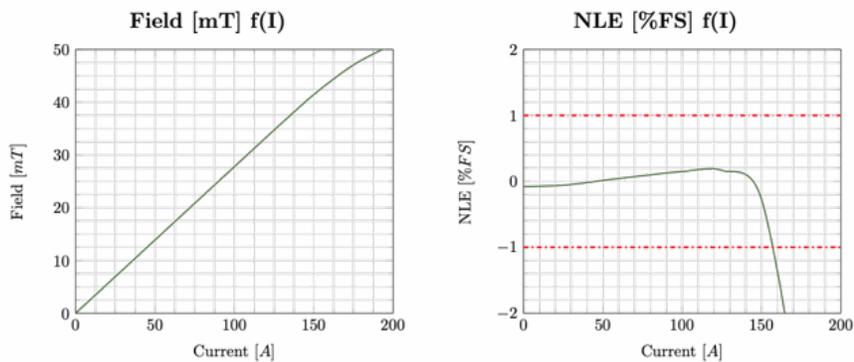
\* Based on material manufacturer specification

## Magnetic gain and linearity error

### CO-10-SF



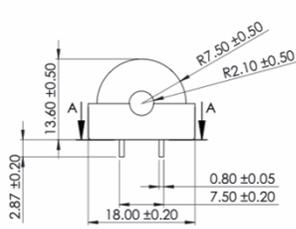
### CO-04-SF



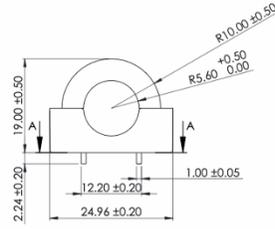


## Dimensions

Dimensions are expressed in [mm]. Unless otherwise specified, tolerances as per ISO 2768 class-m



CO-04-SF



CO-10-SF

## Application

### Application example CO-10-SF

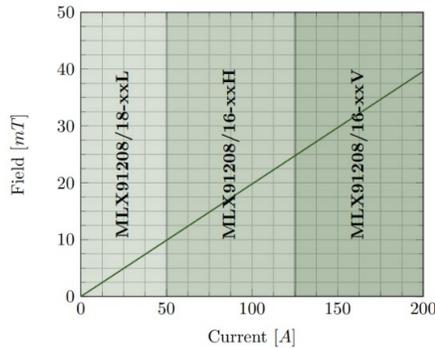
CO-10-SF can be paired with Melexis IMC-Hall® planar magnetic field sensor, to create an open loop current measurement system able to measure currents up to  $\pm 200$  A, as illustrated in figure 1.



Figure 1: CO-10-SF application example



### Application sensor pairing - CO-10-SF



Current Range Peak	Current Sensor
10-50 [Apk]	MLX91208/18LDC-xxL
50-125 [Apk]	MLX91208/16LDC-xxH
125-200 [Apk]	MLX91208/16LDC-xxV

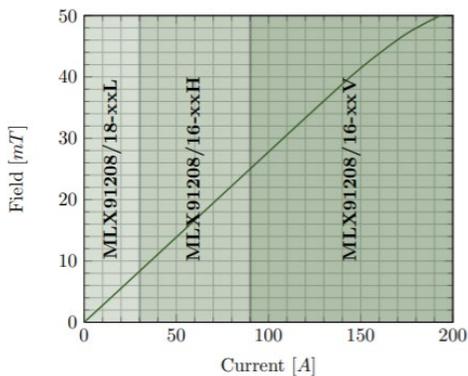
### Application example CO-04-SF

CO-04-SF can be paired Melexis IMC-Hall® planar magnetic field sensor, to create an open loop current measurement system able to measure currents up to  $\pm 200$  A, as illustrated in Figure 2.



Figure 2: CO-04-SF application example

### Application sensor pairing – CO-04-SF



Current Range Peak	Current Sensor
10-30 [Apk]	MLX91208/18LDC-xxL
30-90 [Apk]	MLX91208/16LDC-xxH
90-200 [Apk]	MLX91208/16LDC-xxV