

## Current Sensor HCMR 500A-S-40-SB5-NF



Image is for illustration purposes only. Please refer to product description.

Part number	20 31 050 8101
Specification	Current Sensor HCMR 500A-S-40-SB5-NF
HARTING eCatalogue	<a href="https://b2b.harting.com/20310508101">https://b2b.harting.com/20310508101</a>

### Identification

Category	Current measurement
Series	HCMR
Element	Current sensor
Sensor technology	Hall-Effekt Closed loop
Features	Hall effect compensated current sensor Measurable currents: AC, DC, pulsed, mixed ... High accuracy over the entire measuring range Galvanic insulation between primary and secondary current Internal screen between primary and secondary circuit Switchboard mounting Housing material and potting mass have a flammability rating UL 94 V-0 Applications: frequency converters, electrical drives, auxiliary converters

### Version

Termination	4x screw lock with Faston (6.3 x 0.8 mm)
Field of application	Railway version

### Technical characteristics

$I_{PN}$ Nominal primary current	500 A
$I_{PM}$ Primary current, measuring range	0 ... $\pm 1,200$ A
$R_M$ Measuring resistance @ $I_{PM \max}$ , $U_C \max$ , $T_A \max$	1 ... 20 $\Omega$ For other primary currents see diagram.
$I_{SN}$ Nominal secondary current	125 mA
$K_N$ Turns ratio	1 : 4000
$U_C$ Power supply	$\pm 15$ ... $\pm 24$ V $\pm 5$ %



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## Technical characteristics

$I_C$ Current consumption @ $U_{C \min}$	20 mA + $I_S$
X Overall accuracy @ $I_{PN}$ , $T_A = 25 \text{ }^\circ\text{C}$	$\pm 0.6 \%$
$E_L$ Linearity	$< 0.1 \%$
$I_O$ Offset current @ $I_P = 0 \text{ A}$ , $T_A = 25 \text{ }^\circ\text{C}$	$\pm 0.5 \text{ mA}$
$I_{OT}$ maximum temperature drift of $I_O$	$\pm 0.8 \text{ mA}$
$t_r$ Response time @ $I_{PN}$	$< 1 \text{ } \mu\text{s}$
di/dt with optimal coupling	$> 100 \text{ A}/\mu\text{s}$
f Frequency	0 ... 100 kHz
$T_A$ Ambient temperature	$-40 \dots +85 \text{ }^\circ\text{C}$
$T_S$ Storage temperature	$-45 \dots +90 \text{ }^\circ\text{C}$
$R_S$ Secondary coil resistance @ $T_{A \max}$	45 $\Omega$
$U_D$ Test voltage, effective (50 Hz, 1 min)	7 kV Primary - secondary 0.5 kV Secondary - screen
$U_{St}$ Rated impulse voltage (1,2/50 $\mu\text{s}$ )	20 kV
$U_B$ Rated voltage	2,000 V
Overvoltage category	III
Pollution degree	2
$L_S$ Clearance distance	41.6 mm
$K_S$ Creepage distance	43.1 mm
Tightening torque	4 Nm (4x steel screw M5 - Vertical)

## Material properties

Material (hood/housing)	Polycarbonate (PC)
Material flammability class acc. to UL 94	V-0
RoHS	compliant with exemption
RoHS exemptions	6(a) / 6(a)-I: Lead as an alloying element in steel for machining purposes and in galvanised steel containing up to 0,35 % lead by weight / Lead as an alloying element in steel for machining purposes containing up to 0,35 % lead by weight and in batch hot dip galvanised steel components containing up to 0,2 % lead by weight
ELV status	compliant with exemption
China RoHS	50



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## Material properties

REACH Annex XVII substances	Not contained
REACH ANNEX XIV substances	Not contained
REACH SVHC substances	Yes
REACH SVHC substances	Lead
California Proposition 65 substances	Yes
California Proposition 65 substances	Nickel Lead

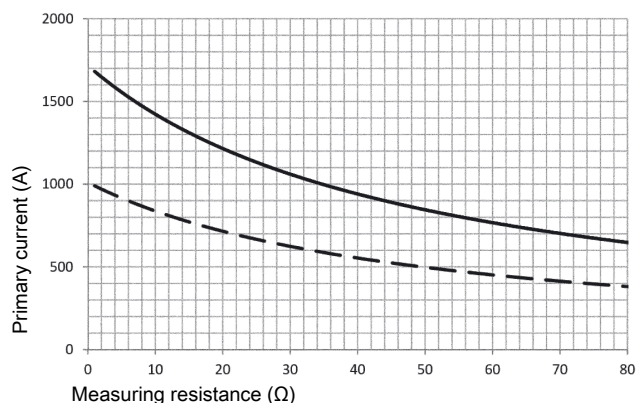
## Specifications and approvals

Specifications	EN 50155 IEC 61373
Approvals	DNV GL
UL / CSA	UL 508 NMTR2.E359667 CSA-C22.2 No. 14-13 NMTR8.E359667
CE	Yes

## Commercial data

Packaging size	1
Net weight	455 g
Country of origin	Germany
European customs tariff number	90303370
eCl@ss	27210902 Current transformer

## Measuring resistance



—  $U_C = \pm 24 \text{ V} - 5 \%$ ,  $T_A = 85 \text{ °C}$

- - -  $U_C = \pm 15 \text{ V} - 5 \%$ ,  $T_A = 85 \text{ °C}$

Primary currents higher than  $I_{PM}$  only for peak!

#### Remark

- If  $I_P$  flows in the direction of the arrow  $I_S$  is positive.
- Over currents ( $\gg I_{PN}$ ) or the missing of the supply voltage can cause an additional permanent magnetic offset.
- The temperature of the primary conductor may not exceed 100 °C.

#### Safety note



These transformers may only be used in electrical or power electronic applications which fulfill the relevant regulations (standards, EMC requirements,...).

This transformer must be used in limited-energy secondary circuits according to IEC 61010-1.

#### Caution, risk of electric shock



- Pay attention to protect non-insulated high-power current carrying parts against direct contact (e.g. with a protective enclosure).
- When installing this sensor please make sure that the safe separation (between primary circuit and secondary circuit) is maintained over the whole circuits and their connections.
- The sensor may only be connected to a power supply respecting the SELV/PELV protective regulations according to EN 50 178. The installation of the power supply must be short-circuit-proof.
- Disconnecting the main power must be possible.
- The current sensors support a safe separation. The creepage and clearance distances are taken as a basis for the rated voltage. They are the shortest distance between the secondary connection and the sensor's window. The actual clearance and creepage distances depend on the position of the primary conductor respectively on the actual shortest distance between the primary conductor and the secondary connection.

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