

Current Sensor HCMR 500A-S-40-SBA-0-D



Part number	20 31 050 9102
Specification	Current Sensor HCMR 500A-S-40- SBA-0-D
HARTING eCatalogue	https://b2b.harting.com/20310509102

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

Identification

Category	Current measurement			
Series	HCMR			
Element	Current sensor			
Sensor technology	Hall-Effekt Closed loop			
Features	Hall effect compensated current sensorMeasurable currents: AC, DC, pulsed, mixedHigh accuracy over the entire measuring rangeGalvanic insulation between primary and secondary currentInternal screen between primary and secondary circuitSwitchboard mountingHousing material and potting mass have a flammability rating UL 94 V-0Applications: frequency converters, electrical drives, auxiliary converters			
Version				
Termination	4x 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 ±1,200 A
R _M Measuring resistance @ I _{PM max} , U _{C max} , T _{A max}	1 20 Ω For other primary currents see diagram.
I _{SN} Nominal secondary current	125 mA
K _N Turns ratio	1 : 4000
U _C Power supply	±15 ±24 V ±5 %

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Technical characteristics

X Overall accuracy @ I _{PN} , T _A = 25 °C±0.6 %FL Linearity<0.1 %I _O Offset current @ I _P = 0 A, T _A = 25 °C±0.9 mAI _{OT} maximum temperature drift of I _O # 1 mA±1 mAI _{OT} maximum temperature drift of I _O @ I _{PN} ×100 A/µsdridt with optimal coupling>100 A/µsdridt with optimal coupling0 100 kHzT _A Ambient temperature<	I _C Current consumption @ U _{C min}	35 mA + I _S
^{lo} Offset current @ lp = 0 A, T _A = 25 °C ±0.9 mA lo _T maximum temperature drift of lo ±1 mA l _T Response time @ lpN <1 μs		±0.6 %
@ lp = 0 A, T_A = 25 °C£0.9 mAloT maximum temperature drift of lo±1 mAt, Response time @ lpN<1 μs	E _L Linearity	<0.1 %
tracetracec1 μsdi/dt with optimal coupling>100 A/μsf Frequency0 100 kHzT_A Ambient temperature-40 +85 °CT_S Storage temperature-45 +90 °CRs Secondary coil resistance @ T_A max48 ΩU_D Test voltage, effective (50 Hz, 1 min)7kV Primary - secondary 0.5 kV Secondary - screenU_Nm Rated insulation voltage20 kVOvervoltage categoryIIIPollution degree2Ls Clearance distance41 mmKa Creepage distance41 mm	•	±0.9 mA
© IpN<1 μsdi/dt with optimal coupling>100 A/μsf Frequency0 100 kHzT_A Ambient temperature-40 +85 °CT_S Storage temperature-45 +90 °CR_S Secondary coil resistance @ T_A max8 ΩU_D Test voltage, effective (50 Hz, 1 min)7 kV Primary - secondary 0.5 kV Secondary - screenU_St Rated impulse voltage (1,2/50 µs)20 kVQvervoltage categoryIIIPollution degree2L_s Clearance distance w Greepage distance41 mm	I_{OT} maximum temperature drift of I_{O}	±1 mA
f Frequency0 100 kHzT _A Ambient temperature-40 +85 °CT _S Storage temperature-45 +90 °CR _S Secondary coil resistance @ T _{A max} RaseU _D Test voltage, effective (50 Hz, 1 min)7 kV Primary - secondary 0.5 kV Secondary - screenU _{St} Rated impulse voltage (1,2/50 µs)20 kVOvervoltage categoryIIIPollution degree2L _s Clearance distance41 mmK _s Creepage distance41 mm		<1 µs
TA Ambient temperature-40 +85 °CTs Storage temperature-45 +90 °CRs Secondary coil resistance @ TA max48 ΩUp Test voltage, effective (50 Hz, 1 min)7 kV Primary - secondary 0.5 kV Secondary - screenUst Rated inpulse voltage (1,2/50 µs)20 kVOvervoltage categoryIIIPollution degree2Ls Clearance distance41 mmKs Creepage distance41 mm	di/dt with optimal coupling	>100 A/µs
Ts Storage temperature-45 +90 °CRs Secondary coil resistance @ TA max8 ΩUD Test voltage effective (50 Hz, 1 min)7 kV Primary - secondary 0.5 kV Secondary - screenUst Rated impulse voltage (1,2/50 µs)20 kVQono V2,000 VOvervoltage categoryIIIPollution degree2Ls Clearance distance41 mmKo Creepage distance41 mm	f Frequency	0 100 kHz
Rs Secondary coil resistance @ TA max48 ΩUD Test voltage, effective (50 Hz, 1 min)7 kV Primary - secondary 0.5 kV Secondary - screenUst Rated impulse voltage (1,2/50 µs)20 kVUNm Rated insulation voltage2,000 VOvervoltage categoryIIIPollution degree2Ls Clearance distance41 mmKs Creepage distance41 mm	T _A Ambient temperature	-40 +85 °C
@ TA max48 ΩW _D Test voltage, effective (50 Hz, 1 min)7 kV Primary - secondary 0.5 kV Secondary - screenU _{St} Rated impulse voltage (1,2/50 µs)20 kVU _{Nm} Rated insulation voltage2,000 VOvervoltage categoryIIIPollution degree2L _s Clearance distance41 mmK _s Creepage distance41 mm	T _S Storage temperature	-45 +90 °C
Up rest voltage, elective (30 H2, Fillin)0.5 kV Secondary - screenU _{St} Rated impulse voltage (1,2/50 μs)20 kVU _{Nm} Rated insulation voltage2,000 VOvervoltage categoryIIIPollution degree2L _s Clearance distance41 mmK _s Creepage distance41 mm	-	48 Ω
UNm Rated insulation voltage2,000 VOvervoltage categoryIIIPollution degree2Ls Clearance distance41 mmKs Creepage distance41 mm	U _D Test voltage, effective (50 Hz, 1 min)	
Overvoltage categoryIIIPollution degree2L _s Clearance distance41 mmK _s Creepage distance41 mm	U_{St} Rated impulse voltage (1,2/50 $\mu s)$	20 kV
Pollution degree 2 L _s Clearance distance 41 mm K _s Creepage distance 41 mm	U _{Nm} Rated insulation voltage	2,000 V
L _s Clearance distance 41 mm K _s Creepage distance 41 mm	Overvoltage category	III
K _s Creepage distance 41 mm	Pollution degree	2
	L _s Clearance distance	41 mm
Tightening torque 2.5 Nm (4x steel screw M5 - Vertical)	K _s Creepage distance	41 mm
	Tightening torque	2.5 Nm (4x steel screw M5 - Vertical)

Material properties

Material (hood/housing)	Polycarbonate (PC)
Material flammability class acc. to UL 94	V-0
RoHS	compliant
ELV status	compliant
China RoHS	e
REACH Annex XVII substances	Not contained
REACH ANNEX XIV substances	Not contained

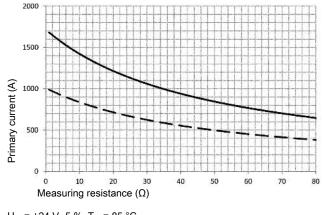
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REACH SVHC substances Not contained Specifications and approvals EN 50155 : 2017 Specifications IEC 61373 CE Yes DNV GL Approvals Commercial data 1 Packaging size Net weight 412.4 g Country of origin Romania European customs tariff number 90303370 eCl@ss 27210902 Current transformer

Measuring resistance

Material properties



--- U_C = ±24 V -5 %, T_A = 85 °C --- U_C = ±15 V -5 %, T_A = 85 °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 (»IPN) 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.

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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.