Honeywell

CSCA-A Series

Hall-Effect Based Open-Loop Current Sensors

DESCRIPTION

The CSCA-A Series of open-loop current sensors are based on the principles of the Hall-effect wherein a Hall-effect device (HED) produces an output voltage linearly related to the amplitude and phase of a magnetic field applied to it.

Current flowing through a primary conductor generates a rotating magnetic field around the conductor. This field is collector by a core of magnetically sensitive material and concentrated in the gap in this core. The HED is located in this core gap. Therefore, the HED output is directly proportional to the amplitude and phase of the primary current.

The HED output is trimmed for gain and offset calibration such that the CSCA-A Series sensor provides a predefined output sensitivity versus primary current.

FEATURES

- Measures ac, dc and impulse currents
- Competitive cost/performance ratio
- Low power consumption
- Compact size
- High level of electrical isolation between primary and secondary circuits
- Large primary aperture
- RoHs compliant
- CE, UL approvals (pending)

POTENTIAL APPLICATIONS

- Variable speed drives
- Ground fault detectors
- Current feedback control systems
- Robotics
- UPS and telecommunication power supplies
- Welding power supplies
- Automotive - Battery management systems
- Watt meters

CSCA-A Series

SPECIFICATIONS (all specifications are at ±15 Vdc supply and 25 °C [77 °F] ambient temperature unless otherwise specificed)

Characteristic	Symbol	Parameter
Nominal current	I_{PN}	See product selection guide
Peak measuring range (ac peak)	I_{PK}	See product selection guide
Nominal output voltage at I_{PN}	V_{SN}	4 V ± 1 %
Supply voltage	V_{cc}	±15 Vdc ± 5 %
Supply current	I_{cc}	17 mA typ.
Accuracy at I_{PN} [1]	X	≤ ±2 % of I_{PN}
Linearity [2]	E_I	< ±1 %
Zero current offset	V_O	≤ ±20 mV
Residual offset after I_{PN}	V_{OR}	≤ ±20 mV
Thermal drift of offset	V_{OT}	≤ ±3 mV/°C @ I_{PN} = 50 A ≤ ±1.5 mV/°C @ I_{PN} = 100 A to 600 A
Thermal drift of gain	V_{ST}	≤ ±4 mV/°C
Response time [3]	t_R	3 μs to 7 μs
di/dt accuracy followed	di/dt	≥ 50A/μs
Bandwidth	f	dc to 50 kHz
Isolation voltage	V_D	3 kV, 50 Hz, 60 sec
Rated insulation voltage	V_I	849 V reinforced
Output resistance	R_S	≥ 10 kOhm
Ambient operating temperature	T_A	-10 °C to 80 °C [14 °F to 176 °F]
Ambient storage temperature	T_S	-25 °C to 85 °C [-13 °F to 185 °F]

NOTES:

[1] For $I_P > I_{PN}$ then X is the same percentage value but of I_P

[2] Independent linearity per the Instrument Society of America

[3] At 90% of I_P

[4] Appropriate specification items defined using the guidance of EN50178

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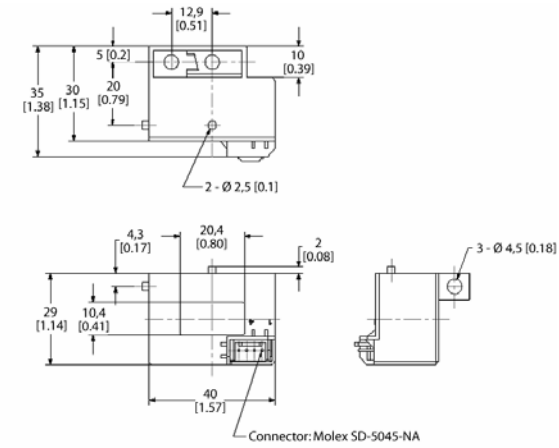
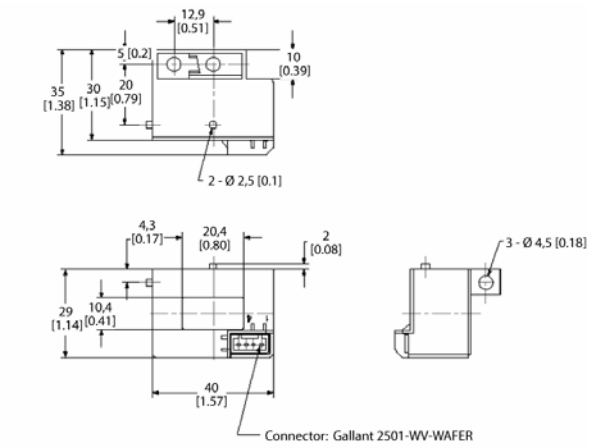
MOUNTING DIMENSIONS (For reference only. mm)

CSCA-A-001	**CSCA-A-002**
	
Pins arrangement	**Pins arrangement**
1. + 15 V	1. + 15 V
2. - 15 V	2. - 15 V
3. Output	3. Output
4. Ground	4. Ground