

HCSP-1BS

Automotive Open Loop Current Sensor - Busbar Mounting



KEY FEATURES

- ▶ Open loop current transducer based on Hall effect
- ▶ Busbar mounting
- ▶ Simple analog ratiometric output
- ▶ Measured current value from ± 200 A to ± 1.500 A
- ▶ Non-intrusive technology
- ▶ Galvanic separation between power and control
- ▶ Operating temperature from -40°C to $+125^{\circ}\text{C}$

DESCRIPTION

Piher Sensing Systems' HCSP1BS family of open loop current sensors generates a ratiometric analog output voltage signal proportional to the current flowing through the conductor. Based on Hall effect technology the sensor has been designed for accurate measurement of AC and DC currents in automotive battery management and motor control applications.

APPLICATIONS

- ▶ Battery management
- ▶ Motor control
- ▶ EV motor inverters
- ▶ DC/DC converters

SPECIFICATIONS

| Parameter | Unit | Min. | Typ. | Max. |
|---|--------------------|------|------|------|
| Supply voltage | V | 4,5 | 5 | 5,5 |
| Supply current | mA | 9 | 12 | 19 |
| Output voltage | V | 0,5 | | 4,5 |
| Offset voltage | V | | 2,5 | |
| Response time | μsec | | | 3 |
| Frequency bandwidth | kHz | 70 | | 250 |
| Operating temperature | $^{\circ}\text{C}$ | -40 | | +125 |
| Typical error (at 25°C ; $V_{cc} = 5\text{V}$) | % | 0,65 | | 2,5 |
| Max. error (at -40°C to $+125^{\circ}\text{C}$; $V_{cc} = 5\text{V}$) | % | 1 | | 3,5 |

Other specifications on request

HCSP-1BS

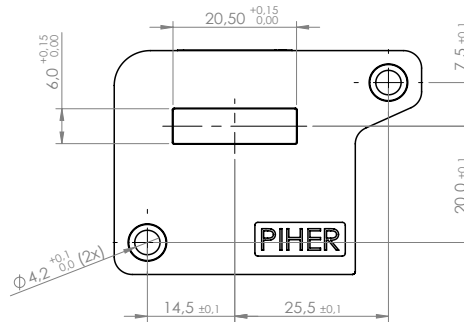
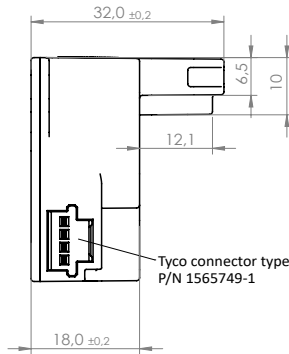
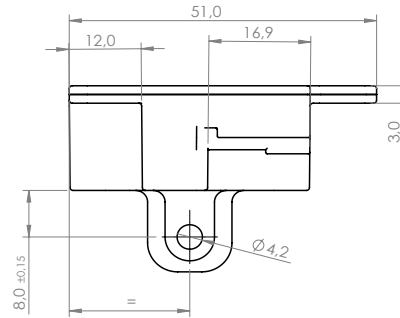
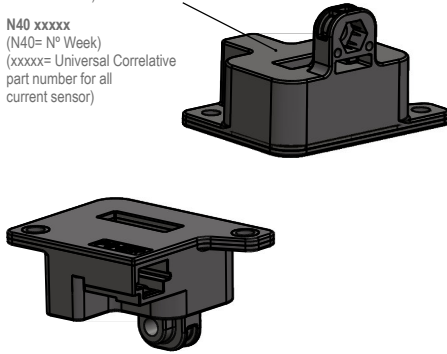
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DIMENSIONS (IN MM)

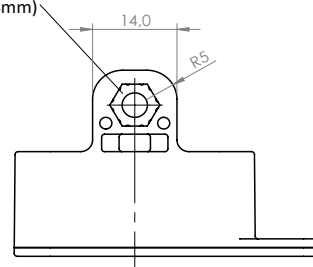
Laser mark surface:

HCSP-1BS-0200
(02000= Current Variant from 200-1500)

N40 xxxxxx
(N40= N° Week)
(xxxxx= Universal Correlative part number for all current sensor)



M4 Nut cavity (deep 4mm)
(nut not included)



Download the STEP file here:
www.piher.net

MOUNTING AND CONNECTIONS

Connections

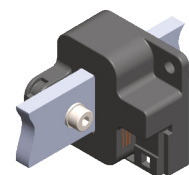
| | |
|--------------------------|----------------|
| Mating connector | TYCO 1473672-1 |
| 1 | n/c |
| 2 | Supply voltage |
| 3 | Ground |
| 4 | Signal output |
| Other pinouts on request | |

Mounting Recommendation

Pin order



- M4 screw
- Spring washer
- M4 nut (acc. to ISO 4032)
- Max Torque: 2Nm



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| TESTS | |
|-----------------------|---|
| Operating temperature | -40° to +125°C |
| Thermal shock | ISO 16750-4 5.3.2 (2010) N° temperature cycles: 100 Temperature Profile: Tmax= +125°C |
| Thermal cycle | ISO 16750-4 5.3.1 (2010) |
| Chemical resistance | ISO 16750-5 4.7 (2010) |
| Salt spray | ISO 16750-4 5.5.1 |
| Sealing | IP6K4 ISO 20653-02-2013 |
| Vibration | ISO 16750-3 4.1.2.4 - ISO 16750-3 4.1.1 27,1 m/s ² , 8h/axes 10Hz-1000Hz; T ^a max: 125°C ISO 60068-2-6:2007 |
| Shock | ISO 16750-3 4.2.2 (2012) 50 g/6ms; 3 axis; 10 shocks of each direction |
| Bulk current immunity | ISO 11452-4:2005 |
| Radiated immunity | ISO 11452-2:2005 |
| Trasients immunity | EN 61000-4-4:2013 |
| Conducted emissions | CISPR25:2008 |
| ESD | ISO 10605:2008 |

| PERFORMANCE DATA | | | | | | | |
|----------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| HCSP-1BS-_____ | 0200 | 0300 | 0400 | 0500 | 0600 | 0700 | 0800 |
| Current measuring range | ±200 A | ±300 A | ±400 A | ±500 A | ±600 A | ±700 A | ±800 A |
| Current nominal value | ±200 A | ±300 A | ±400 A | ±500 A | ±600 A | ±700 A | ±800 A |
| Sensitivity* | 10 mV/A | 6,66 mV/A | 5 mV/A | 4 mV/A | 3,33 mV/A | 2,85 mV/A | 2,5 mV/A |
| Sensitivity error* | ± 0,6 % | | | | | | |
| Electrical offset voltage* | ± 3 mV | | | | | | |
| HCSP-1BS-_____ | 0900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 |
| Current measuring range | ±900 A | ±1.000 A | ±1.100 A | ±1.200 A | ±1.300 A | ±1.400 A | ±1.500 A |
| Current nominal value | ±900 A | ±1.000 A | ±1.100 A | ±1.200 A | ±1.300 A | ±1.400 A | ±1.500 A |
| Sensitivity* | 2,22 mV/A | 2 mV/A | 1,81 mV/A | 1,67 mV/A | 1,53 mV/A | 1,42 mV/A | 1,33 mV/A |
| Sensitivity error* | ± 0.6 % | | | | | | |
| Electrical offset voltage* | ± 3 mV | | | | | | |

*at 25°C / Vcc = 5V; Other specification on request

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ORDER CODE (e.g. HCSP-1BS-0300)

Family

HCSP

| | | |
|------------------------|------------------------|-----------------|
| - Phase | | |
| 1 | Single | |
| 3* | Triple | |
| Mounting | | |
| B | Busbar | |
| Output | | |
| S | Simple | |
| - Measuring Range | | |
| ----- | 0200 to 1.500 A | |
| D* | Dual | |
| - Measuring Range | | |
| 1 st Output | 2 nd Output | |
| ----- | ----- | 0200 to 1.500 A |

*on request



Please always use the latest updated datasheets and 3D models published on our website.

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