

HCSP-1BS

Automotive Open Loop Current Sensor - Busbar Mounting



Product Contact Inventory

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 $+125^{\circ}\text{C}$
- ▶ UL94 V0 plastic housing material

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

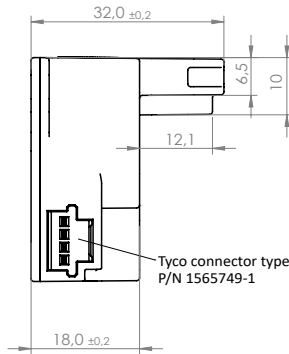
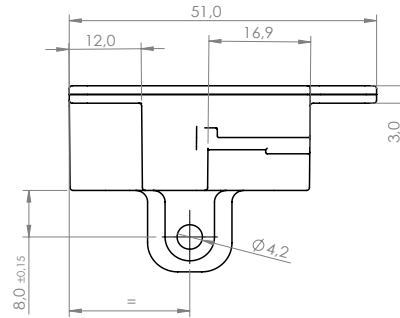
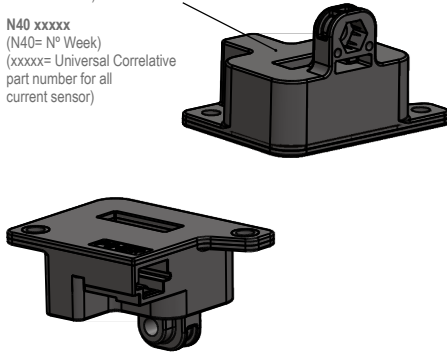
Automotive Open Loop Current Sensor - Busbar Mounting

DIMENSIONS (IN MM)

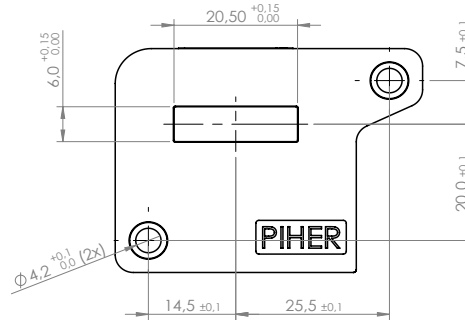
Laser mark surface:

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

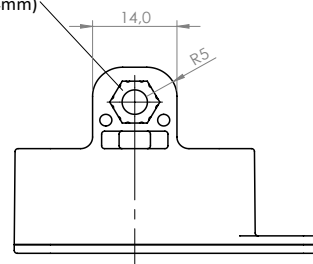
N40 xxxxxx
(N40= N° Week)
(xxxxx= Universal Correlative part number for all current sensor)



Tyco connector type
P/N 1565749-1



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



Download the STEP file here:
www.piher.net

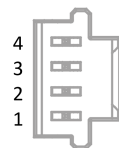
MOUNTING AND CONNECTIONS

Connections

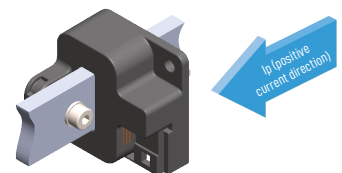
Mating connector	TYCO 1473672-1
1	n/c
2	Supply voltage
3	Ground
4	Signal output
Other pinouts on request	

Mounting Recommendation

Pin order



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



HCSP-1BS

Automotive Open Loop Current Sensor - Busbar Mounting

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
Transients immunity	EN 61000-4-4:2013
Conducted emissions	CISPR25:2008
ESD	ISO 10605:2008
Insulation resistance	500 V DC, time = 60 s R _{INS} ≥ 500MΩ Minimum
Dielectric Withstand Voltage	ISO 16750-2:2012 4.11 2500 V AC / 1 min / 50 Hz

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 / V_{cc} = 5V; Other specification on request

HCSP-1BS

Automotive Open Loop Current Sensor - Busbar Mounting

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.

Disclaimer:

The product information in this catalog is for reference purposes. Please consult for the most up to date and accurate design information. Piher Sensors & Controls S.A., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Piher"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product described herein. Piher disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Piher's terms and conditions of sale, including but not limited to the warranty expressed therein, which apply to these products. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Piher. The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Piher products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Piher for any damages arising or resulting from such use or sale. Please contact authorized Piher personnel to obtain written terms and conditions regarding products designed for such applications. Product names and markings noted herein may be trademarks of their respective owners. Information contained in and/or attached to this catalogue may be subject to export control regulations of the European Community, USA, or other countries. Each recipient of this document is responsible to ensure that usage and/or transfer of any information contained in this document complies with all relevant export control regulations. If you are in any doubt about the export control restrictions that apply to this information, please contact the sender immediately. For any Piher Exports, Note: All products / technologies are EAR99 Classified commodities. Exports from the United States are in accordance with the Export Administration Regulations. Diversion contrary to US law is prohibited.

CONTACT

Piher Sensing Systems

Polígono Industrial Municipal

Vial T2, N°22

31500 Tudela

Spain

sales@piher.net

+34 948 820 450

Rev-1007/2024 © 2024 Piher Sensors & Controls S.A.