

# 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  $\pm 200$  A to  $\pm 1.500$  A
- ▶ Non-intrusive technology
- ▶ Galvanic separation between power and control
- ▶ Operating temperature from  $-40^{\circ}\text{C}$  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	$\mu\text{sec}$			3
Frequency bandwidth	kHz	70		250
Operating temperature	$^{\circ}\text{C}$	-40		+125
Typical error (at $25^{\circ}\text{C}$ ; $V_{cc} = 5\text{V}$ )	%	0,65		2,5
Max. error (at $-40^{\circ}\text{C}$ to $+125^{\circ}\text{C}$ ; $V_{cc} = 5\text{V}$ )	%	1		3,5

Other specifications on request

# HCSP-1BS

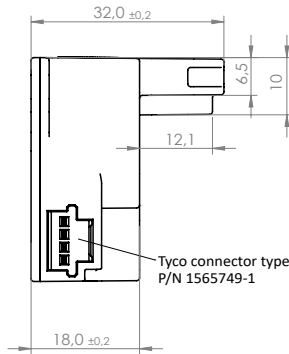
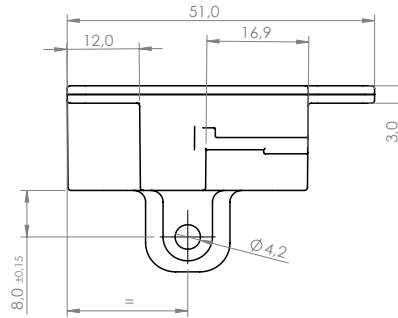
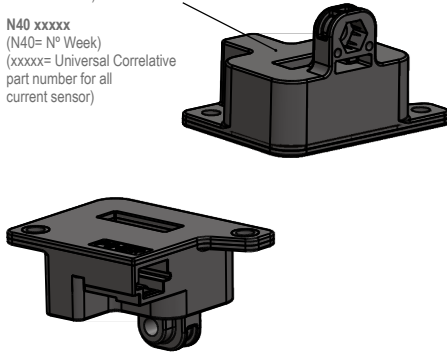
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### DIMENSIONS (IN MM)

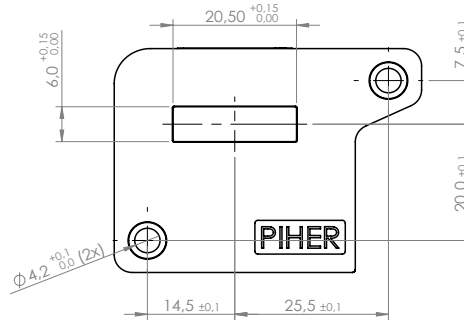
Laser mark surface:

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

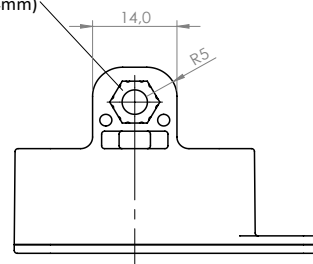
N40 xxxxxx  
(N40= N° Week)  
(xxxxx= Universal Correlative part number for all current sensor)



Tyco connector type  
P/N 1565749-1



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



Download the STEP file here:  
[www.piher.net](http://www.piher.net)

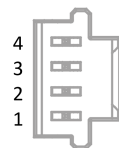
### MOUNTING AND CONNECTIONS

#### Connections

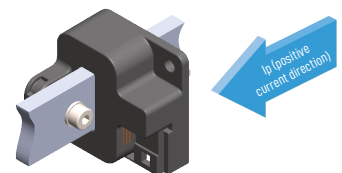
Mating connector	TYCO 1473672-1
1	n/c
2	Supply voltage
3	Ground
4	Signal output
Other pinouts on request	

#### Mounting Recommendation

Pin order



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



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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 <sup>2</sup> , 8h/axes 10Hz-1000Hz; T <sup>a</sup> 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 <sub>INS</sub> 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 / Vcc = 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 <sup>st</sup> Output	2 <sup>nd</sup> Output	
-----	-----	0200 to 1.500 A

\*on request

 [check inventory](#)



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