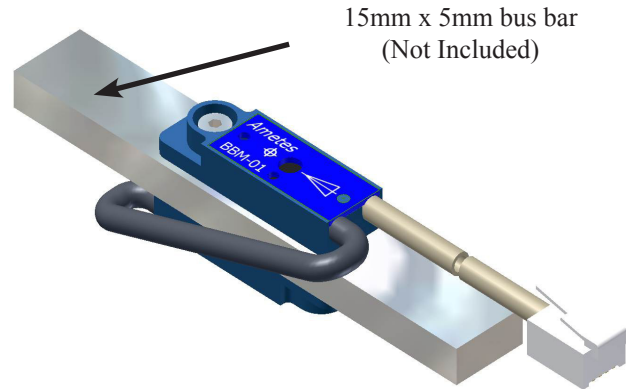


### General Description

The Ametes Bus Bar DC Current Sensor locates two magnetic field sensors on each side of an electric current bus bar. Two Sentron CSA-1VG precision Hall Effect IC sense the magnetic field as a function of current on both sides of the bus bar. This enables effective cancellation of external magnetic fields without magnetic cores or shielding which can give rise to non-linearity and hysteresis effects. The BBM-01 has two analog outputs, A1 and A2. Each output has a range of 2.5VDC +/- 2.0V. The differential voltage between the two outputs, A1-A2, provides a full scale output of 0V +/- 4.0V. DC current ranges that can be sensed will be dependant on the physical parameters of the bus bars. The BBM-01 is supplied with a 1 M long Cat 5e cable connected to a RJ-11plug. See AN\_BBM-01 Bus Bar Design guide for Bus Bar sizing.



BBM-01 shown on a 15mm wide 5mm bus bar

### Applications

- Power Electronics
- Motor & Generator Control
- Electromechanical Systems
- Battery Charging
- Transit & Off Road Vehicles

### Features

- Very compact and low profile mechanical package
- Custom design bus bar geometries possible (see AN\_BBM-01)
- Single + 5V Power Supply at less than 25 mA
- High Level 0V ± 4V differential linear signal output
- Signal output electrically isolated from primary Bus Bar DC Currents.
- Clean recovery from very high overload (to 100x nominal current)

### Specifications Electrical

Symbol	Parameter	Units	Specification
S <sub>DIFF</sub>	Output Sensitivity (Nominal) A1-A2 <sup>1)</sup>	mV/mT	560
B <sub>L</sub>	Linear Magnetic Field Range - A1&A2 <sup>1)</sup>	mT	± 5
B <sub>FS</sub>	Full Scale Magnetic Field Range - A1&A2 <sup>1)</sup>	mT	± 8
V <sub>OS-DIFF</sub>	Differential Offset Voltage, A1-A2 <sup>1)</sup> @ B=0 (Nominal)	V	0 ± 0.030
V <sub>O</sub>	Linear Output Voltage Range, A1&A2 <sup>1)</sup>	V	2.5 ± 2.0
V <sub>O DIFFF</sub>	Differential Linear Output Voltage Range, A1-A2 <sup>1)</sup>	V	0 ± 4.0
V <sub>C</sub>	Supply Voltage, DC (25mA max)	V	5.0± 0.5
V <sub>D</sub>	Voltage for AC Isolation Test	V	2000
X	Absolute Accuracy @ B <sub>FS</sub> - A1-A2 <sup>1)</sup>	%	<7.5
X <sub>R</sub>	Repeatability	%	<5
X <sub>L</sub>	Non Linearity, B < B <sub>L</sub> - A1-A2 <sup>1)</sup>	%	<5
TC V <sub>O-DIFF</sub>	Temperature Coefficient, Offset Voltage, A1-A2 <sup>1)</sup>	mV/°C	<0.3
TC V <sub>S-DIFF</sub>	Temperature Coefficient, Sensitivity, A1-A2 <sup>1)</sup>	ppm/°C	<± 300
t <sub>r</sub>	Response Time, A1-A2 <sup>2)</sup>	uSec	6
r	Resolution, B, A1-A2 <sup>1)</sup>	mT	0.005

Note 1: A1 & A2 are complimentary outputs A2 = -A1

Note 2: Response time of the assembly depends on the bus bar geometry

Revision Date: 25 Jan 2011 BBM-01

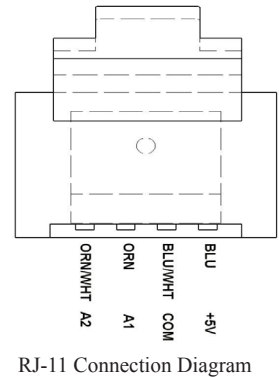
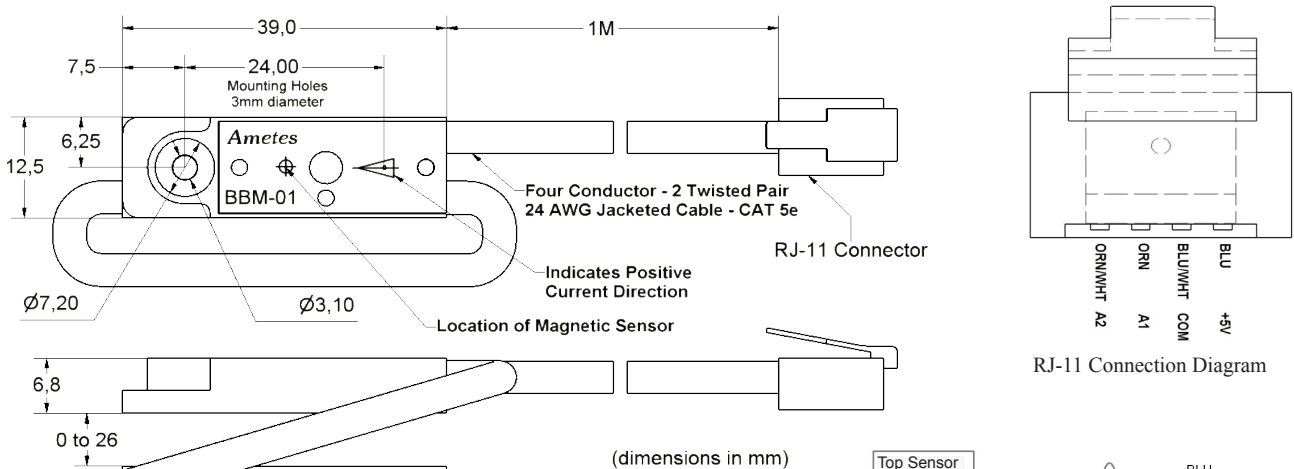
**Manufacturer:** Ametes AG  
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 955 Industrial Rd  
 San Carlos, CA 94070 USA  
 www.gmw.com • sales@gmw.com • +1 (650) 802-8292

Temperature			
Symbol	Parameter	Units	BBM-01
TA	Ambient Operating Temperature	°C	-40 to 85
TS	Ambient Storage Temperature	°C	-40 to 100

Mechanica			
Symbol	Parameter	Units	BBM-01
WR	Range in width of Bus Bar	mm	12 to 160
CL	Interconnecting cable length	mm	400
M	Mass including cable	g	37

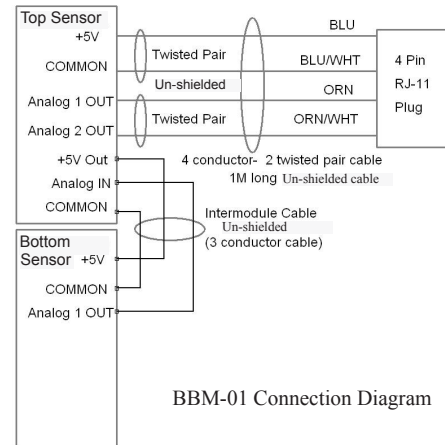
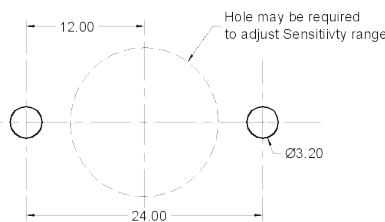
### BBM-01 Outline Drawing



### Recommended Mounting Hardware - 2ea Non Magnetic Screws, 316 SS per DIN 912-A4

BB Thickness	M3-0.5 Thread Length
1/8"	8mm Socket Head Screw
1/4"	12mm Socket Head Screw
1/2"	18mm Socket Head Screw
3mm	8mm Socket Head Screw
5mm	10mm Socket Head Screw
10mm	16mm Socket Head Screw

### Recommended Mounting Holes for Bus Bar Located in Center of Bus Bar



### Application Note:

The output sensitivity (mV/A) of the sensing system depends on the bus bar geometry. The BBM-01's has a nominal magnetic sensitivity of 560mV/mT, therefore the actual output voltage will depend on the magnetic field the bus bar creates for a given current. Application note AN\_BBM-01 (Bus Bar DC Current Sensor Design Guide) provides guidance for determining the relationship of the bus bar size and the BBM-01 output sensitivity. GMW can provide assistance in determining actual sensitivity for customers unique bus bar structure. Contact GMW technical support.

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