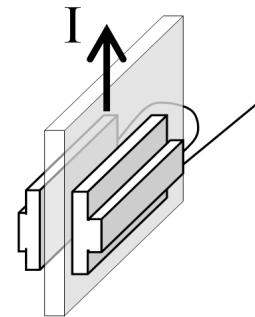
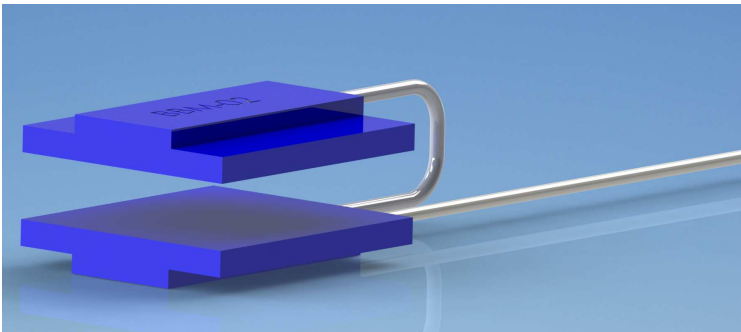


DESCRIPTION:

The bus-bar magnetic sensor module BBM-02 is the magnetic sensor part of a bus-bar current transducer. Attached to a rectangular cross-section current bus-bar, the BBM-02 enables contactless measurement of DC and AC currents in the bus-bar. The BBM-02 incorporates two Hall-effect magnetic field sensors, which shall be located at two opposite sides of a bus bar. The sensors generate an output voltage, which is proportional with the magnetic field produced by the electrical current carrying the bus-bar. The signals generated in the two sensors by external magnetic fields are mutually cancelled. The BBM-02 does not contain any ferromagnetic part, so it has no hysteresis. The offset and sensitivity of the BBM-02 are in-factory calibrated. The current sensitivity and the dynamic response of a current transducer based on the BBM-02 depend on the bus-bar geometry and the position of the BBM-02 relative to the bus bar.



FEATURES:

- For measuring DC & AC currents, the frequency bandwidth from DC up to 200kHz
- Small size, very compact and low profile mechanical package
- Easy to assemble structure: its installation does not require an interrupt of the circuit
- 5Vdc unipolar power supply
- Signal output electrically isolated from primary bus bar
- Differential output
- Clean recovery from very high transient overload

TYPICAL APPLICATIONS:

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

SENIS AG

Neuhofstrasse 5a, 6340 Baar, Switzerland
Web: www.senis.ch ; E-mail: current.sensors@senis.ch
Phone: +41 (44) 508 7029; Fax: +41 (43) 205 2638

North American Distributor: **GMW Associates**
955 Industrial Road, San Carlos, CA 94070, USA
Web: www.gmw.com; E-mail: sales@gmw.com
Phone: +1 (650) 802 8292; Fax: +1 (650) 802 8298

Rev. 2.6
August 2015
Page 1/4

ABSOLUTE MAXIMUM RATINGS ^{(1) (2)} :

In accordance with the absolute maximum rating system (IEC60134).

Symbol	Parameter	Min.	Typ.	Max.	Units	Remarks
T _{stg}	Storage Temperature	-40		+100	°C	
T _{amb}	Ambient Temperature	-40		+85	°C	
T _B	Busbar temperature	-40		+100	°C	
V _{SUP}	Supply Voltage	4.5	5.0	5.5	V _{dc}	
	Duration of output short circuit		1		s	
B	Magnetic Flux Density				T	No limit. The circuit cannot be damaged by magnetic overdrive.
V _D	Voltage for AC Isolation Test		5		kV _{rms}	
I _{OUT}	Continuous output current		± 55		mA	R _L = 50Ω

⁽¹⁾ Absolute Maximum Ratings" indicate limits beyond which damage to the device may occur. Operating Ratings indicate conditions for which the device is functional, but do not ensure specific performance limits.

⁽²⁾ The output may be shorted to ground or either power supply.

Stresses beyond those listed under "Absolute maximum ratings" may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

RECOMMENDED OPERATING CONDITIONS:

Symbol	Parameter	Min.	Typ.	Max.	Units	Remarks
T _{amb}	Ambient Temperature	-30	+25	+80	°C	
V _{cc}	Supply Voltage		+5		V _{dc}	
I _{OUT}	Output Current	-1		+1	mA	
C _L	Load Capacitance			1000	pF	

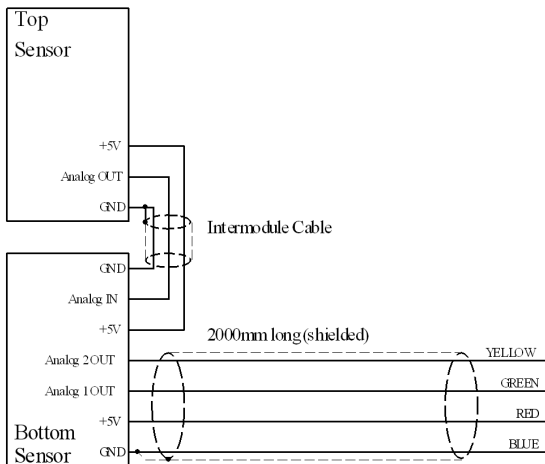
ELECTRICAL CHARACTERISTICS:

Symbol	Parameter	Min.	Typ.	Max.	Units	Remarks
V _{SUP}	Supply Voltage		5		V _{dc}	
I _{SUP}	Supply Current	30	35	40	mA	
V _{off}	DC offset voltage	2	10	25	mV	@ T=+25°C, B=0mT, I _{OUT} =0mA
V _{common}	Common (reference) Output Voltage		2.5		V	I _{OUT} =0mA V _{common} = V _{SUP} /2
BW	Bandwidth: DC to		200		kHz	@ -3dB
t _R	Response Time (from 10% to 90% of a step)			3	µs	1µs Input magnetic field rising/falling
S	Magnetic Sensitivity	300	350	420	mV/mT	@ +25°C
T _{CS} = ΔS/S·ΔT	Magnetic Sensitivity Temperature Drift		< ±0.02		mV/ mT·°C	I _{OUT} =0mA, T=-40°C to +100°C
T _{Coff} = ΔV _{off} /ΔT	Offset Temperature Drift		< ±0.6		mV/°C	B=0mT, I _{OUT} =0mA T=-40°C to +100°C
B _{FS}	Full Scale Magnetic Field Range	-13		13	mT	
B _L	Linear Magnetic Field Range	-10		10	mT	
NL	Non Lineariry			0.1	%	B = B _L
			0.2			B = B _{FS}
ΔB _{noise}	Input referred magnetic noise spectrum density (RMS)		80		µT _{p-p}	DC to 200kHz

MECHANICAL CHARACTERISTICS:

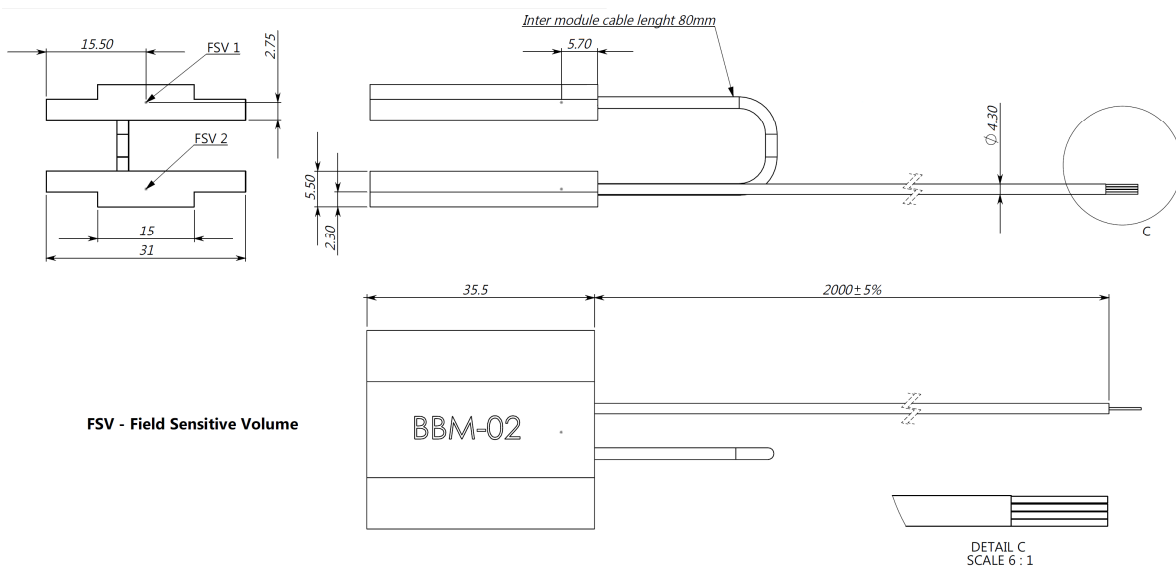
Symbol	Parameter	Min.	Typ.	Max.	Units	Remarks
m	Mass		15		g	Without cable
			60			Including cable
l _C	Intermodule cable length		80		mm	

CONNECTION DIAGRAM:



BBM-02 Connection Diagram

MECHANICAL DIMENSIONS (dimensions are in millimeters):



PACKAGING INFORMATION:

Housing of the bus-bar magnetic sensor module BBM-02 is made of Makrolon® 6265 (flame retardant, UL 94V-0/1.5 mm).

Fiberglass braided sleeve coated with silicone rubber with high dielectric strength (breakdown strength 3kV) is used for protecting cables.

The product is compliant with EU RoHS directives.

SENIS AG

Neuhofstrasse 5a, 6340 Baar, Switzerland
Web: www.senis.ch ; E-mail: current.sensors@senis.ch
Phone: +41 (44) 508 7029; Fax: +41 (43) 205 2638

North American Distributor: **GMW Associates**
955 Industrial Road, San Carlos, CA 94070, USA
Web: www.gmw.com; E-mail: sales@gmw.com
Phone: +1 (650) 802 8292; Fax: +1 (650) 802 8298

Rev. 2.6
August 2015
Page 4/4