

8B Insertable Module

MSR 231



This module is used as a carrier for two 8B modules. In addition, each channel has a 24 V supply voltage.

Over the diagnostic connector, the processed input signals can be measured.

Technical Data

Input stage

See 8B documentation.

The 8B module output signal (± 5 V) is fed to an ADC on the circuit board of the base. The specifications are as follows.

Analog channel specifications

Number of channels	2
Measurement range [Volt]	According to 8B module specification
Measurement range [Digit]	± 100000
Resolution [Volt]	50 μ V / Bit Output signal of the 8B modules (± 5 V)
Resolution [Bit]	16
Sensor break detection	According to 8B module specification
Conversion time per channel	≤ 25 μ s
Input filter	According to 8B module specification
Common mode range	According to 8B module specification
Input resistance	According to 8B module specification
Measurement accuracy (based on the final value)	According to 8B module specification, typically additionally $\pm 0.0205\%$
Status display	ERROR (red) (located on the base)
Converter	18-bit Serial SAR

List of maximum current consumption of 8B modules

8B module used	Current consumption	Note
Voltage input	25 mA	
PT100	25 mA	
Potentiometer	25 mA	
Current input	30 mA	
Thermal couple	30 mA	
Frequency input	45 mA	
Current output	100 mA	
Voltage output	120 mA	(No load : 55 mA)
Current transmitter	125 mA	
Strain gauge input	150 mA	(Without bridge supply: 110 mA)

A total of 8 modules can be mounted per base. The maximum total current per base is:

MSR 211 (Base) to HW version 1.0: 250 mA
from HW version 1.1: 350 mA

Reference output

According to the 8B module specification (Excitation)

An external supply cannot be connected, rather the modules power supply MUST be used.

Supply voltage

0 ... 60 °C

Output voltage	+23.343 V ... 24.330 V ... 25.127 V
Output current / channel	100 mA maximum, short-circuit proof
Total current / base module	Maximum 800 mA
Galvanic isolation	500 V DC

Diagnostic connector

Voltage range	±5 V
Load capacity	10 mA
Short-circuit proof	Yes

Miscellaneous

Article number	18-001-231
Hardware version	1.x

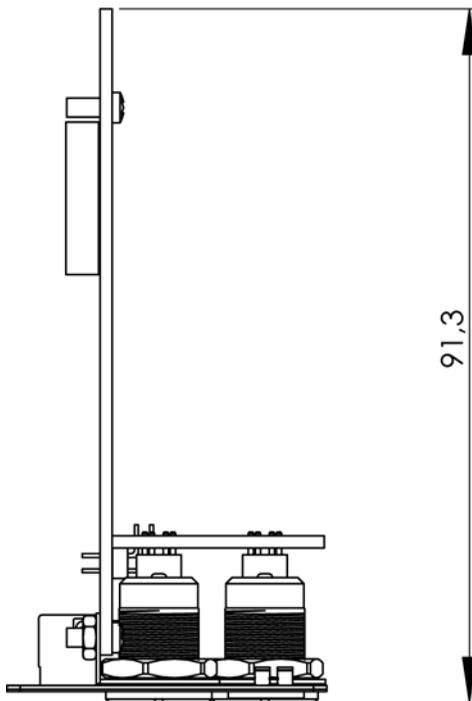
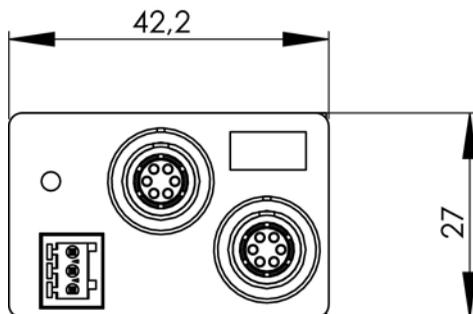
Environmental conditions

Storage temperature	-30 – +85 °C	
Operating temperature	0 – +60 °C	
Humidity	0 - 95 %, uncondensed	
EMV stability	According to EN 61000-6-2:2001 (industrial area)	
Shock resistance	EN 60068-2-27	150 m/s ²
Protection Type	EN 60529	IP 00

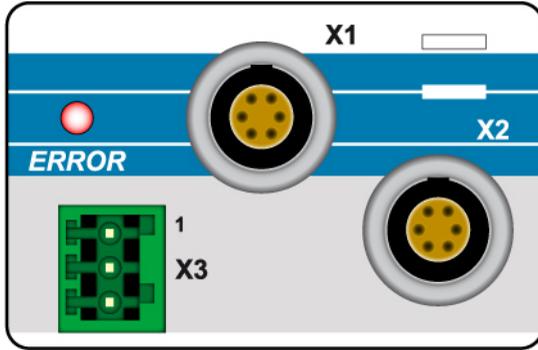
Additional specifications for the respective 8B modules apply.

0 – 5 V 8B modules can also be used but have only half the resolution!

Mechanical Dimensions

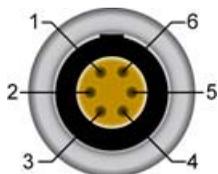


Connector Layout



X1: analog input 1

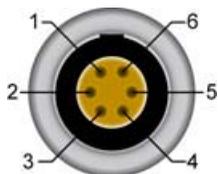
Lemo 6-pin (EGG.1B.306.CLN)



Pin	Function with EXC
1	Analog signal 1+
2	Analog signal 1-
3	EXC 1+
4	EXC 1-
5	+24 V power supply
6	GND

X2: analog input 2

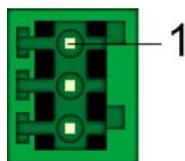
Lemo 6-pin (EGG.1B.306.CLN)



Pin	Function
1	Analog signal 2+
2	Analog signal 2-
3	EXC 2+
4	EXC 2-
5	+24 V power supply
6	GND

X3: Diagnostic

Phoenix 3-pin (MC0,5/3-G-2,5THT)



Pin	Function
1	Analog input 1
2	Analog input 2
3	AGND

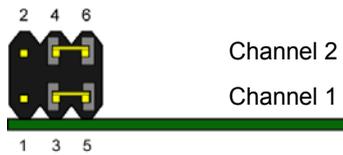
X4: Jumper: Function with or without cold junction compensation

With cold conjunction compensation:

Without cold conjunction compensation:



8B37, 8B47



Channel 2

Channel 1

All other 8B modules

Applicable connectors

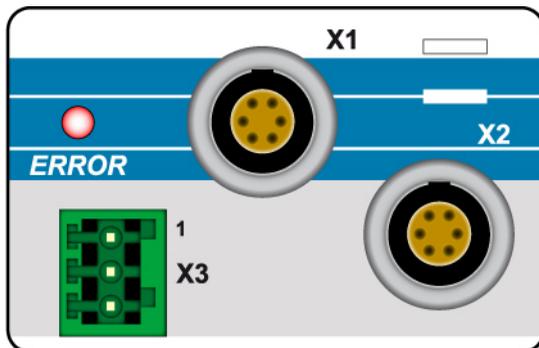
X1 - X2: LEMO FGG.1B.306.CLADxx

X3: PHOENIX FK-MC 0,5/3-ST-2,5

Applicable connection marker

Weidmüller MultiFit MF 10/5 MC CABUR
Order number: 1854510000

Status display



LED number	LED color	Definition
1	RED	Over current or short in the 24 V supply.

Wiring Guidelines

The signals recorded by the analog modules are very small, as compared to the digital signals. To ensure error-free operation, a careful wiring method must be followed.

- The 0 V connection of the supply voltage must be connected with the 0 V assembly point over the shortest route possible.
- The lines connected to the inputs of the analog signals must be as short as possible and parallel wiring to digital signal lines must be avoided.
- The signal lines should be 2, 3 or 4-pin shielded wires.