



BeMoS one | Data sheet

EFFECTIVE JUNE 2024

The powerful BeMoS one electronics platform is a fundamental component of many of our products.

In our pre-configured product packages, BeMoS one is combined with suitable sensors and components to monitor a wide variety of potential causes of failure on rotating equipment. BeMoS one enables high-precision measurement results through the use of our patented ultrasonic measurement technology.



Operating conditions

- Operating temperature: 10 °C to 50 °C
- Storage and transport temperature: -20 °C to 60 °C
- Relative humidity (without condensation): 80 %

Electrical data

- Supply voltage U_S : 12 to 24 VDC
- Note: To ensure signal quality, the controller should be grounded via (-) contact
- Max. power consumption: 10 W
- Appliance class: III

Housing

- Height x width x depth: 124 x 80 x 54 mm
- Note: Provide sufficient space in the switch cabinet for connecting sensor cables and the USB storage device if applicable
- Weight: 510 g
- Assembly: Mounting rail 35 mm
- Material: aluminum, anodized (EN AW-6060 T66)
- Ingress protection: IP20
- Mark of conformity: CE

Interfaces

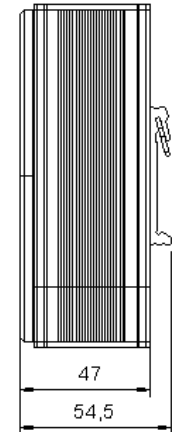
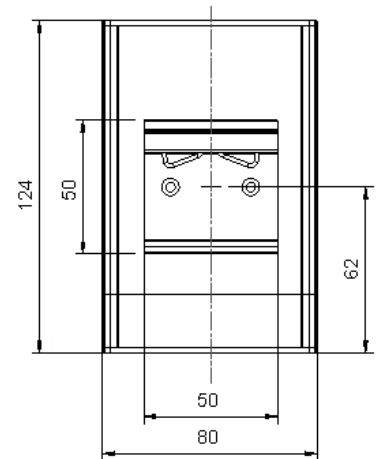
- Ethernet 100BASE-TX
- USB-A 2.0 (5 VDC, 750 mA)
- 2x output 4 bis 20 mA (optional)
- Trigger input and output 3.3 V (optional)
- Communication protocols: TCP/IP, HTTP(s), Modbus TCP (Server), OPC-UA (Server), MQTT (Client)

Isolated sensor interfaces

- Supply voltage: 24 VDC / 50 mA (floating)
- 1x input 4 to 20 mA (2 or 3 conductor, 16 Bit, 2 Hz, Isolation 500 V)
- 1x input 0 to 10 V (2 conductor, 16 Bit, 2 Hz, 10 k Ω , Isolation 500 V)
- 1x input digital 24 V (2 conductor, \leq 10 mA @ 24 V, max. 30 V, signal (0) DC -3 - 5 V, signal (1) DC 15 - 30 V, frequency counter: 1 Hz - 750 kHz, min. hold time 500 ns, Isolation 1000 V)
- 1x output digital floating (2 conductor, N/O, switching voltage max. 80 V, switching current max. 50 mA, rise and fall time typ. (10 V) 3 μ s, Isolation 1000 V)

Ultrasonic sensor connection

- M12, 8-pin
- 2x ODU, 6-pin (optional)
- Terminal block, 14-pin (optional)





IEPE (optional)

Sensor connection

- Connections: 8x SMB (multiplex)
- Channels: 3 (parallel)
- Max. sample rate: 5 ksps (with 3 channels), 10 ksps (with 1 channel)
- Sensor supply: 0 VDC, 5 VDC, 25 VDC
- Current source: 0.8 mA, 4 mA, 10 mA
- Input voltage: max. 20 V_{pp}
- Short-circuit detection: $< 0.1 \times U_s$
- Sensor detection: $< 0.9 \times U_s$

Signal processing

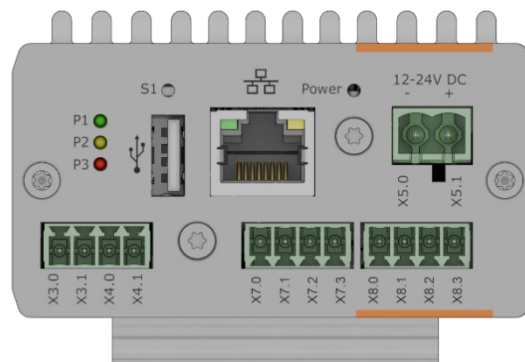
- Measuring range: $\pm 0.1 \text{ V}$, $\pm 1 \text{ V}$, $\pm 5 \text{ V}$, $\pm 10 \text{ V}$
- Frequency range: 1.5 Hz to 20 kHz
- Tolerance: $\pm 5 \%$ (5 Hz to 20 kHz)
- Resolution: 16 Bit
- Input impedance: $> 1 \text{ M}\Omega$

Software

- KPIs: RMS acceleration, RMS speed, RMS displacement, maximum absolute value, effective value (10 to 1000 Hz), kurtosis factor, crest factor, frequency band analysis
- Lines: 2048, 4096, 8192
- Bandwidth FIR-Filter: 2.5 kHz, 5 kHz (depending on sampling rate)

Terminal assignment

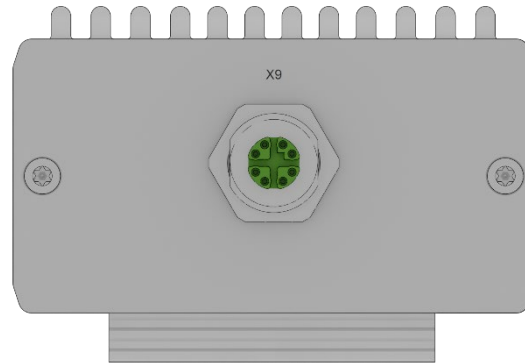
Front



X5.0	GND	X7.0	U_{in}
X5.1	U_s (12 - 24 V)	X7.1	GND_{iso}
S1	Reset	X7.2	I_{in}
Power	LED supply	X7.3	$24 V_{iso}$
P1	LED green	X8.0	D_{out-}
P2	LED yellow	X8.1	D_{out+}
P3	LED red	X8.2	D_{in-}
X3.0	$U_{ext} 1$ / trigger in	X8.3	D_{in+}
X3.1	$I_{out} 1$ / GND		
X4.0	$U_{ext} 2$ / trigger out		
X4.1	$I_{out} 2$ / GND		

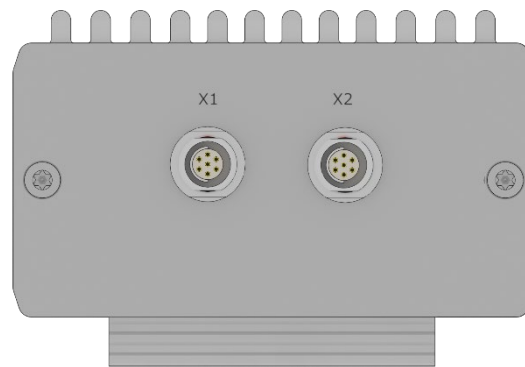


Back (M12, 8-pin)



X9 | Ultrasonic sensor

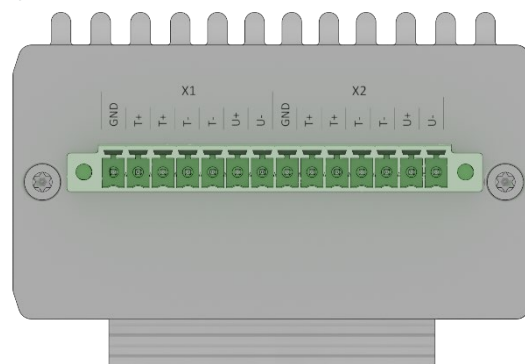
Back (2x ODU, 6-pin)



X1 | Ultrasonic sensor 1

X2 | Ultrasonic sensor 2

Back (terminal block, 14-pin)

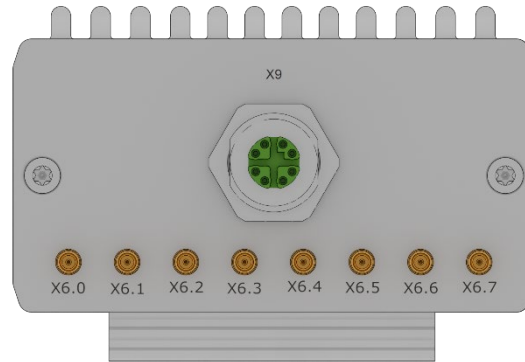


X1.0	Shield
X1.1	RTD _{r+}
X1.2	RTD _{u+}
X1.3	RTD _{r-}
X1.4	RTD _{u-}
X1.5	Ultrasonic+
X1.6	Ultrasonic -

X2.0	Shield
X2.1	RTD _{r+}
X2.2	RTD _{u+}
X2.3	RTD _{r-}
X2.4	RTD _{u-}
X2.5	Ultrasonic +
X2.6	Ultrasonic -



Back (IEPE)



X6.0 ... | IEPE sensor 1 - 8
X6.7 |