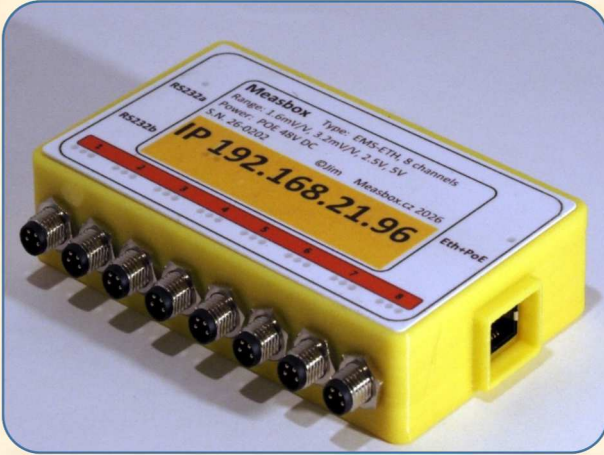


# Measuring amplifier Measbox

## Type EMS-ETH

Datasheet



### Description

The EMS-ETH measuring amplifier (module) is used to measure signals from strain gauge bridges (electrical load cells, strain scales, measurement of mechanical stress on structures) and to measure voltage signals (measuring potentiometers, acceleration sensors with voltage output). The module has 8 differential analog inputs with separately adjustable sensitivity. The sampling frequency is adjustable and common for all analog channels. Furthermore, the module is equipped with two RS232 serial line input for connecting selected types of sensors (GPS receiver, inclinometer, pressure sensor, etc.). All inputs are galvanically isolated from the power supply circuits. Data transfer is based on the standard TCP/IPv4 network protocol, the UDP protocol is additionally used. The module is powered and data is transferred via a standard network cable (Ethernet 100BASE-TX, POE IEEE 802.3af). Setting the module parameters and the actual measurement is performed using the ADclient measuring program (MS Windows). This program can simultaneously operate up to 32 measuring modules. The measured data from all channels within one EMS-ETH module are synchronous, data from different modules are synchronous within the TCP/IP protocol latency - the time shift between measured data from different modules is typically in the order of units to tens of ms. Individual channels are connected to the module with a standard 4-pin M8 connector. The status of each channel is indicated by 3 LEDs. The module is equipped with magnetic grips.

### PARAMETERS

Number of analog inputs .....	8
Number of digital inputs (RS232).....	2
Measuring range - strain gauges ...	1.6, 3.2 mV/V
Measuring range – voltage .....	2.5, 5 V
Input resistance.....	1 MΩ
Sampling frequency .....	4000 – 16000 Hz
RMS noise .....	0.013% of measuring range
Bandwidth (-3dB).....	0 – 2400 Hz
RS232 speed .....	9.600 – 115.2 kbps
Connection to superior syst... 100BASE-TX, RJ45	
Protocol .....	TCP/IPv4, UDP
Max. number of connected clients .....	4
Supply voltage .....	48 – 57 V DC (POE)
Power consumption (without sensors) .....	2 W
Sensor power supply .....	5 V
Max. total sensor current .....	0.5 A
Analog input connector .....	M8 4pin (M)
RS232 connector .....	M8 4pin (F)
Degree of protection .....	IP20
Ambient operating temperat. range	-20 °C .+50°C
Dimensions .....	124 x 75 x 25 mm
Weight .....	190 g

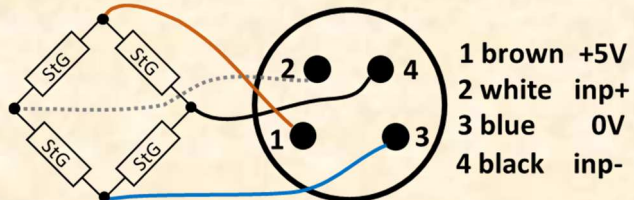
# Measuring amplifier Measbox

## Type EMS-ETH

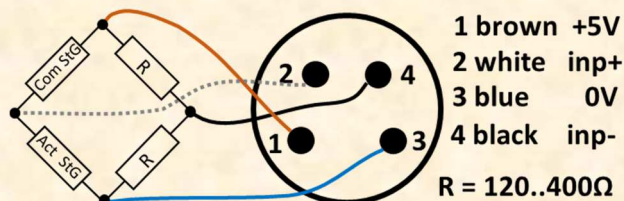
### Connectors

Sensor connection – analog inputs (connector M8, 4 pins, male)

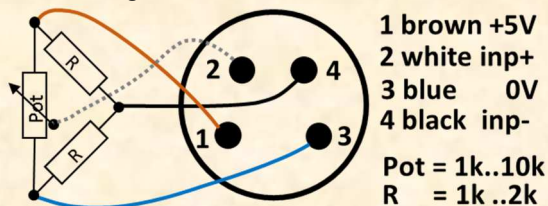
Strain gauges – full bridge



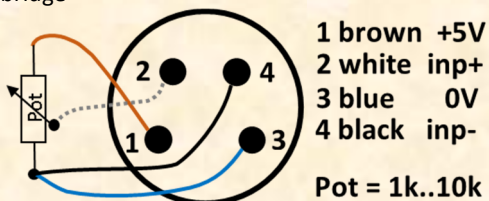
Strain gauges – half bridge



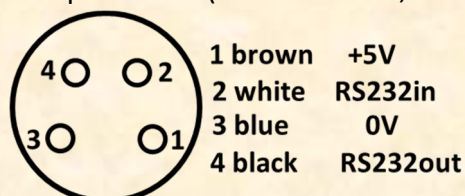
Potentiometer - full bridge



Potentiometer - half bridge



Sensor connection – digital input RS232 (connector M8, female)



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