

LOAD CELLS SIGNAL CONDITIONER EMS169



Special features

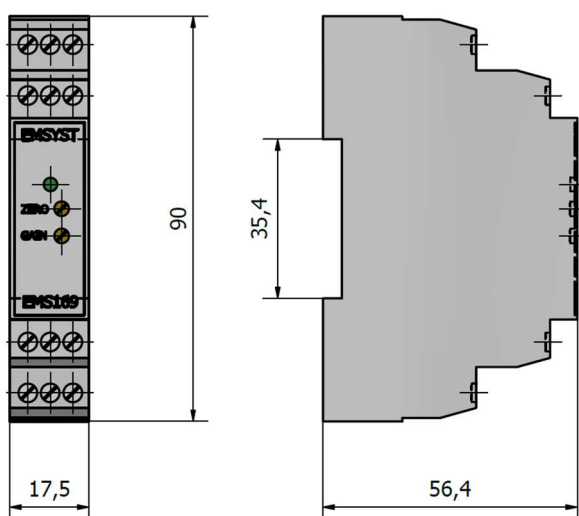
- Input: load cell (resistance bridge)
- 3 switchable voltage output ranges
- 2 switchable current output ranges
- 2 switchable filter cut-off frequencies
- Galvanic power supply isolation
- Adjustment via DIP switches and potentiometers
- Plastic enclosure for mounting on DIN rails

Specifications

Parameter	Value	Units
Input range (Strain gauge sensor sensitivity)	0.8 ... 2.3	mV/V
Sensor excitation		
– Voltage	7	VDC
– Min. impedance	300	Ω
Voltage Output		
– Range 1 (standard)	0 ... ± 10	V
– Range 2	0 ... ± 5	V
– Range 3 (with zero offset)	5 ... ± 5	V
– Min. load impedance	2	k Ω
Current output		
– Range 1 (standard)	4...20	mA
– Range 2 (with zero offset)	12 ... ± 8	mA
– Max. load impedance	600	Ω
Thermal drift		
– On input voltage offset	1	$\mu\text{V} / ^\circ\text{C}$
– On sensitivity	150	ppm / $^\circ\text{C}$
Active filter, 2nd order		
– Cut-off frequency 1 (Low)	20	Hz
– Cut-off frequency 2 (High)	1	kHz
Power supply		
– Range	24 \pm 10 %	VDC
– Max. current consumption	200	mA
Temperature range		
– Operating	- 10 ... + 50	$^\circ\text{C}$
– Storage	- 40 ... + 85	$^\circ\text{C}$
Degree of protection	IP20	

2022-09

Outline dimensions (mm)



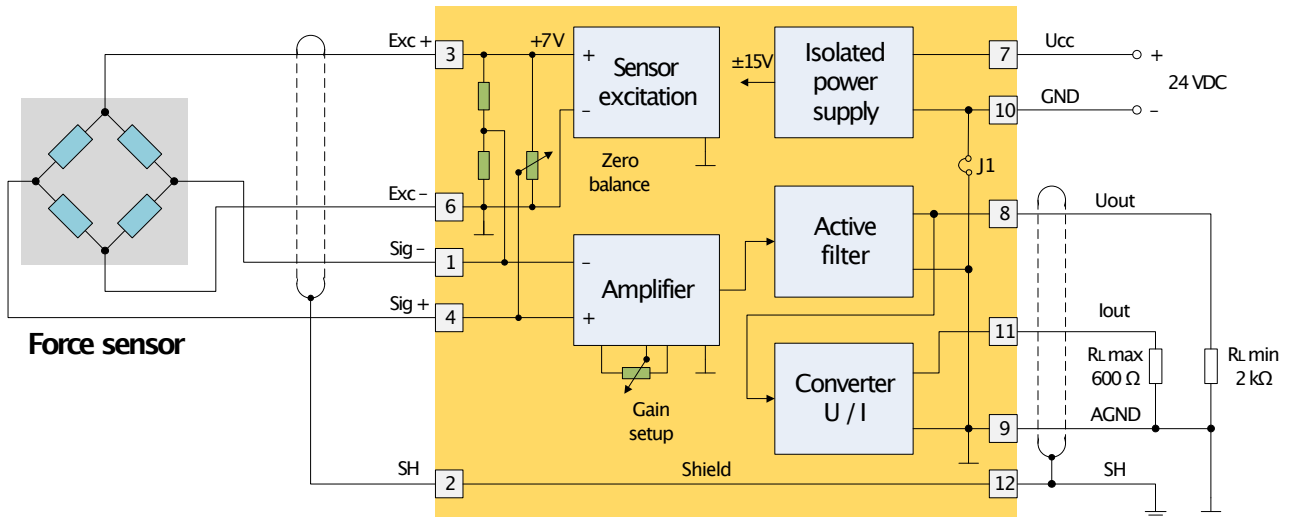
Terminals layout



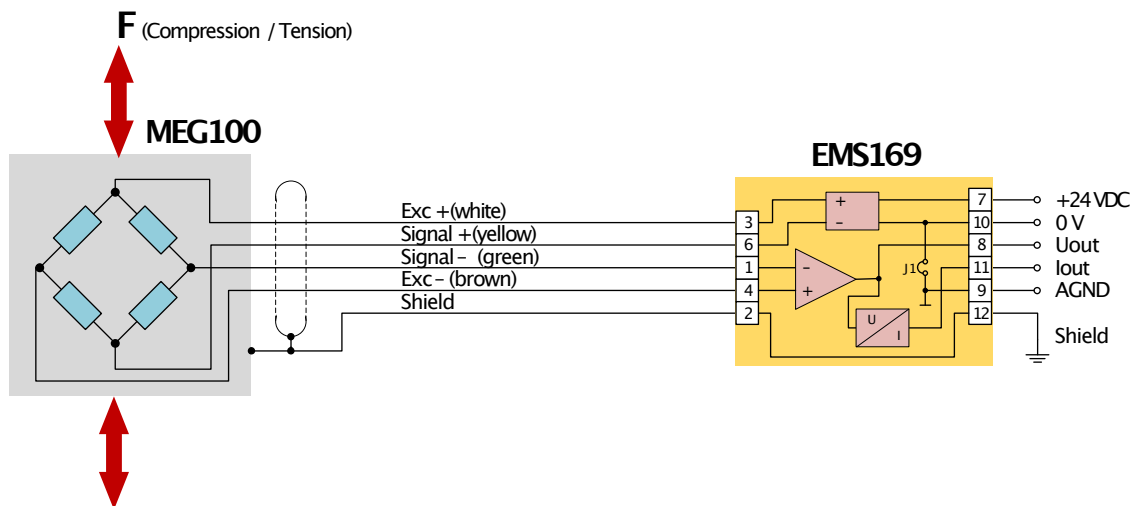
Terminal functions

Terminal No.	Title	Function
1	Sig -	Measurement signal negative
2	SH	Shield (terminal 2 is connected to terminal 12)
3	Exc +	Excitation voltage for sensor (+7 V)
4	Sig +	Measurement signal positive
5		Not connected
6	Exc -	Excitation voltage for sensor (0 V) Terminal 6 is connected to terminal 9 (AGND)
7	Ucc	Supply voltage (+24 VDC \pm 10 %)
8	Uout	Voltage output, min load 2 k Ω
9	AGND	Analog ground If J1 = ON, terminal 9 is connected to terminal 10
10	GND	Supply voltage (0 V) If J1 = ON, terminal 9 is connected to terminal 10
11	Iout	Current output, max load 600 Ω
12	SH	Shield (terminal 2 is connected to terminal 12)

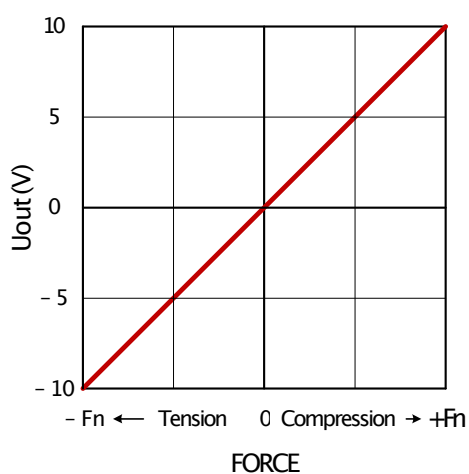
Principle diagram of EMS169



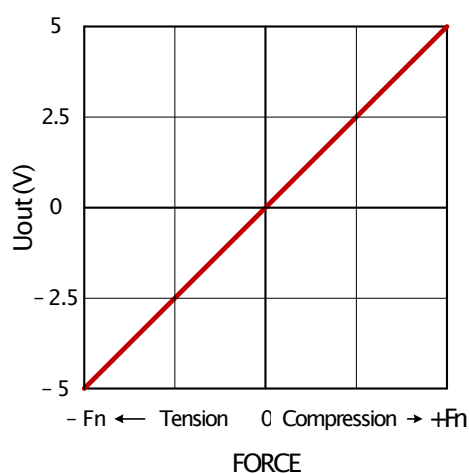
Example of connection to the MEG100 force sensor



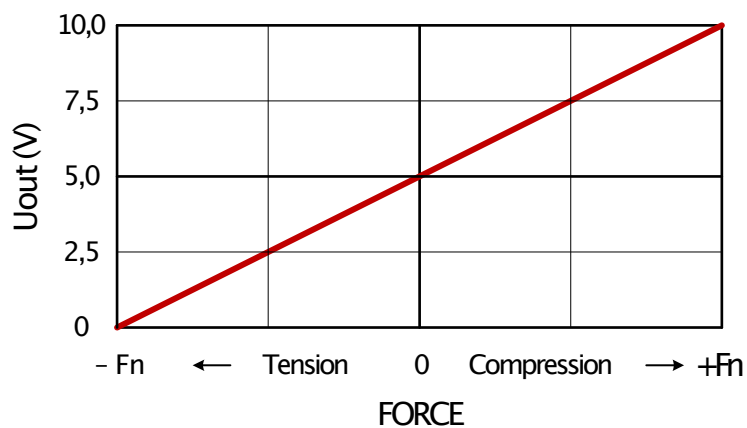
Output characteristics for different configurations



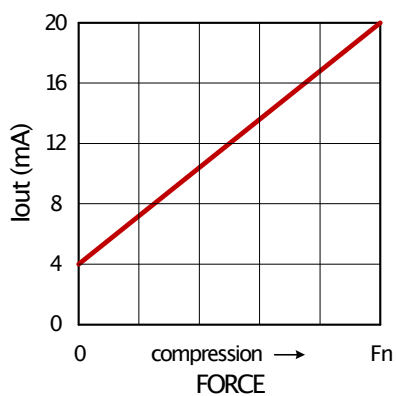
Voltage output 0 ± 10 V



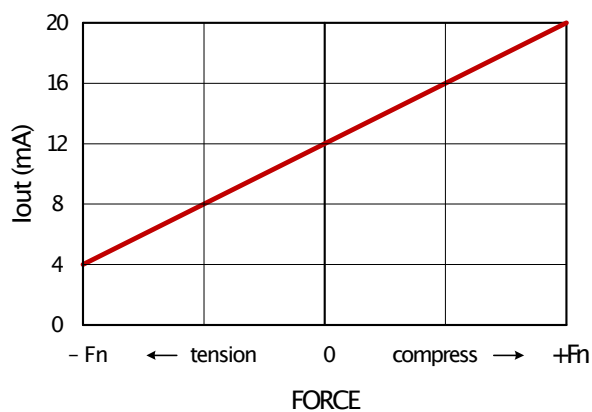
Voltage output 0 ± 5 V



Voltage output 5 ± 5 V (Zero offset 5 V)



Current output 4 ... 20 mA



Current output 12 ... 8 mA
(Zero offset 12 mA)