EMSYST®

SHEAR-WEB LOAD CELL
WITH BUILT-IN SIGNAL CONDITIONER EMS51-U, EMS51-I

Special features

- Mechanical design identical to **EMS50** type
- Direction of load COMPRESSION / TENSION
- Built-in signal conditioner with voltage or current output
- Model of sensor:
  - **EMS51- U** – with voltage output
  - **EMS51- I** – with current output
- Power supply: **+ 5 … + 24 VDC**

Specifications

Rated capacity (F_n)	0.1; 0.2; 0.5 1; 2; 5	10; 20; 50	100; 200; 500	kN
Overload - *Safe* - *Ultimate* - *Permanent static load* [1] - *Dynamic load* [1]		130 150 75 50		% F_n % F_n % F_n % F_n
Voltage output (model **EMS51-U**) [2,3,5] - *Standard (V_{SUP} = 5 V)* - *Standard (V_{SUP} = 24 V)*		2.5 ... 4.5 2 ... 10		V V
Min. load impedance		20		kΩ
Current output (model **EMS51- I**) [2,4,5] - *Standard (V_{SUP} = 24 V)*		4 ... 20		mA
Max. load impedance		500		Ω
Power Supply (V_{SUP}) - *Range* - *Current consumption (Max)*		4.9 … 27 40		VDC mA
Cut – off frequency (– 3 dB)		0 … 200		Hz
Max error - *Non-linearity* - *Hysteresis*	0.25 0.25	0.5 0.5	1.0 1.0	% F.S. % F.S.
Temperature effect - *On zero* - *On output*		0.15 0.15		% F.S./10 °C % F.S./10 °C

Notes:
1 Recommended value
2 The sensor has only voltage or current output.
3 At the voltage output, the supply voltage of the sensor must be at least 0.5 V higher than the maximum output voltage ($V_{SUP} \geq V_{OUT\_MAX}$ + 0.5 V).
4 For current output, the sensor supply voltage must be in the range V_{SUP} = 12 ... 27 V
5 After agreement with the manufacturer, it is possible to set another output.

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Operating conditions and design

Temperature range - *Nominal* - *Operating*	 0 ... + 50 – 10 ... + 50	 °C °C
Protection	IP54	
Body material - *0.1; 0.2; 0.5 kN* - *1; 2; 5; 10; 20; 50; 100; 200; 500 kN*	 Aluminium Stainless steel	
Cable [4] - *Type* - *Length*	 LifYDY 7 x 0.05 2	 m

Notes:
6 Only 3 wires are accessible, the others are for factory settings used

How to order

Common formula for ordering: ***EMS41-U/I(signal conditioner output range) – force range***

- Sensor type with type of output:
  - ***EMS51-U*** – voltage output
  - ***EMS51-I*** – current output

- Signal conditioner voltage output types:
  - 2.5 – 4.5 V
  - 2 – 10 V

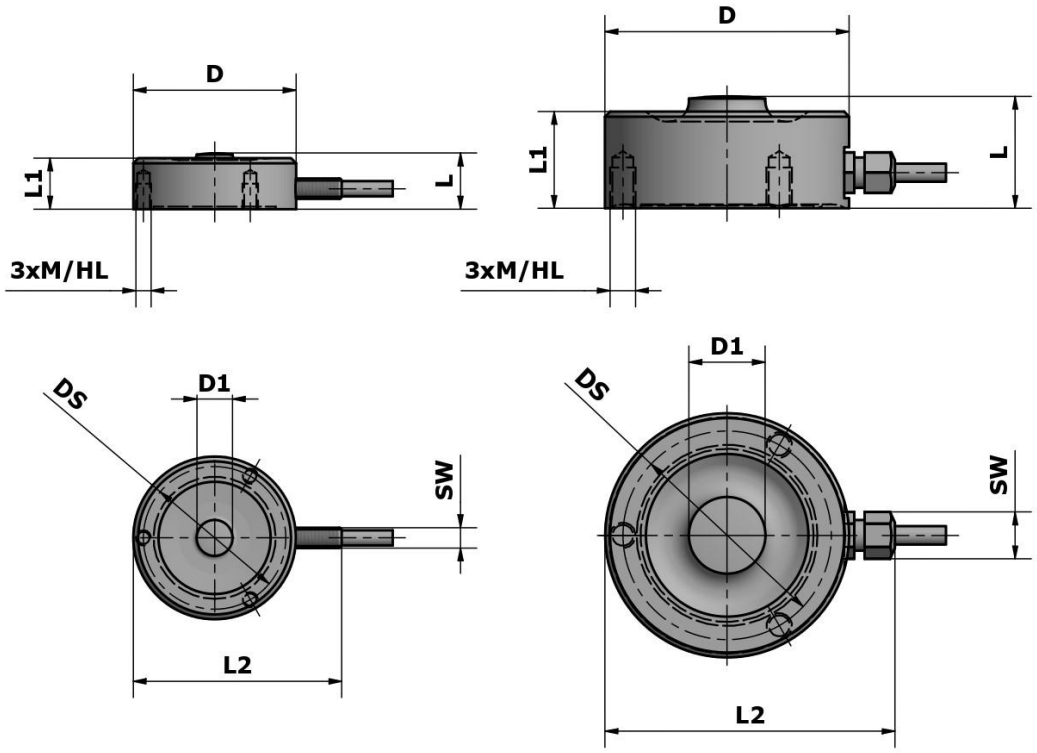
- Signal conditioner current output types:
  - 4 – 20 mA

- Measured force range (kN): 0.1; 0.2; 0.5; 1; 2; 5; 10; 20; 50; 100; 200; 500

20 kN sensor with voltage output 2 – 10V example:
EMS51-U (2 – 10V) – 20kN

50 kN sensor with current output 4 – 20 mA example:
EMS51-I (4 – 20mA) – 50kN

Outline dimensions

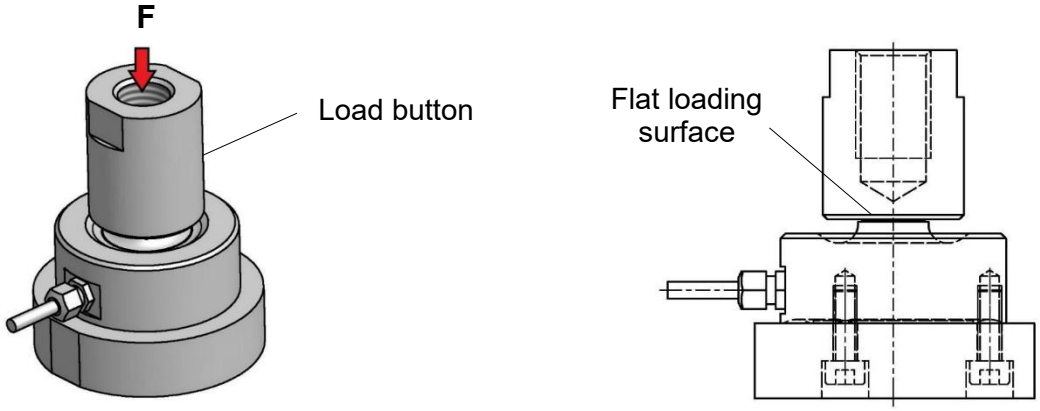


0.1 … 5 kN

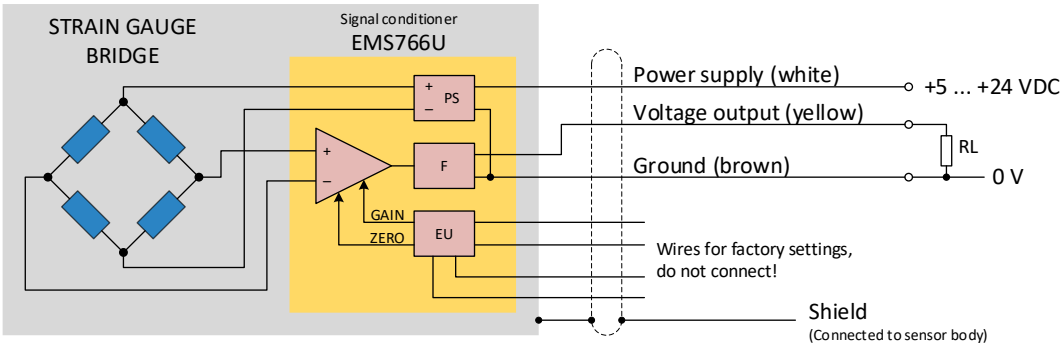
10 … 500 kN

F_n [1] (kN)	Dimensions in mm									
	D	DS	D1	L	L1	L2	SW	M / HL	Mass kg	Deflection @ F_n (µm)
0.1	32	28	7	11	10	40	Φ4	M3 / 5	0.04	30
0.2	32	28	7	11	10	40	Φ4	M3 / 5	0.04	30
0.5	32	28	7	11	10	40	Φ4	M3 / 5	0.04	30
1	32	28	7	11	10	40	Φ4	M3 / 5	0.07	30
2	32	28	7	11	10	40	Φ4	M3 / 5	0.07	30
5	32	28	7	11	10	40	Φ4	M3 / 5	0.07	30
10	36	32	8	16	15	44	8	M3 / 5	0.10	50
20	40	35	10	19	17	50	8	M4 / 6	0.14	50
50	48	41	15	22	19	58	8	M5 / 8	0.22	60
100	60	50	20	26	22	70	11	M6 / 10	0.43	100
200	74	61	28	31	26	84	11	M8 / 12	0.80	100
500	110	87	44	42	36	120	11	M10 / 16	2.50	150

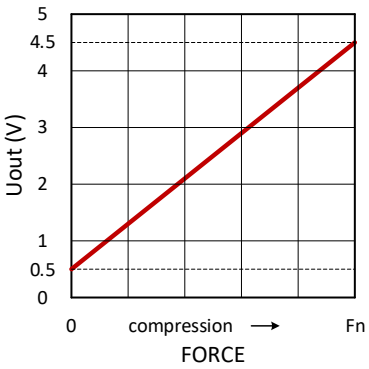
Recommended installation



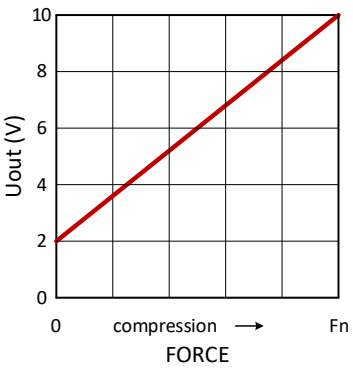
Wiring diagram EMS51- U, voltage output



Output characteristics, voltage output

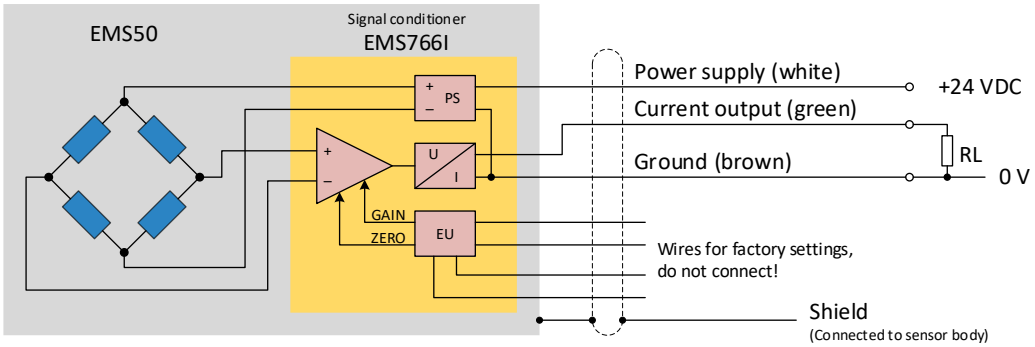


Output 0.5 ... 4.5 V

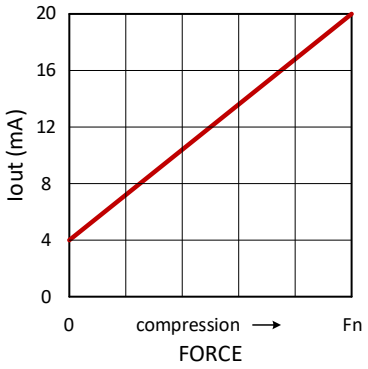


Output 2 ... 10 V

Wiring diagram EMS51- I, current output



Output characteristic, current output



Output 4 ... 20 mA