



Special features

- Mechanical design identical to **EMS50** type
- Built-in signal conditioner, model of sensor:
 - **EMS51-U** – with voltage output
 - **EMS51-I** – with current output
- Power supply: **+24 VDC**
- Application:
 - Industry
 - Testing machines
 - Laboratory

Specifications

Rated capacity (F _n)	0.1; 0.2; 0.5 1; 2; 5	10; 20; 50	100; 200; 500	kN
Overload				
- Safe	130			% F _n
- Ultimate	150			% F _n
- Permanent static load ¹	75			% F _n
- Dynamic load ¹	50			% F _n
Voltage output (model EMS51-U) ²				
- Standard	2 ... 10			V
- Customer design ³	0.5 ... 10			V
Min. load impedance	2			kΩ
Current output (model EMS51-I) ²				
- Standard	4 ... 20			mA
- Customer design ³	1 ... 20			mA
Max. load impedance	500			Ω
Power Supply				
- Range	24 ± 10 %			VDC
- Current consumption (Max)	40			mA
Max error				
- Non-linearity	0.25	0.5	1.0	% F.S.
- Hysteresis	0.25	0.5	1.0	% F.S.
- Creep (30 min)	0.1	0.1	0.1	% F.S.
Temperature effect				
- On zero	0.15			% F.S./10 °C
- On output	0.15			% F.S./10 °C

Notes:

1 Recommended value

2 The sensor has only voltage or current output

3 After agreement with the manufacturer, it is possible to set another output in the specified range

Operating conditions and design

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

Notes:

⁴ 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 – 10 V
 - 2 – 6 – 10 V (zero shifted to 6 V)
 - Custom – define desired voltage output

- Signal conditioner current output types:
 - 4 – 20 mA
 - 4 – 12 – 20 mA (zero shifted to 12 mA)
 - Custom – define desired current output

- 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 with shifted zero example:

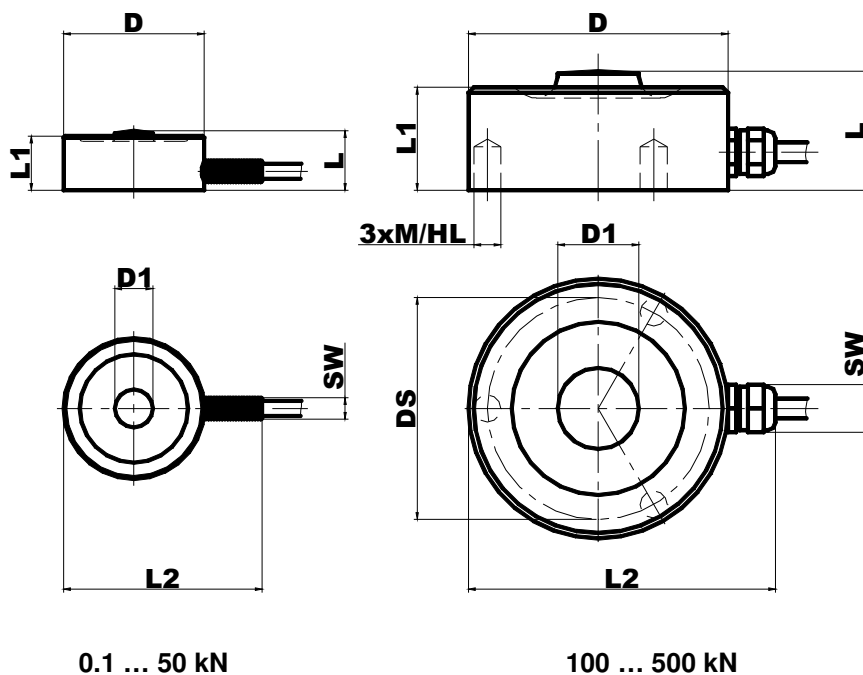
EMS51-I (4 – 12 – 20mA) – 50kN

10 kN sensor with custom voltage output. Output description: 3V output when the sensor is unloaded, 5V output at full force in the force direction of compression and 1V output at full force in the force direction of tension.

EMS51-U (1 – 3 – 5V) – 10kN

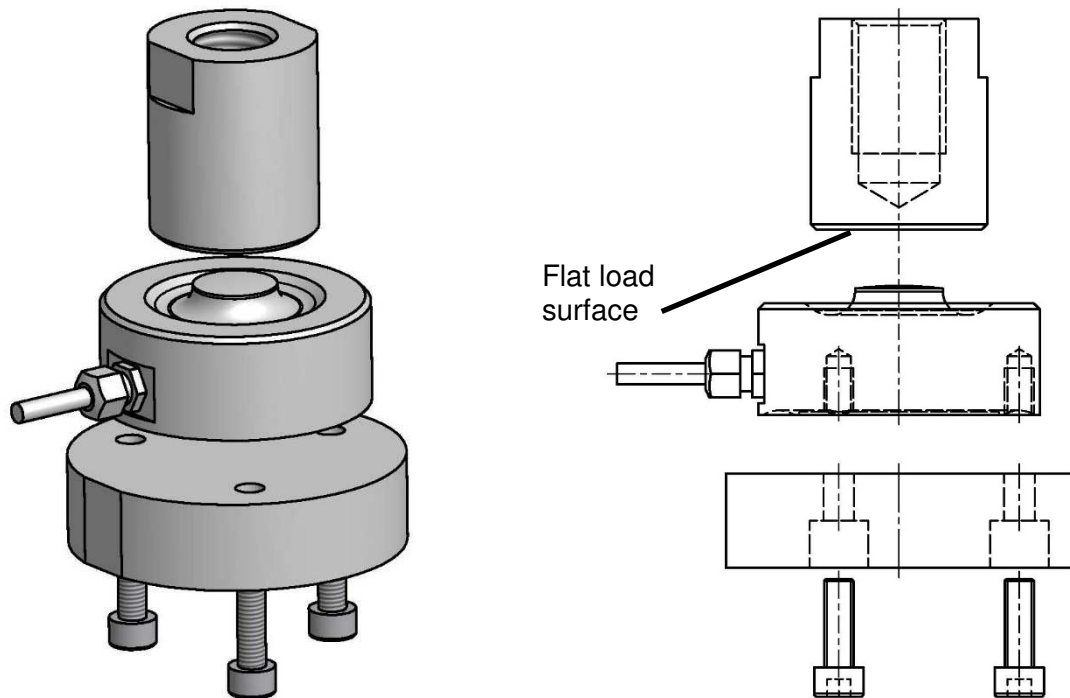
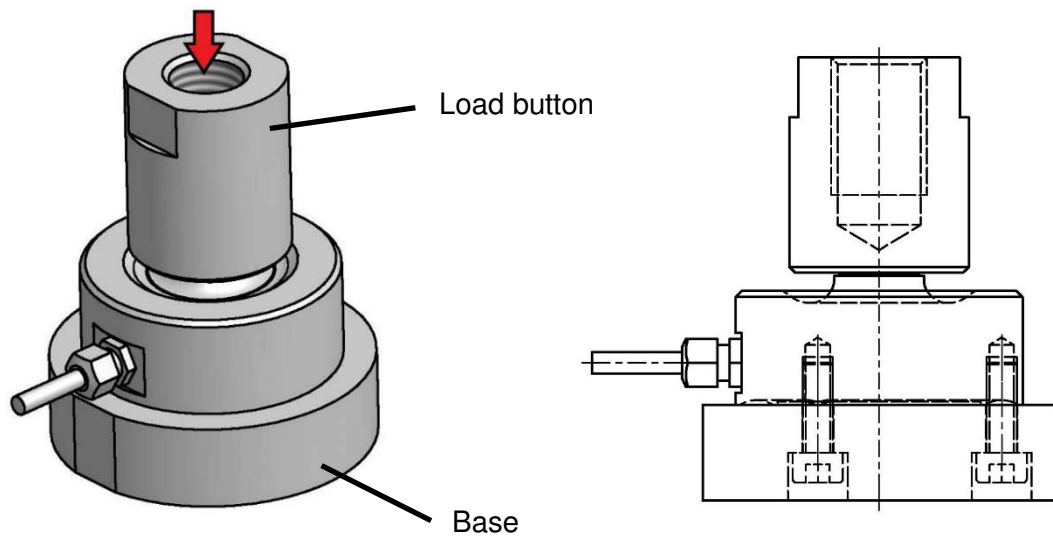
Note: Always consult your desired custom output range with the manufacturer.

Outline dimensions

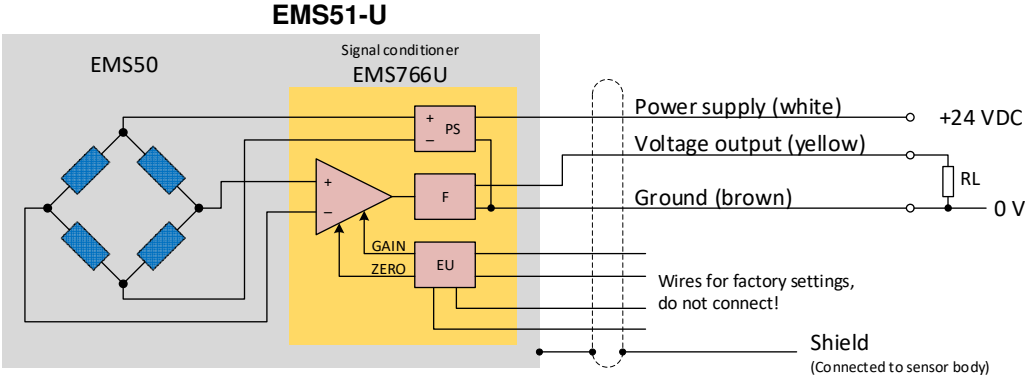


F _n ¹ (kN)	Dimensions in mm									
	D	DS	D1	L	L1	L2	SW	M / HL	Mass kg	Deflection @ F _n (μm)
0.1	32	28	7	11	10	40	Φ4	M3 / 5	0.04	30
0.2	32	28	7	11	10	40	Φ4	M3 / 5	0.04	30
0.5	32	28	7	11	10	40	Φ4	M3 / 5	0.04	30
1	32	28	7	11	10	40	Φ4	M3 / 5	0.07	30
2	32	28	7	11	10	40	Φ4	M3 / 5	0.07	30
5	32	28	7	11	10	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

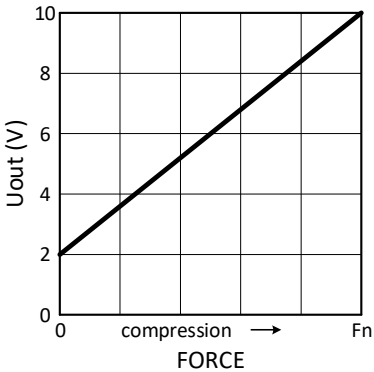
Recommended installation, direction of load COPRESSION



Wiring diagram, EMS51-U (voltage output)

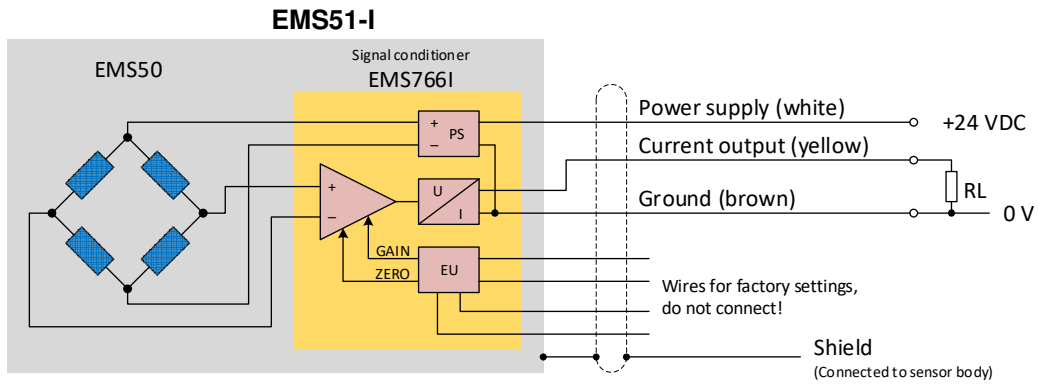


Output characteristic

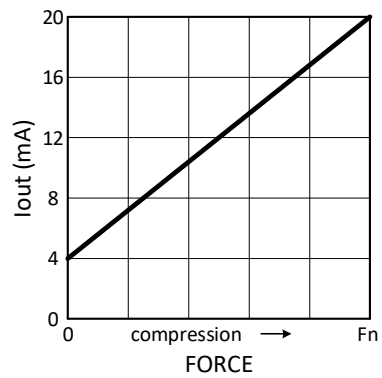


Load compression, output 2 ... 10 V

Wiring diagram, EMS51-I (current output)



Output characteristic



Load compression, output 4 ... 20 mA