



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 | 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) ^{2,3,5} | | | | |
| - Standard (V _{SUP} = 5 V) | 2.5 ... 4.5 | | | V |
| - Standard (V _{SUP} = 24 V) | 2 ... 10 | | | 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 | 4.9 ... 27 | | | VDC |
| - Current consumption (Max) | 40 | | | mA |
| Cut – off frequency (– 3 dB) | 0 ... 200 | | | Hz |
| Max error | | | | |
| - Non-linearity | 0.25 | 0.5 | 1.0 | % F.S. |
| - Hysteresis | 0.25 | 0.5 | 1.0 | % 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 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} ≥ 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.

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

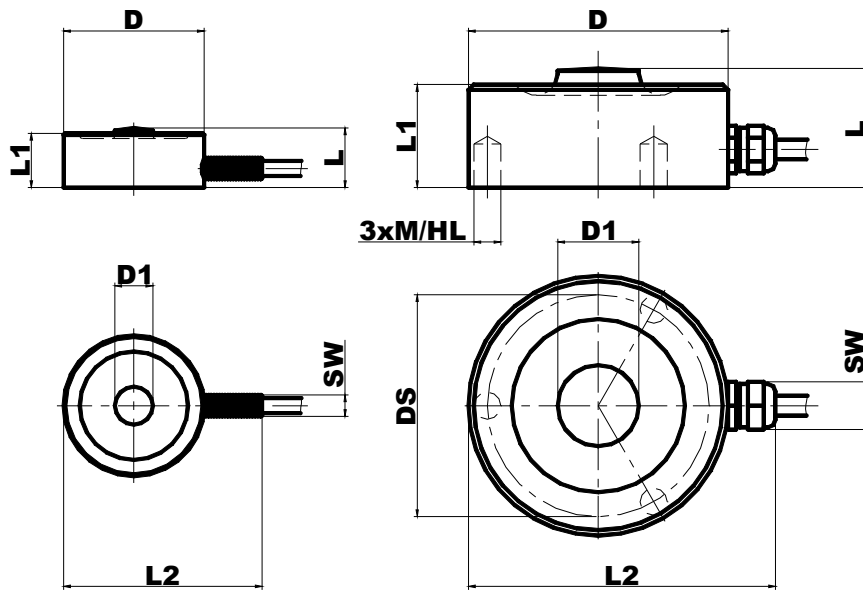
20 kN sensor with voltage output 2 – 10V example:

EMS51-U (2 – 10V) – 20kN

50 kN sensor with current output 4 – 20 mA example:

EMS51-I (4 – 20mA) – 50kN

Outline dimensions

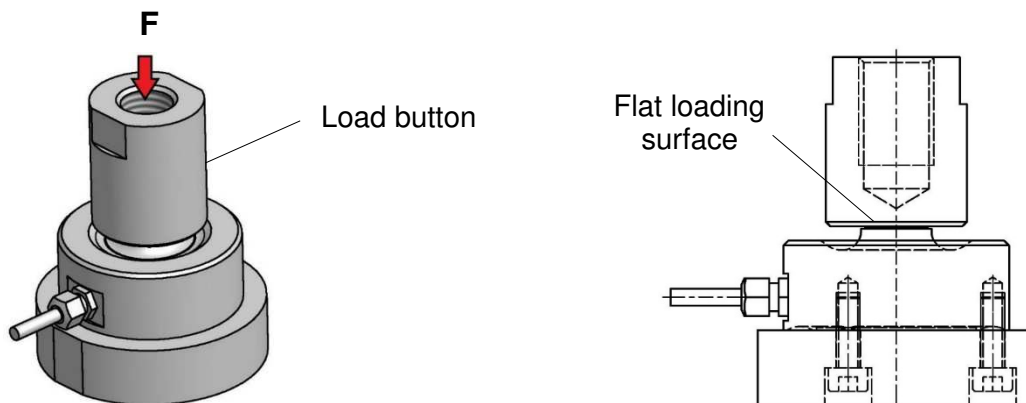


0.1 ... 5 kN

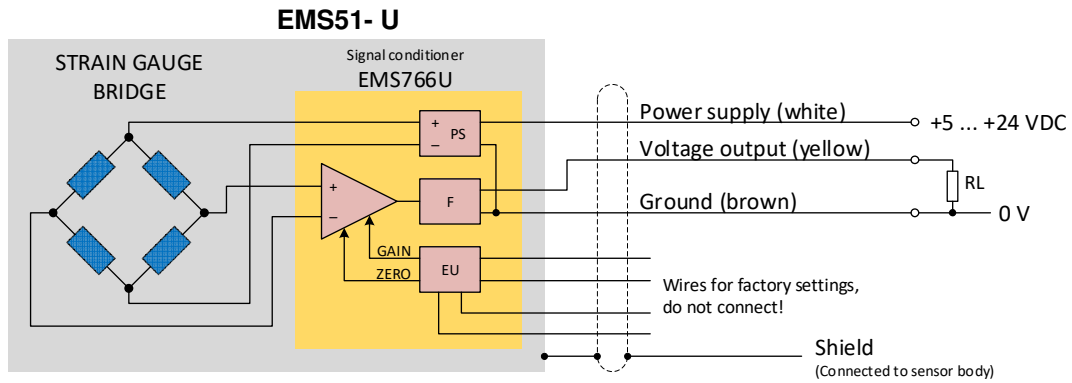
10 ... 500 kN

| F_n^1 (kN) | Dimensions in mm | | | | | | | | | |
|-----------------|------------------|----|----|----|----|-----|----------|----------|------------|----------------------------------|
| | D | DS | D1 | L | L1 | L2 | SW | M / HL | Mass kg | Deflection @ F_n (μ m) |
| 0.1 | 32 | 28 | 7 | 11 | 10 | 40 | Φ 4 | M3 / 5 | 0.04 | 30 |
| 0.2 | 32 | 28 | 7 | 11 | 10 | 40 | Φ 4 | M3 / 5 | 0.04 | 30 |
| 0.5 | 32 | 28 | 7 | 11 | 10 | 40 | Φ 4 | M3 / 5 | 0.04 | 30 |
| 1 | 32 | 28 | 7 | 11 | 10 | 40 | Φ 4 | M3 / 5 | 0.07 | 30 |
| 2 | 32 | 28 | 7 | 11 | 10 | 40 | Φ 4 | M3 / 5 | 0.07 | 30 |
| 5 | 32 | 28 | 7 | 11 | 10 | 40 | Φ 4 | 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 |

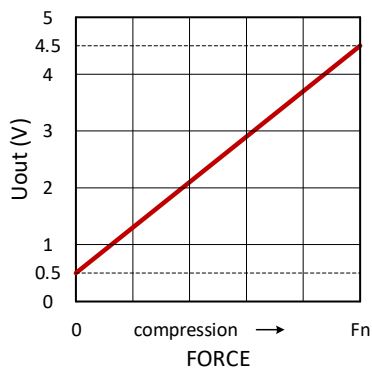
Recommended installation



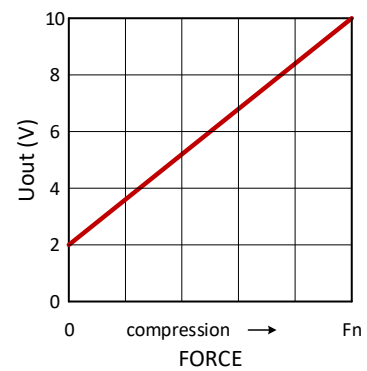
Wiring diagram EMS51- U, voltage output



Output characteristics, voltage output

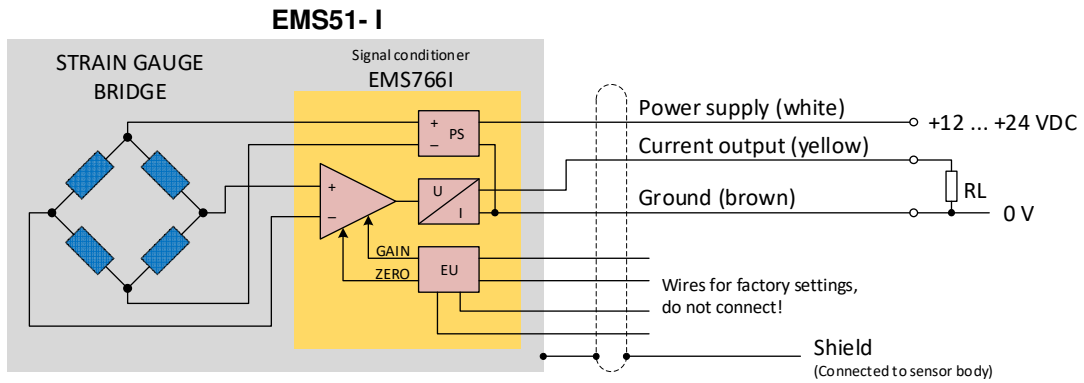


Output 2.5 ... 4.5 V

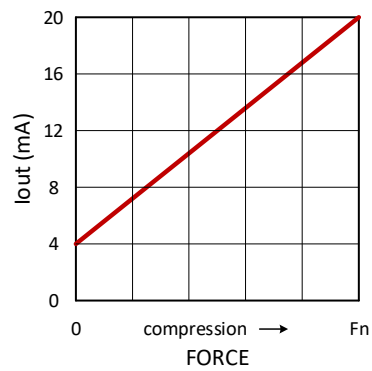


Output 2 ... 10 V

Wiring diagram EMS51- I, current output



Output characteristic, current output



Output 4 ... 20 mA