

### Special features

- Mechanical design identical to **EMS20** type
- Built-in signal conditioner, model of sensor:
  - **EMS21-U** – with voltage output
  - **EMS21-I** – with current output
- Power supply: **+24 VDC**
- Application:
  - Industry
  - Testing machines
  - Laboratory

### Specifications

Rated capacity (F <sub>n</sub> )	0.1, 0.2, 0.5, 1, 2, 5	kN
Overload		
- Safe	130	% F <sub>n</sub>
- Ultimate	150	% F <sub>n</sub>
- Permanent static load <sup>1</sup>	75	% F <sub>n</sub>
- Dynamic load <sup>1</sup>	50	% F <sub>n</sub>
Voltage output (model <b>EMS21-U</b> ) <sup>2</sup>		V
- Standard	2 ... 10	V
- With zero offset	6 ... ± 4	V
- Customer design <sup>3</sup>	0.5 ... 10	V
Min. load impedance	2	kΩ
Current output (model <b>EMS21-I</b> ) <sup>2</sup>		mA
- Standard	4 ... 20	mA
- With zero offset	12 ... ± 8	mA
- Customer design <sup>3</sup>	1 ... 20	mA
Max. load impedance	500	Ω
Power Supply		VDC
- Range	24 ± 10 %	mA
- Current consumption (Max)	40	
Max error		% F.S.
- Non-linearity	0.25	% F.S.
- Hysteresis	0.25	% F.S.
- Creep (30 min)	0.1	% F.S.
Temperature effect		% F.S./10 °C
- 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 - Nominal - Operating	0 ... + 50 - 10 ... + 50	°C °C
Protection	IP54	
Body material - 0,1; 0,2; 0,5 kN - 1, 2, 5 kN	Aluminium Stainless steel	
Cable <sup>4</sup> - Type - Length	LifYDY 7 x 0.05 2	m

Notes:

<sup>4</sup> Only 3 wires are accessible, the others are for factory settings used

## How to order

Common formula for ordering: **EMS21-U/I(signal conditioner output range) – force range**

- Sensor type with type of output:
  - **EMS21-U** – voltage output
  - **EMS21-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

200N sensor with voltage output 2 – 10V example:

**EMS21-U (2 – 10V) – 0,2kN**

1kN sensor with current output with shifted zero example:

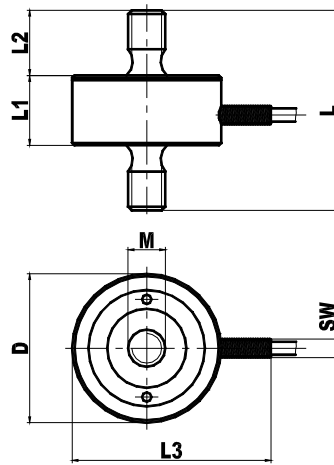
**EMS21-I (4 – 12 – 20mA) – 1kN**

5kN 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.

**EMS21-U (1 – 3 – 5V) – 5kN**

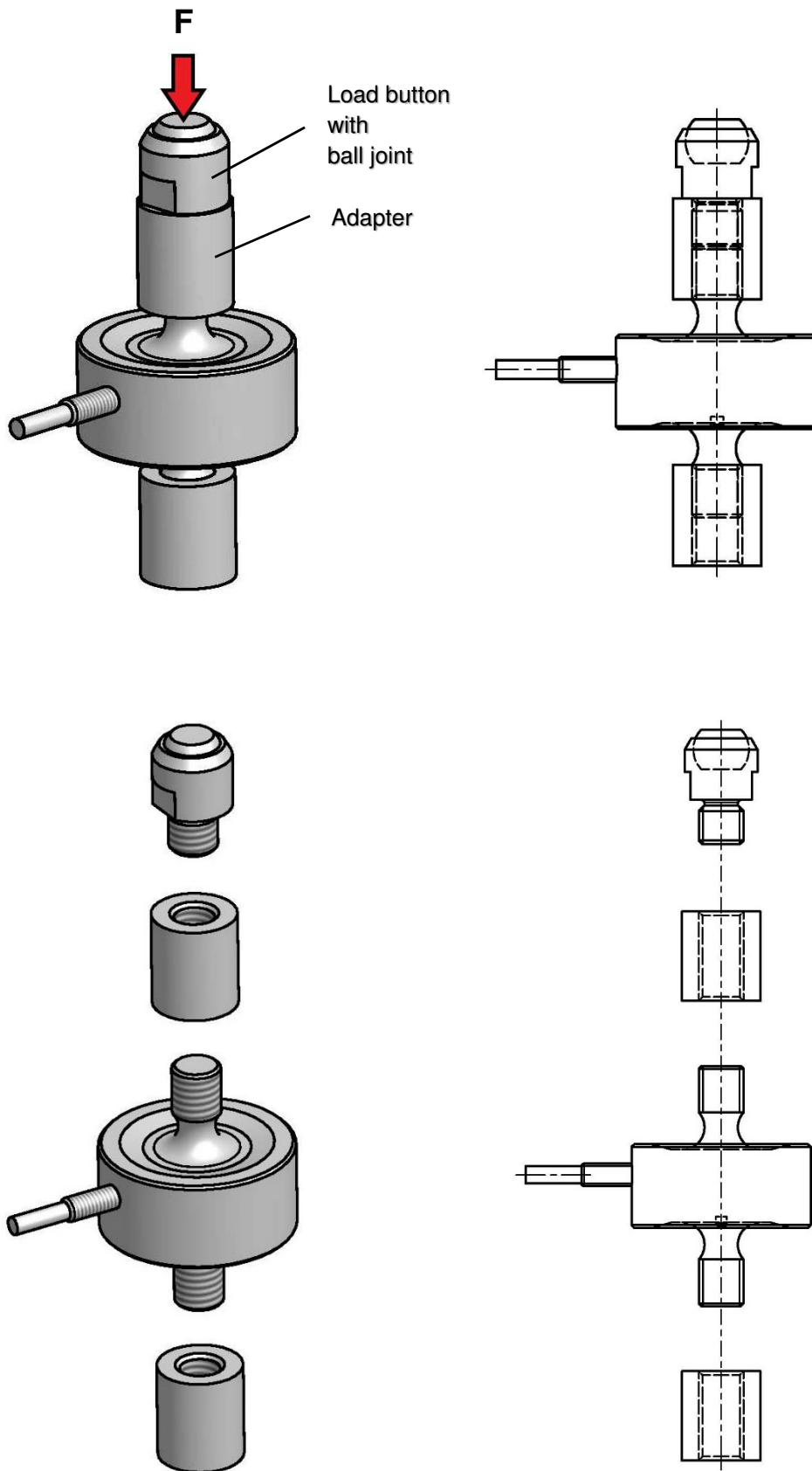
Note: Always consult your desired custom output range with the manufacturer.

## Outline dimensions

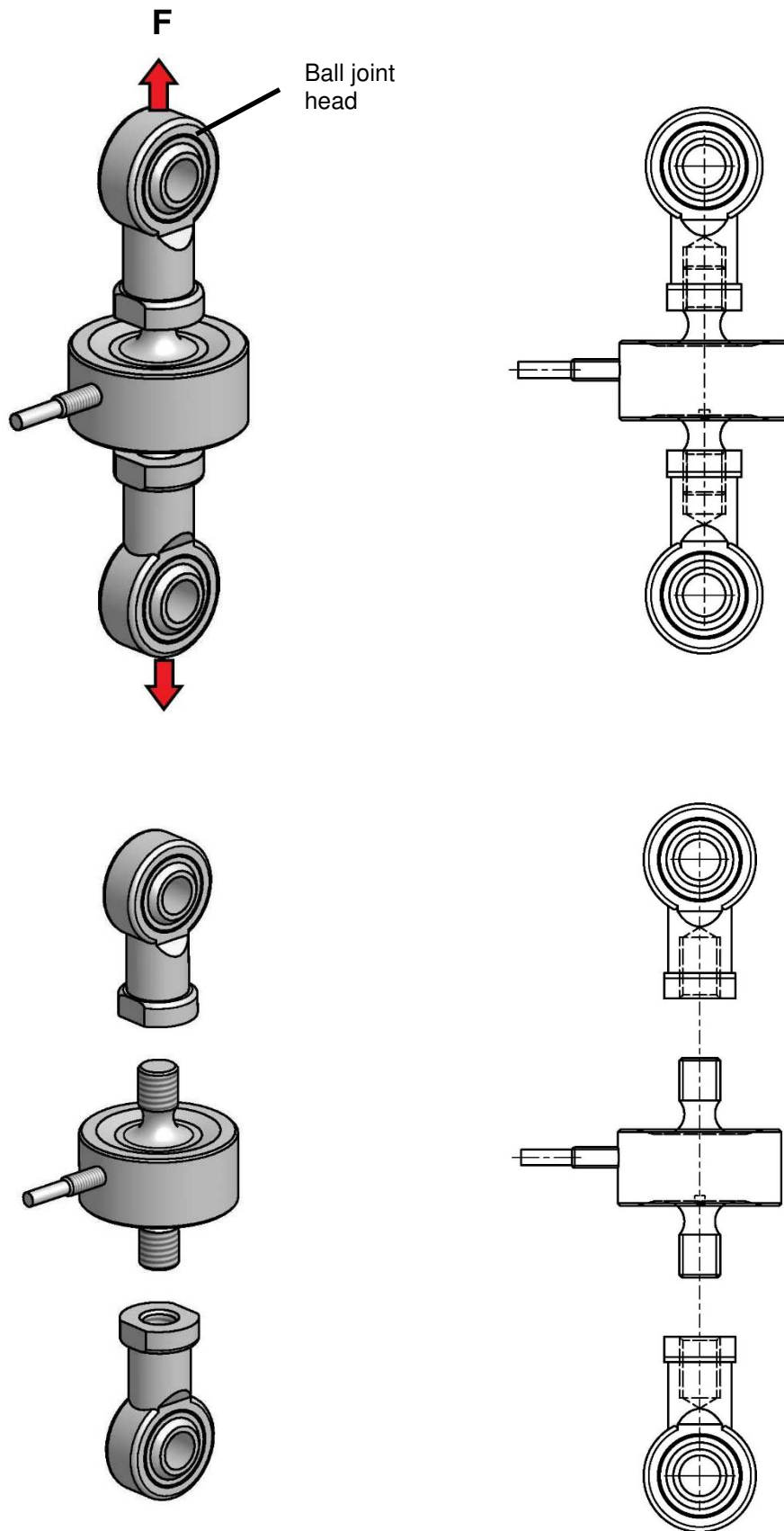


Rated capacity $F_n$ (kN)	D mm	M mm	L mm	L1 mm	L2 mm	L3 mm	SW mm	Mass kg	Deflection, @ $F_n$ ( $\mu\text{m}$ )
0.1, 0.2, 0.5	28	M6	34	14	10	38	$\Phi 4$	0.05	35
1, 2, 5	32	M8	43	15	14	42	$\Phi 4$	0.1	45

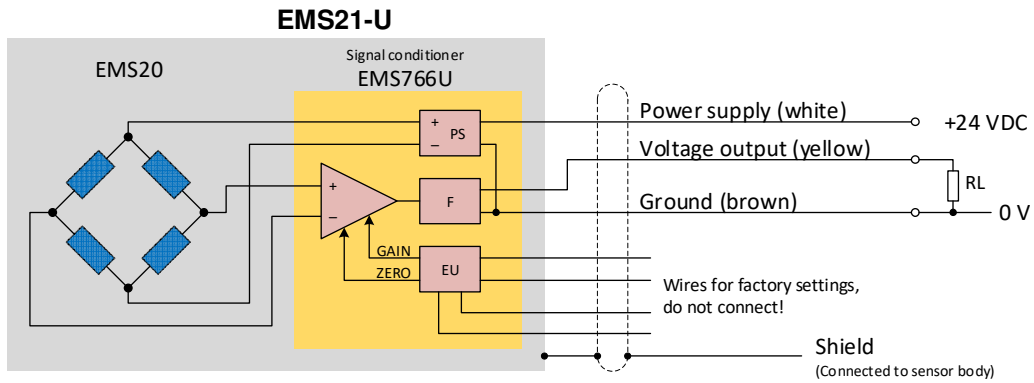
# Recommended installation, direction of load COPRESSION



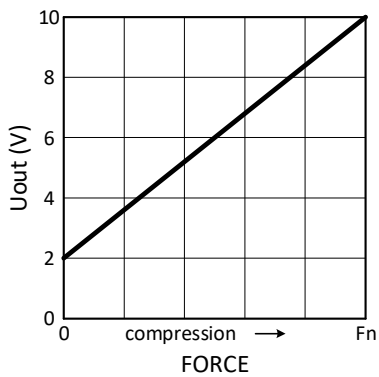
Recommended installation, direction of load TENSION



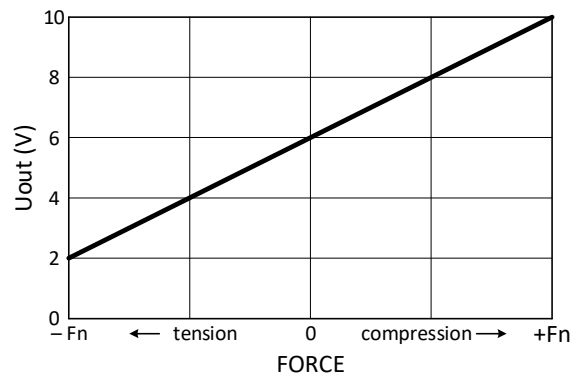
## Wiring diagram, EMS21-U (voltage output)



## Output characteristics

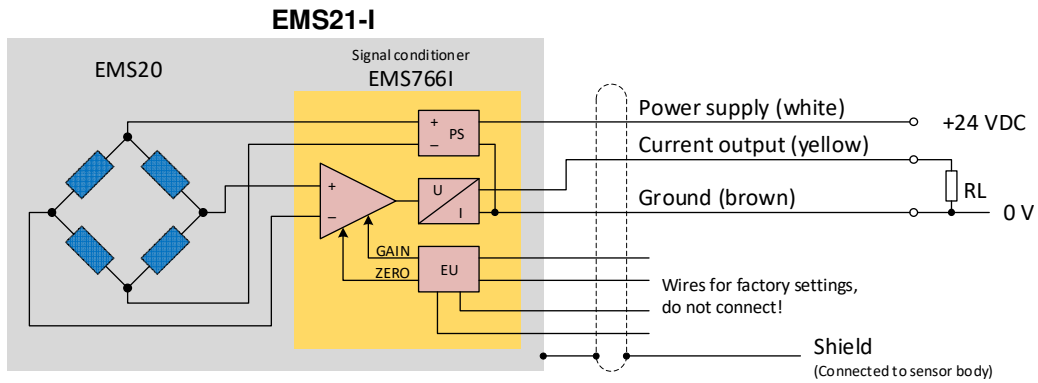


Unipolar load, unipolar output  
(2 ... 10 V)

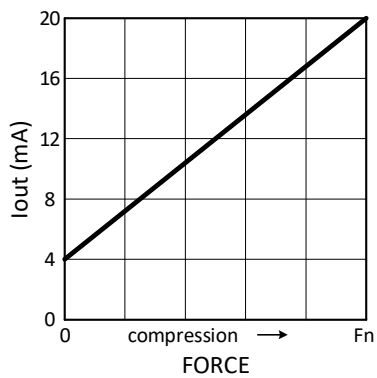


Bipolar load, unipolar output  
(6V  $\pm$  4 V, with zero offset)

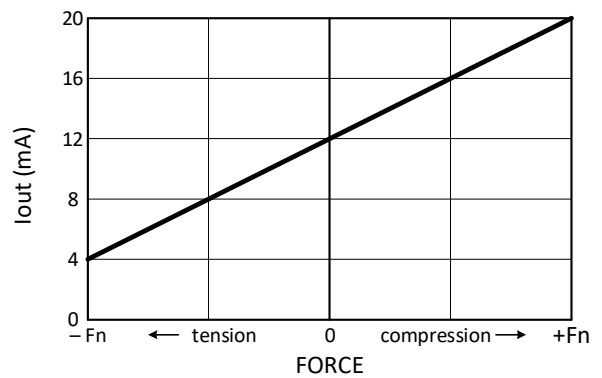
## Wiring diagram, EMS21-I (current output)



## Output characteristics



Unipolar load, unipolar output  
(4 ... 20 mA)



Bipolar load, unipolar output  
(12 mA  $\pm$  8 mA, with zero offset)