

## Button force sensor for measuring compressive forces



### **X-138-S**

**with force button**

Ø 50 x 25 mm,  
0...0.5 kN  
till  
0...50 kN

#### **Feature**

- 4x M5 threaded holes on the underside for easy mounting
- With force application button for force application
- Encapsulated version IP65
- Measuring ranges from 500 N to 50 kN available

#### **Application**

The load cell X-138-S is suitable for universal use in industrial force monitoring applications.

The sensors are based on proven strain gauge technology and provide a linear signal, proportional to the centrally applied compressive force. The solid steel housing and the tight design according to IP65 guarantee trouble-free operation, even under difficult environmental conditions.

Description	Measuring range	Output signal	Contact area in mm	Assembly	Specificati on
X-138-S-C-0.5kN-3.0m-3-U-L-0	0...0.5 kN	1.5 mV/V	Ø 50 x 25 mm	Button force introduction top / 4x M5 bore hole bottom	page 3
X-138-S-C-1kN-3.0m-3-U-L-0	0...1 kN	1.5 mV/V	Ø 50 x 25 mm	Button force introduction top / 4x M5 bore hole bottom	page 3
X-138-S-C-2kN-3.0m-3-U-L-0	0...2 kN	1.5 mV/V	Ø 50 x 25 mm	Button force introduction top / 4x M5 bore hole bottom	page 3
X-138-S-C-3kN-3.0m-3-U-L-0	0...3 kN	1.5 mV/V	Ø 50 x 25 mm	Button force introduction top / 4x M5 bore hole bottom	page 3
X-138-S-C-5kN-3.0m-3-U-L-0	0...5 kN	1.5 mV/V	Ø 50 x 25 mm	Button force introduction top / 4x M5 bore hole bottom	page 3
X-138-S-C-10kN-3.0m-3-U-L-0	0...10 kN	1.5 mV/V	Ø 50 x 25 mm	Button force introduction top / 4x M5 bore hole bottom	page 3
X-138-S-C-20kN-3.0m-3-U-L-0	0...20 kN	1.5 mV/V	Ø 50 x 25 mm	Button force introduction top / 4x M5 bore hole bottom	page 3
X-138-S-C-30kN-3.0m-3-U-L-0	0...30 kN	1.5 mV/V	Ø 50 x 25 mm	Button force introduction top / 4x M5 bore hole bottom	page 3
X-138-S-C-50kN-3.0m-3-U-L-0	0...50 kN	1.5 mV/V	Ø 50 x 25 mm	Button force introduction top / 4x M5 bore hole bottom	page 3

# Button force sensor X-138

Ø 50 x 25 mm  
From 0.5 till 50 kN



## Specifikation

### Performance

Measuring range / Nominal force	0...0.5 kN 0...1 kN 0...2 kN 0...3 kN 0...5 kN 0...10 kN 0...20 kN 0...30 kN 0...50 kN
Zero point unmounted	< ±2 % from fullscale
Deviation Sensitivity	±0.5 %
Nonlinearity	< ±0.5 % from fullscale
Hysteresis	< ±0.5 % from fullscale
Repeatability	< ±0.5 % from fullscale
Temperatureinfluss auf Endwert	±0.05 % FS /10°C
Temperatureinfluss auf Nullpunkt	±0.05 % FS /10°C

### Electrical data

Output signal referred to final value	1.5 mV/V
Bridge resistance / sensor element strain gauge full bridge	700 Ohm
Supply voltage	5-10 VDC

### Materials

Housing	Steel
Cable	PVC

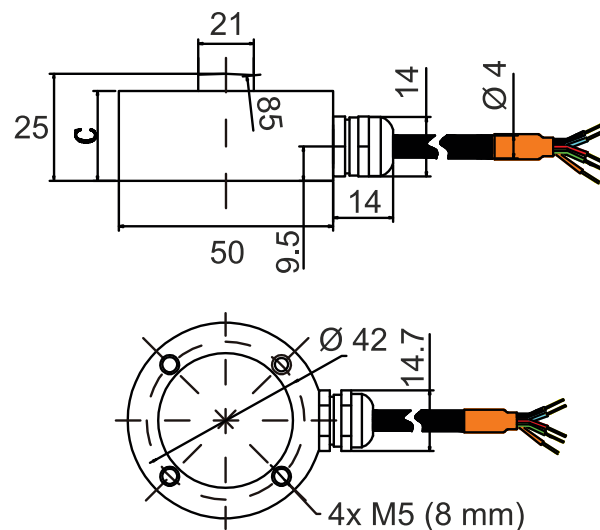
### Mechanical data

Force application	Button / force application button
Overload	120 % from fullscale
Breaking load	150 % from fullscale
Electrical connection	Connection cable
Cable length	3 m
Plug type	Open stranded wires, connectors available on request

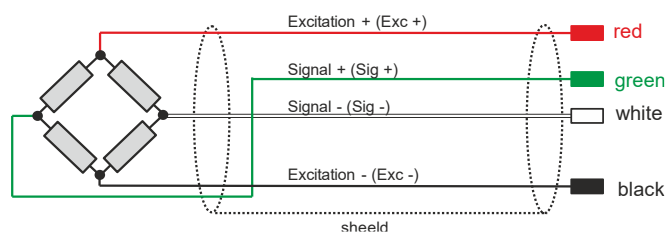
### Umgebungsdaten

Ambient temperature	-20...80 °C
Compensated temperature range	-10...60 °C
Protection rate	IP 65

## Mechanical dimensions



## Wiring



## Ordering code

The load cell is supplied without mounting screws and calibration certificate. Calibration certificate available on request.

For detailed ordering information, see page 2.

## Definition of the accuracy

For force sensors, there are the following points to consider regarding accuracy:

1. linearity, repeatability and hysteresis (combined error)

The linearity, repeatability and hysteresis specify the measurement deviation compared to the ideal characteristic curve. This maximum measurement deviation is specified in relation to the final value. I.e. for example an inaccuracy of 1.5 % FS corresponds to a maximum measurement deviation of 0.75 kN over the entire measurement range for a force sensor with a measurement range of 0...50 kN.

2. Sensitivity

The sensitivity of the sensors is specified in the data sheet. However, the sensitivity is not always exactly identical. For this reason, the deviation of the sensitivity is specified..