

## N ALF 250-ALF 251

### Description

- Measurement ranges 0 ... 100 N to 0 ... 3.2 kN
- Tension / compression
- Non-linearity 0.5 % RL
- Output signal 1.6 mV/V or rationalised 1.0 mV/V  $\pm 0.5$  %
- Supply voltage 5 VDC, max. 10 VDC (ALF250), 10 VDC (ALF251)



The ALF250 and ALF251 series are ideally suited to force measurements in confined spaces in both tension and compression for control of critical parameters in all kinds of industrial processes. Their versatility is such that they are also applied in a great number of important fields of scientific and engineering test work, mobile as well as workshop, static and dynamic.

### Geometry:

Very small loadbutton cell for force measurement in confined spaces. Used in compression and/or tension on a wide range of OEM or end-user applications.

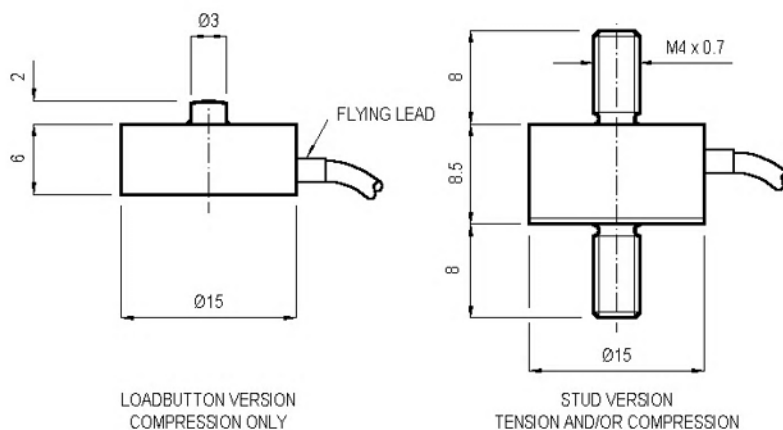
With bi-directional versions there is a small difference between the output signal for compression and tension. All standard bi-directional load cells are calibrated in both modes and the output for each direction is stated on the test / calibration certificate.

### Features

- Easy installation
- Diameter 15 mm (ALF250) or 20 mm (ALF251)
- Hardened stainless steel body
- Traceable calibration with certificate
- IP65

### Dimensions

ALF250:

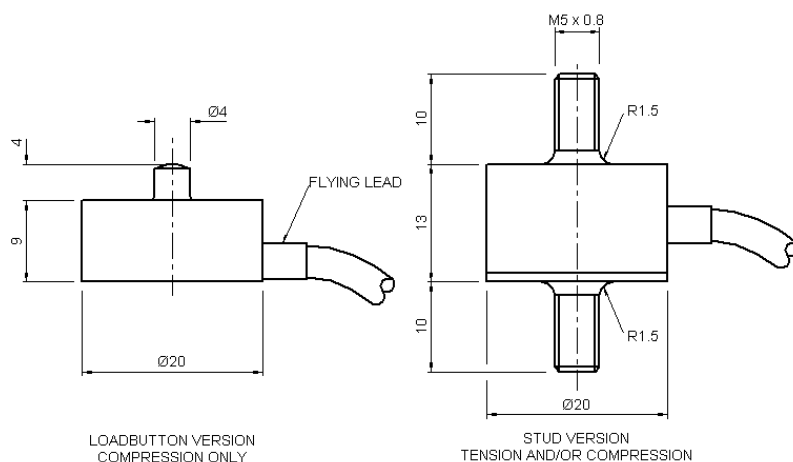


Dimensions in „mm“, approx. values

These drawings are for information only and not intended for construction purpose.  
Please contact us for detailed drawings.

## ■ Dimensions (continued)

### ALF251:



Dimensions in „mm“, approx. values

These drawings are for information only and not intended for construction purpose.

Please contact us for detailed drawings.

## ■ Specifications

	Series ALF250	Series ALF251
Rated load:	100 N, 200 N, 400 N, 800 N	100 N, 200 N, 400 N, 800 N, 1.6 kN, 3.2 kN
Non-linearity, terminal:	±0.5 % RL	±0.5 % RL
Hysteresis:	±0.5 % RL	±0.5 % RL
Creep, 20 min:	±0.1 % AL	±0.1 % AL
Repeatability:	±0.1 % RL	±0.1 % RL
Rated output, nominal:	1.6 mV/V	1.6 mV/V
Rated output, rationalised:	1.0 mV/V ±0.5 % RL	1.0 mV/V ±0.5 % RL
	Rationalisation tolerance applies to single direction calibrations only	
Zero load output:	±4 % RL	±4 % RL
Temperature effect on rated output:	±0.005 % AL/K	±0.005 % AL/K
Temperature effect on zero load output:	±0.03 % RL/K	±0.03 % RL/K
Compensated temperature range:	-10 ... +50 °C	-10 ... +50 °C
Operating temperature range:	-10 ... +80 °C	-10 ... +80 °C
Supply voltage, recommended:	5 V	10 V
Supply voltage, max.:	10 V	10 V
Bridge resistance:	350 Ω	350 Ω Insulation
resistance, minimum at 50 VDC:	500 MΩ	500 MΩ
Overload, safe:	150 % RL	150 % RL
Overload, ultimate:	200 % RL	200 % RL
Environmental sealing:	IP65	IP65
Weight (excl. cable):	approx. 8 g to 12 g	approx. 8 g to 11 g
Material:	stainless steel	Ranges up to 200 N: aluminium Other ranges: stainless steel

Rated load	Structural stiffness, nom.		Rated load	Structural stiffness, nom.		Rated load	Structural stiffness, nom.	
	ALF250	ALF251		ALF250	ALF251		ALF250	ALF251
	6,2 x 10 <sup>6</sup> N/m	3,7 x 10 <sup>6</sup> N/m	400 N	2,5 x 10 <sup>7</sup> N/m	1,5 x 10 <sup>7</sup> N/m	1.600 N	---	6,0 x 10 <sup>7</sup> N/m
200 N	1,2 x 10 <sup>7</sup> N/m	7,3 x 10 <sup>6</sup> N/m	800 N	5,0 x 10 <sup>7</sup> N/m	3,0 x 10 <sup>7</sup> N/m	3.200 N	---	1,2 x 10 <sup>8</sup> N/m

### Notes:

1. RL = rated load
2. AL = applied load
3. Temperature coefficients apply over the compensated range.
4. The load must be applied directly through the central loading axis.
5. When this load cell is rationalised the resistors are housed in a capsule located in the load cell cable 100 mm from the free end. Capsule dimensions are Ø10 mm by 57 mm.

## Electrical Connections

The loadcell is fitted with 2 metres of PVC insulated 4 core screened cable type 7-1-4C.

### Wiring:

red	+ supply voltage
blue	- supply voltage
yellow	+ output signal
green	- output signal
orange	screen

Reverse the signal connections to obtain a positive signal in tension mode.

The screen is not connected to the load cell body.

## Ordering Information

ALF250CFR0H0 ALF251CFR0H0	Compression, IP65, loadbutton	ALF250CFR0HN ALF251CFR0HN	Compression, IP65, rationalised, loadbutton
ALF250DFR0H0 ALF251DFR0H0	Compression, IP65, thread fitting	ALF250DFR0HN ALF251DFR0HN	Compression, IP65, rationalised, thread fitting
ALF250TFR0H0 ALF251TFR0H0	Tension, IP65	ALF250TFR0HN ALF251TFR0HN	Tension, IP65, rationalised
ALF250UFR0H0 ALF251UFR0H0	Bi-directional, IP65	ALF250UFR0HN ALF251UFR0HN	Bi-directional, IP65, rationalised

Please add range in the required units.

### Safety note:

When using the load cell in tension mode it is essential to provide additional safety precautions like safety chains etc. for catching the load in a breakage, which cannot be excluded completely.

Due to continuous product development, ALTHEN and partners reserve the right to vary the foregoing details without prior notice.