

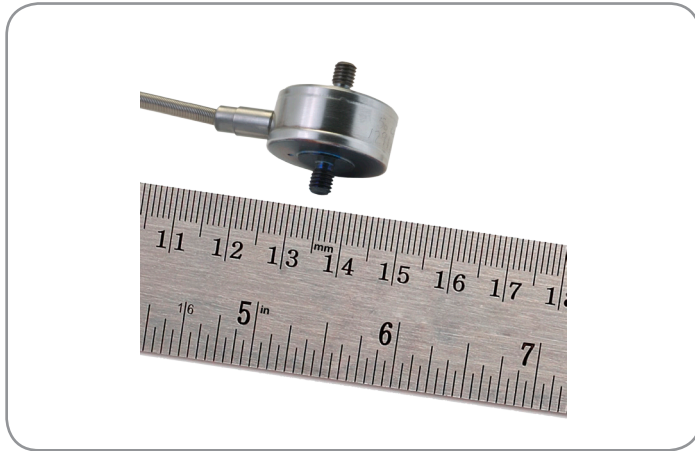
Mid Range Precision Miniature Load Cells

Model 31 Mid

008630

Issue 2

Datasheet



DESCRIPTION

Model 31 중급 정밀 소형 로드셀은 10N ~ 5kN / 1000g ~ 1000lb 범위의 옵션으로 장력과 압축을 모두 측정합니다.

Model 31은 0.15% ~ 0.2% 풀 스케일의 높은 정확도를 제공하는 내구성이 뛰어난 소형 로드셀입니다. 용접된 스테인리스 스틸 구조는 축에서 벗어난 하중의 영향을 최소화하거나 제거하도록 설계되었습니다.

접합된 각 스트레인 게이지 장치는 내구성을 높이기 위해 용접된 17-4 PH 스테인리스강으로 제작되었습니다. 이것은 신뢰할 수 있는 내부 설계와 결합되어 향상된 장기 안정성을 제공합니다.

추가 옵션 수정을 통해 이 모델을 수중 응용 분야에서 잠재적으로 사용할 수 있도록 완전히 용접할 수 있습니다.

VALUE TO CUSTOMERS

- Enhanced accuracy of 0.15 % to 0.2 %
- Newton, gram, and pound force ranges available

FEATURES

- 10 N to 5 kN / 1000 g to 1000 lb
- mV/V output
- Stainless steel
- Male thread attachments
- Miniature design

POTENTIAL APPLICATIONS

- Cable tension
- Industrial process control
- Medical control systems
- Medical equipment testing
- Pharmaceutical process or product control
- Semiconductor/electronics testing
- Aerospace testing

PORTFOLIO

Honeywell의 소형 및 초소형 로드 셀은 공간이 제한적이거나 공간이 협소한 시스템 및 애플리케이션에 적합하도록 설계되었습니다. 정밀한 측정을 위해 견고한 스테인리스 스틸로 제작되었으며 혹독한 작동 조건에서도 우수한 장기 안정성과 신뢰성을 제공하는 이 로드 셀은 축에서 벗어난 하중의 영향을 제거하거나 최소화하도록 설계되었습니다. 전체 제품 포트폴리오를 보려면 여기를 클릭하십시오.

안전 및 생산성 솔루션

008630

Mid Range Precision Miniature Load Cells, Model 31 Mid

Table 1. Performance Specifications

Characteristic		Measure
Load ranges		10 N, 20 N, 50 N, 100 N, 200 N, 500 N, 1 kN, 2 kN, 5 kN 1000 g, 5 lb, 10 lb, 25 lb, 50 lb, 100 lb, 250 lb, 500 lb, 1000 lb
Non-Linearity	10 N to 1 kN, 1000 g to 250 lb	±0.15 % full scale
	2 kN to 5 kN, 500 lb to 1000 lb	±0.2 % full scale
Hysteresis	10 N to 1 kN, 1000 g to 250 lb	±0.15 % full scale
	2 kN to 5 kN, 500 lb to 1000 lb	±0.2 % full scale
Non-repeatability	10 N, 1000 g	±0.1 % full scale
	20 N to 5 kN, 5 lb to 1000 lb	±0.05 % full scale
Output (tolerance)	10 N, 1000 g	1 mV/V nominal
	20 N to 5 kN, 5 lb to 1000 lb	2 mV/V nominal
Operation		Tension/compression ³
Resolution		Infinite

Table 2. Environmental Specifications

Characteristic	Measure
Temperature, operating	-55 °C to 125 °C [-67 °F to 257 °F]
Temperature, compensated	15 °C to 71 °C [60 °F to 160 °F]
Storage temperature	-73 °C to 148 °C [-100 °F to 300 °F]
Temperature effect, zero	±0.01 %FS/°C [±0.005 %FS/°F]
Temperature effect, span	±0.01 % reading/°C [±0.005 % reading/°F]

Table 3. Electrical Specifications

Characteristic	Measure
Strain gage type	Bonded foil
Excitation (calibration)	5 Vdc ≤ 50 N/10 lb 10 Vdc ≥ 100 N/25 lb
Insulation resistance	5000 Mohm @ 50 Vdc
Bridge resistance	350 ohm
Zero balance	±1 %FS max.
Electrical termination (std)	Teflon [®] cable (1,5 m [5 ft])

Table 4. Mechanical Specifications

Characteristic	Measure
Maximum allowable load	150 %FS ¹
Weight	see table
Material	17-4 PH stainless steel
Deflection full scale	see table
Natural frequency	see table

Table 5. Wiring Codes

Cable	Unamplified
Red	(+) excitation
Black	(-) excitation
Green	(-) output
White	(+) output

Table 6. Range Codes

Range Codes	Range	Range Codes	Range
AR	1000 g	MH	10 N
AT	5 lb	MI	20 N
AV	10 lb	MK	50 N
BL	25 lb	ML	100 N
BN	50 lb	MM	200 N
BR	100 lb	MY	500 N
CN	250 lb	MN	1000 N
CR	500 lb	MO	2000 N
CV	1000 lb	MQ	5000 N

Table 7. Deflections and Ringing Frequencies

Capacity	Deflection at full scale	Ringing frequency	Weight
10 N to 50 N 1000 g to 10 lb	0,03 mm [0.001 in]	3 KHz	21 g
100 N to 500 N 20 lb to 100 lb	0,03 mm [0.001 in]	10 KHz	63 g
1 kN to 5 kN 250 lb to 1000 lb	0,04 mm [0.0015 in]	12 KHz	80 g

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Table 8. Mounting Dimensions

Ranges	Thread	H	C	F
1000 g, 5 lb, 10 lb	#6-32 UNC	12,5 mm [0.49 in]	6,4 mm [0.25 in]	1,2 mm [0.05 in]
10 N, 20 N, 50 N	M4 x 0.7			
25 lb, 50 lb, 100 lb	#10-32 UNF	15,4 mm [0.61 in]	6,4 mm [0.25 in]	2,3 mm [0.09 in]
100 N, 200 N, 500 N	M5 x 0.8			
250 lb, 500 lb, 1000 lb	1/4-28 UNF	14,1 mm [0.56 in]	9,5 mm [0.38 in]	0,8 mm [0.03 in]
1 kN, 2 kN, 5 kN	M6 x 1.0			

Figure 1. Mounting Dimensions for
10 N to 50 N / 1 kg to 10 lb (6AM termination required)

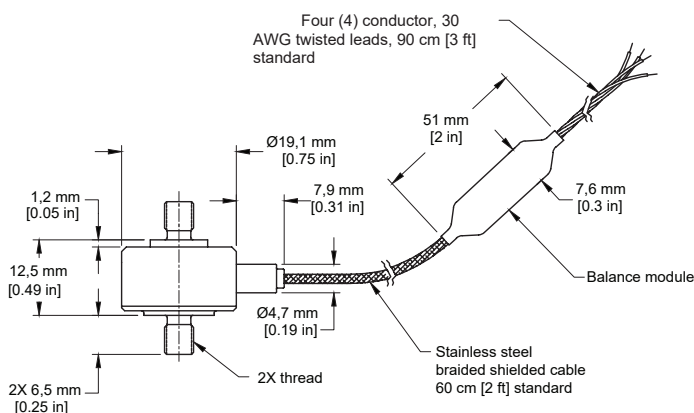


Figure 2. Mounting Dimensions for
100 N to 5 kN / 25 lb to 1000 lb (6E termination required)

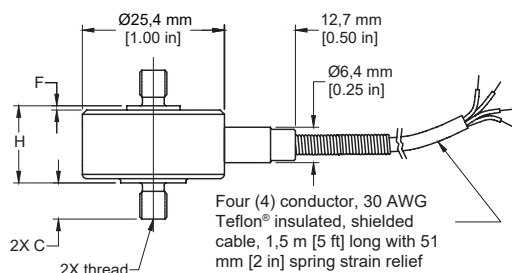


Table 9. Option Codes

	Many range/option combinations are available in our quick-ship and fast-track manufacture programs. Please click here for updated listings.
Load range	1000 g, 5 lb, 10 lb, 25 lb, 50 lb, 100 lb, 250 lb, 500 lb, 1000 lb, 10 N, 20 N, 50 N, 100 N, 200 N, 500 N, 1000 N, 2000 N, 5000 N
Temperature compensation	1a. 15 °C to 71 °C [60 °F to 160 °F] 1c. -18 °C to 85 °C [0 °F to 185 °F] 1h. 21 °C to 204 °C [70 °F to 400 °F] ⁴
Internal amplifiers	2u. Unamplified, mV/V output
Electrical termination	6am. Integral cable: Teflon® with balance module 6e. Integral cable: Teflon® 6i. Integral underwater cable 3 m [10 ft] (82 °C [180 °F] max.) ⁵
Additional point calibration	9a. 10 point (5 up/5 down) 20 % increments @ 20 °C
Electrical connector orientation	15c. Radial electrical exit port orientation
Special calibration	30a. Compression only calibration, positive in compression 30b. Tension and compression calibration, positive in tension 30d. Tension and compression calibration, positive in compression
Mounting interfaces ⁶	(none) UN thread 32b. M4 x 0.7 32c. M5 x 0.8 32d. M6 x 1
Electrical Interfaces ⁷	53s. Phoenix connector with Signature Calibration module 53t. TEDS IEEE 1451.4 module ⁸

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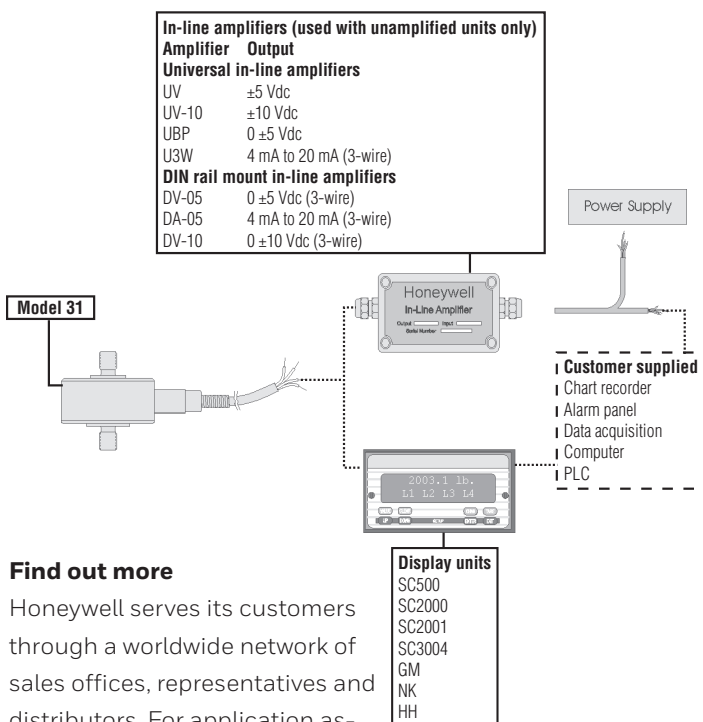
Figure 3. Product Nomenclature

AL311	MH	1A	2U	6AM		15C		32B	
Load Type	Range	Temperature Compensation	Internal Amplifiers	Electrical Termination	Additional Point Calibration	Electrical Conn. Orientation	Special Calibration ³	Mounting Threads ⁶	Calibration Memory ⁷
Model 31 Mid Precision Miniature Load Cell	MH 10 Newton	1A 15 °C to 71 °C [60 °F to 160 °F]	2U Unamplified, mV/V output	6AM Teflon®, Integral cable with balance module	Standard 5-point calibration (None)	15C Radial exit	Tension only (none)	UN thread (none)	No storage (none)
	MI 20 Newton	1C -18 °C to 85 °C [0 °F to 185 °F]		6E Teflon®, Integral cable	9A 10-point calibration		30A Compression only (+)	32B M4 x 0.7	53S Phoenix connector with Signature Calibration Module
	MK 50 Newton	1H 21 °C to 204 °C [70 °F to 400 °F]		6I Integral under-water cable, 3 m [10 ft]			30B Tension (+) and Compression (-)	32C M5 x 0.8	53T TEDS IEEE 1451.4 module
	ML 100 Newton						30D Tension (-) and Compression (+)	32D M6 x 1	
	MM 200 Newton								
	MY 500 Newton								
	MN 1000 Newton								
	MO 2000 Newton								
	MQ 5000 Newton								
	AR 1000 g								
	AT 5 lb								
	AV 10 lb								
	BL 25 lb								
	BN 50 lb								
	BR 100 lb								
	CN 250 lb								
	CR 500 lb								
	CV 1000 lb								

NOTES

1. Allowable maximum loads - maximum load to be applied without damage.²
2. Without damage - loading to this level will not cause excessive zero shift or performance degradation. The user must consider fatigue life or long term use and structural integrity. All structurally critical applications (overhead loading, etc.) should always be designed with safety redundant load paths.
3. Standard calibration for tension/compression load cells is in tension only.
4. Consult factory for extended operation above 125 °C [257 °F].
5. Option 6i may increase the load cell height and/or diameter. Consult factory.
6. See Figures 1 and 2 to match the mounting interface option with the range code.
7. Maximum operating temperature for options 53s and 53t is 85 °C [185 °F].
8. TEDS IEEE 1451.4 module installed at end of cable.

Figure 4. Typical System Diagram



Find out more

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DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

Failure to comply with these instructions could result in death or serious injury.

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- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

Failure to comply with these instructions could result in death or serious injury.

Warranty/Remedy

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008630-2-EN IL50 GLO

October 2016

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