

## Model 3140 Series

### Tension/Compression Pancake Load Cell



#### DESCRIPTION

Designed for general purpose use in demanding applications in automotive, aerospace, and military applications. Some advantages of these tension/compression load cells include compact size, high accuracy, and cost efficiency.

#### FEATURES

- Static error band 0.04 % to 0.05 %
- English threads
- Low off-center load and moment errors
- Low profile
- Low sensitivity to magnetic fields
- Output to 4 mV/V

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## PERFORMANCE SPECIFICATIONS

Characteristic	Measure
Load range <sup>1</sup>	300 lb, 500 lb, 1000 lb, 2000 lb, 5000 lb, 10000 lb, 25000 lb, 50000 lb, 100000 lb
Non-linearity 300 lb to 2K lb	±0.04 % of rated output
Non-linearity 5K lb to 100K lb	±0.05 % of rated output
Hysteresis 300 lb to 2K lb	±0.03 % of rated output
Hysteresis 5K lb to 100K lb	±0.05 % of rated output
Non-repeatability	±0.01 % of rated output
Static error band 300 lb to 2K lb	±0.04 % of rated output
Static error band 5K lb to 100K lb	±0.05 % of rated output
Output @ rated capacity 300 lb to 2K lb	2 mV/V (nominal)
Output @ rated capacity 5K lb to 100K lb	4 mV/V (nominal)
Operation	Tension/compression
Resolution	Infinite
Standard calibration	Tension (+) and compression (-)

## ENVIRONMENTAL SPECIFICATIONS

Characteristic	Measure
Temperature, operating	-54 °C to 93 °C [-65 °F to 200 °F]
Temperature, compensated	-9 °C to 46 °C [15 °F to 115 °F]
Temperature effect, zero	±0.15 % of rated output/100 °F
Temperature effect, output	±0.08 % of reading/100 °F

## ELECTRICAL SPECIFICATIONS

Characteristic	Measure
Strain gage type	Foil
Excitation (maximum)	10 Vdc or Vac RMS
Insulation resistance	> 5000 mOhm @ 50 Vdc
Input resistance (tolerance)	350 ohm +40/-3.5 ohm
Output resistance (tolerance)	350 ohm ±3.5 ohm
Sensitivity 300 lb to 2K lb	2 mV/V of rated output
Sensitivity 5K lb to 100K lb	4 mV/V of rated output
Zero balance (tolerance)	±1.0 %

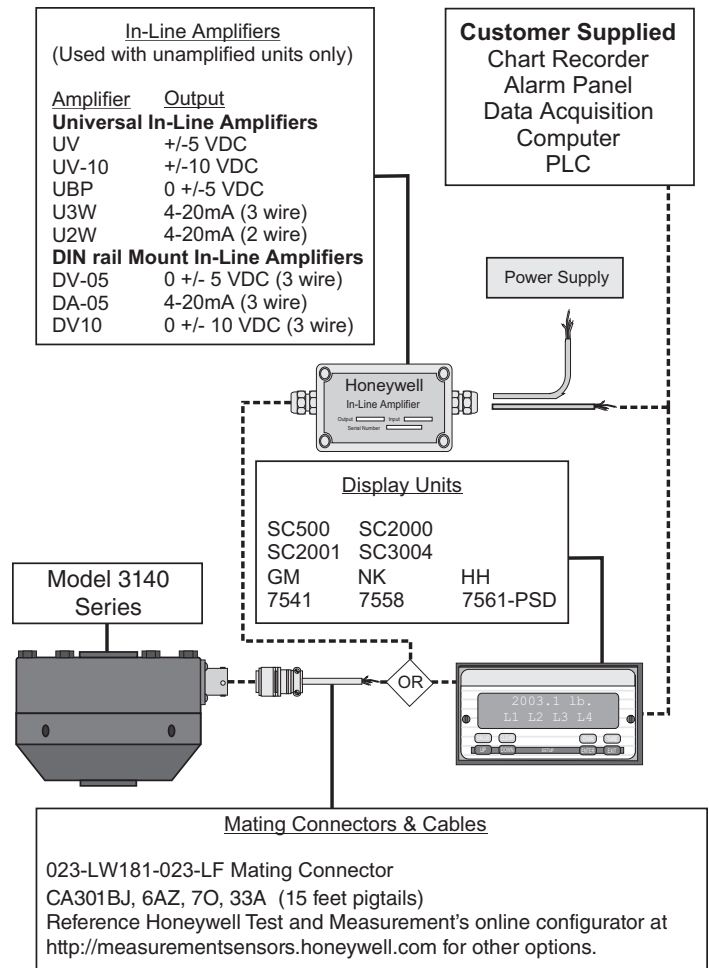
## MECHANICAL SPECIFICATIONS

Characteristic	Measure
Static overload capacity	150 % of nominal capacity
Material	See table on next page
Creep	±0.03 %
Off-centered load sensitivity	±0.25 %
Side load sensitivity	±0.25 %

## WIRING CODES

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

## TYPICAL SYSTEM DIAGRAM



## Tension/Compression Pancake Load Cell

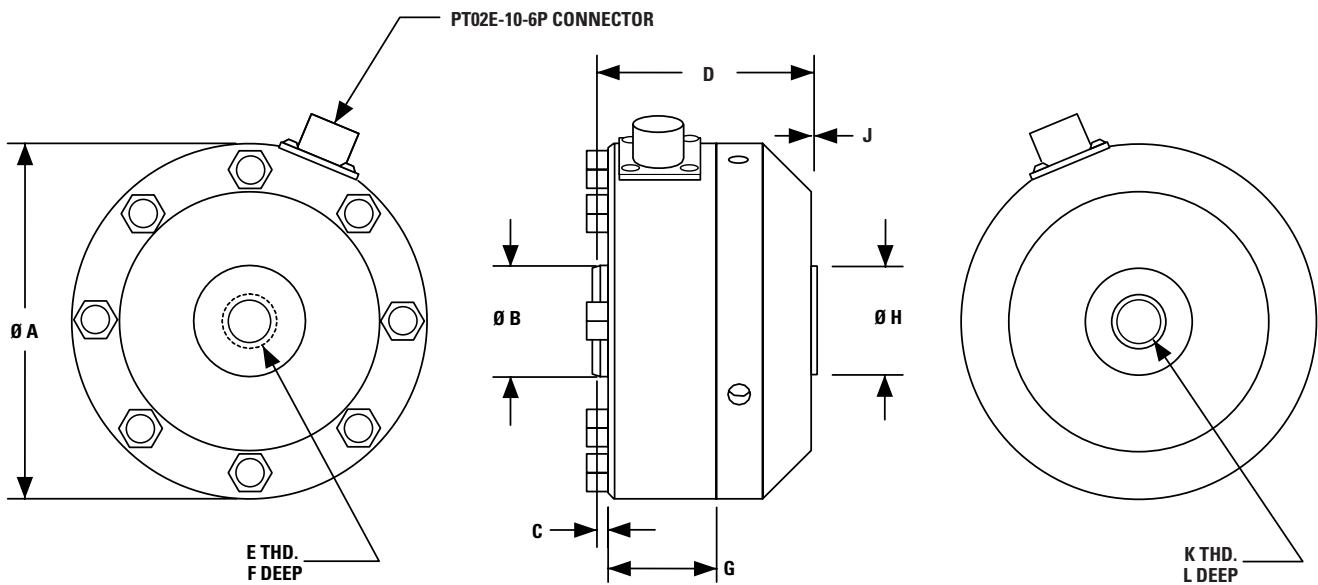
### MECHANICAL CHARACTERISTICS

Model	Nominal load limit capacity $F_z$		Static overload capacity (% of nominal capacity)	Weight (lb)	Weight with base (lb)	Flexure material
	lb	N				
3143	300	1K	150	1.0	2.5	Aluminum
3143	500	2K	150	1.0	2.5	Aluminum
3143	1K	5K	150	1.0	2.5	Aluminum
3143	2K	10K	150	1.0	2.5	Aluminum
3144	5K	22K	150	2.9	6.5	Steel
3144	10K	45K	150	2.9	6.5	Steel
3145	25K	110K	150	9.1	21.5	Steel
3145	50K	200K	150	9.1	21.5	Steel
3146	100K	500K	150	23.5	52.5	Steel

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## MOUNTING DIMENSIONS

Model	Capacity (lb)	Ø A in	Ø B in	C in	D in	E Thread	F in	G in	Ø H	J in	K Thread	L in
3143-300	300	4.12	1.29	0.13	2.50	1/2-20 UNF 3B	1.12	1.25	1.25	0.03	1/2-20 UNF 3B	0.88
3143-500	500	4.12	1.29	0.13	2.50	1/2-20 UNF 3B	1.12	1.25	1.25	0.03	1/2-20 UNF 3B	0.88
3143-1K	1000	4.12	1.29	0.13	2.50	1/2-20 UNF 3B	1.12	1.25	1.25	0.03	1/2-20 UNF 3B	0.88
3143-2K	2000	4.12	1.29	0.13	2.50	1/2-20 UNF 3B	1.12	1.25	1.25	0.03	1/2-20 UNF 3B	0.88
3144-5K	5000	4.12	1.29	0.13	2.50	5/8-18 UNF 3B	1.12	1.25	1.25	0.03	5/8-18 UNF 3B	0.88
3144-10K	10000	4.12	1.29	0.13	2.50	5/8-18 UNF 3B	1.12	1.25	1.25	0.03	5/8-18 UNF 3B	0.88
3145-25K	25000	6.06	2.34	0.13	3.50	1¼-12 UNF 3B	1.50	1.63	2.25	0.03	1¼-12 UNF 3B	1.50
3145-50K	50000	6.06	2.58	0.13	3.50	1¼-12 UNF 3B	1.50	1.63	2.25	0.03	1¼-12 UNF 3B	1.50
3146-100K	100000	8.00	3.76	0.25	4.50	1¾-12 UNF 3B	2.20	2.25	3.00	0.03	1¾-12 UNF 3B	1.75



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## NOTES

1. This unit calibrated to Imperial (non-Metric) units.

**Warranty.** Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items it finds defective. **The foregoing is buyer's sole remedy and is in lieu of all warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.**

While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.

### **WARNING**

#### **PERSONAL INJURY**

- 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.**

### **WARNING**

#### **MISUSE OF DOCUMENTATION**

- The information presented in this datasheet is for reference only. DO NOT USE this document as product installation information.
- 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.**

## Find out more

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