

Model 1604-1607

Standard Rotating Shaft Torque Sensor



DESCRIPTION

A line of rotary transformer torque sensors often ideal for test installations running long-term durability testing. Non-contact nature of the signal transfer virtually eliminates the need for maintenance. High overload protection with high signal output helps prevent potential damage to the sensor. Carrier frequency

excitation provides increased signal/noise immunity. Capacity range from 50 in-lb to 100000 in-lb for shaft mounting configurations.

FEATURES

- 50 in-lb to 100000 in-lb capacity
- 0.1 % non-linearity and hysteresis
- Speed sensor and/or foot mount (optional)
- High overload protection with high signal output (sensitivity)
- Minimal maintenance due to bearings only contact
- Carrier frequency excitation provides increased signal/noise immunity

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PERFORMANCE SPECIFICATIONS

| Characteristic | Measure |
|-------------------------|--------------------------|
| Torque range | 50 lb-in to 100000 lb-in |
| Non-linearity | ±0.1 % of rated output |
| Hysteresis | ±0.1 % of rated output |
| Repeatability | ±0.05 % of rated output |
| Output @ rated capacity | 2 mV/V (nominal) |

ENVIRONMENTAL SPECIFICATIONS

| Characteristic | Measure |
|----------------------------|------------------------------------|
| Temperature, operating | -29 °C to 93 °C [-20 °F to 200 °F] |
| Temperature, compensated | 21 °C to 77 °C [70 °F to 170 °F] |
| Temperature effect, zero | ±0.002 % of rated output/°F |
| Temperature effect, output | ±0.002 % of reading/°F |

ELECTRICAL SPECIFICATIONS

| Characteristic | Measure |
|-----------------------|------------------------------------|
| Excitation | 3.28 kHz optimum @ 10 Vac max. RMS |
| Insulation resistance | > 5000 mOhm @ 50 Vdc |
| Bridge resistance | 350 ohm (nominal) |
| Number of bridges | 1 |
| Zero balance | ±1.0 % of rated output |

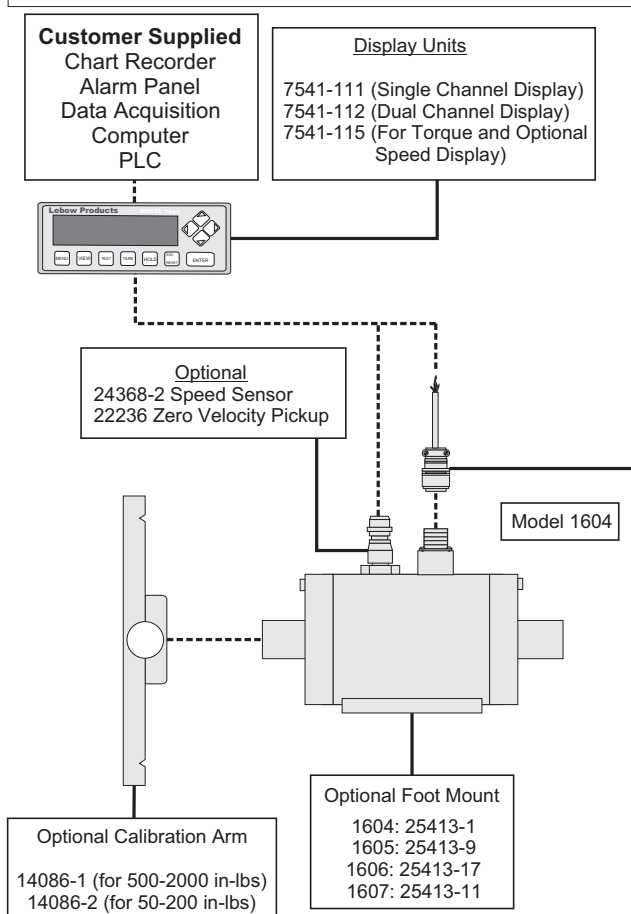
TYPICAL SYSTEM DIAGRAM

Mating Connectors & Cables

- 064-LW13621 Mating connector
- 064-LW13656 Mating connector, speed pickup
- 064-LW25469 Mating connector, zero velocity speed pickup
- 7200-28-XX* Mating connector & 6 conductor cable (unamplified unit with sense leads but not shunt cal)
- 7200-106-XX* Mating connector & 6 conductor cable (for connection to instrument 7541)
- 7204-00-XX* Speed sensor cable, pigtail leads at instrument
- 7204-16-XX* Speed sensor cable to instrument 7541
- 7220-47-XX* Zero velocity speed sensor cable, pigtail leads at instrument
- 7220-119-XX* Zero velocity speed sensor cable to instrument 7541

* XX represents length in feet 100ft maximum

** XX represents length in feet 20ft maximum



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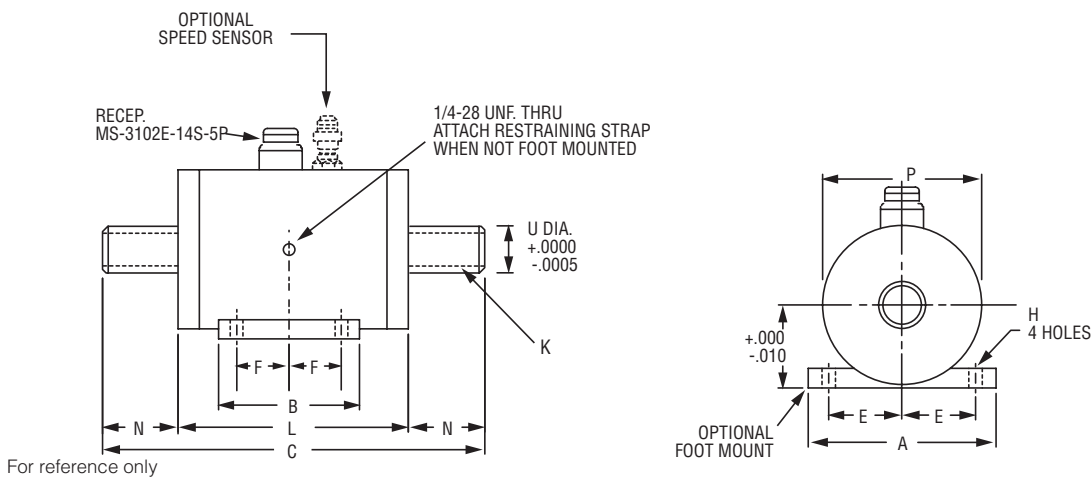
MECHANICAL SPECIFICATIONS

| Model | Capacity lb-in | Capacity N-m | Max speed RPM | Protected for overloads to lb-in | Torsional stiffness lb-in/rad | Rotating inertia lb-in sec ² | Weight kg [lb] |
|-----------|----------------|--------------|---------------|----------------------------------|-------------------------------|---|----------------|
| 1604-50 | 50 | 5 | 10000 | 150 | 5000 | 2.59 x 10 ⁻³ | 8,20 [18] |
| 1604-100 | 100 | 10 | 10000 | 300 | 13500 | 2.59 x 10 ⁻³ | 8,20 [18] |
| 1604-200 | 200 | 20 | 10000 | 600 | 33000 | 2.59 x 10 ⁻³ | 8,20 [18] |
| 1604-500 | 500 | 55 | 10000 | 1500 | 85000 | 2.59 x 10 ⁻³ | 8,20 [18] |
| 1604-1K | 1000 | 115 | 10000 | 3000 | 150000 | 2.59 x 10 ⁻³ | 8,20 [18] |
| 1604-2K | 2000 | 225 | 10000 | 3000 | 225000 | 2.59 x 10 ⁻³ | 8,20 [18] |
| 1605-2K | 2000 | 225 | 10000 | 6000 | 700000 | 8.41 x 10 ⁻³ | 12,70 [28] |
| 1605-5K | 5000 | 565 | 10000 | 15000 | 950000 | 8.41 x 10 ⁻³ | 12,70 [28] |
| 1605-10K | 10000 | 1130 | 10000 | 20000 | 1000000 | 8.41 x 10 ⁻³ | 12,70 [28] |
| 1606-20K | 20000 | 2250 | 6700 | 60000 | 4080000 | 3.62 x 10 ⁻² | 18,20 [40] |
| 1606-30K | 30000 | 3390 | 6700 | 60000 | 4080000 | 3.62 x 10 ⁻² | 18,20 [40] |
| 1607-50K | 50000 | 5650 | 6000 | 150000 | 11800000 | 0.15 | 34,10 [75] |
| 1607-100K | 100000 | 11300 | 6000 | 150000 | 19950000 | 0.47 | 34,10 [75] |

MOUNTING DIMENSIONS

| Model | C cm [in] | L cm [in] | N cm [in] | P cm [in] | U cm [in] | K cm [in] | A cm [in] | B cm [in] | D cm [in] | E cm [in] | F cm [in] | H cm [in] |
|-------|---------------|--------------|--------------|--------------|--------------|-----------------|--------------|--------------|-------------|-------------|-------------|-------------|
| 1604 | 25,40 [10] | 15,24 [6] | 5,32 [2] | 10,16 [4] | 2,54 [1.00]* | 0,64 [0.25 sq]* | 12,07 [4.75] | 8,89 [3.50] | 5,40 [2.13] | 5,08 [2] | 3,49 [1.38] | 0,71 [0.28] |
| 1605 | 32,39 [12.75] | 18,42 [7.25] | 6,99 [2.75] | 11,99 [4.75] | 3,81 [1.50] | 0,95 [0.38 sq.] | 16,51 [6.25] | 10,16 [4] | 6,35 [2.50] | 6,67 [2.63] | 3,81 [1.50] | 1,03 [0.41] |
| 1606 | 40,01 [15.75] | 20,96 [8.25] | 9,53 [3.75] | 13,97 [5.50] | 5,72 [2.25] | 1,27 [0.50 sq.] | 18,42 [7] | 13,34 [5.25] | 7,62 [3] | 7,62 [3] | 5,08 [2] | 1,35 [0.53] |
| 1607 | 48,26 [19] | 22,23 [8.75] | 13,02 [5.13] | 16,51 [6.50] | 7,62 [3.00] | 1,91 [0.75 sq.] | 24,59 [8.50] | 13,97 [5.50] | 8,89 [3.50] | 8,89 [3.50] | 5,08 [2] | 1,35 [0.53] |

* 50, 100, 200 lb-in units: K=3/16 in sq., U=3/4 in



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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.

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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