

Model 424

Wing Union/Hammer Union Pressure Sensors



DESCRIPTION

The Model 424 Wing Union Pressure Sensors are rugged sensors designed for use with 2002 and 2202 wing unions in demanding land-based and off-shore applications.

The isolated pressure sensing diaphragm minimizes zero shift during hammer-up and eliminates long-term signal drift in the field. The sensor diaphragm and wing union fitting are machined as one part. Model 424 is constructed as an all-welded assembly using a deep penetration, proprietary, electron beam welding

process which also ensures hermetic integrity for all field conditions. These sensors incorporate special assembly processes to vibration and shock proof the components to ensure performance is maintained during the rigors of fracturing and cementing applications. The Model 424 Wing Union is machined of Inconel® X-750, providing service with highly abrasive and corrosive media.

FEATURES

- Quick delivery service
- Inconel® X-750 wetted parts for additional durability with abrasive or corrosive media
- ± 0.2 % accuracy BFUL
- Rugged, robust design
- RFI/EMI protected
- Optional on-board temperature sensor
- Optional one wire (with IS approval) or two-wire (without IS approval) shunt calibration allows users the ability to validate the offset signal in the field, ensuring the sensor is actively plugged into the system
- Intrinsically safe
- CE approved; CSA/ATEX certification

POTENTIAL APPLICATIONS

- Acidizing
- Choke manifold
- Fracturing and cementing
- Mud pumps / mud logging
- New well development and extraction
- Oil and gas drilling
- Service and cement trucks
- Standpipe
- Stimulation
- Well head measurement



Model 424

PERFORMANCE SPECIFICATIONS

| Characteristic | Measure |
|-----------------------|--|
| Pressure ranges | 0 psi to 5000 psi; 0 psi to 6000 psi; 0 psi to 10000 psi; 0 psi to 15000 psi; 0 psi to 20000 psi; 0 bar to 350 bar; 0 bar to 400 bar; 0 bar to 700 bar; 0 bar to 1000 bar; 0 bar to 1350 bar |
| Accuracy ¹ | ±0.2 % best fit straight line |
| Calibration | Standard 5-point calibration: 0 %, 50 %, and 100 % of full scale |
| Output | 4 mA to 20 mA, two-wire |
| Resolution | Infinite |

ENVIRONMENTAL SPECIFICATIONS

| Characteristic | Measure |
|-----------------------------|--|
| Temperature, operating | -43 °C to 85 °C [-45 °F to 185 °F] |
| Temperature, compensating | -34 °C to 82 °C [-30 °F to 180 °F] |
| Temperature effect, zero | 0.018 % full scale/°C [0.01 % full scale/°F] |
| Temperature effect, span | 0.018 % reading/°C [0.01 % reading/°F] |
| Temperature effect, sealing | Hermetically sealed IP68/NEMA 6P |

ELECTRICAL SPECIFICATIONS

| Characteristic | Measure |
|------------------------------|--|
| Supply voltage | 9 Vdc to 28 Vdc |
| Insulation resistance | >100 MOhm @ 50 Vdc |
| Max. loop resistance | 950 ohm @ 28 V decreasing linearly to 0 ohm @ 9 V |
| Circuit protection | Reverse polarity protection of supply leads |
| RFI/EMI protection | Noise immunity from 5000 Hz to 1 GHz |
| Frequency response | Customer specified and factory installed filter for frequency response of min. 10 Hz to max. of 2500 Hz (1.4 x 10 ⁻⁴ s) |
| Electrical termination (std) | Standard electrical termination: MS series compatible, 4 pin, connector designed in stainless steel specifically for the oil and gas industry; offers full hermetic sealing (see pages 3 and 4 for additional electrical terminations) |
| Shunt calibration | Optional one-wire (with IS approval) or two-wire (without IS approval) |

MECHANICAL SPECIFICATIONS

| Characteristic | Measure |
|-----------------------|---|
| Media | Corrosive and abrasive service, Inconel® X-750 |
| Overload, safe | 150 % rated full scale pressure or limit of WECO 2002 and 2202 fitting |
| Overload, burst | 250 % rated pressure or limit of WECO 2002 and 2202 fittings |
| Pressure port | WECO 2002 and 2202 wing union, 51 mm [2 in] pipe, male sub end |
| Wetted parts material | Inconel® X-750 |
| Weight | 2357 g [5.2 lb] |
| Case material | 316L stainless steel (labels are welded stainless steel with embossed characters) |

INTERNAL AMPLIFIERS

| Amplifier specifications | Intrinsically safe amp: Option 2n(2N)*** |
|------------------------------|--|
| Output signal | 4 mA to 20 mA |
| Input power (voltage) | 9 Vdc to 28 Vdc |
| Input power (current) | 4 mA to 24 mA |
| Frequency response (amp) | 2500 Hz |
| Power supply rejection | 60 db |
| Operating temperature | -43 °C to 85 °C [-45 °F to 185 °F] |
| Reverse voltage protection | Yes |
| Short circuit protection | Yes |
| Wiring code: connector (std) | A No connection B (+) Output C (+) Supply D Case ground |

*** See Honeywell's Web site (<http://measurementsensors.honeywell.com>) for the most up-to-date information regarding intrinsically safe approvals, ref. #008-0547-00.

Wing Union/Hammer Union Pressure Sensors

LISTINGS

| Order code | Description |
|------------------------------------|---|
| BP424NG,6,1AC,2N,6Z,7AD,10E | Model 424, 350 bar, ±0.2 % accuracy BFSL, -35 °C to 80 °C [-30 °F to 180 °F] temperature compensation, 4 mA to 20 mA two-wire intrinsically safe, MS compatible, 4-pin connector, wetted diaphragm |
| BP424EJ,6,1AC,2N,6Z,7AD,10E | Model 424, 15,000 psi, ±0.2 % accuracy BFSL, -35 °C to 80 °C [-30 °F to 180 °F] temperature compensation, 4 mA to 20 mA two-wire intrinsically safe, MS compatible, 4-pin connector, wetted diaphragm |
| BP424EL,6,1AC,2N,6Z,7AD,10E | Model 424, 20,000 psi, ±0.2 % accuracy BFSL, -35 °C to 80 °C [-30 °F to 180 °F] temperature compensation, 4 mA to 20 mA two-wire intrinsically safe, MS compatible, 4-pin connector, wetted diaphragm |
| BP424NU,6,1AC,2N,6Z,7AD,10E | Model 424, 1350 bar, ±0.2 % accuracy BFSL, -35 °C to 80 °C [-30 °F to 180 °F] temperature compensation, 4 mA to 20 mA two-wire intrinsically safe, MS compatible, 4-pin connector, wetted diaphragm |

ORDER CODE NOMENCLATURE

Combine the order code, range code, and options code.

BP424 **EJ,** **6, 1AC, 2N, 6Z, 7AD, 10E**

Order code Range code Options code

| BP424 | EJ | 6 | 1AC | 2N | | 6Z | 7AD | | 10E |
|---------------|---------------------|----------------------|---|--|--|---|--|----------------------------------|-----------------------------|
| Pressure Type | Range (Gauge) | Accuracy | Temperature Compensation | Internal Amplifiers | Amplifier Enhancements | Electrical Termination | Wiring Code Options | Calibration Options | Material Type |
| BP 424 | DR 5000 psi | 6 ±0.2 % BFSL | 1AC -35 °C to 80 °C [-30 °F to 180 °F] | 2N 4 mA to 20 mA two wire, intrinsically safe | None | 6A Bendix PT, 6-pin shell size 10 conn PTH-10-6P | 7AD 4-Pin Standard A: N/C or Shunt; B: + Out C: + Supply; D: Case Ground | None | 10E Wetted diaphragm |
| | DS 6000 psi | | | 2Y CE approved, 4 mA to 20 mA two wire | 3D Remote buffered one-wire shunt calibration | 6Z MS series comp. 4 pin, shell size 14 connector (32A-14S-2P-10-M2) | 7AE 4-Pin Jupiter A: N/C; B: Case Ground C: + Out; D: + Supply | 9A Special cal., 10 point | |
| | DV 10000 psi | | | | 3J Remote buffered two-wire shunt calibration | 6BF Jupiter 4-pin | 7AF 6-Pin Standard A: + Supply; B: + Out C: N/C; D: Case Ground E: N/C or Shunt; F: N/C | 9B Special cal., 20 point | |
| | EJ 15000 psi | | | | | 6BG Jupiter 7-pin | 7AG 7-Pin Jupiter A: N/C; B: N/C; C: N/C; D: + Supply; E: + Out F: Case Ground; G: N/C or Shunt | | |
| | EL 20000 psi | | | | | 6BH Rota B-Series 4-pin | 6-Pin Standard A: + Supply; B: - Supply; C: N/C; D: Case Ground; E: + Shunt Cal F: - Shunt Cal | | |
| | NG 350 bar | | | | | | | | |
| | NN 400 bar | | | | | | | | |
| | NH 700 bar | | | | | | | | |
| | MN 1000 bar | | | | | | | | |
| | NU 1350 bar | | | | | | | | |

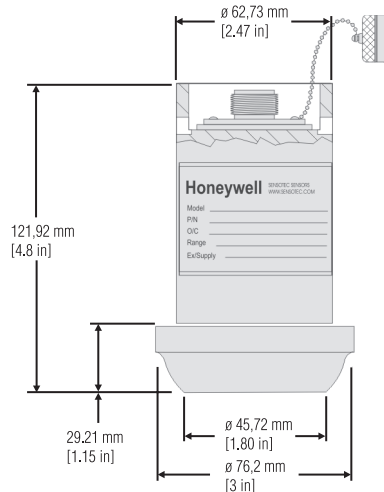
Exceptions:
 Option 7AD can only be used with Options 6Z or 6BF or 6BH
 Option 7AE can only be used with Option 6BF
 Option 7AF can only be used with Option 6A
 Option 7AG can only be used with Option 6BG
 Option 3D cannot be used with Options (7AE and 6BF)
 Option 3J can only be used with Option 2Y
 Two-wire shunt cal is not IS approved.

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RANGE CODES

| Range Code | Available ranges |
|------------|--------------------|
| DR | 0 psi to 5000 psi |
| DS | 0 psi to 6000 psi |
| DV | 0 psi to 10000 psi |
| EJ | 0 psi to 15000 psi |
| EL | 0 psi to 20000 psi |
| NG | 0 bar to 350 bar |
| NN | 0 bar to 400 bar |
| NH | 0 bar to 700 bar |
| MN | 0 bar to 1000 bar |
| NU | 0 bar to 1350 bar |

MOUNTING DIMENSIONS AND CHARACTERISTICS



For reference only

NOTES

1. Accuracies stated are expected for best fit straight line for all errors including linearity, hysteresis and non-repeatability thru zero.
2. Availability varies with range.



SPECIAL REQUIREMENTS (CONSULT FACTORY)

Need a special modification or complete custom design to meet your unique requirements? Consult our factory by calling +1 614-850-5000 (800-848-6564) or visit us online at <http://measurementsensors.honeywell.com>.

OPTION CODES

| | |
|--|---|
| Pressure Ranges | 0 psi to 5000 psi; 0 psi to 6000 psi; 0 psi to 10000 psi; 0 psi to 15000 psi; 0 psi to 20000 psi; 0 bar to 350 bar; 0 bar to 400 bar; 0 bar to 700 bar; 0 bar to 1000 bar; 0 bar to 1350 bar |
| Temperature Compensation | -34 °C to 82 °C [-30 °F to 180 °F] |
| Internal Amplifier | 2N. 4 mA to 20 mA, two-wire output; intrinsically safe 2Y. CE approved 4 mA to 20 mA two-wire |
| Accuracy | 6. ±0.2 % BFSL |
| Electrical Termination | Standard electrical termination: MS series compatible, 4 pin, connector designed in stainless steel specifically for the oil and gas industry; offers full hermetic sealing 6A. Bendix PT, 6-pin shell size 10 conn, PTIH-10-6P (max. 121 °C [250 °F]) 6Z. MS series compatible, 4 pin, shell size 14 connector (32A-14S-2P-10-M2) 6BF. Jupiter 4-pin connection 6BG. Jupiter 7-pin connection 6BH. Rota B-Series 4-pin Other connection(s) - By request |
| Amplifier Enhancements | 3D. Remote buffered shunt calibration 3J. Remote buffered two-wire shunt calibration |
| Special Calibration² | 9A. 10 point (5 up/5 down) 20 % increments @ 21 °C [70 °F] 9B. 20 point (10 up/10 down) 10 % increments @ 21 °C [70 °F] |
| Wetted Diaphragm | 10E. Inconel® X-750 |

WIRING CODE OPTIONS

| Order Code | Wiring |
|------------|--|
| 7AD | 4 Pin Standard A: N/C or Shunt; B: + Out; C: + Supply; D: Case Ground |
| 7AE | 4 Pin Jupiter A: N/C; B: Case Ground; C: + Out; D: + Supply |
| 7AF | 6 Pin Standard A: + Supply; B: + Out; C: N/C; D: Case Ground E: N/C or Shunt; F: N/C |
| 7AG | 7 Pin Standard A: N/C; B: N/C; C: N/C; D: + Supply; E: + Out F: Case Ground; G: N/C or Shunt |
| 7AH | 6 Pin Standard A: + Supply; B: - Supply; C: N/C; D: Case Ground E: + Shunt Cal; F: - Shunt Cal |

Option 7AD can only be used with Options 6Z or 6BF or 6BH

Option 7AE can only be used with Option 6BF

Option 7AF can only be used with Option 6A

Option 7AG can only be used with Option 6BG

Option 3D cannot be used with Options (7AE and 6BF)

Option 3J can only be used with Option 2Y

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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.

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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