

Model Super TJE

Ultra Precision Pressure Transducer



DESCRIPTION

Model Super TJE is one of the most accurate industrial pressure transducers available today. The Super TJE features 0.05 % accuracy and zero temperature error of less than 0.0015 % FS/°F. These specifications are maintained by welding a double jacket shell of stainless steel along with our proprietary “true gage” second diaphragm that isolates the strain gage circuitry from atmospheric contamination. High output options of 5 Vdc or 10 Vdc and 4 mA to 20 mA eliminate the need for an amplifier card in the data system. An optional signature calibration chip provides calibration information for automatic set-up with the Model SC four-or-twelve-channel digital indicator.

The gage Model Super TJE is a strain gage based transducer and features a unique “true gage” design which utilizes a second welded stainless steel diaphragm that hermetically seals the strain gage circuitry from atmospheric contamination. This design references the primary pressure sensing diaphragm to the atmosphere, and provides a stable zero regardless of the transducer environment.

The absolute Model Super TJE has an all-welded vacuum reference chamber assuring long-term stability.

FEATURES

- 0.0015 % FS/°F temperature effect
- 0.05 % accuracy
- 10 psig to 7500 psig range
- True gage or absolute
- mV/V, 4 mA to 20 mA, 0 Vdc to 5 Vdc, or 0 Vdc to 10 Vdc output
- Isolated double wall construction
- Enhanced temperature stability
- Intrinsically safe available (2N option only)¹²
- CE¹³

Model Super TJE

PERFORMANCE SPECIFICATIONS

Characteristic	Measure
Pressure ranges ¹	10 psig; 15, 25, 50, 75, 100, 150, 200, 300, 500, 750, 1000, 1500, 2000, 3000, 5000, 7500 psig/a
Accuracy ¹⁰	±0.05 % full scale
Resolution	Infinite
Calibration	5-point calibration: 0 %, 50 %, and 100 % of full scale

ENVIRONMENTAL SPECIFICATIONS

Characteristic	Measure
Temperature compensated	15 °C to 71 °C [60 °F to 160 °F]
Temperature effect, zero	0.0015 % full scale/°F
Temperature effect, span	0.0015 % reading/°F
Temperature effect, sealing	Hermetically sealed IP68/NEMA 6P

ELECTRICAL SPECIFICATIONS

Characteristic	Measure
Strained gage type	Bonded foil
Insulation resistance	5000 mOhm @ 50 Vdc
Bridge resistance	350 ohm
Shunt calibration data	Included
Electrical termination (std)	PTIH-10-6P or equiv. (Hermetic stainless)
Mating connector (not incl)	PT06A-10-6S or equiv. (AA111)

MECHANICAL SPECIFICATIONS

Characteristic	Measure
Media	All gases and liquids compatible with wetted parts
Wetted parts material	
10 psi to 1500 psi	17-4 PH stainless steel
2000 psi to 7500 psi	15-5 PH stainless steel
Weight	12 oz
Case material	Stainless steel
Marking	Permanent metal name plate MIL-STD130F 4.3; Individual sequential serial number per sensor; Country of origin and date of manufacture

OPTION CODES

Range Code	Many range/option combinations are available in our quick-ship and fast-track manufacture programs. Please see http://sensing.honeywell.com/TMSensorship for updated listings.	
Pressure ranges	10, 15, 25, 50, 75, 100, 150, 200, 300, 500, 750, 1000, 1500, 2000, 3000, 5000, 7500 psig/a	
Temperature compensation	1a. 60 °F to 160 °F 1b. 30 °F to 130 °F 1c. 0 °F to 185 °F 1d. -20 °F to 130 °F	1e. -20 °F to 200 °F 1f. 70 °F to 250 °F ⁷ 1g. 70 °F to 325 °F ⁷
Internal amplifiers ⁴	2a. 0 Vdc to 5 Vdc (4 wire) output ⁴ 2c. 0 Vdc to 5 Vdc output ⁴ 2j. 4 mA to 20 mA (3 wire) output ⁴ 2k. 4 mA to 20 mA (two wire) output ^{4,15}	2n. 4 mA to 20 mA (two wire) intrinsically safe ^{4,15} 2t. 0 Vdc to 10 Vdc output ⁴ 2u. Unamp., mV/V output
Internal amplifier enhancements	3a. Input/output isolation ¹⁴ 3d. Remote buffered shunt calibration	
Pressure ports ⁶	5a. 1/4-18 NPT female (2000 psi to 7500 psi) 5b. 1/4-18 NPT male (10 psi to 1500 psi) 5d. 7/16-20 UNF male	5g. G 1/4 male 5t. G 1/2 male
Electrical termination	6a. Bendix PTIH-10-6P (or equiv), 6 pin (max 250 °F) 6e. Integral cable: Teflon (0 °F to 180 °F) 6f. Integral cable: PVC (-20 °F to 160 °F) 6g. Integral cable: Neoprene (0 °F to 180 °F) ⁵ 6h. Integral cable: Silicone (-65 °F to 300 °F) 6i. Integral underwater cable (max 180 °F) ⁵	6m. DIN 43650 6q. Molded integral cable: Polyurethane (max 180 °F) ⁵ 6t. Integral cable with Heyco spring strain relief (5 ft)
Shunt calibration	8a. Precision internal resistor ⁷	
Special calibration ⁶	9a. 10 point (5 up/5 down) 20 % increments @ 70 °F (gage) 9b. 20 point (10 up/10 down) 10 % increments @ 70 °F (gage)	
Bridge resistance	12b. 5000 ohm (foil) (max 400 °F)	
Zero and span adjustment	14a. No access to pots 14b. Top access to pots	
Shock and vibration	44a. Shock and vibration resistance	
Interfaces	53e. Signature calibration ⁷ 53t. TEDS IEEE1451.4 module ¹¹	

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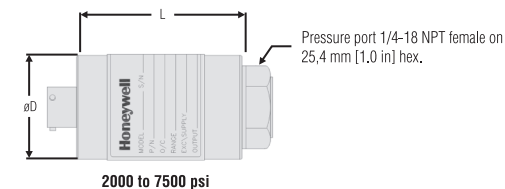
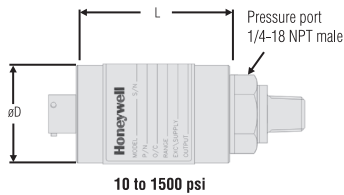
RANGE CODES

Pressure range	10**	15	25	50	75	100	150	200	300	500	750	1000	1500	2000	3000	5000	7500							
RANGE CODE	AV	BJ	BL	BN	BP	BR	CJ	CL	CP	CR	CT	CV	DJ	DL	DN	DR	DT							
D mm [in] psia	NA	41 [1.63]																						
D mm [in] psig	51 [2.0]		41 [1.63]																					
L mm [in] psia	NA	66 [2.62]																						
L* mm [in] psia	NA	92 [3.63]																						
L mm [in] psig	64 [2.5]		66 [2.62]																					
L* mm [in] psig	89 [3.5]		92 [3.63]																					
Over pressure (test) (psi)	150 % FS																							
Over pressure (burst) (psi)	100		200		400		800		2000		3000		3500		4000		8000		12 K		20 K		25 K	
Port volume cm ³ [in ³]	2,8[0.17]													3,1 [0.12]										
Natural frequency (Hz)	1.6 K		2.1 K	2.5 K	2.9 K	3.5 K	4.5 K	6 K	7 K	9 K	9.5 K	12 K	17 K	20 K	35 K		40 K		54 K		60 K			

* Length with amplified option

** 10 psi not available with absolute pressure

MOUNTING DIAGRAM AND CHARACTERISTICS



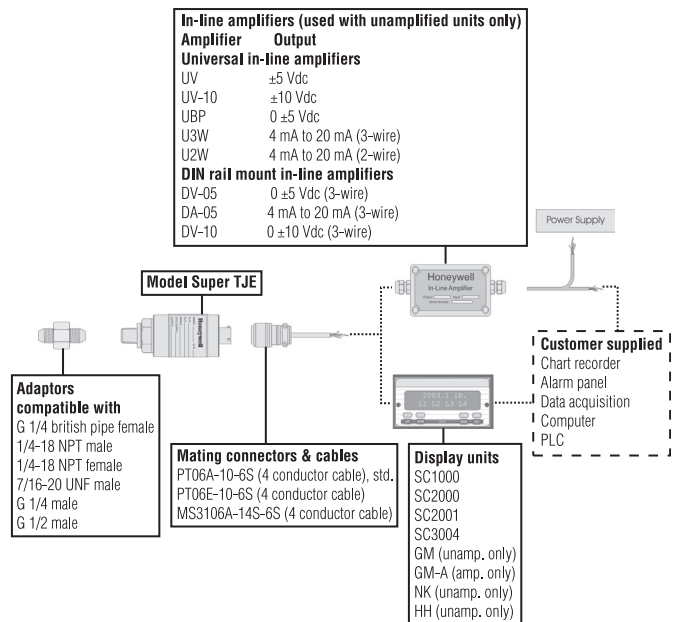
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SPECIAL REQUIREMENTS (CONSULT FACTORY)

Have a special requirement? New case pressure, different cable lengths, electrical connectors, or materials? Consult our factory by calling +1 614-850-5000 (800-848-6564). Customization is key to our test and measurement business. Special outputs, wiring codes, and calibrations are all standard to us.

TYPICAL SYSTEM DIAGRAM



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INTERNAL AMPLIFIERS

Amplifier Specifications	mV/V output standard	Voltage output: Option 2a ⁴	Vehicle voltage output: Option 2c ⁴	Vehicle voltage output: Option 2t ⁴	Current three-wire: Option 2j ⁴	Current two-wire: Option 2k ⁴	Intrinsically safe amp: Option 2n ^{***}
Output signal	2 mV/V	0 Vdc to 5 Vdc	0-5 Vdc or ±5 Vdc @ 5 mA	0-10 Vdc or ±10 Vdc @ 5 mA	4 mA to 20 mA	4 mA to 20 mA	4 mA to 20 mA
Input power (voltage)	10 Vdc regulated	±15 Vdc or 26-32 Vdc	11 Vdc to 28 Vdc	15 Vdc to 28 Vdc	22 Vdc to 32 Vdc ³	9 Vdc to 32 Vdc ³	9 Vdc to 28 Vdc ³
Input power (current)	28.5 mA @ 10 Vdc	45 mA	40 mA	40 mA	65 mA	4 mA to 28 mA	4 mA to 24 mA
Freq. resp. (amp)	Natural frequency	2000 Hz	3000 Hz	3000 Hz	2500 Hz	2500 Hz	2000 Hz
Power supply rej.	NA	60 db	60 db	60 db	60 db	60 db	60 db
Operating temp.	-100 °F to 250 °F	-20 °F to 185 °F	-40 °F to 200 °F	-40 °F to 185 °F	-40 °F to 185 °F	-40 °F to 185 °F	-20 °F to 185 °F
Reverse voltage protection	NA	Yes	Yes	Yes	Yes	Yes	Yes
Short cir. protection	NA	Momentary	Momentary	Momentary	Yes	Yes	Yes
Wiring code: connector (std)³	A (+) Excitation B (+) Excitation C (-) Excitation D (-) Excitation E (-) Output F (+) Output	A (+) Supply B Output com. C Supply ret. D (+) Output E Shunt Cal 1 F Shunt Cal 2	A (+) Supply B Output com.** C Supply ret.** D (+) Output E Shunt Cal 1 F Shunt Cal 2	A (+) Supply B Output com.** C Supply ret.** D (+) Output E Shunt Cal 1 F Shunt Cal 2	A (+) Supply B Output com.** C Supply ret.** D (+) Output E Shunt Cal 1 F Shunt Cal 2	A (+) Supply B No conn. C No conn. D (+) Output E Case ground F No conn.	A (+) Supply B No conn. C No conn. D (+) Output E Case ground F No conn.
Wiring code: cable^{3,8,9}	R (+) Excitation BI (-) Excitation G (-) Output W (+) Output	R (+) Supply BI Output com. G Supply ret. W (+) Output B Shunt Cal 1 Br Shunt Cal 2	R (+) Supply BI Output com* G Supply ret.* W (+) Output B Shunt Cal 1 Br Shunt Cal 2	R (+) Supply BI Output com* G Supply ret.* W (+) Output B Shunt Cal 1 Br Shunt Cal 2	R (+) Supply BI Output com* G Supply ret.* W (+) Output B Shunt Cal 1 Br Shunt Cal 2	R (+) Supply BI (+) Output W Case ground	R (+) Supply BI (+) Output W Case ground

* Black and green wires are internally connected.

** Pins B and C are internally connected.

*** See Honeywell's Web site for the most up-to-date information regarding intrinsically safe approvals, ref. #008-0547-00.

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NOTES

1. Gage pressure units greater than 500 psi are sealed at atmospheric pressure.
2. Input power (voltage) for internal amplifier options 2j, 2k, 2n (2N) depends on load resistance.
3. Interconnecting shunt cal. 1 with shunt cal. 2 terminal provides 50 % (unamplified units), 75% (4 mA to 20 mA three-wire units), or 80 % (voltage amp. units) of full scale output for quick calibration. Shunt calibration comes standard with internal amplifier options 2a, 2b, 2c, 2t and 2j.
4. Not available with temperatures below -29 °C [-20 °F] or above 85 °C [185 °F].
5. Not available with option 1c, 1e, 1f, 1g, 1h or 1i.
6. Availability varies according to range.
7. Cannot be used with amplified option.
8. G=Green; B=Blue; W=White; Bl=Black; Br=Brown; Y=Yellow; R=Red; O=Orange. Color specifying cable and number or letter specifying connector.
9. No mating connector necessary with cable option.
10. Accuracies stated are expected for best fit straight line for all errors including linearity, hysteresis & non-repeatability thru zero.
11. Consult factory for TEDS availability with amplified models.
12. Range dependent; consult factory. Termination dependent; consult factory.
13. Internal amp and termination dependent; consult factory.
14. Input/output isolation only available with voltage (2A, 2B, or 2C amplifiers).
15. 5000 ohm bridge required.

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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.

For more information about Sensing and Control products, visit www.honeywell.com/sensing or call +1-815-235-6847

Email inquiries to info.sc@honeywell.com

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 catalogue 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.

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Honeywell

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