

## 3100 Series and 3200 Heavy Duty Series Compact OEM Pressure Transmitters

- ▶ 0–100 psi to 0-30,000 psi ranges (0-7 bar to 0-2,200 bar)
- ▶ High Proof Pressures
- ▶ Broad Choice of Outputs
- ▶ RoHS Compliant

For OEMs that need consistent high levels of performance, reliability and stability the 3100 and 3200 Series sputtered thin film units offer unbeatable price performance ratio in a small package size. They feature all-stainless steel wetted parts, a broad selection of electrical and pressure connections, and wide choice of electrical outputs to allow stock configurations suitable for most applications without modification. At the heart of both these series is a sputter element that also provides exceptional temperature specifications. Plus, our manufacturing process for the 3100 and 3200 Series include the latest automated equipment, producing the most consistent and best price to performance sensor on the market today.

Additionally, 3200 Series transmitters feature thicker diaphragms and a pressure restrictor to withstand the rigors of cavitations or extreme pressure spikes, delivering years of reliable and stable performance in pulsating applications.

The compact construction of both these series makes them ideal for installation where space is at a premium.

### Specifications

Performance	
<b>Long Term Drift</b>	0.2% FS/YR (non-cumulative)
<b>Accuracy</b>	
3100	0.25% FS
3200	0.5% FS for <1000 psi (60 bar)
<b>Thermal Error</b>	
3100	0.83% FS/100°F (1.5% FS/100°C)
3200	2% FS/100°C for <1000 psi (60 bar)
<b>Compensated Temperatures</b>	-40°F to +257°F (-40°C to +125°C)
<b>Operating Temperatures</b>	-40°F to +257°F (-40°C to +125°C)
<b>Zero Tolerance</b>	
3100	0.5% of span
3200	1% FS for <1000 psi (60 bar)
<b>Span Tolerance</b>	
3100	0.5% of span
3200	1% FS for <1000 psi (60 bar)
<b>Response Time</b>	1 ms
<b>Fatigue Life</b>	Designed for more than 100 M cycles
Mechanical Configuration	
<b>Pressure Port</b>	See under "How to Order," last page
<b>Wetted Parts</b>	17-4 PH Stainless Steel
<b>Electrical Connection</b>	See under "How to Order," last page
<b>Enclosure</b>	IP67 (IP65 for electrical code G)
<b>Vibration</b>	40G peak to peak sinusoidal, (Random Vibration: 20 to 1000 Hz @ approx. 40G peak per MIL-STD-810E)
<b>Shock</b>	Withstands free fall to IEC 68-2-32 procedure 1
<b>EMC (Radiated Immunity)</b>	100 V/m
<b>Approvals</b>	CE, conforms to European Pressure Directive, Fully RoHS compliant, UL recognized files # E219842 & E174228
<b>Weight</b>	35 grams



### Individual Specifications

<b>Voltage</b>	
<b>Output (3-wire)</b>	0 V min. to 10 V max. See under "How to Order," last page
<b>Supply Voltage</b>	2 Volts above full scale to 30 Vdc max @ 4.5 mA (6.5 mA on dual output version)
<b>Source and Sinks</b>	2 mA
<b>Current</b>	
<b>Output (2-wire)</b>	4-20 mA
<b>Supply Voltage</b>	8-30 Vdc
<b>Maximum Loop Resistance</b>	(Supply Voltage-8) x 50 ohms
<b>Ratiometric</b>	
<b>Output</b>	0.5 to 4.5 Vdc @ 4 mA (6.5 mA on dual output version)
<b>Supply Voltage</b>	5 Vdc ±10%

**Pressure Capability**

Pressure Range PSI (Bar)	Proof Pressure (x Full Scale)		Burst Pressure (x Full Scale)	
	3100	3200	3100	3200
100-300 (7-25)	3.00 x FS	3.00 x FS	40 x FS	
500-1,500 (40-100)			20 x FS	
2,000-6,000 (160-400)			10 x FS	
7,500-9,000 (600)			10 x FS	
10,000 (700)	2.00 x FS	3.00 x FS	4 x FS	
15,000 (1,000)			>60,000 PSI (4,000 bar)	
25,000 (1,800)				
30,000 (2,200)	1.40 x FS	—	1.5 x FS	

**Pressure Ports**

SAE Dimensions in Inches				
	<b>Fitting Code</b> <b>Torque</b>	<b>08 = 1/8"-27 NPT</b> 2-3 TFFT*	<b>4D = 1/8"-27 NPTF Dryseal</b> 2-3 TFFT*	<b>02 = 1/4"-18 NPT</b> 2-3 TFFT*
<b>Fitting Code</b> <b>Torque</b>	<b>4C = 1/4"-18 NPTF Dryseal</b> 2-3 TFFT*	<b>4N = SAE J1926:2/3/8-24</b> 18-20 NM	<b>1J = 7/16"-20 UNF</b> 18-20 NM	<b>04 = 7/16"-20 UNF with 37° Flare</b> 15-16 NM
			Metric Dimensions in MM →	
<b>Fitting Code</b> <b>Torque</b>	<b>1G = SAE 4 Female 7/16" Schraeder</b> 18-20 NM	<b>1P = 9/16-18 "Heavy Duty"</b> 18-20 NM		<b>01 = G1/4"-27 External</b> 30-35NM
<b>Fitting Code</b> <b>Torque</b>	<b>05 = G1/4" A Integral Face Seal</b> 30-35 NM	<b>0L = M12 x 1.5</b> 28-30 NM	<b>2T = M12x1.5 HP Metal Washer Seal</b> 30-35 NM	<b>0K = M14 x 1.5</b> 2-3 TFFT*

\*NPT Threads 2-3 turns from finger tight. Wrench tighten 2-3 turns.

General Notes:

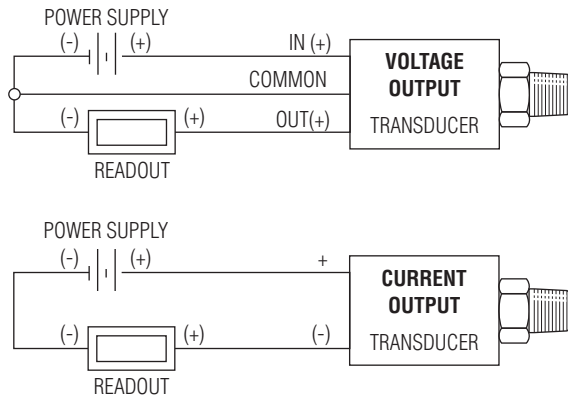
1. The diameter of all cans is 19 mm (0.748")
2. Hex is 22 mm (0.866") Across Flats (A/F) for deep socket mounting
3. O-Ring material, where applicable, is Nitrile<sup>®</sup> unless otherwise specified.

## Electrical Connector

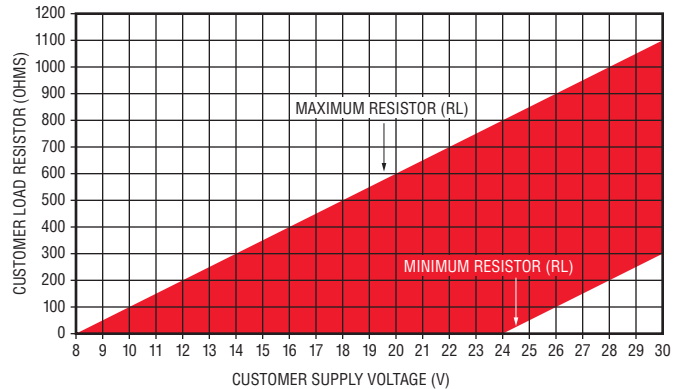
DIN 9.4 mm	M12 x 1P	Amp Superseal 1.5	Deutsch DT04-4P	DIN 43650A
<p>POLARIZING WIDE CONTACT</p>				

Code B			Code R		Code E		Code 6		Code 8		Code G	
Pin #	Voltage Mode	Current Mode	Voltage Mode	Current Mode	Voltage Mode	Current Mode	Voltage Mode	Current Mode	Voltage Mode	Current Mode	Voltage Mode	Current Mode
1	V <sub>out 1</sub> (pressure)	No Connect	V <sub>supply</sub>	Supply	V <sub>supply</sub>	Supply	V <sub>out</sub>	No Connect	Ground	Return	V <sub>supply</sub>	Supply
2	V <sub>supply</sub>	Supply	Ground	Return	V <sub>out</sub>	No Connect	Ground	Return	V <sub>supply</sub>	Supply	Ground	Return
3	V <sub>out 2</sub> (temp)	No Connect	V <sub>out</sub>	No Connect	Ground	Return	V <sub>supply</sub>	Supply	No Connect	No Connect	V <sub>out</sub>	No Connect
4	Ground	Return	No Connect	No Connect	No Connect	No Connect	—	—	V <sub>out</sub>	No Connect	No Connect	No Connect

## Wiring Diagram



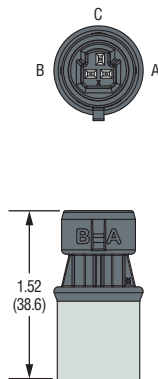
## Current Output Mode (Load Resistor Range)



Minimum Resistor Value =  $50 \cdot (+V - 24)$  for  $+V > 24V$   
 Maximum Resistor Value =  $50 \cdot (+V - 8)$  for  $+V > 8V$

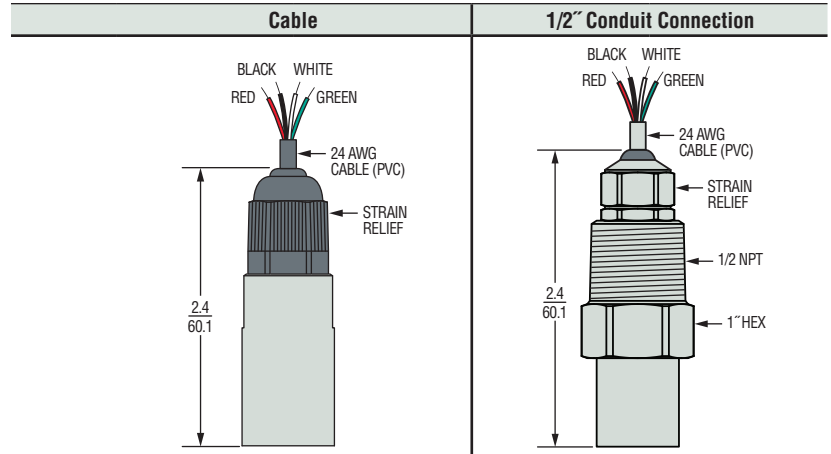
Cable-Out Types

Packard MetriPack



Code 9

Pin ID	Voltage Mode	Current Mode
C	$V_{out}$	No Connect
A	Ground	Return
B	$V_{supply}$	Supply
—	—	—



Code F

Code 3

Wire Color	Voltage Mode	Current Mode	Voltage Mode	Current Mode
Red	Supply	Supply	Supply	Supply
Black	Ground	Return	Ground	Return
White	$V_{out1}$ (pressure)	No Connect	$V_{out1}$ (pressure)	No Connect
Green	$V_{out2}$ (temp)	No Connect	$V_{out2}$ (temp)	No Connect

Mating Connectors

Part Number	Description	For Use on Elect. Code #
557230	MINI DIN Connector, Strain Relief (with drive screw & gasket)	B and R
557703-01M0	M12 Cord Set – 1 Meter (Red 1, Green 2, Blue 3, Yellow 4)	E
557703-03M0	M12 Cord Set – 3 Meters (Red 1, Green 2, Blue 3, Yellow 4)	E
557703-04M0	M12 Cord Set – 4 Meters (Red 1, Green 2, Blue 3, Yellow 4)	E
557703-05M0	M12 Cord Set – 5 Meters (Red 1, Green 2, Blue 3, Yellow 4)	E
	Recommended Mating Parts (AMP p/n: Housing 282087-1; Contacts 3X 183025-1; Seal 281934-1; Boot 880811-2)	6
557701	AMP Superseal Mate Kit	6
210729	AMP 3.5' Cable Cord Set – Clear Pos 1, Black Pos 2, Red Pos 3	6
210730	AMP 12" Flying Leads Cord Set – White Pos 1, Black, Red Pos 3	6
	Recommended Mating Parts (AMP p/n: Socket Conn 1-967325-1. Consult AMP for Contacts, Wire Seal and Strain Relief options)	7
557702	DIN 72585 Twist Lock Mate Kit	7
	Recommended Mating Parts (Deutsch p/n: Housing Plug DT064S-P012; Wedge W4S-P012; Sockets 4X 0462-201-1631)	8
224153	Deutsch Cord Set 3' Long (18 AWG PVC Cable – Black 1, Red 2, Green 3, White 4)	8
	Recommended Mating Parts (Delphi Packard MetriPack p/n: Body 12065286; Seal 12052893. Consult Delphi for Contacts)	9
218760	Packard Mate Kit	9
223974	Packard Cord Set 3' Long (24 AWG PVC Cable – White 1, Black 2, Red 3)	9
223975	Packard Cord Set 6' Long (24 AWG PVC Cable – White 1, Black 2, Red 3)	9
227987	Packard Cord Set 14.75' Long (22 AWG PVC Cable - White 1, Black 2, Red 3)	9
220492	Packard Mate - 12" Flying Leads – 3 Conductor PVC 18 AWG	9
222976	Packard Mate - 18" Flying Leads – 3 Conductor PVC 18 AWG	9
220797	Packard Mate - 24" Flying Leads – 3 Conductor PVC 18 AWG	9

## How to Order

Use the **bold** characters from the chart below to construct a product code

			<b>3100</b>	<b>B</b>	<b>200PG</b>	<b>02</b>	<b>B</b>	<b>R</b>	<b>01</b>	
Series	<p><b>3100 / 3200</b> - Pressure Transducer – Combination Pressure and Temperature<sup>1</sup>  <b>3101 / 3201</b> - Temp. Output Range -40°C to 125°C  <b>3102 / 3202</b> - Temp. Output Range 0°C to 100°C  <b>3103 / 3203</b> - Temp. Output Range 0°C to 80°C</p>									Cable Length (For electrical connections F& 3 only)
Output	<p><b>B</b> - 4-20 mA      <b>C</b> - 1-6 V      <b>H</b> - 1-5 V  <b>N</b> - 0.5-4.5 V    <b>R</b> - 0-5 V<sup>2</sup>      <b>S</b> - 0-10 V<sup>2</sup>  <b>T</b> - 0.5-4.5 V Ratiometric</p>									Optional Restrictor (3200 only)
Pressure Range – psi	<p><b>100PG</b> - 0-100 psiG    <b>10CPG</b> - 0-1,000 psiG    <b>10KPS</b> = 0-10,000 psiS  <b>150PG</b> - 0-150 psiG    <b>15CPG</b> - 0-1,500 psiG    <b>15KPS</b> - 0-15,000 psiS<sup>3</sup>  <b>200PG</b> - 0-200 psiG    <b>20CPS</b> - 0-2,000 psiS    <b>20KPS</b> - 0-20,000 psiS<sup>3</sup>  <b>300PG</b> - 0-300 psiG    <b>25CPS</b> - 0-2,500 psiS    <b>25KPS</b> - 0-25,000 psiS<sup>3</sup>  <b>500PG</b> - 0-500 psiG    <b>30CPS</b> - 0-3,000 psiS  <b>600PG</b> - 0-600 psiG    <b>35CPS</b> - 0-3,500 psiS  <b>750PG</b> - 0-750 psiG    <b>40CPS</b> - 0-4,000 psiS                                   <b>50CPS</b> - 0-5,000 psiS                                   <b>60CPS</b> - 0-6,000 psiS                                   <b>75CPS</b> - 0-7,500 psiS</p>									Electrical Connection <sup>5</sup>
Pressure Range - bar	<p><b>0007G</b> - 0-7 barG      <b>0160S</b> - 0-160 barS      <b>1000S</b> - 1,000 barS<sup>3</sup>  <b>0010G</b> - 0-10 barG    <b>0250S</b> - 0-250 barS      <b>1600S</b> - 1,600 barS<sup>3</sup>  <b>0016G</b> - 0-16 barG    <b>0400S</b> - 0-400 barS  <b>0025G</b> - 0-25 barG    <b>0600S</b> - 0-600 barS  <b>0040G</b> - 0-40 barG  <b>0060G</b> - 0-60 barG  <b>0100G</b> - 0-100 barG</p>									Pressure Port <sup>4</sup>

Notes:

- Temperature outputs are for voltage output pressure sensors only (applies to codes **-C**, **-H**, **-N**, and **-T** only) and limited to connections that have 4 pins (Electrical codes **-B**, **-E** and **-8**). Accuracy is 3.5% of temperature span. Requires additional 2mA of power.
- For use with pull-up or pull-down resistors, contact factory.
- Ranges 15,000 psi (1,000 bar) and above available with **-2T** pressure port only.
- Pressure ports **0E** and **1G** are NOT available with the Restrictor option.
- For electrical codes **F** & **3**, specify cable length in meters.

- 00** - No Cable
- 01** - 1 meter
- 02** - 2 meters
- 03** - 3 meters
- 04** - 4 meters
- 05** - 5 meters
- R** - Restrictor
- 0** - No Restrictor
- B** - Industrial DIN 9.4 mm (mating connector not supplied)
- E** - M12 x 1P (4-Pin)
- F** - Cable version
- G** - Large DIN
- R** - Industrial DIN 9.4 mm (alternate pin out)
- 3** - 1/2" NPT Male Conduit
- 6** - Amp - Superseal 1.5 Series
- 8** - Deutsch DT04-4P
- 9** - Packard MetriPack
- 08** - 1/8-27 NPT External
- 02** - 1/4-18 NPT External
- 04** - 7/16-20 External (SAE #4, J514)
- 1J** - 7/16-20 External (SAE #4, J1926-2)
- 0E** - 1/4"-18 NPT Internal
- 0K** - M14 x 1.5 Straight
- 1G** - Schrader SAE #4, 7/16" Internal
- 1P** - SAE 6 (9/16"-18 UNF 2A)
- 4C** - 1/4-18 NPTF External (Dryseal)
- 4D** - 1/8-27 NPTF External (Dryseal)
- 4N** - SAE 3 (3/8-24 UNF External)
- 01** - G1/4 External
- 05** - G1/4 External Soft Seal
- 0L** - M12 x 1.5 (<1,000 bar, 15,000 psi)
- 2T** - M12 x 1.5 (6g) (≥1,000 bar, 15,000 psi)

