

# Model DCT

## Digitally Compensated Pressure Transducer



### Description

The Model DCT Pressure Transducer is designed for general industrial and commercial requirements offering excellent performance over a wide range of applications. This model is based on proven micro-machined silicon technology providing high reliability, long-term stability, and low cost relative to competing technologies. AMETEK has been developing and manufacturing high performance pressure sensing products for nearly 100 years, and the DCT brings a new level of accuracy to the AMETEK product portfolio.

This product is offered in a variety of mounting and electrical output options, stainless steel or brass construction, and numerous pressure ranges. It is fully digitally compensated for the effects of pressure and temperature change and calibrated to produce industry standard electrical outputs. The DCT accepts both unregulated and regulated excitation voltages and provides output signals such as 1 to 5 VDC, 1 to 6 VDC, 0 to 5 VDC, 0.5 to 4.5 VDC Ratiometric, 4 to 20mA. The DCT Transducer is offered in pressure ranges from 1 psi up to and including 3000 psi.

The Model DCT is extremely accurate, less than  $\pm 0.3\%$  full scale over pressure and less than  $\pm 1.0\%$  full scale over a wide compensated temperature range ( $\pm 0.5\%$  full scale optional). The design incorporates a stainless steel isolation diaphragm and 316 stainless steel construction for use with most media types. An economical non isolated brass transducer, used for clean, dry media is optional.

The DCT offers premium performance and versatility of use for many applications, both for the general industrial end user and original equipment manufacturers (OEM). It combines precision along with the durability to operate under difficult environmental conditions.

Also available is the ACT, an analog compensated 0-100 mV unit in brass and SST.

The DCT and the ACT are manufactured in the United States under ISO 9001:2000 control.

### Features

- Digitally Compensated - Low total accuracy errors for interchangeability and high precision measurements.
- Multiple Pressure Port Options - Ease of installation and attachment and no adapters required.
- Numerous Weatherproof Electrical Connection Options - Quick hook-up and remote applications.
- Stainless Steel Construction and Wetted Materials - Resists the corrosive effects of caustic medias or washdowns and compatible with a variety of media.
- 0.2% Typical Accuracy - Offers superior accuracy to competitive models and can be used on critical applications.
- Factory Calibrated for Pressure and Temperature - No need for field calibration. Plug and play reliability.
- Wide Pressure Ranges and Types (PSIG, PSIA, PSIS, Compound) - Can be used in a variety of applications. PSIA and compound units can be used for vacuum to absolute or atmospheric pressures.
- Numerous Electrical Outputs - Can be used with standard process equipment, conventional receivers, and compatible with microprocessors.

# Model DCT Pressure Transducer

- Rugged, Compact Design - Easy to package or install.
- RFI/EMI Protection - For use in high noise environments.
- Reverse Polarity Protection - Installation safety and not damaged by reverse wiring.
- Custom Designs Available - Adaptable to special needs.

## Specifications

- **Pressure Range:** Vacuum to 3000 psi
- **Reference Accuracy (includes repeatability, hysteresis, non-linearity—BFSL):**  $\pm 0.2\%$  full scale TYP,  $\pm 0.3\%$  full scale maximum (consult factory for ranges below 15 psi)
- **Total Error Band (includes temperature effects and null and span set points):**  $\pm 1\%$  full scale ( $\pm 0.5\%$  typical) (consult factory for ranges below 15 psi)
- **1 Yr. Stability:**  $< 0.25\%$  full scale
- **Operating Temperature:**  $-40^{\circ}\text{C}$  to  $80^{\circ}\text{C}$
- **Process Temperature:**  $-40^{\circ}\text{C}$  to  $100^{\circ}\text{C}$
- **Compensated Temperature:**  $-25^{\circ}\text{C}$  to  $75^{\circ}\text{C}$

• Outputs				
1 to 5 VDC	1 to 6 VDC	0 to 5 VDC	4 to 20 mA	0.5 to 4.5 VDC Ratiometric
• Input Supply Voltage				
9 to 30 VDC	9 to 30 VDC	9 to 30 VDC	11 to 30 VDC	4.75 to 5.25 VDC
• Load Limitation				
50K $\Omega$ min.	50K $\Omega$ min.	50K $\Omega$ min.	900 $\Omega$ max.	50K $\Omega$ min.

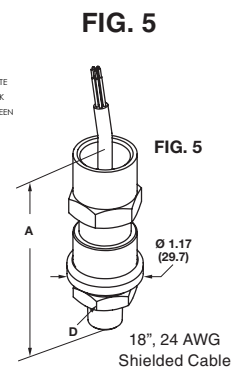
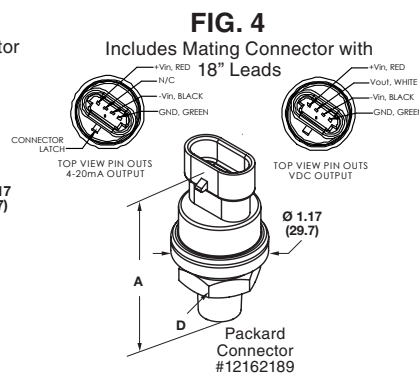
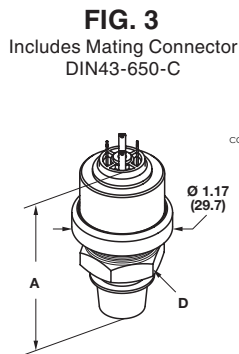
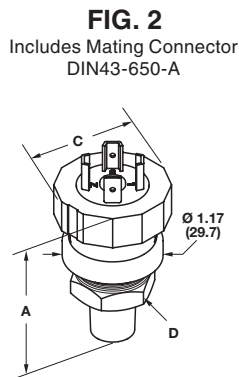
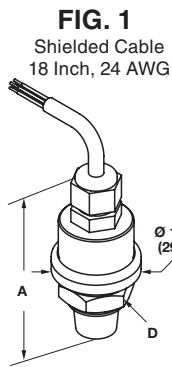
- **Burst Pressure:** 3x full scale for all ranges except 300 psi and 500 psi units, which have a burst pressure of 750 psi
- **Vibration:** 10G, 55 to 2000 Hz
- **Shock:** 30G
- **EMC:** Rated 3 V/m (requires "PE" option)
- **Process Wetted Material:** 316L stainless steel; (borosilicate silicon, RTV, epoxy on brass models)
- **Housing Material:** Aluminum or ULTEM™ (for Packard connector)
- **Process Connection:** 7/16-20 SAE, 1/8 NPT, 1/4 NPT\*
- **Electrical Connection:** Cable, DIN, Packard, conduit (1/2 NPT only)\*
- **Weight:** Less than 5 oz. (140 grams)
- **Temperature Measurement Option:** Additional linear temperature measurement available, please consult factory

\* Other options available. Consult factory.

Connection	Process Connection		Electrical Termination
	Stainless Steel	Brass	
Figure 1	1/8 NPT 1/4 NPT 7/16-20 SAE	1/8 NPT 1/4 NPT	18 inch 24 AWG Shielded Cable
Figure 2	1/8 NPT 1/4 NPT 7/16-20 SAE	1/8 NPT 1/4 NPT	DIN-43-650-A
Figure 3	1/8 NPT 1/4 NPT 7/16-20 SAE	1/8 NPT 1/4 NPT	Industrial DIN-43-650-C
Figure 4	1/8 NPT 1/4 NPT 7/16-20 SAE	1/8 NPT 1/4 NPT	Packard Connector #12162189
Figure 5	1/8 NPT 1/4 NPT 7/16-20 SAE	1/8 NPT 1/4 NPT	Conduit

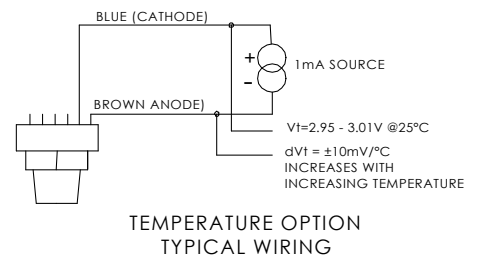
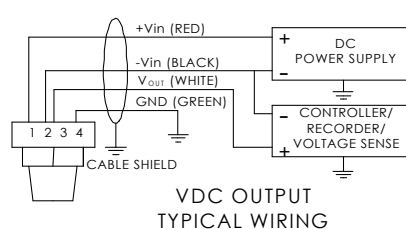
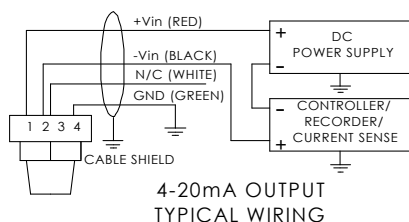
Tel: 215-355-6900

Dimensions Inches (MM) ▼ Drawing/Output Type	Model ▶	DCT	DCT	DCT
		Brass	316 SST (up to 500PSIG)	>500 PSIG All Absolute Ranges
<b>FIGURE 1 — CABLE OUTPUT</b>				
Dimension A		2.46 (62.5)	2.61 (66.3)	2.84 (72.1)
Dimension D		7/8 HEX	7/8 HEX	1-1/8 HEX
<b>FIGURE 2 — DIN - A OUTPUT</b>				
Dimension A		1.86 (47.2)	2.08 (52.9)	2.30 (58.3)
Dimension C		1.37 (34.7)	1.37 (34.7)	1.37 (34.7)
Dimension D		7/8 HEX	7/8 HEX	1-1/8 HEX
<b>FIGURE 3 — DIN - C OUTPUT</b>				
Dimension A		1.79 (45.6)	1.87 (47.5)	2.10 (53.2)
Dimension D		7/8 HEX	7/8 HEX	1-1/8 HEX
<b>FIGURE 4 — PACKARD OUTPUT</b>				
Dimension A		2.30 (58.3)	2.48 (63.0)	2.69 (68.2)
Dimension D		7/8 HEX	7/8 HEX	1-1/8 HEX
<b>FIGURE 5 — CABLE 1/2 NPT CONDUIT</b>				
Dimension A		3.20 (81.2)	3.32 (84.3)	3.55 (90.0)
Dimension D		7/8 HEX	7/8 HEX	1-1/8 HEX



4-20mA OUTPUT	VOLTAGE OUTPUT	CONNECTOR PINS
+Vin	+Vin	1
-Vin	-Vin	2
N/C	-S	3
GND	+S	GND

PIN-OUTS FOR DIN TYPE CONNECTORS  
(figs. 2&3)



# Model DCT Pressure Transducer

## Model Numbering:

<b>DCT pressure transducer</b>	
<b>DCT</b>	Digital compensated transducer
<b>Pressure type</b>	
<b>G</b>	Gauge pressure
<b>A</b>	Absolute pressure
<b>V</b>	Vacuum (use pressure code 0015)
<b>S</b>	Static pressure (1000, 2000, and 3000 psi ranges)
<b>C</b>	Compound (-14.7 psi to full scale)
<b>Pressure ranges</b>	
<b>0001</b>	to 1 psi full scale
<b>0006</b>	to 6 psi full scale
<b>0015</b>	to 15 psi full scale
<b>0030</b>	to 30 psi full scale
<b>0060</b>	to 60 psi full scale
<b>0100</b>	to 100 psi full scale
<b>0150</b>	to 150 psi full scale
<b>0200</b>	to 200 psi full scale
<b>0300</b>	to 300 psi full scale
<b>0500</b>	to 500 psi full scale
<b>1000</b>	to 1000 psi full scale
<b>2000</b>	to 2000 psi full scale
<b>3000</b>	to 3000 psi full scale
<b>XXXX</b>	Custom ranges available
<b>Input/Output</b>	
<b>B</b>	11 to 30 VDC / 4 to 20 mA
<b>C</b>	9 to 30 VDC / 1 to 6 VDC
<b>D</b>	9 to 30 VDC / 1 to 5 VDC
<b>E</b>	4.75 to 5.25 VDC / 0.5 to 4.5 VDC ratiometric
<b>F</b>	9 to 30 VDC / 0 to 5 VDC
<i>(Note: For mV output see ACT)</i>	
<b>Electrical connection option*</b>	
<b>PT</b>	18 in. long, 24 AWG cable
<b>PE</b>	18 in. long, 24 AWG cable, double-shielded EMI version
<b>PK</b>	Packard (4 PIN # 12162189)
<b>DA</b>	DIN 43 650-A
<b>DC</b>	DIN 43 650-C (industrial type)
<b>CD</b>	Conduit; 1/2 NPT female
<b>Pressure connection type*</b>	
<b>01</b>	1/8 NPT
<b>02</b>	1/4 NPT
<b>03</b>	7/16-20 SAE (stainless steel only)
<b>Pressure connection material</b>	
<b>1</b>	316L stainless steel
<b>2</b>	Brass
<b>Temperature measurement option</b>	
<b>T</b>	Yes (available only with PT, PE or CD electrical connection option)
<b>Leave Blank</b>	No

DCT G 0100 B PT 01 1 T

\* Consult factory for additional options.



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