



DXD Series Digital Pressure Transducer

- Accuracy⁽¹⁾ $\pm 0.02\%$ F.S. total error band. Includes the effects of non-linearity, hysteresis, non-repeatability and temperature
- Update Rate: 15mS
- Port speeds up to 115,200 bps
- Multi-drop digital communication via four-wire RS232 or six-wire RS485
- Easy connection to RS232 port on any standard PC compatible computer with available port adapter
- Available snap-together wiring components for quick electrical connection
- Up to 99 transducers on a single RS232 line
- Simple ASCII command structure
- Gauge, absolute, vacuum and compound pressure types
- 300 series stainless steel wetted materials and housing
- Rugged, shock resistant design

(1) See Product Specifications page 2.

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BULLETIN HTR-4



The DXD Series digital pressure transducer sets a new standard for price and performance. It provides all of the advantages of an extremely precise digital output, simple interface and support software at a very affordable price.

The DXD Series features accuracy of $\pm 0.02\%$ of full scale including the effects of temperature, which is achieved by using an innovative modeling technique. The design emphasizes speed and is capable of yielding an update rate of 15mS. Connection with a host computer is simple and versatile via full-duplex four-wire RS232 or six-wire RS485 electrical standards.

Support software provides access to all of DXD's built-in features utilizing a simple ASCII protocol. Built-in firmware provides the user with zero and span adjustment, user label, tare, device address, serial number, pressure type and full scale range.

Up to 99 DXD transducers can share the same RS232 line. The RS232 version includes a simple port adapter that plugs directly into any standard PC's RS232 port. Transducers are connected utilizing simple telephone type (RJ11) connectors. An entire system can be installed in just a few minutes enabling the user to communicate with

up to 99 DXDs at up to 115.2k bps.

Up to 32 DXD transducers can share the same RS485 line. The RS485 version requires a user-supplied RS485 card or port adapter and transducer wiring.

Power is supplied by a 12 Vdc, 500mA ac to dc converter. Each unit requires approximately 15mA maximum. The standard electrical connector is an 8 pin Switchcraft EN3 connector. Convenient snap-together wiring components are available for simple and quick connection.

The DXD Series innovative design includes direct access to the micro-processor, power and communication busses. This design feature will allow for future expansion of the product's capabilities to include other communication protocols, analog output, data-logging, etc.

Available pressure types include gauge, absolute, vacuum and compound. A variety of pressure inlet fittings are offered for simple, convenient installation.

The DXD Series is available in a variety of pressure ranges from 0/5 through 0/7500 psi.

The wetted materials and rugged enclosure are made of 300 series stainless steel providing compatibility with a broad variety of process media and environments.

PERFORMANCE SPECIFICATIONS

Accuracy: ±0.02% F.S. total error band from ±0.02% F.S. 10-30°C (50-86°F)
±0.04% F.S. 0-50°C (32-122°F)
±0.05% F.S. -10-70°C (14-158°F)

Temperature Effects:

Corrected: -10 to 70°C (14 to 158°F)
Operating: -10 to 70°C (14 to 158°F)
Storage: -40 to 80°C (-40 to 176°F)

Update Rate: From 12.6mS or 27.7mS processing time for fully corrected pressure information

Resolution: 1 part in 50,000 max. (range dependent)

Signal Stability: ±1 count in 50,000 counts @ 27.7mS update rate, ±3 counts in 50,000 counts @ 12.6mS update rate

Turnaround Time: 15mS or 30mS @ 115.2k baud

Certification: NIST traceable. Document provided with each DXD.

FUNCTIONAL CHARACTERISTICS

Sensor Type: Piezo resistive strain gauge

Pressure Ranges: Gauge or Absolute (psi)

0/5*	0/50	0/300	0/2500
0/10	0/60	0/500	0/3000
0/15	0/100	0/600	0/5000
0/20	0/150	0/1000	0/6000
0/25	0/200	0/1500	0/7500
0/30	0/250	0/2000	

*0/5 not available in absolute

Vacuum (psi)	Compound (psi)
0/10	0/15
	-10/10
	-15/30
	-15/15
	-15/60

Overpressure Capability:

0/5-0/250	4X range
0/500-0/4000	3X range
0/5000	2X range
0/7500	1.33X range

Shock & Vibration:

Shock –
100g per 11 milliseconds

Vibration –
10⁹ RMS within 20 to 2000 Hz

Pressure Inlet Type:

Standard –

Ranges up to and including 5000 psi:
1/4 NPT male

Ranges over 5000 psi: 9/16-18 UNF-2B female port for 1/4" O.D. high pressure tubing

Optional –

MS33656-4; 7/16-20 male w/37° flare for 1/4" tubing (for all ranges)

VCR w/standard, 10-20 or 3-5 RA gland finishes (for ranges up to and including 5000 psi only)

Housing Dimensions: 1.5" x 5.78" cylindrical

Housing Materials: 304 stainless steel

Wetted Materials: 316 stainless steel

FIRMWARE FEATURES

Address, BPS Select, User Zero User Span, Pressure Type (G, A, V, C) User Label, Error Flag, Wild Card Address, PSI Reading Serial Number, A/D Filter Full Scale Value, Firmware Revision I.D. 10 additional engineering units (including bar, mbar, hPa, kPa, mPa, in.Hg, in.H₂O, ftH₂O, cmH₂O)

ELECTRICAL SPECIFICATIONS

Power Requirement: 12 to 40 Vdc, 15mA maximum

Power Consumption:

Watts = supply voltage x 15mA (with optional 12 Vdc power supply accessory, power consumption = 0.18 watts per DXD)

Optional Power Supply Accessory:

Input: Specify 110 Vac/60Hz or 220

Vac/50Hz

Output: 12 Vdc

A/D Resolution: 23 bit plus sign

Sigma/Delta internally reduced to 50,000

Output Signal: ASCII digital

Output Electrical: RS485 full duplex – asynchronous serial interface up to 32 units or RS232 full duplex – asynchronous serial interface up to 99 units. 9 pin "D" type Com port adapter included.

ASCII Data Format: 7 data bits, 1 stop bit, even parity

BPS: 1200, 2400, 4800, 9600, 19.2k, 38.4k, 57.6k, 115.2k

ELECTRICAL CONNECTION

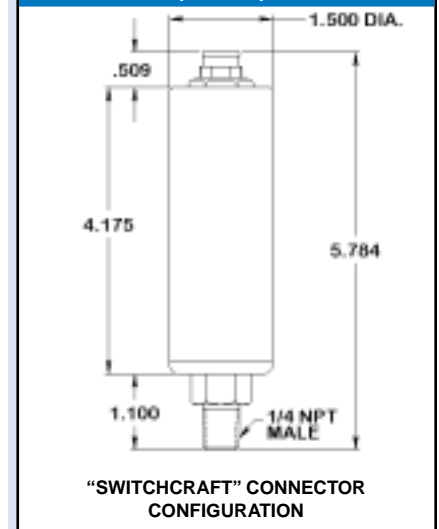


Standard – Switchcraft EN3, 8 pin weather-tight receptacle and mating connector

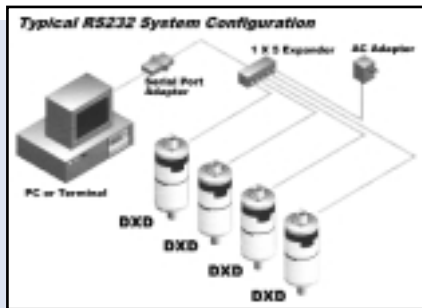


Optional – ITT Cannon kPT07 receptacle with kPT06 mating connector (Bendix PT07/PT06 compatible)

Dimensions (inches)



SYSTEM CONNECTION RS-232



RS232 configurations require:

- (1) Serial Port Converter (supports up to 99 DXDs (RS-232) on one serial port)
- ac Adapter (powers up to 32 DXDs)
- 5 Port Expander Module; to connect up to 4 DXD (RS-232) cables and 1 ac adapter to serial port converter. (Multiple 5 port expander modules can be interconnected for systems requiring 5 DXDs or more).
- Setup/Utility Software (to allow DXD to communicate with PC)
- Mating Connector and Cable (one provided with each DXD)

Complete kit includes all required accessories identified above to operate up to 4 DXD transducers

RS-232 ACCESSORIES



Complete Kit for RS-232 configurations.



ac adapter with RJ11 plug (powers up to 32 DXD units maximum).



5 port (RJ11) expander module (provides system expansion capability).



DB25 male to DB9 female plug adapter.



25 ft. cable with mating connector and RJ11 plug. (provided with each DXD; RS-232)

Consult price sheet for complete list of RS-232 and RS-485 accessories and kits.

SYSTEM CONNECTION RS-485



RS485 configurations require:

- Mating connector/adapter assembly terminating in dual RJ45 (modular "Y") jacks
- 25 ft. cable assembly with RJ45 plug ends
- ac adapter with RJ45 plug (powers up to 32 DXD units maximum)
- Adapter; RJ45 jack to DB9 female "D" connector
- Setup/utility software (to allow DXD to communicate with PC)
- Customer supplied RS-485 interface card or adapter installed on PC

Complete kit includes all required accessories above to operate 1 DXD (RS-485) transducer. For systems with multiple DXDs (RS-485), add one additional mating connector/adapter assembly and one 25 ft. cable assembly per DXD; **or**, for systems with customer provided power, wiring and PC interface card or adapter:

- Mating connector only (provided with each DXD (RS-485) transducer)
- Setup/utility software (to allow DXD to communicate with PC)

RS-485 ACCESSORIES



Complete Kit for RS-485 configurations.



Mating connector/adapter assembly terminating in dual RJ45 (modular "Y") jacks.



Adapter; RJ45 jack to DB9 pin "D" connector.



ac adapter with RJ45 plug (powers up to 32 DXD units maximum).

TO ORDER, SPECIFY:

Model: DXD

1. Pressure Range
2. Pressure Type: gauge, absolute, vacuum or compound
3. Electrical Connection: Switchcraft (standard) or Bendix style (optional)
4. Output: RS-232 or RS-485
5. Options (if required): VCR or MS33656-4 fitting, clean for oxygen
6. Accessories:

For RS-232 only:

- Serial port converter
- DB25 pin to DB9 female adapter
- 5 port (RJ11) expander
- ac adapter w/ RJ11 plug (specify 110 or 220 Vac)
- Setup software: specify 3½" floppy or CD

For RS-485 only:

- Switchcraft mating connector/adapter assembly terminating in dual RJ45 (modular "Y") jacks
- 25 ft. cable assembly with RJ45 plug ends
- Adapter; RJ45 jacks to DB9 pin "D" connector
- ac adapter w/ RJ45 plug (specify 110 or 220 Vac)
- Setup software: specify 3½" floppy or CD

Also available:

Complete accessory kits (includes all accessories listed above.) Consult factory.

For complete ordering information, consult Heise price sheet HTR-4/PS-1. The DXD transducer is also available in a CE approved EMI/RFI immune configuration. Consult factory for specifications.

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