

DXD Series Digital Pressure Transducer

FEATURES

- Accuracy: $\pm 0.02\%$ of span total error band, includes the effects of nonlinearity, hysteresis, non-repeatability and temperature
- Update rate: as low as 15 ms
- Digital Communication: 4-wire RS232, 6-wire RS485 or USB
 - Up to 99 transducers on a single RS232 line
 - Up to 32 transducers on a single RS485 line
 - USB communication one transducer per USB port.
- Gauge, absolute, vacuum and compound pressure types
- Pressure ranges vacuum to 10,000 psi
- 316 SS wetted materials, 304 SS housing
- Rugged, shock and vibration resistant design
- Connection components terminate in standard RJ-11 telephone jack (RS232), standard RJ-45 Ethernet connectors (RS485) or standard USB connector
- Driver available to facilitate communication between the DXD and custom LabVIEW™ analysis and control program

TYPICAL USES

- Laboratory test benches, automated calibration system, metrology lab

SPECIFICATIONS

Accuracy:	$\pm 0.02\%$ of full span 10-30 °C (50-86 °F) $\pm 0.04\%$ of full span 0-50 °C (32-122 °F) $\pm 0.05\%$ of full span -10-70 °C (14-158 °F) Note: 0-10,000 psi range is limited to $\pm 0.1\%$ full span at 10-30 °C
Temperature Effects:	Compensated operating -10-70 °C (14-158 °F) Storage -40-80 °C (-40-176 °F) If stored above or below compensated range, zeroing of transducer is recommended at ambient temperature (70 °F $\pm 2^\circ$)
Update Rate:	27.7 ms standard configuration 12.6 ms fast mode
Signal Stability:	± 1 count in 50,000 counts in standard configuration ± 3 counts in 50,000 counts in fast mode
Resolution:	Up to 50,000 counts range dependent
Turnaround Time (Total Response Time):	30 ms @ 115.2k baud standard configuration 15 ms @ 115.2k baud fast mode
A/D Resolution:	23 bit plus sign Sigma/Delta internally reduced to 50,000
Output Signal:	ASCII digital, format 7 data bits, 1 stop bit, even parity
Bits Per Second:	1200, 2400, 4800, 9600, 19.2k, 38.4k, 57.6k, 115.2k



DXD Series Digital Pressure Transducer
Shown with Optional USB Mini B Type Connector

KEY BENEFITS

- Digital communication eliminates need for A/D conversion
- Transmits over longer lines without signal degradation
- High Accuracy for critical measurements
- Turnkey system includes quick connect accessories for fast set-up

Output Electrical:

- RS 232 full duplex- asynchronous serial interface up to 99 units. 9 pin "D" type com port adapter included
- RS485 full duplex, asynchronous serial interface up to 32 units
- USB 2.0

Electrical Connection Type:

- Switchcraft EN3 vented or not vented
 - IIT Cannon KPT107 vented or not vented
 - USB mini B connector vented housing or sealed housing
- Venting is recommended on pressure ranges 300 psi or less

Power Requirement:

- RS232 and RS485, 12-24 Vdc, 15 mA minimum
- USB, operates from 5 Vdc supply

Power Consumption:

Watts + supply voltage X 15mA (with optional 12 vdc supply accessory power consumption = 0.18 watts per DXD)

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SPECIFICATIONS (continued)

Certification:	Traceable calibration certificate provided with each unit
Sensor Type:	Piezoresistive strain gauge
Shock and Vibration:	Shock 10 g per 11 ms. Vibration 10 g RMS within 20 to 2000 Hz
Wetted Materials:	316 SS
Housing Material:	304 SS
Pressure Inlet Types:	<p>¼ NPT Male</p> <p>Standard on ranges up to and including 5,000 psi Optional on ranges above 5,000 psi</p> <p>⅝"-18 UNF-2B female for ¼" O.D. high pressure tubing Standard on ranges above 5,000 psi Optional on ranges 5,000 psi and below</p> <p>MS33656-47/16"-20 male with 37° flare for ¼" O.D. tubing Optional on all ranges</p> <p>Swagelok® ¼ VCR® female, standard finish (not high purity rated) Optional on ranges up to and including 5,000 psi</p> <p>⅜" tube fitting, includes Swagelok® compression nut and ferrule set Optional on all ranges</p>
Options	Cleaned to ASME B40.100 level IV not marked for oxygen service

PRODUCT SPECIFICATIONS

GAUGE (psi)	ABSOLUTE (psi)	VACUUM (psi)	COMPOUND (psi)
0.50000			
010.000	010.000	010.000	-010.000/+010.000
015.000	015.000	015.000	-015.000/+015.000
020.000	020.000		-015.000/+030.000
025.000	025.000		-015.000/+0060.00
030.000	030.000		
050.000	050.000		
060.00	060.00		
0100.00	0100.00		
0150.00	0150.00		
0200.00	0200.00		
0250.00	0250.00		
0300.00	0300.00		
0500.00	0500.00		
0600.0	0600.0		
01000.0	01000.0		
01500.0	01500.0		
02000.0	02000.0		
02500.0	02500.0		
03000.0	03000.0		
05000.0	05000.0		
06000.	06000.		
007500.	007500.		
010000.	010000.		

Note: Ranges shown are in actual output format. Output resolution of up to 50,000 counts is range dependent as shown in table.

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)

PROOF PRESSURE

0-250 psi	4X range
251-3,000 psi	3X range
3,001-5,000 psi	2X range
5,001-10,000 psi	1.33X range



Optional – USB Mini B type

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ORDERING CODE	Example:	DXSA	P	G	100	N	SV	4	N
DXD Transducer									
DXSA		DXSA							
Sensor Type									
P - Piezoresistive		P							
Pressure Type									
G - Gauge		G							
A - Absolute									
V - Vacuum									
C - Compound									
RANGE									
5									
10									
15									
20									
25									
30									
60									
100									
150									
200									
250									
300									
500									
600									
1000									
1500									
2000									
2500									
3000									
5000									
6000									
7500									
10000									
Inlet Port									
N - 1/4 NPT Male, Standard on ranges up to and including 5,000 psi. Optional on ranges above 5,000 psi.		N							
A - 9/16"-18 UNF-2B female for 1/4" O.D. high pressure tubing. Standard on ranges above 5,000 psi. Optional on ranges 5,000 psi and below.									
M - MS33656-4 7/16"-20 male w/ 37° flare for 1/4" tubing. Optional on all ranges.									
S - Swagelok® 1/4 VCR® female, standard finish (not high purity rated) Optional on ranges up to and including 5,000 psi.									
T - Swagelok® 1/8" tube fitting, includes Swagelok® compression nut and ferrule set. Optional on all ranges.									
Electrical Connection									
SV - Switchcraft receptical vented, standard		SV							
SS - Switchcraft receptical sealed housing									
BV - IIT Cannon KPT107 vented									
BS - IIT Cannon KPT107 sealed housing									
US - USB with sealed housing									
UV - USB with vented housing									
Output Type									
2 - RS232									
4 - RS485		4							
U - USB (Includes 6' USB mounting cable)									
Options									
N - None		N							
W - Cleaned to ASME B40.100 Level IV NOT marked for oxygen service									

DXD Series Digital Pressure Transducer

SYSTEM CONNECTION RS-232

DXDs Equipped with RS-232 Communication

To install and operate a DXD configured in RS-232, the following components are required:

- Mating connector and cable assembly with RJ11 termination, which is provided with each new DXD.
- Serial port converter (converts proprietary DXD serial signal to RS-232). Supports up to 99 DXD transducers on one serial port. (Item 6)
- DB25 male to DB9 female plug adapter (for computers equipped with DB9 serial ports). (Item 7)
- Ac adapter (power supply) with RS11 plug, powers up to 32 DXDs. (Item 3 or 4)
- 5 port expander module accepts up to 4 DXDs and can be interconnected to add more. (Item 5)
- Setup/utility software to allow DXDs to communicate with PC. (item 8)

These components may be ordered using these part numbers:

- 1 - **856X040-01** Complete Kit1 for RS-232 configuration, 110 Vac operation
Provides all components necessary to wire up to 4 DXD transducers. (Includes items 3 and 5-8)
- 2 - **856X040-02** Complete Kit1 for RS-232 configuration, 220 Vac operation
Provides all components necessary to wire up to 4 DXD transducers (Includes items 4-8)
- 3 - **831X015-01** 110 Vac adapter with RJ11 plug (powers up to 32 DXD units maximum)
- 4 - **831X015-02** 220 Vac adapter with RJ11 plug (powers up to 32 DXD units maximum)
- 5 - **838X001-01** 5 port (RJ11) expander module (provides system expansion capability)
- 6 - **838X003-01** Serial port converter (RS-232 to network) handles up to 99 DXD units
- 7 - **838X001-01** DB25 male to DB9 female plug adapter
- 8 - **838A031-01** USB flash drive containing setup/utility software

Additional RS-232 Wiring Accessories

- 828X159-01** 25 ft. cable with Switchcraft connector and RJ11 plug termination
- 828X160-01** 25 ft. cable with ITT Canon/Bendix PTO6 connector and RJ11 plug termination
- 828X155-01** Switchcraft mating connector only
- 828X158-01** ITT Canon/Bendix PTO6 mating connector only]

Note¹ If connecting more than 4 DXDs to the same serial port, additional 5 port expanders (item 5) will be required.

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)

DXD Series Digital Pressure Transducer

SYSTEM CONNECTION RS-485

DXDs Equipped with RS-485 Communication

To install and operate a DXD configured in RS-485, the following components are required:

If connecting the DXD transducer via user provided power and wiring:

- Mating connector (only) to accommodate user's custom wiring, one is provided with each new DXD.
If connecting the DXD transducer via factory-provided power/wiring system accessories, these components will be required:
- Mating connector assembly with dual RJ45(female) jack terminations. (Item 5 or 6)
- 25 ft. cable assembly with RJ45 plug ends. (Item 7)
- Ac adapter (power supply) with RJ45 plug, powers up to 32 DXDs. (Item 9 or 10)
- Adapter: RJ45 jack to DB9 female "D" connector. (Item 8)
- Adapter: DB9 male to DB25 female plug adapter (depending on PC connector type). (Item 11)
- Setup/utility software to allow DXDs to communicate with PC. (Item 12)
- User supplied RS-485 interface card or adapter installed on PC.

These components may be ordered using these part numbers:

- 1 - **856X044-01** Complete Kit² for RS-485 configuration, Switchcraft connection, 110 Vac operation. Provides all components necessary to wire 1 DXD transducer. (Includes items 5, 7, 8, 9, 11 and 12)
- 2 - **856X044-02** Complete Kit² for RS-485 configuration Switchcraft connection, 220 Vac operation. Provides all components necessary to wire 1 DXD transducer. (Includes items 5, 7, 8, 10, 11 and 12)
- 3 - **856X044-03** Complete Kit² for RS-485 configuration, ITT Canon/Bendix connection, 110 Vac operation. Provides all components necessary to wire 1 DXD transducer. (Includes items 6, 7, 8, 9, 11 and 12)
- 4 - **856X044-04** Complete Kit² for RS-485 configuration, ITT Canon/Bendix connection, 220 Vac operation. Provides all components necessary to wire 1DXD transducer. (Includes items 6, 7, 8, 10, 11 and 12)
- 5 - **838X023-01** Switchcraft mating connector assembly with dual RJ45 (female) jack terminations.
- 6 - **838X024-01** ITT Canon/Bendix mating connector assembly with dual RJ45 (female) jack terminations.
- 7 - **838X020-01** 25 ft. cable assembly with RJ45 plug terminations.
- 8 - **838X022-01** Adapter: RJ45 jack to DB9 pin "D" female connector.
- 9 - **831X015-03** 110 Vac adapter with RJ45 plug (powers up to 32 DXD units maximum).

10 - **831X015-04** 220 Vac adapter with RJ45 plug (powers up to 32 DXD units maximum).

11 - **838X012-01** DB9 male to DB25 female plug adapter.

12 - **838A031-01** USB flash drive containing setup/utility software.

Additional RS-485 Wiring Accessories

828X155-01 Switchcraft mating connector only.

828X158-01 ITT Canon/Bendix mating connector only.

Note² If connecting more than 1 DXD to the RS-485 daisy chain, order an additional mating connector (dual jack) assembly (items 5 or 6) and a 25 ft. cable assembly (item 7) for each additional DXD transducer.

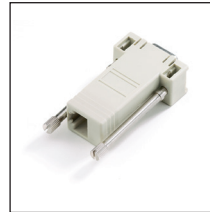
RS-485 ACCESSORIES



Complete Kit for RS-485 configurations.



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

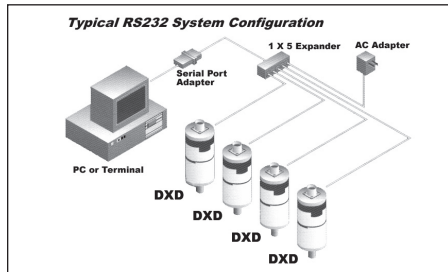


Adapter with RJ45 jack to DB9 pin "D" connector.



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

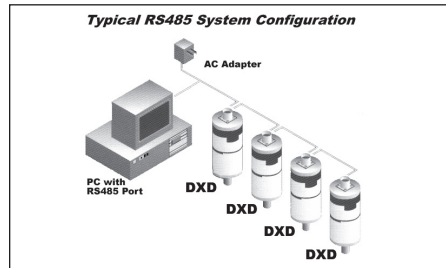
DXD Series Digital Pressure Transducer



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



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)

DIMENSIONS

