

Product Data Sheet

DTC3® Differential Pressure Transmitter



The DTC3® is the latest analog pressure transmitter designed for non-safety nuclear applications and manufactured by Ultra Energy. The Ultra Model DTC3® Analog Differential Pressure Transmitters provide precision pressure measurements in non-safety nuclear applications requiring reliable performance and functional safety. The DTC3® transmitter contains only analog electronics utilizing a diaphragm isolated direct-coupled strain gauge pressure sensor capsule. The DTC3® transmitter has been designed to replace the Rosemount™ 1151 Analog Pressure which was discontinued in 2011. The 10-50 mA feature will be available in October 2020.

Features

- True analog design – no microprocessor or firmware/software
- Accuracy: $\pm 0.2\%$ Span (includes combined effects of linearity, hysteresis, deadband, settability, and repeatability)
- Drift: $\pm 0.25\%$ of URL for 6 months
- Advanced thin film metal strain gauge sensor technology
- Low-copper aluminum housing with polyurethane paint
- Loop powered, 2 wire, 4-20 mA, 10-50mA available October 2020
- $\frac{1}{4}$ inch NPT process connections with optional welded fittings or process adapters
- Dustproof & waterproof construction; no humidity effect
- Can be mounted using the Rosemount™ 1151 Analog Pressure Transmitter mounting bracket
- $\frac{1}{2}$ " conduit entry with screw terminal electrical connections, standard
- Quick Disconnect Connector (QDC), optional
- DP Overpressure protection is 2,500 psig on one side without damage
- Local test points for field adjustability
- No special tools are required for installation

Specifications

NAME	DESCRIPTION
Reference Accuracy	±0.2% Span (includes combined effects of linearity, hysteresis, deadband, settability, and repeatability)
Drift	±0.25% of URL for 6 months
Temperature Effects	±0.5% URL +0.5% of Span Temperature Effect per 100°F (56°C)
Overpressure Effects (per 1000 psi)	±0.25% URL ±1.0 % URL Two-way
Overpressure and Static Pressure Limit	2550 psi
High Static Line Pressure Zero Effect	±0.25% URL for 1,000 psi (6.89 MPa) static pressure change - correctable by re-zeroing at line pressure
Electromagnetic Compatibility	European EMC Directive 2014/30/EU by conforming to applicable EN and IEC Standards: Compliance testing to the EN 61000 Series standards, CE Marking, declaration of conformity.
Power Supply Effects	0.005% of Calibration Span/Volt
Load Effect	With limits set by the line voltage, the output current is independent of load resistance.
Power Supply and Load Limits (10-50 mA option available October 2020)	Operating Region: 4-20 mA: 12-45 VDC 10-50 mA: 30-85 VDC (See Documents Section: "Power Supply and Load Limits")
Span & Zero	Continuously adjustable external to the electronics, noninteracting.

NAME	DESCRIPTION
Zero Elevation, Zero Suppression	Elevated zero and zero suppression must be factory set in order to achieve the specified temperature performance.
Direct or Reverse Acting	Factory Set
Range-down	6 to 1 (Min. span is 16.7% URL)
Output 4-20 mA Standard	Low Saturation <3.8 mA; High Saturation 21 mA
Output 10-50 mA Option (available October 2020)	Low Saturation <8 mA, High Saturation 52.5 mA
Temperature Limits	0°F-185°F (-17.8°C to 85°C). Storage Limits: -40°F to 212 °F (-40°C to 100°C)
Volumetric Displacement	Less than 0.1 cubic inches (1.6 cubic centimeters)
Enclosure Rating	NEMA 4X (IP 66)
Response Time	To 50% with a 100% of span step change @100°F (37.8°C); 30 inH ₂ O, 2.5 seconds; 150 inH ₂ O, 0.7 seconds; 750 inH ₂ O, 0.4 seconds; 1000 inH ₂ O and 100 psi, 0.25 seconds.
Damping	Electronic damping continuously adjustable from 0 to 1.67 seconds.
Humidity Limits	0 to 100% relative humidity (NEMA 4X)
Turn-On Time	5 seconds for 99%; 1 minute for rated accuracy
Ranges and Limits	See Document Section "Ranges and Limits"
Isolating Diaphragms	Hastelloy™ Alloy-C, Stainless 17-7 PH

NAME	DESCRIPTION
Drain Vent Valve	316 SST
Process Flange	316 SST
Process Seal	EPDM
Electronics Housing O-ring	BUNA-N
Fill Fluid	Silicone Oil: DC550 Standard, DC200 Optional (faster response)
Sensor Module Housing	316 SST
Flange Bolt	Medium Carbon Alloy Steel, SAE J429, Grade 8, Zinc Yellow-Chromate Plated Finish Per ASTM B633
Electronics Housing	Low-copper aluminum with polyurethane paint
Mounting Bracket	304 SST
Mounting Bolts	300 Series Stainless Steel, ASTM F593
Process Connections	¼-18 NPT standard, optional welded fittings or process adapters; IEC 61518 Compliant
Electrical Connections	½" NPT conduit with screw terminals, standard
Weight (transmitter only)	14.7 lbs (6.7 kg)

Documents

NAME	VIEW / DOWNLOAD
Power Supply and Load Limits	View / Download
DP Ranges and Limits	View / Download
Dimensional Drawing	View / Download
Model Matrix	View / Download

Accessories

Cable

Quick Disconnect Connector Mating Cable

FAQs

Can High Static Line Pressure Zero Effect be calibrated out?

Yes. The High Static Line Pressure Zero Effect can be calibrated out by the customer. If it is not calibrated out, the error associated with the High Static Line Pressure Zero Effect is as follows:

±0.25% URL for 1,000 psi (6.89 MPa) static pressure change

Please note: Suppressed or elevated zero ranges (where LRV is not 0) cannot easily have their static pressure effect calibrated out.