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Accutech DP20

Wireless Differential Pressure Field Unit

Product at a glance

The Accutech™ DP20 differential pressure field unit provides differential pressure data in a variety of ranges up to +/- 300 in. H_20. Both traditional (side-mount) and low profile (bottom-mount) connections are available to enhance installation options. The DP20 may be operated in any one of four modes: Differential Pressure, Orifice Flow, Open Channel Flow and Level; and may be configured with a 22-point custom curve capability.

The DP20 is suited for level applications, especially in pressurised tanks (e.g. propane & butane). The product also has a square-root function for use with orifice plates, V-cones, and pitot tubes; providing volumetric flow measurement in general industrial processes.

Accutech field units automatically report field data to a centralized Accutech base radio over distances of up to 3000 ft. (~1000 m). Each field unit is self-contained, featuring an integrated 900 MHz or 2.4 GHz (license-free band), frequency-hopping, spread-spectrum transceiver and antenna, and long-lasting battery that offers 5+ years of maintenance-free service (up to 10 years depending on data rates and battery options). Accutech networks are highly scalable with the possibility of 100 field units per base radio and 256 base radios per installation. Accutech field units are housed within a weather-resistant NEMA 4X enclosure with options for a remote sensor and remote antenna on select models. Field units are available in a wide range of certifications.

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Specifications - Accutech DP20

General

Sensor Type	Differential Pressure
Location	Field Unit
Frequency Range	900 MHz and 2.4 GHz license-free bands
Operational Modes	• Differential Pressure • Orifice Flow • Open Channel Flow • Level

Functional

Pressure Sensor

Differential Pressure Ranges	+/- 100 in. H_2O, +/- 300 in. H_2O, +/- 25 psi, -25...+100 psi, -25...+300 psi
Accuracy	± 0.2% of sensor URL including combined effects of linearity, hysteresis, repeatability and temperature (applies to standard unit without isolating seals). Addition of seals will reduce accuracy due to thermal effects of fill fluid. Special ranges and accuracy may be available on request.
Field Spanning	Zero offset (to correct for positioning changes) and two-point (zero and span) calibration
Stability	Combined zero and span stability: less than ± 0.1% of sensor URL per year at 21 °C (70 °F)
Maximum Static Pressure	3000 psi
Differential Pressure Ranges	+/- 100 in. H_2O, +/- 300 in. H_2O, +/- 25 psi, -25...100 psi, -25...+300 psi
Sensor Filling Fluid	DC 200 silicone
Operating Ambient Environment	• -40...+104 °C (-40...+220 °F) process connection temperature, steady state • -40...+85 °C (-40...+185 °F) electronics • -40...+85 °C (-40...+185 °F) display (below -20 °C LCD visibility reduced) • Humidity: 0...95%, non-condensing
Materials of Construction	• Fittings: 316L Stainless Steel • Epoxy-coated Aluminum enclosure • Sensor Diaphragm: 316L Stainless Steel (Hastelloy C available upon special request) • Flange: 316L Stainless Steel • Bolts and Nuts: High Strength Alloy Steel
Power	• Self-contained power with integrated battery • 1: D-cell Lithium Thionyl battery • Battery life up to ten years of service, depending on configuration
Certifications	North America HAZLOC: • cCSAus • Intrinsically Safe: Exia IIC; AEx ia IIC • Class I, Div. 1, Groups A, B, C & D, T3 • Class 1, Zone 0, AEx ia IIC, T3 • Class I, Div. 2, Groups A, B, C & D, T4 ATEX/IECEx HAZLOC: • LCIE • Intrinsically Safe: Ex ia IIC T3 EMC & Radio: • North America : FCC , IC • Europe : CE Mark (R&TTE) • Australia : C - Tick

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Common Accutech Field Unit Specifications

Features	
Local Configuration Interface	• Integrated LCD with membrane-switch buttons • Display provides pressure reading and error messages, if applicable • Configure sampling and RF parameters locally using membrane-switch buttons
Remote Configuration Interface	Accutech Manager, Windows®-based GUI software, providing network-wide monitoring and performance-management features and field unit configuration capabilities
Network Capacity	• Max. 100 field units per base radio • Max. 256 base radios per network
Self-Diagnostics	• Low battery notification – indicates the need to replace the battery (approximately one month advance notification) • Contains software and hardware that continuously monitors operation. Any sensor or device parameter that is out of specification is identified and reported
RF Characteristics	900 MHz: • 902...928 MHz Frequency Hopping Spread Spectrum (FHSS), FCC certified ISM license-free band • 915...928 MHz (Australia) • Data Rates: 19.2 kbps, and 76.8 kbps • Typical Electrical Transmit Power: 0.4 W maximum 2.4 GHz: • 2400...2483.5 MHz license-free band Frequency Hopping Spread Spectrum (FHSS) Radio • Data Rates: 50/100 kbps (FSK Modulation) • Typical Electrical Transmit Power: +10.6 dBm • Typical Receive Sensitivity (0.1 % BER): - 102 dBm @ 50 kbps • Typical CW Receiver Blocking Rejection: 64 dB for CW @ +/- 5 MHz, 74 dB for CW @ +/- 30 MHz
Operating Shock and Vibration	Tested per IEC 60068-2-6 (vibration) and IEC 60068-2-27 (shock)
Random Vibration Characteristics	Tested to withstand 6 G, 15 minutes per axis from 9...500 Hz
Electromagnetic Compatibility	Operates within specification in fields from 80...1,000 MHz with field strengths to 30 V/m. Meets IEC 61000-6-2 General Immunity Standard and IEC 6100-6-4 compatibility emissions standard
Output Resolution	24-bit analog-to-digital conversion

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Model Code - Accutech DP20

TBUADPTJ1N00S100NS represents a typical part number.

Model	Type
TBUADP	Wireless Differential Pressure Field Unit

Code	Select: RF Module Type
T	902...928 MHz band (FCC / IC)
D	915...928 MHz band (Australia)
F	2.4 GHz band

Code	Select: Certifications
	Intrinsically Safe Protection
J	CSA - see certification details on previous page
Q	ATEX & IECEx - see certification details on previous page

Code	Select: Housing & Battery Pack
1	NEMA 4X Housing with 1 D-cell

Code	Select: Future Option
N	None

Code	Select: Antenna
00	Integral Antenna (2.4 GHz unit comes default with integral antenna and external antenna connector)
04	External Antenna connector (antenna and antenna cables purchased separately from accessories section)

Code	Select: Sensor Mounting
S	Integral

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Model Code - Accutech DP20 (cont'd)

TBUADPTJ1N00S100NS represents a typical part number.

Code	Select: Sensor Range	
	Upper Range Limit (URL) and Lower Range Limit	**Overload Limit**
100N	+/- 100 in. H_2O	3000 psi
300N	+/- 300 in. H_2O	3000 psi
025P	+/- 25 psi	3000 psi
100P	+100, -25 psi	3000 psi
300P	+300, -25 psi	3000 psi

Code	Select: Sensor Type
S	Standard Sensor - Horizontal process connections with vertical mounting
L	Low Profile Sensor - Vertical process connections with vertical mounting

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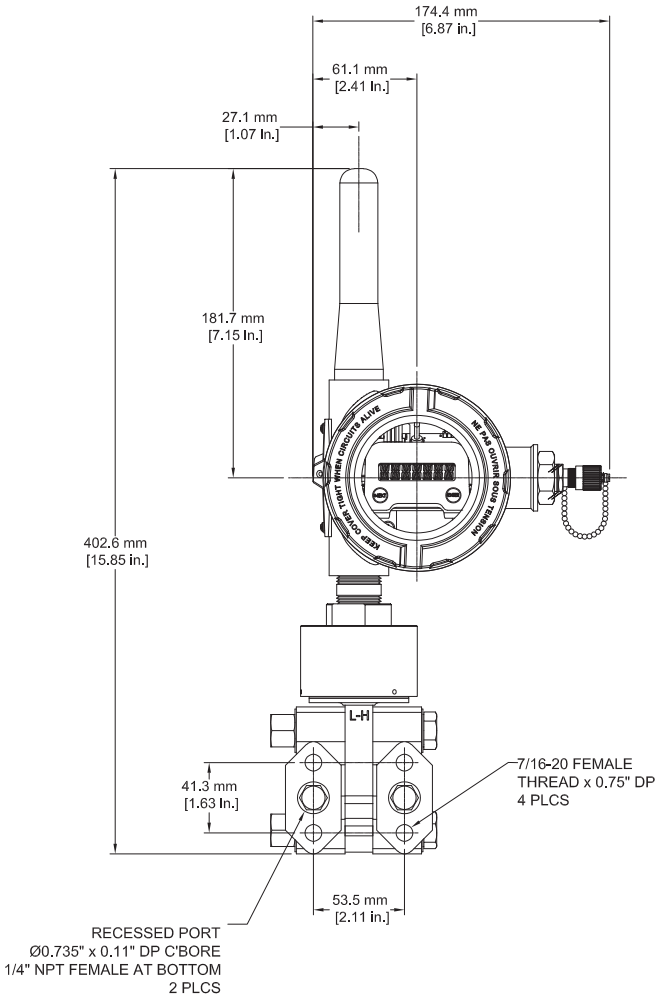
Dimensions - Accutech DP20

FRONT VIEW



SIDE VIEW