

Technical Specification Datasheet

Accutech

Rapid deploy wireless instrumentation solutions for telemetry and remote SCADA



Accutech



Battery-powered wireless sensor networks,
used wherever challenging telemetry applications are found:

- Stranded measurement points
- Hazardous locations
- Mobile equipment



Widest range of battery powered instruments on the market

- > Self-powered field devices with integrated instrumentation and communications sub-systems
- > Line-powered base radios

Base Radio



BR10
Div 1, Zone 1
Base radio



BR20
Div 2, Zone 2
Base Radio

Level



GL10
Gauge Level



SL10
Submersible Level



FL10
Float Level

IO



AI10 | AV10
Analog Input



SI10
Switch Input/Output



VC10
Valve Control



**4AO, 8SW,
4AO-8SW**
Output Modules

Pressure



AP10
Absolute Pressure




GP10
Gauge Pressure




DP20
Differential Pressure


Temperature



RT10
RTD Temperature



TC10
Thermocouple
Temperature



TM10
Turbine Meter
Totalizer

Acoustic Monitor



AM20
Acoustic Monitor

Specifications



BR10

Base Radio

- Supports 100 field units with 915MHz or 2.4GHz radio
- Serial Modbus via RS-485
- Remote antenna option
- 10-30VDC input power
- CSA Class 1, Div1 (xp)
- ATEX/IECEX -d



BR20

Base Radio

- DIN rail mount
- Supports 100 field units with 915MHz or 2.4GHz radio
- Optional Trio data radio for long haul connectivity with host
- Serial Modbus via RS-485
- 11-30VDC input power
- CSA Class 1, Div2
- ATEX/IECEX -n



AI10 | AV10

Current | Voltage Multi-Input Field Unit

- Accuracy: $\pm 0.1\%$ of full-scale reading at reference conditions
- Dual current (4-20mA) or voltage (0 – 10V) analog inputs
- Includes dual contact closure inputs
- Remote antenna option
- NEMA4 enclosure
- CSA Class 1, Div1 (IS)
- ATEX/IECEX -ia



AM20

Acoustic Monitor Field Unit

- Acoustic sensor with 0-255 range count
- Remote antenna option
- NEMA4 housing
- CSA Class 1, Div1 (IS)
- ATEX/IECEX -ia



AP10

Absolute Pressure Field Unit

- Accuracy:
 - $\pm 0.25\%$ of full-scale at 20°C (68°F)
 - $\pm 0.5\%$ of URL
- 30psia and 250psia max pressure options
- NEMA4 housing
- Remote antenna and remote sensor option
- CSA Class 1, Div1 (IS)
- ATEX/IECEX -ia



DP20

Differential Pressure Field Unit

- Accuracy: $\pm 0.2\%$ of URL
- Available in five different pressure ranges:
 - +/- 100in H2O
 - +/- 300in H2O
 - -25psi to 25psi
 - -25psi to 100psi
 - -25psi to 300psi
- NEMA4 housing
- Remote antenna option
- CSA Class 1, Div1 (IS)
- ATEX/IECEX -ia



FL10

Float Level Field Unit

- For use with Siemens 1000 and 2000 series probes
- ¼" and ½" resolution options
- Lengths up to 30'
- Single float or dual float for liquids interface
- NEMA4 housing
- Remote antenna option
- CSA Class 1, Div1 (IS)
- Available in North America only



GL10

Gauge Level Field Unit

- Accuracy:
 - $\pm 0.25\%$ of full-scale at 20°C (68°F)
 - $\pm 0.5\%$ of URL
- 15psig and 30psig max pressure options
- Specific gravity correction and multiple units of measure selection
- NEMA4 housing
- Remote antenna and remote sensor option
- CSA Class 1, Div1 (IS) only
- ATEX/IECEX -ia

Specifications



GP10

Gauge Pressure Field Unit

- Accuracy:
 - $\pm 0.25\%$ of full-scale at 20°C (68°F)
 - $\pm 0.25\%$ of URL (15000psig)
 - $\pm 0.3\%$ of URL (2500 & 5000psig)
 - $\pm 0.5\%$ of URL (5, 15, 30, 100, 250, 1000 & 10000psig)
- 5, 15, 30, 100, 250, 1000, 2500, 5000, 10000, 15000psig
- NEMA4 housing
- Remote antenna and remote sensor option
- CSA Class 1, Div1 (IS)
- ATEX/IECEX -ia



RT10

RTD Temperature Field Unit

- Electronics accuracy: $\pm 0.1\%$ of reading
- 4 wire 100 or 1000ohm DIN RTD
- Integrated RTD or junction box option for customer supplied RTD
- NEMA4 housing
- Remote antenna and remote sensor option
- CSA Class 1, Div1 (IS)
- ATEX/IECEX -ia



SI10

Switch Input Field Unit

- Dual contact closure switch input with counter function
- Counter frequency up to 5Hz
- Optional dual switch dry contact outputs capable of switching 1A @ 30V
- Remote antenna option
- NEMA4 or optional NEMA4X enclosure.
- CSA Class 1, Div1 (IS) for models without outputs. Div 2 with outputs.
- ATEX/IECEX -ia for models without outputs. IECEX-d for models with outputs



SL10

Submersible Level Field Unit

- Submersible hydrostatic pressure sensor
- Accuracy: $\pm 0.5\%$ of URL
- Pressure ratings up to 30psi (2Bar), lengths to 75' (15m)
- Vent to atmosphere or to tank
- Remote antenna option
- NEMA4 housing
- CSA Class 1, Div1 (IS)
- ATEX/IECEX -ia



TC10

Thermocouple Temperature Field Unit

- Types B, C, E, J, K, L, N, S, T, U
- Electronics accuracy: $\pm 0.1\%$ of full-scale reading
- Integrated single T/C or junction box option that supports dual customer supplied T/Cs
- NEMA4 housing
- Remote antenna option
- CSA Class 1, Div1 (IS)
- ATEX/IECEX -ia



TM10

Turbine Meter Totaliser Field Unit

- Interfaces many 2-wire magnetic pickups
- Instantaneous flow & totalised values
- Frequency 1Hz to 10KHz
- NEMA4 housing
- Remote antenna option
- CSA Class 1, Div1 (IS)
- ATEX/IECEX -ia



VC10

Valve Controller Field Unit

- Accuracy: $\pm 0.25\%$ of full-scale reading
- Sales valve actuation and control
- Control and monitoring of plunger lift systems
- Start-up and default configuration options
- Integrated pressure sensor for active control of solenoid pulse width
- Two digital inputs, for plunger arrival and discrete input applications
- CSA Class 1 Div 1, hazardous location certified



4AO, 8SW, 4AO-8SW

Output Modules

- Direct connection between Accutech base radios and DCS or process control systems
- Provides analog and discrete outputs from associated field units
- DIN rail mounted.
- Stackable (25 max, 100 AO, 200 DO)
- Three models available:
 - 4 channel analog output
 - 8 point contact closure
 - Combination of 4ch analog / 8 contact

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Product Data Sheet Accutech BR10 Specifications



Accutech BR10

Functional

Device	Base Radio
Location	Interfaced with controller or PC
Frequency Range	900MHz and 2.4GHz license-free bands
Input Power	10 to 30VDC

Features

Remote Configuration Interface	Accutech Manager, Windows™-based GUI software, providing network-wide monitoring and performance-management features and field unit configuration capabilities
RF Characteristics	<p>900MHz:</p> <ul style="list-style-type: none"> • 902 to 928MHz Frequency Hopping Spread Spectrum (FHSS); FCC certified ISM license-free band • 915 to 928MHz (Australia) • 921 to 928MHz (New Zealand) • Data rates: 4.8, 19.2, or 76.8 Kbaud • 0.4 W maximum <p>2.4GHz:</p> <ul style="list-style-type: none"> • 2400 to 2483.5MHz ISM license-free band Frequency Hopping Spread Spectrum (FHSS) Radio • Data rates: 50 & 100kbps (FSK Modulation), 200kbps (GFSK Modulation) • Typical Electrical Transmit Power: +10.6dBm • Typical Receive Sensitivity (0.1% BER): - 102dBm @ 50kbps, - 99dBm @ 100kbps, - 99dBm @ 200kbps • Typical CW Receiver Blocking Rejection: 64dB for CW @ +/- 5MHz, 74dB for CW @ +/- 30MHz
Output Options	<ul style="list-style-type: none"> • RS-485 digital communications with conversion to RS-232 or USB for interface with PC or server and Accutech Manager. • Serial Modbus RTU (Binary) over RS-485 • Modbus over TCP/IP (via optional converter)

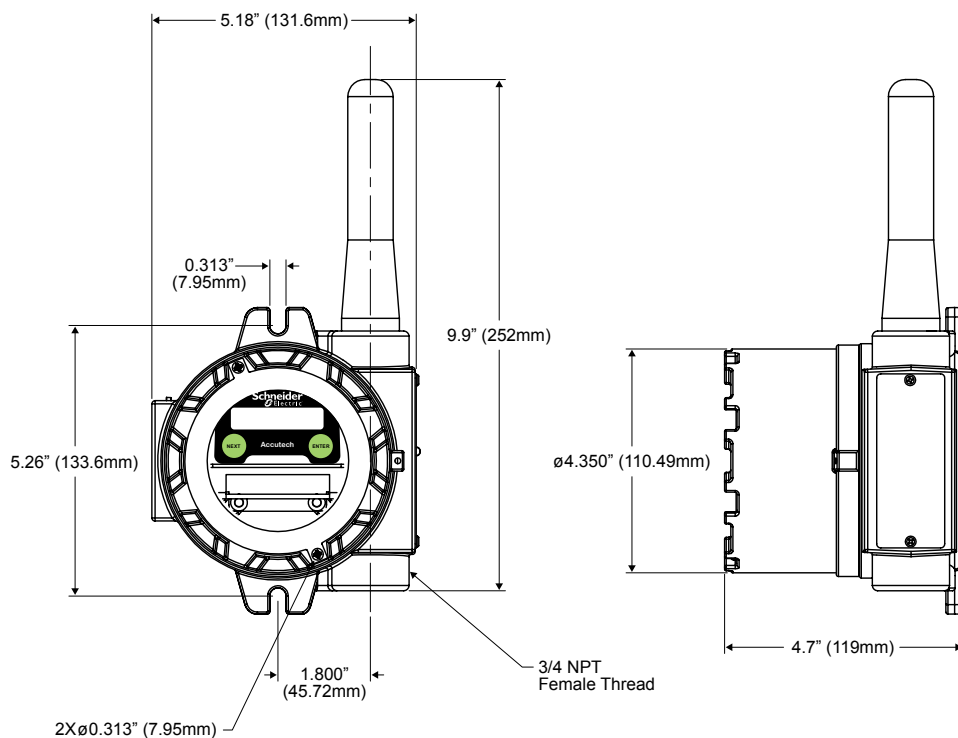
General

Operating Ambient Environment	Rated for industrial use: -40 to +185°F (-40 to +85°C)
Materials of Construction	Epoxy painted aluminum
Operating Shock and Vibration	Tested per IEC 60068-2-6 (vibration) and 2-27 (shock)
Electromagnetic Compatibility	<ul style="list-style-type: none"> • Operates within specification in fields from 80 to 1,000MHz with field strengths to 30V/m • Meets EN 50082-1 general immunity standard and EN 55011 compatibility emissions standard
Certifications	<p>North America HAZLOC:</p> <ul style="list-style-type: none"> • cCSAus • Explosion Proof (only with integral NEMA4X antenna cover): • Class I, Div. 1, Groups A, B, C & D, T4 • vClass I, Div. 2, Groups A, B, C, & D, T4 <p>ATEX/IECEX HAZLOC:</p> <ul style="list-style-type: none"> • LCIE • Flame Proof: Ex d IIC T4 <p>EMC & Radio:</p> <ul style="list-style-type: none"> • North America: FCC, IC • Europe: CE Mark (R&TTE) • Australia/New Zealand: C-Tick

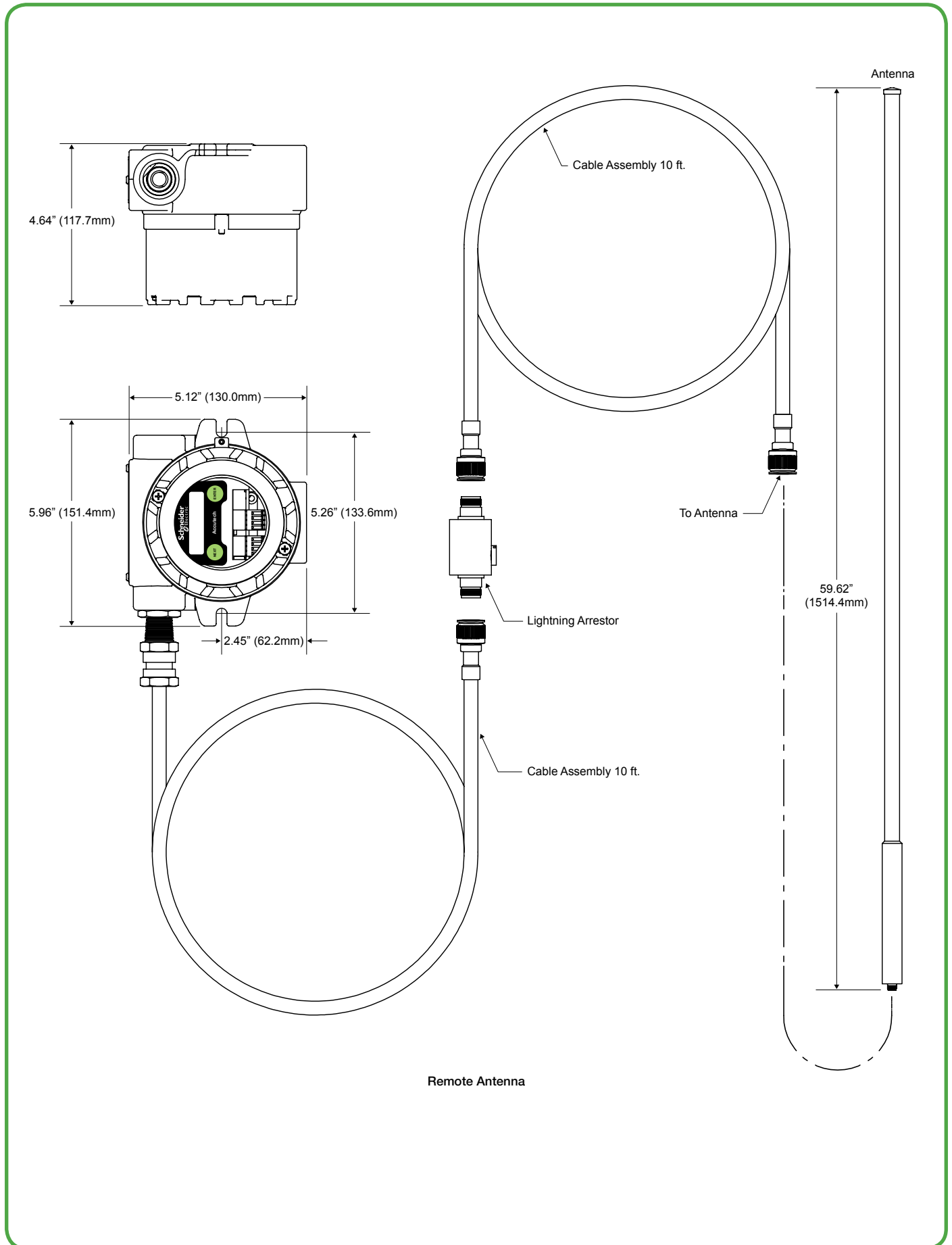
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Product Data Sheet Accutech Base Radio Model Code and Dimensions

	TBUABR10-TXN00 represents a typical part number.
Model	Type
TBUABR10	Wireless Base Radio
Code	Select: RF Module Type
T	902MHz - 928MHz band (FCC / IC)
D	915MHz - 928MHz band (Australia)
N	915MHz - 921MHz band (New Zealand)
F	2.4GHz
Code	Select: Certifications
X	CSA: Explosion Proof - see product data sheet for certification details, for Integral Antenna BR10 only
C	ATEX & IECEx: Flame-Proof - see product data sheet for certification details, for Integral Antenna BR10 only
G	General Purpose - Non-Hazardous locations only, required for remote antenna configurations of BR10
Code	Select: Housing
2	NEMA4X aluminum housing
Code	Select: Protocol
1	Modbus and Streaming output for Accutech Manager and output modules
Code	Future Option
N	None
Code	Select: Integral Antenna or Cable & Connector Interface
00	Integral Antenna with NEMA4X Antenna Cover (meets Xproof Div 1/ Div 2)
10	10ft. (3.05m) cable with N-Male connector for remote antenna configurations (non-hazardous locations only)
25	25ft. (7.62m) cable with N-Male connector for remote antenna configurations (non-hazardous locations only)



Product Data Sheet Accutech Base Radio Dimensions



Product Data Sheet Accutech Base Radio Specifications



> Accutech BR20

Functional

Device	Base Radio
Location	Interfaced with long-haul radio, controller or PC
Frequency Range	900MHz and 2.4GHz license-free bands
Input Power	0.5W maximum, 30mA maximum (at 13.8VDC nominal)

Features

Configuration Interface

Local:	LCD and Keypad
Remote:	Accutech Manager, Windows™-based GUI software, providing network-wide monitoring and performance-management features and field unit configuration capabilities
RF Characteristics	<p>900MHz:</p> <ul style="list-style-type: none"> • 902 to 928MHz Frequency Hopping Spread Spectrum (FHSS); FCC certified ISM license-free band • 915 to 928MHz (Australia) • 921 to 928MHz (New Zealand) • Data Rates: 4,800, 19,200 or 76,800bps <p>2.4GHz:</p> <ul style="list-style-type: none"> • 2400 to 2483.5MHz ISM license-free band Frequency Hopping Spread Spectrum (FHSS) Radio • Typical Electrical Transmit Power: +10.6dBm • Typical Receive Sensitivity (0.1% BER): -102dBm @ 50kbps, -99dBm @ 100kbps, -99dBm @ 200kbps • Typical CW Receiver Blocking Rejection: 64dB for CW @ +/- 5MHz, 74dB for CW @ +/- 30MHz • Data Rates: 50 and 100kbps (FSK Modulation), 200 kbps (GFSK Modulation)
Output Options	<ul style="list-style-type: none"> • RS-485 digital communications with conversion to RS-232 or USB for interface with PC or server and Accutech Manager. • Serial Modbus RTU (Binary) over RS-485 • Modbus over TCP/IP (via optional converter)

Connections

Data	<ul style="list-style-type: none"> • RS-232 or RS-485, RJ45 • RS-232 (DTE - Rx/D, Tx/D) • RS-485 (2 wires, Termination DIP switch enabled) • Tx, Rx LED
Diagnostics	<ul style="list-style-type: none"> • RS-232 or RS-485, RJ45 • RS-232 (DTE - Rx/D, Tx/D) • RS-485 (2 wires, Termination DIP switch enabled) • Tx, Rx LED
Antenna Type	1/2 wave dipole, 6dB maximum gain allowable
Antenna Connector	RPSMA

General

Input Voltage	<ul style="list-style-type: none"> • 11 to 30VDC, 30VDC maximum
Input Current	30mA maximum (at 13.8VDC nominal)
Input Power	0.5W maximum (11 to 30VDC)
Dimensions:	<ul style="list-style-type: none"> • 108mm (4.25in.) wide • 118mm (4.625in.) high • 44mm (1.75in.) deep
Packaging	Corrosion-resistant zinc plated steel with black enamel paint
Terminations	<ul style="list-style-type: none"> • 5-pole removable terminal block, 12-22AWG, 15A contacts • 8-pole RJ-45 style jacks
Environment	<ul style="list-style-type: none"> • 5% RH to 95% RH, non-condensing • -40°C to 70°C (-40°F to 158°F) operation • -40°C to 85°C (-40°F to 185°F) storage
LED Power Enable	LEDs can be disabled with DIP switch
Certifications	<p>North America HAZLOC:</p> <ul style="list-style-type: none"> • cCSAus • Non-Incendive • Class I, Div. 2, Groups A, B, C & D, T4 <p>ATEX/IECEX HAZLOC:</p> <ul style="list-style-type: none"> • LCIE • ATEX II 3G, Ex nA IIC T4 per EN 60079-15, protection type n (Zone 2) • IECEX, Ex nA IIC T4 per IEC 60079-15, protection type n (Zone 2) <p>EMC & Radio:</p> <ul style="list-style-type: none"> • North America: FCC, IC • Europe: CE Mark • Australia/New Zealand: C-Tick
Warranty	3-Year parts and labor

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Product Data Sheet Accutech Base Radio Specifications



Long-Haul Trio K-Series Radio (To be ordered at time of purchase. Radio cannot be retrofitted in field)

Functional

Location	Master, remote, repeater or network-bridge
Radio Frequency Range	<ul style="list-style-type: none"> • 902MHz - 928MHz band (FCC/IC) • 915MHz - 928MHz band (Australia) • 915MHz - 921MHz band (New Zealand)
RF Channel Data Rate	32,000, 64,000, 128,000 or 256,000bps

Features

Configuration Interface	TView+: Windows™-based GUI software, providing configuration, network management and diagnostics
Radio Frequency Accuracy	±2.5ppm

Transmitter

Power	0.01W - 1W (+30 dBm) in 0.5 dB steps
Protection	Over-temperature and reverse power
Modulation	2 Level GFSK
Tx Key-up Time	<50µs

Receiver

Selectivity	Better than 50dB
Intermodulation	Better than 65dB

Connections

Data Ports	2 x RJ45 female port wired as DCE (modem)
System/Diagnostics Port	1 x RJ45 for diagnostic, configuration and re-programming
Antenna	Two SMA
Terminations	<ul style="list-style-type: none"> • 5-pole removable terminal block, 12-22AWG, 15A contacts • 8-pole RJ-45 style jacks
LED Display	Four Bi-color Red/Green LEDs: Power/Tx, Sync/NoRx, Port A Rx/Tx, Port B Rx/Tx

Modem

Data Serial Port A	RS-232 RJ45 (DCE - Rx/D, Tx/D, CTS, RTS, DTR, DCD) Or RS-485 RJ45 (2 wires, Termination DIP switch-enabled)
Data Serial Port B	RS-232 RJ45 (DCE - Rx/D, Tx/D) Rx/D and Tx/D are 3.3V CMOS signals. (Shared with the System/Diagnostics connection)
System/Diagnostics Port	RS-232 RJ45 (DTE - Rx/D, Tx/D) Rx/D and Tx/D are 3.3V CMOS signals. (Shared with Push to Talk (PTT) input.) (RJ45 Shared with the Port B connection.)
Flow Control	Hardware or 3-wire interface
Bit Error Rate	<1 x 10 ⁻⁶ @ -109dBm
Encryption	256-bit AES encryption (within North America/Australia only)
Collision Avoidance	Channelshare™ collision avoidance system
Multistream™	Simultaneous delivery of multiple data protocols

General

Transmit Current	500mA (at 13.8VDC nominal)
Receive Current	<120mA (at 13.8VDC nominal)
RSSI Output	Receive Signal Strength Indication analog output available on P1 connector
Factory Default Input	Restore Factory Defaults available on P1 connector
1PPS	1PPS (pulse per second) input available on P1 connector
Push-to-Talk	PTT input available on Port B/DIAG COM port connector. DIP Switch-enabled
Power Supply Voltage Monitor	Yes
Operating Modes	<ul style="list-style-type: none"> • 5% RH to 95% RH, non-condensing • -40°C to 70°C (-40°F to 158°F) operation • -40°C to 85°C (-40°F to 185°F) storage
Diagnostics	<ul style="list-style-type: none"> • Network-wide operation from any remote terminal • Non-intrusive protocol - runs simultaneously with the application • Over-the-air re-configuration of parameters • Storage of data error and channel occupancy statistics • Built-in error rate testing capabilities

Approvals and Certifications

IC	RSS 139 (RSS 210)
ACA	AS1468-2003
Hazardous Locations North America:	<ul style="list-style-type: none"> • CCSAUS Non-Incendive Electrical Equipment for use in Class I, Division 2 Hazardous Locations per CSA Std C22.2 No. 213-M1987 / UL1604 (3rd Ed.) Temperature Code T4 • CAN/CSA Std. C22.2 No.0-M91 (R2001) and CSA C22.2 No. 142-M1987 and UL508 (17th Ed.) in Canada and USA
Digital Emissions	<ul style="list-style-type: none"> • FCC 47 CFR Part 15, Subpart B, Class A Verification • ICES-003 Issue 4 (Canada) • AS/NZS CISPR 22: 2996 (Australia/New Zealand) • C-Tick. Registration number N15744
Warranty	3-Year parts and labor

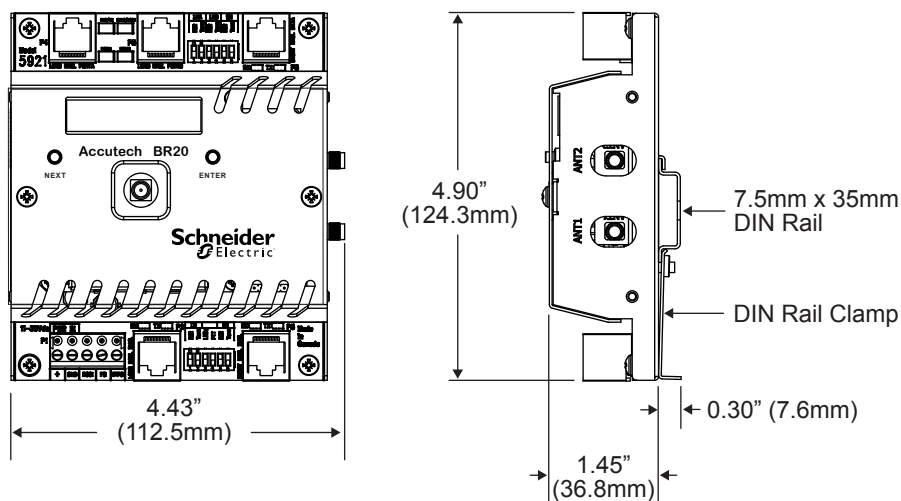
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Product Data Sheet Accutech Base Radio

Model Code and Dimensions

	TBUABR20-1000 represents a typical part number
Model	Type
TBUABR20	Wireless Base Radio
Code	Select: RF Module Type
1	902MHz - 928MHz band (FCC / IC)
2	915MHz - 928MHz band (Australia)
3	915MHz - 921MHz band (New Zealand)
5	2.4GHz (CSA certified) *
6	2.4GHz (ATEX & IECEx certified) *
Code	Select: Long Haul Radio
0	None
	900MHz Frequency Band (No antenna or cables included)
B	900MHz Trio Spread Spectrum Radio with encryption, 902-928MHz (FCC / IC)
C	900MHz Trio Spread Spectrum Radio with encryption, 915-928MHz (AUS)
D	900MHz Trio Spread Spectrum Radio, 915-928MHz (BRAZIL)
E	900MHz Trio Spread Spectrum Radio, 921-928MHz (NZ)
	2.4 GHz Frequency Band (No antenna or cables included)
K	2.4GHz Trio Spread Spectrum Radio with Encryption, 500mW (CANADA, USA & AUSTRALIA)
L	2.4GHz Trio Spread Spectrum Radio, 500mW (OUTSIDE OF EUROPE, CANADA, USA & AUSTRALIA)
Code	Future Option
0	None
Code	Future Option
0	None

* A high gain antenna is recommended when selecting this option – see Accutech Accessories data sheet



Product Data Sheet Accutech AI10 & AV10 Specifications



Accutech AI10 & AV10

Functional

Sensor Type	Multi-Input
Location	Field Unit
Frequency Range	900MHz and 2.4GHz license-free bands
Power	Integrated battery
Network Capacity	<ul style="list-style-type: none"> • Max. 100 field units per base radio • Max. 256 base radios per network

Features

Inputs	<ul style="list-style-type: none"> • 2: 4-20mA inputs sharing a common ground and two discrete contact closure inputs (AI10) • 2: 0-10V inputs sharing a common ground and two discrete contact closure inputs (AV10)
Input Characteristics	<ul style="list-style-type: none"> • 10Ω impedance, analog (AI) • 100kΩ impedance, analog (AV)
Accuracy	<ul style="list-style-type: none"> • ± 0.1% of Full-scale reading at reference conditions
Sampling and Transmission Characteristics	<p>The Multi-Input Field Unit samples analog signals (4-20mA or 0-10V) at regular intervals. The data may then be transmitted to the Base Radio for centralised monitoring and data acquisition. The user specifies how frequently the process is monitored and how often data is transmitted.</p> <ul style="list-style-type: none"> • Input 1 and Input 2 – user-configured low rate and high rate conditions • Sampling rate – user-selectable from 1 to 60 seconds (low rate) and from 1 to 30 seconds (high rate) • Transmission rate – user-selectable from 1 second to 60 seconds (low and high rate) <p>Accutech Manager can be used for real-time monitoring of the process information. The user can set thresholds to represent non-standard conditions.</p>
RF Characteristics	<p>900MHz:</p> <ul style="list-style-type: none"> • 902 to 928MHz Frequency Hopping Spread Spectrum (FHSS), FCC certified ISM license-free band • 915 to 928MHz (Australia) • 921 to 928MHz (New Zealand) • Data Rates: 4,800, 19,200 or 76,800bps • 0.4W maximum <p>2.4GHz:</p> <ul style="list-style-type: none"> • 2400 to 2483.5MHz ISM license-free band Frequency Hopping Spread Spectrum (FHSS) Radio • Data Rates: 50/100kbps (FSK Modulation), 200kbps (GFSK Modulation) • Typical Electrical Transmit Power: +10.6dBm • Typical Receive Sensitivity (0.1% BER): - 102dBm @ 50kbps, - 99dBm @ 100kbps, - 99dBm @ 200kbps • Typical CW Receiver Blocking Rejection: 64dB for CW @ +/- 5MHz, 74dB for CW @ +/- 30MHz
Self-Diagnostics	<ul style="list-style-type: none"> • 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 spec is identified and reported

General

Operating Ambient Environment	<ul style="list-style-type: none"> • -40° to +85°C (-40° to +185°F) electronics • -20° to +70°C (-4° to +158°F) display • -40° to +85°C (-40° to +185°F) display (extreme cold can reduce LCD visibility) • Humidity: 0 to 95%, non-condensing
Power	<ul style="list-style-type: none"> • Self-contained power • Standard Accutech field units include a single C-Cell (900MHz) or D-Cell (2.4GHz) lithium battery that offers battery life up to ten years of service, depending on data rates and battery options.
Materials of Construction	<ul style="list-style-type: none"> • Base Plate: 304 Stainless Steel • Junction box: Aluminum • Cover: GE Lexan®, V-0 rating and UV resistant
Operating Shock and Vibration	Tested per IEC 60068-2-6 (vibration) and 2-27 (shock)
Random Vibration Characteristics	Tested to withstand 6 g's, 15 minutes per Axis from 9 – 500Hz
Electromagnetic Compatibility	<ul style="list-style-type: none"> • Operates within specification in fields from 80 to 1,000MHz with field strengths to 30V/m • Meets EN 50082-1 general immunity standard and EN 55011 compatibility emissions standard
Certifications	<p>North America HAZLOC:</p> <ul style="list-style-type: none"> • cCSAus • Intrinsically Safe: Exia IIC; AEx ia IIC • Class I, Div. 1, Groups A, B, C & D, T4 • Class II, Div. 1, Groups E, F and G, T3 • Class III, T3 • Class 1, Zone 0, AEx ia IIC, T3 • Class I, Div. 2, Groups A, B, C & D, T4 • Class II, Div. 2, Groups F and G, T4 • Class III, T4 <p>Explosion Proof:</p> <ul style="list-style-type: none"> • Class I, Div. 1, Groups A, B, C & D; T4 • Class I, Div. 2, Groups A, B, C & D; T4 <p>ATEX/IECEX HAZLOC:</p> <ul style="list-style-type: none"> • LCIE • Intrinsically Safe • Ex ia IIC T3 • Flame Proof: Ex d IIC T4. <p>EMC & Radio:</p> <ul style="list-style-type: none"> • North America : FCC , IC • Europe : CE Mark (R&TTE) • Australia / New Zealand : C - Tick

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Product Data Sheet Accutech AI10

Model Code

	TBUAAITJPN00A represents a typical part number.
Model	Type
TBUAAI	(2) 4-20 milliamp & (2) contact closure inputs
Code	Select: RF Module Type
T	902MHz - 928MHz band (FCC / IC)
D	915MHz - 928MHz band (Australia)
N	915MHz - 921MHz band (New Zealand)
F	2.4GHz
Code	Select: Certifications
A	<u>Explosion Proof Protection – Div 1</u> CSA – see product data sheet for certification details
E	<u>Non-Incendive Protection – Div 2</u> CSA – see product data sheet for certification details
J	CSA – see product data sheet for certification details
Q	ATEX & IECEx – see product data sheet for certification details
N	<u>Flame Proof Protection</u> ATEX & IECEx – see product data sheet for certification details
Code	Select: Housing & Battery Pack
P	NEMA4 Polycarbonate Housing with 1 Cell (available with Intrinsically Safe Rating)
1	NEMA4X Aluminum Housing with 1 Cell
2	NEMA4X Aluminum Housing with 2 Cells (not available for ATEX/IECEx)
4	NEMA4X Aluminum Housing with 4 Cells (not available for ATEX/IECEx)
Code	Select: Future Option
N	None
Code	Select: Integral Antenna or Cable & Connector Interface
00	Integral Antenna with Antenna Cover. The 2.4GHz NEMA4 unit also comes with an external antenna connector
01	<u>For 900MHz RF Module Systems – or – the 2.4GHz in a NEMA4X Aluminum Housing</u> External YAGI Antenna, 6db, attached to base of unit (not available with 2.4GHz RF NEMA4 unit)
10	10ft. (3.05m) cable with N-Male connector for remote antenna configurations (not available with 2.4GHz RF NEMA4 unit)
25	25ft. (7.62m) cable with N-Male connector for remote antenna configurations (not available with 2.4GHz RF NEMA4 unit)
Code	Select: Junction Box
A	No Junction Box (exposed lead wires)
B	NEMA4 - Aluminum Rear Entry
D	NEMA4X - Stainless Steel Rear Entry

Product Data Sheet Accutech AV10 Model Code

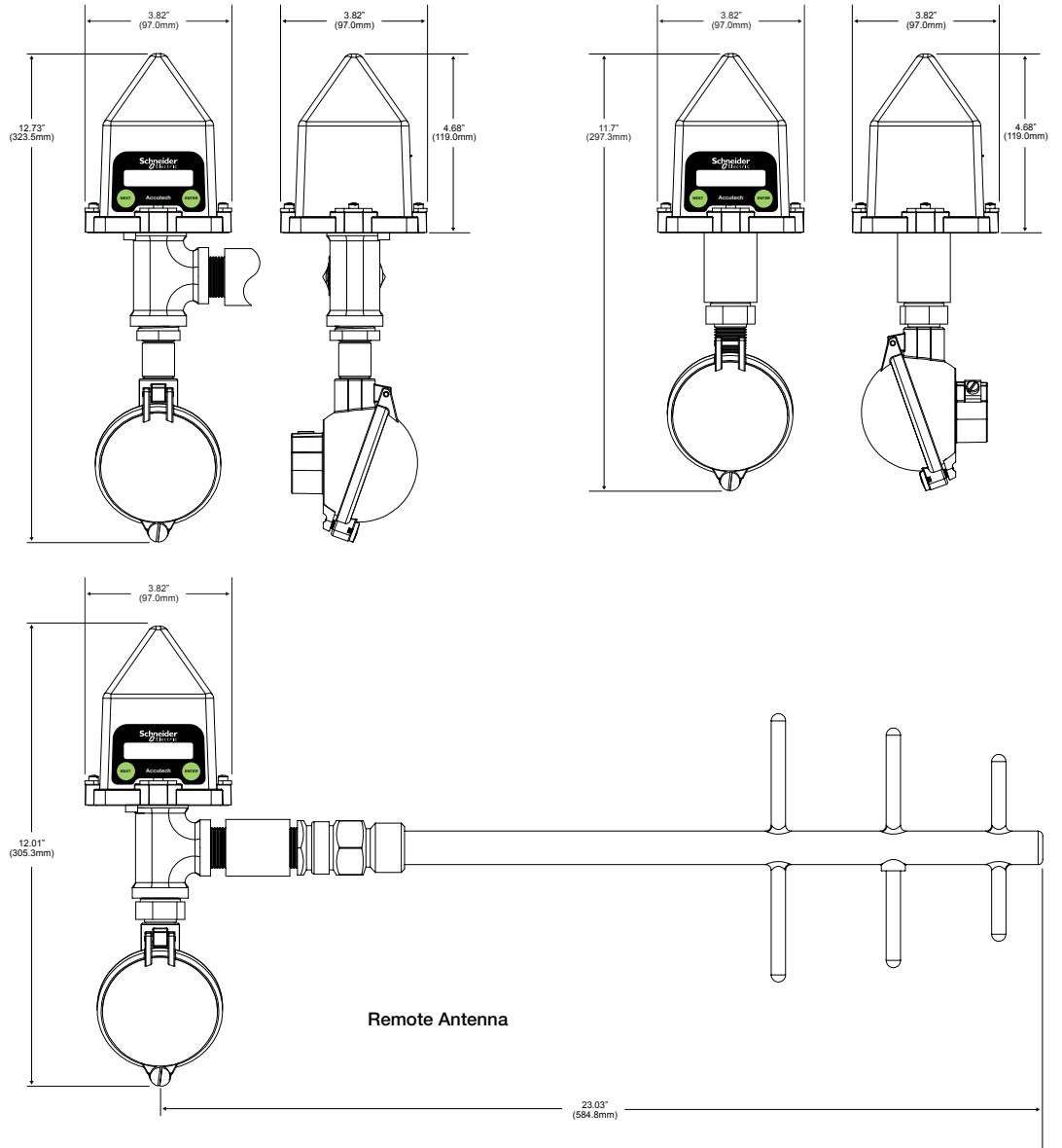
	TBUAAVTJPN00A represents a typical part number.
Model	Type
TBUAAV	(2) 0-10 volt & (2) contact closure inputs
Code	Select: RF Module Type
T	902MHz - 928MHz band (FCC / IC)
D	915MHz - 928MHz band (Australia)
N	915MHz - 921MHz band (New Zealand)
F	2.4GHz
Code	Select: Certifications
A	<u>Explosion Proof Protection – Div 1</u> CSA – see product data sheet for certification details
E	<u>Non-Incendive Protection – Div 2</u> CSA – see product data sheet for certification details
J	CSA – see product data sheet for certification details
Q	ATEX & IECEx – see product data sheet for certification details
N	<u>Flame Proof Protection</u> ATEX & IECEx – see product data sheet for certification details
Code	Select: Housing & Battery Pack
P	NEMA4 Polycarbonate Housing with 1 Cell (available with Intrinsically Safe Rating)
1	NEMA4X Aluminum Housing with 1 Cell
2	NEMA4X Aluminum Housing with 2 Cells (not available for ATEX/IECex)
4	NEMA 4X Aluminum Housing with 4 Cells (not available for ATEX/IECex)
Code	Select: Future Option
N	None
Code	Select: Integral Antenna or Cable & Connector Interface
00	Integral Antenna with Antenna Cover. The 2.4GHz NEMA4X unit also comes with an external antenna connector
01	<u>For 900MHz RF Module Systems – or – the 2.4GHz in a NEMA4X Aluminum Housing</u> External YAGI Antenna, 6db, attached to base of unit (not available with 2.4GHz RF NEMA4 unit)
10	10ft. (3.05m) cable with N-Male connector for remote antenna configurations (not available with 2.4GHz RF NEMA4 unit)
25	25ft. (7.62m) cable with N-Male connector for remote antenna configurations (not available with 2.4GHz RF NEMA4 unit)
Code	Select: Junction Box
A	No Junction Box (exposed lead wires)
B	NEMA4 - Aluminum Rear Entry
D	NEMA4X - Stainless Steel Rear Entry

Product Data Sheet Accutech AI10 & AV10
Dimensions

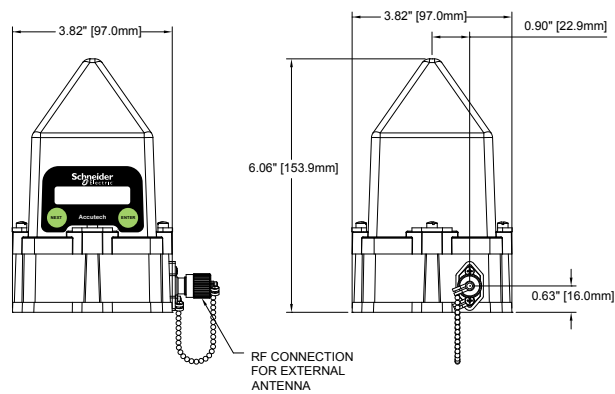
900MHz RF and Battery Unit
(Sensor and external antenna option shown)

Remote Antenna Option

Integral Antenna (standard)



2.4GHz RF and Battery Unit
(Sensor and external antenna not shown for clarity)



Product Data Sheet Accutech AM20

Specifications



> Accutech AM20

Functional

Sensor Type	Acoustic Monitor
Location	Field Unit
Frequency Range	900MHz license-free band
Power	Integrated battery
Network Capacity	<ul style="list-style-type: none"> Max. 100 field units per base radio Max. 256 base radios per network

Features

Remote Configuration Interface	Accutech Manager, Windows™-based GUI software, providing network-wide monitoring and performance-management features and field unit configuration capabilities.
Local Configuration Interface	<ul style="list-style-type: none"> 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
Acoustic Transducer Characteristic	<ul style="list-style-type: none"> Center frequency: $f_c = 40\text{kHz}$ Bandwidth (3dB): $5\text{kHz} (f_c \pm 2.5\text{kHz})$
Output Characteristics	<ul style="list-style-type: none"> Amplitude is an 8-bit digital output with a scale from 0 to 255 See the Base Radio, Accutech Manager and Output Module descriptions for various analog and digital output options
Sampling and Transmission Characteristics	<ul style="list-style-type: none"> The Acoustic Field Unit samples ultrasound and ambient temperature at regular intervals. The data may then be transmitted to the Base Radio for centralised monitoring and data acquisition. Frequency of process monitoring and data transmission may be set. Ultrasound and ambient temperature monitoring: user designates low rate and high rate conditions Sampling rate: user selectable from 1 to 60 seconds (low rate) and from 1 to 30 seconds (high rate) Transmission rates: user selectable from 1 second to 60 seconds (low and high rate) The Wireless Instrumentation Manager may be used for real-time monitoring of the process information. Thresholds may be set to represent non-standard operational conditions.
RF Characteristics	<ul style="list-style-type: none"> 902MHz - 928MHz band (FCC/IC) 915MHz - 928MHz band (Australia) 915MHz - 921MHz band (New Zealand) Up to 3000ft (~1000m) typical range with obstructions Transmit Power: +13dBm Receive Sensitivity: -113dBm Adjacent Channel Rejection: 48dBc Alternate Channel Rejection: 62dBc
Self-Diagnostics	<ul style="list-style-type: none"> 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 spec is identified and reported.

General

Operating Ambient Environment	<ul style="list-style-type: none"> -40°C to +85°C (-40°F to +185°F) electronics -20°C to +70°C (-4°F to +158°F) display -40°C to +85°C (-40°F to +185°F) display (extreme cold can reduce LCD visibility) Humidity: 0 to 95 %, non-condensing
Materials of Construction	<ul style="list-style-type: none"> Base Plate: 304 Stainless Steel Cover: GE Lexan®, V-0 rating and UV resistant
Power	<ul style="list-style-type: none"> Self-contained power Standard Accutech AM20 includes a single C-Cell (900MHz) lithium battery that offers battery life up to ten years of service, depending on data rates and battery options.
Operating Shock and Vibration	Tested per IEC 60068-2-6 (vibration) and 2-27 (shock)
Random Vibration Characteristics	Tested to withstand 6 g's, 15 minutes per Axis from 9 – 500Hz
Electromagnetic Compatibility	<ul style="list-style-type: none"> Operates within specification in fields from 80 to 1,000MHz with field strengths to 30V/m. Meets EN 50082-1 General Immunity Standard and EN 55011 compatibility emissions standard.
Certifications	<p>North America HAZLOC:</p> <ul style="list-style-type: none"> cCSAus Intrinsically Safe: Exia IIC: AEx ia IIC Class I, Div. 1, Groups A, B, C & D, T3 Class II, Div. 1, Groups E, F and G, T3 Class III, T3 Class 1, Zone 0, AEx ia IIC, T3 Class I, Div. 2, Groups A, B, C & D, T4 Class II, Div. 2, Groups F and G, T4 Class III, T4 <p>ATEX/IECEx HAZLOC:</p> <ul style="list-style-type: none"> LCIE Intrinsically Safe Ex ia IIC T3 <p>EMC & Radio:</p> <ul style="list-style-type: none"> North America : FCC , IC Europe : CE Mark (R&TTE) Australia / New Zealand : C - Tick

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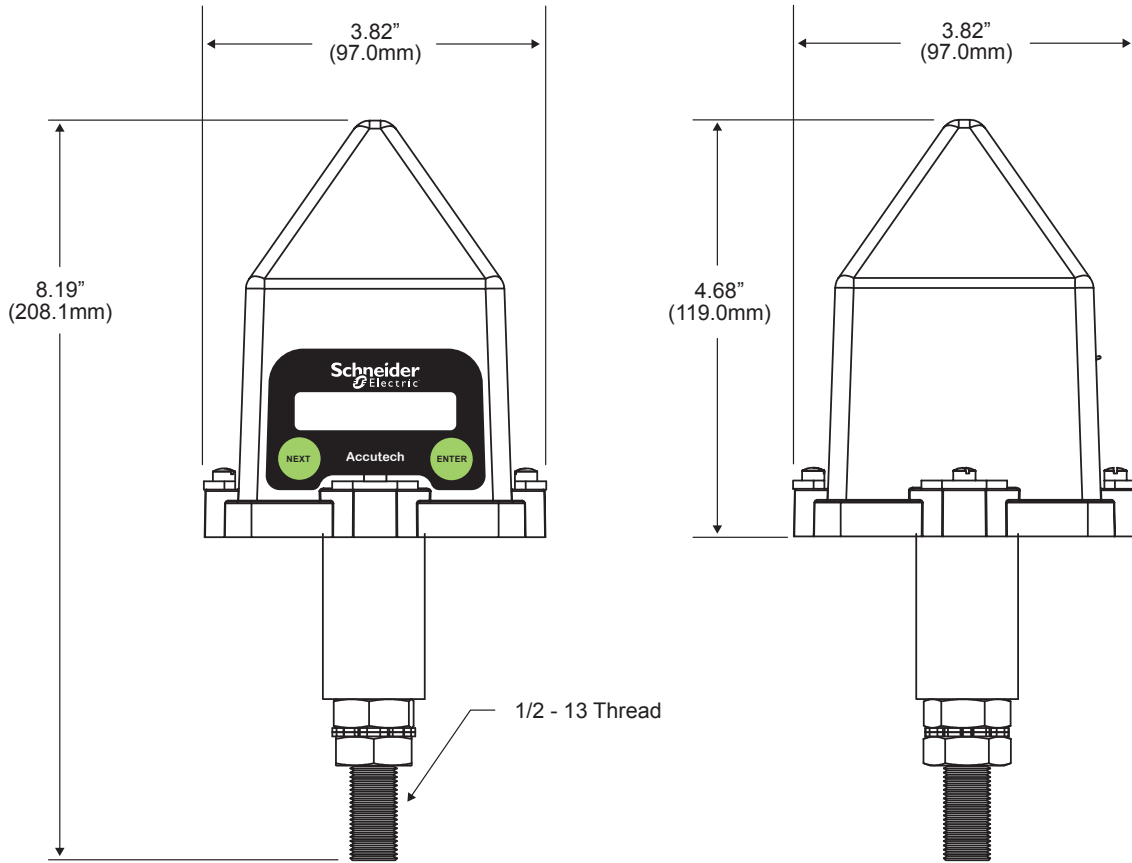
Product Data Sheet Accutech AM20

Model Code

	TBUAAMTJPN00 represents a typical part number.
Model	Type
TBUAAM	Wireless Acoustic Monitor Field Unit
Code	Select: RF Module Type
T	902MHz - 928MHz band (FCC / IC)
D	915MHz - 928MHz band (Australia)
N	915MHz - 921MHz band (New Zealand)
Code	Select: Certifications
J	<u>Intrinsically Safe Protection</u> cCSAus: see specifications page
Q	ATEX/IECEX: see specifications page
Code	Select: Housing & Battery Pack
P	NEMA4 Polycarbonate Housing with 1 Cell (Available with Intrinsically Safe Rating)
Code	Select: Future Option
N	None
Code	Select: Integral Antenna or Cable & Connector Interface
00	Integral Antenna with NEMA4X Antenna Cover (Available for all safety ratings)

Product Data Sheet Accutech AM20

Dimensions



Product Data Sheet Accutech AP10

Specifications



> Accutech AP10

Functional

Sensor Type	Absolute Pressure
Location	Field Unit
Frequency Range	900MHz and 2.4GHz license-free bands
Power	Integrated battery
Network Capacity	<ul style="list-style-type: none"> • Max. 100 field units per base radio • Max. 256 base radios per network

Features

Remote Configuration Interface	Accutech Manager, Windows™-based GUI software, providing network-wide monitoring and performance-management features and field unit configuration capabilities
Local Configuration Interface	<ul style="list-style-type: none"> • 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.

Sensor

Accuracy	<ul style="list-style-type: none"> • $\pm 0.25\%$ of full-scale at 20°C (68°F) • $\pm 0.5\%$ of sensor URL including combined effects of linearity, hysteresis, repeatability, and temperature. Addition of seals will reduce accuracy due to thermal effects of fill fluid.
Stability	Combined zero and span stability: less than $\pm 0.1\%$ of sensor URL per year at 21°C (70°F)
Output Resolution	24-bit Analog to Digital conversion
Absolute Pressure Ranges	30, 250psia (2, 17BAR)
RF Characteristics	<p>900MHz:</p> <ul style="list-style-type: none"> • 902 to 928MHz Frequency Hopping Spread Spectrum (FHSS), FCC certified ISM license-free band • 915 to 928MHz (Australia) • 921 to 928MHz (New Zealand) • Data Rates: 4,800, 19,200 or 76,800bps • 0.4W maximum <p>2.4GHz:</p> <ul style="list-style-type: none"> • 2400 to 2483.5MHz ISM license-free band Frequency Hopping Spread Spectrum (FHSS) Radio • Data Rates: 50/100kbps (FSK Modulation), 200kbps (GFSK Modulation) • Typical Electrical Transmit Power: +10.6dBm • Typical Receive Sensitivity (0.1% BER): -102dBm @ 50kbps, -99dBm @ 100kbps, -99dBm @ 200kbps • Typical CW Receiver Blocking Rejection: 64dB for CW @ +/- 5MHz, 74dB for CW @ +/- 30MHz
Self-Diagnostics	<ul style="list-style-type: none"> • 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 spec is identified and reported

General

Operating Ambient Environment	<ul style="list-style-type: none"> • -40°C to +121°C (-40°F to +250°F), process temperature, steady-state • -40°C to +110°C (-40°F to +230°F) ambient temperature sensor • -40°C to +85°C (-40°F to +185°F) electronics • -20°C to +70°C (-4°F to +158°F) display • -40°C to +85°C (-40°F to +185°F) display (extreme cold can reduce LCD visibility) • Humidity: 0 to 95%, non-condensing
Materials of Construction	<ul style="list-style-type: none"> • Base Plate: 304 Stainless Steel • Cover: GE Lexan®, V-0 rating and UV stable • Process Connection: 1/2" MNPT
Power	<ul style="list-style-type: none"> • Self-contained power • Standard Accutech field units include a single C-Cell (900MHz) or D-Cell (2.4GHz) lithium battery that offers battery life up to ten years of service, depending on data rates and battery options.
Operating Shock and Vibration	Tested per IEC 60068-2-6 (vibration) and 2-27 (shock)
Random Vibration Characteristics	Tested to withstand 6 g's, 15 minutes per axis from 9 – 500Hz
Electromagnetic Compatibility	Operates within specification in fields from 80 to 1,000MHz with field strengths to 30V/m. Meets EN 50082-1 General Immunity Standard and EN 55011 compatibility emissions standard
Certifications	<p>North America HAZLOC:</p> <ul style="list-style-type: none"> • cCSAus • Intrinsically Safe: Exia IIC; AEx ia IIC • Class I, Div. 1, Groups A, B, C & D, T3 • Class II, Div. 1, Groups E, F and G, T3 • Class III, T3 • Class 1, Zone 0, AEx ia IIC, T3 • Class I, Div. 2, Groups A, B, C & D, T4 • Class II, Div. 2, Groups F and G, T4 • Class III, T4 <p>ATEX/IECEx HAZLOC:</p> <ul style="list-style-type: none"> • LCIE • Intrinsically Safe: Ex ia IIC T3 <p>EMC & Radio:</p> <ul style="list-style-type: none"> • North America : FCC , IC • Europe : CE Mark (R&TTE) • Australia / New Zealand : C - Tick

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Product Data Sheet Accutech AP10

Model Code

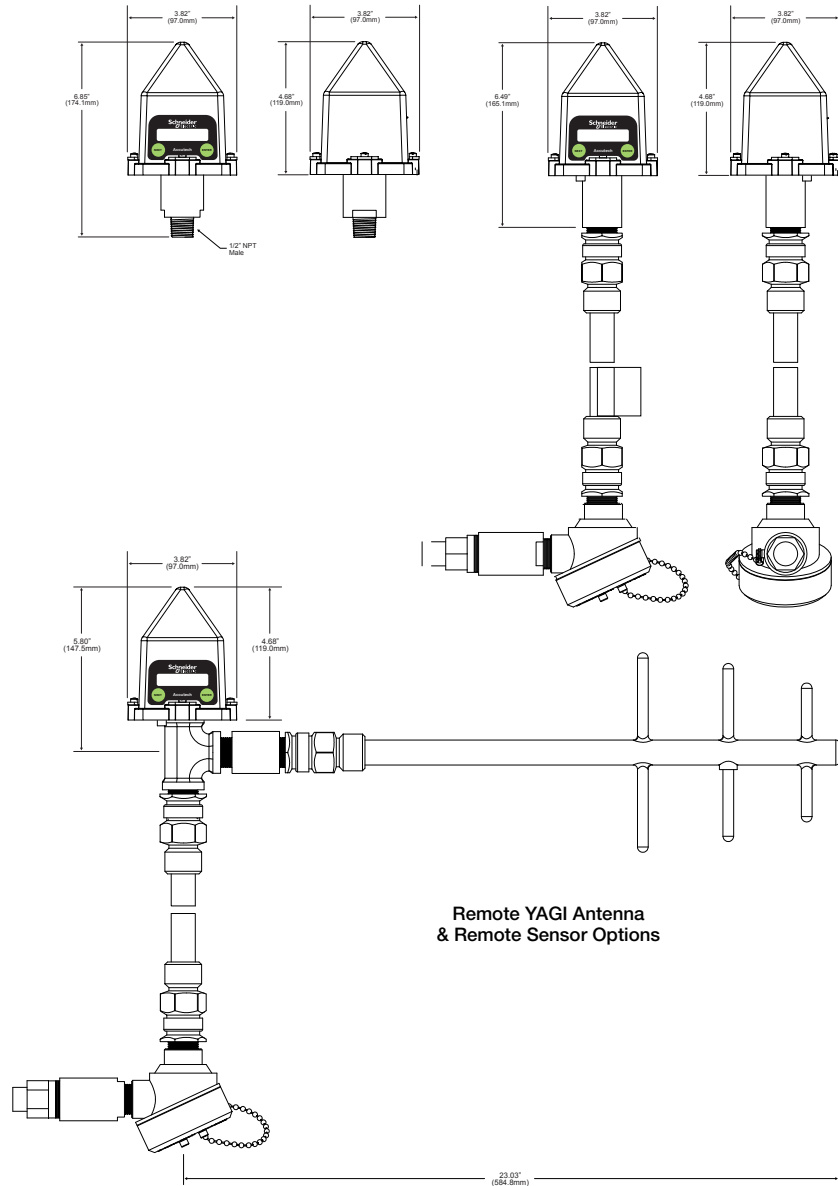
	TBUAAPTJPN00S030A represents a typical part number.					
Model	Type					
TBUAAP	Wireless Absolute Pressure Field Unit					
Code	Select: RF Module Type					
T	902MHz - 928MHz band (FCC / IC)					
D	915MHz - 928MHz band (Australia)					
N	915MHz - 921MHz band (New Zealand)					
F	2.4GHz					
Code	Select: Certifications					
J	Intrinsically Safe Protection cCSAus: see specifications page					
Q	ATEX/IECEX: see specifications page					
Code	Select: Housing & Battery Pack					
P	NEMA4 Polycarbonate Housing with 1 Cell (Available with Intrinsically Safe Rating)					
Code	Select: Future Option					
N	None					
Code	Select: Integral Antenna or Cable & Connector Interface					
00	Integral Antenna with Antenna Cover. The 2.4GHz NEMA4 unit also comes with an external antenna connector					
01	For 900MHz RF Module Systems – or – the 2.4GHz in a NEMA4X Aluminum Housing External YAGI Antenna, 6db, attached to base of unit (not available with 2.4GHz RF NEMA4 unit)					
10	10ft. (3.05m) cable with N-Male connector for remote antenna configurations (not available with 2.4GHz RF NEMA4 unit)					
25	25ft. (7.62m) cable with N-Male connector for remote antenna configurations (not available with 2.4GHz RF NEMA4 unit)					
Code	Select: Sensor Mounting					
S	Integral					
R	Remote Sensor with 10ft. (3.05m) cable					
Code	Select: Sensor Range					
	Upper Range Limit (URL)		Overload Limit		Safety Limit	
	PSIA (BAR)		PSIA (BAR)		PSIA (BAR)	
030	30 (2)		60 (4)		500 (34)	
250	250 (17)		500 (34)		1500 (103)	
Code	Select: Future Option					
A	None					

Product Data Sheet Accutech AP10
Dimensions

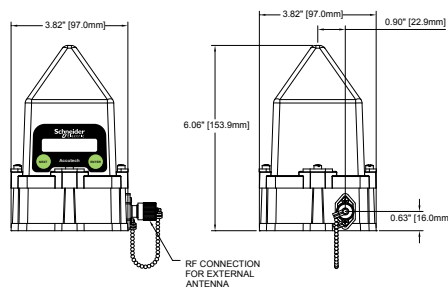
900MHz RF and Battery Unit
(Sensor and external antenna option shown)

Internal OMNI Antenna & Integral Sensor

Internal OMNI Antenna & Remote Sensor Option



2.4GHz RF and Battery Unit
(Sensor and external antenna not shown for clarity)



Product Data Sheet Accutech DP20

Specifications



> Accutech DP20

Functional

Sensor Type	Differential Pressure
Location	Field Unit
Frequency Range	900MHz and 2.4GHz license-free bands
Power	Integrated battery
Network Capacity	<ul style="list-style-type: none"> Max. 100 field units per base radio Max. 256 base radios per network

Features

Operational Modes	<ul style="list-style-type: none"> Differential Pressure Orifice Flow Open Channel Flow Level
Remote Configuration Interface	Accutech Manager, Windows™-based GUI software, providing network-wide monitoring and performance-management features and field unit configuration capabilities
Local Configuration Interface	<ul style="list-style-type: none"> 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

Sensor

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	3000psi
Differential Pressure Ranges	+/- 100in H2O, +/- 300in H2O, +/- 25psi, -25 to +100psi, -25 to +300psi
RF Characteristics	<p>900MHz:</p> <ul style="list-style-type: none"> 902 to 928MHz Frequency Hopping Spread Spectrum (FHSS), FCC certified ISM license-free band 915 to 928MHz (Australia) 921 to 928MHz (New Zealand) Data Rates: 4,800, 19,200 or 76,800bps 0.4W maximum <p>2.4GHz:</p> <ul style="list-style-type: none"> 2400 to 2483.5MHz ISM license-free band Frequency Hopping Spread Spectrum (FHSS) Radio Data Rates: 50/100kbps (FSK Modulation), 200kbps (GFSK Modulation) Typical Electrical Transmit Power: +10.6dBm Typical Receive Sensitivity (0.1% BER): - 102dBm @ 50kbps, - 99dBm @ 100kbps, - 99dBm @ 200kbps Typical CW Receiver Blocking Rejection: 64dB for CW @ +/- 5MHz, 74dB for CW @ +/- 30MHz
Self-Diagnostics	<ul style="list-style-type: none"> 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 spec is identified and reported

General

Operating Ambient Environment	<ul style="list-style-type: none"> -40° C to +104°C (-40° F to +220°F) process connection temperature, steady state -40°C to +85°C (-40°F to +185°F) electronics -20°C to +70°C (-4°F to +158°F) display -40°C to +85°C (-40°F to +185°F) display (extreme cold can reduce LCD visibility) Humidity: 0 to 95%, non-condensing
Materials of Construction	<ul style="list-style-type: none"> Base Plate: 304 Stainless Steel Cover: GE Lexan®, V-0 rating and UV resistant Sensor Diaphragm: 316L Stainless Steel (Hastelloy C available upon special request) Flange: 316L Stainless Steel Bolts and Nuts: High Strength Alloy Steel
Power	<ul style="list-style-type: none"> Self-contained power Standard Accutech field units include a single C-Cell (900MHz) or D-Cell (2.4GHz) lithium battery that offers battery life up to ten years of service, depending on data rates and battery options.
Sensor Filling Fluid	<ul style="list-style-type: none"> DC 200 silicone (Fluorolube® available upon special request)
Operating Shock and Vibration	Tested per IEC 60068-2-6 (vibration) and 2-27 (shock)
Random Vibration Characteristics	Tested to withstand 6 g's, 15 minutes per axis from 9 – 500Hz
Electromagnetic Compatibility	Operates within specification in fields from 80 to 1,000MHz with field strengths to 30V/m. Meets EN 50082-1 General Immunity Standard and EN 55011 compatibility emissions standard
Certifications	<p>North America HAZLOC:</p> <ul style="list-style-type: none"> 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 <p>ATEX/IECEX HAZLOC:</p> <ul style="list-style-type: none"> LCIE Intrinsically Safe: Ex ia IIC T3 <p>EMC & Radio:</p> <ul style="list-style-type: none"> North America : FCC , IC Europe : CE Mark (R&TTE) Australia / New Zealand : C - Tick

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Product Data Sheet Accutech DP20

Model Code

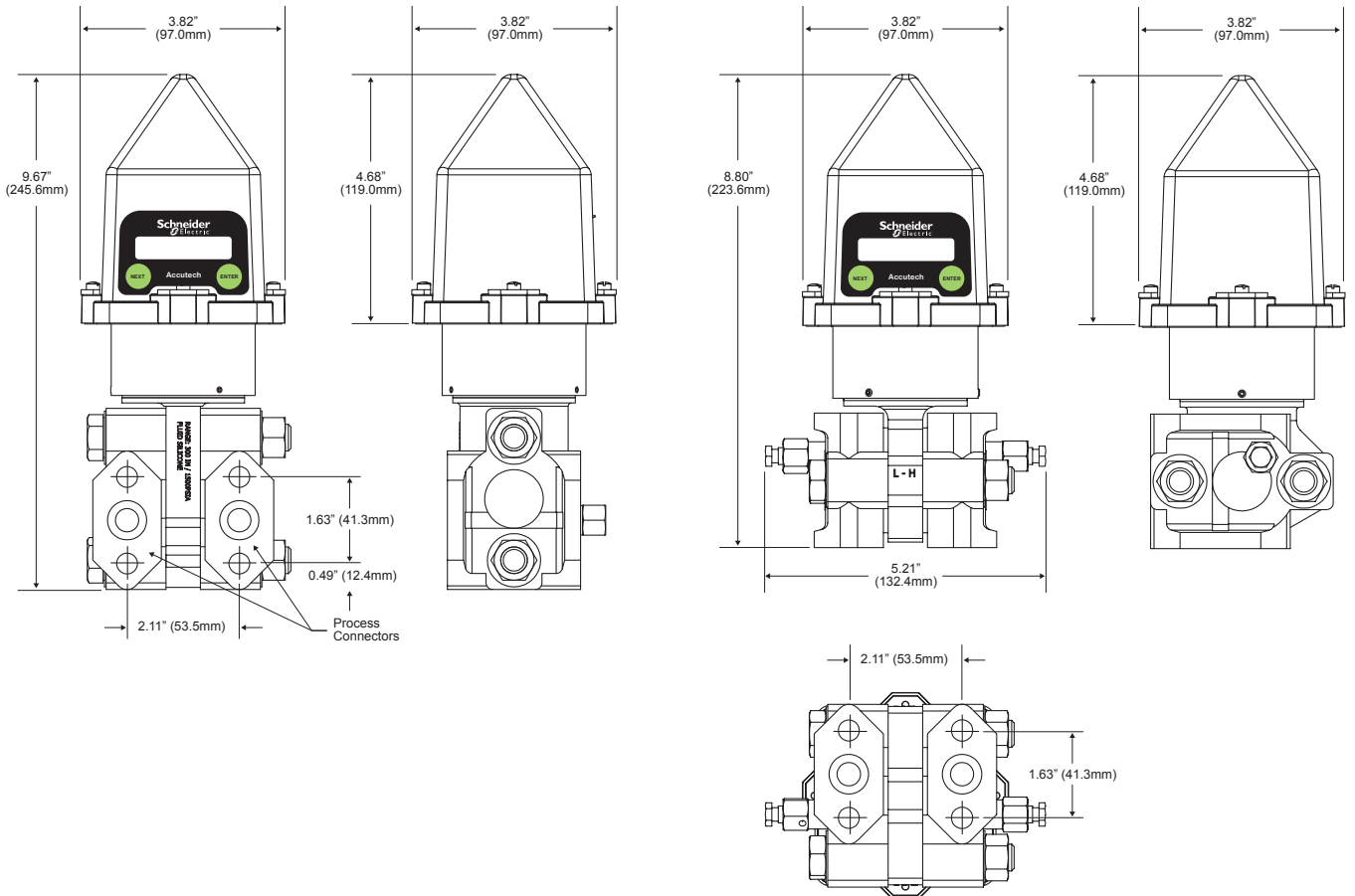
	TBUADPTJPN00S100NS represents a typical part number.	
Model	Type	
TBUADP	Wireless Differential Pressure Field Unit	
Code	Select: RF Module Type	
T	902MHz - 928MHz band (FCC / IC)	
D	915MHz - 928MHz band (Australia)	
N	915MHz - 921MHz band (New Zealand)	
F	2.4GHz	
Code	Select: Certifications	
	<u>Intrinsically Safe Protection</u>	
J	CSA – see product data sheet for certification details	
Q	ATEX & IECEx – see product data sheet for certification details	
Code	Select: Housing & Battery Pack	
P	NEMA4 Polycarbonate Housing with 1 Cell (Available with Intrinsically Safe Rating)	
Code	Select: Future Option	
N	None	
Code	Select: Integral Antenna or Cable & Connector Interface	
00	Integral Antenna with Antenna Cover, 2.4GHz units also come with an external antenna connector	
Code	Select: Sensor Mounting	
S	Integral	
Code	Select: Sensor Range	
	Upper (URL) and Lower Range Limit	Overload Limit
100N	+/- 100in H ₂ O	3000psi
300N	+/- 300in H ₂ O	3000psi
025P	+/- 25psi	3000psi
100P	+100, -25psi	3000psi
300P	+300, -25psi	3000psi
Code	Select: Sensor Type	
S	Standard Sensor - Horizontal process connections with vertical mounting	
L	Low Profile Sensor - Vertical process connections with vertical mounting	

Product Data Sheet Accutech DP20
Dimensions

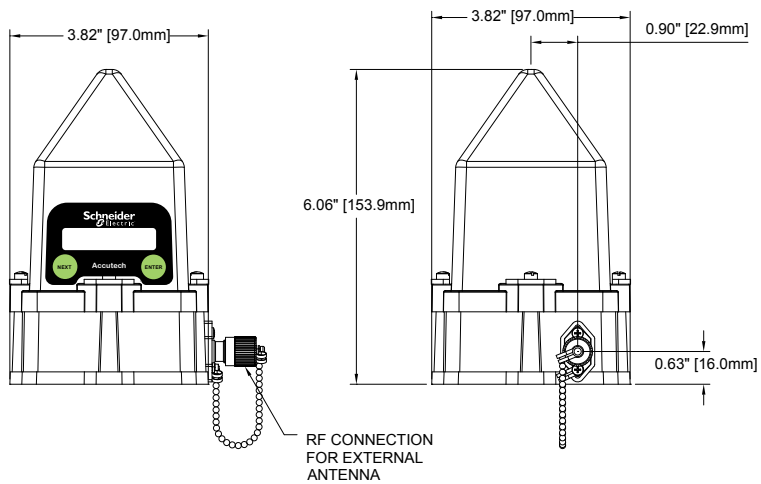
900MHz RF and Battery Unit
(Sensor option shown)

Side-Mount Traditional Sensor

Bottom-Mount Low-Profile Sensor

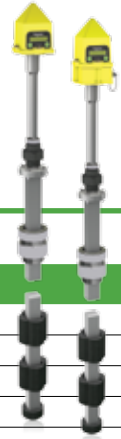


2.4GHz RF and Battery Unit
(Sensor and external antenna not shown for clarity)



Product Data Sheet Accutech FL10

Specifications



Accutech FL10

Functional

Sensor Type	Float Level
Location	Field Unit
Frequency Range	900MHz and 2.4GHz license-free bands
Power	Integrated battery
Network Capacity	<ul style="list-style-type: none"> Max. 100 field units per base radio Max. 256 base radios per network

Features

Remote Configuration Interface	Accutech Manager, Windows™-based GUI software, providing network-wide monitoring and performance-management features and field unit configuration capabilities
Local Configuration Interface	<ul style="list-style-type: none"> 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

Digital Level Sensor (sold separately)

Model	Siemens Model 2100 (low-power) Support for legacy Siemens Model 1000 installations (requires 4 'D' cell battery option and NEMA4X enclosure)
Accuracy	See Siemens probe specifications
Switch type	Magnetically-activated glass reed
Float type	Magnetically-impregnated Nitrophenyl rubber
Sampling rates from sensor	10s 15s, 20s, 30s, 60s, 120s, 300s, 600s, 1800s, 3600s
Frame	316L stainless steel, 1.2 to 9.1m (4 to 30ft) lengths available
Temperature Sensor	Built-in, located 0.3m (12") above bottom of sensor, reports in degrees F
RF Characteristics	<p>900MHz:</p> <ul style="list-style-type: none"> 902 to 928MHz Frequency Hopping Spread Spectrum (FHSS), FCC certified ISM license-free band 915 to 928MHz (Australia) 921 to 928MHz (New Zealand) Data Rates: 4,800, 19,200 or 76,800bps 0.4W maximum <p>2.4GHz:</p> <ul style="list-style-type: none"> 2400 to 2483.5MHz ISM license-free band Frequency Hopping Spread Spectrum (FHSS) Radio Data Rates: 50/100kbps (FSK Modulation), 200kbps (GFSK Modulation) Typical Electrical Transmit Power: +10.6dBm Typical Receive Sensitivity (0.1% BER): -102dBm @ 50kbps, -99dBm @ 100kbps, -99dBm @ 200kbps Typical CW Receiver Blocking Rejection: 64dB for CW @ +/- 5MHz, 74dB for CW @ +/- 30MHz
Self-Diagnostics	<ul style="list-style-type: none"> 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 spec is identified and reported

General

Operating Ambient Environment	<ul style="list-style-type: none"> -40°C to +85°C (-40°F to +185°F) electronics -20°C to +70°C (-4°F to +158°F) display -40°C to +85°C (-40°F to +185°F) display (extreme cold can reduce LCD visibility) Humidity: 0 to 95 %, non-condensing
Materials of Construction	<ul style="list-style-type: none"> Base Plate: 304 Stainless Steel Cover: GE Lexan®, V-0 rating and UV resistant
Power	<ul style="list-style-type: none"> Self-contained power 1: 'C' Cell (900MHz) or 1: 'D' Cell (2.4GHz) (NEMA4 Enclosure) 2: 'D' Cells (NEMA4X Aluminum Enclosure) 4: 'D' Cells, mandatory for Model 1000 level sensor (NEMA4X Aluminum Enclosure) Lithium battery(s) offers battery life up to ten years of service, depending on data rates and battery options.
Default Condition	<ul style="list-style-type: none"> Condition activated upon non-response of sensor or error reported by sensor Configurable behavior on default condition includes reporting of max. value, zero or last good value
Data Post-Processing (when enabled)	<ul style="list-style-type: none"> Level data only Smart smoothing User-configurable 22-point linearisation curve of level for non-linear (asymmetrical) reservoirs Configurable 'rate of change' threshold, when exceeded, causes radio to immediately report data to base radio
Operating Shock and Vibration	Tested per IEC 60068-2-6 (vibration) and 2-27 (shock)
Random Vibration Characteristics	Tested to withstand 6 g's, 15 minutes per axis from 9 – 500Hz
Electromagnetic Compatibility	Operates within specification in fields from 80 to 1,000MHz with field strengths to 30V/m. Meets EN 50082-1 General Immunity Standard and EN 55011 compatibility emissions standard.
Certifications	<p>North America HAZLOC:</p> <ul style="list-style-type: none"> cCSAus Intrinsically Safe: Exia IIA; AEx ia IIA Class I, Div. 1, Groups A, B, C & D, T4 Class I, Div. 2, Groups A, B, C & D, T4 [Provides Intrinsically Safe Output with Entity Parameters for Connection to Certified Devices: Voc (Uo) = 9.6 V, Isc (Io) = 87 mA, Ca (Co) = 100 uF, La (Lo) = 84 mH] <p>EMC & Radio:</p> <ul style="list-style-type: none"> North America : FCC , IC

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Product Data Sheet Accutech FL10

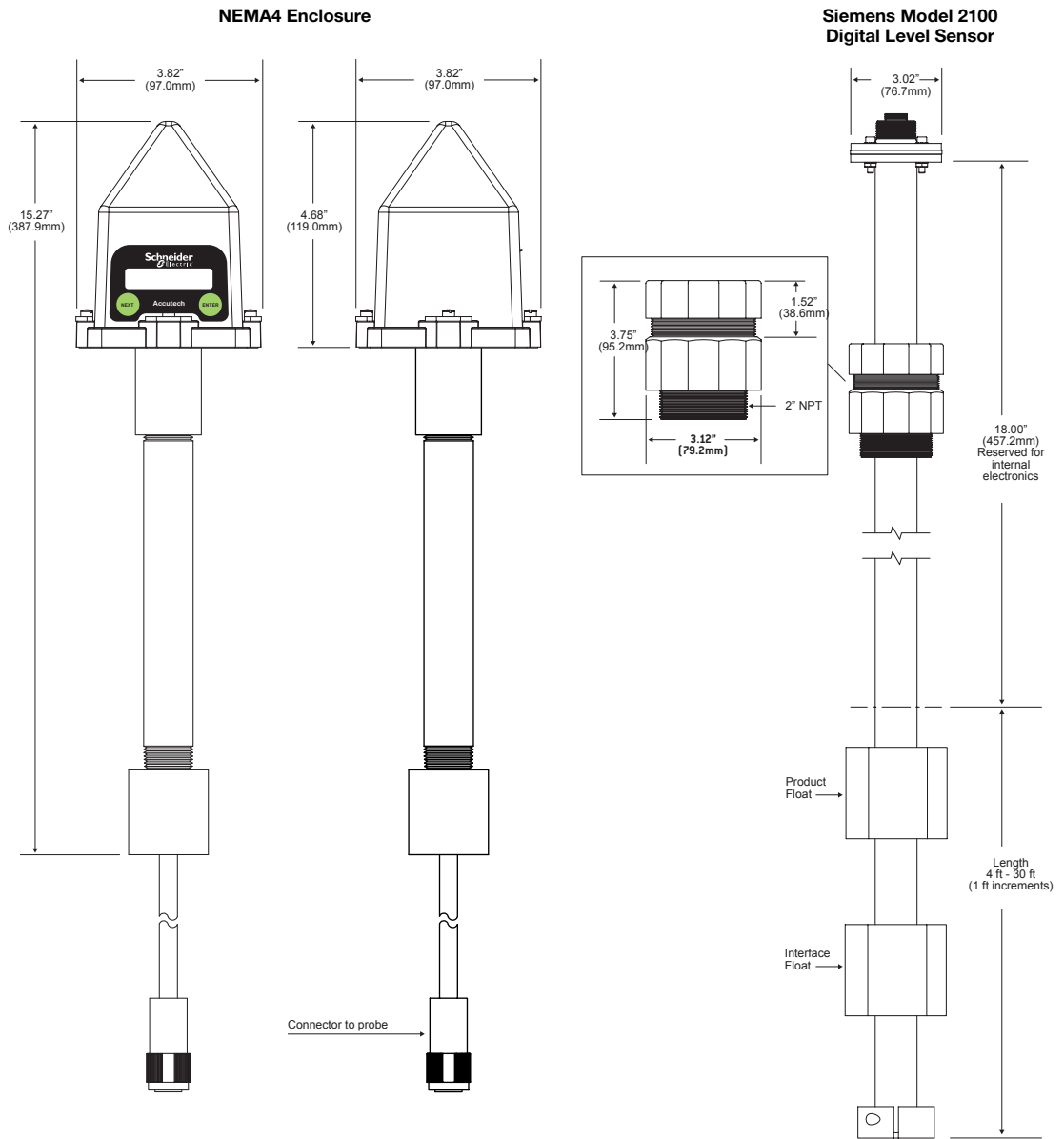
Model Code

	TBUAFLTJPN00A represents a typical part number.
Model	Type
TBUAFL	Wireless Float Level Field Unit
Code	Select: RF Module Type
T	902MHz - 928MHz band (FCC / IC)
D	915MHz - 928MHz band (Australia)
N	915MHz - 921MHz band (New Zealand)
F	2.4GHz
Code	Select: Certifications
A	<u>Explosion Proof Protection – Div 1</u> CSA – see product data sheet for certification details (Level Sensor must be certified to XP separately)
J	<u>Intrinsically Safe Protection – Div 1</u> CSA: see product data sheet for certification details
G	<u>General Purpose</u> General Purpose – non-hazardous locations (for units using level sensor type “B” only)
Code	Select: Housing & Battery Pack
P	NEMA4 Polycarbonate Housing with 1 Cell (available with Intrinsically Safe Rating)
1	NEMA4X Aluminum Housing with 1 Cell
2	NEMA4X Aluminum Housing with 2 Cells (not available for ATEX/IECex)
4	NEMA4X Aluminum Housing with 4 Cells (not available for ATEX/IECex)
Code	Select: Future Option
N	None
Code	Select: Integral Antenna or Cable & Connector Interface
00	Integral Antenna with Antenna Cover, the 2.4GHz NEMA4 unit also comes with an external antenna connector
01	<u>For 900MHz RF Module Systems – or – the 2.4GHz in a NEMA4X Aluminum Housing</u> External YAGI Antenna, 6db, attached to base of unit (not available with 2.4GHz RF NEMA4 unit)
10	10ft. (3.01m) cable with N-Male connector for remote antenna configurations (not available with 2.4GHz RF NEMA4 unit)
25	25ft. (7.62m) cable with N-Male connector for remote antenna configurations (not available with 2.4GHz RF NEMA4 unit)
Code	Select: Level Sensor Type
A	Interface to Siemens Model 2100 Digital Level Sensor (Purchased separately) - Meets Safety Code J
B	Interface to Siemens Model 1000 Digital Level Sensor (Purchased separately) - Meets Safety Code G

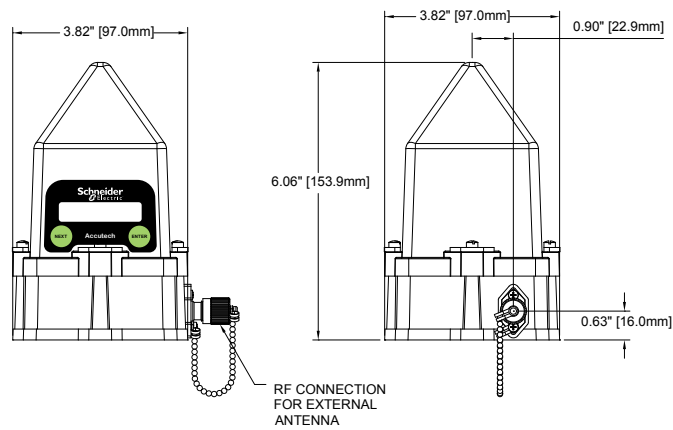
The FL10 is available in North America only

Product Data Sheet Accutech FL10
Dimensions

900MHz RF and Battery Unit
(Sensor and external antenna option shown)

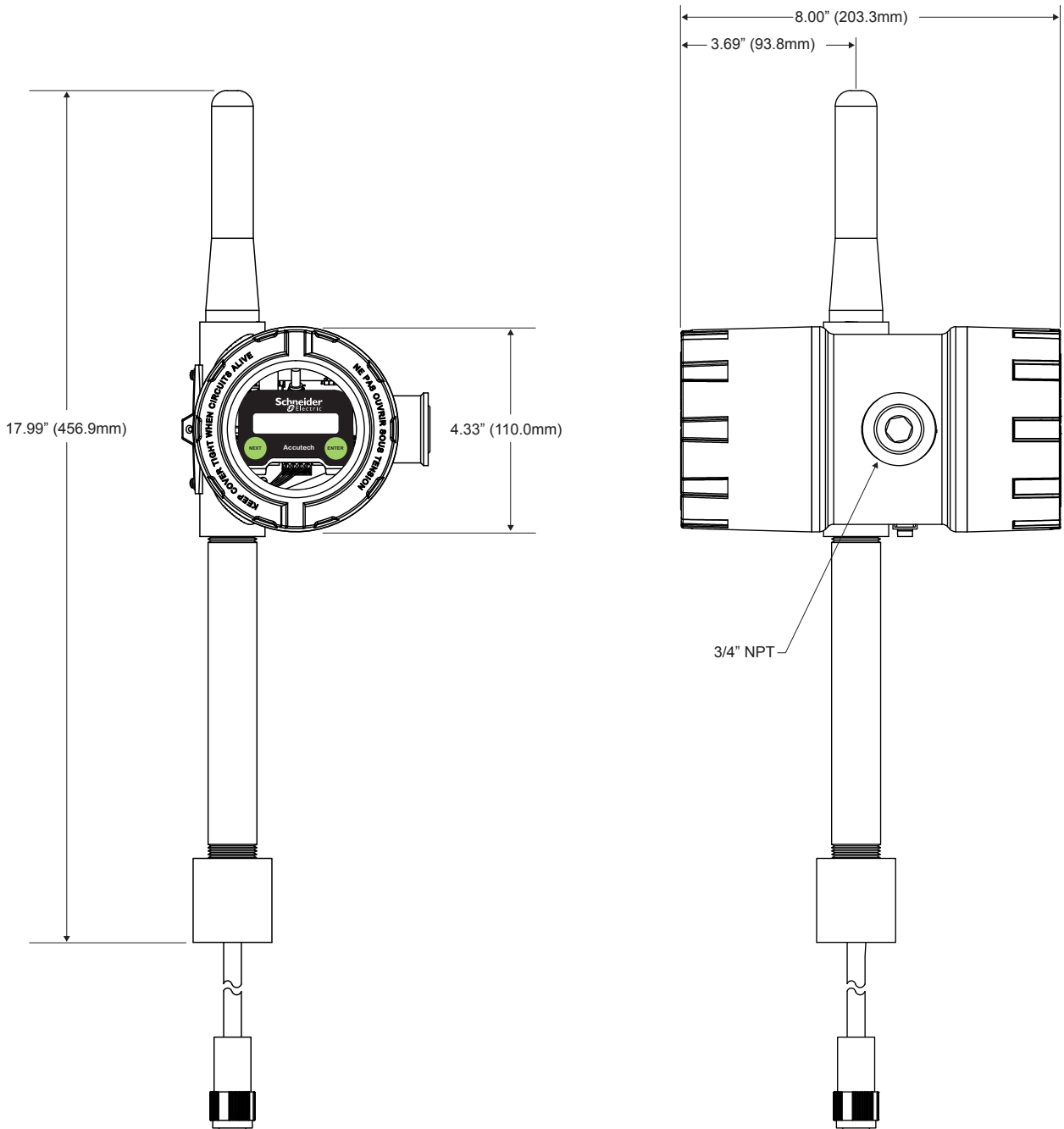


2.4GHz RF and Battery Unit
(Sensor and external antenna not shown for clarity)



Product Data Sheet Accutech FL10 Dimensions

NEMA4X Enclosure



Product Data Sheet Accutech GL10

Specifications



Accutech GL10

Functional

Sensor Type	Gauge Level
Location	Field Unit
Frequency Range	900MHz and 2.4GHz license-free bands
Power	Integrated battery
Network Capacity	<ul style="list-style-type: none"> Max. 100 field units per base radio Max. 256 base radios per network

Features

Accuracy	<ul style="list-style-type: none"> ± 0.25% of full-scale at 20°C (68°F) ± 0.5% of sensor URL over temperature range -40 to +85°C (-40 to +185°F)
Stability	Combined zero and span stability: less than ± 0.1% of sensor URL per year at 21°C (70°F)
Sampling and Transmission Characteristic	<p>The level field unit samples pressure at regular intervals. The data may then be transmitted to the base radio for centralized monitoring and data acquisition. The user specifies how frequently the process is monitored and how often data is transmitted.</p> <ul style="list-style-type: none"> Level – user designates low rate and high rate conditions Sampling rate – user selectable from 1 to 60 seconds (low rate) and from 1 to 30 seconds (high rate) Transmission rate – user selectable from 1 second to 60 seconds (low and high rate) <p>Accutech Manager can be used for real-time monitoring of the process information. The user can set thresholds to represent “alarm” or abnormal conditions.</p>
Extended Sensors	The extended sensors enable installation of the electronics and wireless unit in an elevated, unobstructed location to enhance transmission range and isolate electronics from process vibration.
Remote Configuration Interface	Accutech Manager, Windows™-based GUI software, providing network-wide monitoring and performance-management features and field unit configuration capabilities.
Local Configuration Interface	<ul style="list-style-type: none"> 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
RF Characteristics	<p>900MHz:</p> <ul style="list-style-type: none"> 902 to 928MHz Frequency Hopping Spread Spectrum (FHSS), FCC certified ISM license-free band 915 to 928MHz (Australia) 921 to 928MHz (New Zealand) Data Rates: 4,800, 19,200 or 76,800bps 0.4W maximum <p>2.4GHz:</p> <ul style="list-style-type: none"> 2400 to 2483.5MHz ISM license-free band Frequency Hopping Spread Spectrum (FHSS) Radio Data Rates: 50/100kbps (FSK Modulation), 200kbps (GFSK Modulation) Typical Electrical Transmit Power: +10.6dBm Typical Receive Sensitivity (0.1% BER): - 102dBm @ 50kbps, - 99dBm @ 100kbps, - 99dBm @ 200kbps Typical CW Receiver Blocking Rejection: 64dB for CW @ +/- 5MHz, 74dB for CW @ +/- 30MHz
Self-Diagnostics	<ul style="list-style-type: none"> 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 spec is identified and reported

General

Operating Ambient Environment	<ul style="list-style-type: none"> -40 to +121°C (-40 to +250°F) steady-state process temperature -40 to +85°C (-40 to +185°F) electronics ambient temperature -20 to +70°C (-4 to +158°F) display ambient temperature -40 to +85°C (-40 to +185°F) display (extreme cold can reduce LCD visibility) ambient temperature Humidity: 0 to 95%, non-condensing
Materials of Construction	<ul style="list-style-type: none"> Base Plate: 304 Stainless Steel Cover: GE Lexan®, V-0 rating and UV stable Process Connection: 1/2" MNPT
Power	<ul style="list-style-type: none"> Self-contained power Standard Accutech field units include a single C-Cell (900MHz) or D-Cell (2.4GHz) lithium battery that offers battery life up to ten years of service, depending on data rates and battery options.

Specifications continue on next page

Product Data Sheet Accutech GL10

Specifications



Accutech GL10

General

Operating Shock and Vibration	Tested per IEC 60068-2-6 (vibration) and 2-27 (shock)
Random Vibration Characteristics	<ul style="list-style-type: none"> • Level data only • Smart smoothing • User-configurable 22-point linearisation curve of level for non-linear (asymmetrical) reservoirs • Configurable 'rate of change' threshold, when exceeded, causes radio to immediately report data to base radio
Random Vibration Characteristics	Tested to withstand 6 g's, 15 minutes per axis from 9 – 500Hz
Electromagnetic Compatibility	Operates within specification in fields from 80 to 1,000MHz with field strengths to 30V/m. Meets EN 50082-1 General Immunity Standard and EN 55011 compatibility emissions standard.
Safety Certifications	<p>North America HAZLOC:</p> <ul style="list-style-type: none"> • cCSAus • Intrinsically Safe: Exia IIC; AEx ia IIC • Class I, Div. 1, Groups A, B, C & D, T3 • Class II, Div. 1, Groups E, F and G, T3 • Class III, T3 • Class 1, Zone 0, AEx ia IIC, T3 • Class I, Div. 2, Groups A, B, C & D, T4 • Class II, Div. 2, Groups F and G, T4 • Class III, T4 <p>ATEX/IECEx HAZLOC:</p> <ul style="list-style-type: none"> • LCIE • Intrinsically Safe: Ex ia IIC T3 <p>EMC & Radio:</p> <ul style="list-style-type: none"> • North America : FCC , IC • Europe: CE Mark (R&TTE) • Australia/New Zealand: C-Tick

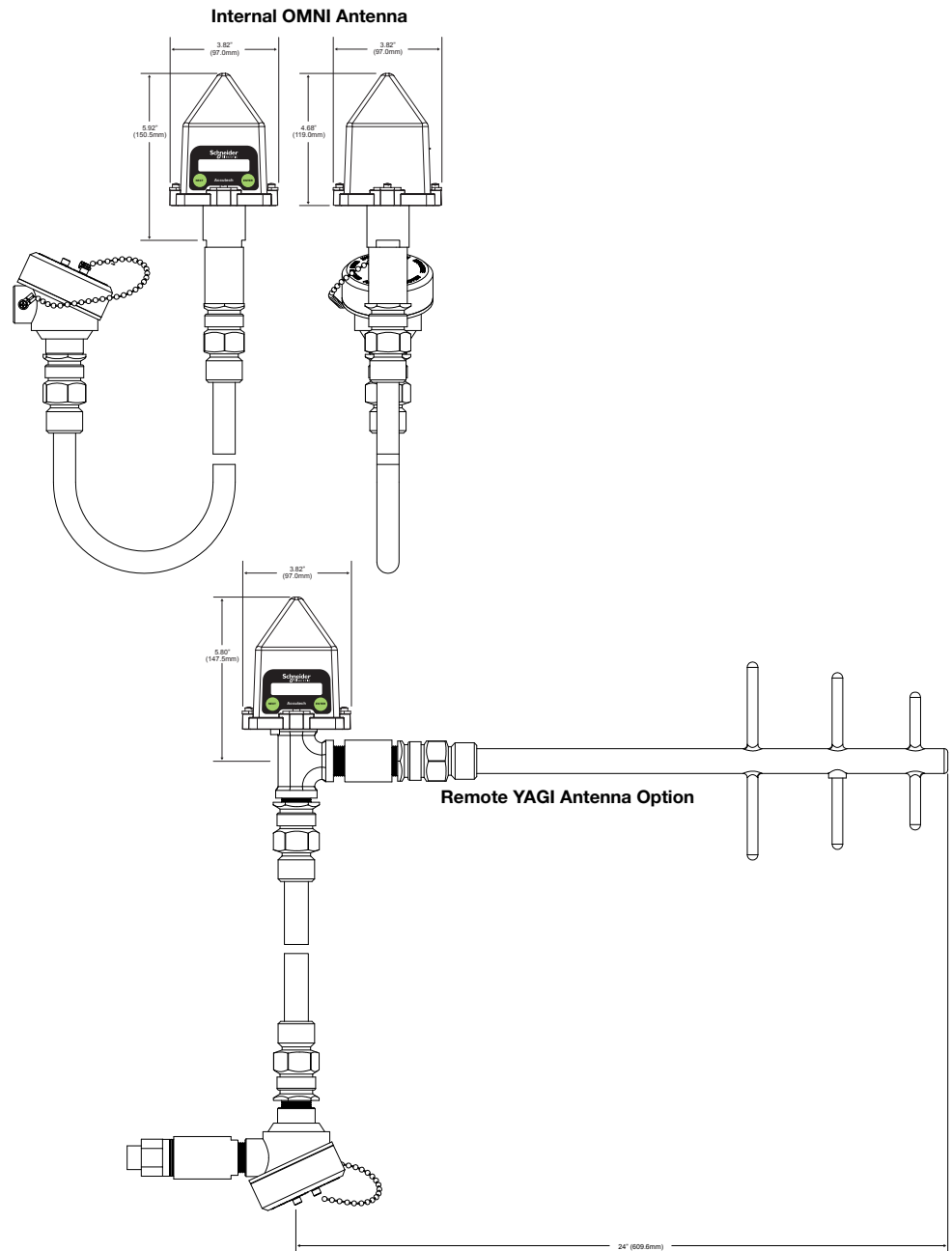
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Product Data Sheet Accutech GL10 Model Code

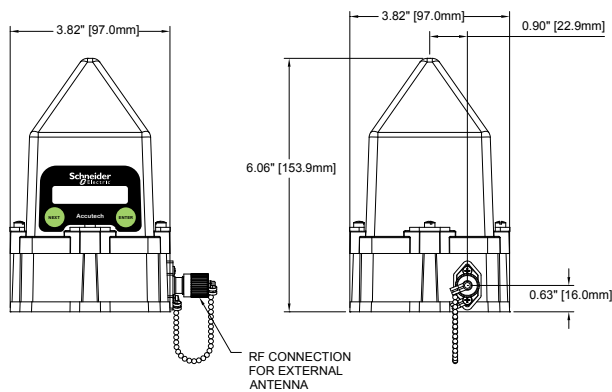
	TBUAGLTJPN00S015A represents a typical part number.					
Model	Type					
TBUAGL	Wireless Gauge Level Field Unit					
Code	Select: RF Module Type					
T	902MHz - 928MHz band (FCC / IC)					
D	915MHz - 928MHz band (Australia)					
N	915MHz - 921MHz band (New Zealand)					
F	2.4GHz					
Code	Select: Certifications					
J	Intrinsically Safe Protection cCSAus: Intrinsically safe protection: see specifications page					
Q	ATEX/IECEx: Intrinsically safe protection: see specifications page					
Code	Select: Housing & Battery Pack					
P	NEMA4 Polycarbonate Housing with 1 Cell (Available with Intrinsically Safe Rating)					
Code	Select: Future Option					
N	None					
Code	Select: Integral Antenna or Cable & Connector Interface					
00	Integral Antenna with Antenna Cover, the 2.4GHz NEMA4 unit also comes with an external antenna connector					
01	For 900MHz RF Module Systems – or – the 2.4GHz in a NEMA4X Aluminum Housing External YAGI Antenna, 6db, attached to base of unit (not available with 2.4GHz RF NEMA4 unit)					
10	10ft. (3.01m) cable with N-Male connector for remote antenna configurations (not available with 2.4GHz RF NEMA4 unit)					
25	25ft. (7.62m) cable with N-Male connector for remote antenna configurations (not available with 2.4GHz RF NEMA4 unit)					
Code	Select: Sensor Mounting					
S	Integral					
R	Remote Sensor with 10ft. (3.05m) cable					
Code	Select: Sensor Range					
	Upper Range Overload Safety Limit (URL)		Overload Limit		Safety Limit	
	PSIG	(BAR)	PSI	(BAR)	PSI	(BAR)
015	15	(1.034)	30	(2.068)	500	(34.5)
030	30	(2.068)	60	(4.137)	500	(34.5)
Code	Select: Future Option					
A	None					

Product Data Sheet Accutech GL10
Dimensions

900MHz RF and Battery Unit
(Sensor and external antenna option shown)



2.4GHz RF and Battery Unit
(Sensor and external antenna not shown for clarity)



Product Data Sheet Accutech GP10 Specifications



> Accutech GP10																																													
Functional																																													
Sensor Type	Gauge Pressure																																												
Location	Field Unit																																												
Frequency Range	900MHz and 2.4GHz license-free bands																																												
Power	Integrated battery																																												
Features																																													
Remote Configuration Interface	Accutech Manager, Windows™-based GUI software, providing network-wide monitoring and performance-management features and field unit configuration capabilities																																												
Local Configuration Interface	<ul style="list-style-type: none"> 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. 																																												
Sensor																																													
Accuracy	±% of full-scale at 20°C (68°F)	±% of sensor URL including the combined effects of linearity, hysteresis, repeatability and temperature (applies to standard unit without isolating seals)																																											
	<table border="1"> <thead> <tr> <th>Range (PSIG)</th> <th>Accuracy (% full-scale)</th> <th>Range (PSIG)</th> <th>Accuracy (% URL)</th> </tr> </thead> <tbody> <tr><td>5</td><td>0.25</td><td>5</td><td>0.5</td></tr> <tr><td>15</td><td>0.25</td><td>15</td><td>0.5</td></tr> <tr><td>30</td><td>0.25</td><td>30</td><td>0.5</td></tr> <tr><td>100</td><td>0.25</td><td>100</td><td>0.5</td></tr> <tr><td>250</td><td>0.25</td><td>250</td><td>0.5</td></tr> <tr><td>1000</td><td>0.25</td><td>1000</td><td>0.5</td></tr> <tr><td>2500</td><td>0.25</td><td>2500</td><td>0.3</td></tr> <tr><td>5000</td><td>0.25</td><td>5000</td><td>0.3</td></tr> <tr><td>10000</td><td>0.25</td><td>10000</td><td>0.5</td></tr> <tr><td>15000</td><td>0.25</td><td>15000</td><td>0.25</td></tr> </tbody> </table>	Range (PSIG)	Accuracy (% full-scale)	Range (PSIG)	Accuracy (% URL)	5	0.25	5	0.5	15	0.25	15	0.5	30	0.25	30	0.5	100	0.25	100	0.5	250	0.25	250	0.5	1000	0.25	1000	0.5	2500	0.25	2500	0.3	5000	0.25	5000	0.3	10000	0.25	10000	0.5	15000	0.25	15000	0.25
Range (PSIG)	Accuracy (% full-scale)	Range (PSIG)	Accuracy (% URL)																																										
5	0.25	5	0.5																																										
15	0.25	15	0.5																																										
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1000	0.25	1000	0.5																																										
2500	0.25	2500	0.3																																										
5000	0.25	5000	0.3																																										
10000	0.25	10000	0.5																																										
15000	0.25	15000	0.25																																										
Stability	Combined zero and span stability: less than ± 0.1% of sensor URL per year at 21°C (70°F)																																												
Output Resolution	24-bit Analog to Digital conversion																																												
Gauge Pressure Ranges	5, 15, 30, 100, 250, 1000, 2500, 5000, 10000, 15000PSIG (0.345, 1, 2, 7, 17, 70, 170, 350, 700, 1030BAR)																																												
RF Characteristics	900MHz: <ul style="list-style-type: none"> 902 to 928MHz Frequency Hopping Spread Spectrum (FHSS), FCC certified ISM license-free band 915 to 928MHz (Australia) 921 to 928MHz (New Zealand) Data Rates: 4,800, 19,200 or 76,800bps 0.4W maximum 2.4GHz: <ul style="list-style-type: none"> 2400 to 2483.5MHz ISM license-free band Frequency Hopping Spread Spectrum (FHSS) Radio Data Rates: 50/100kbps (FSK Modulation), 200kbps (GFSK Modulation) Typical Electrical Transmit Power: +10.6dBm Typical Receive Sensitivity (0.1% BER): - 102dBm @ 50kbps, - 99dBm @ 100kbps, - 99dBm @ 200kbps Typical CW Receiver Blocking Rejection: 64dB for CW @ +/- 5MHz, 74dB for CW @ +/- 30MHz 																																												
Self-Diagnostics	<ul style="list-style-type: none"> 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 spec is identified and reported 																																												
General																																													
Operating Ambient Environment	<ul style="list-style-type: none"> -40 to 85°C (-40 to 185°F) electronics -20 to 70°C (-4 to 158°F) display -40 to -20°C (-40 to -4°F) display (extreme cold can reduce LCD visibility) 																																												
Materials of Construction	<ul style="list-style-type: none"> Type 316 stainless steel base and diaphragm Standard 1.25 cm (½ in.) MNPT (other options available) GE Lexan® cover. V-0 Rating and UV resistant 																																												
Power	<ul style="list-style-type: none"> 1: 'C' Cell (900MHz) or 1: 'D' Cell (2.4GHz) Battery life up to ten years of service, depending on data rates and battery options. 																																												
Operating Shock and Vibration	Tested per IEC 60068-2-6 (vibration) and IEC 60068-2-27 (shock)																																												
Random Vibration Characteristics	Tested to withstand 6Gs, 15 minutes per axis from 9 – 500Hz																																												
Electromagnetic Compatibility	<ul style="list-style-type: none"> This equipment complies with the EU RTTE directive (1999/5/EC). Australian C-Tick - registration number N15744 																																												
Certifications	North America HAZLOC: <ul style="list-style-type: none"> cCSAus Ex ia IIC. T3; Class I, Zone 0, AEx ia IIC. T3 Class I, Div. 1, Groups A, B, C & D, T3 Class II, Div. 1, Groups E, F and G, T3 Class III, T3 Class I, Div. 2, Groups A, B, C & D, T4 Class II, Div. 2, Groups F and G, T4 Class III, T4 ATEX/IECEx HAZLOC: <ul style="list-style-type: none"> Intrinsically Safe Ex ia IIC T3 LCIE 10 ATEX 3109 X IECEx LCI 10.0045X EMC & Radio: <ul style="list-style-type: none"> North America: FCC , IC Europe: CE Mark (R&TTE) Australia/New Zealand: C-Tick 																																												

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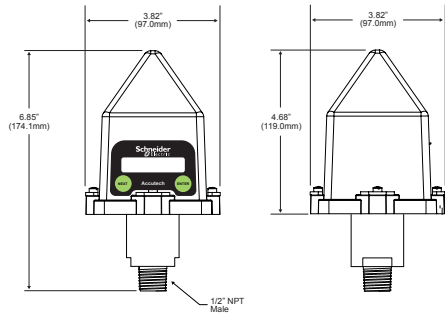
Product Data Sheet Accutech GP10

Model Code

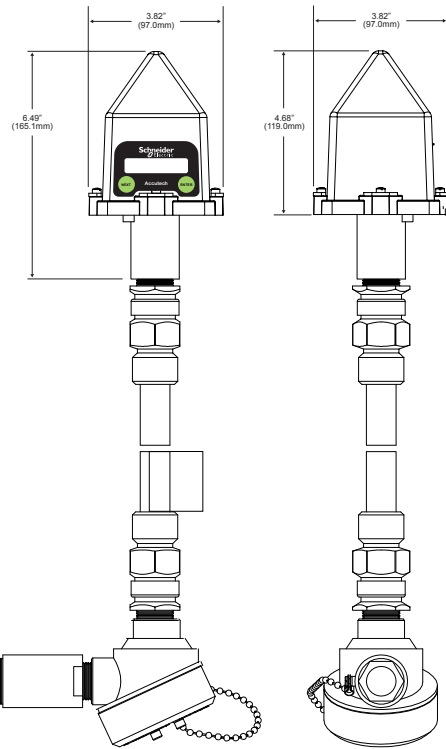
	TBUAGPTJPN00S005A represents a typical part number.					
Model	Type					
TBUAGP	Wireless Gauge Pressure Field Unit					
Code	Select: RF Module Type					
T	902MHz - 928MHz band (FCC / IC)					
D	915MHz - 928MHz band (Australia)					
N	915MHz - 921MHz band (New Zealand)					
F	2.4GHz					
Code	Select: Certifications					
J	Intrinsically Safe Protection CSA – see product data sheet for certification details					
Q	ATEX & IECEx - see product data sheet for certification details					
Code	Select: Housing & Battery Pack					
P	NEMA4 Polycarbonate Housing with 1 Cell (Available with Intrinsically Safe Rating)					
Code	Select: Future Option					
N	None					
Code	Select: Integral Antenna or Cable & Connector Interface					
00	Integral Antenna (2.4GHz unit also comes with an external antenna connector, see accessories page for antennas)					
	For 900MHz RF Module Systems Only:					
01	External YAGI Antenna, 6db, attached to base of unit					
10	10ft. (3.01m) cable with N-Male connector for remote antenna configurations					
25	25ft. (7.62m) cable with N-Male connector for remote antenna configurations					
Code	Select: Sensor Mounting					
S	For 5 to 10K PSI Sensors Integral					
R	Remote Sensor with 10ft. (3.05m) cable					
F	For 15K PSI Sensors F250 Fitting Integral Sensor mounting with F250 fitting					
E	Remote Sensor mounting with 10ft. (3.01m) cable and F250 fitting					
	NPT Fitting – consult factory for delivery					
S	Integral Sensor mounting with NPT fitting					
R	Remote Sensor mounting with 10ft. (3.01m) cable and NPT fitting					
Code	Select: Sensor Range					
	Upper Range Limit (URL)		Overload Limit		Safety Limit	
	PSIG	(BAR)	PSI	(BAR)	PSI	(BAR)
005	5	(0.345)	10	(0.69)	30	(2)
015	15	(1)	30	(2)	500	(34)
030	30	(2)	60	(4)	500	(34)
100	100	(7)	200	(14)	500	(34)
250	250	(17)	500	(34)	1500	(103)
1K0	1000	(70)	2000	(138)	10000	(689)
2K5	2500	(170)	5000	(350)	10000	(689)
5K0	5000	(350)	12000	(827)	20000	(1279)
10K	10000	(700)	12000	(827)	20000	(1279)
15K	15000	(1030)	12000	(827)	20000	(1279)
Code	Future Option					
A	None					

Product Data Sheet Accutech GP10
Dimensions

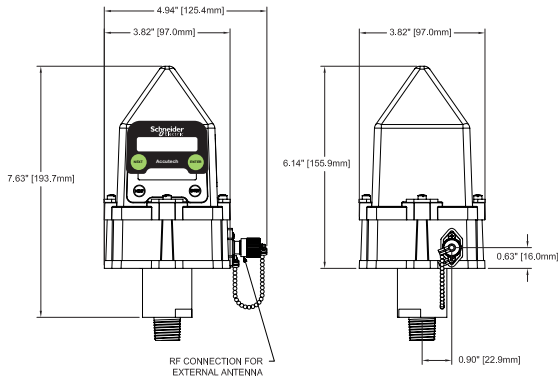
**Internal OMNI Antenna
& Integral Sensor
(900MHz Option)**



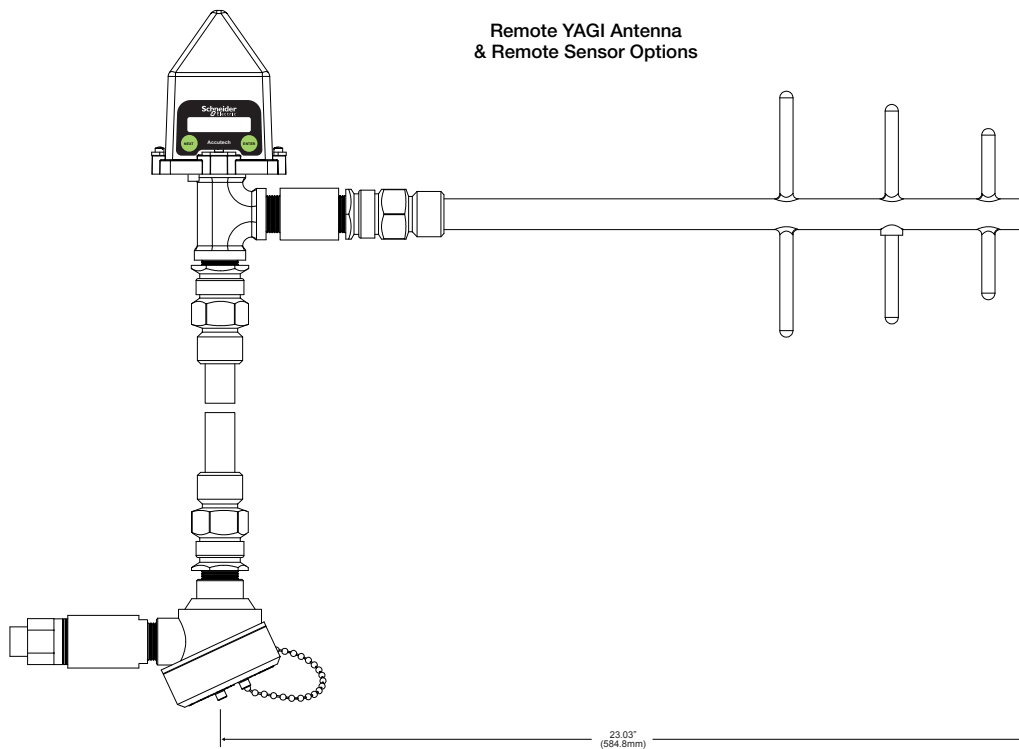
**Internal OMNI Antenna
& Remote Sensor Option
(900MHz Option)**



(2.4GHz Option)



**Remote YAGI Antenna
& Remote Sensor Options**



Product Data Sheet Accutech RT10 Specifications



> Accutech RT10	
Functional	
Sensor Type	RTD Temperature High accuracy, high temperature: -200° to 800°C (-330° to 1470°F)
Location	Field Unit
Frequency Range	900MHz and 2.4GHz license-free bands
Power	Integrated battery
Features	
Linearisation	RTD linearisation to $\pm .05^{\circ}\text{C}$ (.09°F), custom linearisation with 22-point curve
Remote Configuration Interface	Accutech Manager, Windows™-based GUI software, providing network-wide fault and performance-management features and field unit configuration capabilities
Local Configuration Interface	<ul style="list-style-type: none"> Integrated LCD with membrane-switch buttons Display provides temperature reading and error messages, if applicable Configure sampling and RF parameters locally using membrane-switch buttons.
Sensor	
Accuracy	Electronics accuracy: <ul style="list-style-type: none"> $\pm 0.1\%$ of full scale reading Ambient temperature effect: <ul style="list-style-type: none"> $\pm 0.002\%$ of reading per $^{\circ}\text{C}$ (1.8°F) ambient temperature difference from reference condition (20°C or 68°F). Stability: <ul style="list-style-type: none"> Deviation per year is less than 0.025% RTD accuracy: <ul style="list-style-type: none"> 100ohm platinum RTD: $\pm (0.15+0.002^{\circ}\text{T})$ for temperatures in the range $-100^{\circ}\text{C} < \text{T} < 450^{\circ}\text{C}$ For user-provided thermocouples see the manufacturer's data sheet.
Stability	Stability deviation per year is less than 0.025%
RF Characteristics	900MHz: <ul style="list-style-type: none"> 902 to 928MHz Frequency Hopping Spread Spectrum (FHSS), FCC certified ISM license-free band 915 to 928MHz (Australia) 921 to 928MHz (New Zealand) Data Rates: 4,800, 19,200 or 76,800bps 0.4W maximum 2.4GHz: <ul style="list-style-type: none"> 2400 to 2483.5MHz ISM license-free band Frequency Hopping Spread Spectrum (FHSS) Radio Data Rates: 50/100kbps (FSK Modulation), 200kbps (GFSK Modulation) Typical Electrical Transmit Power: +10.6dBm Typical Receive Sensitivity (0.1% BER): -102dBm @ 50kbps, -99dBm @ 100kbps, -99dBm @ 200kbps Typical CW Receiver Blocking Rejection: 64dB for CW @ +/- 5MHz, 74dB for CW @ +/- 30MHz
Self-Diagnostics	<ul style="list-style-type: none"> 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 spec is identified and reported.
General	
Operating Ambient Environment	<ul style="list-style-type: none"> -40 to 85°C (-40 to 185°F) electronics -20 to 70°C (-4 to 158°F) display -40 to -20°C (-40 to -4°F) display (extreme cold can reduce LCD visibility) Humidity: 0 to 95%, non-condensing
Materials of Construction	<ul style="list-style-type: none"> Type 316 stainless-steel base and RTD sheath GE Lexan® cover. V-0 rating and UV resistant Process Connection: 1/2" MNPT
Power	<ul style="list-style-type: none"> Self-contained power Standard Accutech field units include a single C-Cell (900MHz) or D-Cell (2.4GHz) lithium battery that offers battery life up to ten years of service, depending on data rates and battery options.
Operating Shock and Vibration	Tested per IEC 60068-2-6 (vibration) and 2-27 (shock)
Random Vibration Characteristics	Tested to withstand 6 g's, 15 minutes per axis from 9 – 500Hz
Electromagnetic Compatibility	<ul style="list-style-type: none"> This equipment complies with the EU RTTE directive (1999/5/EC). Australian C-Tick - registration number N15744
Certifications	North America HAZLOC: <ul style="list-style-type: none"> cCSAus Intrinsically Safe: <ul style="list-style-type: none"> Ex ia IIC. T3; Class I, Zone 0, AEx ia IIC. T3 Class I, Div. 1, Groups A, B, C & D, T3 Class II, Div. 1, Groups E, F and G, T3 Class III, T3 Class I, Div. 2, Groups A, B, C & D, T4 Class II, Div. 2, Groups F and G, T4 Class III, T4 ATEX/IECEx HAZLOC: <ul style="list-style-type: none"> Intrinsically Safe Ex ia IIC T3 LCIE 10 ATEX 3109 X IECEx LCI 10.0045X EMC & Radio: <ul style="list-style-type: none"> North America: FCC , IC Europe: CE Mark (R&TTE) Australia/New Zealand: C-Tick

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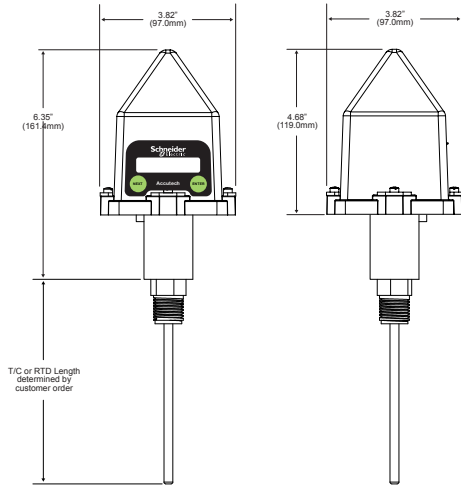
Product Data Sheet Accutech RT10

Model Code

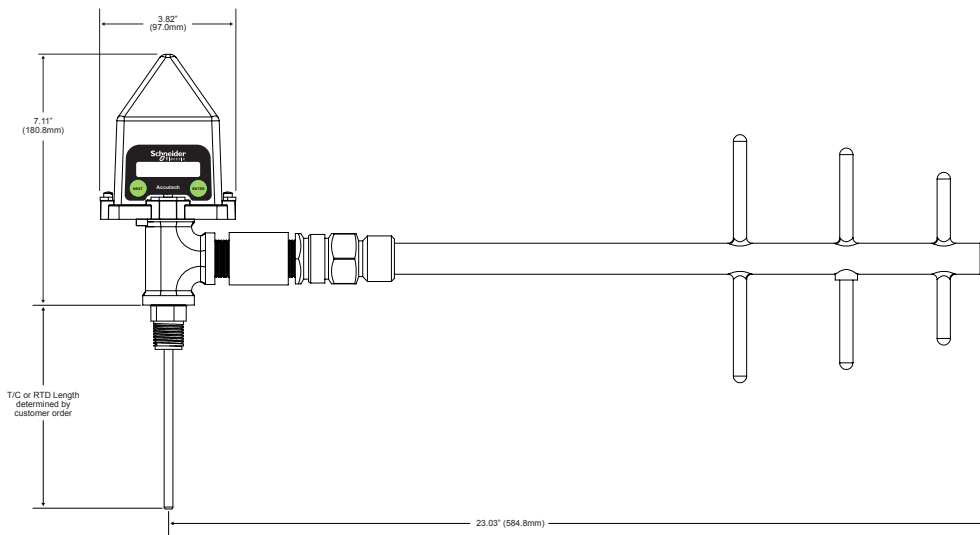
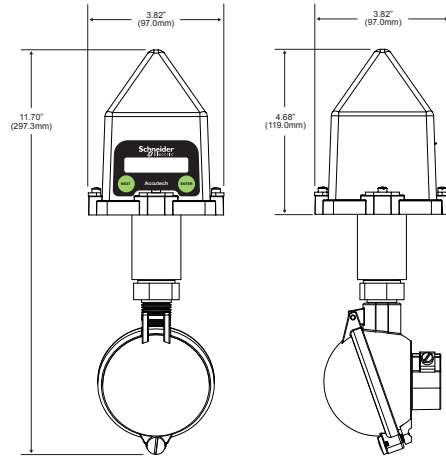
	TBUARTJPN00B0N000 represents a typical part number.
Model	Type
TBUART	Wireless RTD Temperature Field Unit
Code	Select: RF Module Type
T	902MHz - 928MHz band (FCC / IC)
D	915MHz - 928MHz band (Australia)
N	915MHz - 921MHz band (New Zealand)
F	2.4GHz
Code	Select: Safety Certifications
J	Intrinsically Safe Protection CSA – see product data sheet for certification details
Q	ATEX & IECEx – see product data sheet for certification details
Code	Select: Housing & Battery Pack
P	NEMA4 Polycarbonate Housing with 1 Cell (Available with Intrinsically Safe Rating)
Code	Select: Future Option
N	None
Code	Select: Integral Antenna or Cable & Connector Interface
00	Integral Antenna with antenna cover. The 2.4GHz unit also comes with an external antenna connector.
01	<u>For 900MHz RF Module Systems Only:</u> External YAGI Antenna, 6db, attached to base of unit
10	10ft. (3.01m) cable with N-Male connector for remote antenna configurations
25	25ft. (6.72m) cable with N-Male connector for remote antenna configurations
Code	Select: Sensor Mounting
S	Integrated RTD (Requires selection of Type, Fitting and Probe length below)
B	Remotely mounted RTD - c/w NEMA4 Aluminum rear-entry junction box (RTD & Bracket not included)
D	Remotely mounted RTD - c/w NEMA4X Stainless Steel rear-entry junction box (RTD & Bracket not included)
Code	Select: RTD Type
0	No RTD (purchased separately)
1	4 Wire DIN curve 100 ohm platinum RTD
Code	Select: Fitting
N	No RTD (Purchased separately - junction box provided for field termination)
B	Spring-loaded fitting (Customer to install in thermowell)
D	Direct-insertion, welded
Code	Select: Probe Length – 0.5 inch increments only
000	No RTD (Purchased separately)
XXX	Enter Required Probe length XX . X inches as XXX (no decimal point) - contact factory for > 9 inches

Product Data Sheet Accutech RT10
Dimensions

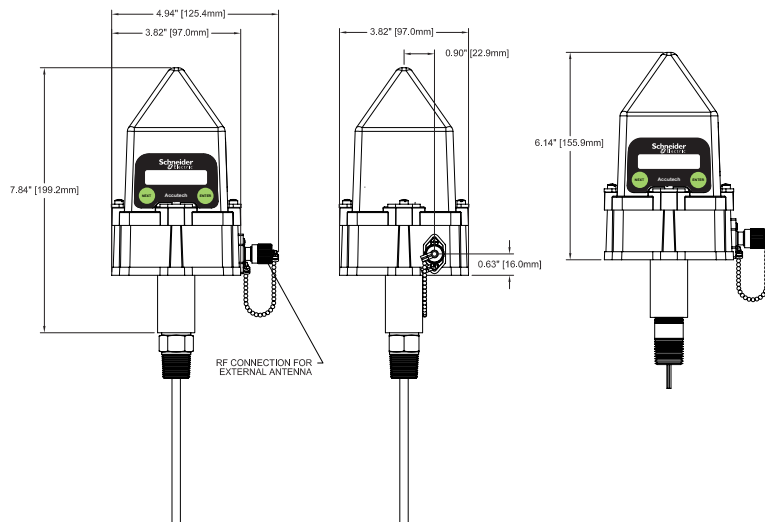
**Integral Sensor
(900MHz option)**



Remote Sensor Option



(2.4GHz option)



Product Data Sheet Accutech SI10

Specifications



Accutech SI10

Functional

Sensor Type	Switch-Input with optional Switch Outputs*
Location	Field Unit
Frequency Range	900MHz and 2.4GHz license-free bands
Power	Integrated battery
Network Capacity	<ul style="list-style-type: none"> Max. 100 field units per base radio Max. 256 base radios per network

Features

Inputs	Two contact closures. One or both inputs may be used in counter mode. (For installation in hazardous areas, the contacts must be simple devices with no energy storage capability).
Input Characteristics	<ul style="list-style-type: none"> Max. switch impedance 1.0kΩ Input Isolation between Input 1 to Input 2 = 20kΩ The counter inputs support a maximum input frequency of 5Hz with a 50% duty cycle. The input must be in a state for 100ms for the state to be recognised. Detection of rising or falling edge or both edges.
Outputs*	<ul style="list-style-type: none"> 2: optional switch outputs. Outputs are dry contact; external power is required for equipment being controlled. Max. switching up to 1A at 30V (Note Safety Certifications for SI10 with Outputs) Remotely controlled by writing data to base radio Configurable failsafe state and power-up state
Remote Configuration Interface	Accutech Manager, Windows™-based GUI software, providing network-wide monitoring and performance-management features and field unit configuration capabilities.
Local Configuration Interface	<ul style="list-style-type: none"> Integrated LCD with membrane-switch buttons. Display cycles through Switch 1, 2 and error messages, if applicable Configure RF parameters locally using membrane-switch buttons
RF Characteristics	<p>900MHz:</p> <ul style="list-style-type: none"> 902 to 928MHz Frequency Hopping Spread Spectrum (FHSS), FCC certified ISM license-free band 915 to 928MHz (Australia) 921 to 928MHz (New Zealand) Data Rates: 4,800, 19,200 or 76,800bps 0.4W maximum <p>2.4GHz:</p> <ul style="list-style-type: none"> 2400 to 2483.5MHz ISM license-free band Frequency Hopping Spread Spectrum (FHSS) Radio Data Rates: 50/100kbps (FSK Modulation), 200kbps (GFSK Modulation) Typical Electrical Transmit Power: +10.6dBm Typical Receive Sensitivity (0.1% BER): - 102dBm @ 50kbps, - 99dBm @ 100kbps, - 99dBm @ 200kbps Typical CW Receiver Blocking Rejection: 64dB for CW @ +/- 5MHz, 74dB for CW @ +/- 30MHz
Self-Diagnostics	<ul style="list-style-type: none"> 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 spec is identified and reported

General

Operating Ambient Environment	<ul style="list-style-type: none"> -40 to +85°C (-40 to +185°F) electronics -20 to +70°C (-4 to +158°F) display -40 to +85°C (-40 to +185°F) display (extreme cold can reduce LCD visibility) Humidity: 0 to 95%, non-condensing
Power	<ul style="list-style-type: none"> Self-contained power Standard Accutech field units include a single C-Cell (900MHz) or D-Cell (2.4GHz) lithium battery that offers battery life up to ten years of service, depending on data rates and battery options
Physical Characteristics:	<ul style="list-style-type: none"> Base Plate: 304 Stainless Steel Cover: GE Lexan®, V-0 rating and UV resistant
Operating Shock and Vibration	Tested per IEC 60068-2-6 (vibration) and 2-27 (shock)
Random Vibration Characteristics	Tested to withstand 6 g's, 15 minutes per axis from 9 – 500Hz
Electromagnetic Compatibility	Operates within specification in fields from 80 to 1,000MHz with field strengths to 30V/m. Meets EN 50082-1 General Immunity Standard and EN 55011 compatibility emissions standard
Certifications	<p>North America HAZLOC:</p> <ul style="list-style-type: none"> cCSAus Intrinsically Safe: Exia IIC; AEx ia IIC Class I, Div. 1, Groups A, B, C & D, T4 Class II, Div. 1, Groups E, F and G, T3 Class III, T3. Class 1, Zone 0, AEx ia IIC, T3 Class I, Div. 2, Groups A, B, C & D, T4 Class II, Div. 2, Groups F and G, T4 Class III, T4. Explosion Proof: Class I, Div. 1, Groups A, B, C & D; T4 Class I, Div. 2, Groups A, B, C & D; T4 <p>ATEX/IECEx HAZLOC:</p> <ul style="list-style-type: none"> LCIE Intrinsically Safe: Ex ia IIC T3 Flame Proof: Ex d IIC T4. <p>EMC & Radio:</p> <ul style="list-style-type: none"> North America : FCC , IC Europe: CE Mark (R&TTE) Australia/New Zealand: C-Tick

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Product Data Sheet Accutech SI10

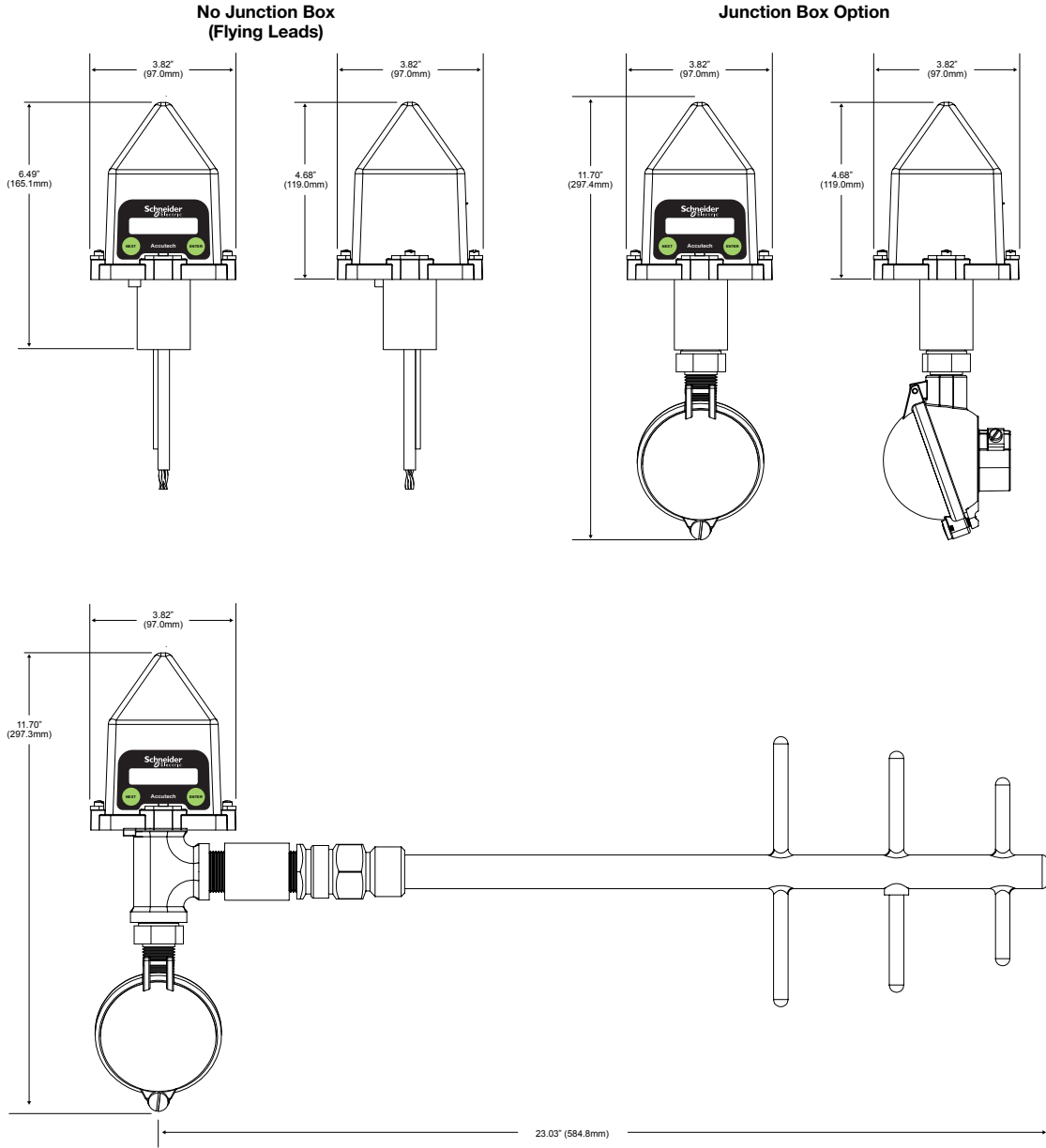
Model Code

	AC-SI10-TJ11N00-A represents a typical part number.
Model	Type
TBUASI	Wireless Dual Contact Switch Input Field Unit
Code	Select: RF Module Type
T	902MHz - 928MHz band (FCC / IC)
D	915MHz - 928MHz band (Australia)
N	915MHz - 921MHz band (New Zealand)
F	2.4GHz band
Code	Select: Certifications
A	Explosion Proof Protection – Div 1 CSA – see product data sheet for certification details
E	Non-Incendive Protection – Div 2 CSA – see product data sheet for certification details
J	CSA – see product data sheet for certification details
Q	ATEX & IECEx – see product data sheet for certification details
N	Flame Proof Protection ATEX & IECEx – see product data sheet for certification details
Code	Select: Housing & Battery Pack
P	NEMA4 Polycarbonate Housing with 1 Cell (available with Intrinsically Safe Rating)
1	NEMA4X Aluminum Housing with 1 Cell
2	NEMA4X Aluminum Housing with 2 Cells (not available for ATEX/IECex)
4	NEMA4X Aluminum Housing with 4 Cells (not available for ATEX/IECex)
Code	Select: Digital Outputs*
N	None
E	2 Digital outputs – supported by BR20 Base Radio only (suitable for Div2 rating only)
Code	Select: Integral Antenna or Cable & Connector Interface
00	Integral Antenna with Antenna Cover, the 2.4GHz NEMA4 unit also comes with an external antenna connector
01	For 900MHz RF Module Systems – or – the 2.4GHz in a NEMA4X Aluminum Housing External YAGI Antenna, 6db, attached to base of unit (not available with 2.4GHz RF NEMA4 unit)
10	10ft. (3.01m) cable with N-Male connector for remote antenna configurations (not available with 2.4GHz RF NEMA4 unit)
25	25ft. (7.62m) cable with N-Male connector for remote antenna configurations (not available with 2.4GHz RF NEMA4 unit)
Code	Select: Junction Box
A	No Junction Box (exposed lead wires)
B	NEMA4 - Aluminum Rear Entry
D	NEMA4X - Stainless Steel Rear Entry

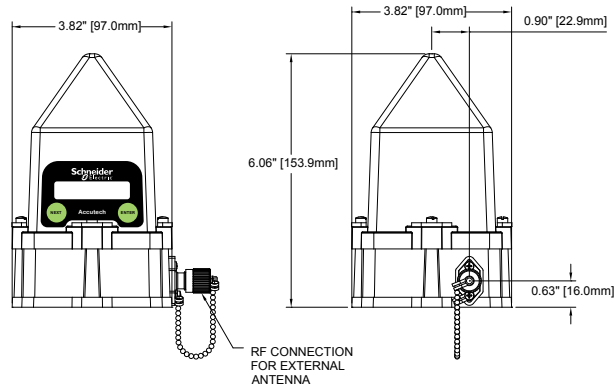
* Requires BR20 as network base radio

Product Data Sheet Accutech SI10 Dimensions

900MHz RF and Battery Unit (Sensor and external antenna option shown)

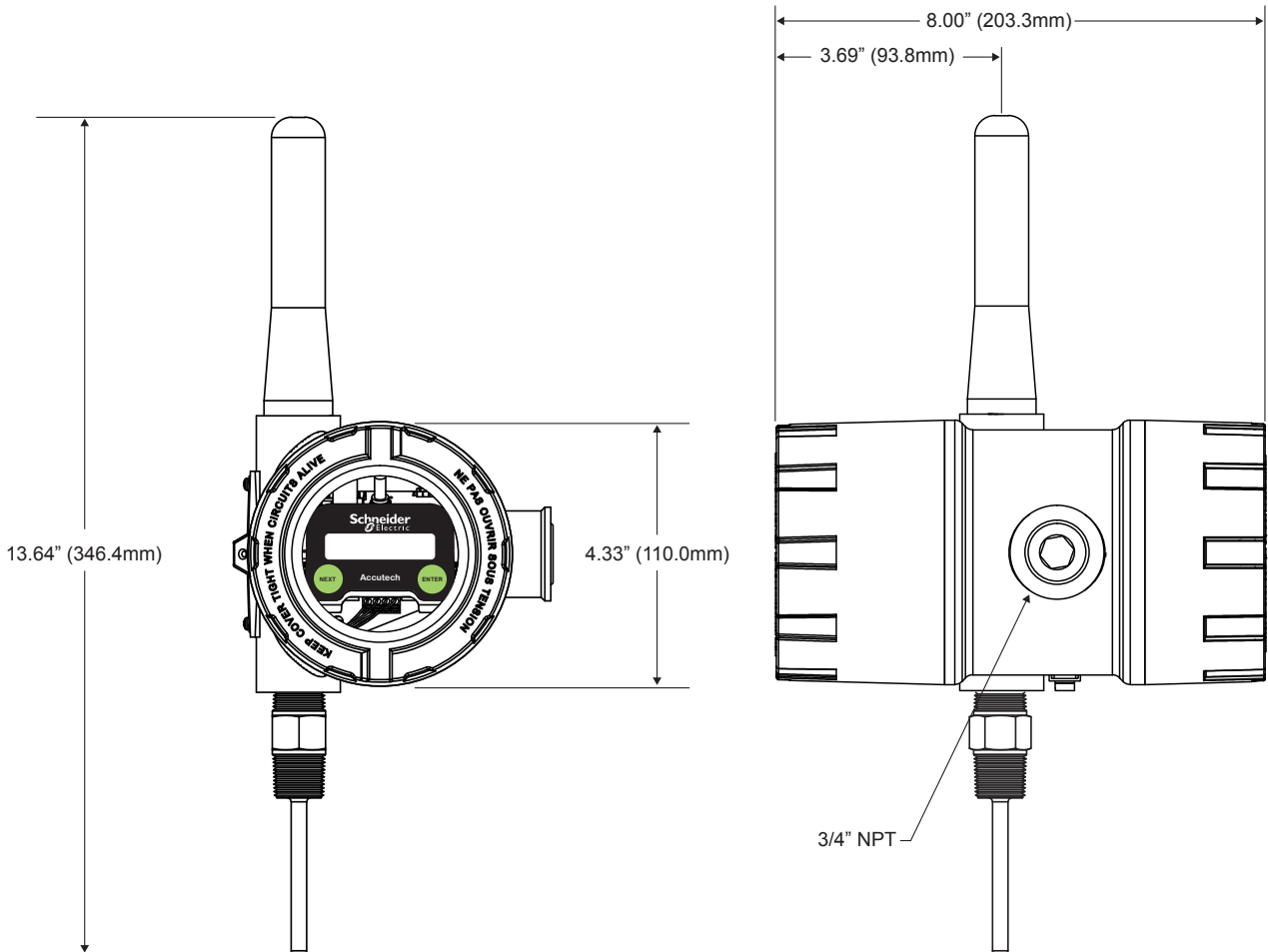


2.4GHz RF and Battery Unit (Sensor and external antenna not shown for clarity)



Product Data Sheet Accutech SI10 Dimensions

NEMA4X Enclosure



Product Data Sheet Accutech SL10

Specifications



Accutech SL10

Functional

Sensor Type	Submersible Hydrostatic Level
Location	Field Unit
Frequency Range	900MHz and 2.4GHz band license-free bands
Power	Integrated battery
Network Capacity	Max. 100 field units per base radio Max. 256 base radios per network

Features

Accuracy	$\pm 0.5\%$ of sensor URL over temperature range -20 to +60°C (-4 to +140°F)
Stability	Combined zero and span stability: less than $\pm 0.5\%$ of sensor URL per year at 21°C (70°F)
Sampling and Transmission Characteristic	The level field unit samples pressure at regular intervals. The data may then be transmitted to the base radio for centralised monitoring and data acquisition. The user specifies how frequently the process is monitored and how often data is transmitted. <ul style="list-style-type: none"> Level – user designates low rate and high rate conditions Sampling rate – user selectable from 1 to 60 seconds (low rate) and from 1 to 30 seconds (high rate) Transmission rate – user selectable from 1 second to 60 seconds (low and high rate) Accutech Manager can be used for Real-time monitoring of the process information. The user can set thresholds to represent out of spec conditions.
Remote Configuration Interface	Accutech Manager, Windows™-based GUI software, providing network-wide monitoring and performance-management features and field unit configuration capabilities.
Local Configuration Interface	<ul style="list-style-type: none"> 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
RF Characteristics	900MHz: <ul style="list-style-type: none"> 902 to 928MHz Frequency Hopping Spread Spectrum (FHSS), FCC certified ISM license-free band 915 to 928MHz (Australia) 921 to 928MHz (New Zealand) Data Rates: 4,800, 19,200 or 76,800bps 0.4W maximum 2.4GHz: <ul style="list-style-type: none"> 2400 to 2483.5MHz ISM license-free band Frequency Hopping Spread Spectrum (FHSS) Radio Data Rates: 50/100kbps (FSK Modulation), 200kbps (GFSK Modulation) Typical Electrical Transmit Power: +10.6dBm Typical Receive Sensitivity (0.1% BER): - 102dBm @ 50kbps, - 99dBm @ 100kbps, - 99dBm @ 200kbps Typical CW Receiver Blocking Rejection: 64dB for CW @ +/- 5MHz, 74dB for CW @ +/- 30MHz
Self-Diagnostics	<ul style="list-style-type: none"> Low battery notification – indicates the need to replace the battery (approximately one month advance notification). Contains extensive self-checking software and hardware that continuously monitors operation. Any sensor or device parameter that is out of spec is identified and reported.

General

Operating Ambient Environment	<ul style="list-style-type: none"> -20 to +60°C (-4 to +140°F) steady-state Process temperature -20 to +60°C (-4 to +140°F) steady-state Ambient temperature -20 to +60°C (-4 to +140°F) electronics Humidity: 0 to 95%, non-condensing
Power	<ul style="list-style-type: none"> Self-contained power Standard Accutech field units include a single C-Cell (900MHz) or D-Cell (2.4GHz) lithium battery that offers battery life up to ten years of service, depending on data rates and battery options.
Physical Characteristics	<ul style="list-style-type: none"> Base Plate: 304 Stainless Steel Cover: GE Lexan®, V-0 rating and UV resistant Sensor Body: 316L Stainless Steel with Buna-N seal Submersible Sensor Cable: Sensor cable and vent tube is encased in polyurethane jacket, rated for use in many harsh environments. Vent tube protected with a hydrophobic filter.
Operating Shock and Vibration	Tested per IEC 60068-2-6 (vibration) and 2-27 (shock)
Random Vibration Characteristics	Tested to withstand 6 g's, 15 minutes per axis from 9 – 500Hz
Electromagnetic Compatibility	Operates within specification in fields from 80 to 1,000MHz with field strengths to 30V/m. Meets EN 50082-1 General Immunity Standard and EN 55011 compatibility emissions standard.
Certifications	North America HAZLOC: <ul style="list-style-type: none"> cCSA_{us} Intrinsically Safe: Exia IIC; AEx ia IIC Class I, Div. 1, Groups A, B, C & D, T3 Class II, Div. 1, Groups E, F and G, T3 Class III, T3 Class 1, Zone 0, AEx ia IIC, T3 Class I, Div. 2, Groups A, B, C & D, T4 Class II, Div. 2, Groups F and G, T4 Class III, T4 ATEX/IECEX HAZLOC: <ul style="list-style-type: none"> LCIE Intrinsically Safe: Ex ia IIC T3 EMC & Radio: <ul style="list-style-type: none"> North America : FCC , IC Europe: CE Mark (R&TTE) Australia/New Zealand: C-Tick

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Product Data Sheet Accutech SL10 Model Code

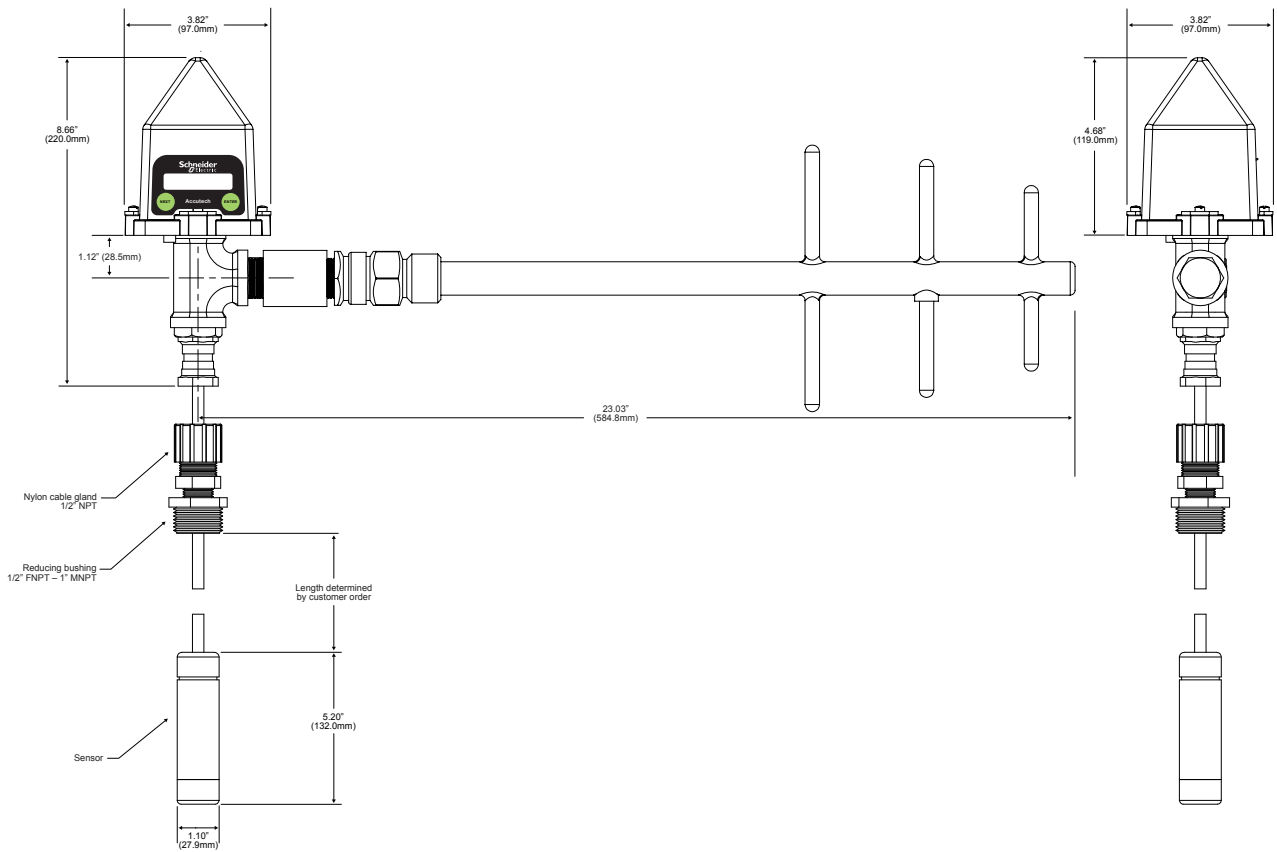
	TBUASLTJPN00RA15A represents a typical part number.					
Model	Type					
TBUASL	Wireless Submersible Level Field Unit					
Code	Select: RF Module Type					
T	902MHz - 928MHz band (FCC / IC)					
D	915MHz - 928MHz band (Australia)					
N	915MHz - 921MHz band (New Zealand)					
F	2.4GHz band					
Code	Select: Certifications					
J	Intrinsically Safe Protection CSA – see product data sheet for certification details					
Q	ATEX & IECEx – see product data sheet for certification details					
Code	Select: Housing & Battery Pack					
P	NEMA4 Polycarbonate Housing with 1 Cell (Available with Intrinsically Safe Rating)					
Code	Select: Future Option					
N	None					
Code	Select: Integral Antenna or Cable & Connector Interface					
00	Integral Antenna with Antenna Cover. The 2.4GHz NEMA4 unit also comes with an external antenna connector					
01	For 900MHz RF Module Systems – or – the 2.4GHz in a NEMA4X Aluminum Housing External YAGI Antenna, 6db, attached to base of unit (not available with 2.4GHz RF NEMA4 unit)					
10	10ft. (3.05m) cable with N-Male connector for remote antenna configurations (not available with 2.4GHz RF NEMA4 unit)					
25	25ft. (7.62m) cable with N-Male connector for remote antenna configurations (not available with 2.4GHz RF NEMA4 unit)					
Code	Select: Sensor Mounting					
	Standard Field Unit					
N	Remote Sensor with no intermediate cable gland					
R	Remote Sensor with SS & Brass intermediate cable gland					
T	Remote Sensor with Nylon intermediate cable gland					
	Direct Tank Port Connect Field Unit (1" NPT Male) – For Integral Antenna units only					
D	Remote Sensor with no intermediate cable gland					
Code	Select: Sensor Range & Cable Length					
	First letter in Code designates the Sensor Range; following two-digit number specifies sensor cable length					
	Upper Range Limit		(URL) Proof Pressure		Standard Cable Length	
	PSIG	(BAR)	PSI	(BAR)	Feet	(Meters)
A15	5*	(0.345)	10	(0.689)	15	(4.6)
B30	10*	(0.689)	20	(1.379)	30	(9.1)
C40	15	(1.034)	30	(2.068)	40	(12.2)
F75	30*	(2.068)	60	(4.137)	75	(22.9)
Code	Future Option					
A	None					

* Consult factory for lead times on units with custom cable lengths longer than the Standard Cable Length

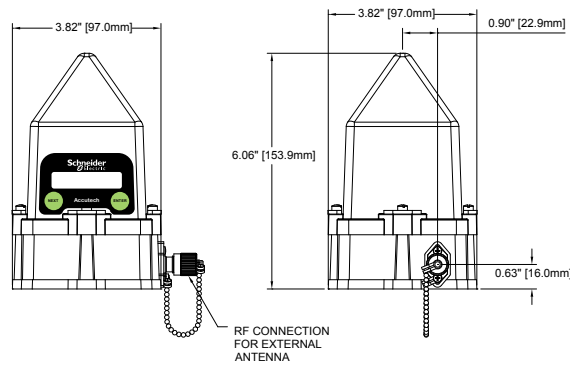
Sensor Element Size: Length = 5.0" (12.7cm) , Outer Diameter = 1.063" (2.7cm)

Product Data Sheet Accutech SL10
Dimensions

900MHz RF and Battery Unit
(Sensor and external antenna option shown)



2.4GHz RF and Battery Unit
(Sensor and external antenna not shown for clarity)



Product Data Sheet Accutech TC10

Specifications



> Accutech TC10

Functional

Sensor Type	Thermocouple Temperature
Location	Field Unit
Frequency Range	900MHz and 2.4GHz license-free bands
Power	Integrated battery
Network Capacity	<ul style="list-style-type: none"> Max. 100 field units per base radio Max. 256 base radios per network

Features

Remote Configuration Interface	Accutech Manager, Windows™-based GUI software, providing network-wide monitoring and performance-management features and field unit configuration capabilities.
Local Configuration Interface	Integrated LCD with membrane-switch buttons; display rotates through tag number, temperature and RF status
Sensor Accuracy	<p>Electronics accuracy:</p> <ul style="list-style-type: none"> ± 0.1 percent of full-scale reading plus 1°C (1.8 °F) for thermocouple cold-junction effect at reference conditions <p>Ambient temperature effect:</p> <ul style="list-style-type: none"> ± 0.01% of reading per °C (1.8 °F) ambient temperature difference from reference condition (20°C or 68°F). <p>Stability:</p> <ul style="list-style-type: none"> Deviation per year is less than 0.025% <p>Thermocouple accuracy:</p> <ul style="list-style-type: none"> J-Type: the greater of +/- 1.1°C (2°F) or 0.4% of reading K-Type: the greater of +/- 1.1°C (2°F) or 0.4% of reading S-Type: the greater of +/- 0.6°C (1.1°F) or 0.1% of reading T-Type: the greater of +/- 0.5°C (0.9°F) or 0.4% of reading For user-provided thermocouples see the manufacturer's data sheet.
Stability	Deviation per year is less than 0.025%
RF Characteristics	<p>900MHz:</p> <ul style="list-style-type: none"> 902 to 928MHz Frequency Hopping Spread Spectrum (FHSS), FCC certified ISM license-free band 915 to 928MHz (Australia) 921 to 928MHz (New Zealand) Data Rates: 4,800, 19,200 or 76,800bps 0.4W maximum <p>2.4GHz:</p> <ul style="list-style-type: none"> 2400 to 2483.5MHz ISM license-free band Frequency Hopping Spread Spectrum (FHSS) Radio Data Rates: 50/100kbps (FSK Modulation), 200kbps (GFSK Modulation) Typical Electrical Transmit Power: +10.6dBm Typical Receive Sensitivity (0.1% BER): -102dBm @ 50kbps, -99dBm @ 100kbps, -99dBm @ 200kbps Typical CW Receiver Blocking Rejection: 64dB for CW @ +/- 5MHz, 74dB for CW @ +/- 30MHz
Self-Diagnostics	<ul style="list-style-type: none"> Low battery notification – indicates the need to replace the battery (approximately one month advance notification). Contains extensive self-checking software and hardware that continuously monitors operation. Any sensor or device parameter that is out of spec is identified and reported.

General

Operating Ambient Environment	<ul style="list-style-type: none"> -40 to +85°C (-40 to +185°F) electronics -20 to +70°C (-4 to +158°F) display -40 to +85°C (-40 to +185°F) display (extreme cold can reduce LCD visibility) Humidity: 0 to 95%, non-condensing
Thermocouple Types	<ul style="list-style-type: none"> J 0° to 760°C (32° to 1400°F) K 0° to 1260°C (32° to 2300°F) S 0° to 1480°C (32° to 2700°F) T 0° to 370°C (32° to 700°F)
Power	<ul style="list-style-type: none"> Standard Accutech field units include a single C-Cell (900MHz) or D-Cell (2.4GHz) lithium battery that offers battery life up to ten years of service, depending on data rates and battery options.
Physical Characteristics	<ul style="list-style-type: none"> Base Plate: 304 Stainless Steel Cover: GE Lexan®, V-0 rating and UV resistant Process Connection: 1/2" MNPT
Operating Shock and Vibration	Tested per IEC 60068-2-6 (vibration) and 2-27 (shock)
Random Vibration Characteristics	Tested to withstand 6 g's, 15 minutes per axis from 9 – 500Hz
Electromagnetic Compatibility	Operates within specification in fields from 80 to 1,000MHz with field strengths to 30V/m. Meets EN 50082-1 General Immunity Standard and EN 55011 compatibility emissions standard.
Certifications	<p>North America HAZLOC:</p> <ul style="list-style-type: none"> cCSAus Intrinsically Safe: Exia IIC; AEx ia IIC Class I, Div. 1, Groups A, B, C & D, T3 Class II, Div. 1, Groups E, F and G, T3 Class III, T3 Class I, Zone 0, AEx ia IIC, T3 Class I, Div. 2, Groups A, B, C & D, T4 Class II, Div. 2, Groups F and G, T4 Class III, T4 <p>ATEX/IECEx HAZLOC:</p> <ul style="list-style-type: none"> LCIE Intrinsically Safe: Ex ia IIC T3 <p>EMC & Radio:</p> <ul style="list-style-type: none"> North America : FCC , IC Europe: CE Mark (R&TTE) Australia/New Zealand: C-Tick

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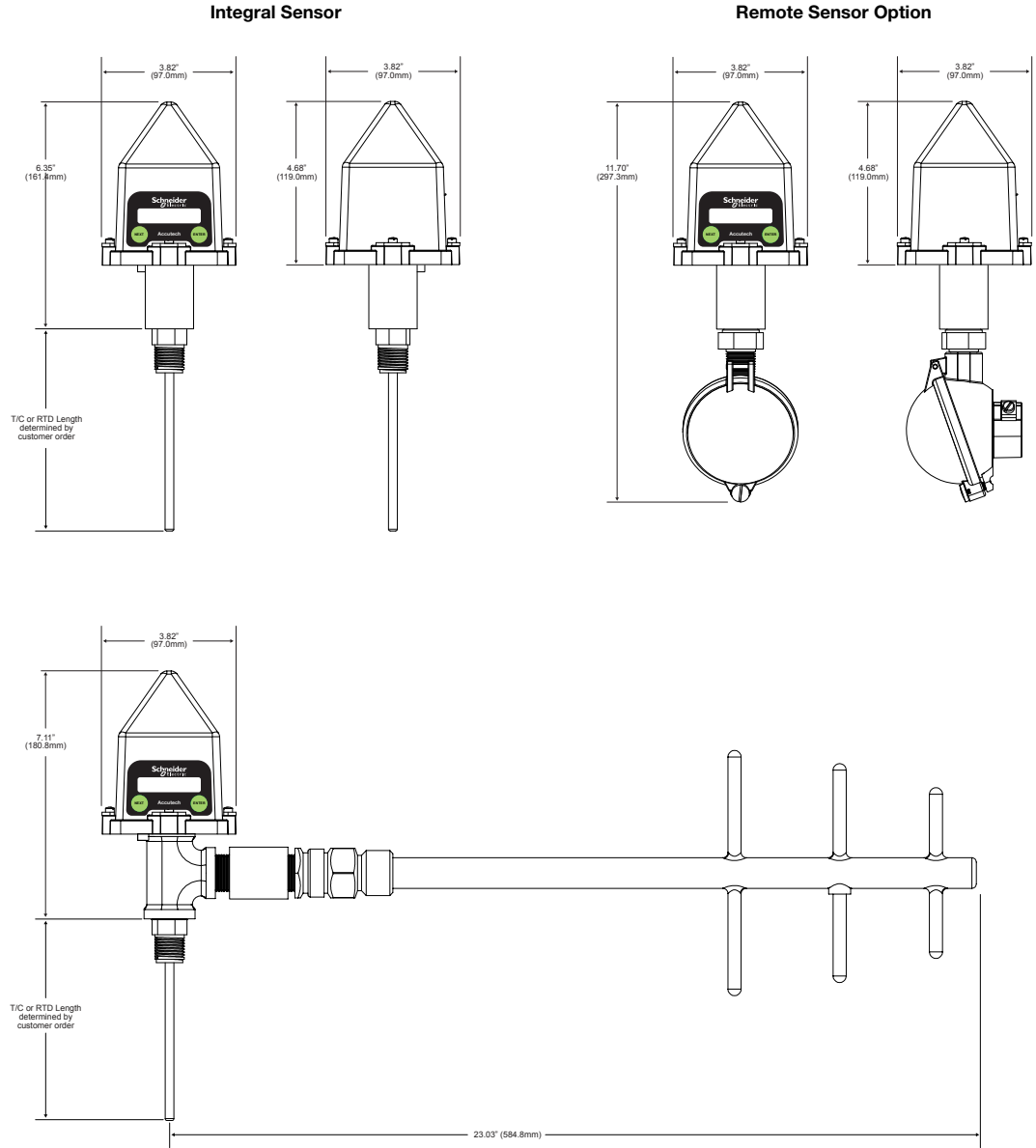
Product Data Sheet Accutech TC10 Model Code

	TBUATCTJPN00A0N000 represents a typical part number.
Model	Type
TBUATC	Wireless Thermocouple Field Unit
Code	Select: RF Module Type
T	902MHz - 928MHz band (FCC / IC)
D	915MHz - 928MHz band (Australia)
N	915MHz - 921MHz band (New Zealand)
F	2.4GHz band
Code	Select: Certifications
J	Intrinsically Safe Protection CSA – see product data sheet for certification details
Q	ATEX & IECEX - see product data sheet for certification details
Code	Select: Housing & Battery Pack
P	NEMA4 Polycarbonate Housing with 1 Cell (Available with Intrinsically Safe Rating)
Code	Select: Future Option
N	None
Code	Select: Integral Antenna or Cable & Connector Interface
00	Integral Antenna with Antenna Cover, the 2.4GHz NEMA4 unit also comes with an external antenna connector
01	<u>For 900MHz RF Module Systems - or - the 2.4GHz in a NEMA4X Aluminum Housing</u> External YAGI Antenna, 6db, attached to base of unit (not available with 2.4GHz RF NEMA4 unit)
10	10ft. (3.01m) cable with N-Male connector for remote antenna configurations (not available with 2.4GHz RF NEMA4 unit)
25	25ft. (7.62m) cable with N-Male connector for remote antenna configurations (not available with 2.4GHz RF NEMA4 unit)
Code	Select: Sensor Mounting (Remotely mounted T/C options provide connections for 2 T/C)
S	Integrated T/C (Requires selection of Type, Fitting and Probe length below)
A	Remotely mounted T/C - No junction box, exposed lead wires (T/C & Bracket not included)
B	Remotely mounted T/C - c/w NEMA4 Aluminum rear entry junction box (T/C & Bracket not included)
D	Remotely mounted T/C - c/w NEMA4X Stainless Steel rear entry junction box (T/C & Bracket not included)
Code	Select: Thermocouple Type
0	No Thermocouple (Purchased separately - TC10 supports Type B, C, E, J, K, L, N, R, S, T and U)
1	J Type
2	K Type
3	S Type
4	T Type
Code	Select: Fitting
N	No Thermocouple (Purchased separately – junction box provided for field termination)
B	Spring loaded fitting (Customer to install in thermowell)
D	Direct-insertion welded
Code	Select: Probe Length - 0.5 inch increments only
000	No Thermocouple (Purchased separately)
XXX	Enter Required Probe length XX . X inches as XXX (no decimal point) - contact factory for > 9 inches

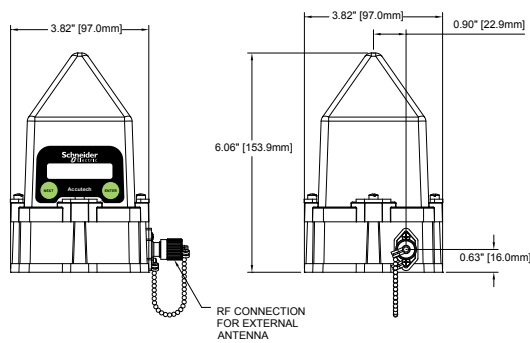
Consult Accessories Section for mounting brackets

Product Data Sheet Accutech TC10
Dimensions

900MHz RF and Battery Unit
(Sensor and external antenna option shown)

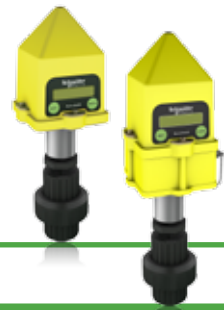


2.4GHz RF and Battery Unit
(Sensor and external antenna not shown for clarity)



Product Data Sheet Accutech TM10

Specifications



> Accutech TM10

Functional

Sensor Type	Turbine Meter Totaliser
Location	Field Unit
Frequency Range	900MHz and 2.4GHz license-free bands
Power	Integrated battery
Network Capacity	<ul style="list-style-type: none"> • Max. 100 field units per base radio • Max. 256 base radios per network

Features

Remote Configuration Interface	Accutech Manager, Windows™-based GUI software, providing network-wide monitoring and performance-management features and field unit configuration capabilities
Local Configuration Interface	<ul style="list-style-type: none"> • Integrated LCD with membrane-switch buttons • Display provides flow, total and error messages • Configure sampling and RF parameters locally using membrane-switch buttons

Turbine Meter

Electronic Accuracy and Stability	<ul style="list-style-type: none"> • Flow Rate accurate to $\pm 0.01\%$ of reading (not including turbine meter and pickup) • Applies to pulse frequencies above low cut-off of 1Hz
Physical Connection	1in. female NPT connection to Turbine Meter Union for easy removal, pickup installation and replacement
Magnetic Pickup	Two-wire, connector supplied. See supported model numbers in the Sensor Pickup section of the model code
Frequency Range	1Hz. to 10KHz
Input Sensitivity (typical)	<ul style="list-style-type: none"> • 3.5mV RMS @ 5Hz • 3.5mV RMS @ 50Hz • 5mV RMS @ 500Hz • 45mV RMS @ 5000Hz
RF Characteristics	<p>900MHz:</p> <ul style="list-style-type: none"> • 902 to 928MHz Frequency Hopping Spread Spectrum (FHSS), FCC certified ISM license-free band • 915 to 928MHz (Australia) • 921 to 928MHz (New Zealand) • Data Rates: 4,800, 19,200 or 76,800bps • 0.4W maximum <p>2.4GHz:</p> <ul style="list-style-type: none"> • 2400 to 2483.5MHz ISM license-free band Frequency Hopping Spread Spectrum (FHSS) Radio • Data Rates: 50/100kbps (FSK Modulation), 200kbps (GFSK Modulation) • Typical Electrical Transmit Power: +10.6dBm • Typical Receive Sensitivity (0.1% BER): - 102dBm @ 50kbps, - 99dBm @ 100kbps, - 99dBm @ 200kbps • Typical CW Receiver Blocking Rejection: 64dB for CW @ +/- 5MHz, 74dB for CW @ +/- 30MHz
Self-Diagnostics	<ul style="list-style-type: none"> • Low battery notification – indicates the need to replace the battery (approximately one month advance notification) • Contains extensive self-checking software and hardware that continuously monitors operation. Any sensor or device parameter that is out of spec is identified and reported

General

Operating Ambient Environment	<ul style="list-style-type: none"> • -40 to +85°C (-40 to +185°F) electronics • -20 to +70°C (-4 to +158°F) display • -40 to +85°C (-40 to +185°F) display (extreme cold can reduce LCD visibility) • Humidity: 0 to 95%, non-condensing
Materials of Construction	<ul style="list-style-type: none"> • Base Plate: 304 Stainless Steel • Cover: GE Lexan®, V-0 rating and UV resistant
Power	<ul style="list-style-type: none"> • Self-contained power • Standard Accutech field units include a single C-Cell (900MHz) or D-Cell (2.4GHz) lithium battery that offers 3+ years of maintenance-free service (up to 10 years depending on data rates and battery options).
Operating Shock and Vibration	Tested per IEC 60068-2-6 (vibration) and 2-27 (shock)
Random Vibration Characteristics	Tested to withstand 6 g's, 15 minutes per axis from 9 – 500Hz
Electromagnetic Compatibility	Operates within specification in fields from 80 to 1,000MHz with field strengths to 30V/m. Meets EN 50082-1 General
Certifications	<p>North America HAZLOC:</p> <ul style="list-style-type: none"> • 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 <p>ATEX/IECEX HAZLOC:</p> <ul style="list-style-type: none"> • LCIE • Intrinsically Safe: Ex ia IIC T3 <p>EMC & Radio:</p> <ul style="list-style-type: none"> • North America : FCC , IC • Europe: CE Mark (R&TTE) • Australia/New Zealand: C-Tick

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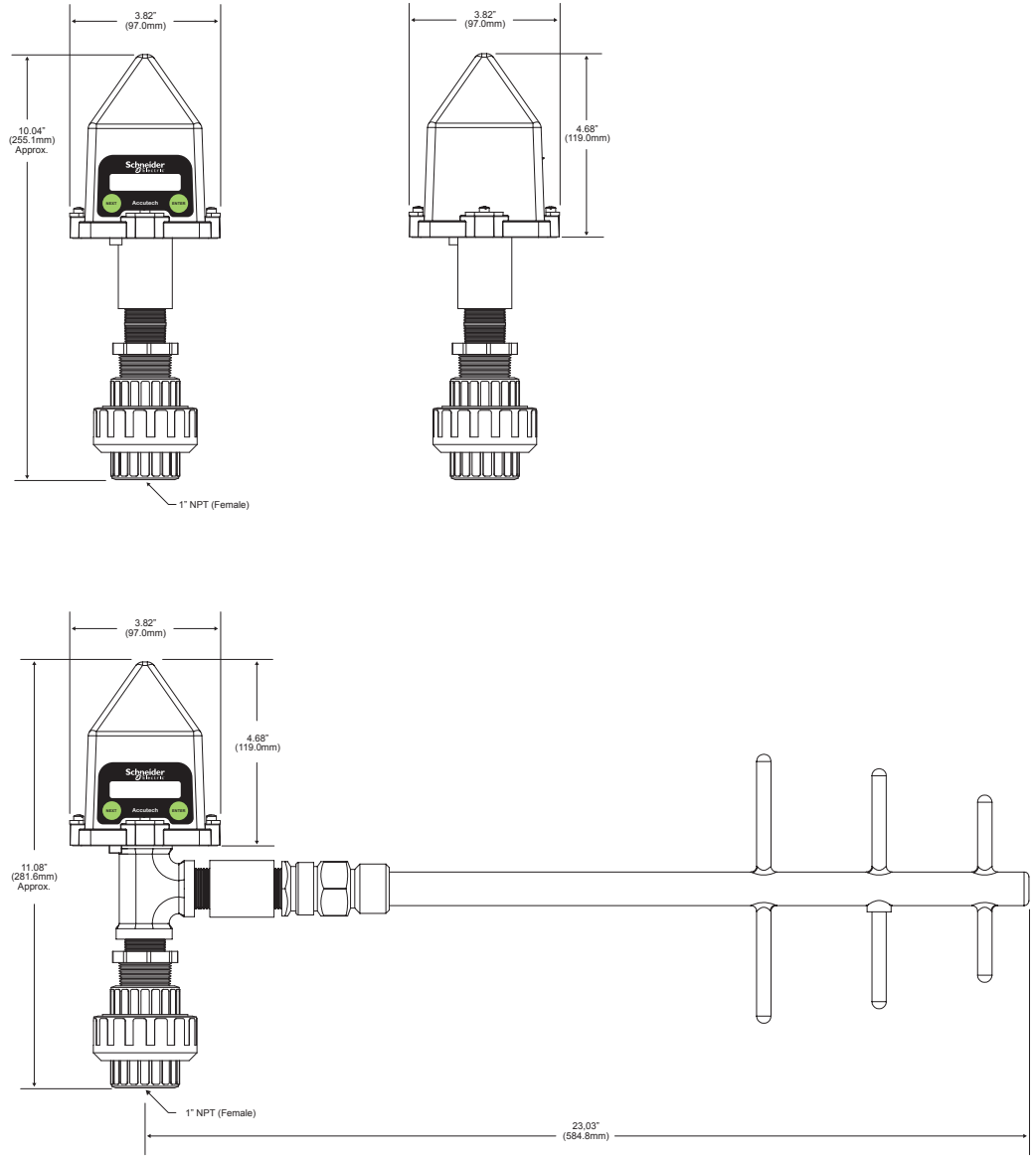
Product Data Sheet Accutech TM10

Model Code

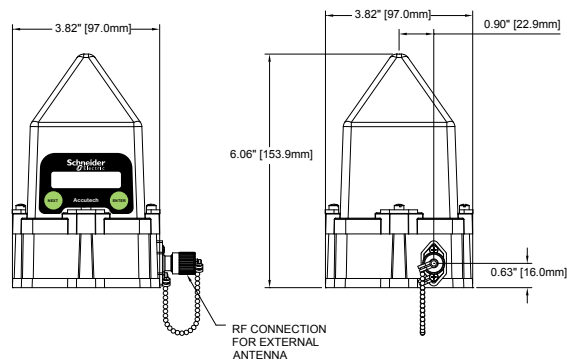
	TBUATMTJPN00A00NA represents a typical part number.
Model	Type
TBUATM	Wireless Turbine Meter Totaliser Field Unit
Code	Select: RF Module Type
T	902MHz - 928MHz band (FCC / IC)
D	915MHz - 928MHz band (Australia)
N	915MHz - 921MHz band (New Zealand)
F	2.4GHz
Code	Select: Certifications
J	Intrinsically Safe Protection CSA – see product data sheet for certification details
Q	ATEX & IECEx – see product data sheet for certification details
Code	Select: Housing & Battery Pack
P	NEMA4 Polycarbonate Housing with 1 Cell (Available with Intrinsically Safe Rating)
Code	Select: Future Option
N	None
Code	Select: Integral Antenna or Cable & Connector Interface
00	Integral Antenna with Antenna Cover, the 2.4GHz NEMA4 unit also comes with an external antenna connector
01	For 900MHz RF Module Systems – or – the 2.4GHz in a NEMA4X Aluminum Housing External YAGI Antenna, 6db, attached to base of unit (not available with 2.4GHz RF NEMA4 unit)
10	10ft. (3.01m) cable with N-Male connector for remote antenna configurations (not available with 2.4GHz RF NEMA4 unit)
25	25ft. (7.62m) cable with N-Male connector for remote antenna configurations (not available with 2.4GHz RF NEMA4 unit)
Code	Select: Sensor Mounting
A	Integral (direct connect of magnetic pick-up below, or customer-supplied – no Junction Box)
R	Remote Sensor (requires selection of a Junction Box below)
Code	Select: Sensor Pickup
00	None (Intrinsic Safety rating “Option J” is available for customer-supplied pick-ups meeting specifications)
01	Magnetic pick-up, Electronic Data Devices model 4.303 - for turbine meters with an I.D. $\geq 7/8$ "
02	Magnetic pick-up, Electronic Data Devices model 4.5050 - for turbine meters with an I.D. $\leq 3/4$ "
Code	Select: Sensor Union
N	None (customer-supplied)
A	PVC Union, for Integral Sensor Mounting only (Shipped Assembled)
B	Aluminum Union, for Integral Sensor Mounting only (Shipped Assembled)
C	Stainless Steel Union, for Integral Sensor Mounting only (Shipped Assembled)
Code	Select: Junction Box
A	No Junction Box (exposed lead wires)
B	NEMA4 - Aluminum Rear Entry, for Remote Sensor Mounting only
D	NEMA4X - Stainless Steel Rear Entry, for Remote Sensor Mounting only

Product Data Sheet Accutech TM10
Dimensions

900MHz RF and Battery Unit
(Sensor and external antenna option shown)



2.4GHz RF and Battery Unit
(Sensor and external antenna not shown for clarity)



Product Data Sheet Accutech VC10

Specifications



> Accutech VC10

Functional

Sensor Type	Gauge Pressure, discrete digital inputs (including one with counter function)
Control Type	2-way solenoid valve
Location	Field Unit (fully certified for use in Class 1, Div 1 environments)
Frequency Range	900MHz license-free band
Power	Integrated battery

Features

Remote Configuration Interface	Accutech Manager, Windows™-based GUI software, providing network-wide monitoring and performance-management features and field unit configuration capabilities
Local Configuration Interface	<ul style="list-style-type: none"> Integrated LCD with magnetic switches Display provides pressure reading, valve state and switch states Configure sampling and RF parameters locally

Gauge Pressure Sensor

Accuracy	± 0.25% of full-scale (sensor card 0 to 125PSI) pressure reading over rated temperature range.
Stability	Combined zero and span stability: less than ± 0.1% of sensor URL per year at 21°C (70°F)
Output Resolution	24-bit Analog to Digital conversion
Gauge Pressure Ranges	250psi
RF Characteristics	<ul style="list-style-type: none"> 902MHz - 928MHz band (FCC/IC) 915MHz - 928MHz band (Australia) 915MHz - 921MHz band (New Zealand) Up to 1500m (~5000ft.) typical range with obstructions The RF module in each field unit is individually tested and calibrated Transmit Power: +13dBm Receive Sensitivity: -113dBm Adjacent Channel Rejection: 48dBc Alternate Channel Rejection: 62dBc
Self-Diagnostics	<ul style="list-style-type: none"> Low battery notification – indicates the need to replace the battery (approximately one month advance notification) Contains extensive self-checking software and hardware that continuously monitors operation. Any sensor or device parameter that is out of spec is identified and reported

Digital Inputs

Inputs	Two contact closures. One input may be used in counter mode. (For installation in hazardous areas, the contacts must be simple devices with no energy storage capability).
Input Characteristics	<ul style="list-style-type: none"> Max. switch impedance 1.0kΩ Input Isolation between Input 1 to Input 2 = 20kΩ The counter input supports a maximum input frequency of 5Hz with a 50% duty cycle. The input must be in a state for 100ms for the state to be recognised. Detection of rising or falling edge or both edges.

Control Output

Valve Control	<ul style="list-style-type: none"> 2-way latching solenoid valve (ASCO) Remotely controlled by writing desired output state to base radio Modbus registers Configurable default state and power-up state
---------------	---

General

Operating Ambient Environment	<ul style="list-style-type: none"> -30°C to +60°C (-22°F to +140°F), Humidity: 0 to 95%, non-condensing
Process Connection	<ul style="list-style-type: none"> 1/2" MNPT
Power	<ul style="list-style-type: none"> Self-contained power 4: 'D Cell' lithium batteries offer battery life up to ten years of service, depending on data rates and battery options.
Activations	Up to 50,000
Operating Shock and Vibration	Tested per IEC 60068-2-6 (vibration) and 2-27 (shock)
Random Vibration Characteristics	Tested to withstand 6 g's, 15 minutes per axis from 9 – 500Hz
Electromagnetic Compatibility	Operates within specification in fields from 80 to 1,000MHz with field strengths to 30V/m. Meets EN 50082-1 General Immunity Standard and EN 55011 compatibility emissions standard
Certifications	<p>North America HAZLOC:</p> <ul style="list-style-type: none"> cCSAus (VC10 is certified for use in Canada and the US) Intrinsically Safe: Exia IIC; AEx ia IIC Class I, Div. 1, Groups A, B, C & D, T4 Class I, Div. 2, Groups A, B, C & D, T4 <p>EMC & Radio:</p> <ul style="list-style-type: none"> North America: FCC , IC

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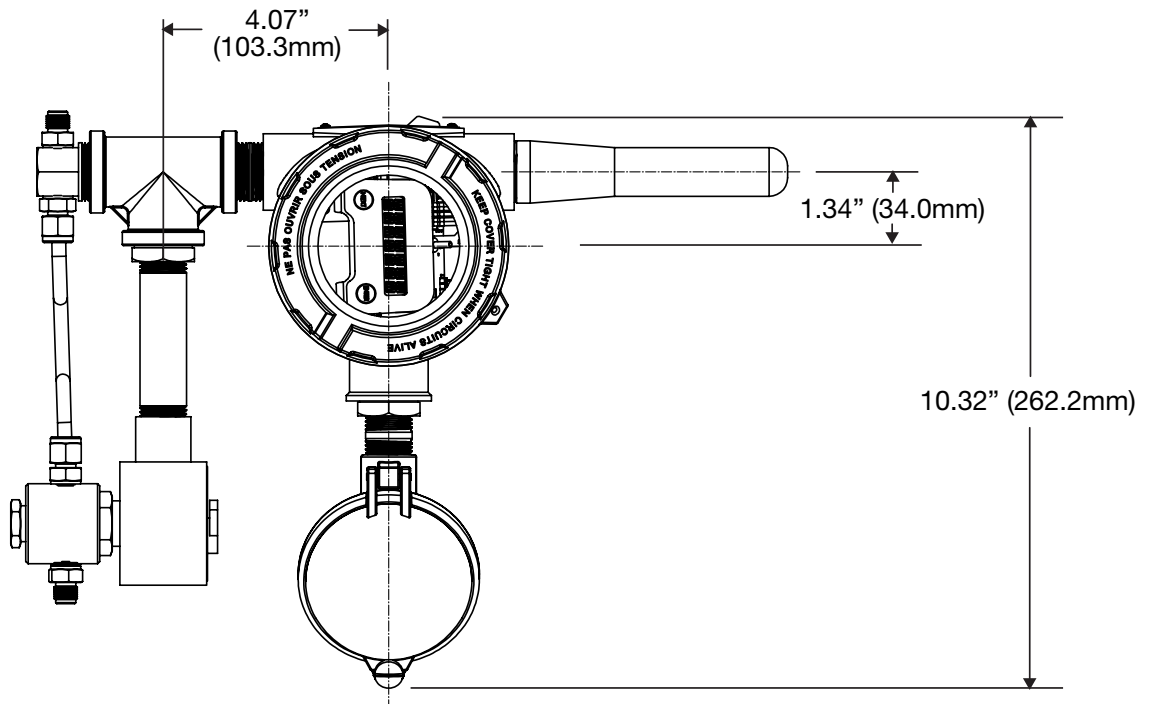
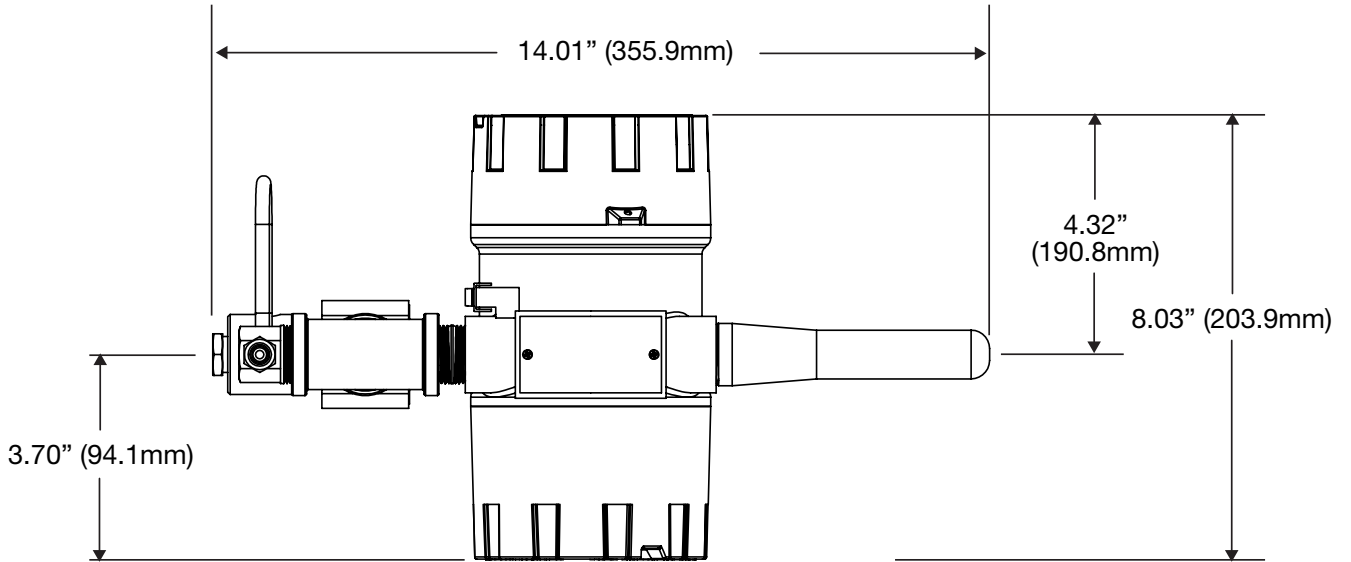
Product Data Sheet Accutech VC10

Model Code

	TBUAVCTA4C00 represents a typical part number.
Model	Type
TBUAVC	Valve Controller Field Unit
Code	Select: RF Module Type
T	902MHz - 928MHz band (FCC / IC)
Code	Select: Certifications
A	<u>NEMA4X – Div 1</u> CSA – see product data sheet for certification details
Code	Select: Housing & Battery Pack
4	NEMA4X Aluminum Housing with 4 Cells
Code	Select: Future Option
C	None
Code	Select: Future Option
00	None

The VC10 is available in North America only

Product Data Sheet Accutech VC 10 Dimensions



Product Data Sheet Accutech 4AO, 8SW, 4AO-8SW Specifications



> Accutech 4AO, 8SW, 4AO-8SW

Functional

4AO	4-Channel Analog Output
8SW	8-Point Switch Closure Output
4AO-8SW	Combination 4-Channel Analog Output & 8-Point Switch Closure Output Module
Input Power	<ul style="list-style-type: none"> • 10-30VDC • 24VDC @ 13.2mA typical

Features

Remote Configuration Interface	Accutech Manager, Windows™-based GUI software, providing network-wide monitoring and performance-management features and field unit configuration capabilities.
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Analog Outputs

Number of Channels	4			
Type	Isolated Current Sink Outputs			
	Min.	Typ.	Max.	Units
Current Range	3.1		23.5	mA
Field Voltage	12	24	30	VDC
Isolation	<ul style="list-style-type: none"> • 2,200 Vrms between Field and Logic • 1000Ω maximum @ 24VDC • 500Ω maximum @ 12VDC 			
Connector	14AWG max.			

Switch Outputs

Number of Channels	8			
Type	Isolated Avalanche MOSFET Outputs			
	Min.	Typ.	Max.	Units
Current	0	NA	1	ADC
Voltage	6	24	30	VDC
AC Frequency	NA	NA	NA	
Resistance		9	15	mΩ
Connector	14AWG max.			

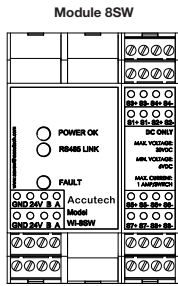
General

Operating Ambient Environment	<ul style="list-style-type: none"> • -40° to 85°C (-40° to 185°F) operating • -40° to 140°C (-40° to 284°F) storage • Ordinary locations only
Physical Characteristics	<ul style="list-style-type: none"> • DIN rail-mounted • Dimensions: See drawing below
Accuracy	<ul style="list-style-type: none"> • ± 0.1 % at reference conditions • Additional ± 0.1% per 10°C (18°F) deviation from reference conditions
Fault (Fail-Safe) Condition	<ul style="list-style-type: none"> • Each output goes into fail-safe in the event of a sensor failure, missing sensor, no RF condition, RS-485 link down or field unit powered down condition. • The output module displays a fault indication if any enabled output goes into a fail-safe condition.
User-Programmable Options	<ul style="list-style-type: none"> • Range (lower value range and upper value range) for each analog output • Trim each analog output • Enable or disable failsafe for each output • Failsafe output user selectable to 3.6mA, 23mA, or user-specified value (analog); failsafe switch closure output is open condition only • Select RS-485 address with Accutech Manager

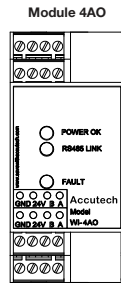
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Product Data Sheet Accutech 4AO, 8SW, 4AO-8SW Model Code and Dimensions

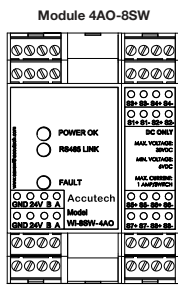
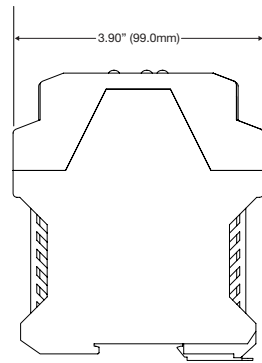
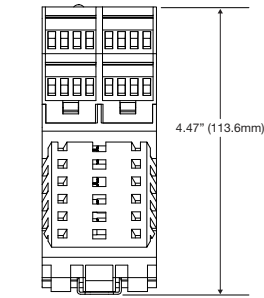
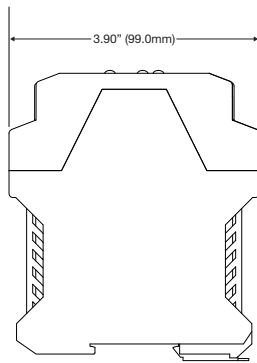
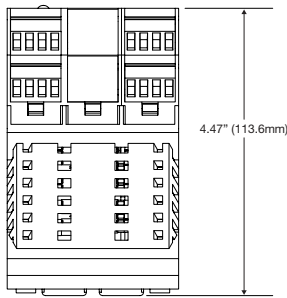
Model	Description	Part Number
4AO	4-Channel Analog Output Module	TBUM297526
8SW	8-Point Switch Closure Output Module	TBUM297527
4AO-8SW	Combination 4-Channel Analog & 8-Point Switch Closure Output Module	TBUM297528



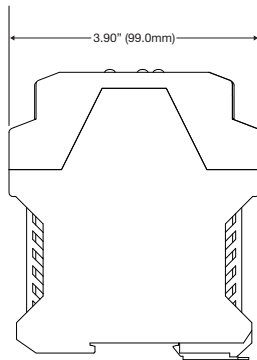
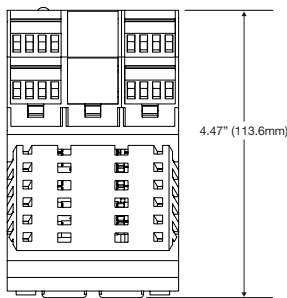
2.67" (67.8mm)



1.78" (45.2mm)

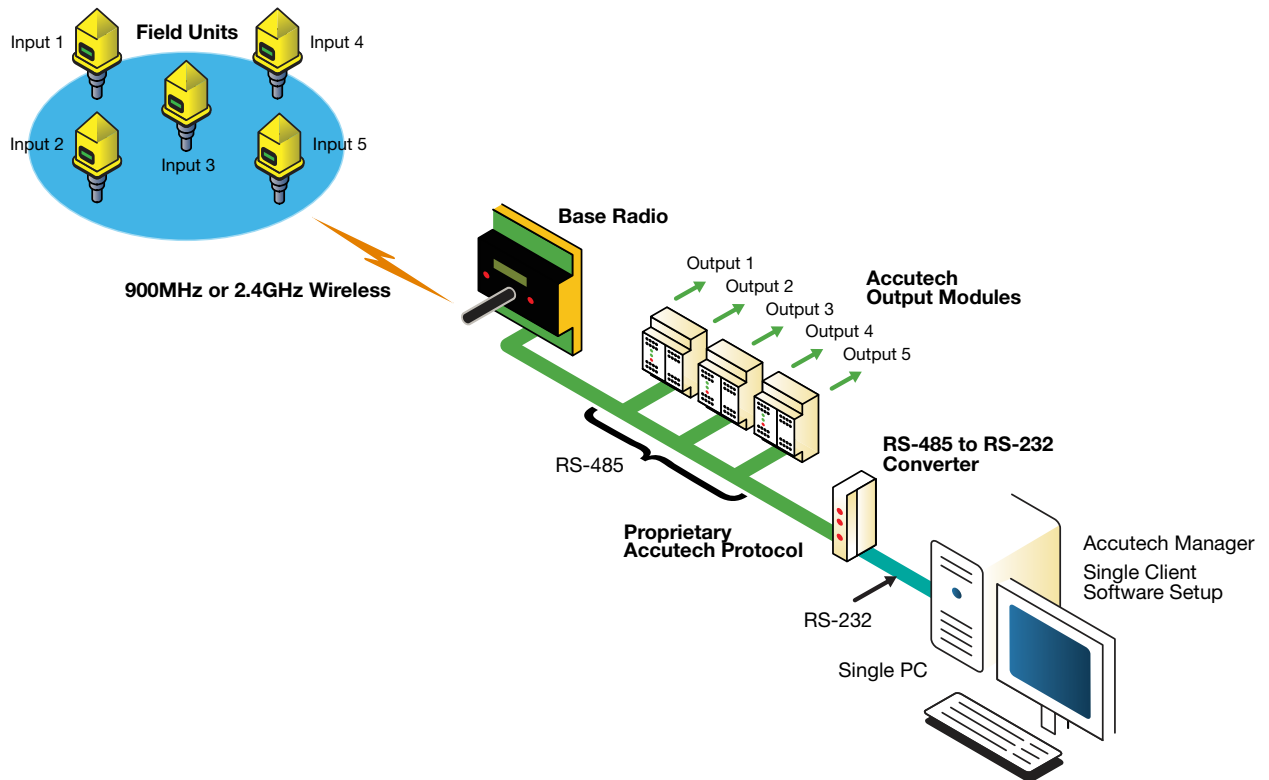


2.67" (67.8mm)



Product Data Sheet Accutech 4AO, 8SW, 4AO-8SW

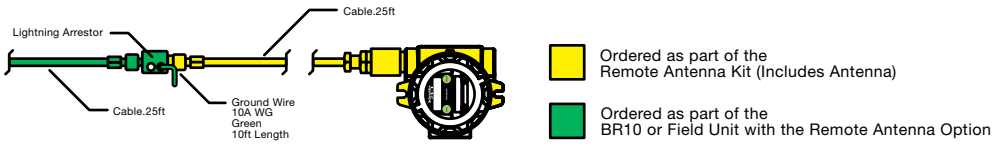
Typical Installation



Product Data Sheet Accutech Accessories

Part Numbers

> Accutech Accessories

Part Number	Description
Software and Configuration Tools	
TBUM350048	Accutech Manager – Configuration and Diagnostics Software (included with each Accutech H/W order)
TBUM297569	USB to RS485 Converter – Interface Cable for PC (USB port) to Base Radio or output module
Power Supply & Batteries	
TBUM297529	120/240VAC to 24VDC Power Supply, 15W, DIN rail mount
TBUM297853	120/240VAC to 24VDC Power Supply, 15W, Wall socket plug-in type
TBUM297530	Field Unit Replacement Battery Kit, 1 "C" Cell Battery (complete with integrated connector)
TBUM297533	Field Unit Replacement Battery, 1 "C" Cell Battery (clip version with no connector)
TBUM297881	Field Unit Replacement Battery Kit, 1 "D" Cell Battery (for 2.4GHz field units)
TBUM297531	Field Unit Replacement Battery Kit, 2 "D" Cell Batteries – Intrinsically Safe version
TBUM297532	Field Unit Replacement Battery Kit, 4 "D" Cell Batteries – Intrinsically Safe version
TBUM297869	Field Unit Replacement Battery Kit, 2 "D" Cell Batteries – General Purpose version
TBUM297870	Field Unit Replacement Battery Kit, 4 "D" Cell Batteries – General Purpose version
900MHz Antenna Kits for BR10 and Field Units – not all Field Units support external antennas	
TBUM297534	OMNI 900MHz, 6 dbd base antenna, includes mounting bracket, 10 foot cable, and lightning arrestor (N-Female)
TBUM297535	OMNI 900MHz, 6 dbd base antenna, includes mounting bracket, 25 foot cable, and lightning arrestor (N-Female)
TBUM297536	OMNI 900MHz, 6 dbd base antenna for indoor use only, includes bracket
TBUM297537	YAGI 900MHz, 6 dbd remote antenna, includes mounting bracket, 10 foot cable, and lightning arrestor (N-Female)
TBUM297538	YAGI 900MHz, 6 dbd remote antenna, includes mounting bracket, 25 foot cable, and lightning arrestor (N-Female)
TBUM297539	YAGI 900MHz, 6 dbd remote antenna for indoor use only, includes bracket
 <p>Lightning Arrestor</p> <p>Cable, 25ft</p> <p>Ground Wire 10A WG Green 10ft Length</p> <p>Ordered as part of the Remote Antenna Kit (Includes Antenna)</p> <p>Ordered as part of the BR10 or Field Unit with the Remote Antenna Option</p>	
Short Haul Antenna Options (RPSMA) for use with BR20	
TBUM297521	Cabinet mount 900MHz Antenna, 0 dBd, 3 ft. (0.91m) cable, Reverse Polarity SMA connector, Rated -22 C (-4 F)
TBUM297522	LMR200-3RP, cable from RPSMA antenna connector to surge suppressor (NF), 3 ft. (0.91m), RPSMA to N-Male
2.4GHz Antenna options for BR10/20 and Field Units – not all Field Units support external antennas	
TBUM297883	OMNI 2.4GHz, 10 dbi, includes mounting bracket, N-Female connector
TBUM297885	YAGI 2.4GHz, 10 dbi, includes mounting bracket, N-Female connector
TBUM297884	YAGI 2.4GHz, 15 dbi, includes mounting bracket, N-Female connector
TBUM297878	10 ft. (3.04m) LMR 400 feedline, RP-TNC Female to N-Male, (5) ty-wraps
TBUM297879	25 ft. (7.62m) LMR 400 feedline, RP-TNC Female to N-Male, (5) ty-wraps
TBUM297855	Surge suppressor, bulkhead mount, N-Female connector on both sides, 2GHz to 6GHz
Brackets	
TBUM297540	2" Mounting Bracket, (wall or pipe) for Differential Pressure Field Unit
TBUM297541	2" Pipe Yoke for Field Units, Base Radios and remote antennas
TBUM297542	5" Universal Straight Bracket for Acoustic Field Unit
TBUM297543	5" Universal Angle Bracket for Acoustic Field Unit
TBUM297544	7" Universal Straight Bracket for Acoustic Field Unit
TBUM297545	7" Universal Angle Bracket for Acoustic Field Unit
TBUM297546	7" Universal Twist Bracket for Acoustic Field Unit
Network Devices	
TBUM297547	RS485 To RS232 Converter, DIN Rail Mount
TBUM297548	RS485 To RS232 Converter, Base Radio Output, Cable Mount
TBUM297549	RS485 Modbus to TCP/IP Converter
TBUM297550	RS485 to RS485 Isolator, DIN rail mount

Product Data Sheet Accutech Accessories

Part Numbers

> Accutech Accessories	
Part Number	Description
Replacement Floats for SS Float Level Sensor	
TBUM297865	Water Interface Float for 0.5" Resolution SS Sensor, 0.90 specific gravity
TBUM297874	Water Interface Float for 0.25" Resolution SS Sensor, 0.90 specific gravity
TBUM297875	Product Float for 0.5" Resolution SS Sensor, 0.60 specific gravity
TBUM297876	Product Float for 0.25" Resolution SS Sensor, 0.60 specific gravity
Misc.	
TBUM297552	Stainless Steel Tag

Product Overview Accutech Manager Features and Technical Specifications



> Accutech Manager

Part Number	Description
TBUM350048	Accutech Manager, configuration and diagnostics software

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