

Accutech SI10

Wireless Switch Input Field Unit



Product at a glance

The Accutech™ SI10 wireless switch input field unit determines the state of contact switches without running wiring in the field. Two switch contacts operate with a debounce filter or as a counter by counting contact state changes up to 5 Hz. Two optional switch outputs¹ may be added for switching external power sources up to 1 A at 30 Vdc.

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

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Specifications - Accutech SI10

General

Sensor Type	Switch-Input with optional Switch Outputs ¹
Location	Field Unit
Frequency Range	900 MHz and 2.4 GHz license-free bands

Functional

Inputs	Two contact-closure. 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 1.0 kΩ • Input Isolation between Input 1 to Input 2 = 20 kΩ • The counter inputs support a maximum input frequency of 5 Hz with a 50% duty cycle. The input must be in a state for 100 ms for the state to be recognised. Detection of rising or falling edge or both edges.
Outputs ¹	<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 1 A at 30 Vdc • Remotely controlled by writing data to base radio • Configurable default and power-up state
Operating Ambient Environment	<ul style="list-style-type: none"> • -40...+85 °C (-40...+185 °F) electronics • -40...+85 °C (-40...+185 °F) display (below -20 °C LCD visibility reduced) • Humidity: 0...95%, non-condensing
Materials of Construction	<ul style="list-style-type: none"> • Fittings: 316L Stainless Steel • Epoxy-coated Aluminum enclosure
Power	<ul style="list-style-type: none"> • Self-contained power with integrated battery • 1: D-cell Lithium Thionyl battery • Battery life up to ten years of service, depending on configuration
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 <p>EMC & Radio:</p> <ul style="list-style-type: none"> • North America : FCC , IC • Europe: CE Mark (R&TTE) • Australia: C-Tick

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Common Accutech Field Unit Specifications

Features

Local Configuration Interface	<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
Remote Configuration Interface	Accutech Manager, Windows®-based GUI software, providing network-wide monitoring and performance-management features and field unit configuration capabilities
Network Capacity	<ul style="list-style-type: none"> • Max. 100 field units per base radio • Max. 256 base radios per network
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 specification is identified and reported
RF Characteristics	<p>900 MHz:</p> <ul style="list-style-type: none"> • 902...928 MHz Frequency Hopping Spread Spectrum (FHSS), FCC certified ISM license-free band • 915...928 MHz (Australia) • Data Rates: 19.2 kbps, and 76.8 kbps • Typical Electrical Transmit Power: 0.4 W maximum <p>2.4 GHz:</p> <ul style="list-style-type: none"> • 2400...2483.5 MHz license-free band Frequency Hopping Spread Spectrum (FHSS) Radio • Data Rates: 50/100 kbps (FSK Modulation) • Typical Electrical Transmit Power: +10.6 dBm • Typical Receive Sensitivity (0.1 % BER): - 102 dBm @ 50 kbps • Typical CW Receiver Blocking Rejection: 64 dB for CW @ +/- 5 MHz, 74 dB for CW @ +/- 30 MHz
Operating Shock and Vibration	Tested per IEC 60068-2-6 (vibration) and IEC 60068-2-27 (shock)
Random Vibration Characteristics	Tested to withstand 6 G, 15 minutes per axis from 9...500 Hz
Electromagnetic Compatibility	Operates within specification in fields from 80...1,000 MHz with field strengths to 30 V/m. Meets IEC 61000-6-2 General Immunity Standard and IEC 6100-6-4 compatibility emissions standard
Output Resolution	24-bit analog-to-digital conversion

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Model Code - Accutech SI10

TBUASITJ1N00A represents a typical part number.

Model	Type
TBUASI	Wireless Dual-Contact Switch Input Field Unit

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

Code	Select: Certifications
A	Explosion Proof Protection – Div 1 CSA - see certification details on previous page
E	Non-Incendive Protection – Div 2 CSA - see certification details on previous page (for digital output option only)
J	Intrinsically Safe Protection – Div 1 CSA - see certification details on previous page
Q	Intrinsically Safe Protection – Div 1 ATEX & IECEx - see certification details on previous page

Code	Select: Housing & Battery Pack
1	NEMA 4X Housing with 1 D-cell
2	NEMA 4X Aluminum Housing with 2 D-cells (not available for ATEX/IECex)
4	NEMA 4X Aluminum Housing with 4 D-cells (not available for ATEX/IECex)

Code	Select: Digital Outputs ¹
N	None
E	2 Digital outputs – supported by BR20 Base Radio only (suitable for Div2 rating only)

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Wireless Switch Input Field Unit

Model Code - Accutech SI10 (cont'd)

TBUASITJ1N00A represents a typical part number.

Code	Select: Antenna
00	Integral Antenna (2.4 GHz unit comes default with integral antenna and external antenna connector)
04	External Antenna connector (900 MHz only, antenna and cables purchased separately)

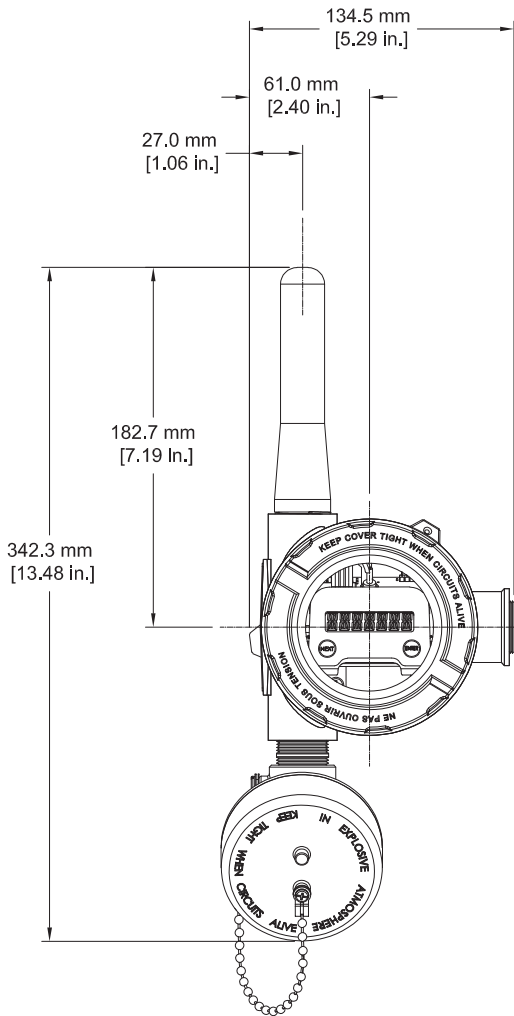
Code	Select: Junction Box
A	No Junction Box (exposed lead wires)
B	NEMA4 - Aluminum Rear Entry
D	NEMA 4X - Stainless Steel Rear Entry

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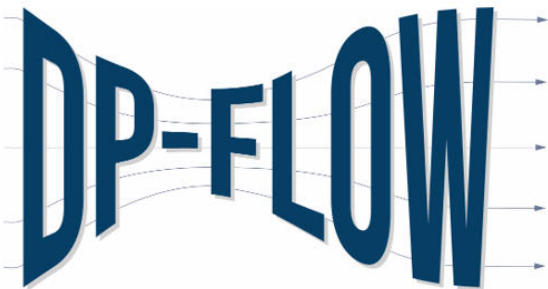
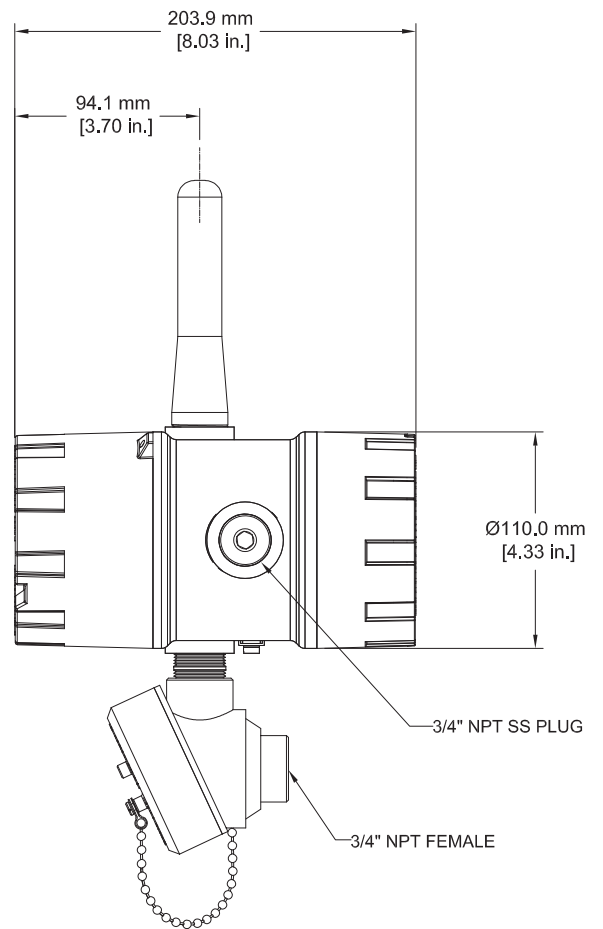
Wireless Switch Input Field Unit

Dimensions - Accutech SI10

FRONT VIEW



SIDE VIEW



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