

Accutech FL10

Wireless Float Level Field Unit



Product at a glance

The Accutech™ FL10¹ wireless float level field unit interfaces with the Electrolab™ Model 2100 digital level sensors, providing single or dual fluid level and temperature data across a wireless connection to an Accutech base radio. The FL10 head unit and Model 2100 level sensors are offered as separate products and shipped independently to the end user, where they are then connected together.

The Electrolab level sensors utilize proven technology in a variety of liquids including crude oil, condensate, diesel, gasoline, kerosene and water. The product's accuracy and resolution make it the ideal choice for custody transfer measurement, production monitoring/leak detection, inventory control, remote read out of level in H₂S environment, Hi/Lo notifications and controls, and many other applications. Level sensors are available in rigid stainless steel and fiberglass variants as well as flexible polyethylene.

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 FL10

General

Sensor Type	Float Level
Location	Field Unit
Frequency Range	900 MHz and 2.4 GHz license-free bands

Functional

Digital Level Sensor (sold separately)

Model	Electrolab Model 2100 (low-power) sensors in both rigid and flexible formats. Support for legacy Electrolab Model 1000 installations (requires the 4 D-cell battery option and NEMA4X enclosure).
Accuracy	Available in 1/8 in., 1/4 in. and 1/2 in. resolutions
Switch Type	Magnetically-activated glass reed
Float Type	Magnetically-impregnated Nitrophenyl rubber
Sampling Rates From Sensor	10 secs., 15 secs., 20 secs., 30 secs., 60 secs., 120 secs., 300 secs., 600 secs., 1800 secs., 3600 secs.
Frame	316 L stainless steel, fiberglass and polyethylene formats with 1.2...9.1 m (4...30 ft.) lengths
Temperature Sensor	Built-in, located 0.3 m (12 in.) above bottom of sensor, reports in degrees F
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 is reduced) • Humidity: 0...95%, non-condensing
Materials of Construction	<ul style="list-style-type: none"> • Fittings: 316 L Stainless Steel • Epoxy-coated Aluminum enclosure
Power	<ul style="list-style-type: none"> • Self-contained power with integrated battery • 1: D-cell • 2: D-cells • 4: D-cells, mandatory for Model 1000 level sensor • Lithium battery(ies) offer 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 behaviour 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
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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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 FL10

TBUAFLTJ1N00A represents a typical part number.

Model	Type
TBUAFL	Wireless Float Level 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	<u>Explosion-Proof Protection – Div 1</u> CSA - see certification details on previous page
J	<u>Intrinsically-Safe Protection – Div 1</u> CSA - 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: Future Option
N	None

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

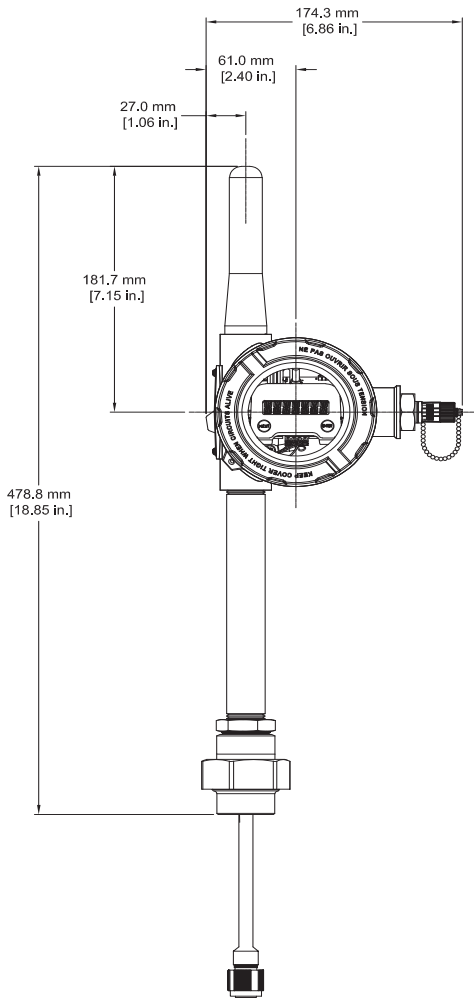
Code	Select: Level Sensor Type
A	Interface to Electrolab Model 2100 Digital Level Sensor (Purchased separately) - Meets Safety Code J

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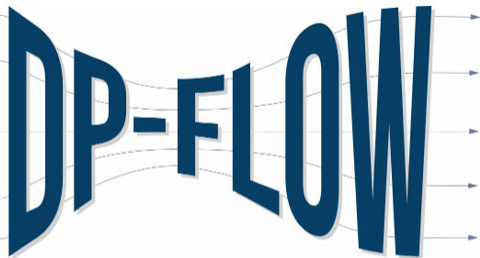
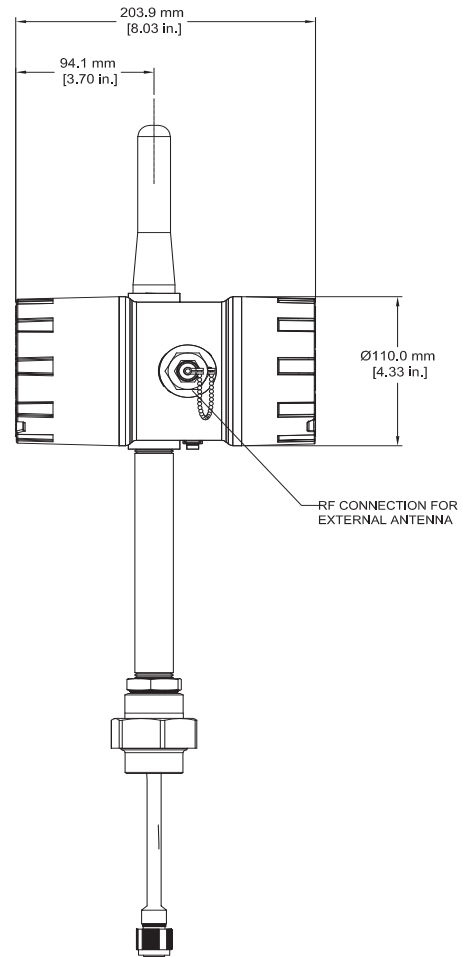
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Dimensions - Accutech FL10

FRONT VIEW



SIDE VIEW



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