

The Accutech Float Level (FL10) Field Unit works with the Siemens Model 2100 Digital level sensor to monitor tank levels. This quick start guide will assist you in the installation of the Accutech FL10 Float Level field unit and the Siemens Model 2100 Digital Level Sensor.

The Siemens digital level sensor is a square insertion rod with one or two magnetic floats riding the outside of the rod and reed relays inside the rod to indicate the one or two levels. The level sensor reports levels with 0.5 (12.7mm) or 0.25 (6mm) inch resolution.

The Accutech FL10 Float Level field unit reads the position of the floats and the process temperature from the Siemens sensor.

Installation Steps

The Siemens level sensor and the FL10 field unit come separately. The following procedure ensures the level sensor and FL10 field unit are installed and operating correctly.

- Assemble the Siemens sensor.
- Connect the FL10 field unit and the Siemens sensor.
- Configure communications between the FL10 and the Siemens Level sensor.
- Install the FL10 and Siemens sensor.
- Configure the FL10 and the Siemens level sensor operation.

Note – Sampling Rate

The FL10 is factory configured to read the level every 10 minutes. Change the Normal Sampling Rate (NORM SR) if you require a faster rate.

Note – Use without Base Radio

The FL10 radio is disabled at the factory. Do not set the RF Channel if you don't have a base radio installed. Doing so will run down the battery. In version 1.85 and older firmware it will prevent communication with the Siemens sensor.

Assemble the Sensor

Install the sensor grip and floats on the Siemens sensor if they are not already present. Refer to the installation drawing on the following page.

1. Remove the bottom float retaining hose clamp and rubber isolator/shock absorber from the bottom of the sensor tube (fiberglass tubes only).
2. Screw a reducer for the tank port size onto the sensor grip and feed it up the sensor tube, with the top of the sensor grip towards the top of the sensor.
3. Slide the float up on to the sensor, aligning the white stripe on the float to the white stripe on the tube. If monitoring 2 levels, the float labeled "water" must be towards the bottom of the sensor. Replace the lower hose clamp and rubber isolator/shock absorber at the bottom of the fiberglass sensor tube. If the tube is square stainless steel, attach the black or white float retainer to the bottom of the tube and tighten securely.

Connect the Field Unit and Sensor

The FL10 field unit and the Siemens level sensor come separately. Connect the FL10 field unit to the sensor.

1. Connect the field wiring cable on the FL10 field unit to the connector on the top of the sensor. Screw it down until it is hand tight.
2. Apply pipe dope or Teflon tape to the threads on the sensor and connect the coupler on the FL10 field unit to the top of the sensor. Screw the coupling down until it is tight.

Configure FL10 and Digital Level Sensor Communication

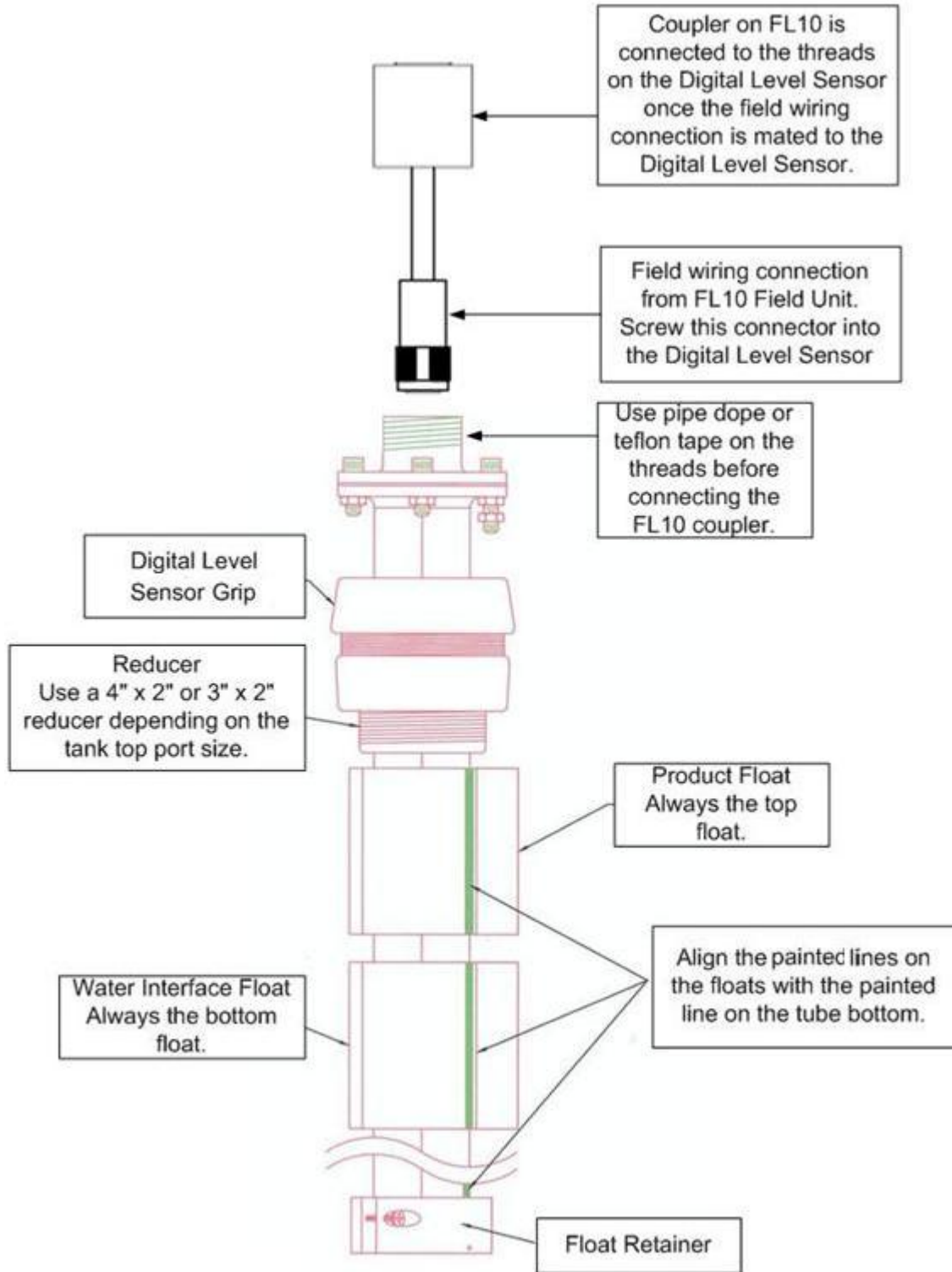
The FL10 field unit must be configured to communicate with the Siemens sensor and with the Accutech base radio.

1. Turn on the FL10 field unit by holding down the Next and Enter keys on the keypad until the unit displays data on the LCD.
2. Press **Next** until **CONFIG** appears on the display.
3. Press **Enter**.
4. The password appears on the display. The default password is **0000**. Press Enter one time for each digit of the password.
5. Press the Next button until **CFGSEN** appears on the display. The CFGSEN command automatically configures the Digital Level Sensor to the correct baud rate, parity, data bits and stop bit (38400, 8, N, 1) setting for communication with the FL10.
6. Press **Enter** to enter the sensor auto configuration.
7. The message **AUTO CONFIG SENSOR** followed by a **NO?** is displayed.
8. Press **Next** to switch to **YES?**.
9. Press **Next** to start the auto configuration.
10. The FL10 will determine the communication settings and reconfigure the sensor to the correct settings. The local display will indicate **SUCCESS** or **FAILED** at the end of the process to indicate if the connection was established.
11. Press and hold the **Next** and **Enter** buttons for 1 second. The FL10 returns to the main display.
12. Observe the levels on the display. Move the floats along the sensor and confirm the levels are changing correctly.

Install the FL10 and Sensor

1. Carefully insert the bottom end of the sensor into the tank top port and lower the sensor slowly into the tank. Be careful with the float so it does not hang up on the port edge. **DO NOT** drop the sensor into the tank. The sensor contains many glass reed switches and a sharp impact will break them.
2. When the sensor end is resting on the tank bottom, turn the sensor assembly so that the cable grip is pointing in the desired direction and tighten the cord grip to the sensor and the port.

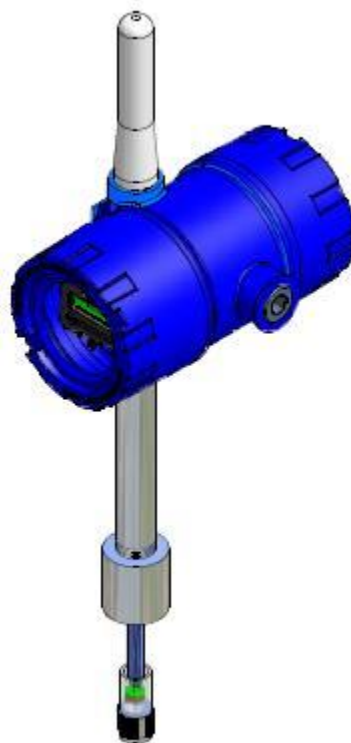
Installation Drawing



FL10 Housing Options



FL10 Pyramid Housing



FL10 Explosion Proof Housing

Configure FL10 and Digital Level Sensor Operation

The primary variable inputs to the float level meter are the number of floats, the float level offset, temperature offset, measurement units, fail safe condition and power mode.

Number of Floats

Number of Floats is the number of floats on the Siemens level sensor. Valid values are 1 and 2. The default value is 2. An error is reported if the wrong number of floats is configured. Refer to the FL10 Field Unit Menu Map for the more information.

Float Level Offset

The Siemens level sensor will require an offset to be added at the time of installation. This offset is entered as the Top Level offset and Bottom Level offset on the FL10 field unit. Refer to the FL10 Field Unit Menu Map for the more information.

For a single float level sensor the offset is found by manually measuring the level and comparing it with the value displayed on the FL10 field unit. The difference between the levels is the offset value and is programmed into the FL10 using the Top Float Level offset. Valid offset values are -99.99 to 99.99 with the default being zero.

For a two-float level sensor the offset is found by manually measuring the two different liquid levels manually and comparing them with the top and bottom levels displayed on the FL10 field unit. The higher level is the Top Float level. The lower level is the Bottom Float level. The difference between the measured and displayed Top level is the offset value and is programmed into the FL10 using the Top Float Level offset. Valid offset values are -99.99 to 99.99 with the default being zero. The difference between the measured and displayed Bottom level is the offset value and is programmed into the FL10 using the Bottom Float Level offset. Valid offset values are -99.99 to 99.99 with the default being zero.

The Siemens level sensor will be off by about 1 in. (2.5 cm) to 2 in. (5 cm) on average when it is first installed into the tank. The offset will not require any further adjustments as long as the Siemens level sensor is not pulled out of the tank. The tank must have fluid in the tank to set the offset. There has to be a minimum of 3 (7.6 cm) inches of oil/condensate on top of the water to get a good reading from the level sensor.

Temperature Offset

The Temperature Offset is found by manually measuring the tank temperature and comparing it with the temperature value displayed on the FL10 field unit. The difference between the temperatures is the offset value and is programmed into the FL10 using the Temperature offset. Valid offset values are -9.99 to 9.99 with the default being zero. Refer to the FL10 Field Unit Menu Map for the more information.

Units of Measurement

The FL10 reports levels and temperature on the local display in units selected by the user. Refer to the FL10 Field Unit Menu Map for the more information.

Note: The level is always reported in inches to the Base Radio and the Temperature is always reported in degrees Fahrenheit to the Base Radio.

The FL10 reports the following parameters to the base radio:

- The top level float value in inches.
- The bottom level float value in inches.

- The temperature in degrees Fahrenheit. The temperature sensor is located one foot from the bottom of the Siemens level sensor.

Power Saving Mode

A field unit that loses connection with the base radio runs a process to resynchronization itself to the network. This uses a considerable amount of power and can quickly drain the battery.

The FL10 supports the three power mode configuration levels:

- **Standard battery saver mode** is used to maximize the battery life. The reconnection delay grows longer as the disconnect time increases. The reconnection time grows from several seconds to a maximum of 2 hours.
- **Mobile (base radio or field unit) mode** is used if the base radio or the field unit is moving. Reconnection time and battery life are balanced. The reconnection delay is 90 seconds.
- **Critical use (no battery saver) mode** is used to minimize the reconnection time at the expense of battery life. Note that battery life may be as short as a few weeks if field unit cannot connect to the base radio.

FL10 Field Unit Menu Map

