

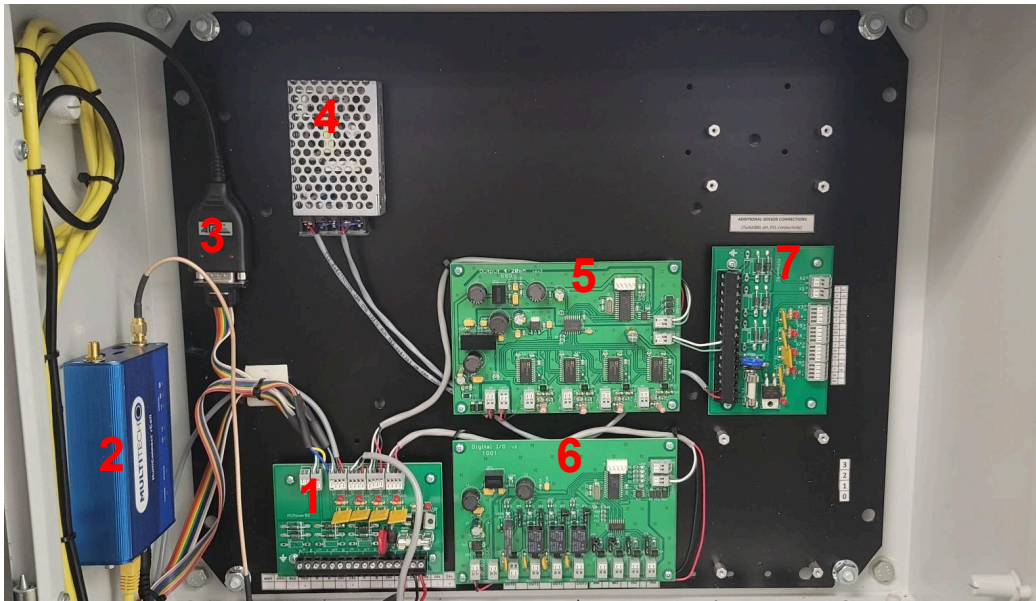


Figure 5.4 (Power and Accessory Board Placement)

Table 5.3: Backplate Component Positions

Component	Position
24V Power Board and Communications	1
Wireless Modem	2
RS485 - USB	3
24V to 5V PSU	4
4-20mA Outputs	5
Digital I/O	6
5V Power Board and Communications	7

5.4 Assembly

5.4.1 Installing the Antenna (Optional Accessory)

If the optional cell modem is purchased, controllers will come with an antenna which must be connected.

Connect the antenna to the external connection on the bottom of the controller as shown in Figure 5.5.

Place the antenna on top of the controller or other metal surface, as shown in Figure 5.6.



Figure 5.5: Cell modem antenna connection

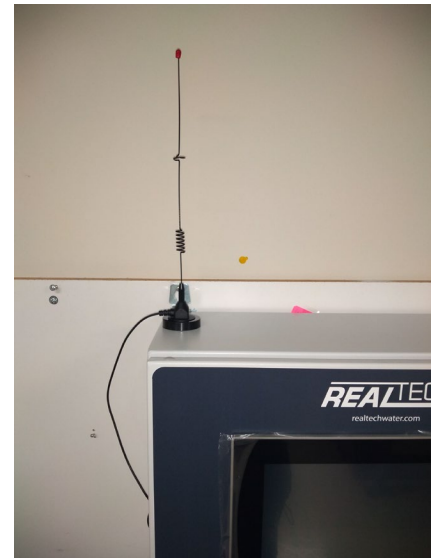


Figure 5.6: Cell modem antenna placement

5.5 Additional Communications

Multiple communication output and input options are available on the controller including the following.

5.5.1 Ethernet (Modbus TCP)

The controller is equipped with Modbus TCP via an Ethernet port. See Section 8: UviTec Controller Pro Modbus Registers for a listing of Spectrum Modbus Registers.

5.5.2 RS485 (Modbus RTU, Optional)

The controller can be equipped with an additional serial port for RS485 to use Modbus RTU. See Section 8: UviTec Controller Pro Modbus Registers for a listing of Spectrum Modbus Registers

5.5.3 Remote Cell Modem (Optional)

If a modem as shown in Figure 5.7 was provided with your Controller, it will provide remote cellular communication. If you are supplying your own SIM you might need to set the APN, please contact ABB Service for instructions.

5.5.4 4-20 mA Outputs (Optional)

Communication can also be provided by an optional 4-20mA current loop output. See section 6.5.4 4-20 mA Output for more information on the interface and operation of this module.

NOTE: The 4-20mA outputs are self-powered so signal lines can be connected directly to a PLC or data logger.

5.5.5 4-20 mA Input (Optional)

The controller has the functionality to integrate external sensors (i.e. A sensor you already had installed) with four 4-20mA input terminals as shown in Figure 5.8.

5.5.6 Additional Configuration

Additional devices can be added. Refer to Section 6.5 Configuration for additional details.



Figure 5.7: External cell modem

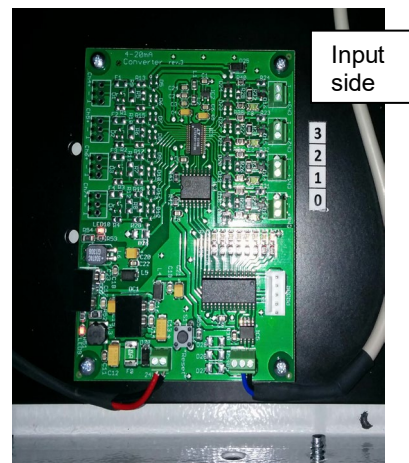


Figure 5.8: Four Channel Analog 4-20mA Input Module

5.6 Digital I/O Module

The digital I/O module is an optional internal module of the UviTec Controller Pro that provides extra I/O functionality. The module provides four digital inputs and four digital outputs.

5.6.1 Digital I/O Board Configuration

The Digital I/O board, pictured in Figure 5.9. Outputs are identified as Sw1 through Sw4 and inputs as In1 through In4. Table 5.4 shows the jumper controls for inputs and outputs.

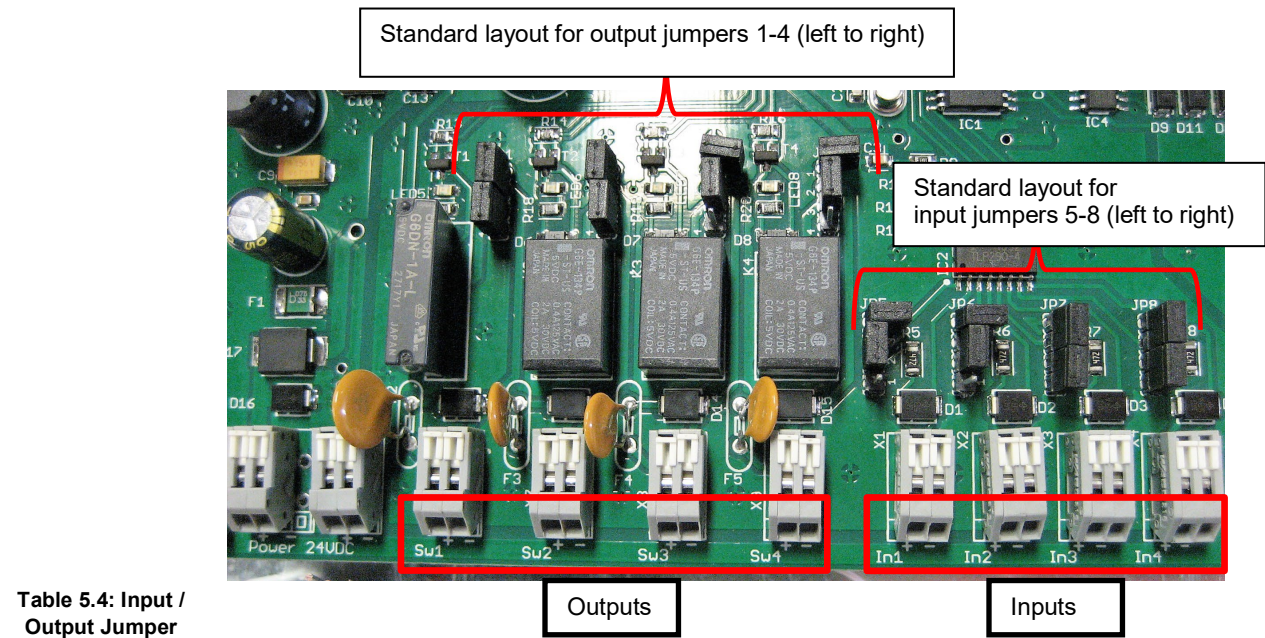
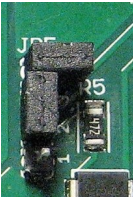
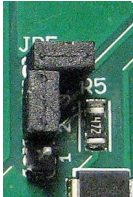


Table 5.4: Input / Output Jumper Settings

Figure 5.9: Digital I/O board

INPUT		OUTPUT	
Jumpers look like:	Means	Jumpers look like:	Means
	Dry contact detection (Default for In1, In2)		Powered output (24 V) (Default for Sw1, Sw2)
	Voltage detection (5-24 V) (Default for In3, In4)		Dry contact (Default for Sw3, Sw4)

5.6.1.1 Output Current

Maximum output current for each digital output is summarized in Table 5.5.

Table 5.5: Current for Digital Outputs 1-4

Output name	Current, A
Sw1	1.0
Sw2	0.25
Sw3	0.25
Sw4	0.25

5.6.2 Digital Inputs

Important: Standard configuration for inputs is two 5-24 VDC input signals and two dry contact outputs from a customer device. Any variation to this configuration may be specified at the time of order or changed in the field. For example, either of the two 5-24 VDC input signals can be changed to a dry contact, or similarly, either of the two dry contacts can be changed to a 5-24 VDC signal input. See Table 5.4: Input / Output Jumper Settings.

To ensure successful triggering of configured events the length of the input signals must be at least twice the value listed under the 'Configuration > Admin > COM-Ports Setting > Master Control > Serial RTU > Timer In Second' box in the UviTec Controller Pro.

Each input provides several configurable functions or events:

- Start cleaning on an external signal.
 - This is useful when the sample water source is intermittent due to batch treatment for example, and it is desirable to trigger a clean event when a treatment cycle begins, as controlled by an external PLC.
- Control alternation of the Dual Feed streams with external signal(s).
 - This is useful to allow control over which stream currently needs to be measured. To be used with the optional Dual Feed Module (refer to Dual Feed manual for general information and operation instructions and see Section 6.5.3 Digital I/O Module and 6.5.6.2 Dual Feed of this manual for interface information).
- Enable or disable measurement sensors with an external signal.
 - Shuts off lamp in ML Series sensors and stops measurements. The UviTec Controller Pro holds the last valid measurement value until measurement is enabled again. Again, this is useful for installations with intermittent sample water flow.

5.6.3 Digital Outputs

Important: Standard configuration for outputs is two power switches providing 24 VDC for external devices and two dry contacts. Any variation to this configuration may be specified at the time of order or changed in the field. For example, either of the two 24 VDC power switches can be changed to a dry contact, and either of the two dry contacts can be changed to a 24 VDC power switch. See Table 5.4: Input / Output Jumper Settings.



If the Dual Feed module is included as part of any ABB system, digital output 1 (Sw1) is **specifically** assigned to run the Dual Feed module. Sw1 is configured as 24 VDC and is designed to support the amperage needed to operate the Dual Feed module.

All 4 digital outputs can be configured to trigger various errors, alarms or warnings that occur in the UviTec Controller Pro or peripheral sensors and devices.

Note that the items available to select to trigger a digital output can change depending on the enabled peripheral sensors and devices.

6 Controller Operation



The UviTec Controller Pro provides a high-resolution graphical interface for configuration and data display. Selections are made by simply pressing on the button or text box to be activated.

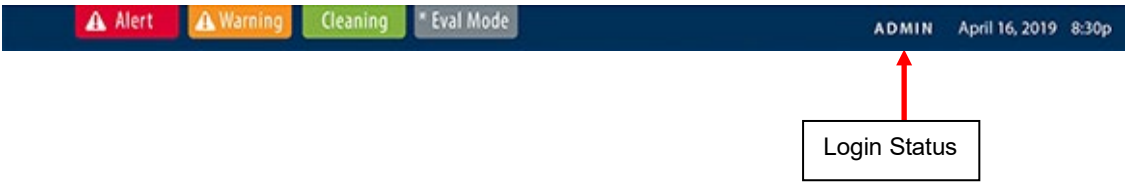
Note: Avoid using sharp objects on the panel PC that may puncture or scratch the screen. Use a stylus or finger only.

For additional configuration, such as touch screen calibration or changing the time zone contact ABB for instructions.

6.1 General Overview

6.1.1 Main Status Bar

There is a Status Bar located at the bottom of the screen. The individual labels will change to show specific information outlined below.



Alert	Current system alarms (must be enabled, see configuration page for details)
Warning	Current system warnings (must be enabled, see configuration page for details)
Cleaning	Cleaning indicator (value is held at last known value during cleaning cycle)
Eval Mode	If shown indicates that there is an evaluation correlation on the system
Login Status	Indicated which user is logged in (Moderator, Administrator)
Date and Time	Current time (factory set to Eastern Time Zone)

6.1.2 Virtual Keyboard

The virtual keyboard is accessed by tapping within the boundaries of any field that is designed for data entry, as shown in the below example.

If your system has an older version of Windows, the keyboard is accessed by tapping the upper left portion of the controller touch screen and then swiping towards the center of the page. See illustration at the bottom of the page.

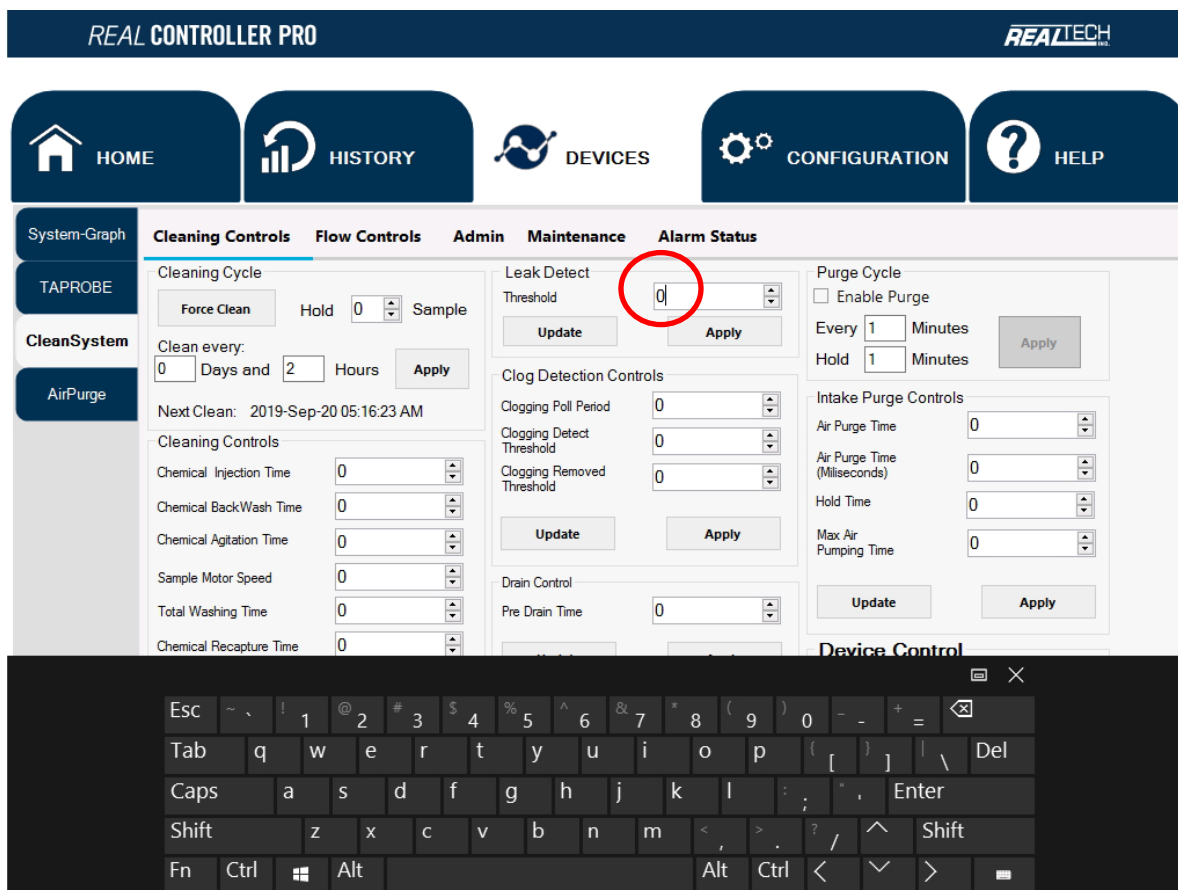


Figure 6.1 (Windows 10 Virtual Keyboard)

Tap at edge of touch screen to reveal keyboard icon, then swipe right.



6.2 Summary

The Home / Summary tab displays the current water quality data for all correlated parameters and additional sensors that are connected to the controller. Each parameter has its own display box with icons.

- The **check icon** indicates that the device is working without any alarms or warnings.
- The **yellow icon** is a warning. Verify the warning message by clicking on the icon under the summary tab.
- The **red icon** is an alarm. Verify the alarm message by clicking on the icon under the summary tab.



As individual correlations are added to the system, new summary boxes will automatically populate. For instance, when a BOD correlation is added, a dedicated BOD summary box will appear on the Summary tab.

