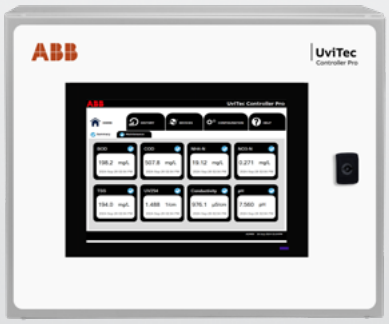
UviTec™ Controller Pro

Sensor controller and monitor with touchscreen



Measurement made easy

UviTec
Controller Pro

Introduction

The UviTec Controller Pro provides full control of a single or multiple sensors and optional accessory products. The 12.1 in color LCD touchscreen allows for display of data and superior functionality for configuration and control.

This operating instruction provides the configuration and operating instructions for the UviTec Controller Pro.

For more information

Further publications for UviTec products are available for free download from:
abb.com/wateranalysis
or by scanning this code:

Links and reference numbers for related documents:

	Search for/click:
UviTec Controller Pro – Data sheet	DS/AUV302
UviTec Controller Pro – Operating instruction	OI/AUV302
UviTec Controller Pro – Modbus Communications supplement	COM/AUV302/MODBUS

Contents

1 Health and safety 3
1.1 Document symbols 3
1.2 Safety precautions 3
1.3 Product recycling and disposal (Europe only) . . . 3
1.4 Information on RoHS Directive 2011/65/EU (RoHS II) 3

2 Operation 4
2.1 Overview 4
2.2 Main status bar 4
2.3 Virtual keyboard 4

3 Tabs and pages 5
3.1 Home > Summary 5
3.2 Home > Maintenance 5
3.3 Sampling mode 6
3.4 History 6
3.5 Devices 6

4 Add/enable a device 7

5 Other controls 7

6 Remove a device 8

7 System graph 8

8 Digital I/O module 8
8.1 Current state 8
8.2 Input 9
8.3 Output 9
8.4 Alarm status 10

9 Analog output (4-20 mA) 10
9.1 Control 10
9.2 Alarm status 11

10 Add your own sensor 11

11 UviTec accessories 12
11.1 Leak detect system 12
11.1.1 Find the cause of a leak alarm 12

12 Configuration 13
12.1 Login 13
12.2 Export 13
12.3 Admin 14
12.3.1 Devices and Sensors Configuration 14
12.3.2 COM-Ports Setting 14
12.3.3 Program Control 14
12.3.4 IoT Settings 14
12.3.5 Console 15
12.3.6 Help 15

1 Health and safety

1.1 Document symbols

Symbols that appear in this document are explained below:

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

Note:
Indicates operator tips or important information about the product.

1.2 Safety precautions

⚠ WARNING

Electricity hazard

The UviTec Controller Pro operates with power up to 24 V DC.

⚠ CAUTION

Improper use of the UviTec Controller Pro may cause injury.

Visually examine the UviTec Controller before operation. If it seems broken or damaged in any way, do not use it. Contact ABB for a replacement.

Make sure that all responsible personnel carefully read this manual before installing or servicing the device.

Failure to properly install and maintain this device may impact its effectiveness and warranty.

1.3 Product recycling and disposal (Europe only)



ABB is committed to ensuring that the risk of any environmental damage or pollution caused by any of its products is minimized as far as possible. The European Waste Electrical and Electronic Equipment (WEEE) Directive that initially came into force on August 13 2005 aims to reduce the waste arising from electrical and electronic equipment, and improve the environmental performance of all those involved in the life cycle of electrical and electronic equipment. In conformity with European local and national regulations, electrical equipment marked with the above symbol may not be disposed of in European public disposal systems after 12 August 2005.

NOTICE

For return for recycling, please contact the equipment manufacturer or supplier for instructions on how to return end-of-life equipment for proper disposal.

1.4 Information on RoHS Directive 2011/65/EU (RoHS II)



ABB, Process Automation, Measurement & Analytics, fully supports the objectives of the RoHS II directive. All in-scope products placed on the market by PAMA on and following the 22nd of July 2017, will be compliant to the RoHS directive, 2011/65/EU.

2 Operation

2.1 Overview

The UviTec Controller Pro provides a high-resolution graphical interface for configuration and data display.

Selections are made by pressing on the button or text box to be activated.

NOTICE

Do not use sharp objects on the touchscreen, which can cause damage to the screen. Use a stylus or finger only.

For additional configuration, such as touchscreen calibration or changing the time zone, contact ABB.

2.2 Main status bar

The status bar is at the bottom of the screen. The individual labels will change to show specific information.



Figure 1 Status bar

Table 1 Display labels

Label	Description
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)

2.3 Virtual keyboard

The virtual keyboard is accessed by tapping within the boundaries of any field that is designed for data entry, as shown in Figure 2.

If your system has an older version of Windows®, the keyboard is accessed by tapping the upper left portion of the controller touchscreen and then swiping towards the center of the page. See Figure 3.

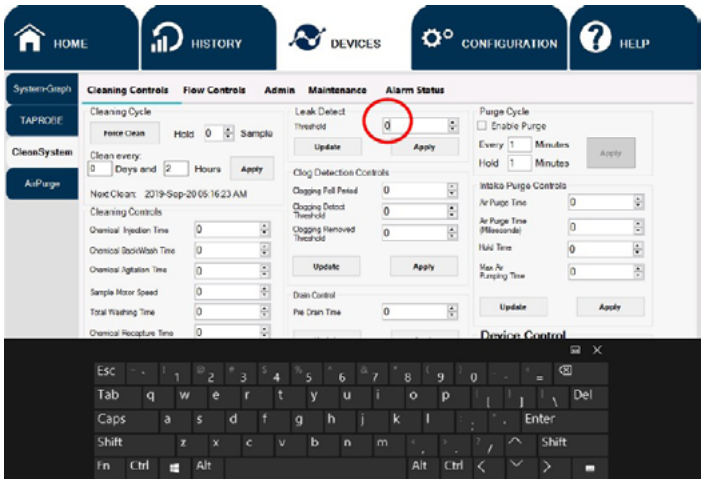


Figure 2 Windows 10 virtual keyboard



Figure 3 Swipe to open the keyboard

3 Tabs and pages

3.1 Home > Summary

The **Home > Summary** page 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 Controller Pro is operating normally with no warnings or alarms

Warning
Click the icon under the **Summary** tab

Alarm
Click the icon under the **Summary** tab

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



3.2 Home > Maintenance

The **Home > Maintenance** page gives detail about device conditions and offers recommendations for maintenance or service via “Service By” dates.

The interval or lifespan for devices are set in the **Devices > Maintenance** pages and reflected on the **Home > Maintenance** page.

For example, Spectrum sensor service or inspection dates for lamps, dryer pack, and flow cell are shown on the page below. The percentage number for Interval indicates lifespan used. Therefore, lamp life has 51 % consumed and 49 % life remaining. In the example that follows, Service By dates for the dryer pack and flow cell indicate service should be done immediately.

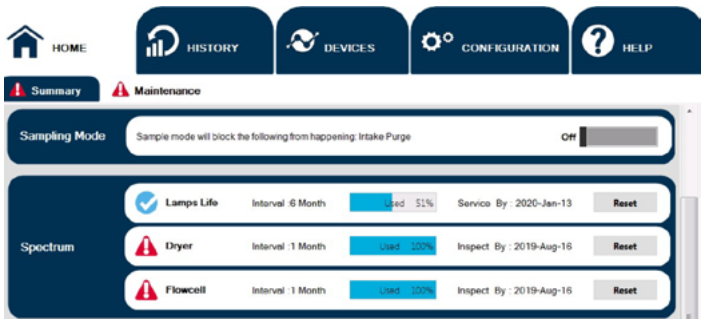


Figure 4 Maintenance tab

Go to the **Devices > Spectrum > Maintenance** page. Here, you can see how Interval dates on the **Home > Maintenance** page are tied to entries for Total Life for each device. For example, the dryer pack Total Life of 30 days corresponds to the Interval of 1 month on the **Home/Maintenance** page.

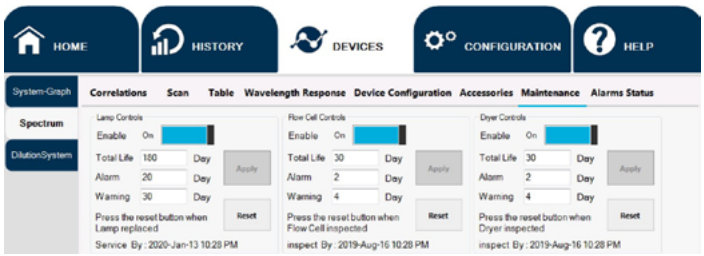


Figure 5 Maintenance dates and intervals

...3 Tabs and pages

3.3 Sampling mode

Sampling Mode is a feature located on the **Home > Maintenance** tab to aid in the collection of grab samples. When enabled, processes that could interfere with the process of collecting samples are disabled. For example, air purging of the intake line leading to the Spectrum sensor is shut down during the sample collection period.

If any alarms are in effect, a warning page will appear. It is necessary to remove the source of alarm before proceeding to collect samples.

Note:
Sampling mode should only be set to ON when grab samples are being taken. Otherwise, leave it in the OFF position.

3.4 History

The **History** tab displays a graph of recently measured samples, with the concentration on the Y axis and time on the X axis.

The check boxes on the left side allow the user to select which measured parameters are displayed on the graph. The user can also configure the scales for the graph with the controls along the top of the graph.



Figure 6 History graph

3.5 Devices

The **Devices** tab allows the user to view and configure each device that is connected to the controller. Click the **Devices** tab and the installed devices in the system are then listed in the vertical menu. In the example below, you can see a system composed of a UviTec Controller Pro, a Spectrum sensor, and a Cleaning System.

A selected device is identified by black type on a white background. In the illustration, System-Graph is selected and displayed in the window.



Figure 7 Devices tab

ABB sends systems to a customer's location with all the devices connected to the controller and listed in the horizontal menu.

Occasionally, a device may be added after a system has been installed, for example, a probe sensor or accessory. If so, the user can add a sensor or accessory from the **Configuration > Devices and Sensors Configuration** tab. See next page.

4 Add/enable a device

The middle portion of the **Configuration > Devices and Sensors Configuration** tab is repeated below with popups tied to the addition of sensors or accessories.

1 Click the **Add Sensor** or **Add Device** button, the popup appears.

2 Click the drop down box, then select the device (add any settings, sensor name, and version number).

3 Click the **Add** button.

No message will tell you an addition has been made; however, if you click the **Devices** tab, you will see the device has been added to the vertical menu. Refer to individual sensor or device manuals for more detail on adding/enabling.

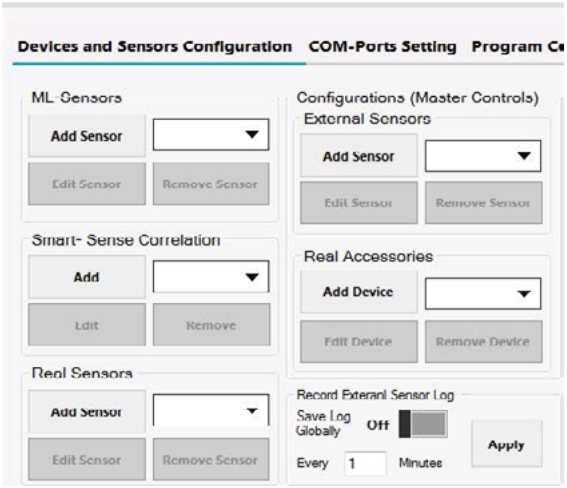


Figure 8 Add a device

Note:
The slave ID for devices is entered automatically into the Slave ID box. Do not change this ID unless ABB tells you to change it.

Note:
If there is only one version number, the field is unavailable. If there is more than one version, select Version 2 (the most recent) over Version 1 (the oldest).

5 Other controls

The enable/disable slider controls on the right of the **Devices and Sensors Configuration** page are for some devices that cannot be added through the previously described method.

Similarly, for a system with a Spectrum sensor, the Spectrum slider control will need to be set to the ON position for Spectrum operation. When enabled, Spectrum configuration settings and current readings will show under **Devices > Spectrum**.

The **Lab Sample Mode** slider control is identical to the **Sample Mode** slider control on the **Home > Maintenance** tab. The Dual Feed accessory requires the DIO board to be attached to the controller, and the Dual Feed slider control in Figure 9 to be enabled. When enabled, timing settings will show under **Devices > Dual Feed**.

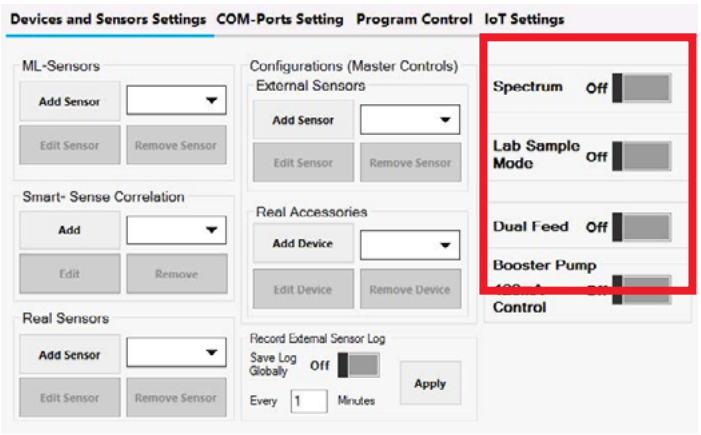


Figure 9 Other controls (circled)

6 Remove a device

1 Select the device from the drop down box of the category it belongs to i.e., UviTec Sensors, UviTec Accessories, or External Sensors.

2 Click the **Remove Sensor** or **Remove Device** button. Popups will ask you to confirm your selection.

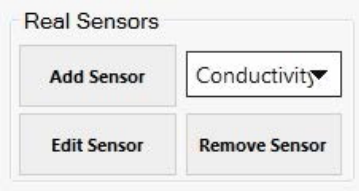


Figure 10 Remove sensor

7 System graph

The **System-Graph** tab displays the system temperature and CPU temperature of the PC over time. The temperature (°C) is plotted on the Y axis and time on the X axis.

Scaling for the graph can be adjusted using the control at the top of the graph.

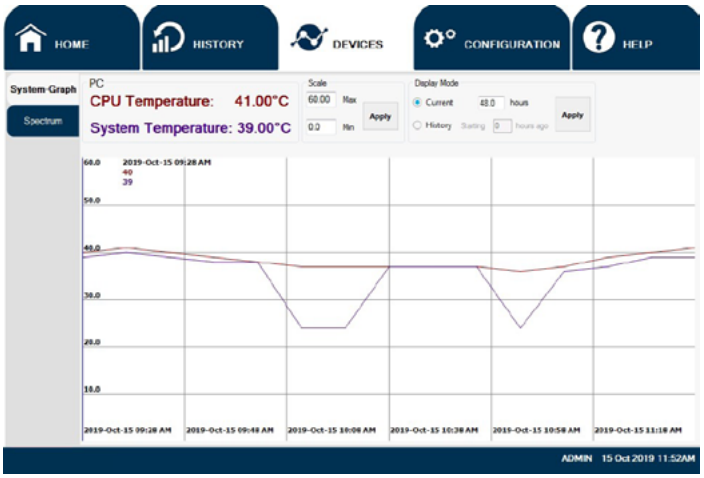


Figure 11 System graph

8 Digital I/O module

8.1 Current state

The **Current State** screen displays the status of all digital inputs and outputs, and general information on the I/O module.

The input state and output state panes show which input and output channels are active. They only provide a visual indicator of the channel status; to enable or disable the individual channels, you need to navigate to the **Input** or **Output** tabs. The **Device Information** pane shows basic version information about the I/O module.

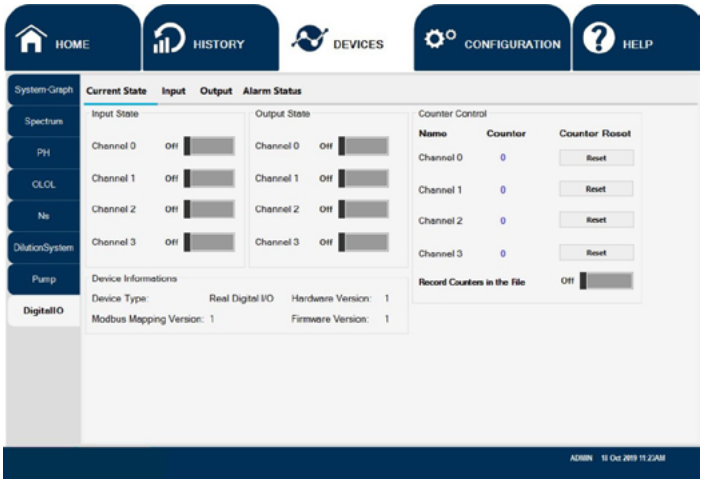


Figure 12 Current state

8.2 Input

The **Input** screen allows the user to control the four digital input channels.

Enable or disable any of the four channels using the **Enable** switches. Select a response parameter from the **Select Parameter** box.

The **Select Action On** box sets which input signal will trigger a response. There are two options: **Pulse**, and **State**.

- Pulse means that the response will trigger on a short pulse, the length of which should be at least twice the value listed in the **Configuration > Admin > COM-Ports Setting > Master Control > Serial RTU > Timer In Second** box.
- State sets the response to be effectively edge-triggered by the input signal. The **Trigger Event On** pane sets which edge the response triggers on: falling edge for 'Low' and rising edge for 'High'.

Select **Apply** after making changes to a given channel. Make sure that you select **Apply** for all channels that have been changed.

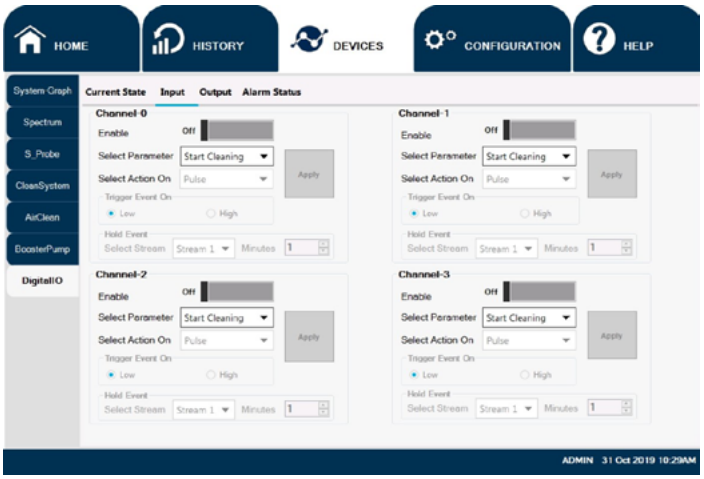


Figure 13 Input

8.3 Output

The **Output** screen allows the user to control the digital output channels. The screen is similar in layout to the **Input** screen. Each channel can be toggled by the **Enable** switches. The **Select Parameter** drop down box is used to select what parameter triggers an output signal, which includes warnings, alarms, and other events.

If the Dual Feed unit is being used, Channel-0 will need to be set to **DualFeed**. See the Dual Feed manual for more information.

Select **Apply** after making changes to a given channel. Ensure you select **Apply** for all channels that have been changed.



Figure 14 Output

...8 Digital I/O module

8.4 Alarm status

The **Alarms Status** screen lists the type of alarm (Name), whether it is currently active (Current State), the last date this alarm has occurred (Last Alarm), and the number of times this alarm has occurred since the Reset button has been pressed (Counter).

Select **Reset** to put an alarm counter to zero, or press **Reset All** to set the counters for all alarms to zero.

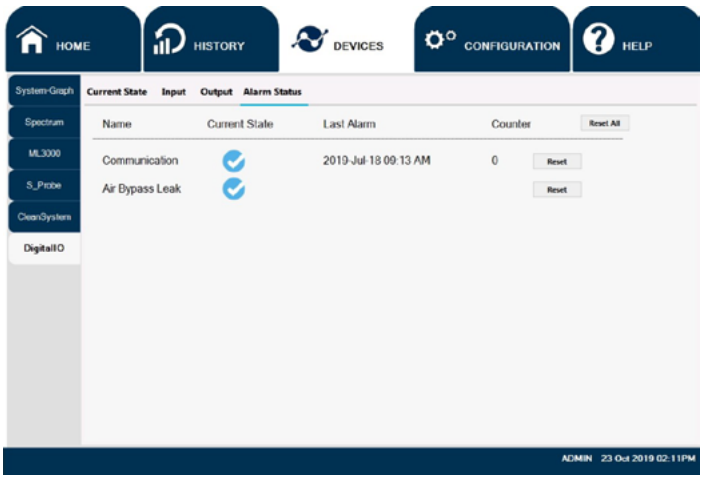


Figure 15 Alarm status

9 Analog output (4-20 mA)

9.1 Control

The **Control** screen allows the user to configure the 4-20 mA output channels. Toggle the **State** switches to turn on/off a specific channel. Select a water parameter for the output and configure the min. and max. values as required.

The **Stream** option is only needed for users with Dual Feed systems. Setting the Stream value to either 1 or 2 sets which Dual Feed stream the output channel is active for. When the Dual Feed switches to the other stream, the 4-20 mA output is temporarily frozen.

The **Alarm Mode** will cause the 4-20 mA output channel to go to a low or high value if the system has an alarm, preventing wrong data from being communicated. The default alarm value is 22 mA.

Note:
The Board WDT Control, when enabled, will periodically check the communication status of the 4-20 mA output board. If there is no communication, it will trigger a system alarm. Generally, this option should be enabled. However, if the 4-20 mA output module is going to be disabled in the interface, disable the Board WDT Control first.



Figure 16 Control

9.2 Alarm status

The **Alarm Status** screen lists the type of alarm (Name), whether it is currently active (Current State), the last date this alarm has occurred (Last Alarm), and the number of times this alarm has occurred since the Reset button has been pressed (Counter).

Select **Reset** to put an alarm counter to zero or select **Reset All** to set the counters for all alarms to zero.

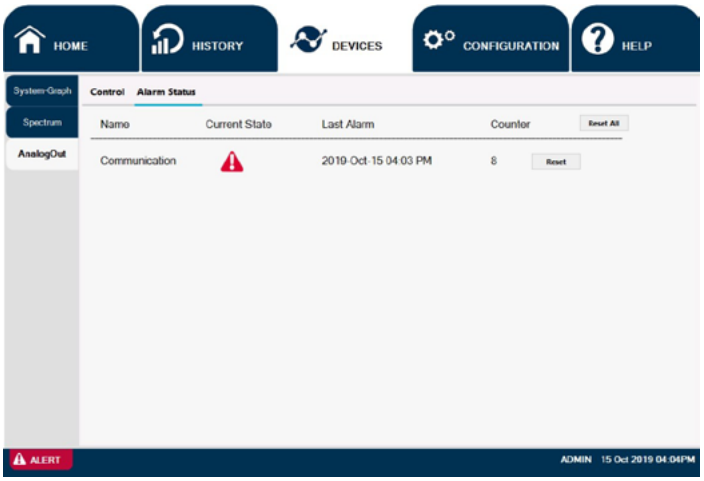


Figure 17 Alarm status

10 Add your own sensor

1. Go to the **Configuration > Devices and Sensors Configuration** page.
2. Click **Add Sensor** from the **Configurations (Master Controls) External Sensors** box.
   The Add/Edit External Sensor popup appears.
3. Scroll to a selection and click it.
4. Follow the instructions in the text box beside Popup 2.
5. Overwrite 'Ns' with a more descriptive label for Sensor Name. Make entries for: unit and set values for alarms and warnings if desired. After calibration of device, any span and offset can be entered on this page.
6. Click the **Add** button when entries are completed.

No message will tell you a sensor has been added; however, if you click the **Devices** tab, you will see the sensor has been added to the vertical menu.

11 UviTec accessories

11.1 Leak detect system

Systems that are enclosed within NEMA 4X cabinets rather than on a backboard have system leak detect capability. The presence of any leak within the cabinet holding all system components (sensor, controller, cleaning or dilution system etc.) or absence of communication between the leak detect and the Controller Pro will shut down all pumps and generate an alarm. Leak thresholds are factory-set so that high humidity is not mistaken for a leak.

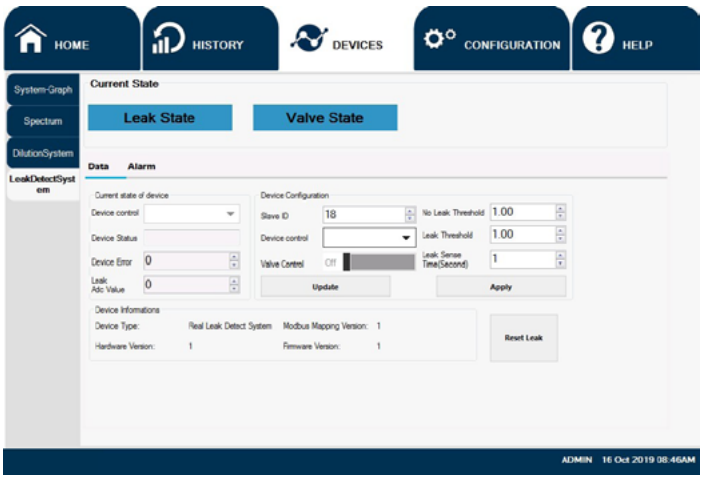


Figure 18 Leak detect system

Table 2 Leak detect system

Box	Field/button	Description
Device configuration	Device control	
	Auto mode	Any leak value at 1,000 or more sets alarm. Alarm flag cleared when leak value is above No Leak Threshold and less than Leak Threshold
	Semi auto mode	Recommended default setting. Operator must press Reset Leak after alarm condition is cleared
	Manual mode	Not recommended
	Valve control – on/off	Control of valve situated under cabinet to drain any water that has entered cabinet is set to On/Off
	No leak threshold	A reading below this number equates to high humidity; no leak
	Leak threshold	Any measurement of moisture above this number indicates a leak
	Leak sens time (sec)	Number of seconds leak is first detected before alarm is tripped. This ensures alarm is not a false positive

11.1.1 Find the cause of a leak alarm

1. Check the points of entry into the cabinet and make sure that the lines or conduits that go into the cabinet are sealed tightly.
2. Open the cabinet and inspect points of exit at openings within the cabinet.
3. Check points of entry to and exit from each component (sensor, controller, accessory) for leaks.

If a communication alarm occurs, check the condition of wiring from each electrode to the controller. Make sure that the wires are not damaged or disconnected.

If no obvious problem can be determined, call ABB for assistance.

When a leak alarm has been eliminated at the source, press the **Reset Leak** button to reset detection.

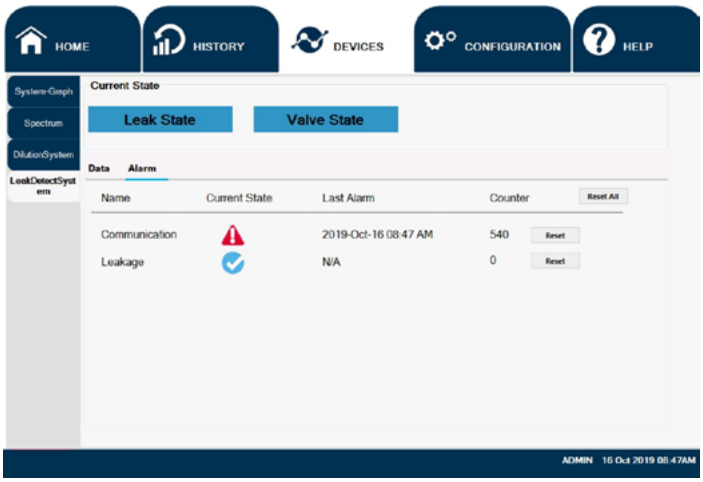


Figure 19 Alarm status

12 Configuration

The **Configuration** tab provides four screens: Login, Export, Admin, and Console.

12.1 Login

The **Login** screen provides for two levels of system access: User and Admin. Users can view all pages but cannot edit the settings. A User that selects the **Configuration > Admin** page will see the page banner and menu at left, but the content of the page is blank. A user with Admin privileges has full access to all pages in the system.

The default Admin password is r34lr34l, and the default User password is r34l.

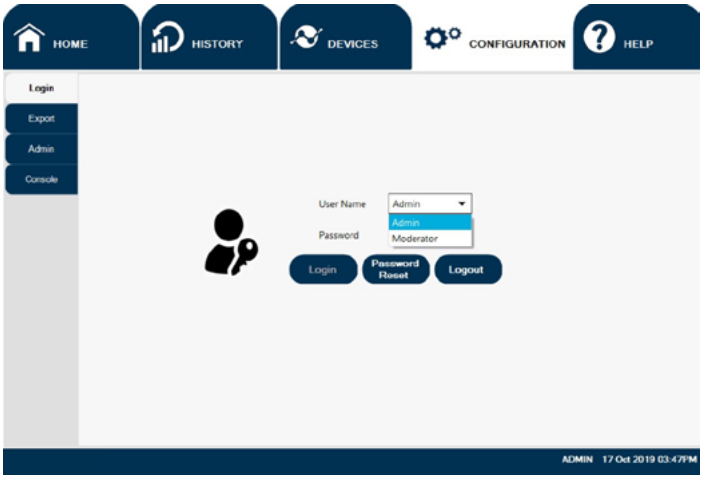


Figure 20 Login page

12.2 Export

The **Export** page allows logged measurement data and raw sensor data and alarms and events to be exported to a USB stick or network drive.

To export a particular time, period, or event:

4 Select the start and stop dates.

5 Select the drive letter for the export drive.

6 Select the data by checking the check boxes corresponding to the data you would like to export.

7 Press the button **Export Current Selection**.

8 To export all data ever recorded, press the **Export All Files** button.

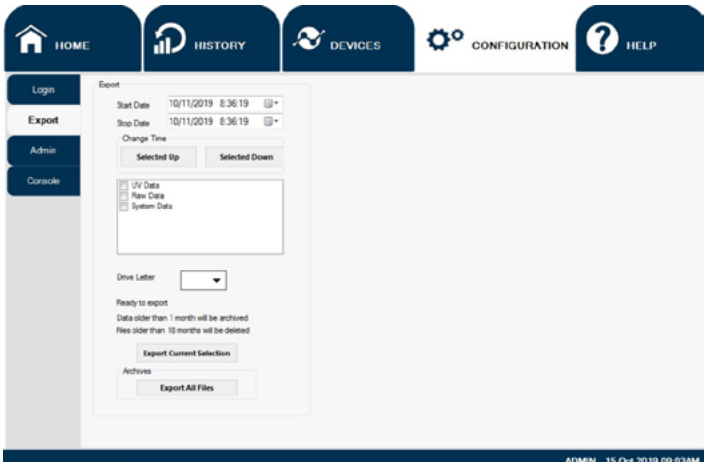


Figure 21 Export page

...12 Configuration

12.3 Admin

The **Admin** tab has four screens, **Devices and Sensors Configuration**, **COM-Port Setting**, **Program Control**, and **IoT Settings**. The current screen will be underlined in blue.

12.3.1 Devices and Sensors Configuration

This screen allows for adding or removing UviTec accessories, sensors, and external sensors. The remaining boxes are factory-configured and should only be changed upon ABB's recommendation. Contact ABB for assistance.

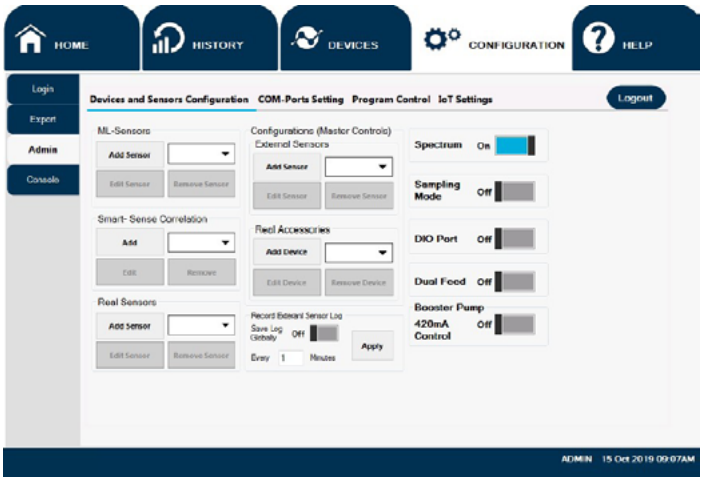


Figure 22 Devices and sensors configuration

12.3.2 COM-Ports Setting

The **COM-Port Setting** screen displays various configuration boxes. These are factory-set and should only be changed upon manufacturer's recommendation. Contact ABB for assistance.

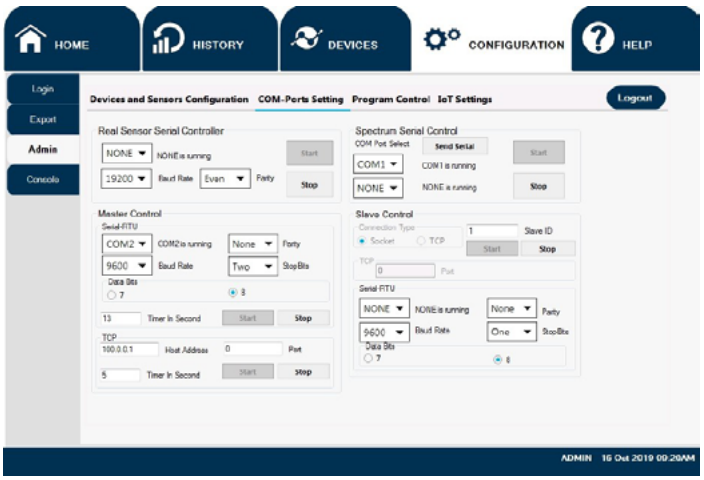


Figure 23 COM-Ports Setting

12.3.3 Program Control

The **Program Control** page displays various security and user configuration boxes. These are factory-set and should only be changed upon manufacturer's recommendation. Contact ABB for assistance.

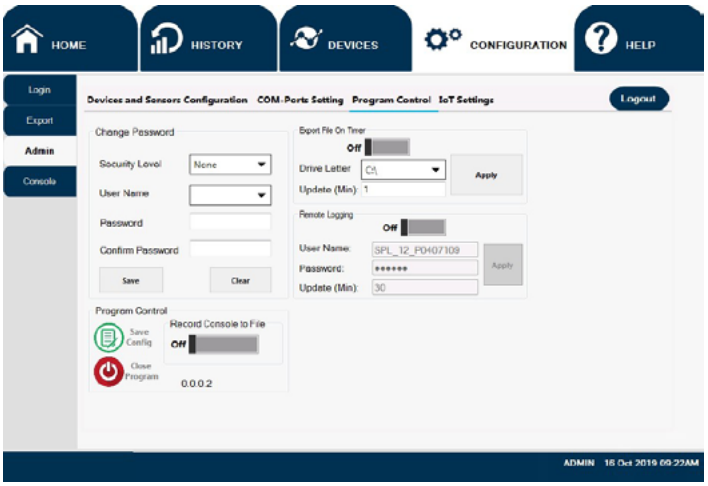


Figure 24 Program Control

12.3.4 IoT Settings

This page contains settings and information for Internet communication. At a glance, you can determine if MQTT and Internet are connected.

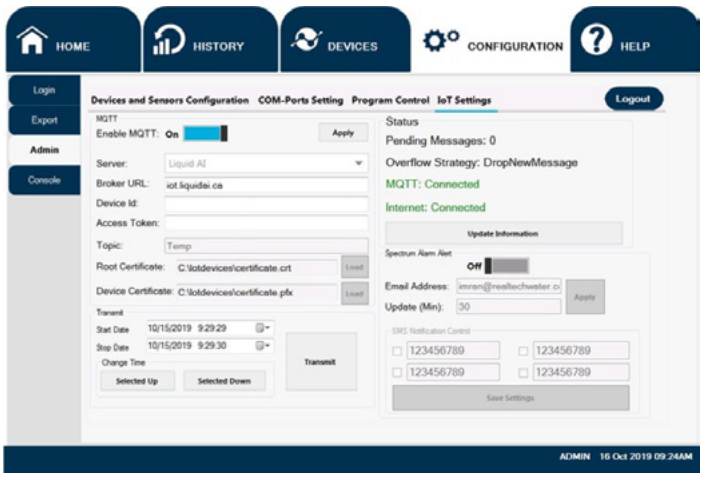


Figure 25 IoT Settings

12.3.5 Console

The **Console** tab is accessed primarily for troubleshooting/ diagnostic purposes.

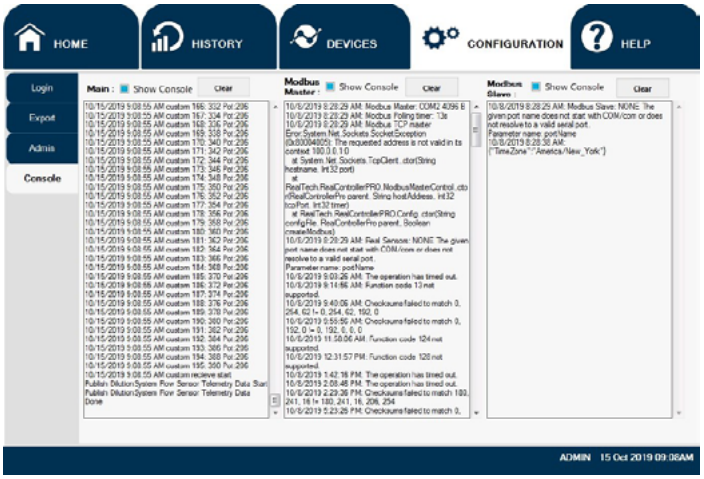


Figure 26 Console

12.3.6 Help

The **Help** tab provides quick access to ABB contact information for support and service. This screen also displays an overview of each alarm icon that may be triggered on the **Summary** tab.



Trademarks

- Modbus is a registered trademark of Schneider Electric USA, Inc.
- UviTec is a trademark of ABB Limited.
- Windows is a registered trademark of Microsoft Corporation in the United States and/or other countries.

Notes

ABB Measurement & Analytics

For your local ABB contact, visit:
abb.com/contacts

For more product information, visit:
abb.com/measurement

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