USER MANUAL

UC-100AGS Display & Data Logging Terminal

with LS-200 Level Sensors

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Related Statements

The manufacturer shall not be liable for direct, indirect, special, incidental or consequential damages resulting from any deficiency or omission in this manual. The manufacturer reserves the right to make changes to this manual and the products described in it at any time without notice or liability. Revised versions can be found on the manufacturer's website.

Safety Information

Please read this manual completely before unpacking, installing and operating this equipment. In particular, pay attention to all dangers, warnings and precautions, otherwise, it may cause serious personal injury to the operator or damage to the equipment.

Use of Danger Information

Danger
Indicates a potentially or urgent dangerous situation that, if not avoided, will cause death or serious injury.

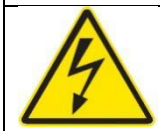
Warning
Indicates a potentially or very dangerous situation that, if not avoided, may cause serious personal injury or death.

Warning
Indicates a potentially dangerous situation that may cause a certain degree of personal injury.

Attention
Indicates conditions that if not avoided, will cause damage to the instrument. This is information that needs special emphasis.

Warning Label

Please read all labels and marks attached to the instrument. Failure to follow the instructions on these safety labels may result in personal injury or damage to the instrument.

	If this symbol appears in the instrument, it means refer to the operation and/or safety information in the instruction manual.
	If there is this mark on the instrument housing or insulator, it means there is a risk of electric shock or death from electric shock.
	Static electricity can damage the delicate internal electronic components, resulting in reduced performance or eventual failure of the instrument.
	Electrical equipment marked with this symbol cannot be disposed of through the European public waste system after August 12, 2005. In order to comply with European regional and national regulations (EU Directive 2002 / 98 / EC), European electrical equipment users must now return abandoned or expired equipment to the manufacturer for disposal without any cost.

Pyxis

Catalog

1. Specifications

Table. 1 UC-100AGS Specifications

Item	UC-100AGS
Part Number	43056
Display	7-inch LCD Color Industrial Capacitive Touch Screen
Storage Capacity	Built-In 4GB of Ram for Storing up to 1-Million Data/Event
Power Requirement	96-260VAC / 50-60 Hz; 10A Fuse; 200 W
USB	1 x USB host, for data downloading and screen upgrade
Internet	RJ-45 socket, Modbus-TCP
Rating	IP-65 Panel-Display
Relative Humidity	20% - 90% (No Condensation)
Altitude	<6,561 feet (<2,000 Meter)
Dimensions (HxWxD)	(UC-100A) 280H x 380W x 200D mm
Weight	UC-100AGS ~ 10 kg
Pyxis 4G CloudLink™	Included
CloudLink™ Bands	Global *(B1/2/3/4/5/7/12/13/14/20/28/66/7*
CloudLink™ Protocols	IP/TCP/UDP/HTTP/HTTPS/Modbus
Regulation	CE / RoHS

Table. 2 LS-200 Specifications

Item	LS-200
Part Number	54011
Range	4–106 inch (0.1–2.7 m)
Resolution	0.02 inch (0.5 mm)
Accuracy	±0.15% of the range
Measurement	Continuous
Output	Bluetooth 5.0, 32 ft (10 m) Line of Sight, 1x 4–20mA Output and RS-485
Installation	1” male NPT
Cable Length	9.8 ft (3 m), extension cable available
Power Supply	24 VDC, 2 W
Dead Zone	4 inch (10 cm)
Dimension (H ×Dia)	4.33 × 2.95 inch (110 × 75 mm)
Weight	0.45 lbs (210 g)
Enclosure Material	Polycarbonate (PC)
Transducer Material	Polyvinylidene Fluoride (PVDF)
Operational Temperature	5–122 °F (-15–50 °C)
Storage Temperature	-4–140 °F (-20–60 °C)
Pressure	14–30 psi (0.1–0.2 MPa)
Enclosure Rating	IP-67
Regulation	CE / RoHS

NOTE *- Pyxis Lab is consistently updating technologies, as such, specifications may change without notice.*
Contact order@pyxis-lab.com for details or www.pyxis-lab.com

2. System Layout and Features

The UC-100AGS is a microprocessor display and data logging terminal specifically designed as a "turnkey" monitoring solution for a wide variety of water and process related applications using Pyxis Lab sensors for live data monitoring, display, data logging and data transfer. The UC-100AGS communicates with all Pyxis Lab smart sensors with a 7-inch color capactivie touchscreen display and RS-485 modbus protocol communication. The UC-100AGS is pre-programmed to allow any Pyxis Lab smart sensor to be selected from a user friendly drop-down list for immediate integration, diagnostics and calibration in the field with an intuitive menu based user interface and analog and or digital modbus output signal capability. The UC-100AGS is equipped with the Pyxis CloudLink™ 4G gateway and Pyxis Global Prepaid SIM Card for wireless data transfer to Pyxis Cloud™ or any cloud based data management program.

The Pyxis LS-200 is a general purpose and innovative ultrasonic liquid level sensor that replaces float, conductance and pressure sensors that fail due to contact with dirty, sticky and scaling liquids in small, medium and large capacity tanks. These liquid level sensors can be used in either open or enclosed tanks. The sensor provides continuous level measurement up to 106 inches (2.7m) with a 4-20 mA signal output, RS485 and Bluetooth digital output, and can be configured via Pyxis free uPyxis® APP for both smartphone or desktop. The LS-200 sensor can be powered by a 24VDC external power source via the 10’ output and power supply waterproof cable provided. This noncontact liquid level sensor is well suited for corrosive liquids chemical or process tank applications.

Figure 1 - UC-100AGS Display / Data Logging Teminal with LS-200 Ultrasonic Level Sensor

3. UC-100AGS Dimension and Mounting

3.1. Dimensions

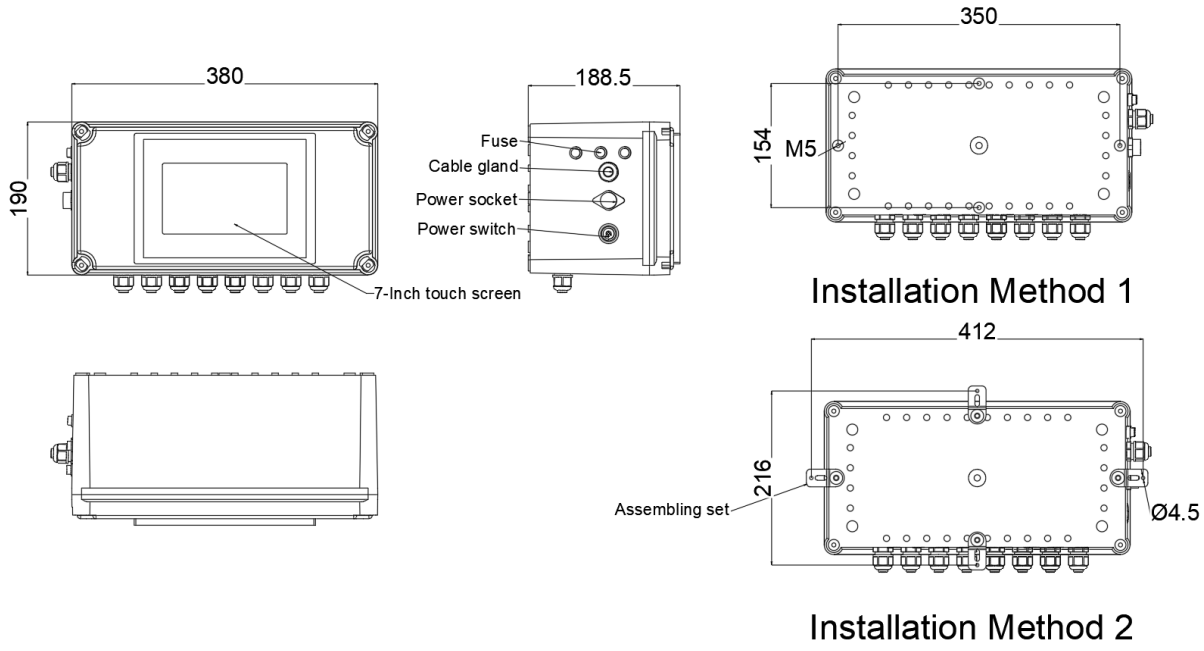


Figure 2 - UC-100AGS Series Dimensions (mm)

The UC-100AGS comes with 4 prewired and prelabeled cables with waterproof cable adapters. These cables should be connected to their corresponding LS-200 level sensors. The labels on each cable correspond to the Modbus address of each LS-200 and the default name of the sensor on the UC-100AGS. For example: Level-1, corresponding to Level-1 on the UC-100AGS display, its Modbus address is 1.

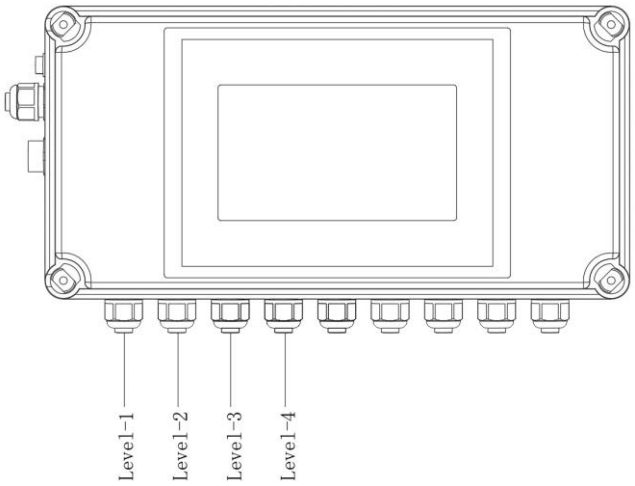


Figure 3 – LS-200 Sensor Connection

3.2. Terminal Wiring

The UC-100AGS analyzer has universal AC power supply equipment allowing users simply to plug the power supply into a 100~240V AC 50/60Hz power outlet for normal operation. **Warning** The process of electrical connection to contact the 220V single-phase power supply, should be operated by personnel with an electrician's license. Failure to operate according to the electrical code of practice may result in electric shock injury or even death.

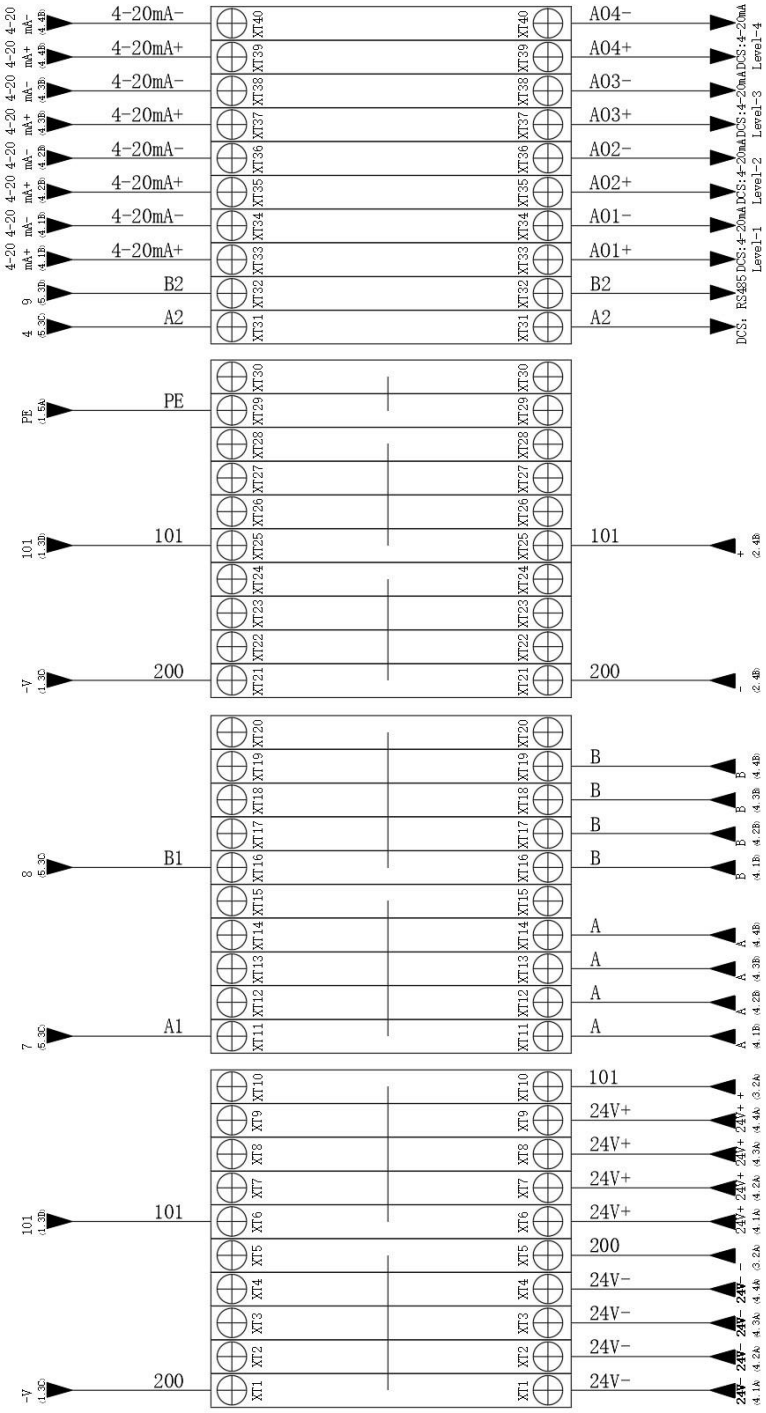


Figure 4 - Terminal Wiring Diagram

4. LS-200 Ultrasonic Level Sensor

4.1. Unpacking Instrument

Remove the instrument and find the standard accessories from the shipping container as listed below. Inspect each item for any damage that may have occurred during shipping. Verify that all accessory items are included. If any item is missing or damaged, please contact Pyxis Lab Customer Service at service@pyxislab.com or by phone at +1 (866) 203-8397.

4.1.1. Standard Provided Accessories

- Waterproof Cable Adapter/Flying Leads (10 ft) P/N: 50774
- User Manual available online at https://pyxis-lab.com/product/ls-200-ultrasonic-level-sensor/

4.1.2. Optional Accessories

The following optional accessories can be ordered from Pyxis Customer Service (order@pyxis-lab.com) or Pyxis eStore at https://pyxis-lab.com/shop/.

Pyxis PYXIS LEVEL SENSOR ACCESSORIES Pyxis

Accessory Name / Description	Part #	Photo
10' LS/LSP Series Waterproof Cable - 7Pin Adapter w/Flying Leads	50774	
MA-L25 25' Waterproof Extension Cable (4-20mA/RS485)	50775	
MA-L50 50' Waterproof Extension Cable (4-20mA/RS485)	50776	
MA-L100 100' Waterproof Extension Cable (4-20mA/RS485)	50777	

Figure 5 - Pxis Level Sensor Optional Accessories

4.2. LS-200 Installation

4.2.1. Tank Top Installation and Precautions

The sensor should be installed in a 1-inch bulkhead fitting on the top of the tank. The major dimensions of the sensor are shown in Figure 7. If a flat horizontal surface is not available on the top of the tank, please use a self-aligning bulkhead fitting so that the sensor can be adjusted to be perpendicular to the liquid surface.

- Install and adjust the sensor to be perpendicular to the liquid surface.
- Installation location should not be too close to the container wall to avoid interference.
- The sensor has a 3.94 inch (10 cm) dead zone (DZ). Raise the probe to avoid the DZ if desired.
- Do not install in a location which will cause the ultrasonic wave to be obstructed.
- Do not install the sensor in a vacuum environment.

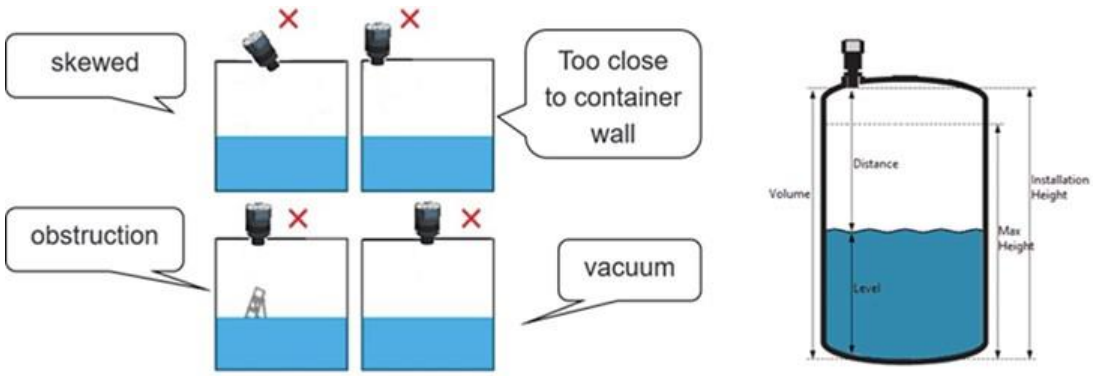


Figure 6 - Installation Illustration

Figure 7 – LS-200 Dimensions (inch/mm)

4.2.2. Wiring

If the power ground terminal and the negative 4–20mA terminal in the controller are internally connected (non-isolated 4–20mA input), it is unnecessary to connect the 4–20mA negative wire (green) to the 4–20mA negativeter min alin the controller. If a separate DC power supply other than that from the controller is used, make sure that the output from the power supply is rated for 22–26 VDC @ 65 mA.

NOTE *When wiring the LS-200, the negative 24V power terminal (power ground) and the negative 4–20mA terminal on the LS-200 are internally connected.*

Follow the wiring table below to connect the LS-200 to a receiving device. ***NOTE*** For UC-100AGS, the sensor should be wired in RS-485 communication only format.

Table 3 - LS-200 Wiring Table

Wire Color	Designation
Red	24V +
Black	24V Power ground
White	4–20mA +
Green*	4–20mA -
Blue	RS-485 A
Yellow	RS-485 B
Clear	Shield, earth ground

* Internally connected to the power ground

4.2.3. Instrument Overview

The indicators on the top of the sensor are used to indicate power status and Bluetooth connection status.

Table 4 - LS-200 LED Status

LED Status	On	Off
Green LED	Power Supply is on	Power Supply is off
Blue LED	Bluetooth is connected	Bluetooth is disconnected

NOTE *The Bluetooth connected LED will illuminate within 30 seconds of powerup of the LS-200. This feature is designed to minimize controller power draw during startup.*

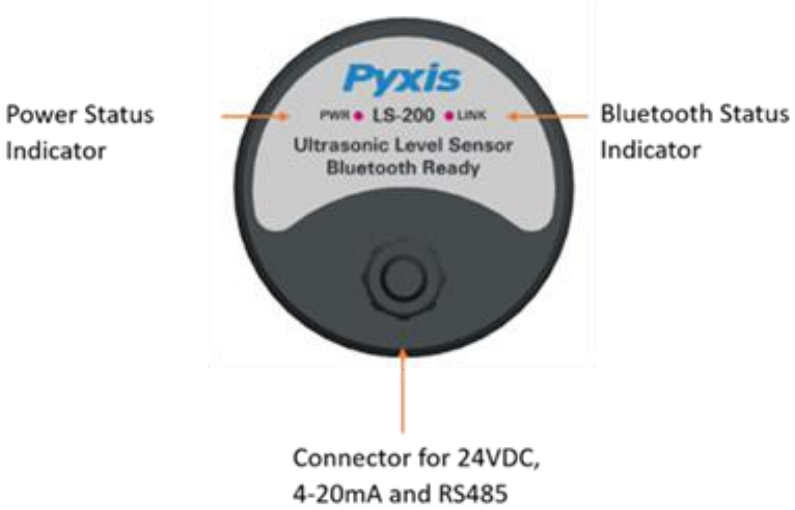


Figure 8 - Sensor Connection and Indicators

4.3. Setup with uPyxis® Mobile App

4.3.1. Download uPyxis® Mobile App

Download **uPyxis®** Mobile App from **Apple App Store** or **Google Play**.

Figure 9 - uPyxis Mobile APP

The LS-200 configuration and parameter settings need to be programmed through the uPyxis APP. ***NOTE*** **The UC-100AGS is used only for local display and data logging purposes.** The following will describe how to use uPyxis for the LS-200 configuration and setup.

4.3.2. Connecting to uPyxis® Mobile App

Connect the LS-200 sensor to a mobile device according to the following steps:

1. Open **uPyxis®** Mobile App.
2. On **uPyxis®** Mobile App, swipe down to refresh the list of available Pyxis devices.
3. If the connection is successful, the LS-200 and its Serial Number (SN) will be displayed (Figure 10).
4. Press on the **LS-200 image**.

Figure 10 - Connect the LS-200 sensor

4.3.3. Overview Screen

When connected, the **uPyxis®** Mobile App will default to the **OVERVIEW** screen. The **Overview** screen displays the current liquid level and volume of liquid remaining.

Figure 11 - Overview Screen

4.3.4. Reading Screen

The **READING** screen displays the current volume of liquid remaining and liquid level over time.

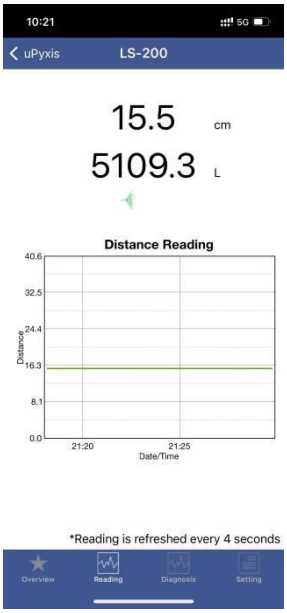


Figure 12 - Reading Screen

4.3.5. Diagnosis Screen

When the LS-200 has problems such as failure, it is necessary to provide the Pyxis engineer diagnostic parameters to troubleshoot possible problems by taking a screen shot of this page and emailing it to service@pyxis-lab.com

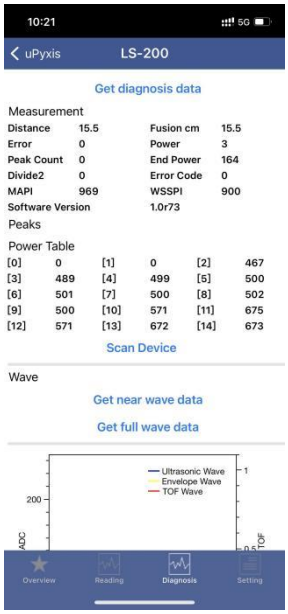


Figure 13 - Diagnosis Screen

4.3.6. Settings Screen

The sensor measures the distance between the liquid surface in the tank and the bottom of the sensor surface. Converting this measured distance to other parameters such as the tank level, the remaining liquid volume, or the consumed liquid, requires the tank dimensional and volume capacity information. Common vertical tanks have a uniform horizontal cross section.

NOTE *For horizontal or other tanks that have a non-uniform cross section, please contact Pyxis Technical Support team (service@pyxis-lab.com) for assistance.*

To convert the measured distance to volumetric information, the user must enter three parameters via the **uPyxis®** Mobile App's **Setting** screen:

- **Tank Volume** (rated volume capacity of the tank)
- **Installation Height** (from the bottom of the tank to the bottom of the LS-200 sensor surface)
- **Max Level Height** (from the bottom of the tank to the liquid surface when filled to the rated maximum capacity)

- **Display Unit** (Select unit, inch/meter/centimeter)

NOTE ***Max Level Height*** *must be at least 4 inches less than* ***Installation Height***

Figure 14 illustrates these parameters for the tank. To save the settings, press **APPLY SETTINGS**. You may also create or change a password for the LS-200 by pressing **MANAGE PASSWORD**.

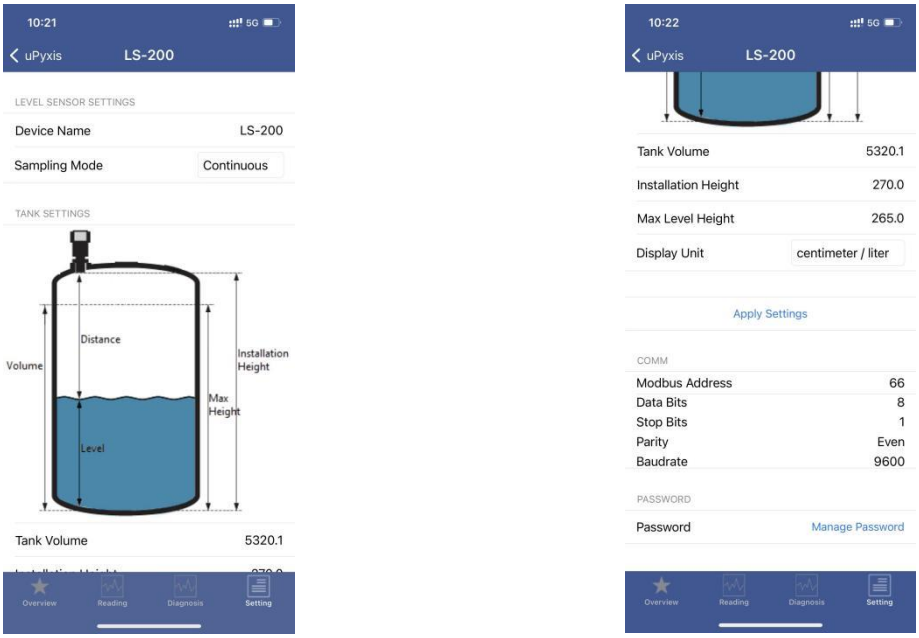


Figure 14 - Settings Screen

4.3.7. Change the LS-200 Modbus Address

Each LS-200 will need to be connected one at a time to the UC-100AGS to its corresponding / labeled input cable. This is necessary because the LS-200 units from the Pyxis factory all have an identical default modbus register address and if all 4 units are connected at the same time, the UC-100AGS will not recognize them.

Step 1 - Connect the first LS-200 sensor to its UC-100AGS input cable.

Step 2 - While the LS-200 is connected to the UC-100AGS, open and connect to the LS-200 desired. In the setting screen of uPyxis, click Modbus Address, and change the address to the cable label corresponding to the connection of the LS-200. (example, to connect LS-200 to Level-1 of UC-100AGS, you need to change the address to 1.)

Step 3 – Proceed with repeating this process, for the remaining LS-200 sensors you intend to connect to the UC-100AGS, following the Modbus Address table as outlined in Table 5. ***NOTE*** you may desire to assign a name the LS-200 sensors while in uPyxis to avoid confusion of which sensor is which in this process.

Table 5 - Modbus Address to be assigned to LS-200 Units

Level Sensor ID	Modbus Address to Assign
Level-1	**1**
Level-2	**2**
Level-3	**3**
Level-4	**4**

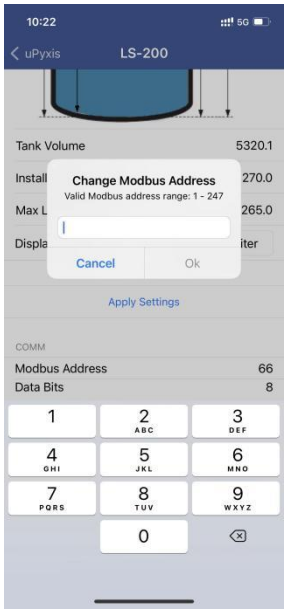


Figure 15 – Changing the LS-200 Modbus Address via uPyxis

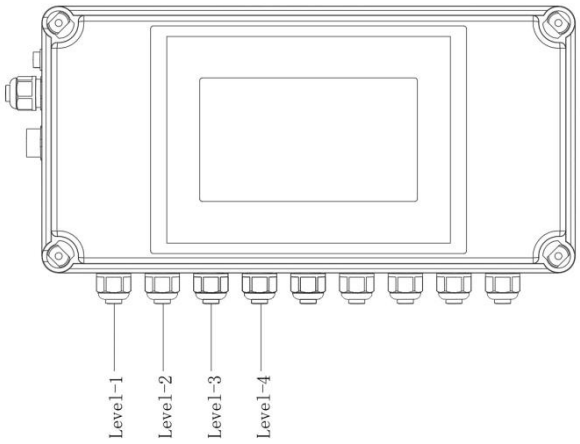


Figure 16 – LS-200 Cable Designation

4.4. Setup with uPyxis® Desktop App

4.4.1. Install uPyxis® Desktop App

Download the latest version of **uPyxis®** Desktop software package from: http://www.pyxis-lab.com/support.html. This setup package will download and install the Microsoft.Net Framework 4.5 (if not installed on the PC before), the USB driver for the USB-Bluetooth adapter, the USB-RS485 adapter, and the main **uPyxis®** Desktop application. Double click the **uPyxis.Setup.exe** file to install.

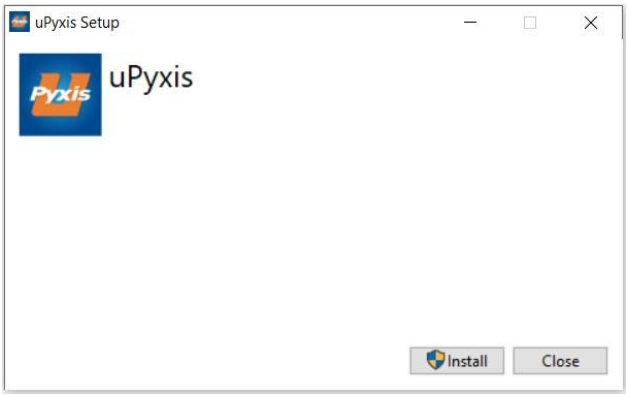


Figure 17 - uPyxis® desktop app installation

Click **Install** to start the installation process. Follow the screen instructions to complete the USB driver and uPyxis® installation.

4.4.2. Connecting to uPyxis® Desktop App

Connect the LS-200 sensor to a Windows computer using the Pyxis MA-NEB Bluetooth/USBadapter (image below) according to the following steps:

1. Plug the MA-NEB Bluetooth/USB adapter into a USB port in the computer.
2. Launch **uPyxis®** Desktop App.
3. On **uPyxis®** Desktop App, click Device → Connect via USB-Bluetooth (Figure 18).
4. If the connection is successful, the LS-200 and its Serial Number (SN) will be displayed in the left pane of the **uPyxis®** window.

NOTE *After the sensor and Bluetooth is powered up, it may take up to 10 seconds for the adapter to establish the wireless signal for communication.*

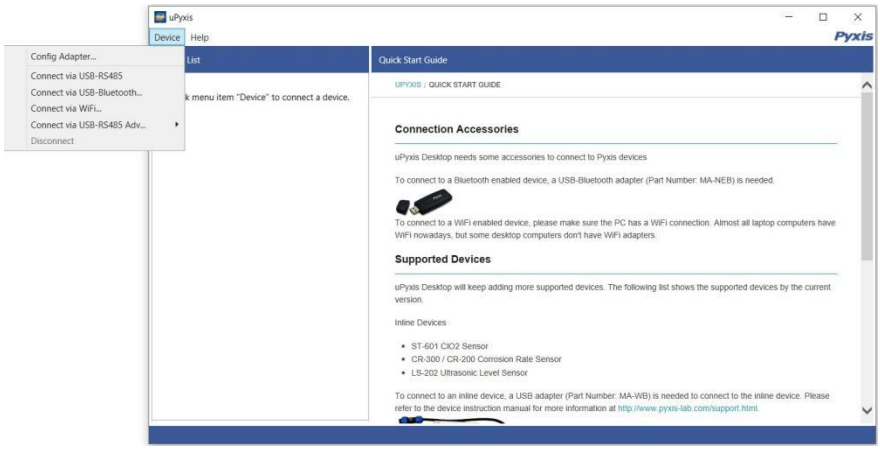


Figure 18 - Connecting to the uPyxis® Desktop App

4.4.3. Overview Screen

When connected, the **uPyxis®** Desktop App will default to the **Overview** screen. The **Overview** screen displays the current liquid level and volume of liquid remaining.

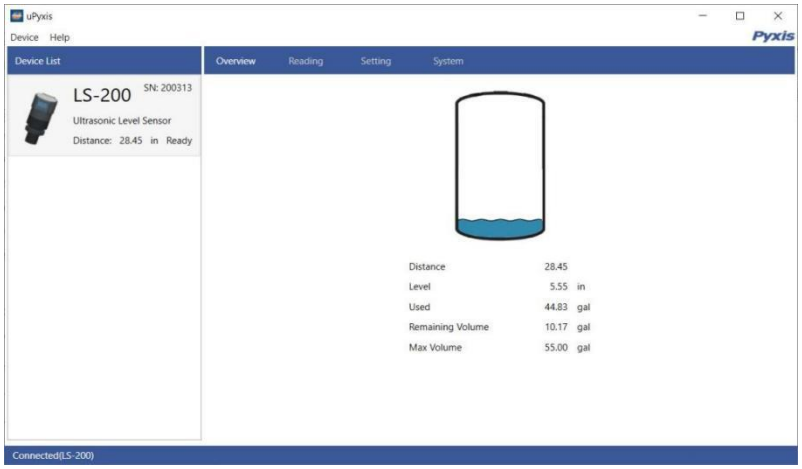


Figure 19 - Overview Screen

4.4.4. Reading Screen

The **Reading** screen displays the current liquid level and the liquid level over time.

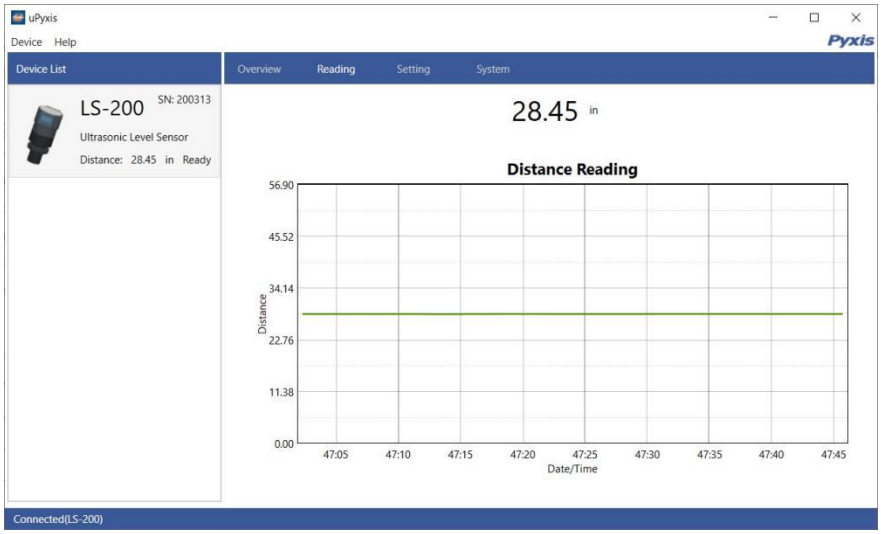


Figure 20 - Reading Screen

4.4.5. Setting Screen

The sensor measures the distance between the liquid surface in the tank and the bottom of the sensor surface. Converting this measured distance to other parameters such as the tank level, the remaining liquid volume, or the consumed liquid, requires the tank dimensional and volume capacity information. Common vertical tanks have a uniform horizontal cross section.

NOTE *For horizontal or other tanks that have a non-uniform cross section, please contact Pyxis Technical Support team (service@pyxis-lab.com) for assistance.*

To convert the measured distance to volumetric information, the user must enter three parameters via the **uPyxis®** Mobile App's **Setting** screen:

- **Tank Volume** (rated volume capacity of the tank)
- **Installation Height** (from the bottom of the tank to the bottom of the LS-200 sensor surface)
- **Max Level Height** (from the bottom of the tank to the liquid surface when filled to the maximum rated capacity)

NOTE ***Max Level Height*** *must be at least 4 inches less than* ***Installation Height***

Figure 21 illustrates these parameters for the tank. In the **Setting** screen, the you can also set the **Device Name**, the **Sampling Interval**, **LCD Display Value**, **LCD Screen Off Time (in seconds)**, and the **Display Unit**. To save the settings, press **Apply Settings**.

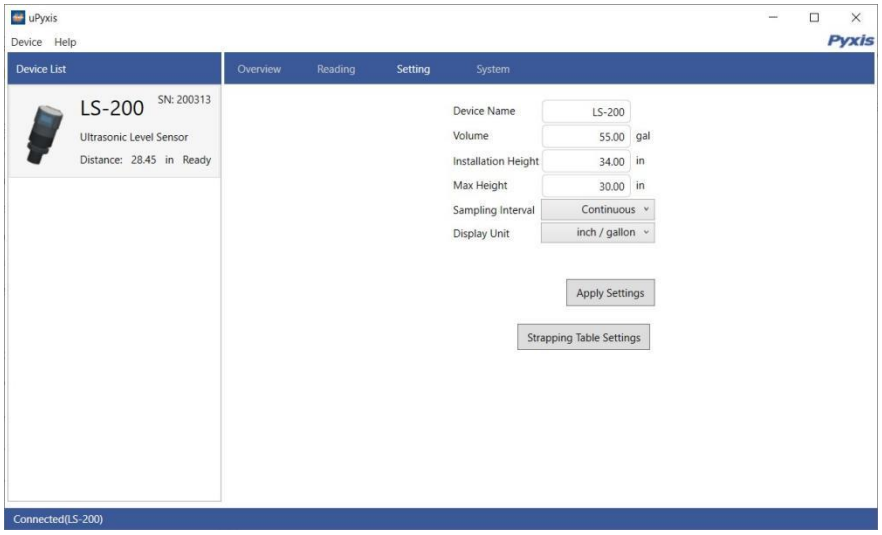


Figure 21 – LS-200 Setting Screen in uPyxis Desktop App

4.5. Outputs

4.5.1. 4–20mA Output Setup

The LS-200 sensors wired to communicated to the UC-100AGS via RS-485 modbus. The available 4-20mA signal from the LS-200 sensor itself may be sent to another receiving device as desired. The 4–20mA output of the sensor is scaled as:

- **4 mA** = (Tank is Empty) = (Level is 0) = (Distance is Installation Height),
- **20 mA** = (Tank is Full) = (Level is maximum height) = (Distance is Installation Height – Maximum Height).

The 4–20mA analog signal can be converted to one of four values (Level, Distance, Volume Remaining, or Volume Consumed) in the controller receiving the output according to the above scale. For example, a nominal 100-gallon vertical tank, the maximum height is 36 inches and installation height is 42 inches. The tank volume is 100 gallons when it is filled up to the maximum height 36 inches. The controller should be set up to convert 20 mA to 100 gallons, at which the tank is full and the tank level is 36 inches and the distance measured is 6 inches.

NOTE *The nominal capacity provided by the tank manufacturer may be greater than the maximum safe (net or effective) capacity that can be practically filled. Please keep this in mind as you configure your LS-200 for practical purposes.*

4.5.2. Communication Using Modbus RTU

The sensor can be configured as a Modbus slave device via RS-485. In addition to the level, volume, and distance, many operational parameters, including warning and error messages, are available via a Modbus RTU connection. Contact Pyxis Lab Customer Service (service@pyxis-lab.com) for more information.

4.6. Sensor Maintenance and Precaution

For best performance, keep the sensor ultrasonic surface clean using a soft cloth or towel. Notice that sometimes the maximum sound pressure level inside the beam area is up to 165dB, which exceeds the standard safe limit of 110dB. Never point the probe at the eyes. The directivity pattern of the probe is shown in Figure 22.

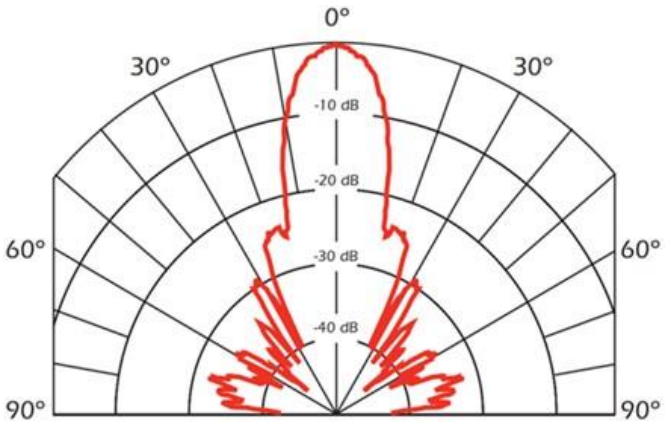


Figure 22 - Directivity pattern of the LS-200

4.7. Regulatory Approval

4.7.1. United States

The LS-200 sensor has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in an installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help

4.7.2. Canada

This device complies with Industry Canada license exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device. Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible

5. Touch Screen Operation on UC-100AGS

The settings of LS-200 are all in uPyxis, UC-100AGS is only to display, view and communicate historical data

5.1. Main Screen

After the system is powered on an initial screen allows the user to log into the system.

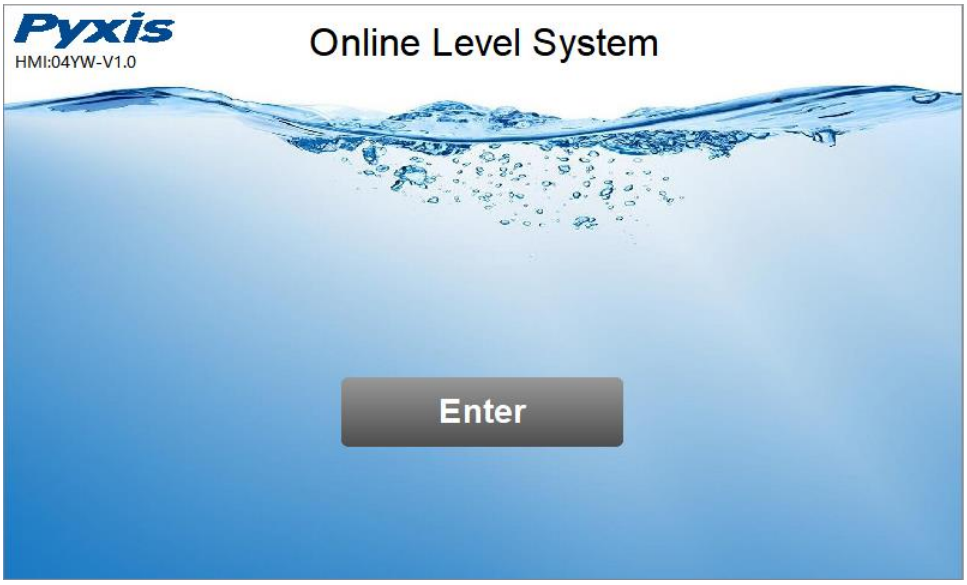


Figure 23 - Main Screen

5.2. User Login

After powering on the system, log in with the username and password to be able to change system settings. Click the "User Login" button, select the user "**pyxis**", enter the password: "**888888**" in the user password field. A new user can be added via "User Management" in interface of the menu.

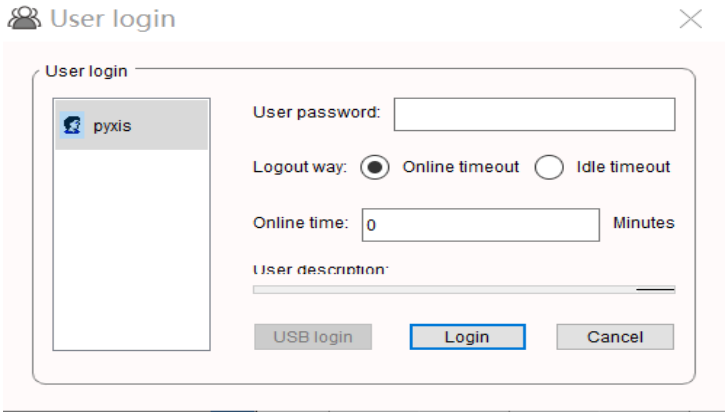


Figure 24 - User Login Screen

If you do not need a password, or want to change the user, you can enter the system and "Manage" in the "User Management" screen of the menu.

5.3. Real-Time Monitoring

Click the "Enter System" button on the main interface to enter the real-time monitoring screen of the system. The data detected by the Pyxis sensors will be displayed in real-time. See a functional overview of each section of this screen highlighted below. (numbers 1-4)

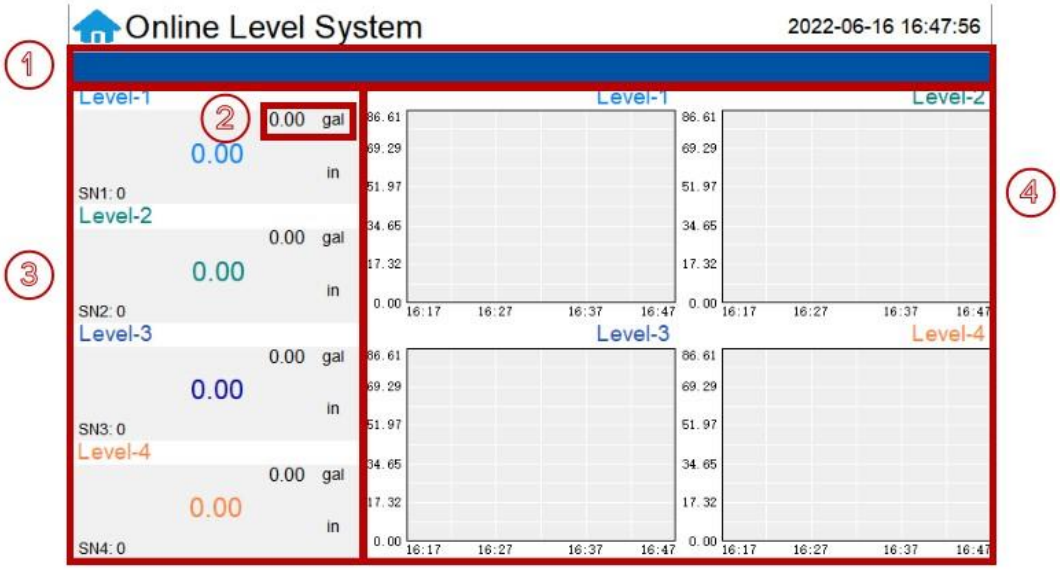


Figure 25 - Real-Time monitoring Screen

Section Number	Screen Functional Overview
1	The blue area will scroll any alarm information in real time until the alarm is cleared.
2	The amount of liquid remaining in the barrel
3	Liquid height in barrel
4	Historical data is recorded as a live curve, with the horizontal coordinate being the time and the vertical coordinate being the measured value.

Press and hold the curve area for 2 seconds and then let go, the Y-axis curve range setting dialog box will appear. Users may change the display value range of Y-axis for each measurement index curve. Click the outter area of the screen to save and exit the setting screen after modifications are made.

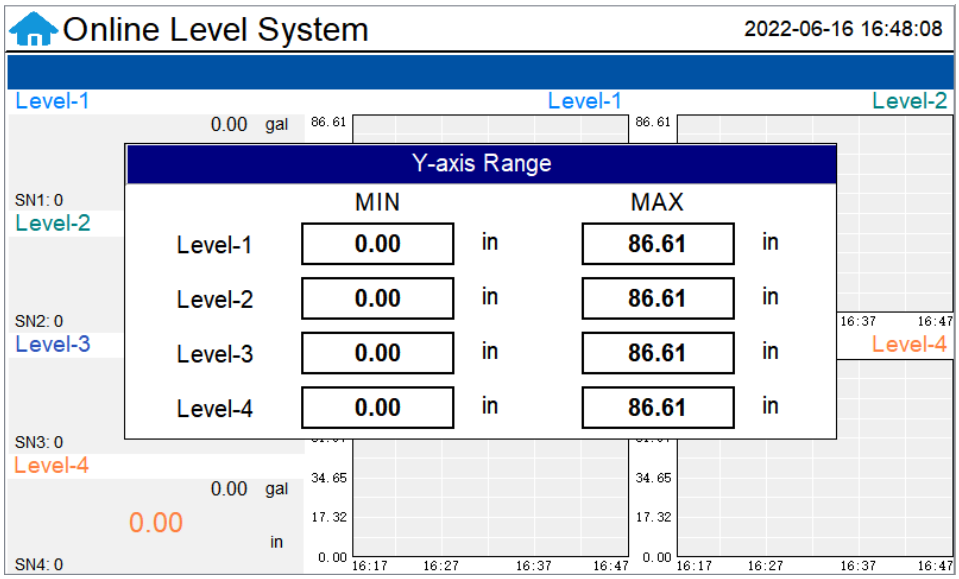


Figure. 26 Curve Range Setting

5.4. Menu Bar

Click the button in the upper left corner of the screen to enter the system's menu interface, where the user can select to enter the desired operation interface.

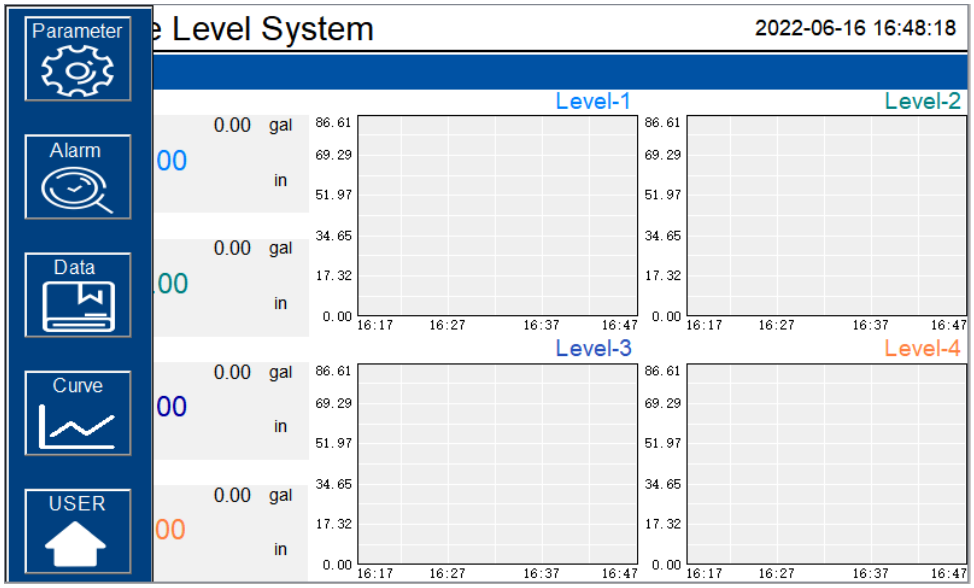


Figure 27 - Menu Bar

5.5. Configurable Parameters

Click the "Parameter" button in the menu bar. Here you can select to enter "Alarm Parameters" and "4-20mA Output" setting interface etc.

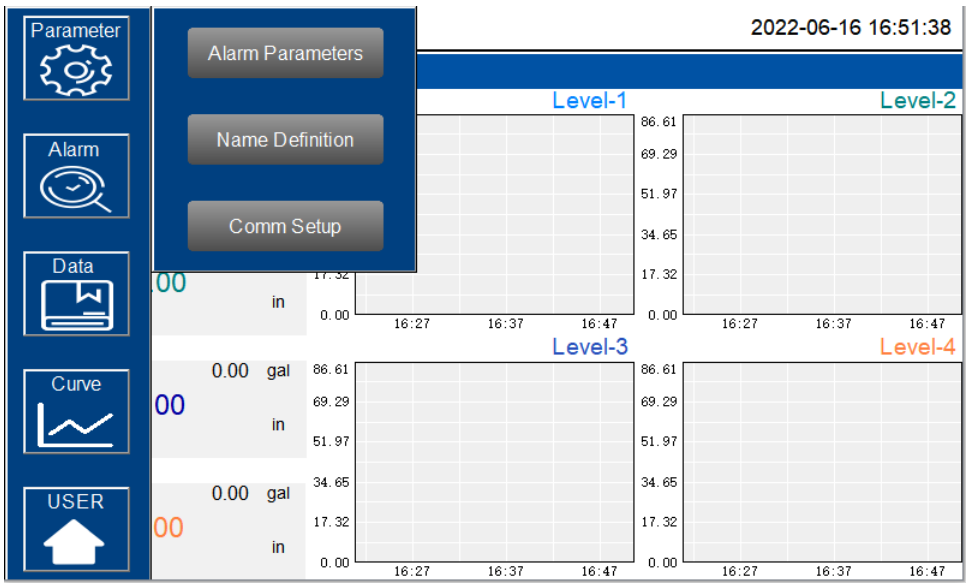


Figure 28 - Parameter Settings

5.5.1. Alarm Parameters Setting

Users can set the upper and lower alarm limits. Click "Alarm Parameters" to enter the alarm parameter settings. When the measured sensor value is lower than the set lower limit (the XX lower limit alarm) or when the measured value is higher than the set upper limit (the XX upper limit alarm), the corresponding sensor alarm will be displayed on the real-time monitoring screen. The user can also choose to turn the alarm display on or off at the top left of the corresponding parameter list.

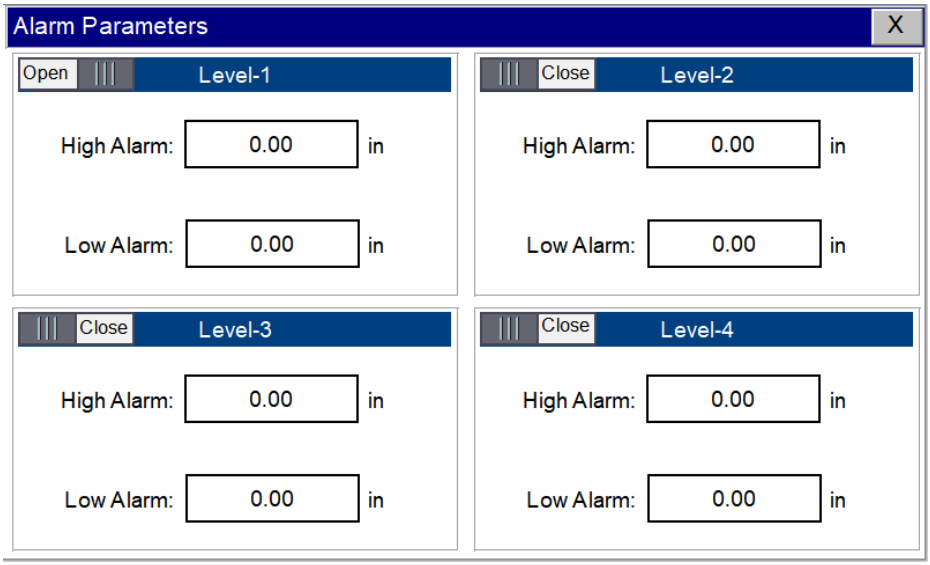


Figure 29 - Alarm Parameter Setting

5.5.2. Name Definition

Click the orange dialog box to customize the sensor name. "Level-x" corresponds to the label on the sensor cable. ***NOTE* Be sure to match the proper sensor cable with the controller cable label, otherwise it will cause confusion.**

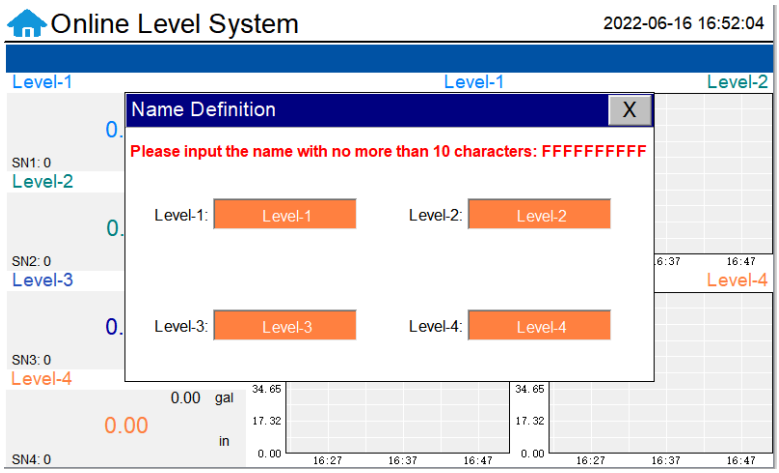


Figure 30 - Diagnostic Parameters

***NOTE** The Level-x number in the electrical diagram and the Level-x in the Name Definition correspond to the label of the input cable connected to the UC-100AGS.*

5.5.3. Communication Setting

Communication parameters generally do not need to be changed. If the communication station number and other parameters need to be changed on site, they can be changed on this interface.

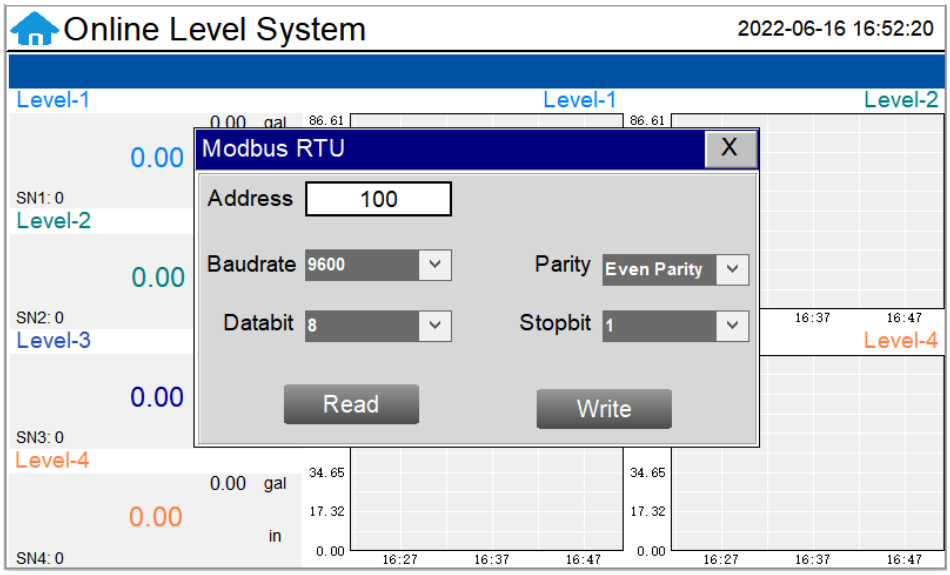


Figure 31 - Modbus RTU

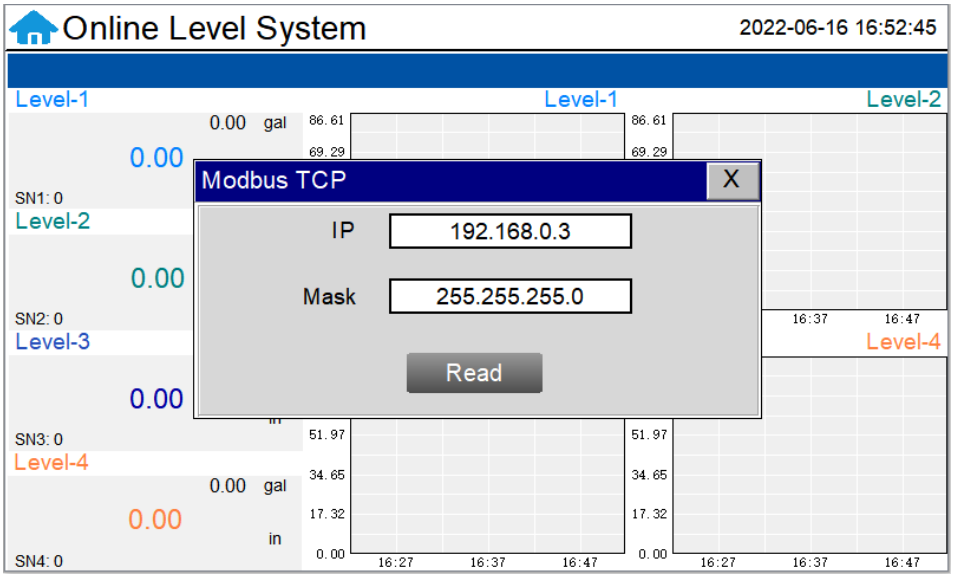


Figure 32 - Modbus TCP

5.6. Alarm View

Click the "Alarm View" button on the main screen to enter the alarm view screen.

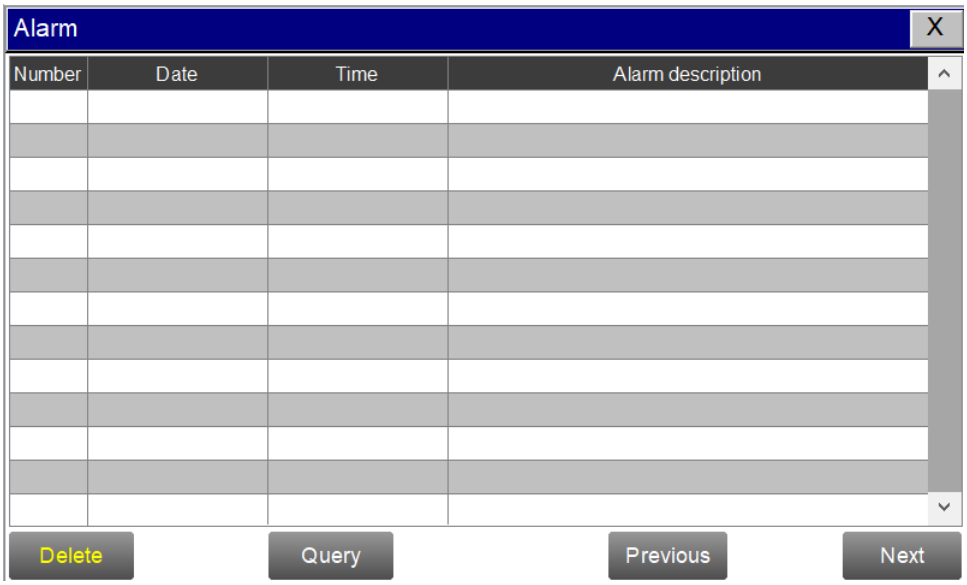


Figure 33 - Alarm View

In this screen users can browse all logged alarms. Drag the right scroll bar up and down to view the history of alarms. Click "Previous" and "Next" to advance to the next page. Click “Query” then enter the alarm number in the pop-up box to query that alarm.

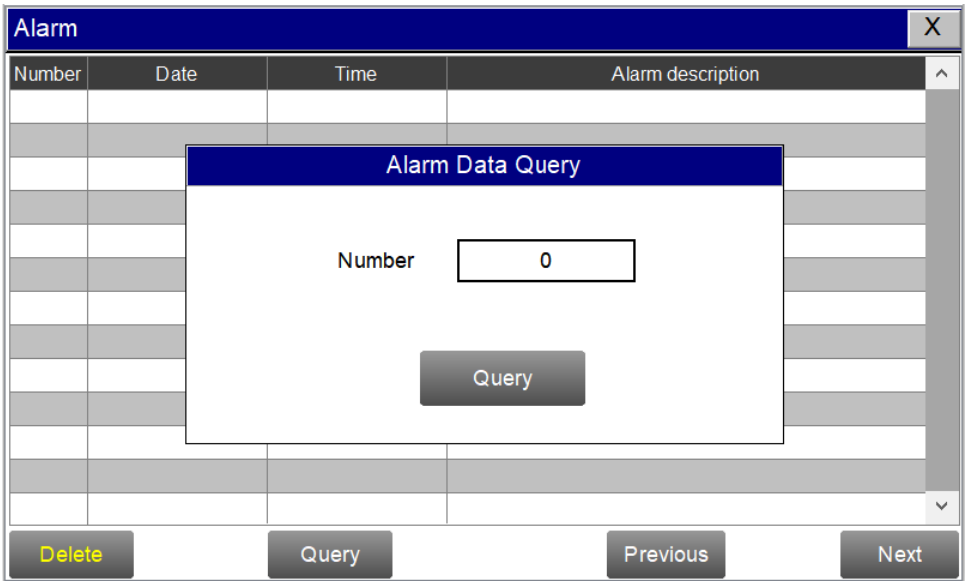


Figure 34 - Alarm Data Query Screen

The Delete button in the lower left corner will delete all alarm records. After clicking delete, you must exit the screen and reenter before the historical data within the data report will be cleared.

5.7. Historical Data

Click the "Historical Data" button in the menu bar to enter the data report interface.

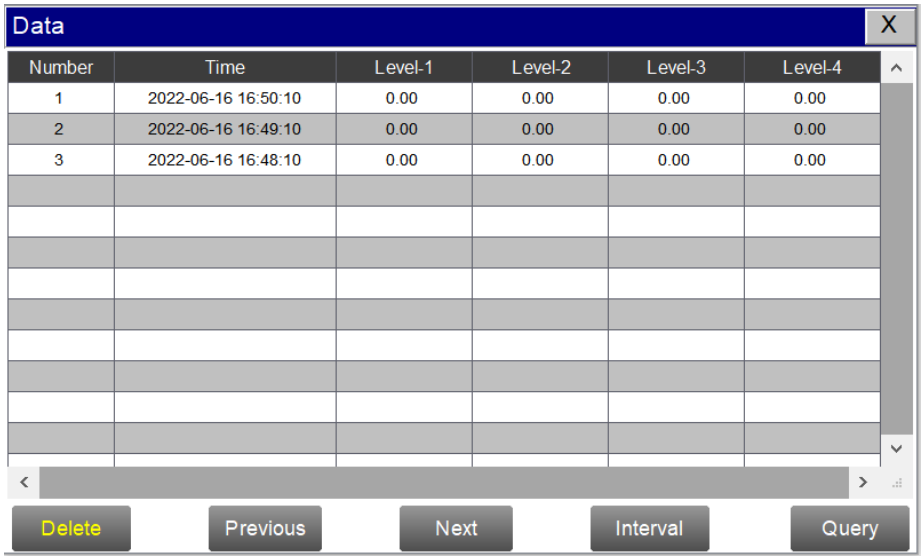


Figure 35 - Historical Data Screen

In the data report, the user can view the stored data of all parameters. The system records sensor readings every 4 seconds by default but this can be edited by the user if desired. Drag the scroll bar on the right to slide up or down or click "Previous" and "Next" to view historical data records. The data record can save up to 100,000 data entries. New data will overwrite the previously saved data after recording 100,000 data entries. The user can click the “Periodicity” button to change the data recording time interval.

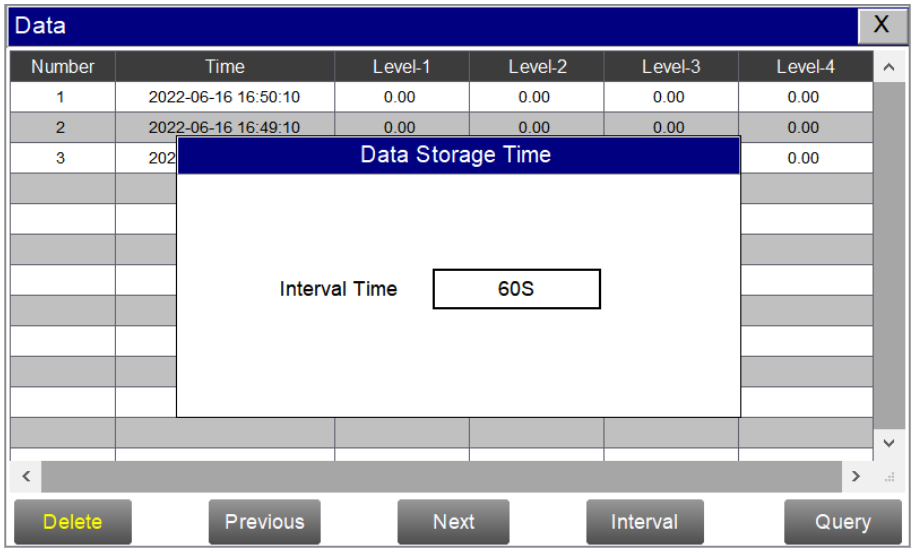


Figure 36 - Data Storage Cycle Time Setting

Click “Delete” in the lower left corner. After entering the retention time, click the “Delete” button to clear all historical data within the retention time range.

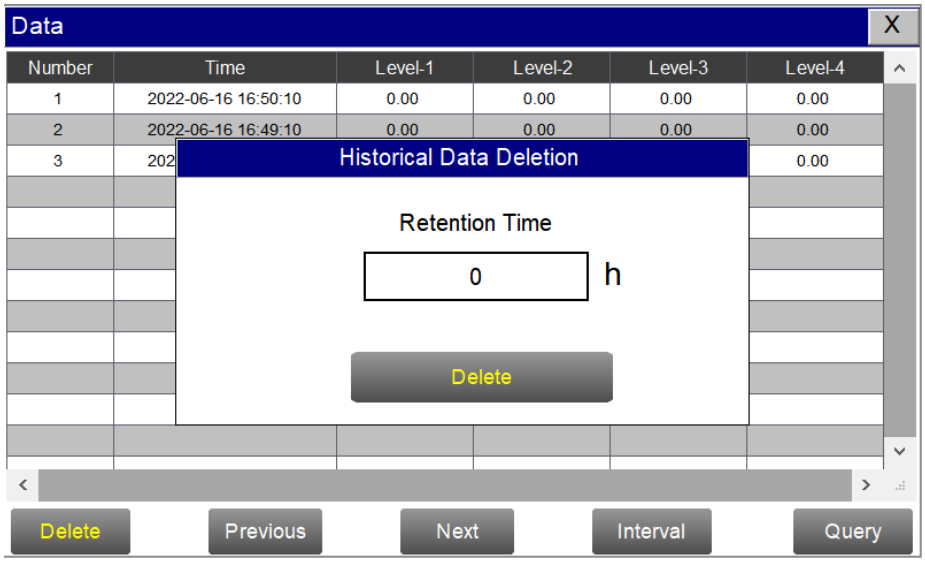


Figure 37 - History Data Deletion Screen

Click the “Query”button in the lower right corner, enter the start time and end time and then click the “Query” button. Note that the start time and end time must be filled in exactly and completely according to the system time format.

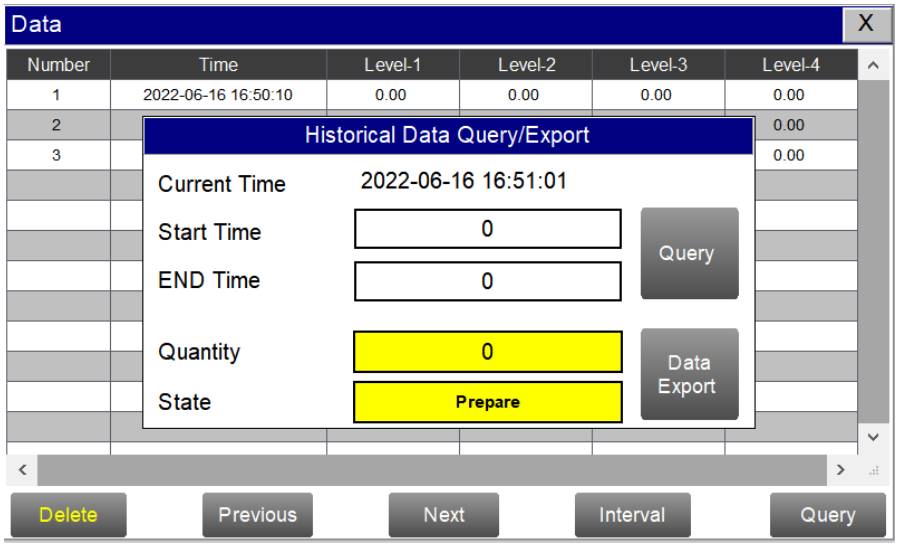


Figure 38 - Historical Data Query and Export Screen

Insert a USB disk behind the display screen and enter the time range of the data to be exported in the query area. Click on the “Data Export” to download the data to the USB disk. The data quantity will be shown as a positive number if data export is successful. If the data export was not successful, please check whether the time format is correct.

5.8. Historical Data Curves

Click the "Historical Curve" button in the menu bar to enter the trend curve interface. You can click the buttons below the X-axis to browse and view the values in a different time range. Click on Y-axis Range to change the minimum and maximum Y-axis values for a proper range.

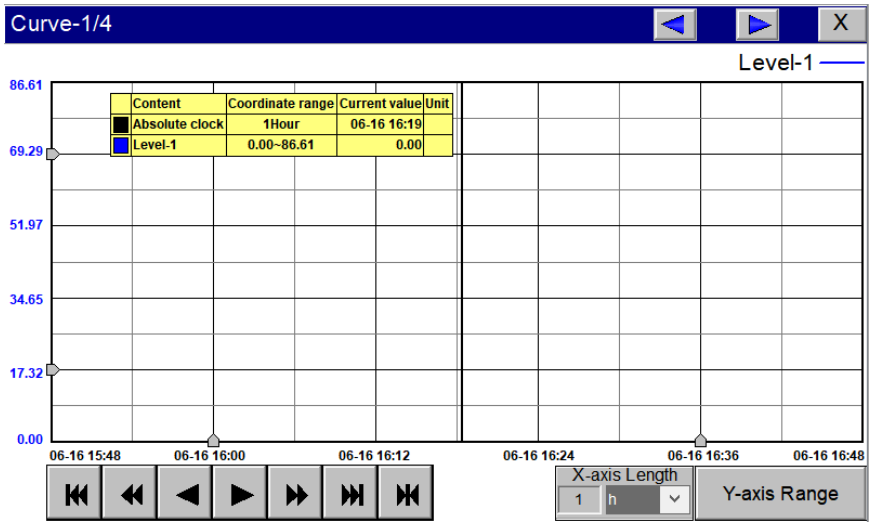


Figure 39 - History Curve Screen

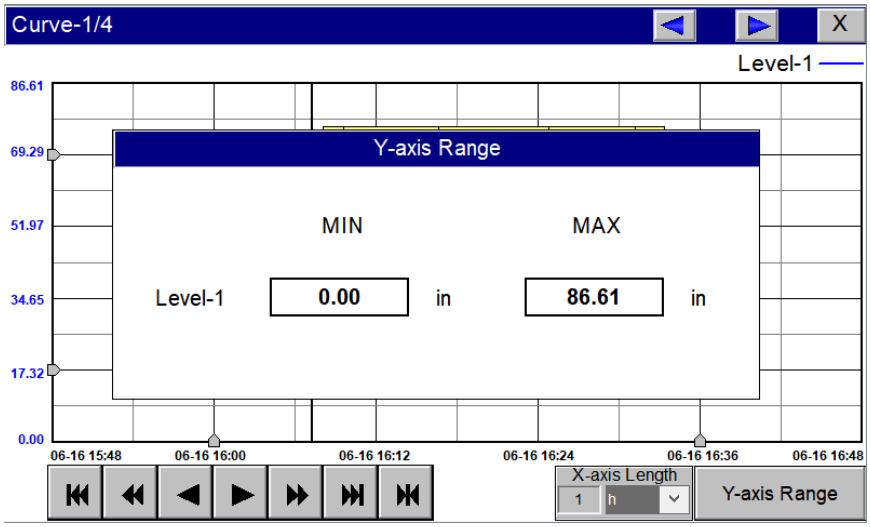


Figure 40 - Y-axis Range Setting

The curve will scroll back (to the left of the X-axis) one page
The curve will scroll back (to the left of the X-axis) half the page of the curve
The curve will scroll backward (to the left of the X-axis) to a position where the main line is drawn
The curve will scroll forward (to the right of the X-axis) to a position where the main line is drawn
The curve will scroll forward (to the right of the X-axis) half the page of the curve
The curve will scroll forward (to the right of the X-axis) one page
A dialog box will pop up to reset the starting time of the curve

Figure 41 - Button Function Review

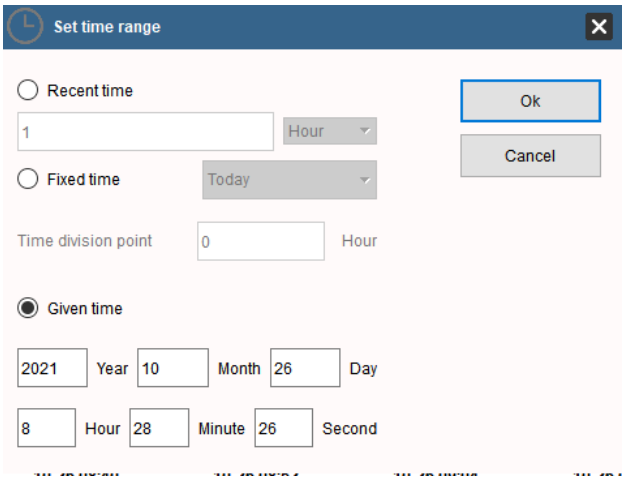


Figure 42 - Time Setting Screen

5.9. User Management

Click the "User Management" button on the menu bar and then you can select "Login", "Logout" and "Manage" operations.

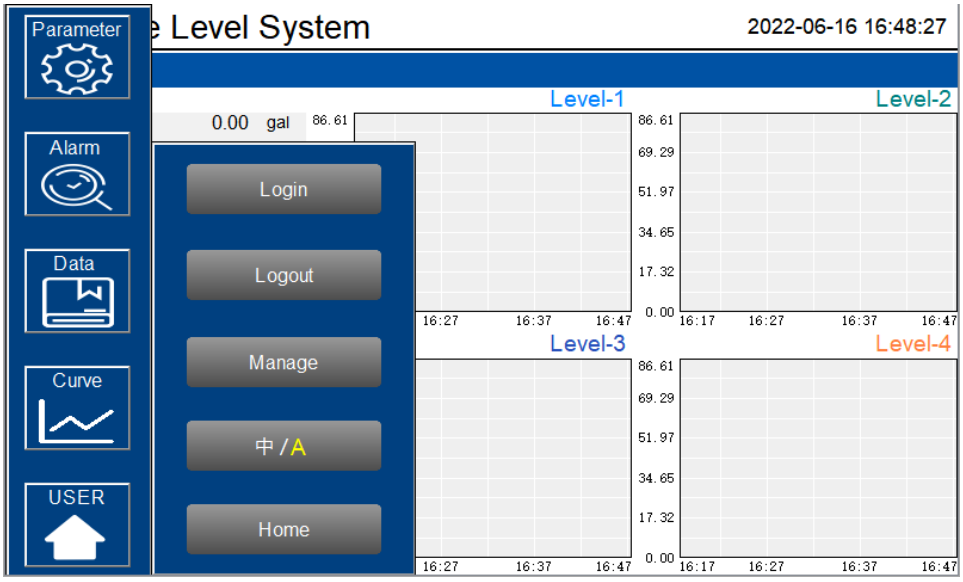


Figure 43 - User Management

Logout enables the user to log out of the logged-in state and only view the real-time readings, but cannot perform operations such as parameter settings. Click “Manage” to enter the user management interface, where you can add users, change passwords and other operations. Users can set their own user name and password and select the user group they belong to. Only users in the administrator group can set parameters such as calibration.

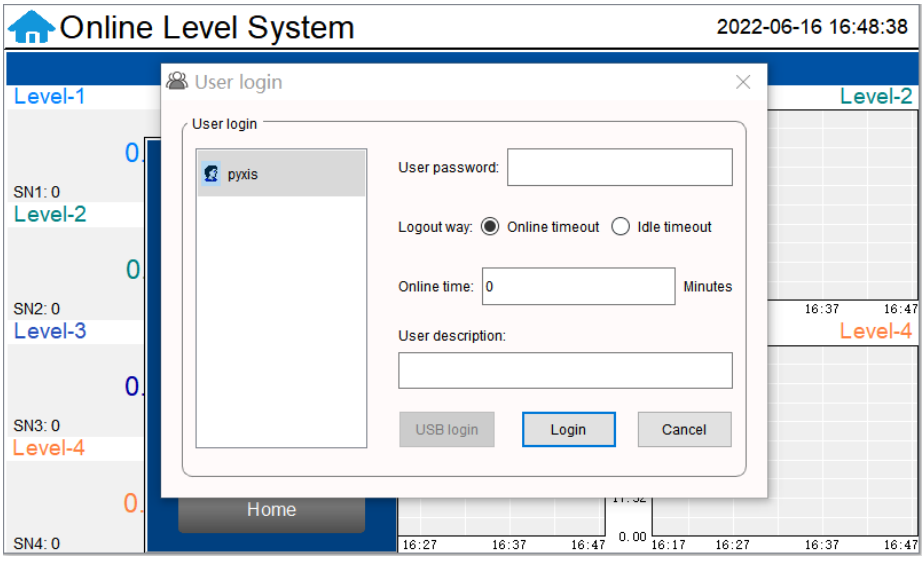


Figure 44 - User Management Screen

ModifyPassword: Select the user you want to change, then click Modify User button, enter the user's own password in the User Password column and Confirm Password column, and click Confirm to modify successfully. ***NOTE*** *If you do not want to set the password, you can delete the password and save it.*

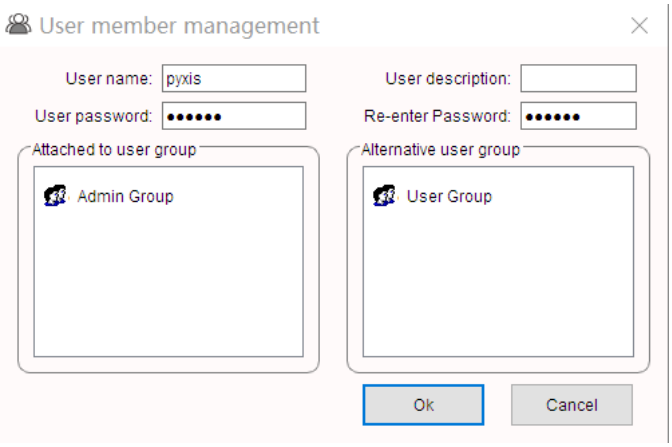


Figure 45 - Modifying the User Screen

6. Correspondence Address

Number	Definition	Address	Format	Mode	Unit	Note
1	Level_1	1	float	read only		Data format: ABCD
2	Level_2	3	float	read only		
3	Level_3	5	float	read only		
4	Level_4	7	float	read only		
5	Volume_1	9	float	read only		
6	Volume_2	11	float	read only		
7	Volume_3	13	float	read only		
8	Volume_4	15	float	read only		
9	Liquid level 1 upper limit alarm	17	uint	read only		0: normal 1: Alarm
10	Liquid level 1 lower limit alarm	18	uint	read only		0: normal 1: Alarm
11	Liquid level 2 upper limit alarm	19	uint	read only		0: normal 1: Alarm
12	Liquid level 2 lower limit alarm	20	uint	read only		0: normal 1: Alarm
13	Liquid level 3 upper limit alarm	21	uint	read only		0: normal 1: Alarm
14	Liquid level 3 lower limit alarm	22	uint	read only		0: normal 1: Alarm
15	Liquid level 4 upper limit alarm	23	uint	read only		0: normal 1: Alarm
16	Liquid level 4 lower limit alarm	24	uint	read only		0: normal 1: Alarm
17	The communication of the liquid level 1 sensor is abnormal	25	uint	read only		0: normal 1: Alarm
18	The communication of the liquid level 2sensor is abnormal	26	uint	read only		0: normal 1: Alarm
19	The communication of the liquid level 3 sensor is abnormal	27	uint	read only		0: normal 1: Alarm
20	The communication of the liquid level 4 sensor is abnormal	28	uint	read only		0: normal 1: Alarm
Communication Protocol: Standard Modbus-RTU						
Communication Parameters: Baud Rate - 9600, Data Bit - 8, Stop Bit - 1, Parity Bit - Even						
Station Number: 100						
Communication protocol: standard Modbus-TCP						
Communication parameters: IP: 192.168.0.3 (can be set); port: 502						
Station number: 1						

Table 2 - Correspondence Address

7. Contact us

Contact us if you have questions about the use or maintenance of the SP-350P Water Multimeter:

Pyxis Lab, Inc.
1729 Majestic Dr. Suite 5
Lafayette, CO 80026 USA
1-866-203-8397
www.pyxis-lab.com
service@pyxis-lab.com