

APNTU

Turbidity Analyzer Panel



READ THE ENTIRE OPERATING MANUAL PRIOR TO INSTALLATION AND USE.



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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 injury to the operator or damage to the equipment.

Symbol	Description
	Warning (Risk of electric shock)
	Caution (Refer to the user's guide)
	Ground, Protective Conductor Terminal

Note: When in doubt regarding your electrical installation, contact a licensed electrician.

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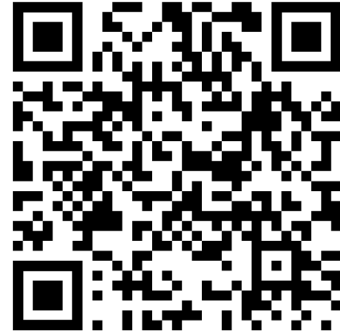
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1.0 Introduction

Congratulations on purchasing the APNTU Turbidity Analyzer.

Your APNTU Analyzer Panel is pre-configured and calibrated for use. The APNTU features EPA compliant technology and touchscreen display making it easy to operate and simple to maintain!

[Click to watch an overview video on Blue-White Analyzers](#)



1.1 What's in the box

- One APNTU Drinking Water Panel Assembled and Complete with 110VAC Power Supply Cord, including:
 - TS10 Touch Screen display/ Data Logger with pre-wired Sensor
 - WR10 Dual Sensor Flow Reservoir
 - UT700 Ultra Low Turbidity Sensor
 - Inlet Flowmeter, installed
 - Isolation Valve, installed
 - Inlet Tubing, 1/4" O.D. PE (5 ft)
 - Outlet Tubing 3/4" I.D. PVC (5 ft)
 - Rear FRP channel strut (3) and hardware
 - Concrete Anchors (6)
 - Electrical Schematics



1.2 System Features

- Turn-Key Monitoring Solution for Clean Water Applications
- Highly Accurate, Real-Time Measurement, Display, and Data-Logging
- Ultra-Low Turbidity
- Touch Screen Display and Data-Logging Terminal
- Ultra-low resolution UT700 turbidity sensor offers a detection light source using warm white LED in 90-degree surface scatter format in accordance with USEPA 180.1 standards.
- Single-Sensor flow reservoir provides sample calming for dissipation of air-bubbles and settling of suspended solids, foam or other impurities commonly observed in drinking water influent. Allows highest level of turbidity resolution on the market, and greatly extends the maintenance cycle of the sensor while providing a large buffer capacity to mitigate pressure fluctuations.

2.0 Engineering Specifications

Item	APNTU
Turbidity Wavelength	Warm White
Light Source	LED
Turbidity Dual Range	0.001 – 10 / 10 - 40.00 NTU
Turbidity Accuracy	+/- 0.005 NTU or 2% <10NTU
Turbidity Repeatability	+/- 0.001 NTU or 0.5% <10NTU
Minimum Resolution	0.001 NTU
Response time	4s after immersion - Turbidity
Compliance	EPA-180.1
Measurement Interval	Continuous Measurement
Display	7-inch LCD Color Industrial Capacitive Touch Screen
Storage Capacity	Built-In 4GB of Ram for Storing up to 1-Million Data/Event Records
Power Requirement	96-260VAC / 50-60 Hz; 10A Fuse; 200 W
Output	2 x 4-20 mA / RS-485 Modbus - RTU / Modbus TCP
Input	2 x 4-20 mA / RS-485 Modbus - RTU
USB	1 x USB host, for data downloading and screen upgrade
Internet	RJ-45 socket, Modbus-TCP
Panel Operational Temperature	40 – 113°F (4-45 °C)
Storage Temperature	Instrument: -4 – 131°F (-20 – 55°C) / Sensors 32 – 122°F (0 – 50°C)
Sample Water Temperature	40 – 104°F (4-40°C)
Sample Water Pressure	7.5 to 30 psi (0.2MPa) - (or as needed to provide required flow rate)
Installation	WR10 Self-Regulating Flow Reservoir w/Rotameter & Isolation Valve - Included
WR10 Minimum Flow Rate	3.1 g/h (200 mL/minute)
WR10 Maximum Flow Rate	6.2 g/h (400 mL/minute)
WR10 Sample Inlet	1/4 - inch OD
WR10 Sample Outlet	3/4 - inch ID - To Drain
WR10 Drain	1/2 - inch NPT
Rating	IP-65 Panel-Display / IP-67 Sensors
Regulation	CE / RoHS
Relative Humidity	20% - 90% (No Condensation)
Altitude	<6,561 feet (<2,000 Meter)
Dimensions (HxWxD)	Panel 36.00 H x 20.00 W x 9.42 D inches
Approximate Product Weight	33 lbs
Shipping Dimensions	42" x 26" x 16" (1067H x 661W x 407D mm)

2.1 Materials of Construction

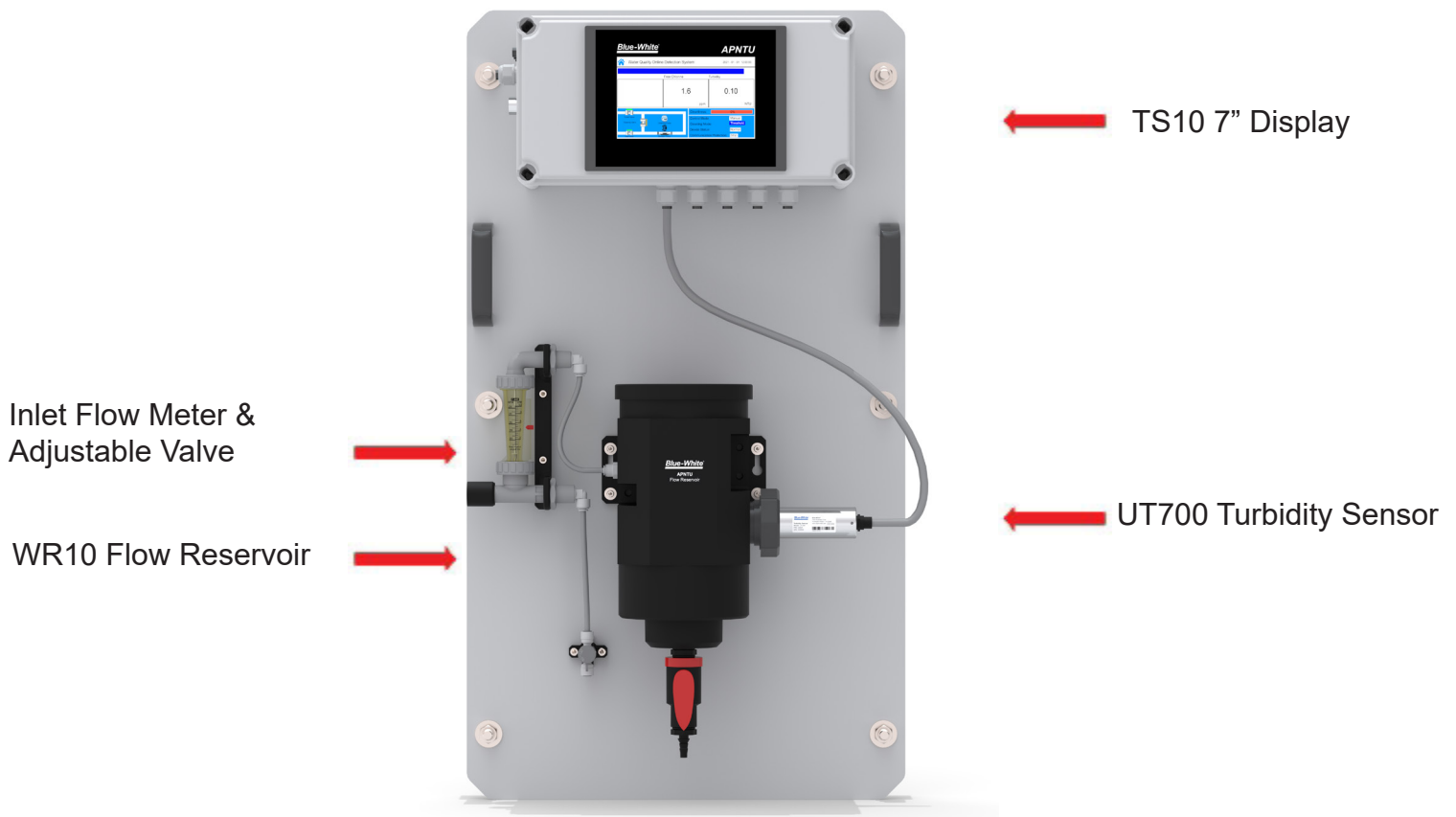
- Mounting Panel - Marine Grade HDPE, 1/2", Polyethylene
- Mounting Strut Channel - FRP
- Mounting Hardware - Stainless Steel / Galvanized
- Inlet Tubing - 1/4" O.D. PE
- Outlet Tubing - 3/4" I.D. PVC
- Flow Meter - Polysulfone / 316SS
- Tubing adapters and valves, Polypropylene

3.0 Layout

The APNTU Turbidity online water analyzer is specifically designed as a 'Turn-Key' monitoring solution for clean water applications including drinking water networks, secondary water supply and decorative/swimming water applications.

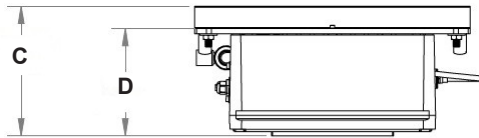
The APNTU series offers highly accurate, real-time measurement, display and data-logging of Ultra-Low Turbidity utilizing proprietary smart sensor technology, coupled with a touch screen display and data logging terminal.

The APNTU Analyzer Panel is offered in a convenient and easy to integrate panel mounted format for rapid installation and simple maintenance.

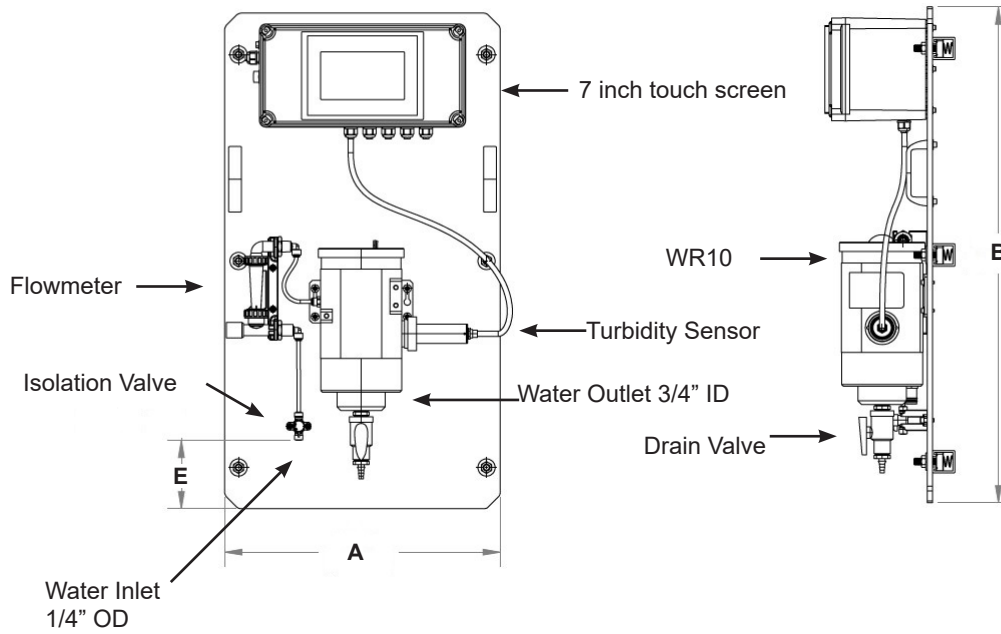


4.0 Dimensions

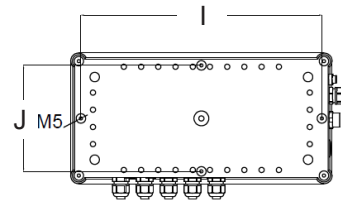
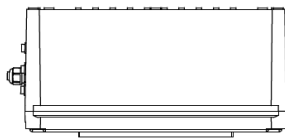
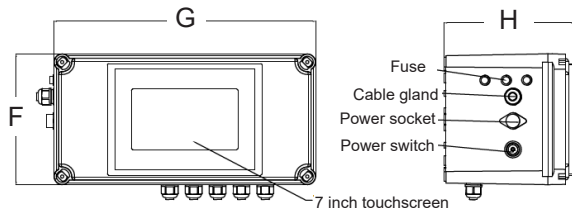
APNTU Panel Dimensions



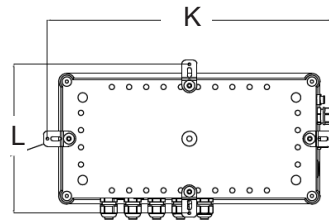
Dim	Inch	cm
A	20.00"	50.8
B	36.00"	91.4
C	9.42"	23.9
D	7.80"	19.8
E	4.98"	12.6



TS10 Controller Dimensions

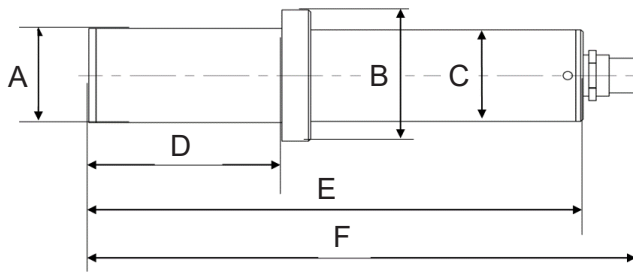


Installation Method 1



Dim	Inch	cm
F	7.48"	19.0
G	14.96"	38.0
H	7.42"	18.85
I	13.78"	35.0
J	6.02"	15.4
K	16.22"	41.2
L	8.5"	21.6

APNTU Series Sensor Dimensions



UT700 Turbidity Sensor

Dim	Inch	cm	Dim	Inch	cm
A	1.44"	3.66	D	2.63"	6.68
B	2.0"	5.1	E	6.73"	17.1
C	1.38"	3.5	F	7.44"	18.9

5.0 Installation

5.1 Installation Requirements

Power Supply: 100~240VAC 50/60Hz (110V power cord provided)

Water Supply: Inlet water pressure should be from 7.25 – 30 psi (0.05-0.2MPa) with an inlet feedwater line diameter of ¼-inch O.D. Tubing. The APNTU is provided with an inlet Rotameter and flow regulating valve for sample water inlet flow control and limited pressure regulation. The range of inlet flow for the WR10 should be consistently maintained between 200 and 400 mL per minute.

Drainage: The WR10 outlet tube (¾” Tubing) located on the bottom of the WR10, as well as the WR10 weir overflow (⅜-inch O.D. Tubing) located on the top of the WR10, should both be connected to a discharge drain via gravity flow.

Wall Mount Space: The APNTU analyzer panel size is roughly 24” H x 36” W x 10” D in dimension. Please accommodate sufficient space for mounting. The panel is equipped with pre-installed rear uni-strut for simple wall mounting.

Wall Mount Weight: Approximately 45 lbs (20kg). Please use appropriate mounting hardware.

5.2. Tube connections

Inlet Water: Connect the ¼-inch inlet water tubing to the quick adapter provided. *Consistent flow of 200-400mL is required.*

Weir Overflow: Connect the ⅜-inch weir overflow tubing to the quick adapter provided. This line must be diverted to drain.

Outlet Line: Connect ¾” tubing to the outlet drain. This is the sample water outlet flow. This line must be diverted to drain.



Always wear protective clothing, face shield, safety glasses and gloves when working on your Analyzer. Use caution when lifting and mounting equipment. When in doubt, contact factory for assistance.

6.0 Start-Up and Operation


6.1 Powering Up

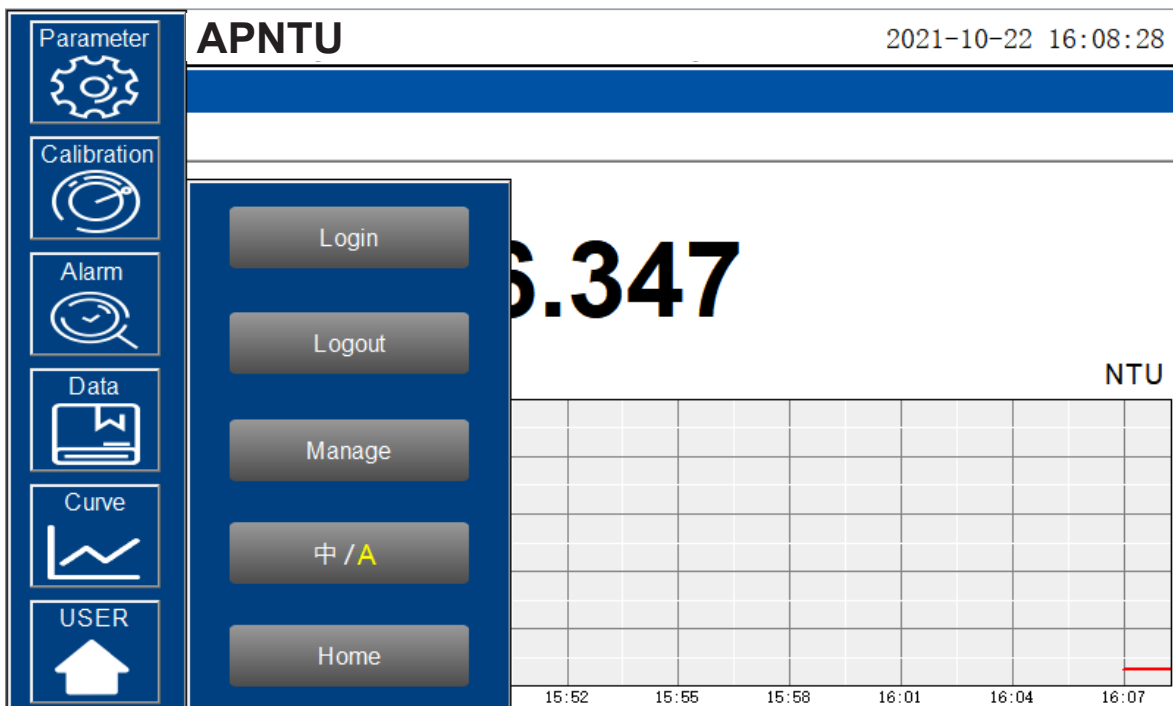
After the system is powered on (using the power button, located on the left side of the TS-10), an introduction screen will appear and then immediately proceed to Real Time Monitoring screen (6.3)



6.2 User Login

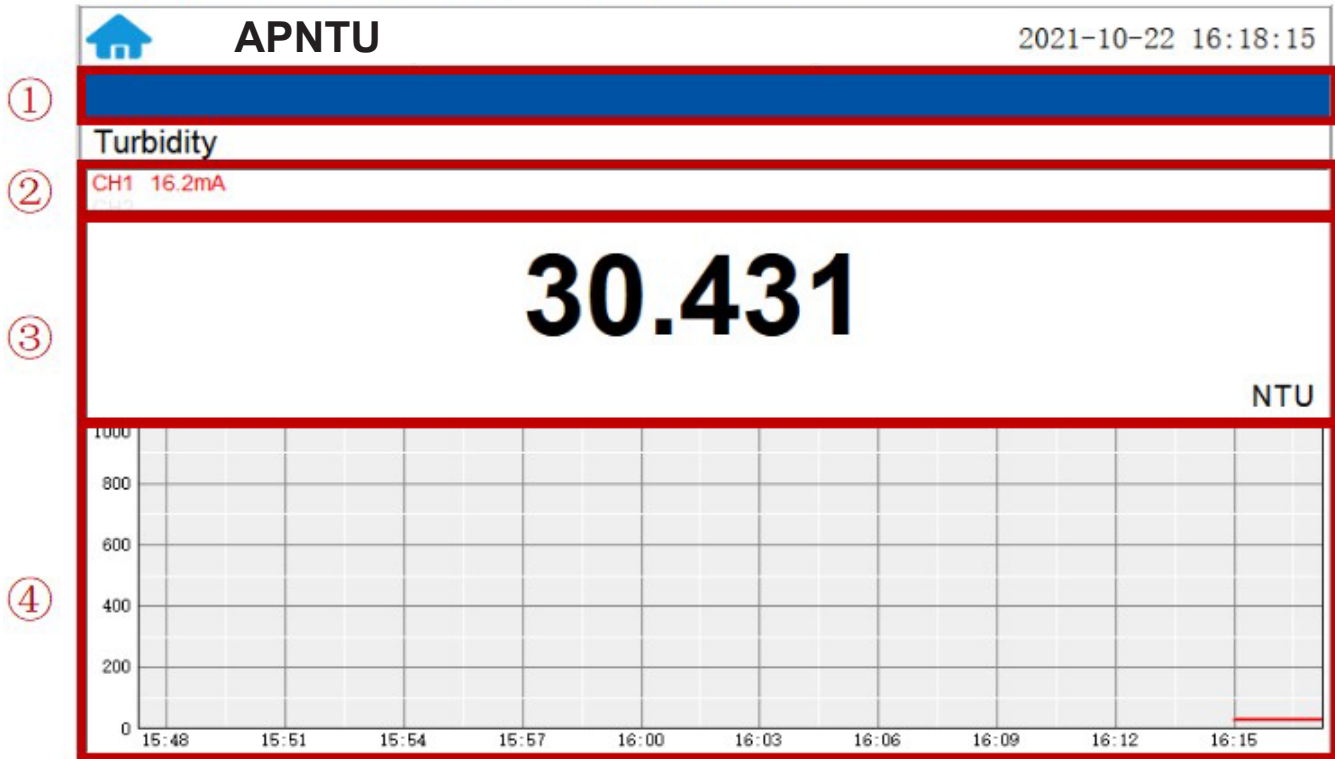
The system does not require “User Login” to view real time monitoring of the system. “User Login” is only necessary when changing parameter settings or performing calibrations. To access this

now, press the Home  icon and refer to section 6.11 User Management for more instructions regarding login and user management options. Note: Default password “888888”.



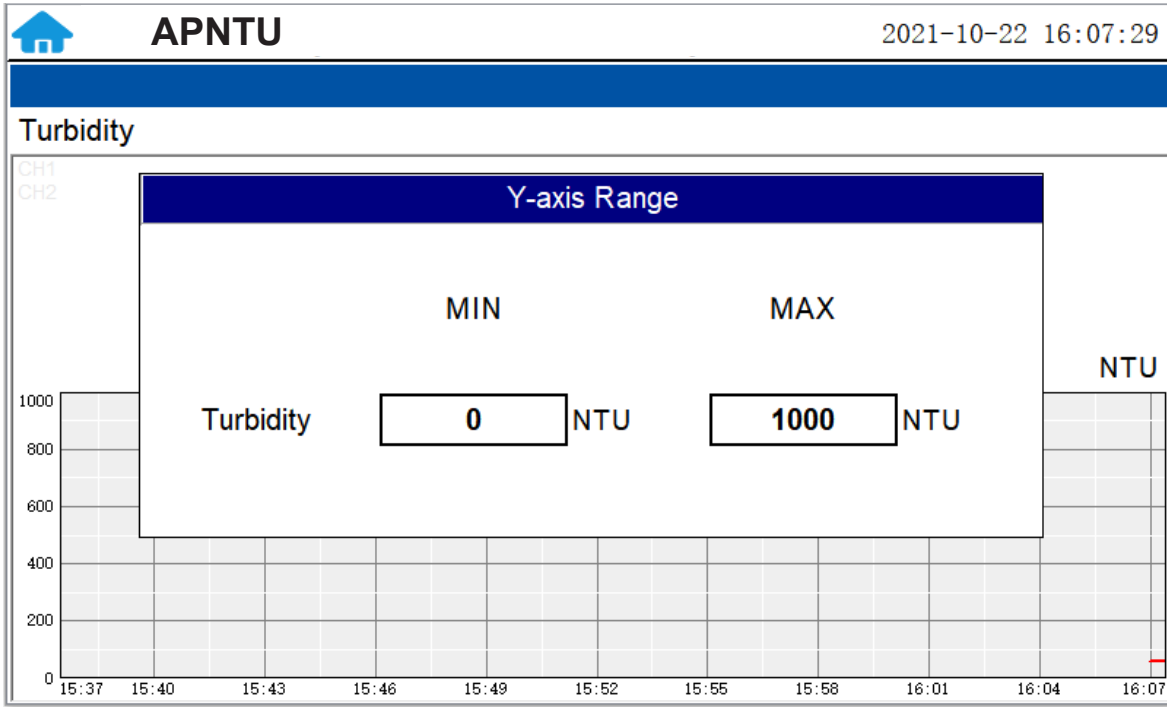
6.3 Real time Monitoring

Upon start-up, the main interface screen will appear showing real-time monitoring of the system. The data detected by the sensors will be displayed in real-time. See a functional overview of each section of this screen highlighted below. (numbers 1-4)




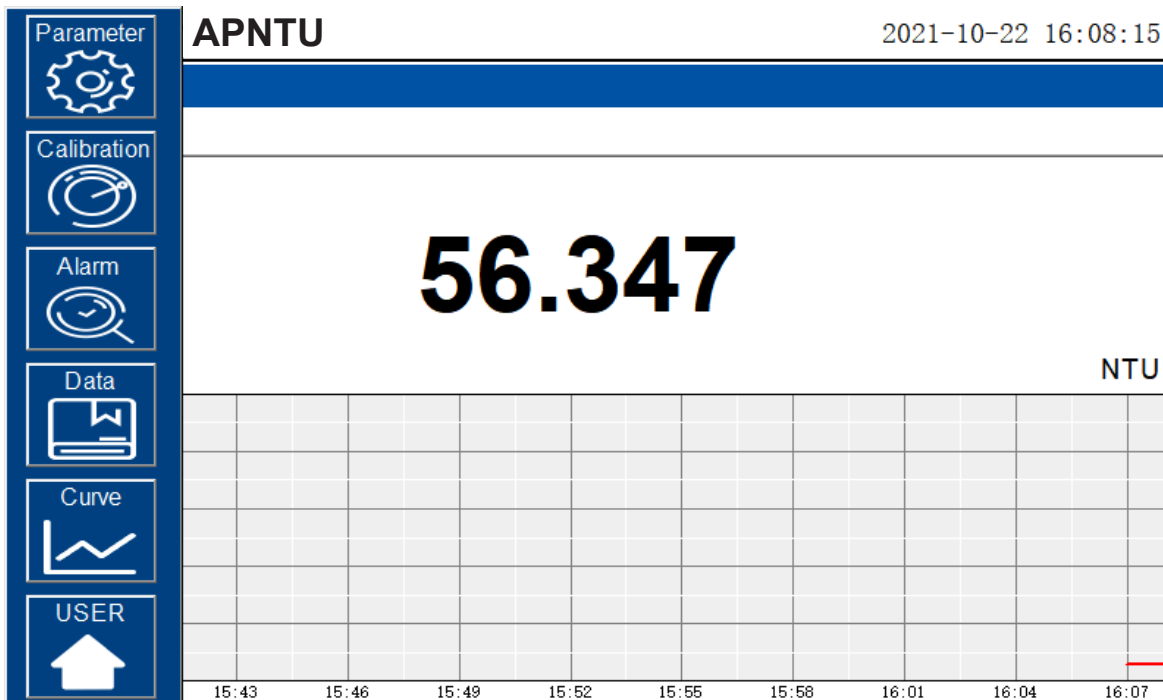
Section Number	Functional Overview
1	The blue area will scroll any alarm information in real time until the alarm is cleared.
2	Real-time display of the current sensor's 4-20mA signal value.
3	Real-time display of current sensor measurement value.
4	Historical data is recorded as a live curve, with the horizontal coordinate being the time and the vertical coordinate being the measured value.

Change Screen Scale. 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 outer area of the screen to save and exit the setting screen after modifications are made.



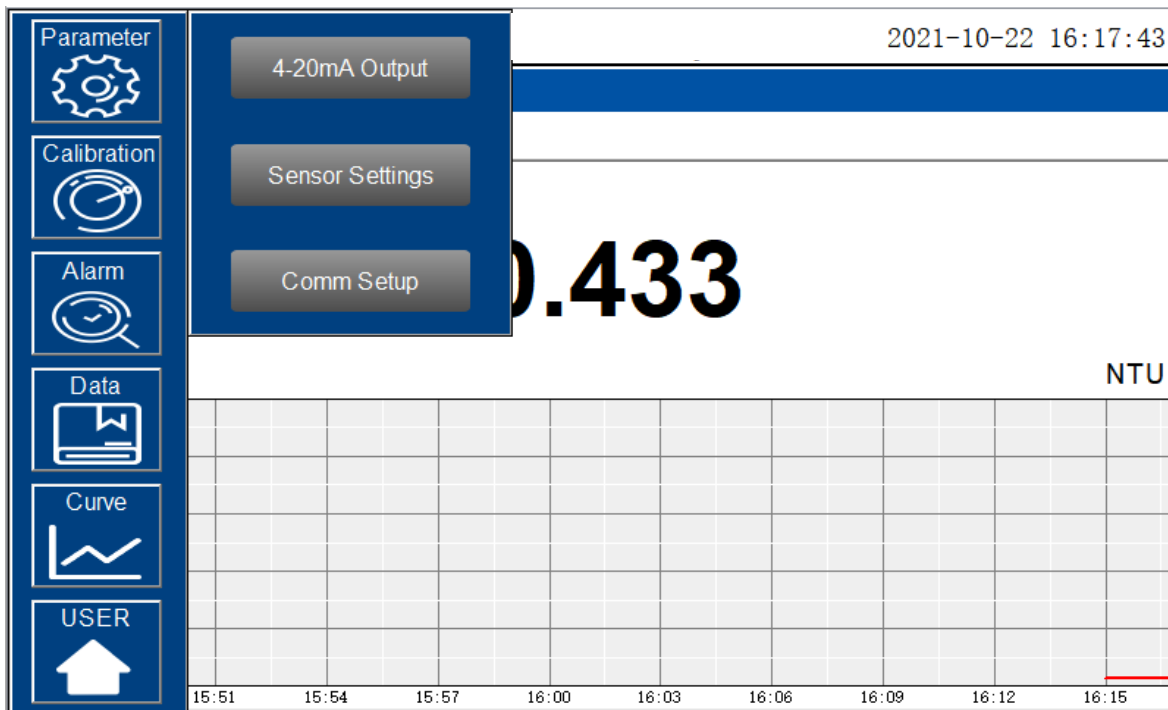
6.4. Menu Bar

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.



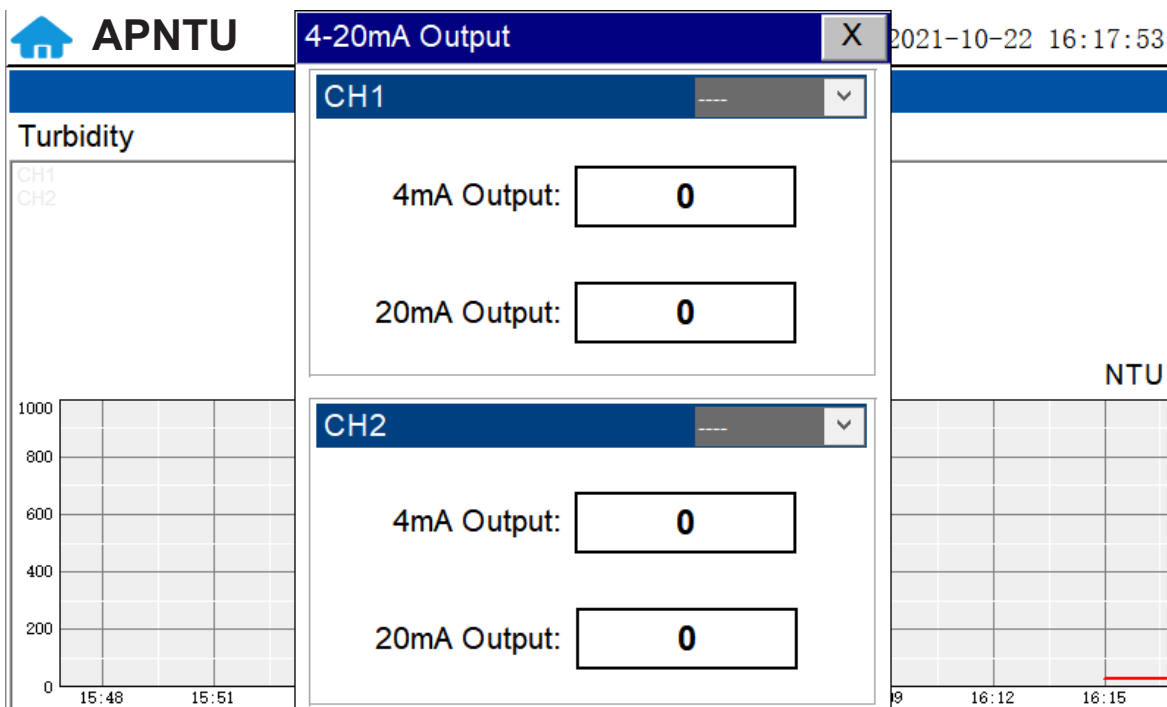
6.5. Configurable Parameters

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



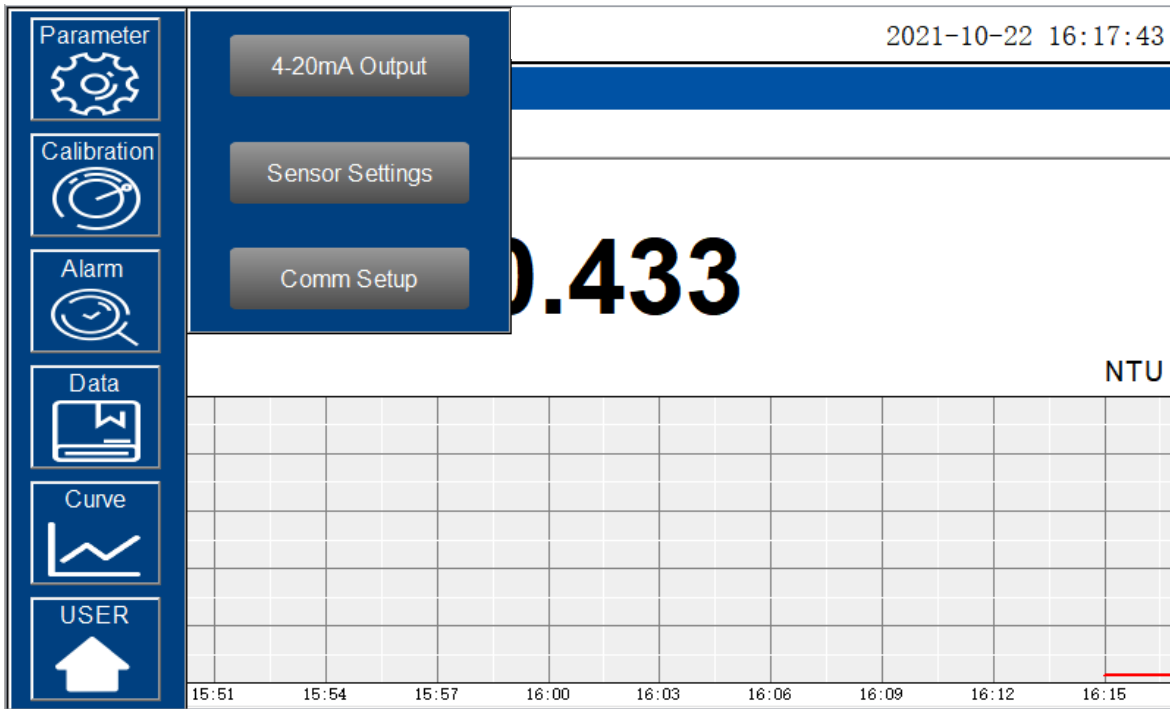
6.5.1. 4-20mA Output Parameters Setting

Click "4-20mA Output " to enter the 4-20mA output parameter setting interface. The 4mA and 20mA output values should corresponds to the lower and upper limits of the sensor range. *NOTE* The closer the value is set to the measurement value the more accurate the data. It is recommended to set according to the range of the sensor.



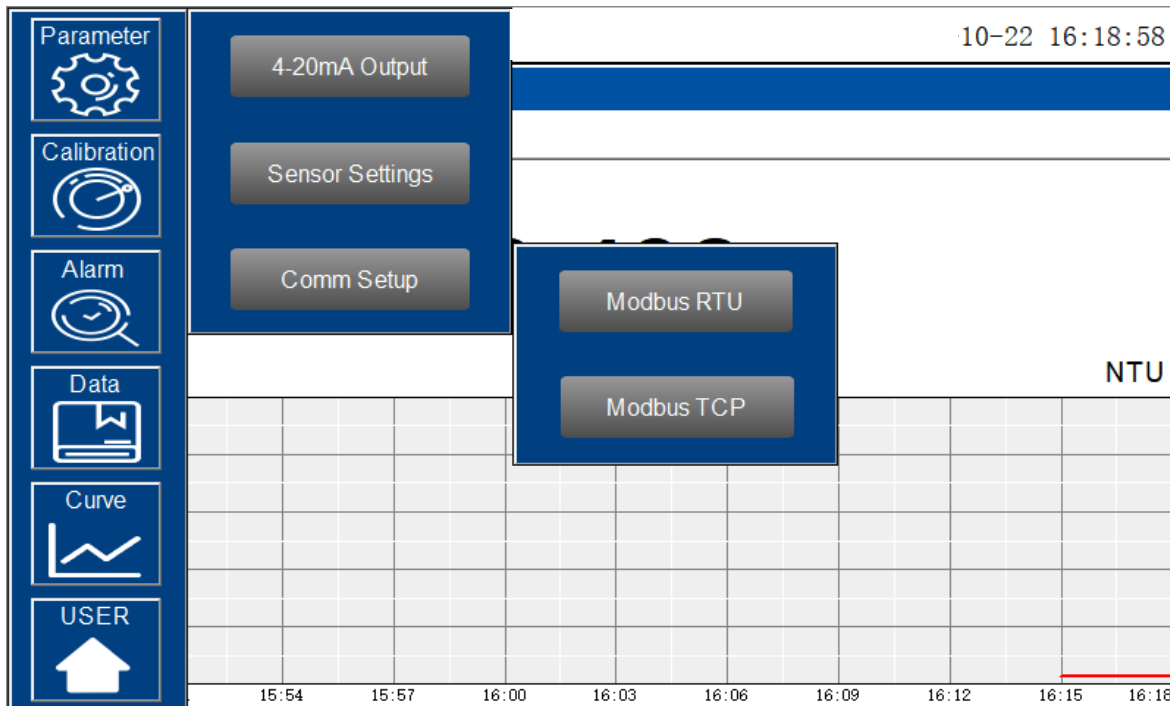
6.5.2. Sensor Settings

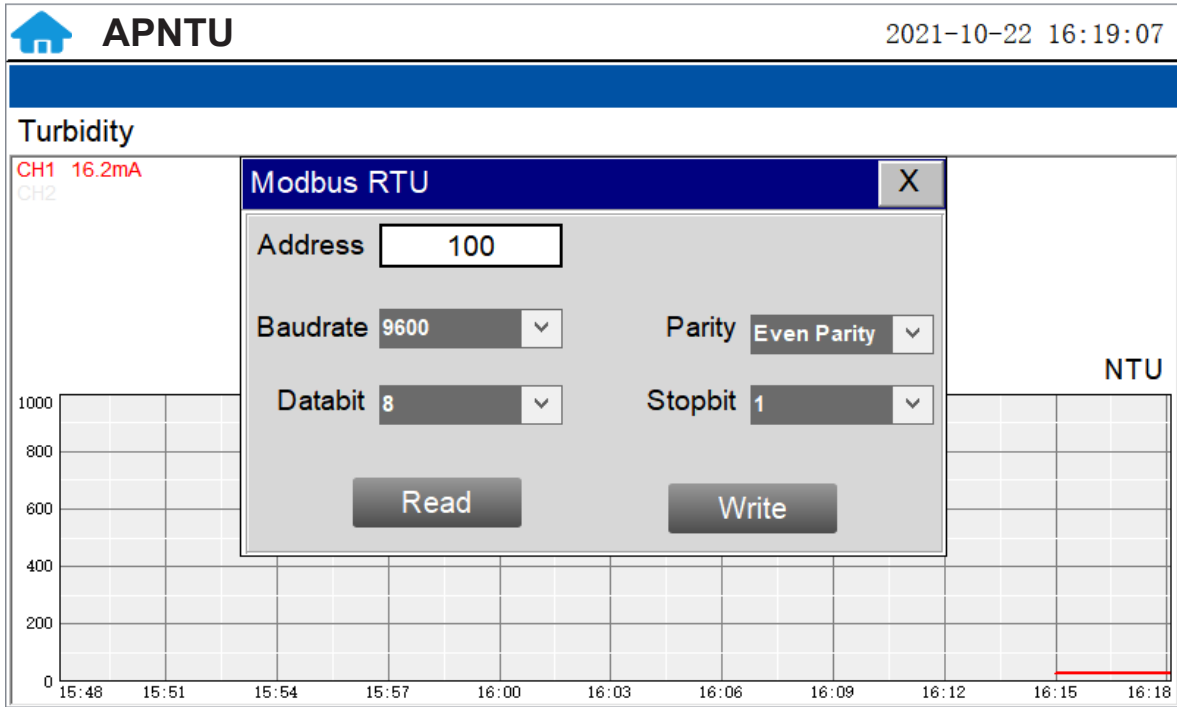
The sensor setting can configure the sensor model. The sensor has been configured before the device leaves the factory, and the customer does not need to configure it during normal use.



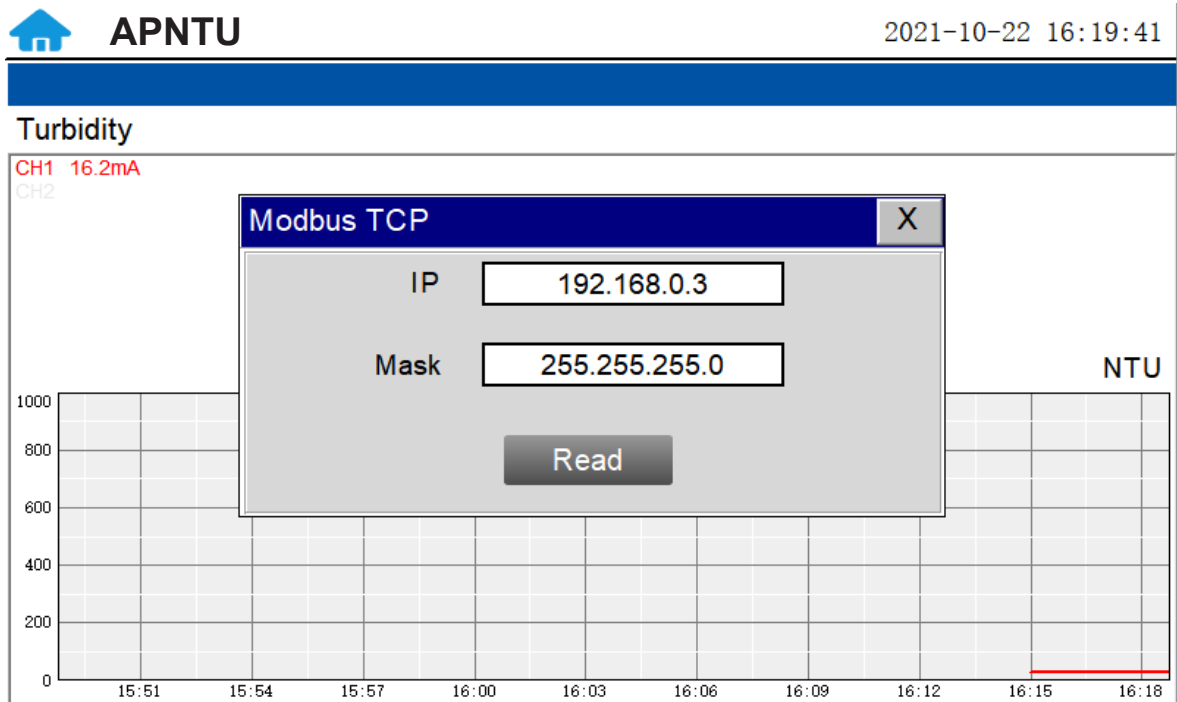
6.5.3. Communication Setting

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





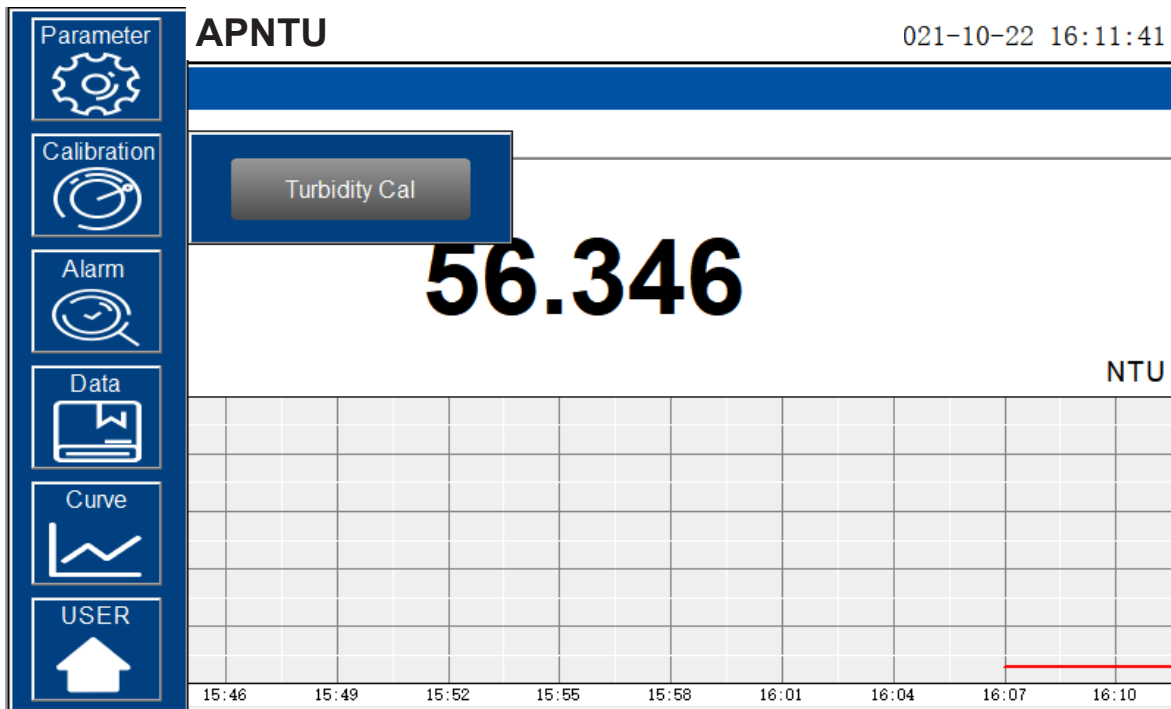
Modbus RTU Setting



Modbus TCP Setting

6.6. Calibration

Click on the "Calibration" button in the menu bar and select the sensor to be calibrated.



Sensor Calibration

Turbidity Calibration

The UT700 Ultra Low Turbidity Sensor is calibrated at the factory. If the sensor is kept clean, the user will not need to calibrate the sensor for one year of operation. However, the user may calibrate the sensor as desired, or as required by site, local, or agency standards. Prior to performing a calibration, the **user can perform a diagnostic check on the sensor** to determine if the sensor needs to be calibrated. To complete this task, the user must drain the WR10 flow reservoir and then wipe the WR10 flow cell and sensor surfaces with a dust/lint free cloth or paper towel to thoroughly clean them. Verify that there are no visible contaminants on the vessel walls or sensor surfaces. Once properly drained and cleaned, reinsert the UT700 Series sensor into the WR10 flow reservoir and refill the reservoir. Read the turbidity sensor display value on the touch screen display/data logger.

CAL700 Portable Liquid Formazin Turbidity Calibration Kit

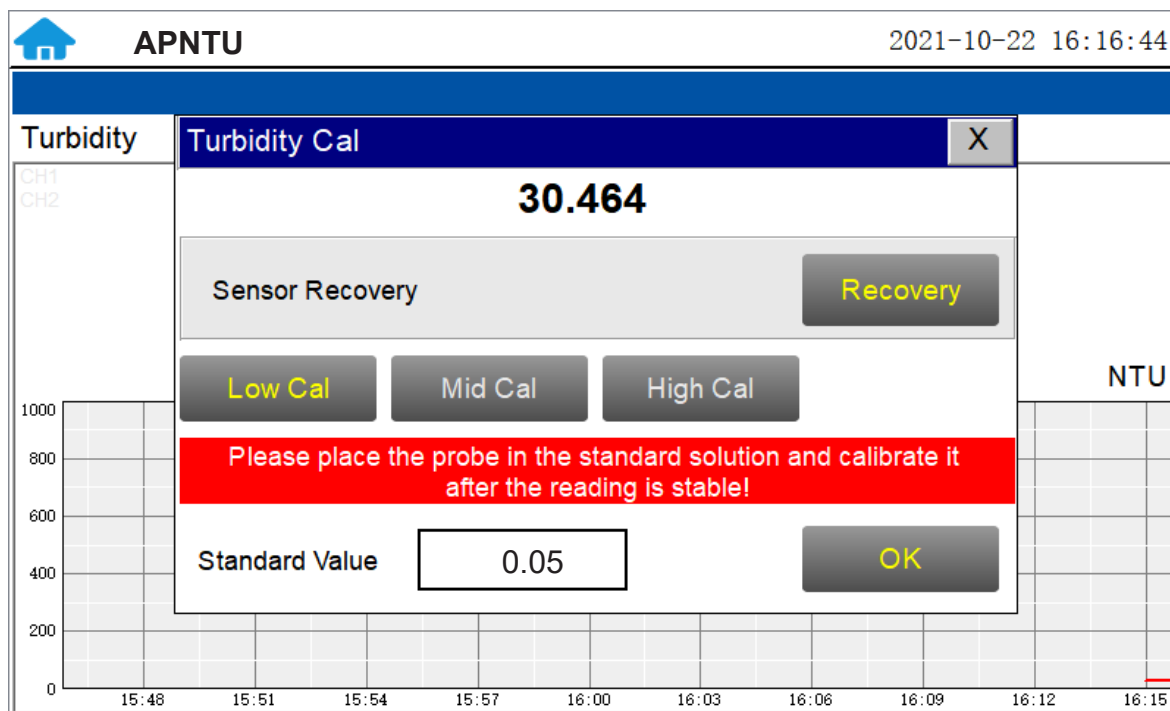
For ease in calibration, a CAL700 Calibration Kit is recommended for calibrating the UT700 Sensor. The CAL700 uses less standard and easier to clean, saving time and cost. (See page 22 for more instructions on the use of the CAL700.)



CAL700 Kit

Turbidity Calibration

When calibrating, click the corresponding “Low Cal”, “Mid Cal”, “High Cal”, the standard solution value input box will pop up below, enter the standard solution value in the input box to start calibration



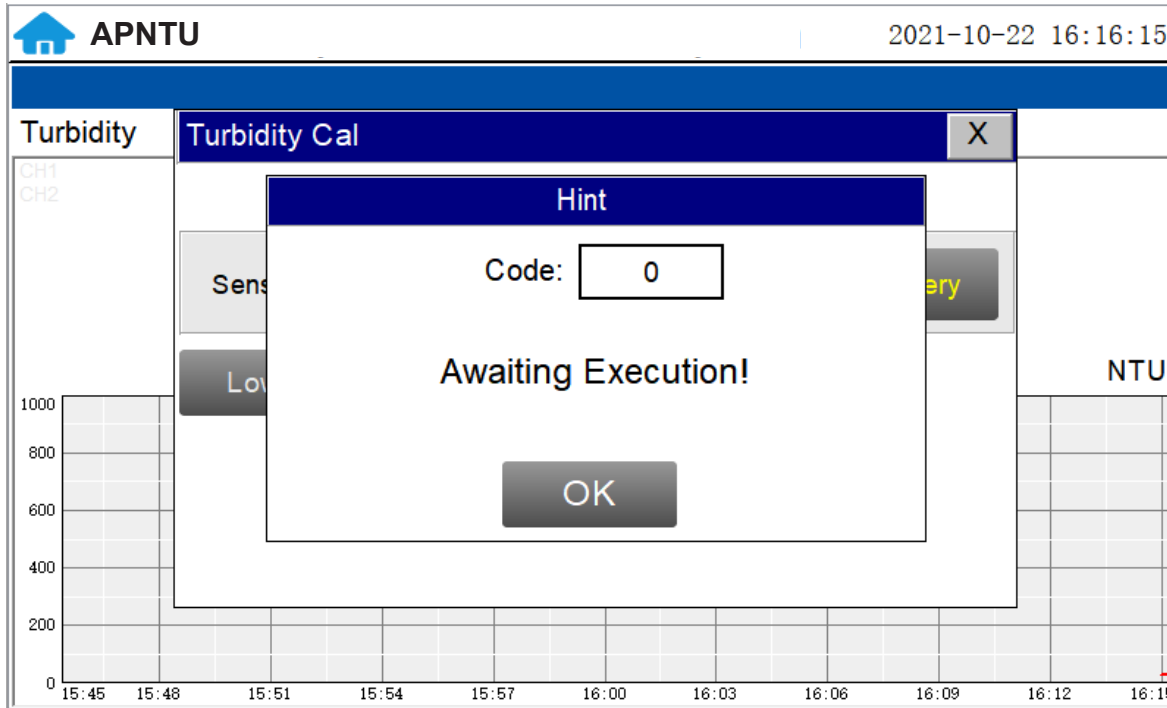
Enter the standard solution value

Low-Range Calibration Procedure:

For Calibration in the WR10 reservoir, empty the WR10 flow cell and wipe the WR10 flow cell walls and turbidity sensor surfaces with a dust-free cloth or dust-free paper towel and verify that no contaminants are evident.. Fill the WR10 flow cell with deionized water, then drain the contaminated deionized water. Repeat the cleaning operation as needed to ensure optimum cleanliness of the WR10 walls and sensor surfaces has been achieved. Then fill the WR10 flow cell with bubble free deionized water. (WR10 flow reservoir does not need to be completely filled, only fill reservoir above level of sensor.) After the displayed turbidity data is stable, enter “0.05” for the low-range calibration value and click on “Low Range Calibration”, a dialog box will pop up to confirm whether to perform this operation. Click “OK”, if the calibration is successful, the dialog box will show “Calibration successful”

For Calibration in the CAL700 reservoir, rinse and clean inside of CAL700 and turbidity sensor surfaces with a dust-free cloth or dust-free paper towel and verify that no contaminants are evident. Isolate the panel and drain the piping and inline Tee assemblies. Remove the UT700 sensor from the WR10 reservoir. Triple rinse the UT700 sensor surface, the WR10 flow reservoir internals and the CAL700 Portable Turbidity Calibration Kit with Deionized water. Insert the cleaned UT700 turbidity sensor into the CAL700 calibration vessel and position the CAL700 vessel vertically (with the sensor inserted in a horizontal position to the ground). Remove the top cap and fill the CAL700 vessel with 500mL of bubble free deionized water. After the displayed turbidity data is stable, enter “0.05” for the low-range calibration value and click on “Low Range Calibration”, a dialog box will pop up to confirm this operation. Click “OK”, if the calibration is successful, the dialog box will show “Calibration successful”.

NOTE Because there is no global standard for zero turbidity in the industry, Blue-White recommends 0.05 NTU as a target for Low-Point Calibration.



Mid-Range Calibration:

After the low range calibration has been completed, fill the CAL700 / WR10 flow reservoir with known turbidity standard solution between 5NTU and 10NTU for mid-range calibration. After the displayed data is stable, enter the medium turbidity standard solution value and click on "Mid Range Calibration", a dialog box will pop up to confirm whether to perform this operation. Click "OK", if the calibration is successful, the dialog box will show "Calibration successful".

High-Range Calibration:

If a high-range calibration is not required, the user does not need to perform a high-range calibration of the UT700 series sensor. If a high calibration is required, proceed by filling the CAL700 / WR10 flow reservoir with known turbidity standard solution between 20NTU and 40NTU for high-range calibration. After the displayed data is stable, enter the high turbidity standard solution value and click on "High Range Calibration", a dialog box will pop up to confirm whether to perform this operation. Click "OK", if the calibration is successful, the dialog box will show "Calibration successful".

Troubleshooting Calibration Failed Messages

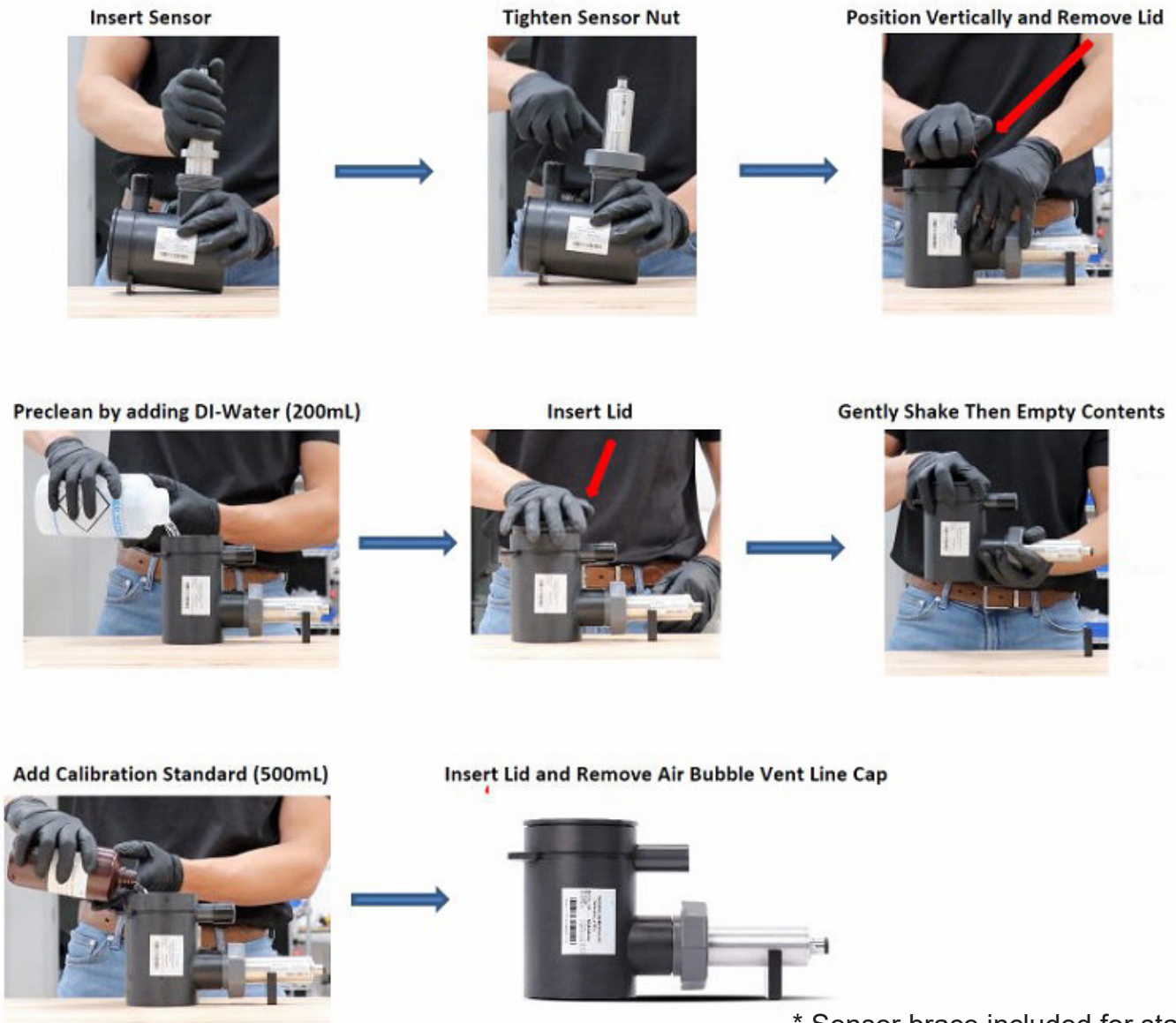
If you receive a "Calibration Fails" message during the calibration steps above, the following items should be checked:

- 1) Ensure your source of Deionized water is not contaminated with turbidity
- 2) Ensure your turbidity calibration standard solutions have not been contaminated
- 3) Ensure the UT700 sensor distillate end is not contaminated with debris or other substances
- 4) Ensure the WR10 flow reservoir is not contaminated with debris or other materials.

CAL700 Portable Liquid Formazin Turbidity Calibration Kit

The calibration kit allows users to calibrate all ultra-low turbidity sensors using smaller volumes of Formazin turbidity calibration standards providing an affordable and reusable solution for long term sensor reliability. The unique design of the liquid calibration kit allows the UT700 sensor to be easily inserted and calibrated with the sensor in a horizontal position, allowing air bubbles to be evacuated through the integrated air-vent line ensuring superior accuracy of the sensor calibration. The kit has an easy to remove lid allowing users to fill and empty the calibration kit with DI water for vessel/sensor cleaning and Formazin calibration standards for sensor calibration.

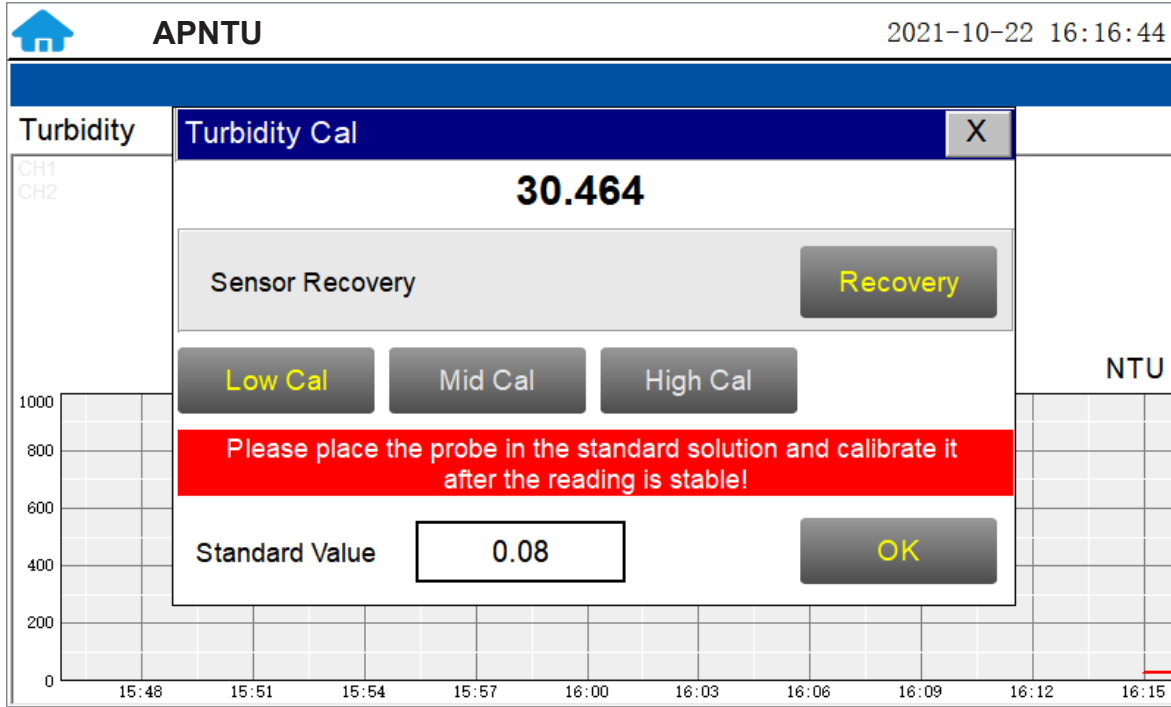
The precision, resolution and the low detection limit of the UT700 sensors are not affected by the calibration method, regardless of using certified Formazin standards and the kit. The calibration only affects the turbidity sensor accuracy. The nature of turbidity measurement makes an absolute turbidity value not easily obtainable for any sensor manufacturer although proper standards and methods are followed. For example, turbidity values greater than 1.0 NTU measured on real-world samples with different sensors, even from the single manufacturer, could differ significantly. For ultra-low turbidity (less than 0.3 NTU) measurement using the same methods (ISO-7027 or EPA-180.1), it is likely that the values from different sensors can agree within 0.05 NTU. As such, the user should choose a calibration method and remain with the same calibration method for consistency.



* Sensor brace included for stability.

6.7. Recovering Data

Click the restore button in the calibration interface of each sensor to restore the data of turbidity sensor. If a user error is made during calibration and other operations, you may restore the factory settings of the sensor through the restore function.



6.8. Alarm View

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

The screenshot shows the 'Alarm' interface with a table containing the following columns: Number, Date, Time, and Alarm description. The table is currently empty. At the bottom of the screen, there are four buttons: Delete, Query, Previous, and Next.

Number	Date	Time	Alarm description

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.

The screenshot shows a web application window titled "Alarm" with a close button (X). The main content is a table with the following columns: "Number", "Date", "Time", and "Alarm description". The table is currently empty. A modal dialog box titled "Alarm Data Query" is open in the center, featuring a text input field labeled "Number" containing the value "0" and a "Query" button below it. At the bottom of the "Alarm" window, there are four buttons: "Delete" (highlighted in yellow), "Query", "Previous", and "Next".

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.

6.9. Historical Data

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

The screenshot shows a web application window titled "Data || Turbidity" with a close button (X). The main content is a table with the following columns: "Number", "Time", and "Data". The table contains 13 rows of data. At the bottom of the window, there are five buttons: "Delete" (highlighted in yellow), "Previous", "Next", "Periodicity", and "Query".

Number	Time	Data
1	2021-10-22 16:10:20	56.347
2	2021-10-22 16:10:19	56.347
3	2021-10-22 16:10:18	56.347
4	2021-10-22 16:10:17	56.347
5	2021-10-22 16:10:16	56.347
6	2021-10-22 16:10:15	56.347
7	2021-10-22 16:10:14	56.347
8	2021-10-22 16:10:13	56.347
9	2021-10-22 16:10:12	56.346
10	2021-10-22 16:10:11	56.346
11	2021-10-22 16:10:10	56.346
12	2021-10-22 16:10:09	56.346
13	2021-10-22 16:10:08	56.346

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.

Number	Time	Data
1	2021-10-22 16:10:44	56.346
2	2021-10-22 16:10:43	56.346
3		
4		
5		
6		
7		
8		
9		

Data Storage Period

Periodicity

Delete **Previous** **Next** **Periodicity** **Query**

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.

Historical Data Deletion

Retention Time

h

Delete

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.

Number	Time	Data
1	2021-10-22 16:10:44	56.346
2		
3		
4		
5		
6		
7		
8		
9		

Historical Data Query/Export

Current Time 2021-10-22 16:11:00

Start Time

END Time

Quantity

State

Query

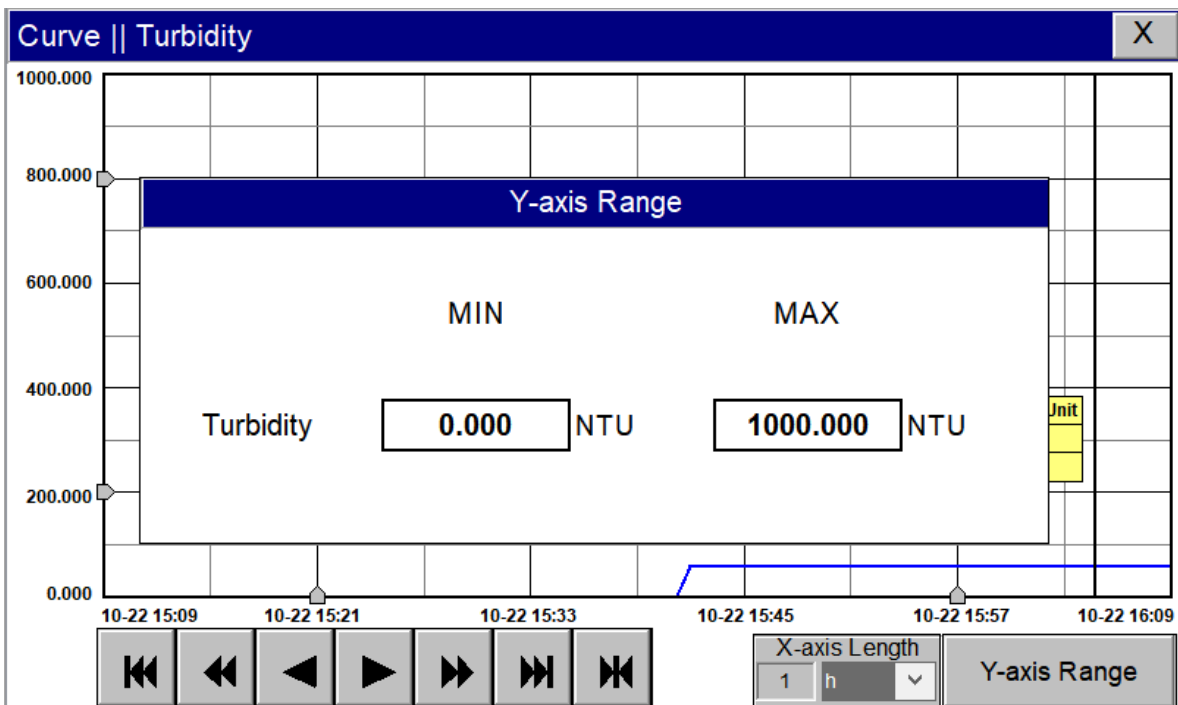
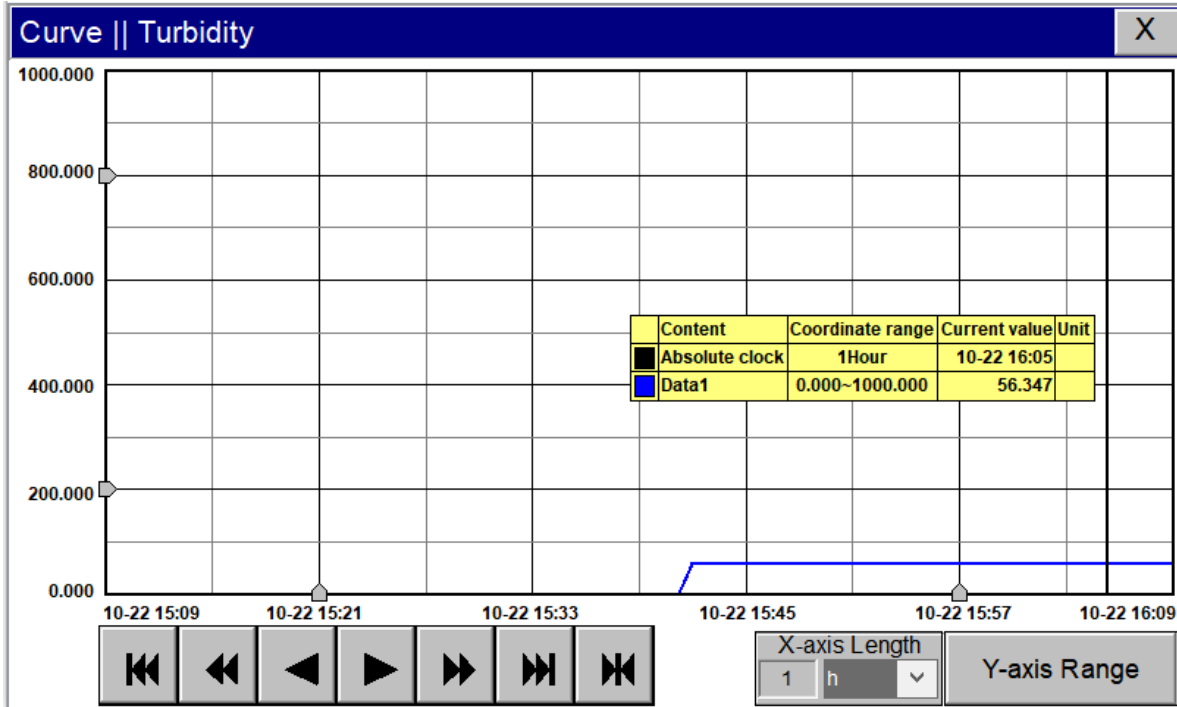
Data Export








Delete Previous Next Periodicity Query

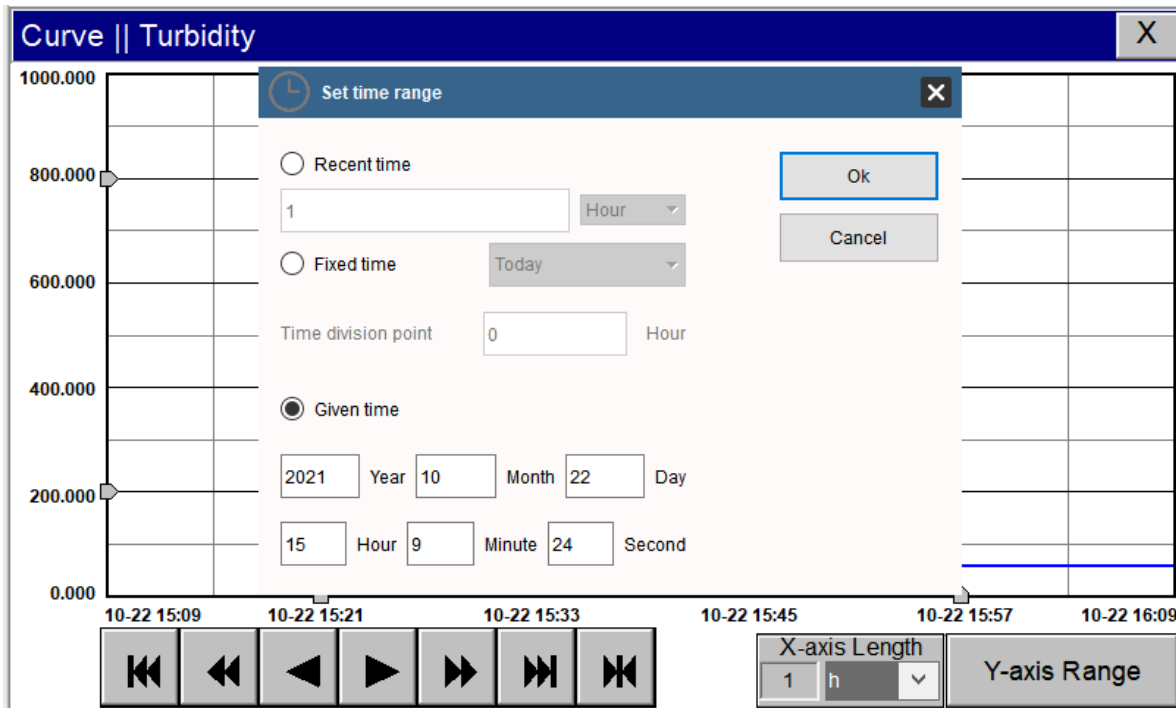
Insert a USB disk behind the display screen and enter the time range of the data to be exported in the query area. Click on the “Data Export” to download the data to the USB disk. The data quantity will be shown as a positive number if data export is successful. If the data export was not successful,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

6.10. 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.

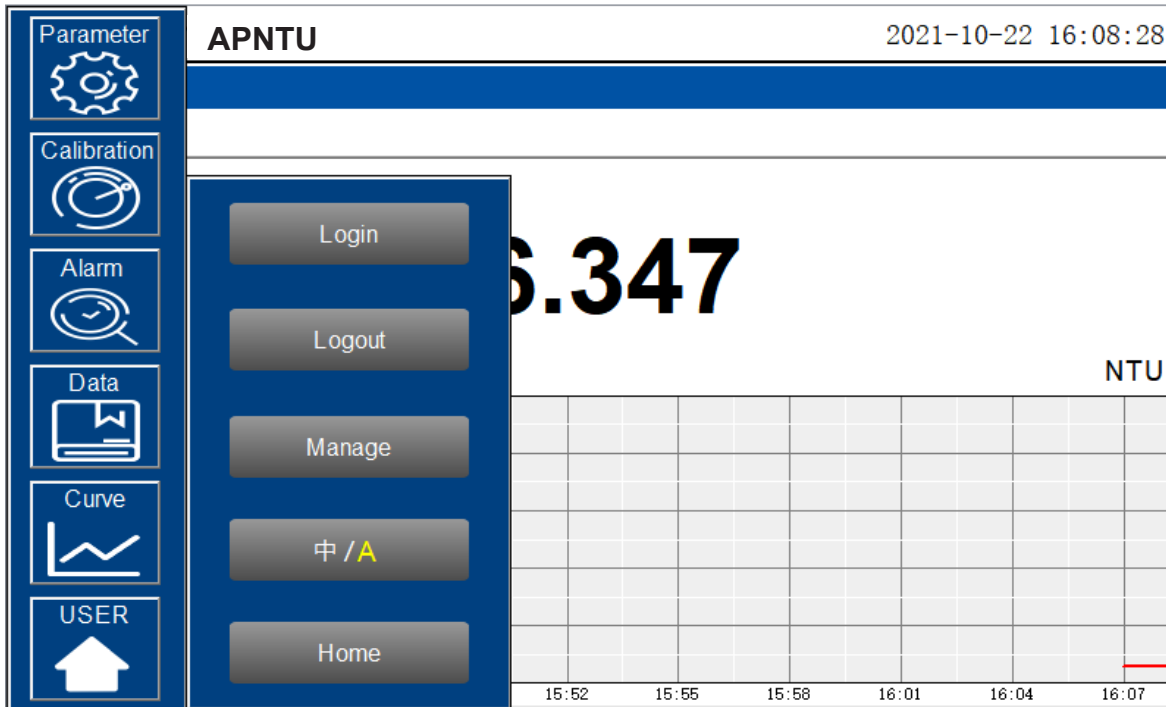


-  The curve will scroll back (to the left of the X-axis) one page
-  The curve will scroll back (to the left of the X-axis) half the page of the curve
-  The curve will scroll backward (to the left of the X-axis) to a position where the main line is drawn
-  The curve will scroll forward (to the right 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

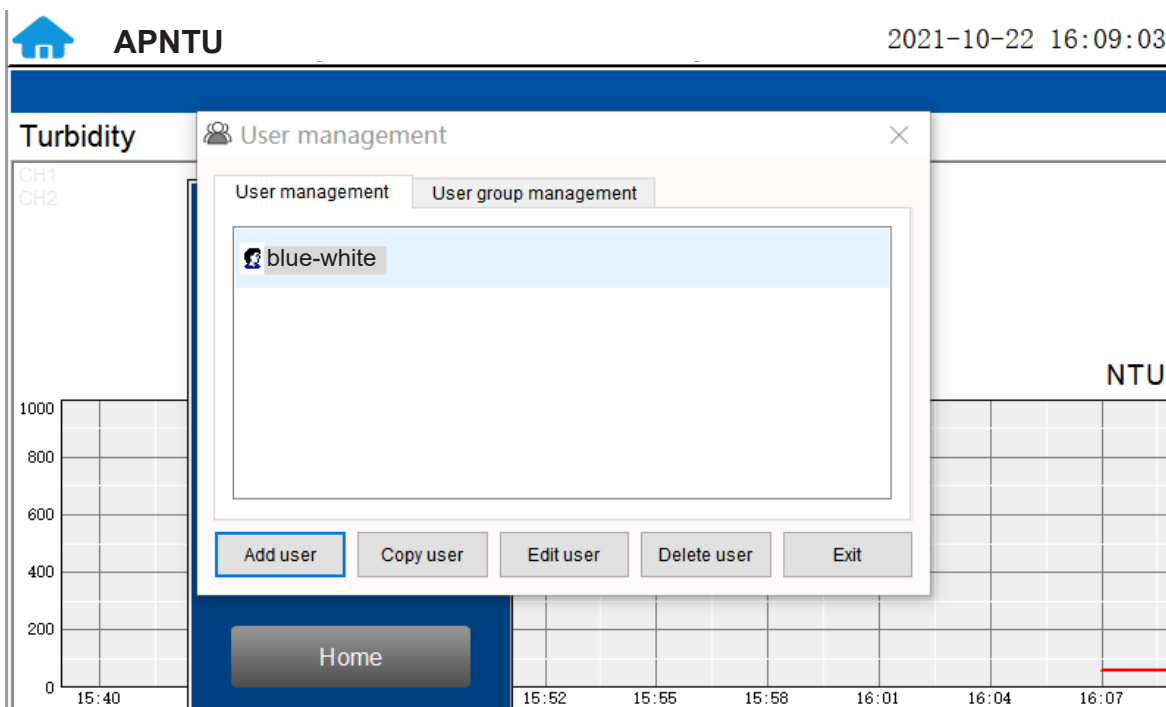


6.11. User Management

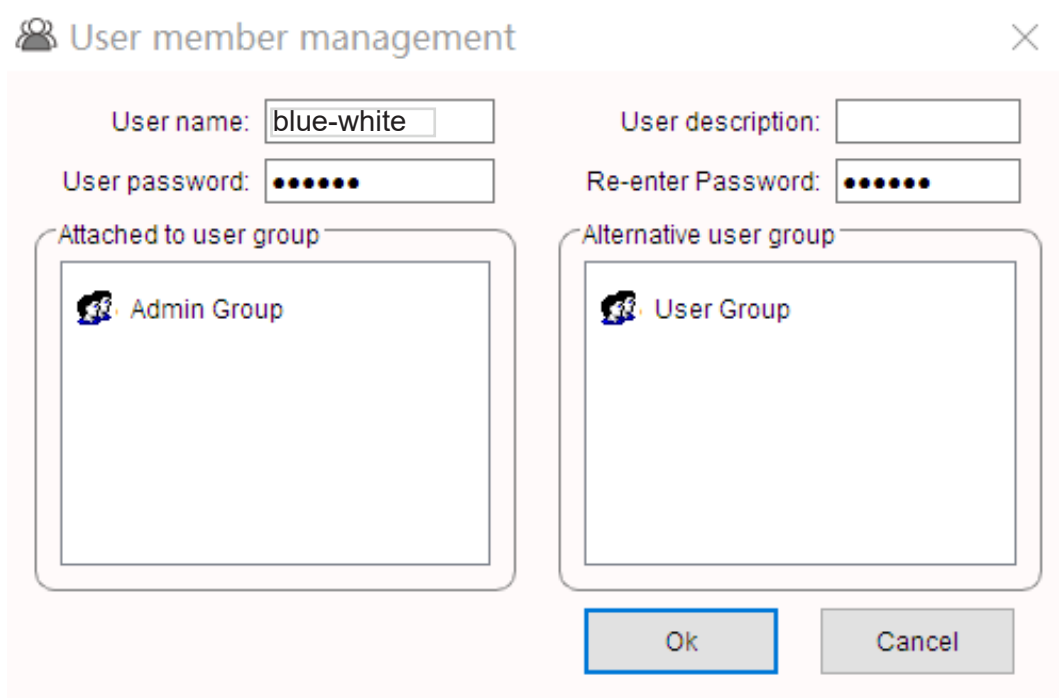
Click the “User Management” button on the menu bar and then you can select “Login”, “Logout” and “Manage” operations.



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. **Note: Default password “888888”**



Modify Password: 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.



The image shows a 'User member management' dialog box with a close button (X) in the top right corner. It contains the following fields and sections:

- User name:** A text input field containing 'blue-white'.
- User description:** An empty text input field.
- User password:** A password input field with six dots.
- Re-enter Password:** A password input field with six dots.
- Attached to user group:** A list box containing one item: 'Admin Group' with a user icon.
- Alternative user group:** A list box containing one item: 'User Group' with a user icon.
- Buttons:** 'Ok' and 'Cancel' buttons at the bottom.

6.12 Other Settings

To modify system settings, such as Time, Date, TCP, Display, press a finger on touchscreen while to unit is powering on. With unit off, press and hold finger on screen and press power button. Hold finger on screen until system settings window appears. Do not change settings if unsure of their use. Consult factory for guidance. After saving settings, close window and press "run" button to resume monitoring.

7.0 Maintenance

7.1. Correspondence Address

Serial Number	Definition	Address	Format	Mode	Unit	Note
1	Channel 1 display	1	float	Read Only	NTU	Data format ABCD
2	Channel 2 display	3	float	Read Only	NTU	Data format ABCD
3	Channel 3 display	5	float	Read Only	NTU	Data format ABCD
4	Channel 4 display	7	unit	Read Only	NTU	Data format ABCD
5	Channel 5 display	9	unit	Read Only	NTU	Data format ABCD
6	Channel 6 display	11	unit	Read Only	NTU	Data format ABCD
7	The sensor communication in channel 1 is abnormal	13	unit	Read Only		0=Normal 1=Alarm
8	The sensor communication in channel 2 is abnormal	14	unit	Read Only		0=Normal 1=Alarm
9	The sensor communication in channel 3 is abnormal	15	unit	Read Only		0=Normal 1=Alarm
10	The sensor communication in channel 4 is abnormal	16	unit	Read Only		0=Normal 1=Alarm
11	The sensor communication in channel 5 is abnormal	17	unit	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						

7.2. Operation and Maintenance

After the analyzer is installed by a qualified technician, it can begin to monitor water quality. The AP-NTU online detection system is designed to be simple to operate, but still requires some regular maintenance. Actual system maintenance may vary depending on the installation conditions and usage. Please refer to the table below as a general recommended maintenance schedule. Minimal operator intervention is required during normal operation.

Required Services	Recommended Frequency
Cleaning Inlet Water Filter	Monthly or Cleaned As Needed
Cleaning of WR10 Flow Reservoir and Sensor	Monthly
Turbidity Calibration	Every 6-12 Months, or as required by site standards.

7.3. Instrument Alarms and Descriptions

Please refer to the instrument alarms and descriptions table when troubleshooting the APNTU online inspection system issues an alarm or indicates abnormal measurement data.

Alarms	Description	Symptoms	Solutions/ Recommendations
PLC Communication Abnormalities	PLC without Communication		Check if the wiring inside the PLC and control box is loose
Turbidity Sensor Communication Abnormality	Turbidity Sensor without Communication	No Turbidity Measurements	Check the connection between the sensor and the circuit board. If the problem persists, contact factory.
Turbidity Upper Limit Alarm	Turbidity above the Alarm Setting	Information Only	Compare with manual measurement readings. Check and clean line valves. Check that water flow is normal. Check that the sensor is clean.
Turbidity Lower Limit Alarm	Turbidity below the Alarm Setting	Information Only	
Turbidity Calibration Failure Code 259	Low Calibration Standard Solution out of Range	Turbidity Calibration Failure	Check that the flow cell and sensor are clean and that the standard solution is not contaminated
Turbidity Calibration Failure Code 260	Mid Calibration Standard Solution out of Range	Turbidity Calibration Failure	
Turbidity Calibration Failure Code 261	High Calibration Standard Solution out of Range	Turbidity Calibration Failure	
Turbidity Calibration Failure Code 262	Slope f1 out of Range	Turbidity Calibration Failure	
Turbidity Calibration Failure Code 263	Slope f2 out of Range	Turbidity Calibration Failure	

8.0 Warranty

8.1 LIMITED WARRANTY

Your new AP Analyzer is a quality product and is warrantied for 13 months from date of purchase (proof of purchase is required). Electrodes are warranted for 6 months. The unit will be repaired or replaced at our discretion. Failure must have occurred due to defect in material or workmanship and not as a result of operation of the product other than in normal operation as defined in the manual. Warranty status is determined by the serial label and the sales invoice or receipt. The serial label must be on the unit and legible. The warranty status of the unit will be verified by Blue-White or a factory authorized service center.

8.2 WHAT IS NOT COVERED

- Wear items.
- Unit removal, or re-installation, and any related labor charge.
- Freight to the factory, or service center.
- Units that have been tampered with, or in pieces.
- Damage to the unit that results from misuse, carelessness such as chemical spills on the enclosure, abuse, lack of maintenance, or alteration which is out of our control.
- Units damaged by faulty wiring, power surges or acts of nature.

8.3 PROCEDURE FOR IN WARRANTY REPAIR

Contact the factory to obtain a RMA (Return Material Authorization) number. Carefully pack the unit to be repaired. Please enclose a brief description of the problem as well as the original invoice or sales receipt, or copy showing the date of purchase. Prepay all shipping costs. COD shipments will not be accepted. Warranty service must be performed by the factory or an authorized service center. Damage caused by improper packaging is the responsibility of the sender. When In-Warranty repair or replacement is completed, the factory pays for return shipping to the dealer or customer.

8.4 PRODUCT USE WARNING

Blue-White products are manufactured to meet the highest quality standards in the industry. Each product instruction manual includes a description of the associated product warranty and provides the user with important safety information. Purchasers, installers, and operators of Blue-White products should take the time to inform themselves about the safe operation of these products. In addition, Customers are expected to do their own due diligence regarding which products and materials are best suited for their intended applications. Blue-White is pleased to assist in this effort but does not guarantee the suitability of any particular product for any specific application as Blue-White does not have the same degree of familiarity with the application that the customer/end user has. While Blue-White will honor all of its product warranties according to their terms and conditions, Blue-White shall only be obligated to repair or replace its defective parts or products in accordance with the associated product warranties. BLUE-WHITE SHALL NOT BE LIABLE EITHER IN TORT OR IN CONTRACT FOR ANY LOSS OR DAMAGE WHETHER DIRECT, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL, ARISING OUT OF OR RELATED TO THE FAILURE OF ANY OF ITS PARTS OR PRODUCTS OR OF THEIR NONSUITABILITY FOR A GIVEN PURPOSE OR APPLICATION.

17.5 CHEMICAL RESISTANCE WARNING

Blue-White offers a wide variety of wetted parts. Purchasers, installers, and operators of Blue-White products must be well informed and aware of the precautions to be taken when injecting or measuring various chemicals, especially those considered to be irritants, contaminants or hazardous. Customers are expected to do their own due diligence regarding which products and materials are best suited for their applications, particularly as it may relate to the potential effects of certain chemicals on Blue-White products and the potential for adverse chemical interactions. Blue-White tests its products with water only. The chemical resistance information included in this instruction manual was supplied to Blue-White by reputable sources, but Blue-White is not able to vouch for the accuracy or completeness thereof. While Blue-White will honor all of its product warranties according to their terms and conditions, Blue-White shall only be obligated to repair or replace its defective parts or products in accordance with the associated product warranties. BLUE-WHITE SHALL NOT BE LIABLE EITHER IN TORT OR IN CONTRACT FOR ANY LOSS OR DAMAGE, WHETHER DIRECT, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL, ARISING OUT OF OR RELATED TO THE USE OF CHEMICALS IN CONNECTION WITH ANY BLUE-WHITE PRODUCTS.

8.0 Product Information

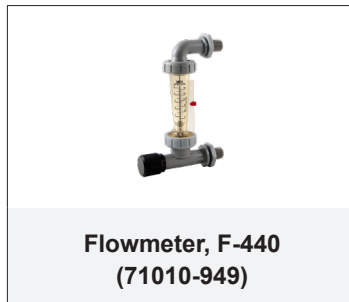
APNTU Turbidity Analyzer Panel

Model Number

APNTU Turbidity Analyzer Panel

Includes: TS10 7" Touchscreen Display, WR-10 Single Sensor Flow Reservoir, UT700 Turbidity Sensor, Assembled Panel with Flowmeter, 110VAC Power Cord.

- Power Requirement 96-260 VAC / 50-60 Hz: 10A Fuse: 200W
- CE, RoHS, EPA-180.1/334.0



*500ml 10 NTU Calibration Standard (90008-973)

*500ml 20 NTU Calibration Standard (90008-974)

Sensor Cleaning Solution, 500 mL (90008-988)

AP-MA1.5-CR 1.5 meter Short Cable - 8Pin x Flying leads (90008-954)



Users of electrical and electronic equipment (EEE) with the WEEE marking per Annex IV of the WEEE Directive must not dispose of end of life EEE as unsorted municipal waste, but use the collection framework available to them for the return, recycle, recovery of WEEE and minimize any potential effects of EEE on the environment and human health due to the presence of hazardous substances. The WEEE marking applies only to countries within the European Union (EU) and Norway. Appliances are labeled in accordance with European Directive 2002/96/EC.

Contact your local waste recovery agency for a *Designated Collection Facility* in your area.

Blue-White[®]