1 YEAR WARRANTY

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User's Guide

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GW-001 Series

Long Range Layer N Ethernet Gateway

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1 Introduction

Omega's Layer N Ethernet Gateway (GW-001 Series) is a high-performance gateway that allows for seamless, wireless, connection to up to 40 long-range Layer N Smart Sensor Devices. The Ethernet-enabled RJ45 connectivity ensures a direct connection to the Layer N Cloud or to a local-area enterprise network. The local built-in web server is also accessible through the RJ45 port. The different GW-001 series models support multiple device connection types including Modbus TCP/RTU RS232/RS485 and USB ports to enable local smart probe connections.

Layer N Cloud and OEG subscription tiers can be purchased on the Omega website.

Important: Users who will only be connecting to a local-area, enterprise ecosystem with Omega Enterprise Gateway (OEG) do not need to create a Layer N Cloud account to use the Layer N Gateway in Enterprise Mode.

Refer to the following LED Status Indicator table to identify the different Gateway behaviors and statuses.

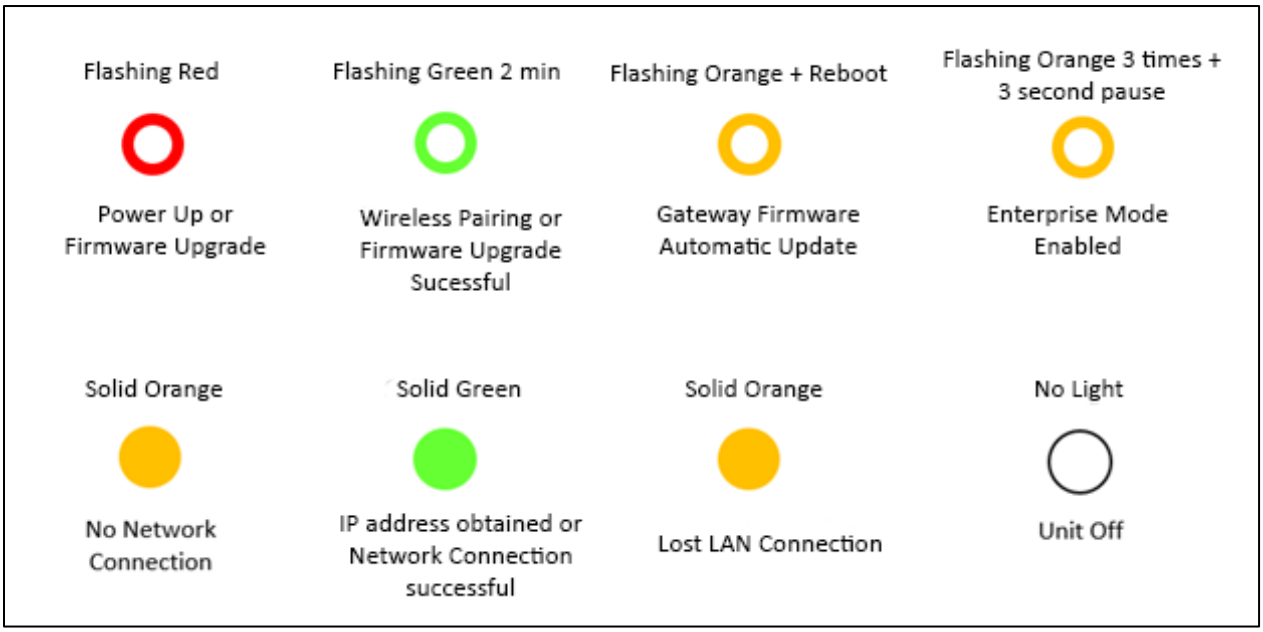


Figure 1: LED Status and Behavior indicator

2 Measurement Device Setup

GW-001 series gateways offer the following measurement interface options (interface options vary per model):

- Smart Sensor one-button pairing
- USB 2.0 Connector
- Serial Data and Alarm 5-pin screw terminal
- RJ45 connector for local network and Internet access

2.1 Smart Sensor Pairing

Pairing a Layer N Smart Sensor to your Layer N Gateway is made easy with one-button pairing. Simply press the pairing button on your gateway and press the pairing button on your Smart Sensor to connect the two. Your Smart Sensor will now be visible on your Layer N Cloud or OEG web interface.

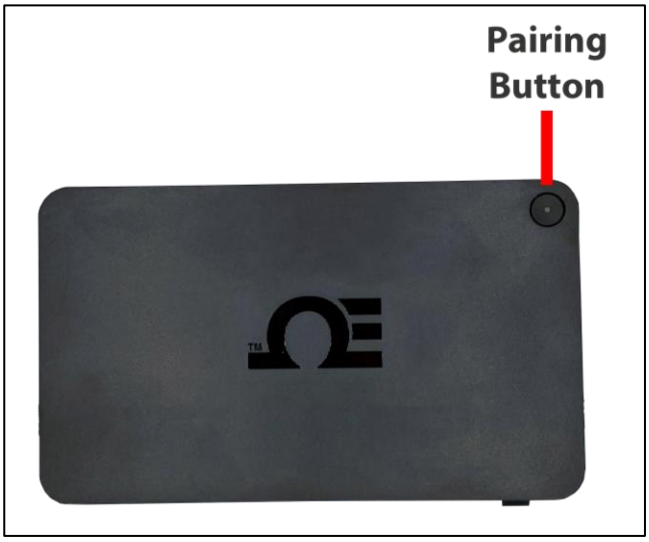


Figure 2: Smart Sensor to Gateway pairing button

2.2 USB 2.0 Connectors

The USB 2.0 connector is used to connect Layer N Smart Probes with a Layer N IF-001 Smart Interface Cable directly to your gateway.

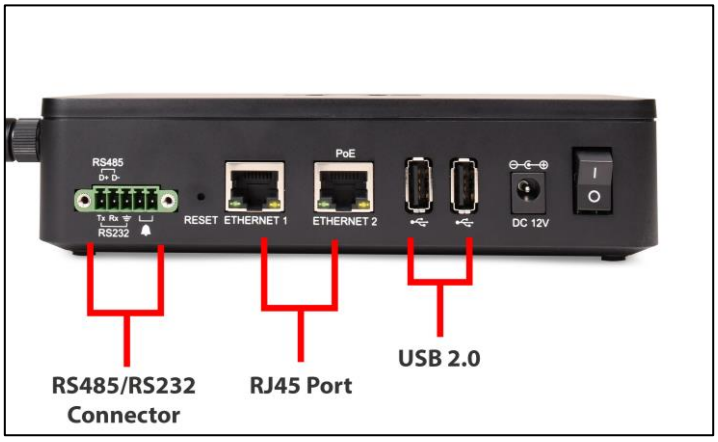


Figure 3: GW-001 Series input connectors (varies by model)

2.3 Serial Data and Alarm Connector

The 5-pin terminal can accept RS232 or RS485 inputs from authorized Omega accessories and devices such as OM240, CN616A, and DP612. The 5-pin screw connector on the gateway is labeled as follows:

Pin	Description
Pin 1	TX (D+)
Pin 2	RX (D-)
Pin 3	GND
Pin 4	Alarm (N/O)
Pin 5	Alarm (N/O)

Contact Omega or visit our website to see other compatible devices.

2.3.1 Alarm Relay Wiring

The 5-pin screw terminal can be used to connect a peripheral alarm relay that will be triggered if the gateway loses network connection to the Layer N Cloud or OEG.

Note: This alarm will not detect a cabling or wiring issue. The alarm will sound if the Gateway cannot reach the Layer N Cloud or OEG network.

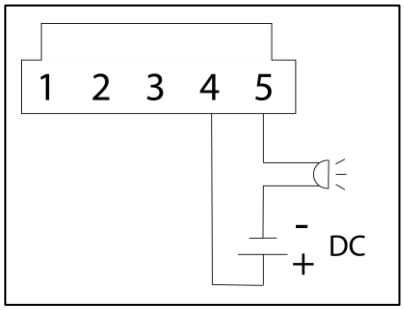


Figure 4: Alarm relay wiring diagram

2.4 RJ45 Port

An RJ45 port is provided for local-network and Internet access, can be used for ModBus TCP devices, and some models offer a Power over Ethernet feature.

2.5 Layer N Gateway Initial Setup

Once your gateway is registered to your Layer N Cloud, follow these instructions to power on your gateway:

Step 1: Connect the DC 12V adapter to the back of the gateway. If your GW-001 comes with a Sub GHz antenna, connect it now.

Step 2: Connect an RJ45 cable to the Ethernet port and connect that to a DHCP-enabled router or directly to a PC.

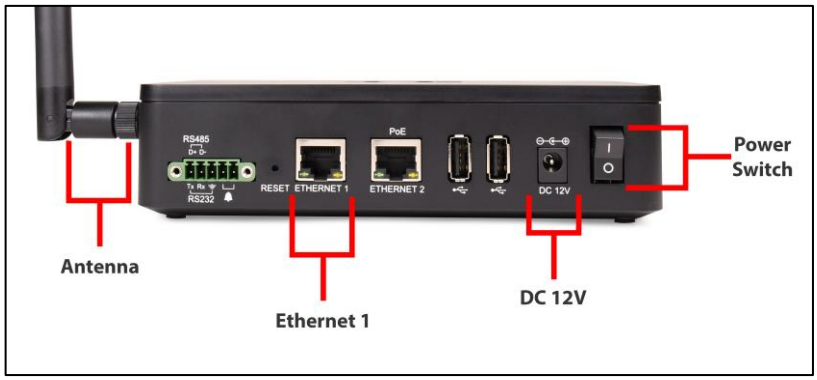


Figure 5: GW-001 hardware setup.

Step 2: Turn the power switch on the gateway to the ON position.

Step 3: The LED light on the **Pairing Button** will blink red to indicate that it is booting up.

Note: If the LED light is solid red, your gateway is unable to connect to the network and there may be an issue with the cellular service. Contact Omega Engineering for additional help.

Once the gateway is communicating through the network (local-area or Internet), the light will stay solid green. Your gateway can now accept connections from a Layer N Smart Sensor, wired sensors, and controller devices such as TCP ModBus or Serial ModBus depending on the gateway model you have purchased.

3 Gateway Internal User Interface

All Layer N Gateway models contain an internal user interface (UI) that is used to add Layer N Smart Probes to the gateway, upgrade firmware, and configure other external accessories and peripherals.

There are two methods to access the UI from a computer:
The *first method* requires a DHCP-enabled router that will keep the gateway and computer on the same local network.
The *second method* requires the user to manipulate the PC's network configuration to communicate directly with the gateway's static IP address.

Once you have access to the gateway internal UI, you will be prompted to enter a password. Enter the password located on the label of your gateway unit.

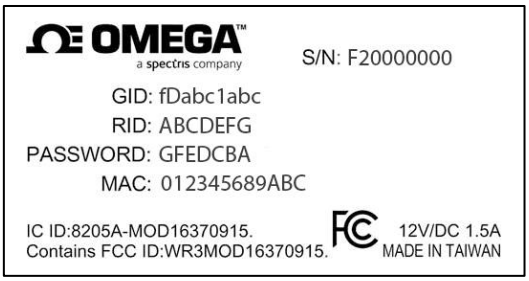


Figure 6: Layer N Gateway device label

Note **Important:** Both methods require the Layer N Gateway to be directly connected to the router or PC via Ethernet/RJ45 cable.

3.1 Method 1: With a DHCP-Enabled Router

The Layer N Gateway UI can be accessed on a web browser by typing: ***http://omegaiotgatewayXXXX.local*** (where the ***XXXX*** are the last 4 digits of your Gateway MAC Address) or by typing: ***http://omegaiotgatewayXXXX***. All Windows computers with OS newer than Windows 2000 already have the Bonjour Service necessary to access the Gateway UI via this method. If the user is still unable to access the Gateway UI, the Bonjour Service may need to be installed. The service can be downloaded from the following url: **https://omegaupdates.azurewebsites.net/software/Bonjour/**.

If the user cannot access the above URLs, they may type the IP address of the Layer N Gateway into the web address bar. For more information on how to identify the IP address of your gateway device, refer to the section in this document titled: **3.3 How to Find the Layer N Gateway IP Address**.

Note **Important:** For either method, the computer and gateway ***must*** both be on the same local area network. All Ethernet-connected devices must also have the same IP address range as the Gateway. See section **3.2.1 Changing the TCP/IP Properties of your PC** for information on how to change the Gateway IP address.

3.2 Method 2: Without a DHCP-Enabled Router, a Static IP Address will be Assigned

Without a DHCP router, the gateway will attempt to give itself a non-duplicate IP address randomly with a subnet mask: **169.254.0.0/16**, or a range of: **169.254.0.0–169.254.255.255**. Using this method, users can add more than one gateway without causing IP conflict issues in the same network.

To access the gateway UI with a static IP address, the TCP/IP Properties of the PC ***must*** be configured to be in the same local network. Before proceeding, identify the gateway's IP address. For more information on how to identify the IP address of your gateway device, refer to the section in this document titled: **How to Find the Layer N Gateway IP Address**.

3.2.1 Changing the TCP/IP Properties of your PC

Before any changes are made to the TCP/IP Properties of the PC, users should take note of the existing TCP/IP configuration to revert to after the Layer N Gateway UI configuration process is complete.

Windows OS Newer then Windows 2000:

Navigate to the computer's **Control Panel**. Click **Network and Sharing Center**. Click **Change Adapter Settings** from the left column. Right-click the ethernet connection option associated with the gateway and click **Properties**. In the example (**Figure 7**), *Internet Protocol Version 4 (TCP/IPv4)* is the connection option that is used.

Windows OS Older than Windows 2000:

Navigate to the computer's **Control Panel**. Click **Network Connections**. Right-click the Ethernet connection option associated with the gateway and click **Properties**. In the example (**Figure 7**), *Internet Protocol Version 4 (TCP/IPv4)* is the connection option that is used.

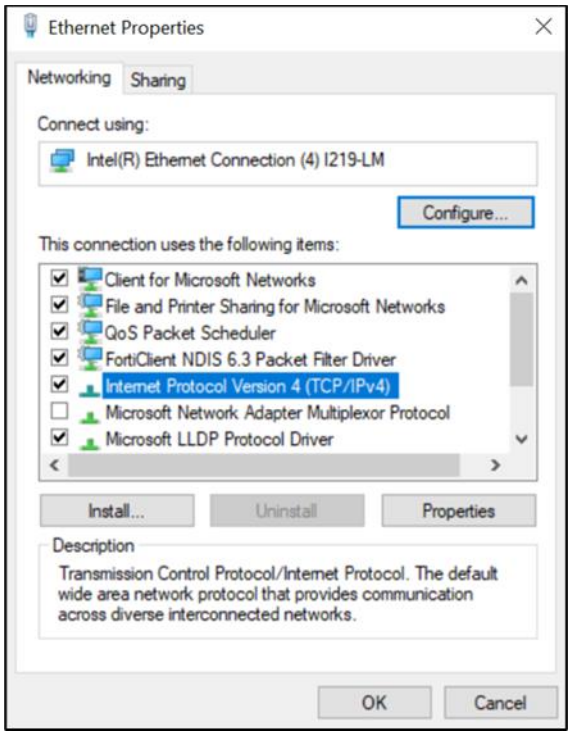


Figure 7: Ethernet Properties TCP/IPv4

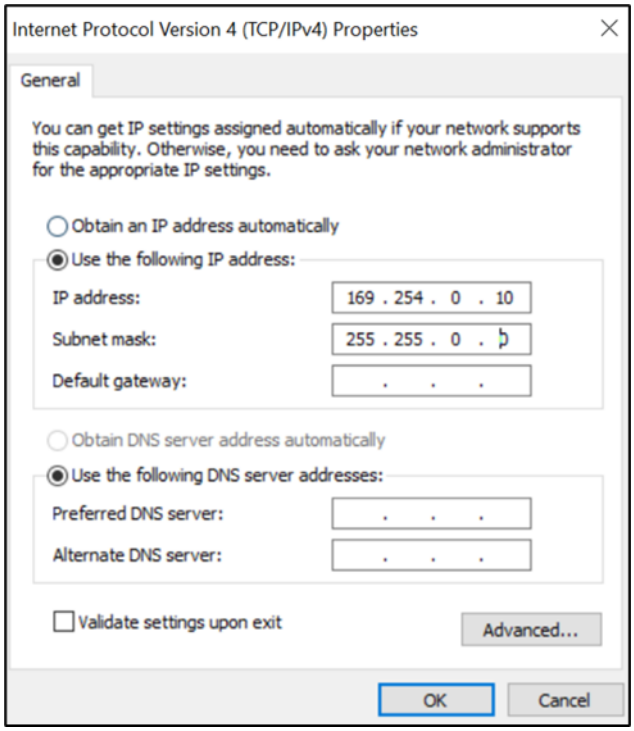


Figure 8: TCP/IPv4 configuration

Step 1: Select the radio button for Use the following IP address (**Figure 8**).

Step 2: Enter a non-conflicting IP address (different from the connected gateway) in the IP address field, and set the subnet mask to: **255.255.0.0**

Note that the PC may lose Internet connection after the network settings have been changed. To revert to the default options, select the radio button to: **Obtain an IP address automatically** (**Figure 8**).

Note **Important:** These network changes are only necessary for the configuration of the Layer N Gateway through the internal device UI. Once the configuration process is complete, it is strongly recommended that users go back and revert to the PC's previous IP settings.

3.3 How to find your IP address

If the MAC address URLs listed previously do not allow access to the internal gateway UI, users can instead identify the IP address of the connected gateway and enter it into a web browser address box. Below are two ways to identify the IP address of the gateway device:

Use a Command Prompt

Step 1: Open **Command Prompt** on the PC and type: **arp -a**

Step 2: From the generated list, users can match the **Physical Address** to the **MAC Address** of the gateway.

```
C:>arp -a
Interface: 192.168.168.21 --- 0x10004
  Internet Address      Physical Address      Type
  192.168.168.9         00-02-e3-16-e4-5d     dynamic
  192.168.168.10        00-50-04-17-66-90     dynamic
  192.168.168.22        00-60-08-39-e5-a1     dynamic
  192.168.168.254       00-40-10-18-42-49     dynamic
C:>
```

Figure 9: Command Prompt arp -a MAC address list

Access to Router Admin Page

Step 1: Navigate to the Router Admin Page.

Step 2: Use the routing table generated by the router to identify the IP Address associated with the gateway's model name.

3.4 Connected Devices – Main Interface

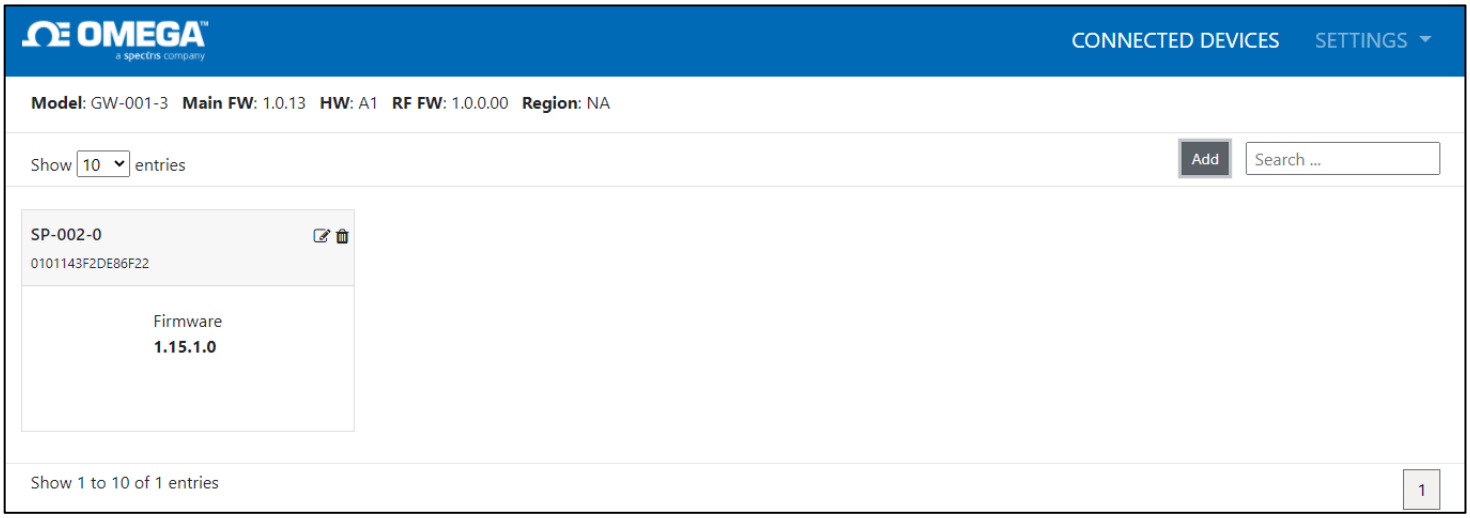


Figure 10: Gateway web UI main page - Connected Devices

The **Connected Devices** tab is the default page set once you are signed in to the internal gateway UI. From here, you can add devices to your gateway to have them appear in your Layer N Cloud account. To add a device to your gateway from the internal gateway web UI, begin by clicking the 

button at the top right of the web page.

3.4.1 Controller

When adding a controller, ensure the **Product Family** dropdown is set to **Controller**, and choose your controller type from the **Product Model** dropdown. You can then set the communication parameters for your device including the interface type, baud rate, data bits, stop bits, parity, device ID, and reading interval.

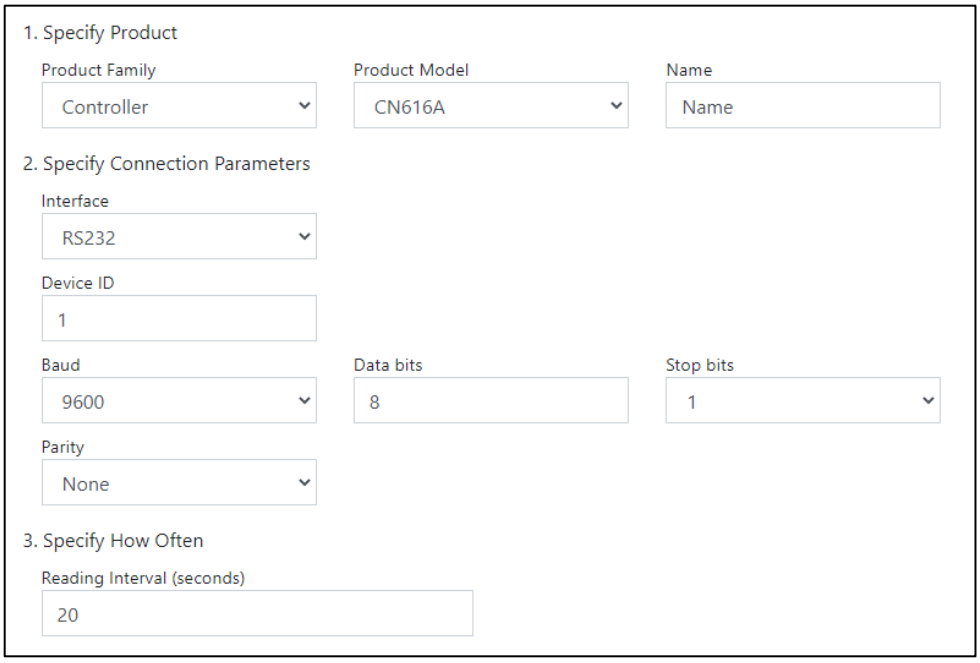


Figure 11: Add Device – Controller Setup

Important: Reading interval cannot be changed to a value lower than that of the subscription level. Please check the minimum reading interval associated with your Layer N Cloud or Omega Enterprise Gateway subscription.

3.4.1.1 Omega Platinum

Omega Platinum controllers require users to know the IP address of their controller device. An IP scanner software can be used to identify the controller IP address.

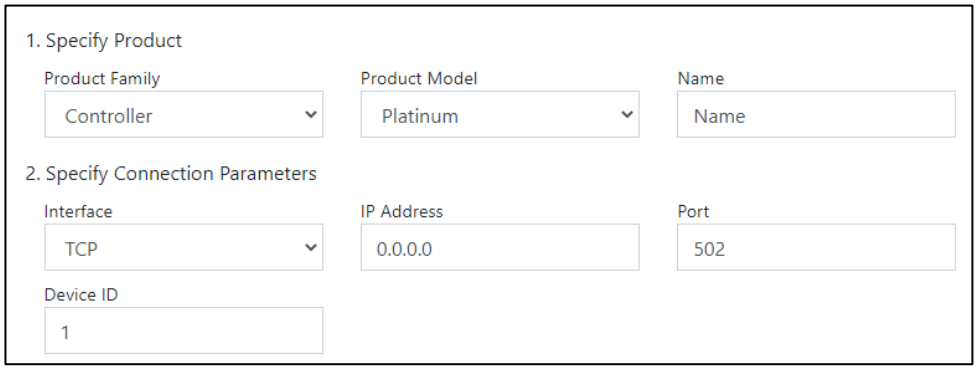


Figure 12: Platinum series controller Add Device interface

3.4.2 DAQ

To add a DAQ device, select it from the **Product Family** dropdown and select your **Product Model** from the dropdown. You can then set the communication parameters for your device including interface type, IP address, port number, device ID, and reading interval.

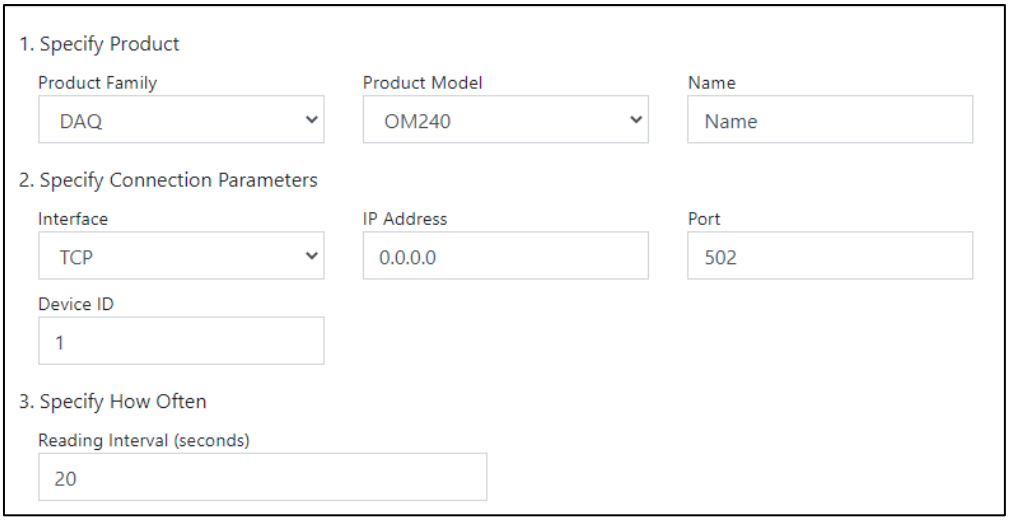


Figure 13: DAQ series Add Device interface

Omega DAQ devices require users to know the IP address of their controller device. An IP scanner software can be used to identify the DAQ IP address.

Important: Reading interval cannot be changed to a value lower than that of the subscription level. Please check the minimum reading interval associated with your Layer N Cloud or Omega Enterprise Gateway subscription.

3.4.3 Meter

To add a Meter device, select it from the **Product Family** dropdown and select your **Product Model** from the dropdown. You can then set the communication parameters for your device including the interface type, baud rate, data bits, stop bits, parity, device ID, and reading interval.

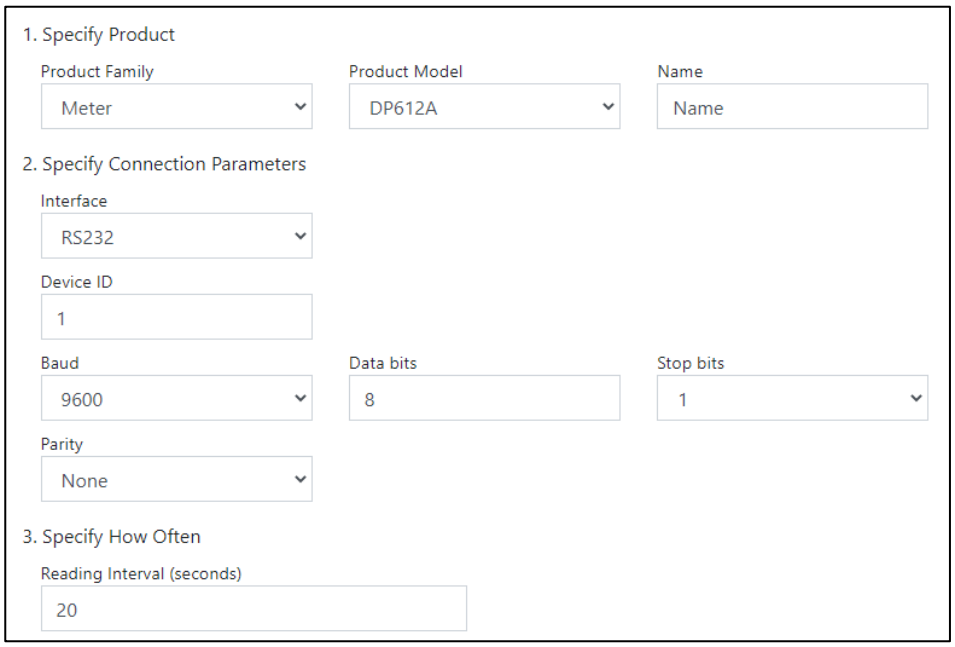


Figure 14: Meter Add Device interface

Important: Reading interval cannot be changed to a value lower than that of the subscription level. Please check the minimum reading interval associated with your Layer N Cloud or Omega Enterprise Gateway subscription.

3.4.4 Probe

To add a Smart Probe, select it from the **Product Family** dropdown and select your **Product Model** from the dropdown. You can then set the communication parameters for your device including the interface type, device ID, and reading interval.

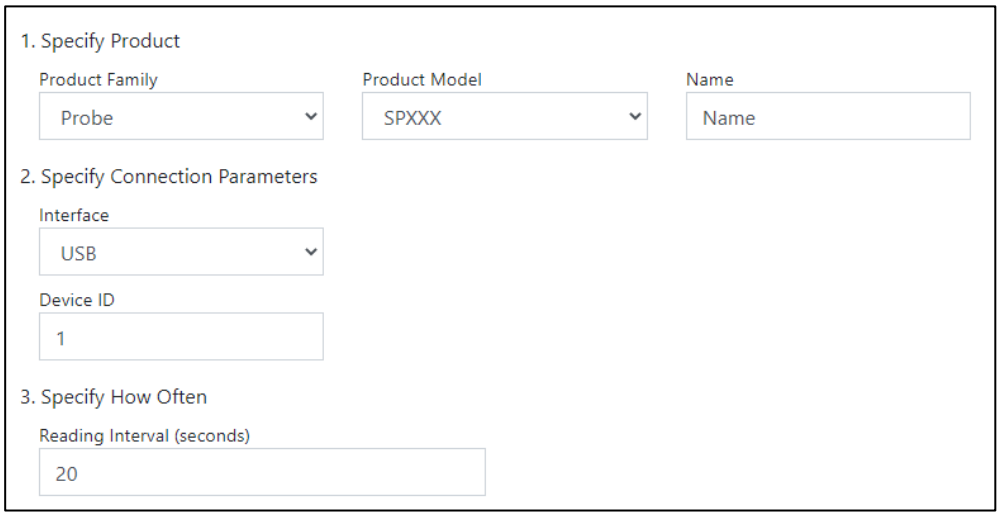


Figure 15: Layer N Smart Probe Add Device interface

Important: Reading interval cannot be changed to a value lower than that of the subscription level. Please check the minimum reading interval associated with your Layer N Cloud or Omega Enterprise Gateway subscription.

3.5 Settings

Click the settings tab to view log data, update gateway firmware versions, change security passwords, and view current network settings.

3.5.1 Network

To view and change the Network settings, select it from the **Settings** dropdown at the top right of the webpage UI. From here, you can change your gateway device name and change your **IP Assignment** between DHCP and Static IP.

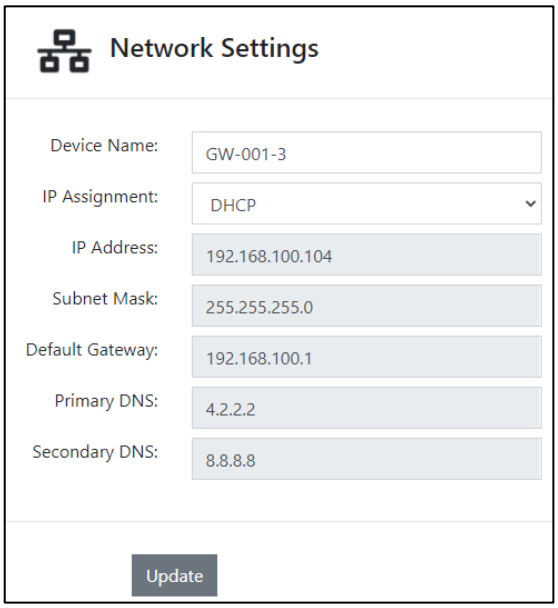


Figure 16: Gateway UI Network Settings

3.5.2 Security

To manage the password required to access your gateway web UI, select the **Security** option from the **Settings** dropdown at the top right of the webpage UI.

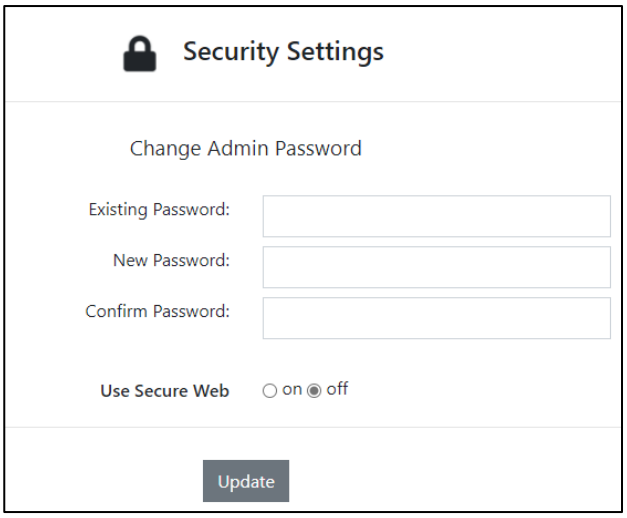


Figure 17: Gateway UI Password and Security Settings

3.5.3 System

To update your gateway firmware version, factory reset your device, or soft reboot your device, select **System** from the **Settings** dropdown at the top right of the webpage UI. When updating the firmware version, click **Check Online** to download the latest firmware version available for your gateway. Then, click the icon to find the file on your computer. Finally, click **Upload** to get the latest firmware on your gateway.

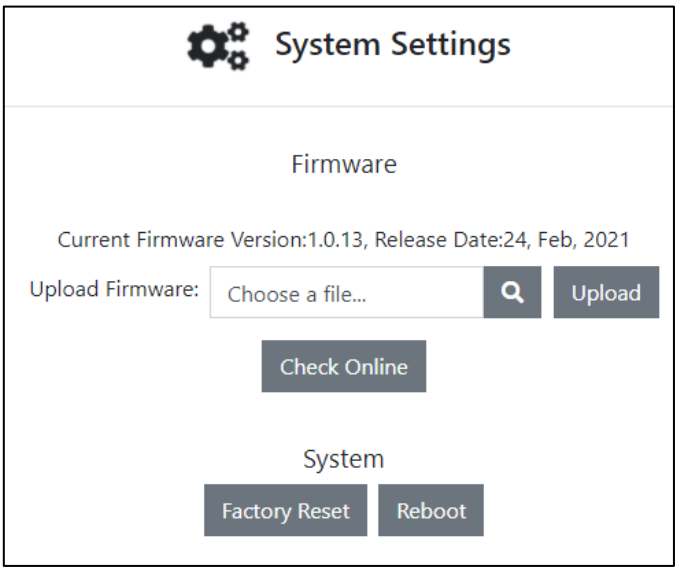


Figure 18: Gateway UI System Setting, Firmware update, and Factory Reset interface

Note **Warning:** Clicking the **Factory Reset** button erases all data and configurations. Your gateway will be changed back to the default, out-of-the-box settings.

3.5.3.1 How to Update the Firmware on a Layer N Gateway

Once in the **System Settings**, the user may click the magnifying glass icon accompanying the **Upload Firmware** box to open the **File Explorer**. Select the new firmware file and click **Open**. Click **Upload** to confirm the firmware upgrade. A red LED on the gateway will indicate that the upgrade is in process.

Once the update process is complete, log out and log back in. The new firmware version will appear on the main page of the internal gateway interface.

3.5.4 Log

Select **Log** from the **System** dropdown to view a time-stamped report of the events that have occurred with your gateway.

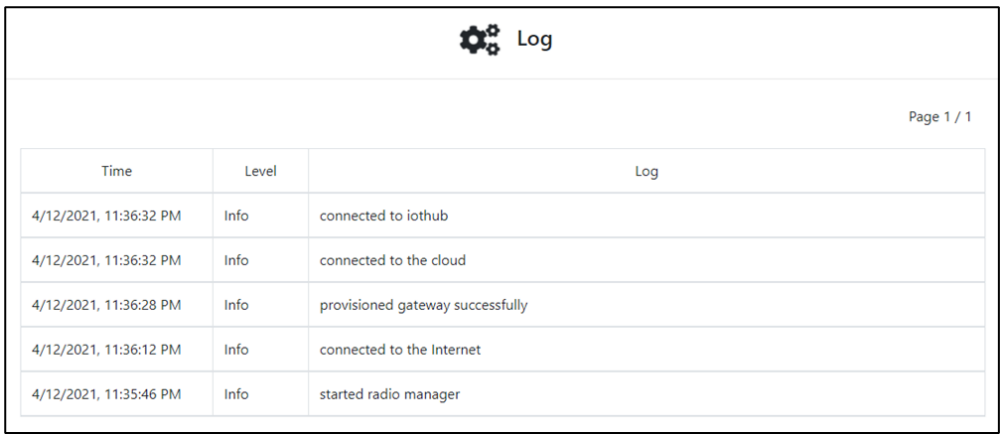


Figure 19: Gateway UI Log table

4 Creating a Layer N Cloud Account

Note: Users who will not be creating a Layer N Cloud account and will be connecting to Omega Enterprise Gateway (OEG) in a non-internet environment should refer to section 6 Registering your Gateway to OEG (Enterprise Mode).

To setup your Layer N Gateway with Layer N Cloud, you must first create and register a Layer N Cloud account. Using any device with a web browser, complete the following steps:

Step 1: Open your browser to ***cloud.omega.com***

Step 2: Click **Sign Up** and complete the registration process.

Once your user credentials are verified, you can sign in and you will be presented with the Layer N Cloud homepage.

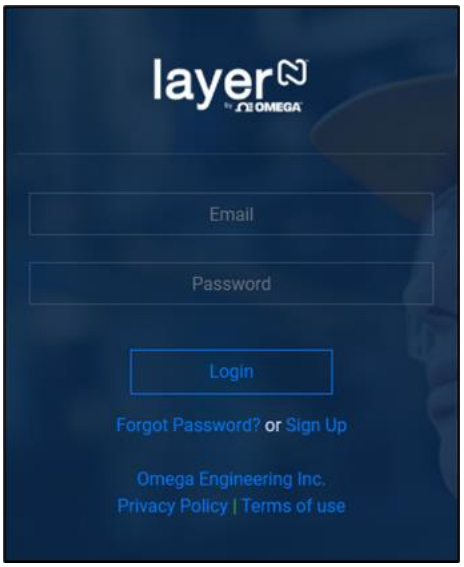


Figure 20: Layer N Cloud login

5 Registering your Gateway to Layer N Cloud

Once you are signed in, register your new Layer N Gateway by following these steps:

Step 1: From the cloud homepage, click **Add Gateway**.

Step 2: Type in the ***Gateway ID (GID)*** from the label on your gateway.

Step 3: Type in the ***Registration ID (RID)*** from the label on your gateway and click register.

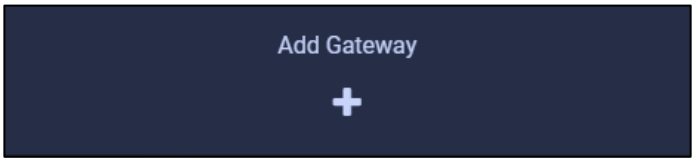


Figure 21: Layer N Cloud Add Gateway button

Important: The label containing your Gateway ID and Register ID is located on the bottom of the gateway unit.

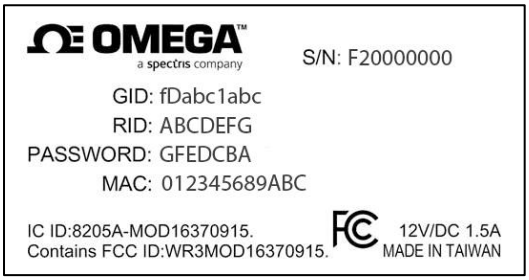


Figure 22: Layer N Gateway label

Step 4: Once you have successfully registered your gateway, an icon will appear next to your registered device.

Note: The icon will disappear once the registered gateway is powered on.

6 Registering your Gateway to OEG (Enterprise Mode)

A Layer N Gateway can be added to OEG in a non-internet environment by enabling **Enterprise Mode** on the Gateway unit. To add a Layer N Gateway to OEG, the **Cloud Registration** option needs to be disabled by accessing the **System Settings** in the Gateway web UI. Once disabled, the gateway will be in **Enterprise Mode**. For more information regarding access to the Gateway web UI, refer to the Layer N Gateway User's Manual.

Important: If the OEG License being used has not been activated, an internet connection will be needed for a one-time license activation before proceeding. Adding a Layer N Gateway as a Device to OEG is only available on non-trial versions of OEG.

6.1 Disabling Layer N Gateway Cloud Registration (Enabling Enterprise Mode)

Before a Layer N Gateway can be connected to OEG in a non-internet environment, users will need to turn off the Layer N Cloud registration. Begin by ensuring your gateway is connected to a DHCP-enabled router or directly to a computer and navigating to the assigned IP address of the gateway. Once in the Layer N Gateway UI, users will need to navigate to the **System Settings**. Once there, users can click the **Turn off Cloud Registration** checkbox to disable the feature and set the Gateway to **Enterprise Mode**. Click on the **Update** button to save the setting.

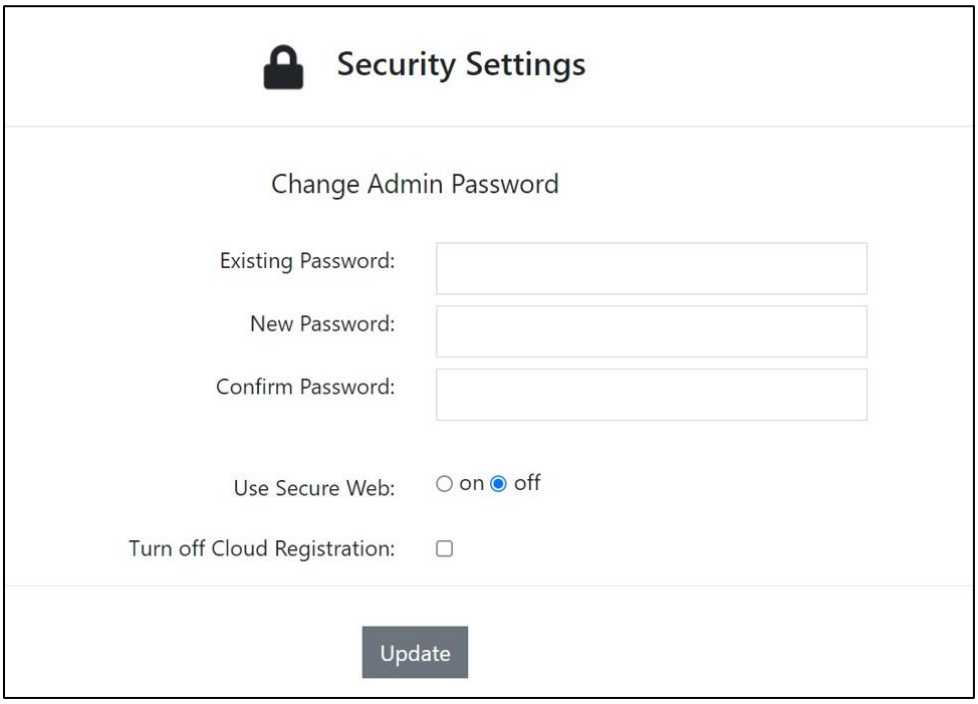


Figure 23: Gateway UI Security Settings – Turn off Cloud Registration

The gateway LED will flash orange 3 times indicating that it has entered **Enterprise Mode**. In the absence of a DHCP in the network, the gateway will assign itself a random IP address in the range of 169.254.0.0/16 (Network Mask: 255.255.0.0) while in Enterprise Mode. For more information regarding how to access the Layer N Gateway UI, refer to the Layer N Gateway User's Manual.

Important: In the future, if users will be using the Layer N Cloud service, they must navigate to the Gateway web UI again to uncheck the **Turn off Cloud Registration** box.

6.2 Adding a Layer N Gateway to OEG as a Device

To add a Layer N Gateway as a device to OEG, sign in to OEG and follow these steps:

Step 1: Ensure the Layer N Gateway is connected to a DHCP-enabled router or directly to a computer and access Omega Enterprise Gateway on the same local network.

Step 2: Click the + icon or **Add Devices**. Then select **Layer N** from the **Product Family** dropdown and **GW-XXX-X** from the **Product Model** dropdown.

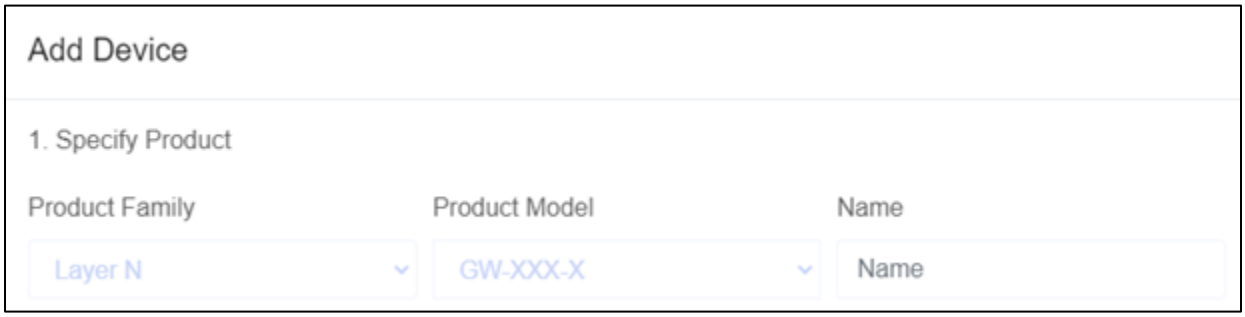


Figure 24: OEG interface Add Device interface – Layer N GW-XXX-X

Step 3: Input the **IP Address** of the connected Layer N Gateway as it appears in your local area network. Leave the remaining fields unaltered.

Figure 25: OEG interface Add Device interface – Connection Parameters

Step 4: Click **Advanced** to reveal the text field for **User Name** and **Password**. Input the User Name and Password assigned to the Layer N Gateway.

Figure 26: OEG interface Add Device interface – Gateway Username and Password input

Step 5: Click **Add** to finalize your configuration.

All devices connected to the Layer N Gateway will appear, including those that are offline. The readings from offline units will display NaN. For more information on how to navigate OEG, refer to the OEG 2.0 Software User's Manual.

Note: The maximum reading interval is 120 seconds for Layer N Gateway.

7 Navigating Layer N Cloud

The Layer N Cloud is the bridge between Layer N Smart Sensing devices and getting your data when you need it on any device with a web browser. The Layer N Cloud delivers state and status monitoring, data logging, visualization, and analytics. Accounts can be created and accessed by visiting: http://cloud.omega.com

Once you have access to your account and have completed your initial device pairing, you will be presented with your connected devices on the Layer N Cloud interface.

7.1 Devices

After signing in, the **Devices** tab immediately presents the readings of all registered Layer N Gateways and their connected sensing devices. From here, you may access your gateway details, add additional gateways to your cloud account, monitor device health, and access specific sensor analytics.

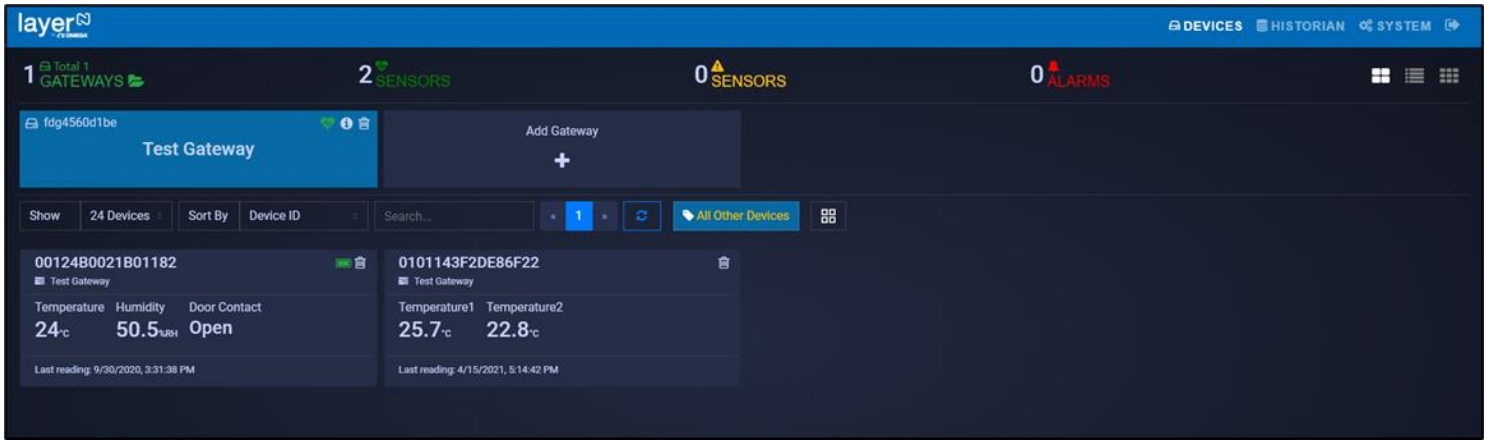


Figure 27: Layer N Cloud main interface - Devices

7.1.1 Gateway Details

To view your gateway details or change the name of your device, click the icon associated with the gateway you wish to view. From here, you will be able to change your gateway name and view your gateway ID, firmware version, model number, initial boot-up date and time, hardware type, manufacturer, and last recorded device heartbeat.

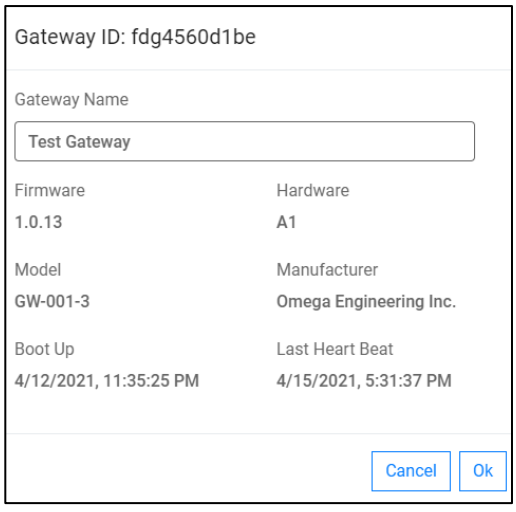


Figure 28: Layer N Cloud registered gateway details

7.1.2 Add Gateway

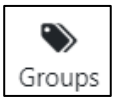
To begin, click the **Add Gateway** button presented near the top of the screen. You will then be prompted to enter the **Gateway ID (GID)**, **Registration ID (RID)**, and a name for your gateway. Click **Register** to complete the process.

Note: For additional instructions on how to setup a Layer N Gateway, refer to **Section 5 Registering your Gateway with Layer N Cloud**

7.1.3 Management

Clicking the management  icon allows you to create customizable groups of gateways, assign gateways to admins, and assign alarm notifications to other users.

7.1.3.1 User and Device Assignment

To assign users to devices, click the Groups 

icon, and click **Add Group**. After naming your group, you can click on these icons to add users and devices to your group.

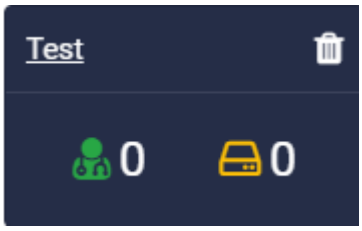


Figure 29: Layer N Cloud Users and Groups

7.1.3.2 Assign Gateway to Admin (Admin Only)

To assign a gateway to an admin, click the Gateway 

icon. Enter the admin's email address and select the gateway that will be assigned to them. Click **Assign Gateway** to finalize.

7.1.3.3 Assign Alarm Notifications

To assign gateway alarms to other users, click the Alarms 

icon. Select your gateway, select the users to be assigned the alarm notifications, and click **Confirm Assign** to finalize.

7.1.4 Sensor Analytics

To access the analytics of a specific sensor, click on the measurements of the sensor you wish to view.

7.1.4.1 Measurements

The measurements tab displays graphs of the readings recorded by your sensor. It allows users to change between live readings and specified ranges of time. All data points, except for ***Real Time***, are down sampled to 10 minutes when plotted on the Layer N Cloud interface regardless of the Cloud subscription level. All Real Time data fully remains in the Historian. See section ***6.2 Historian*** for more information.

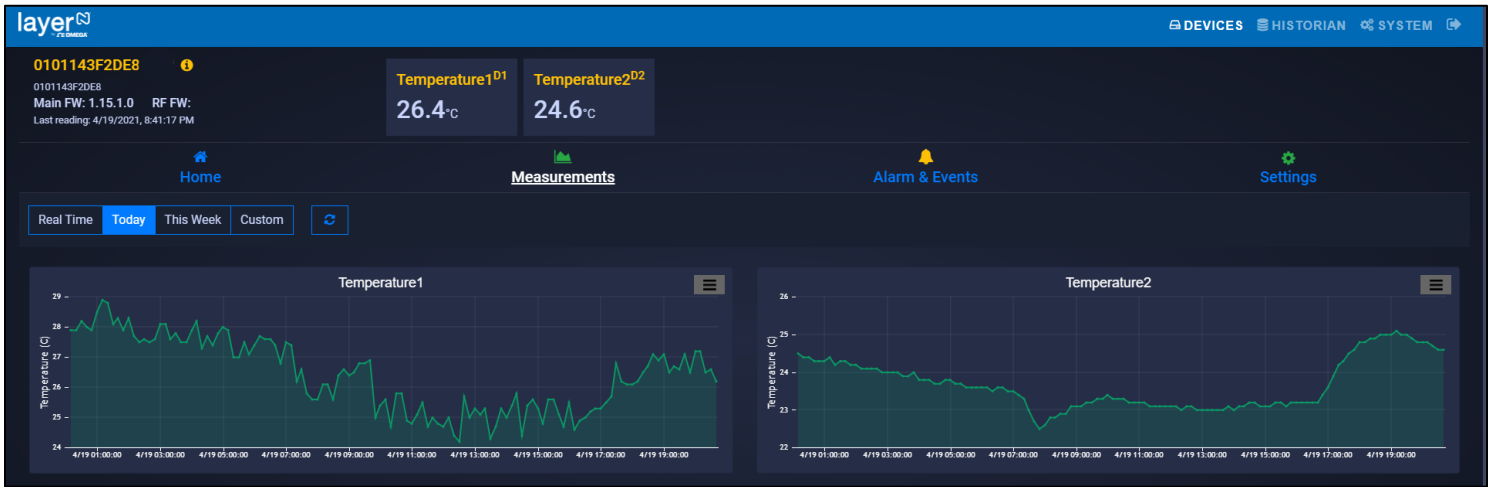


Figure 30: Layer N Cloud sensor measurements – Graph View

7.1.4.2 Alarms and Events

The Alarms and Events tab displays all alarms and events that were triggered by this device. Each alarm and event include a short message describing the nature of the alarm or event.

Figure 31: Layer N Cloud Alarms and Events interface

7.1.4.3 Settings (Define Alarms and Events)

The Settings tab allows users to change all settings relevant to how the device interacts with the Layer N Cloud. Users can customize the device name, alarm/event thresholds, and sensor reporting properties.

To set a local alarm output once you are in the **Settings** tab, define the parameters of the alarm by defining the threshold. Your alarm can be configured to trigger when readings go **Above**, **Below**, or **Out of Range** of your defined threshold. Once you have defined your alarm parameters, click **Update** to finalize your changes.

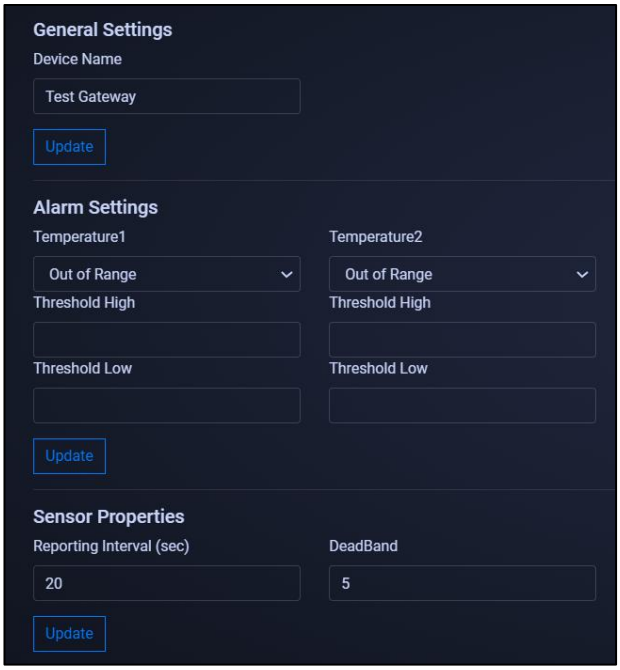


Figure 32: Layer N Cloud Settings

7.2 Historian

The Historian tab allows users to create reports of past readings within a range of time and presents them as a graph. Through the Historian tab, users can export their chart data as a .csv file. Begin by clicking **Select Devices** and making your selection. Select the range of time your wish to view and choose a graph type from the selection. Your data will then be displayed and ready for export.

Figure 33: Layer N Cloud Historian interface

7.3 System Settings

The System settings for the Layer N Cloud allow you to customize your profile information, the units of measure displayed, user access permission, subscription management, and includes contact information for technical support and feedback.

7.3.1 Profile

The Profile tab allows users to configure settings such as associated email addresses, passwords, security questions, and notifications.

Using the email address associated with the account or by providing an SMS email address, users can receive notifications directly whenever an alarm or event is triggered.

Passwords can be updated by entering the Old password in the text box then entering and confirming the new password as directed on the webpage. Security questions can be configured at the bottom of the Profile webpage.

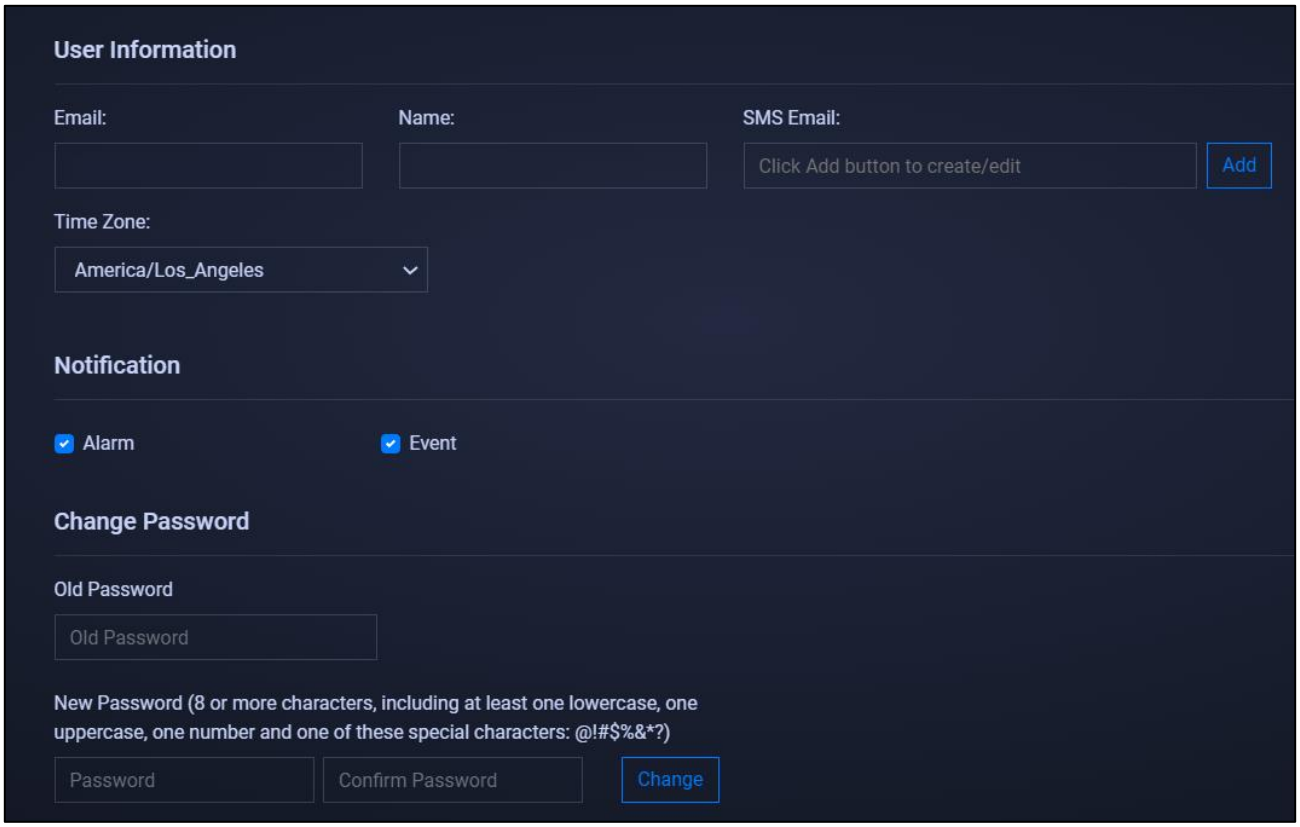


Figure 34: Layer N Cloud Profile settings

7.3.2 Units

The units tab allows users to set their preferred units of measure as they appear on the Layer N Cloud. Changing the units here does not change the units of your sensing devices. It only changes the unit of measure as it appears on the Layer N Cloud.

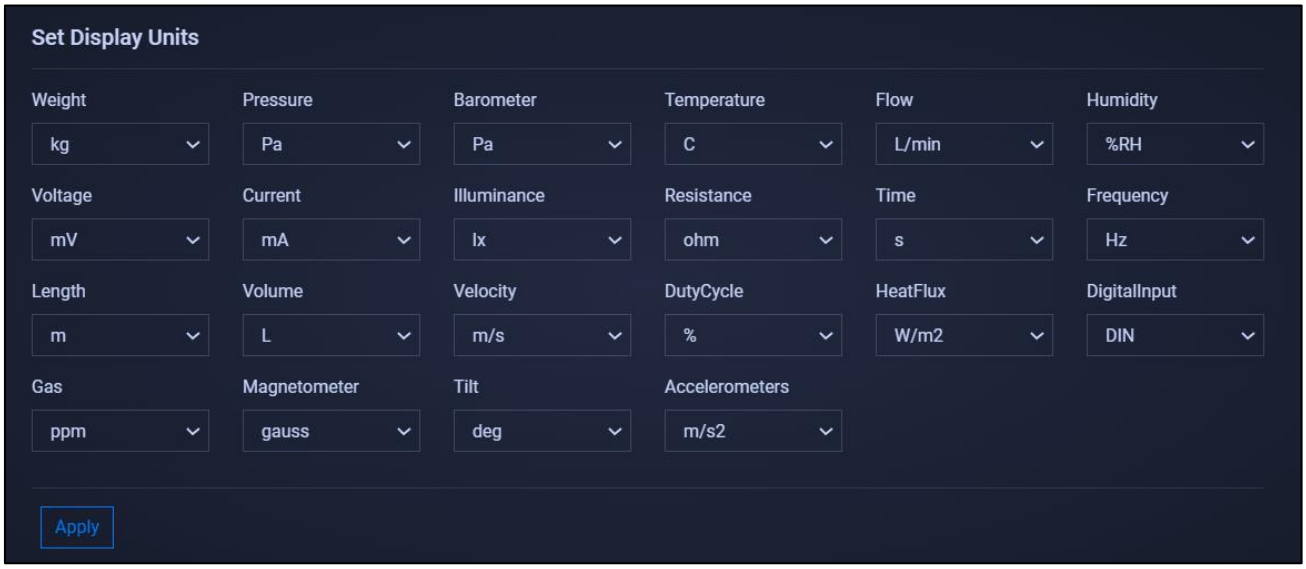


Figure 35: Layer N Cloud local display units

7.3.3 Users

The Users tab allows you to give others access to view the data for your gateway on their Layer N Cloud accounts. To add a user, enter their email address in the text box and choose **Can Change** or **Can View** to grant full access or restrict access, respectively.

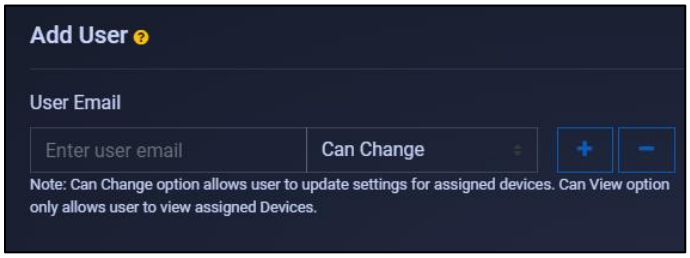


Figure 36: Layer N Cloud Add or Remove user access

7.3.4 Subscription

The Subscription tab shows your current subscription tier and provides a link to the Omega website should you choose to upgrade your subscription plan. If you purchased the subscription with a billing email different than your Layer N Cloud account email, you may link the two here.

7.3.5 Contact Us

The Contact Us tab provides an email address link for direct engineering technical support. It also provides a text field for user feedback and comments.

Note: Changing the units of measurement only affects the readings displayed on the Layer N Cloud. Layer N sensing devices interpret data in SI.

8 CE Certification

Safety:	EN 61010-1:2010
EMC:	EN 301 489-1 V2.2.0
	EN 301 489-3 V2.1.1
Radio:	EN 300 320-1 V3.1.1
	EN 300 220-2 V3.1.1

CE: The product herewith complies with the essential requirements and other relevant provisions of the Radio Equipment Directive 2014/53/EU, the EMC Directive 2014/30/EU, the ROHS Directive EU 2015/863, and carries the CE-marking accordingly. Only use approved power supplies with this device.

The following CE Mark CE is affixed to this equipment. The CE declaration is available at the website listed on the cover page of this manual.

9 General Public License Statement

This product contains software that is subject to an open-source license agreement including GNU General Public License ("GPL") or GNU Lesser General Public License ("LGPL"). With respect to the free/open-source terms, customers of this product have rights to acquire, modify and redistribute the source code in accordance of the terms of the GPL and LGPL. If you have any questions or wish to receive a copy of any source code that you may be entitled under the term, please contact us at:

iiot-opensource@omega.com

Please include the SKU of this product in your request.
The subject should be: **GW001 GPL license statement request**
The original source code is available on the corresponding hosting website.

GNU General Public License:
https://www.gnu.org/licenses/gpl-3.0.en.html

GNU Lesser General Public License:
https://www.gnu.org/licenses/lgpl-3.0.en.html

10 Specifications

Wireless Communication

Frequency*: 915 MHz

Range:** Up to 3.2 km

**Wireless communication is only available on qualifying variants*

***Maximum range possible when Smart Sensor is powered by USB and without obstruction*

Power

AC Adapter: DC 12 V @ 2A

Interface*

RJ45: 2x port

USB: 2x USB 2.0

DC Jack: DC 12V power input

Serial Port: RS232/RS485

Alarm: SSR 36 V DC 100 mA

Antenna: 1x Antenna for Sub-1G (on qualifying models)

**Available interfaces vary by model of Gateway*

Environmental

Rating: IP40

Operating Temperature: -20°C to 65°C (-4°F to 149°F,) non-condensing

Mechanical

Dimensions: 170 mm L x 100 mm W x 42 mm H (6.69" x 3.93" x 1.65")

Certifications

Contains FCC ID: WR3-MOD16370915

Contains IC ID: 8205A-MOD16370915

Emission & Immunity for EMI/EMS

FCC: FCC Part 15B

CE: EN 301 489-1/-3

Radio Frequency & Human Exposure/SAR

FCC: FCC Part 15C (15.247) FCC MPE

CE: • EN 300 220

• EN 62311 MPE

Safety

LVD: EN 62368-1

General

Max number of Smart Sensors: Up to 40 Smart Sensors can connect to the Gateway unit.

All specifications are subject to changes without prior notifications. Please visit Omega.com for the latest information.

WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

OMEGA is pleased to offer suggestions on the use of its various products. However, OMEGA neither assumes responsibility for any omissions or errors nor assumes liability for any damages that result from the use of its products in accordance with information provided by OMEGA, either verbal or written. OMEGA warrants only that the parts manufactured by the company will be as specified and free of defects. OMEGA MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. LIMITATION OF LIABILITY: The remedies of purchaser set forth herein are exclusive, and the total liability of OMEGA with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability or otherwise, shall not exceed the purchase price of the component upon which liability is based. In no event shall OMEGA be liable for consequential, incidental or special damages.

CONDITIONS: Equipment sold by OMEGA is not intended to be used, nor shall it be used: (1) as a "Basic Component" under 10 CFR 21 (NRC), used in or with any nuclear installation or activity; or (2) in medical applications or used on humans. Should any Product(s) be used in or with any nuclear installation or activity, medical application, used on humans, or misused in any way, OMEGA assumes no responsibility as set forth in our basic WARRANTY/DISCLAIMER language, and, additionally, purchaser will indemnify OMEGA and hold OMEGA harmless from any liability or damage whatsoever arising out of the use of the Product(s) in such a manner.

RETURN REQUESTS/INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

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- Load Cells & Pressure Gages
- Displacement Transducers
- Instrumentation & Accessories

FLOW/LEVEL

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- Air Velocity Indicators
- Turbine/Paddlewheel Systems
- Totalizers & Batch Controllers

pH/CONDUCTIVITY

- pH Electrodes, Testers & Accessories
- Benchtop/Laboratory Meters
- Controllers, Calibrators, Simulators & Pumps
- Industrial pH & Conductivity Equipment

DATA ACQUISITION

- Communications-Based Acquisition Systems
- Data Logging Systems
- Wireless Sensors, Transmitters, & Receivers
- Signal Conditioners
- Data Acquisition Software

HEATERS

- Heating Cable
- Cartridge & Strip Heaters
- Immersion & Band Heaters
- Flexible Heaters
- Laboratory Heaters

ENVIRONMENTAL MONITORING AND CONTROL

- Metering & Control Instrumentation
- Refractometers
- Pumps & Tubing
- Air, Soil & Water Monitors
- Industrial Water & Wastewater Treatment
- pH, Conductivity & Dissolved Oxygen Instruments

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