Embedded Web-based Interface Supplemental Manual

Brooks Clamp-on Ultrasonic (BCU) with EtherNet/IP™

BROOKS® INSTRUMENT

Beyond Measure

Contents

Models Affected

Brooks Clamp-on Ultrasonic configured with Ethernet/IP.

Summary

This manual is specific to the built-in web interface on BCU Series Ethernet/IP and devices. It is recommended to review the Installation and Operation Manual (IOM) for the BCU Series and the Supplemental Manual for Ethernet/IP digital protocol that is being utilized.

The embedded web interface on the BCU Series Ethernet/IP devices is a powerful tool that can be utilized locally using an ethernet cable or remotely via the local area network. It allows reviewing and editing settings such as protocol addressing, alarm and warning thresholds, and more. The device can be controlled through the web interface as well.

You can connect to the BCU Series device using a standard ethernet cable connected to the ethernet adapter on your computer (or a USB-Ethernet adapter connected to your computer), using a web browser (i.e. Chrome). If encountering connectivity issues with your device, refer to the following related knowledge base articles on the Brooks Instrument website.

Related Knowledge Base Articles:
Changing IP Address using Built-in Web Interface

Initiating Communications through the Web Browser

By default, BCU Series EtherNet/IP™ is shipped with the following TCP/IP connections settings:

IP Address:192.168.1.100
NET Mask: 255.255.255.0
Gateway Address: 0.0.0.0
DNS1: 0.0.0.0
DNS2: 0.0.0.0
Domain Name: brooksinstrument.com
Host Name: BCU

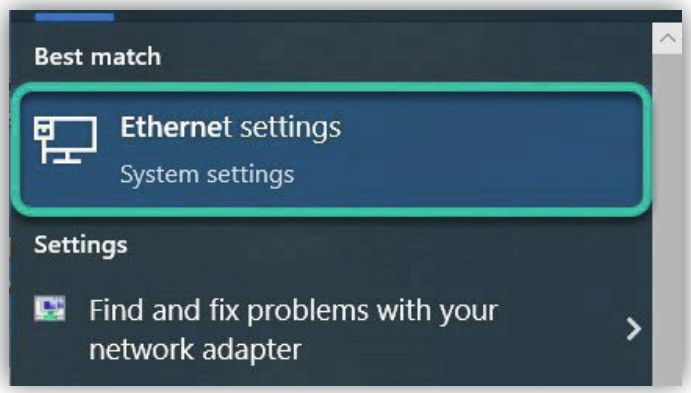
To configure the Brooks device using a web browser, connect it to a network or PC that is configured with the same subnet as the device (192.168.1.xxx).

By default, most PC network adapters are configured for Dynamic Host Configuration Protocol (DHCP). DHCP is a network management protocol that automatically configures IP addresses and communication parameters of network devices and is widely used in corporate or public networks.

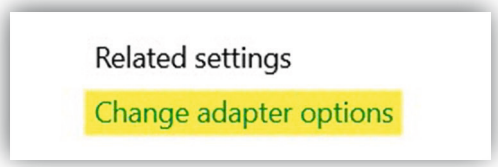
The BCU also supports DHCP, allowing it to automatically obtain an IP address from a DHCPenabled network. A direct connection to a PC will require a private network between the two devices. In that case, there is no DHCP server assigning addresses on this network, so the PC network card settings will need to be changed manually.

The following steps will detail how to configure the network adapter on a windows PC for static settings so that it can communicate with the BCU and utilize the embedded web interface.

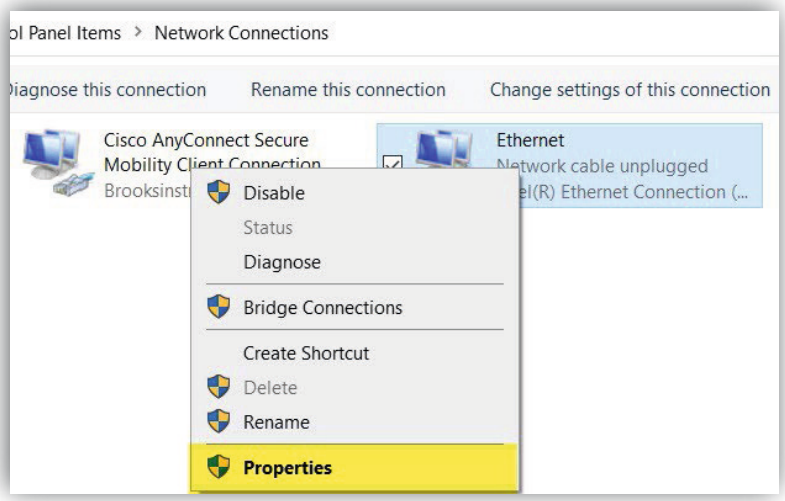
On the PC, tap the Windows Key and begin typing “Ethernet” until you see the “Ethernet settings” result. Click on it to open the settings.



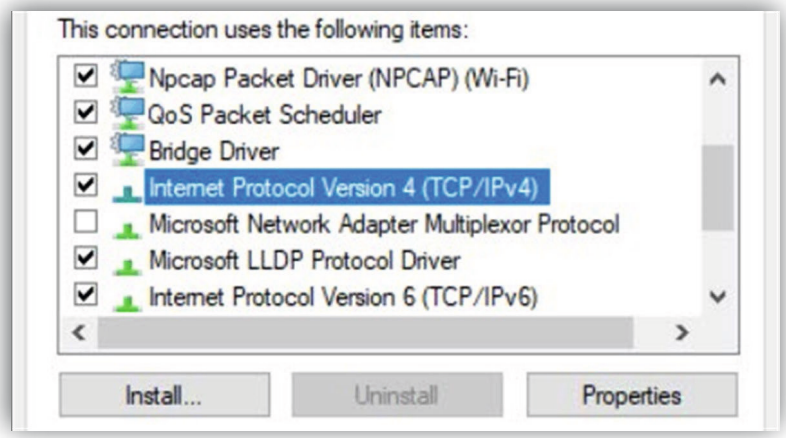
Choose “Change adapter options” in the upper right of the window that loads.



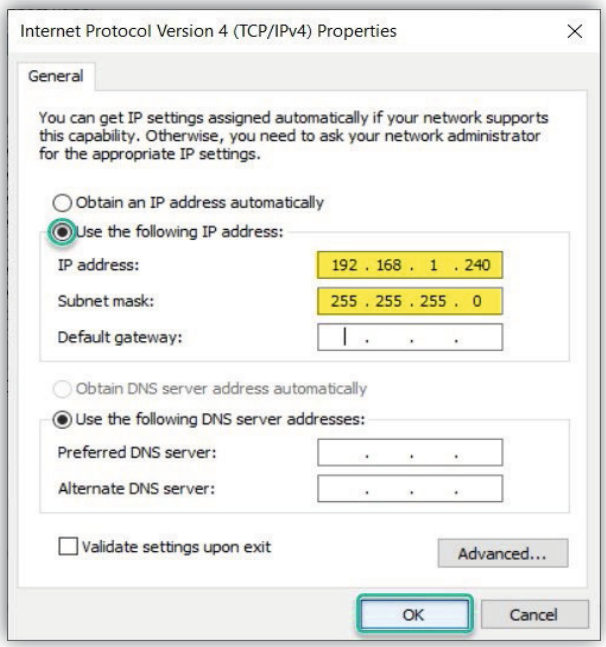
Then, right-click on the adapter you are using and choose “Properties”.



Double-click “Internet Protocol Version 4 (TCP/IPv4)” or select it and click “Properties”.

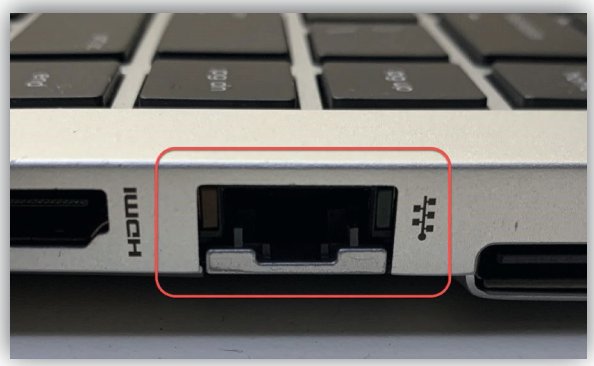


Select “Use the following IP address” and type an IP that is in the same range as the BCU. The subnet mask below auto-populates and is ok for most configurations. Click “OK” on the two properties windows and close the settings windows.

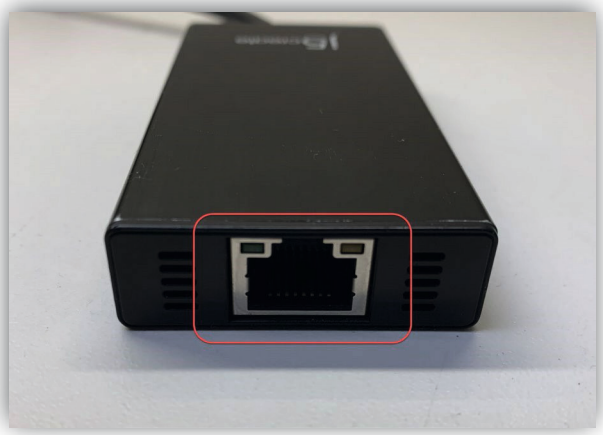


An M12 Ethernet IP 4-pin D to RJ45 cable is required to connect the BCU Series to your PC

To a built-in network adapter:



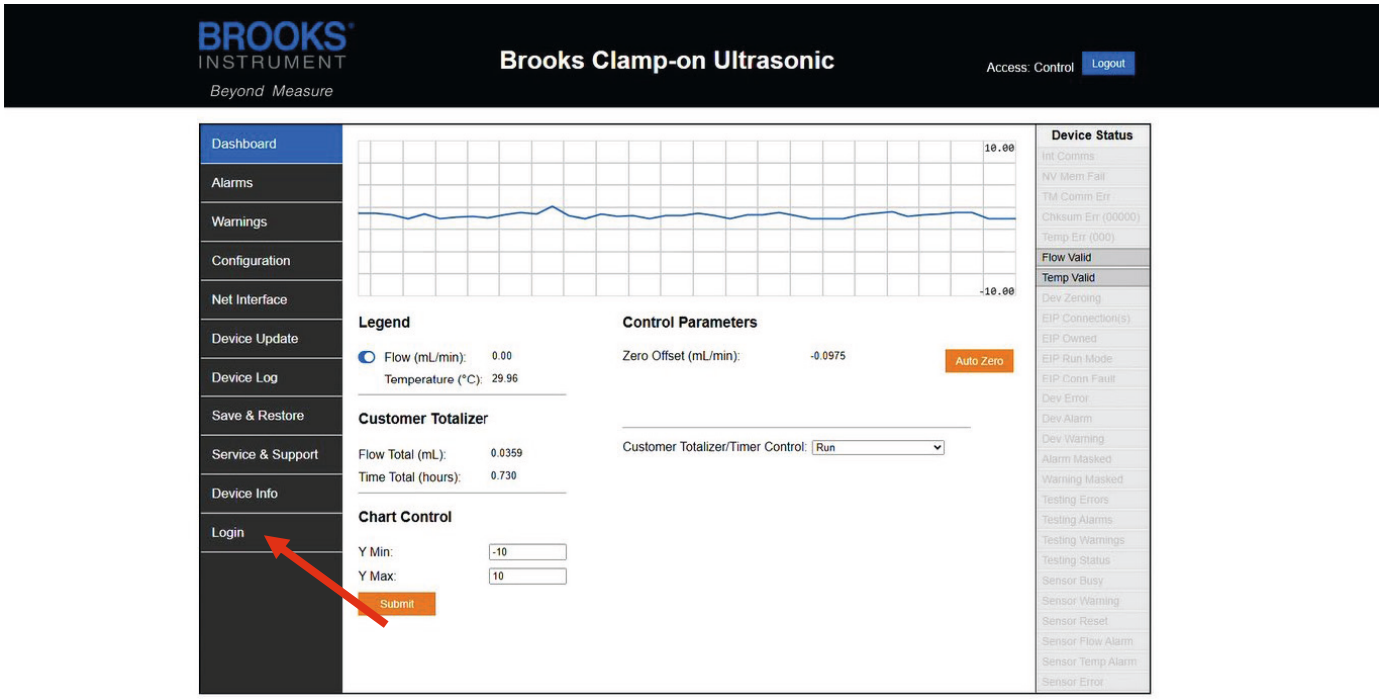
Or a USB network adapter:



Once the PC settings have been changed and the cable is physically connected between the PC adapter and the BCU, open a web browser and enter the IP address of the BCU (default 192.168.1.100) as the URL at the top. Hit “Enter” or click “Go” to load the BCU Embedded Web Interface.

Access Levels and Login

The Embedded Web Interface opens showing the dashboard screen with the “Operational” access level as shown in the upper right of the screen. This login level is read-only access.



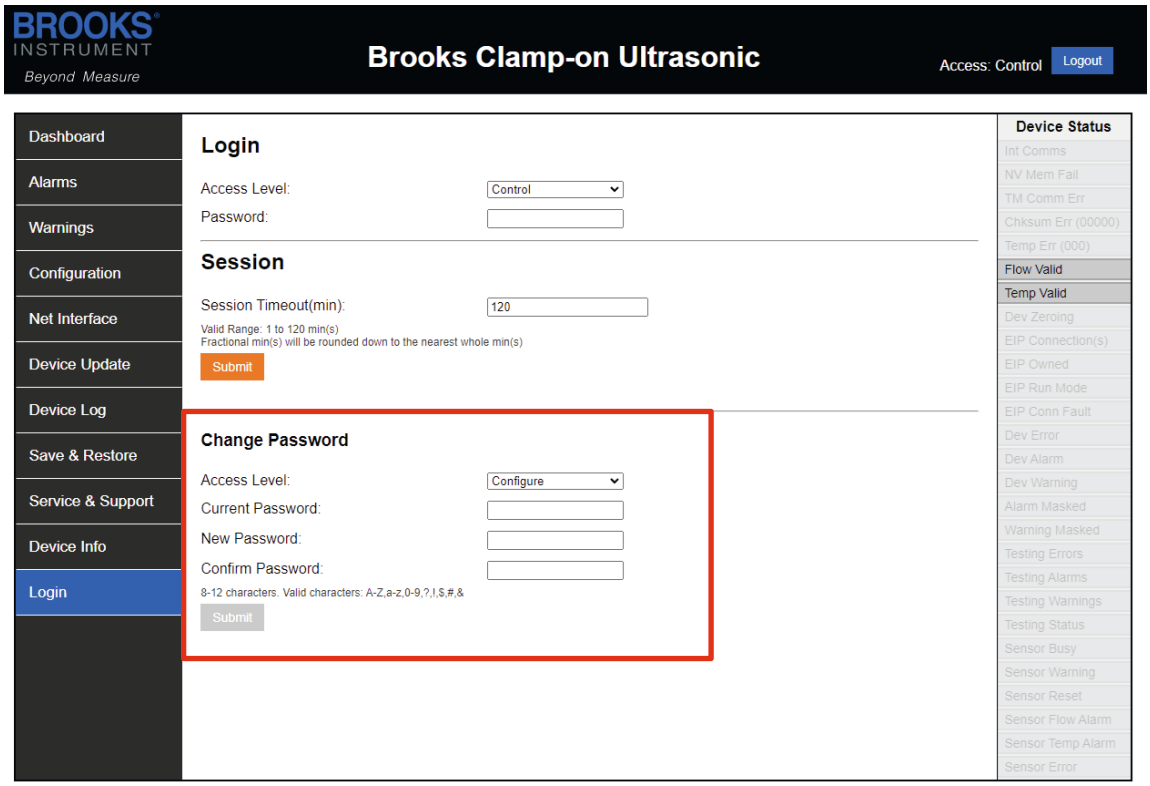
The menu tree is always on the left side of the screen. The current device status is always on the right side of the screen.

To change the configuration, click the Login tab. On the Login page that loads, select a different access level from the dropdown box.

- Operational is view only.
- Configure allows basic device configuration.
- Control enables all functionality

The default password for Configure is ‘configure’ and the default password for Control is ‘control’.

Choose the access level and enter the password. Click enter and a success banner will display briefly at the top of the page.



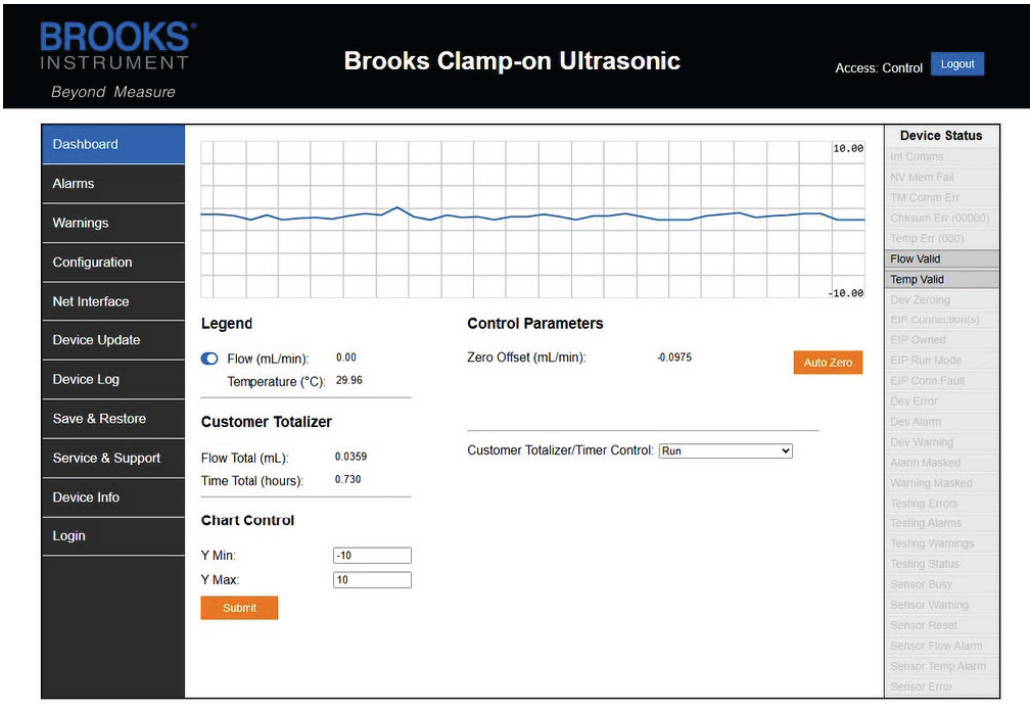
On this same page, it is possible to change the session timeout and change the password, if desired. There is also a “logout” button that appears in the upper right where the current access level is shown.

NOTE: If you change a password, ALWAYS record the changes with identifying information such as serial number and physical location. Without the password, you will not be able to utilize the embedded web interface functionality.

The Dashboard

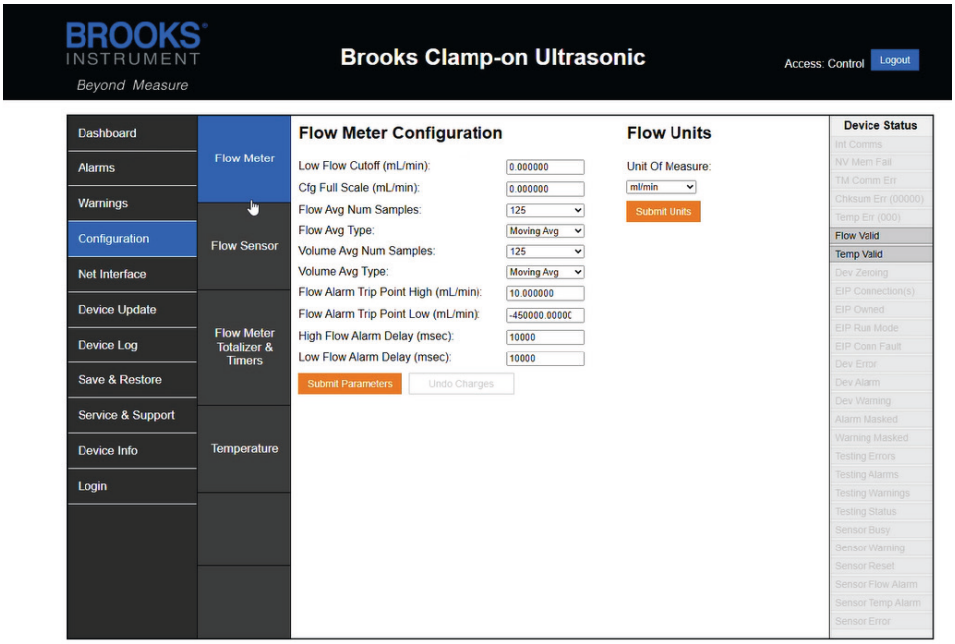
Navigate back to “Dashboard” on the left menu. If you are logged in as Control access level, you can control the BCU from the Dashboard.

The dashboard includes a flow graph, customer totalizer, zero button, zero offset value, graph scaling, and controls to run/stop/reset the customer totalizer. The customer totalizer is off by default. It is non-volatile and can be reset, paused, or stopped. The device status bar indicating warnings, alarms, and errors is on the right side of the screen.



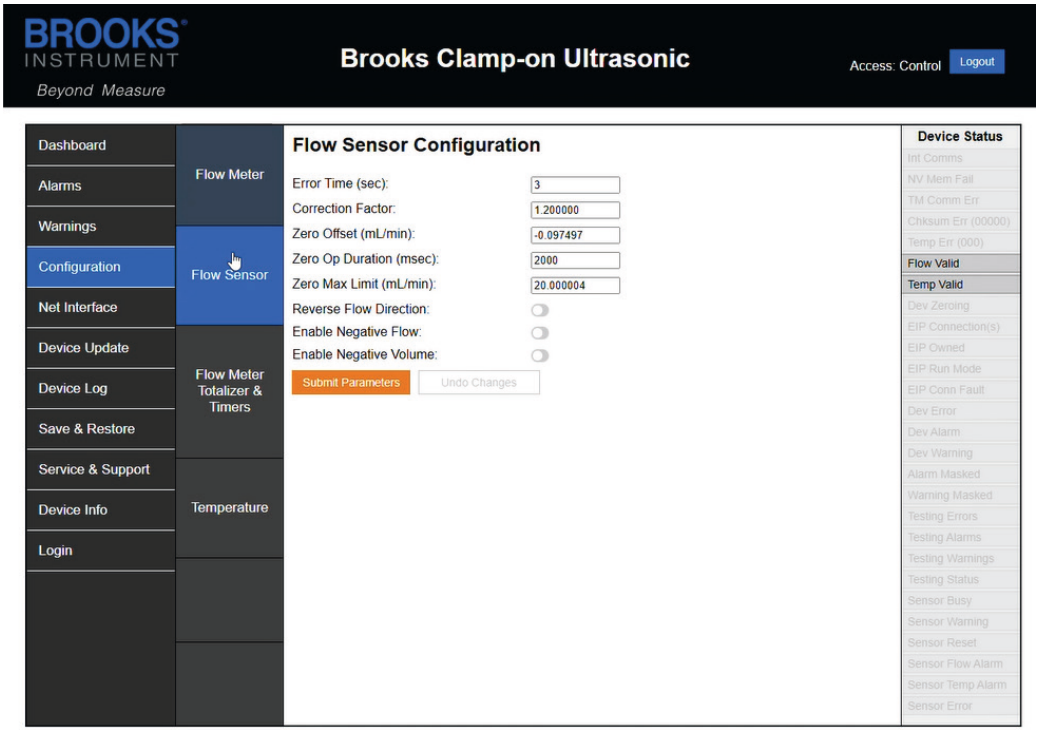
Flow Meter Configuration

The BCU web interface provides extensive configuration options to tailor device performance to specific application requirements. Users can set low flow cutoff values to prevent false readings at minimal flow rates and define the full-scale flow range for accurate measurement. Advanced averaging controls allow adjustment of flow and volume averaging types and the number of samples used for smoothing data. Alarm management is fully customizable, including high and low flow alarm trip points and associated delay times, ensuring alarms only trigger under sustained conditions. Flow meter units are also configurable on this tab. These features enable precise control and reliable operation across diverse process environments.



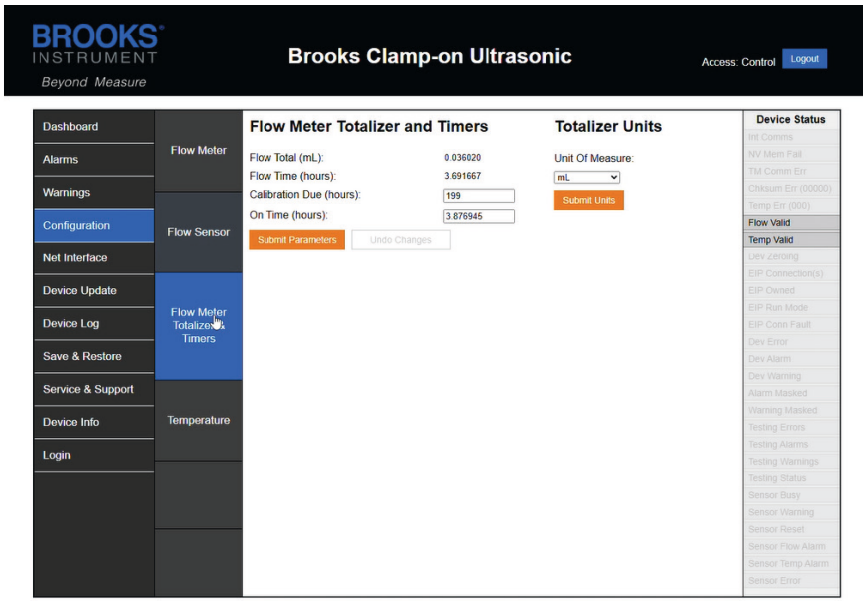
Flow Sensor Configuration

The BCU web interface provides comprehensive options for customizing flow sensor behavior to ensure accurate and reliable measurements. Users can set error time thresholds to detect conditions such as bubbles when the sensor fails to return a reading within the specified duration. A correction factor can be applied to compensate for tubing and fluid characteristics, improving measurement precision. Additional controls include defining a zero offset and related parameters such as zero operation duration and maximum zero limit, allowing fine-tuning of baseline readings. Advanced options enable reverse flow detection and allow negative flow and volume measurements, providing flexibility for bidirectional or specialized applications.



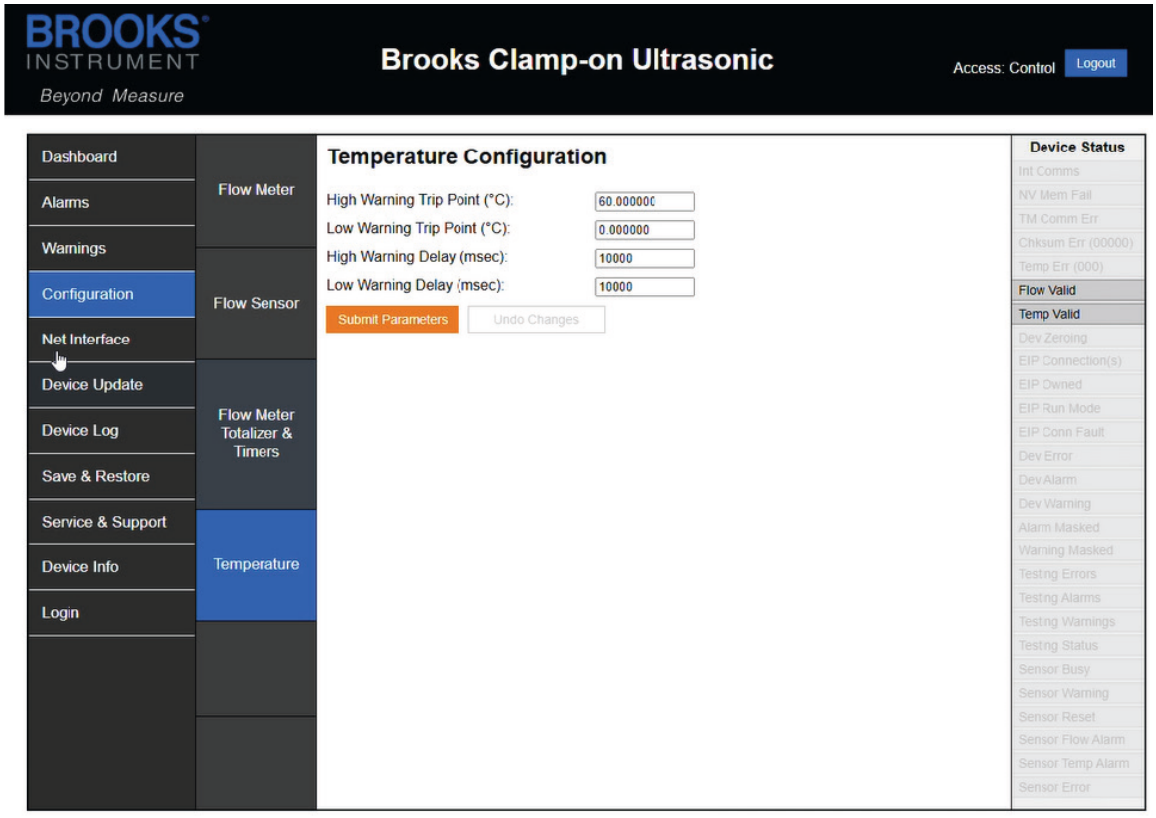
Flow Meter Totalizer and Timers

The BCU web interface allows precise management of totalizer and timing functions to support accurate process monitoring and maintenance scheduling. Users can view and configure total flow and flow time values, ensuring cumulative measurements are tracked correctly. The system also provides calibration due hours, enabling proactive maintenance planning, and displays on-time hours for operational tracking. Additionally, the factory totalizer is non-volatile, starts automatically during production, and cannot be edited, ensuring integrity of lifetime usage data. These features help maintain compliance with calibration requirements and provide visibility into device usage for optimized performance.



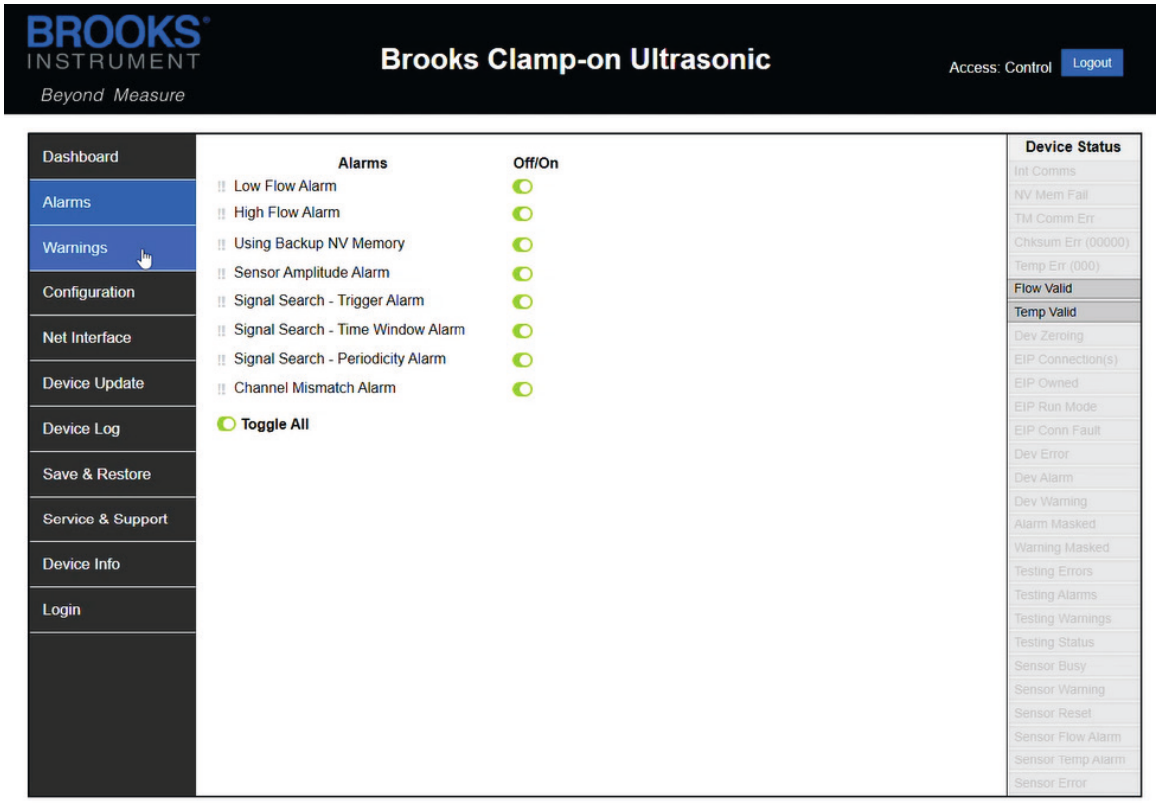
Flow Temperature

The BCU web interface provides flexible settings for monitoring and managing temperature conditions. Users can define high and low warning trip points to establish acceptable operating ranges and configure delay times for each condition, ensuring warnings only trigger after sustained deviations. These parameters help prevent false alerts and maintain process stability by allowing time-based filtering of transient temperature fluctuations.



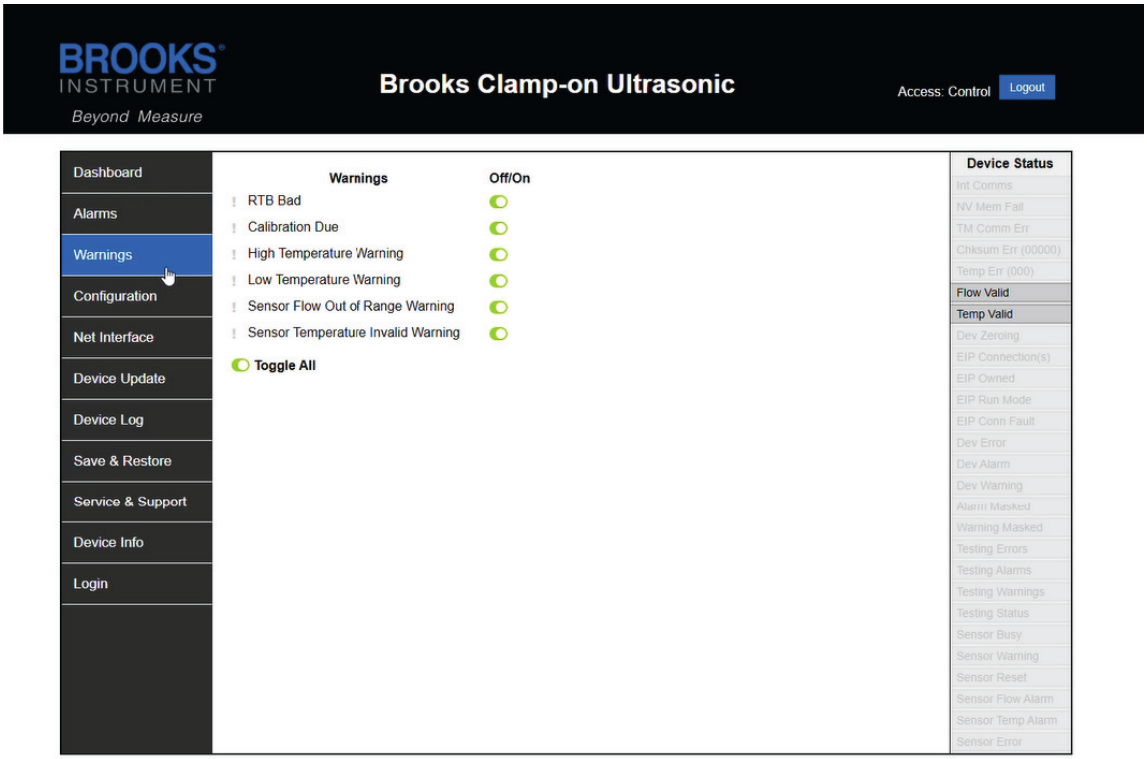
Alarms

The BCU web interface provides clear indicators for critical alarm conditions that require immediate attention. When the MOD LED flashes red, the device is in an alarm state, signaling a serious issue. Common alarms include Low Flow Alarm, triggered when flow drops below the configured threshold, and High Flow Alarm, which occurs when flow exceeds the set limit. Additional sensor-related alarms include Sensor Amplitude Alarm, Signal Search Trigger Alarm, Time Window Alarm, Periodicity Alarm, and Channel Mismatch Alarm, often associated with incorrect tubing size or type, lid not being clamped, air bubbles in the fluid, calibration fluid density mismatch, or improper tubing alignment (requiring a straight run of 5–10× the tubing diameter). These alarms help ensure process integrity and prevent equipment damage by alerting operators to conditions that must be corrected immediately.



Warnings

The BCU web interface provides clear indicators for various warning conditions to maintain safe and reliable operation. When the MOD LED flashes green, it signals that the device is in a warning state, prompting users to check the interface for details. Common warnings include RTB Bad, indicating an error in writing/reading the totalizer or timer data to flash memory, which may affect data integrity. The system also alerts users when calibration intervals have expired with a Calibration Due warning. Temperature-related warnings include High Temperature when the device exceeds its safe operating range and Low Temperature when it falls below acceptable limits. Flow-related warnings include Sensor Flow Out of Range, triggered when flow exceeds four times the maximum specification for the sensor size, and Sensor Temperature Invalid, which occurs if the sensor reports an out-of-range or faulty temperature reading. These warnings allow proactive troubleshooting and help prevent process disruptions.



Changing Device Network Settings

To configure the network parameters of the device, click the Net Interface tab.

For Ethernet/IP devices, you will need to change:

- IP address – most configurations should use a static IP. DHCP option is available.
- Subnet mask
- Default gateway
- Device name
- You might also configure DNS servers and a domain name.

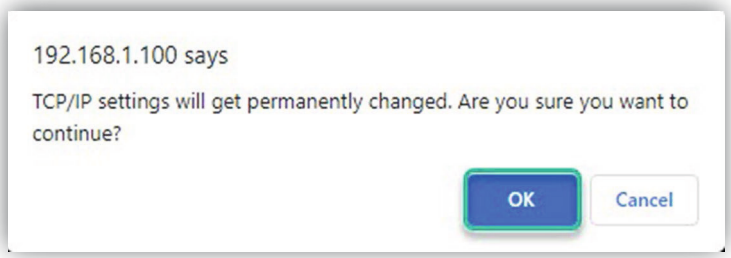
For PROFINET devices, you will need to change:

- The device name.
- Choose a unique name that conforms to the PROFINET International (PI) naming rules.
- You should also configure a static IP address and a subnet mask. This will allow the use of the embedded web interface for each unique device.
- Siemens recommends that you do not use an IP address in the 192.168.x.241 to 192.168.x.250 range for client devices because programming devices can be automatically assigned addresses in this range if necessary.

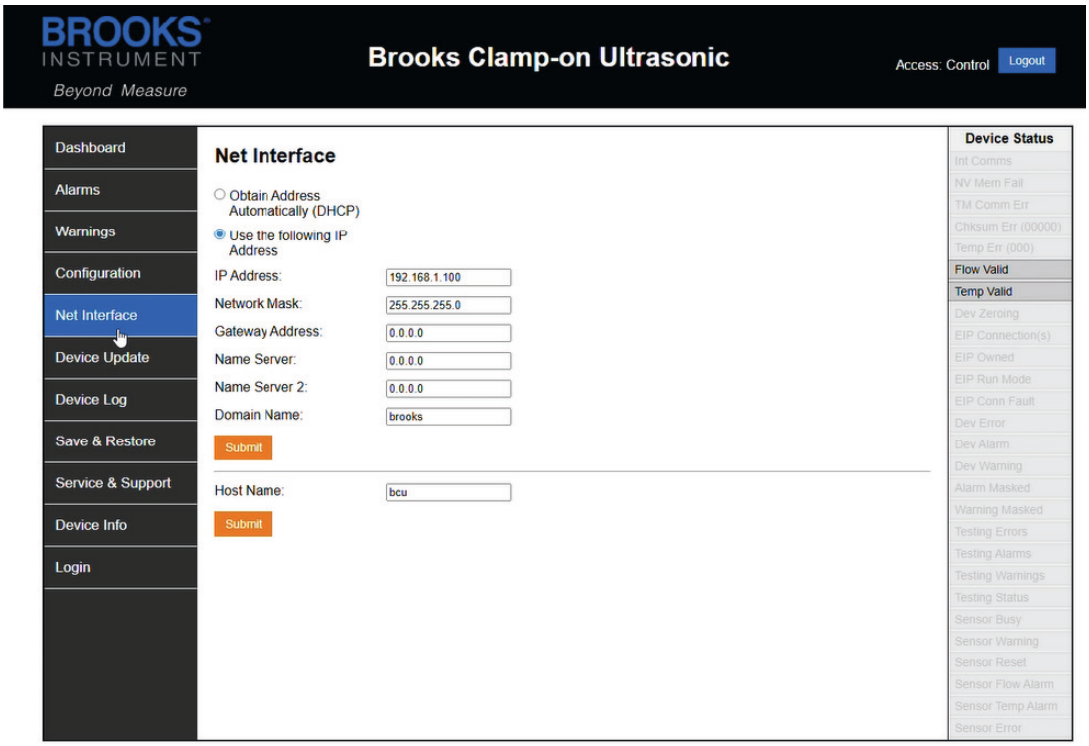
The default setting is a static IP address. To manually configure the network settings, select the ‘Stored Value’ radio button.

The network configuration fields will become active. Click ‘Submit’ after setting the network configuration.

A pop-up confirmation window will appear. Click “OK”

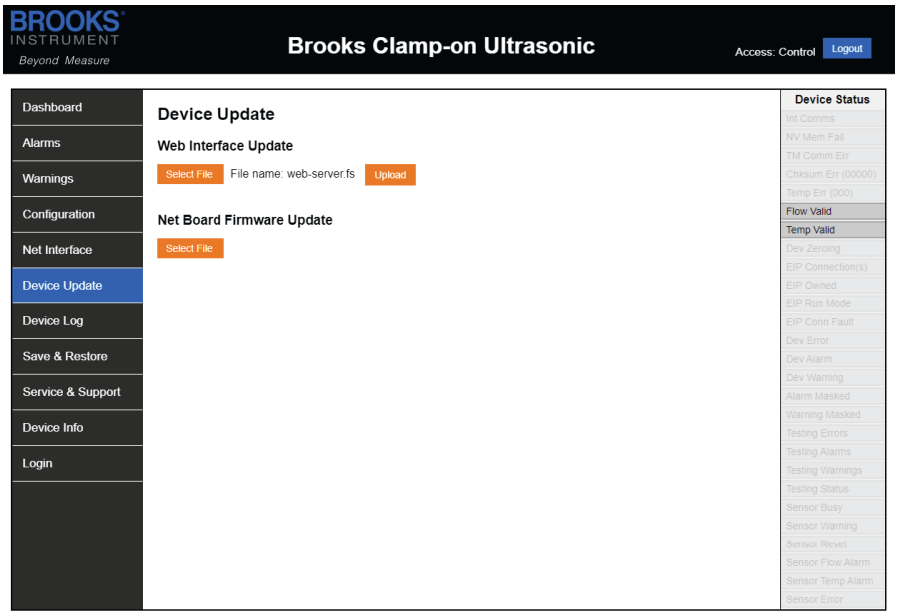


A success banner will be displayed briefly at the top of the page.



NOTE: Once the settings have been changed, the new TCP/IP address will need to be reentered in the URL field of the browser to reconnect with the device and confirm the network settings.

NOTE: We recommend labeling the device with the new communication settings and recording the changes with identifying information such as serial number and physical location.

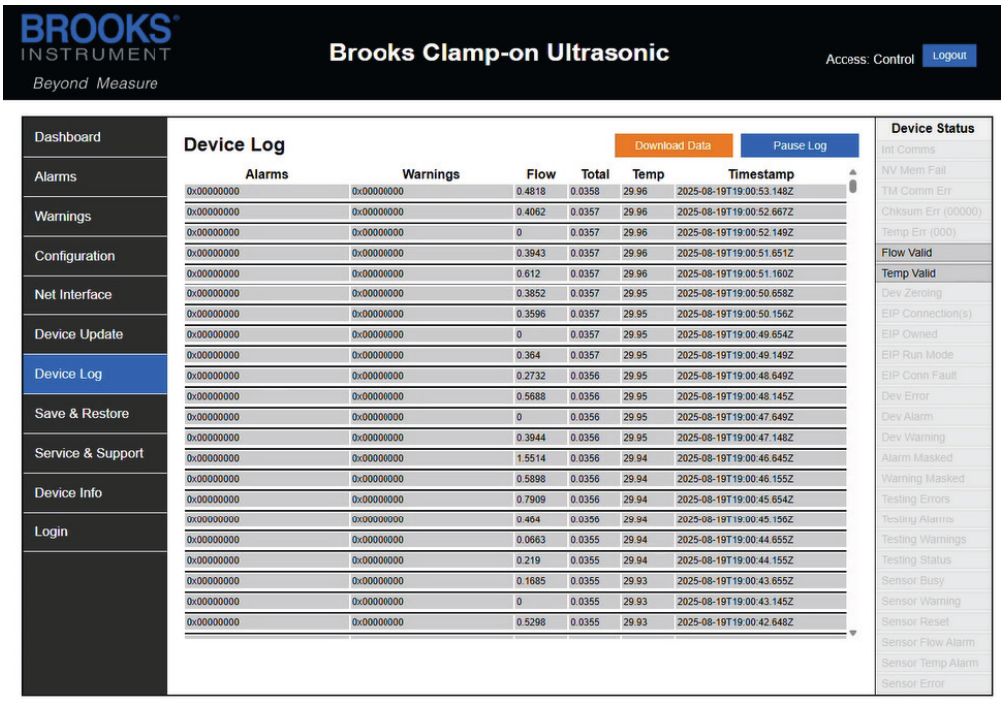


1. Update Web Interface
    a. Select the Web Interface Update file.
    b. Click “Upload”
    c. The NET LED will stop flashing during the update.
    d. Do not refresh the page or power cycle the device.
    e. Wait until the NET LED resumes blinking.

2. Update Net Board Firmware
    a. After the NET LED starts blinking again, select the Net Board Firmware Update file.
    b. Click “Upload”
    c. The NET LED will stop flashing again during this update.
    d. When the NET LED resumes blinking, power cycle the device.

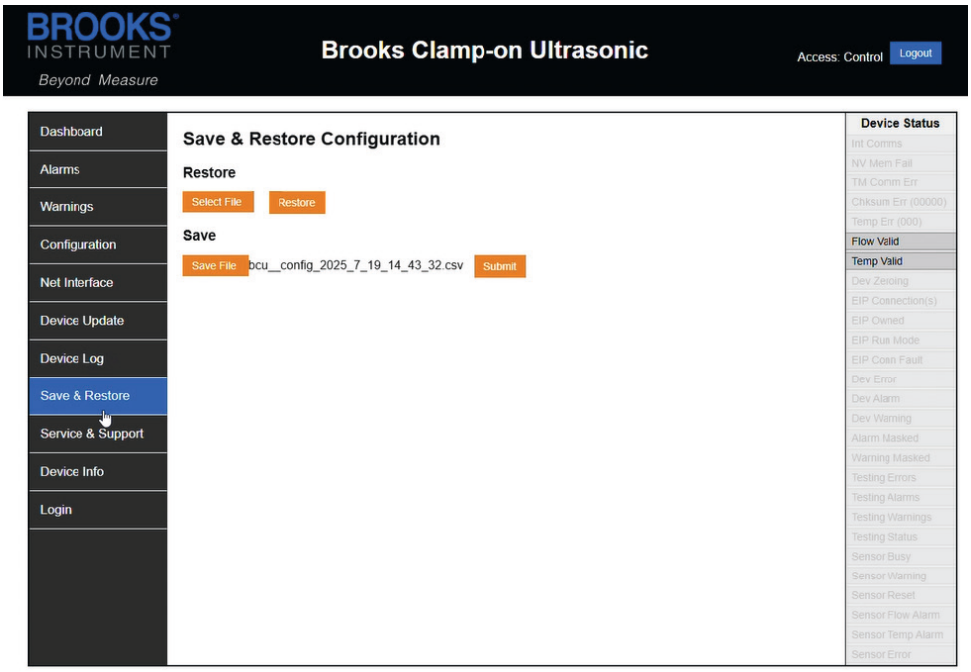
Device Log

The BCU web interface continuously records a comprehensive log of device status, including alarms, warnings, flow data, totalizer values, temperature readings, and timestamps. This log provides a complete operational history for troubleshooting and performance analysis. Users have the ability to pause logging during a session or download the recorded data as a .CSV file for external review and reporting, making it easy to generate graphs or integrate with other analysis tools.



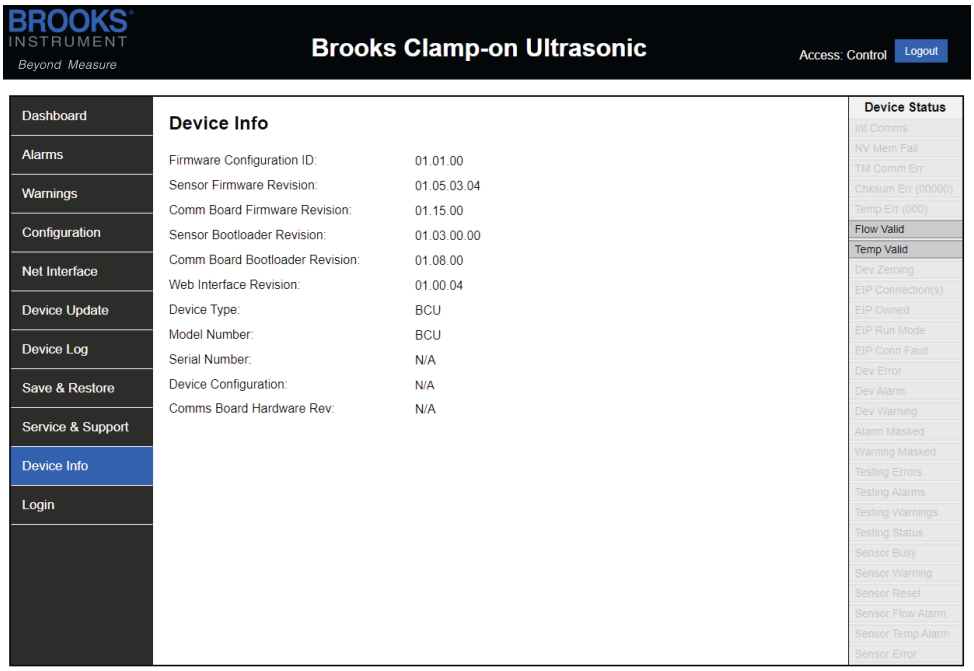
Save and Restore

The BCU web interface provides the ability to save a complete configuration file (or “dump” file) and later restore the device to that exact state. This feature ensures quick recovery and consistent setup across multiple devices. The saved file includes all critical parameters, such as device information (model, serial number, firmware revisions), flow units, totalizer units, temperature units, and detailed configuration settings for the flow meter, flow sensor, totalizer/timer, temperature, and chart display. It also stores status masks, session timeout settings, and network interface parameters (IP address, protocol, DHCP settings, host name). By downloading and securely storing this file, users can easily reload the configuration to restore operational settings without manual re-entry, reducing downtime and ensuring accuracy.



Device Info

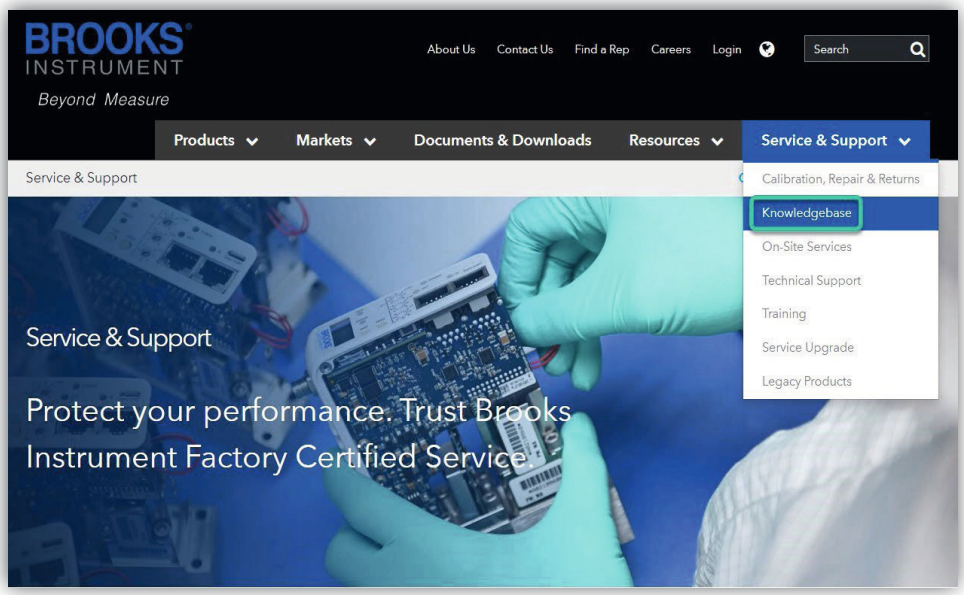
The BCU web interface provides a comprehensive overview of essential device information for identification and maintenance purposes. This includes the firmware configuration ID, sensor and communication board firmware revisions, and their respective bootloader versions, ensuring users can verify software integrity and compatibility. The interface also displays the web interface revision, device type, model number, serial number, and the current device configuration, making it easy to track hardware and software versions for troubleshooting, updates, and documentation.



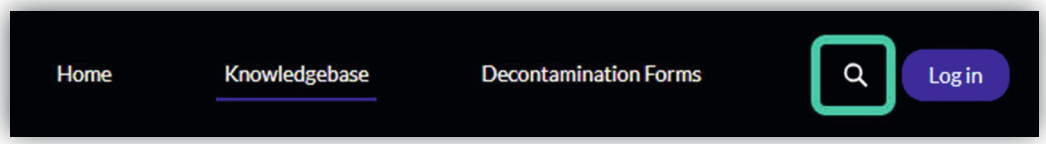
Getting Help

We recommend starting with the Installation and Operation Manual (IOM) and the Supplemental manual for the digital communication protocol, if applicable. These documents are searchable, so CTRL+F can be used in the PDF viewer to search for specific terms within the document.

After reading the manuals, we recommend utilizing the Knowledgebase section of our website. Navigate to “Service & Support” and select “Knowledgebase”.



On the Knowledgebase landing page, you can browse the articles or click the magnifying glass in the upper right corner to search.



Search by product name such as “BCU” or “GT1600”, digital protocol such as “Ethernet/IP” or “PROFINET”, or by specific article numbers.

After you have reviewed the relevant content for your product, if you still need any technical support please contact Brooks Instrument Technical Services at 215-362-3798 or via email at Brooks.TechSupport@BrooksInstrument.com

LIMITED WARRANTY

Visit www.BrooksInstrument.com for the terms and conditions of our limited warranty.

BROOKS SERVICE AND SUPPORT

Brooks is committed to assuring all of our customers receive the optimal solution for their application, along with outstanding service and support to back it up. We operate first class repair facilities located around the world to provide rapid response and support. Each location utilizes primary standard calibration equipment to ensure accuracy and reliability for repairs and recalibration and is certified by our local Weights and Measures Authorities and traceable to the relevant International Standards.

Visit www.BrooksInstrument.com to locate the service location nearest to you.

START-UP SERVICE AND IN-SITU CALIBRATION

Brooks Instrument can provide start-up service prior to operation when required.
For some process applications, where ISO-9001 Quality Certification is important, it is mandatory to verify and/or (re)calibrate the products periodically. In many cases this service can be provided under in-situ conditions, and the results will be traceable to the relevant international quality standards.

SEMINARS AND TRAINING

Brooks Instrument can provide seminars and dedicated training to engineers, end users and maintenance persons.

Please contact your nearest sales representative for more details.

Due to Brooks Instrument's commitment to continuous improvement of our products, all specifications are subject to change without notice.

Manual-Webserver-Operations-BCU-ENIP/2025-10

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