

HM-GW-x User Manual

Introduction

The HM-GW, Multi-Channel, HART-IP® Gateway is designed to access your HART devices using Ethernet so you can view, configure, and troubleshoot your devices remotely. The system consists of a Base module and can connect to up to 3 Expansion Modules. The system can accommodate 4 to 16 HART channels.

System Diagram

The complete system consists of a HART-IP Client running on a computer or mobile device with an Ethernet connection, the Ethernet network, the HM-GW, a 24Vdc power supply, and up to 16 HART devices (depending on the number of expansion modules installed).

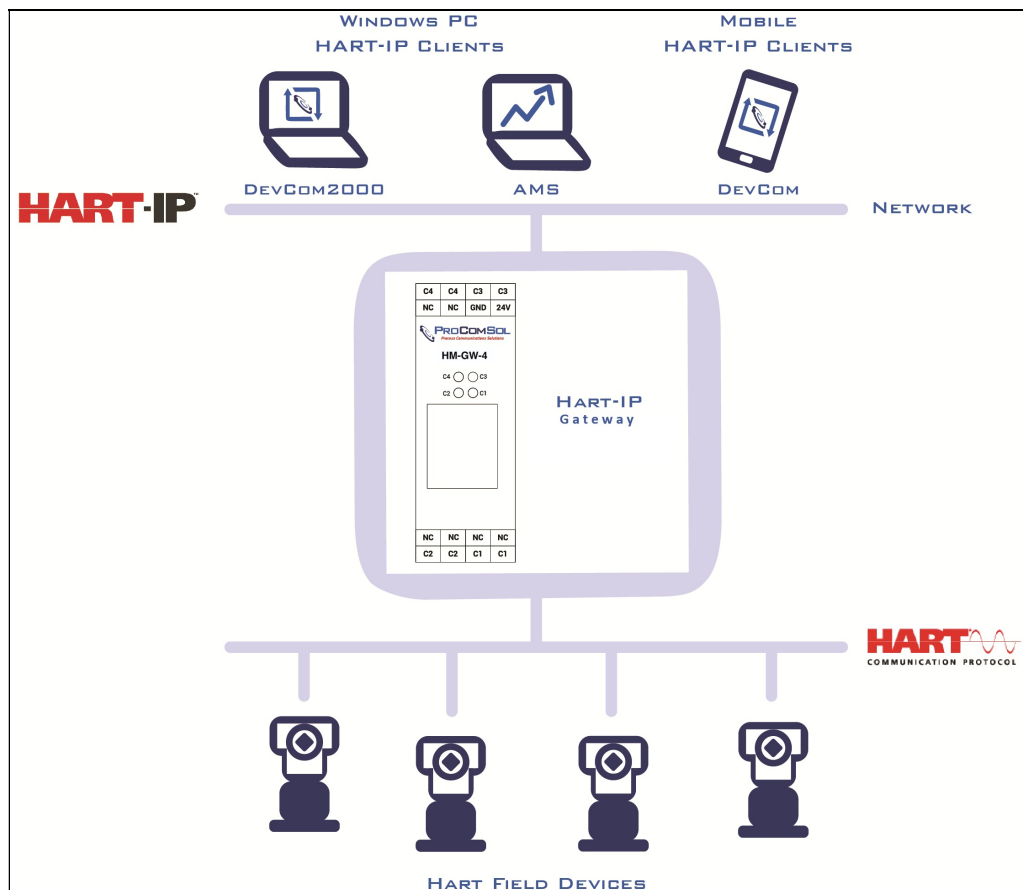


Figure 1. HART-IP Gateway System Diagram

Wiring Diagram

Screw terminals provide the interface connections to the HM-GW. The connections are simply the Ethernet CAT5, +24Vdc power supply, and up to 16 HART device loops. The loops must contain 250 ohms of resistance per the HART specification. There is no polarity.

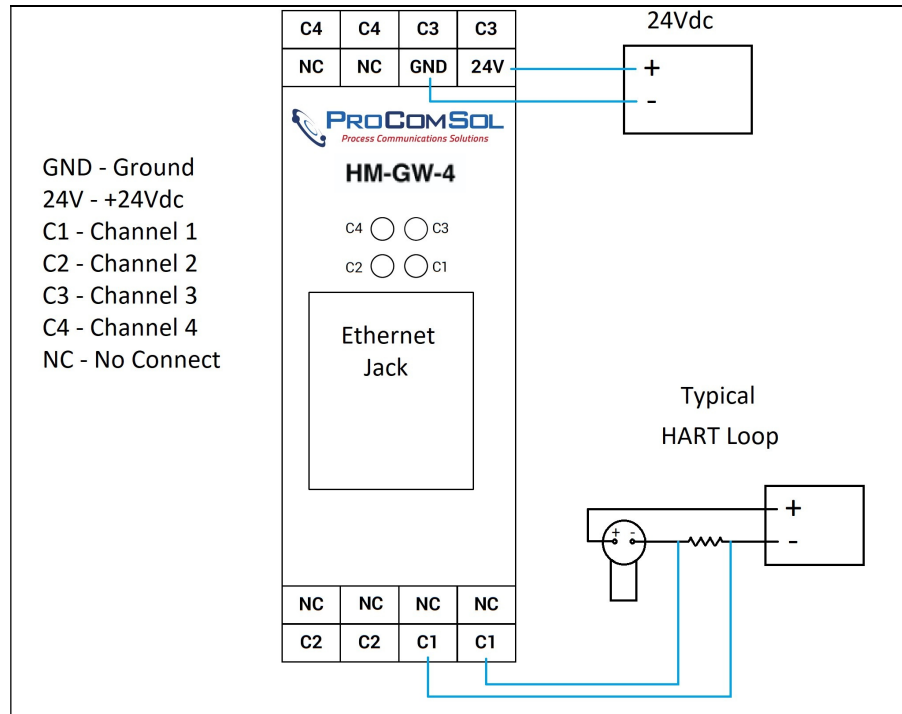


Figure 2. Wiring Diagram for Base Module

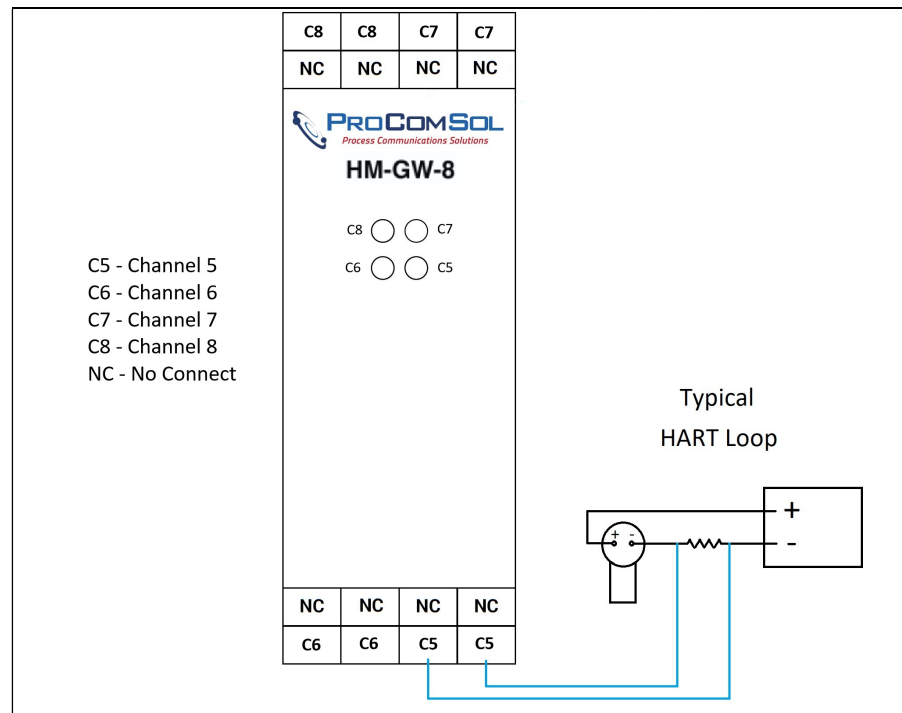


Figure 3. Wiring Diagram for Expansion Module (Typical)

Base Module Ethernet Connection

Connect a CAT5 cable with a RJ45 connector to the Ethernet Jack. The cable must be connected to an Ethernet Router or Switch in the network.

Base Module Power Connection

Connect the 24Vdc power supply to the HM-GW at GND and 24V terminals on the Base Module. There is no power switch, so the unit will turn on as soon as power is applied.

Base Module and Expansion Module HART Connections

The HM-GW HART connections can be made in one of two ways: across the loop load resistor (A – B) or across the HART transmitter terminals (C – D). See Figure 4.

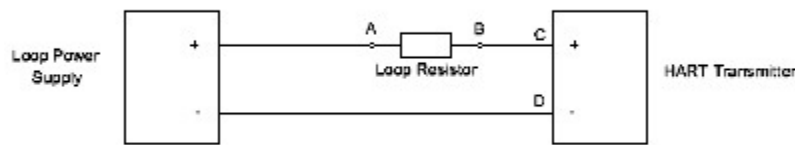


Figure 4. HART Connections

HM-GW Configuration via Web Interface

The HM-GW is designed to work “out of the box”. The default settings will work for your system in most cases. However, the default settings can be changed using a web browser.

IP Address

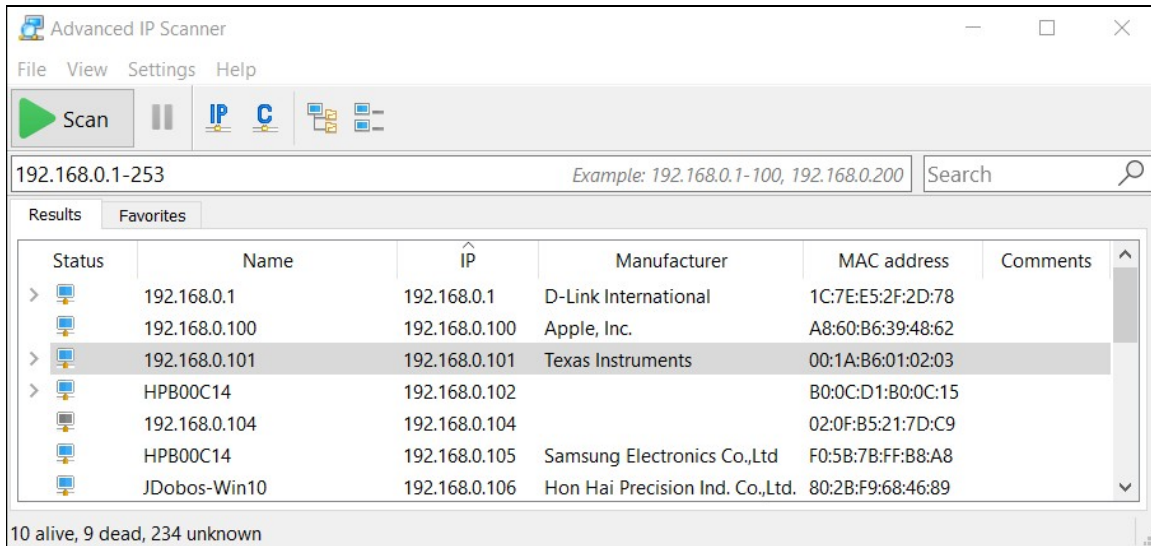
Connect the HM-GW to your Ethernet network. The default setting requires the network DHCP to assign an IP address to the HM-GW. In order to connect your browser to the unit, you need to determine its IP address assignment. There are many ways to do this. A simple way is use a utility such as Advanced IP Scanner. It is a free utility that is included with the HM-GW.

Advanced IP Scanner Instructions

Install from disk or download from <http://www.advanced-ip-scanner.com>

Launch “Advanced IP Scanner”

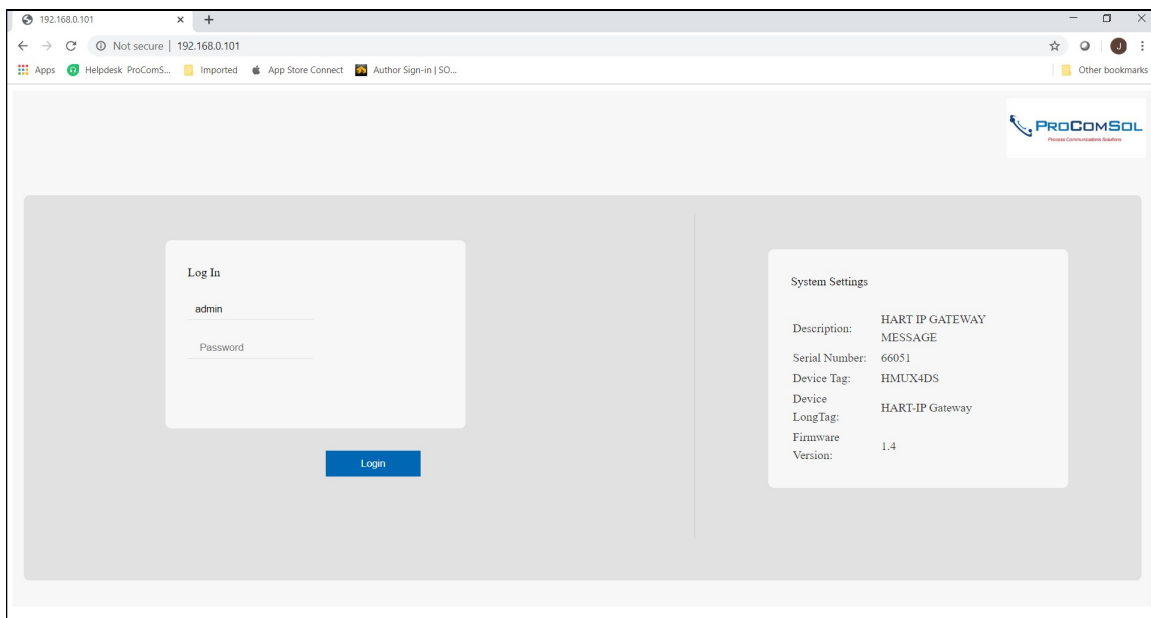
Press “Scan” to scan network.



The HM-GW can be found by looking for “Texas Instruments” as the device manufacturer. Note this IP address. It is 192.168.0.101 in the example above.

Browser Settings

Launch your browser and enter the IP address assigned by the DHCP. You should then see a screen similar to the one below:

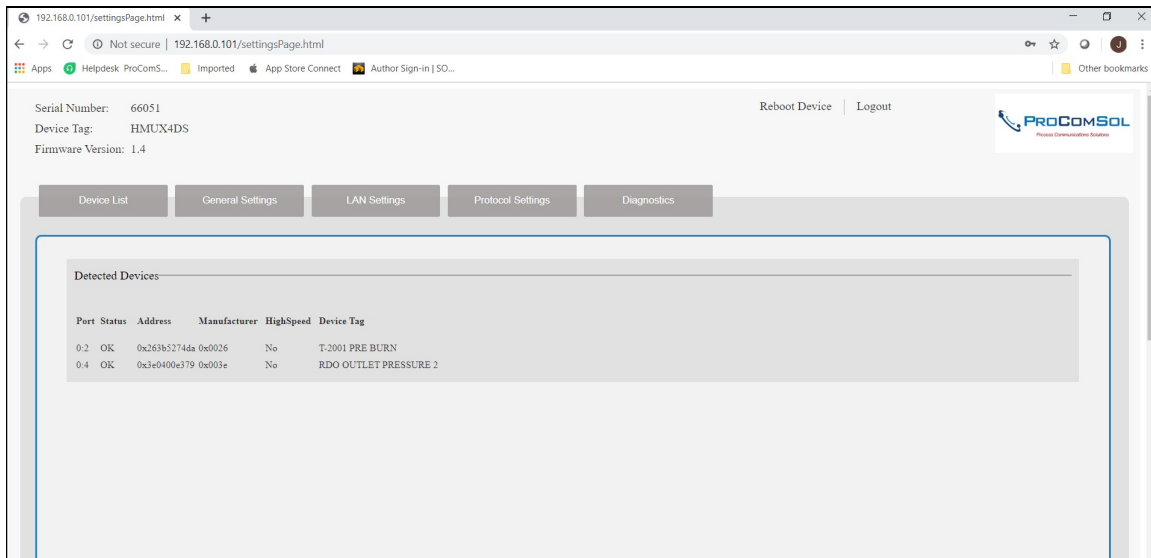


Password

The default password is “root” without the quotation marks. It can be changed by the user. This process is described in Section “General Settings”.

Settings Main Menu

After the correct password is entered you will see the screen below:

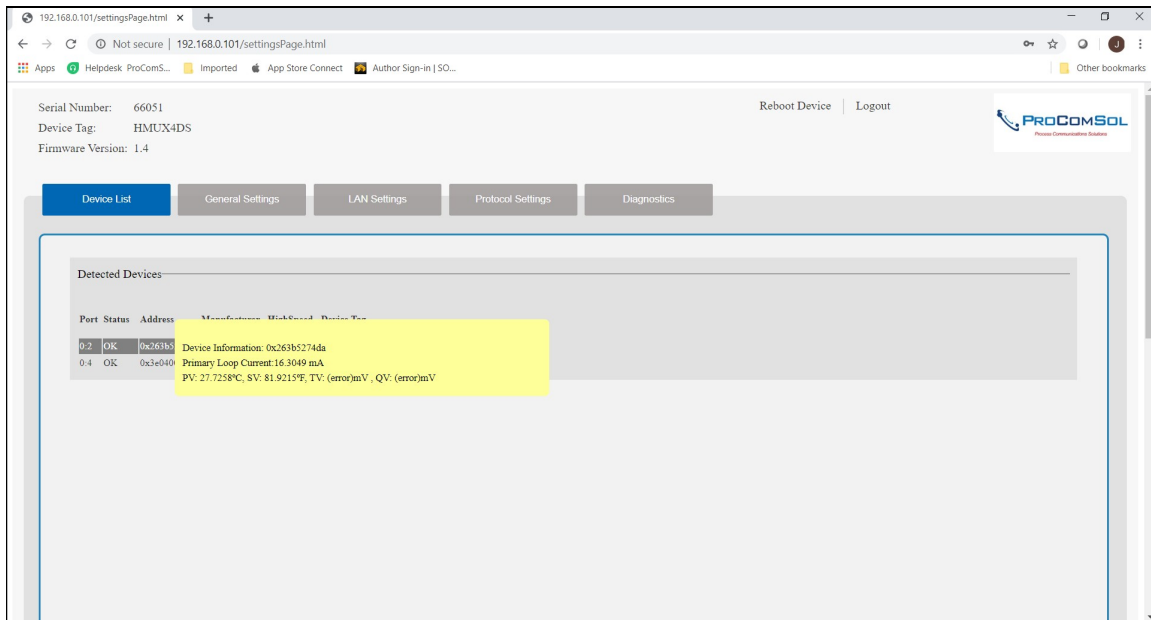


Note that you will only see devices on this list if they are connected to the HM-GW and the loops are properly setup with loop resistance. The above devices are an example only - you will see your own devices.

Browser Menu Items

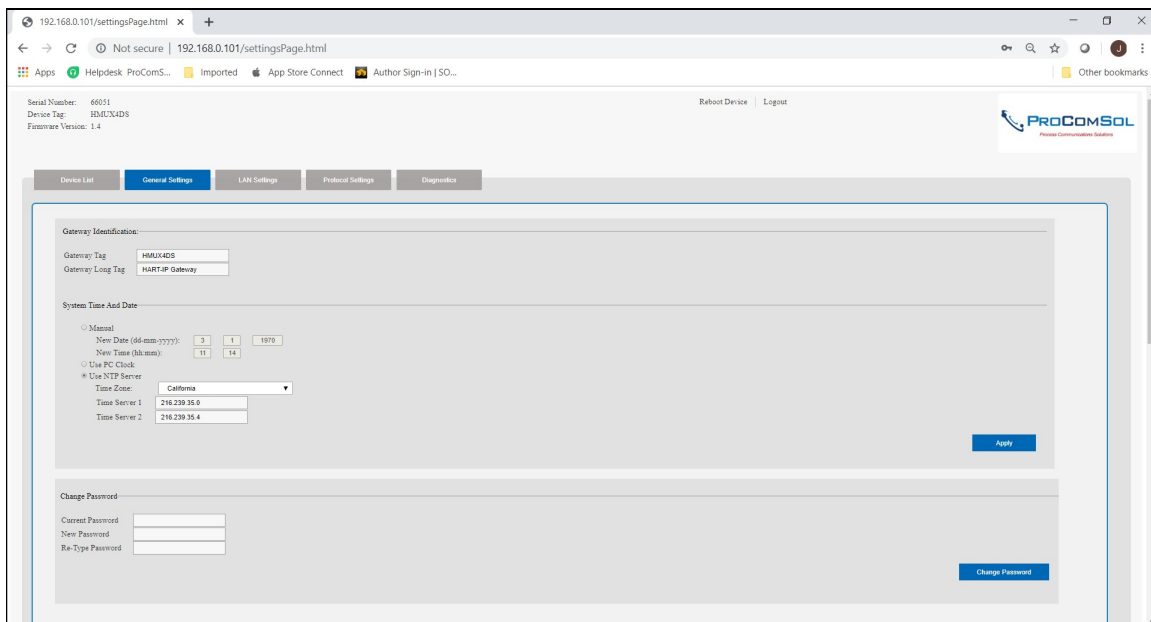
Device List

The Device List shows the HART devices connected to the HM-GW and basic device information. You can get measurement information by clicking on the device of interest. Below is an example:



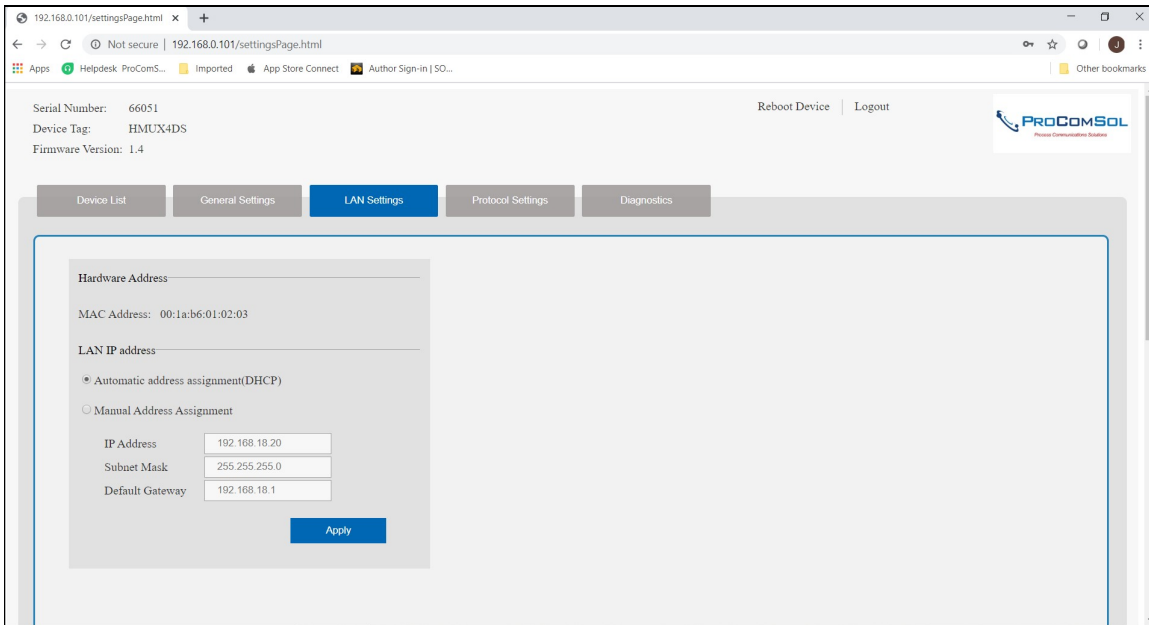
General Settings

Click this button to get additional setting options such as HART Tag settings for the HM-GW and clock settings. You can even change the HM-GW password from this page.



LAN Settings

Click this button to access the settings related to the Ethernet. This is where you would assign a static IP address instead of using the address assigned by the network DHCP.



The screenshot shows the LAN Settings page of the ProComSol HM-GW-x web interface. The page is accessed via a browser at 192.168.0.101/settingsPage.html. The interface includes a header with the ProComSol logo and navigation links for 'Reboot Device' and 'Logout'. Below the header, there are tabs for 'Device List', 'General Settings', 'LAN Settings' (which is active), 'Protocol Settings', and 'Diagnostics'. The LAN Settings page displays the following information:

- Serial Number: 66051
- Device Tag: HMX4DS
- Firmware Version: 1.4

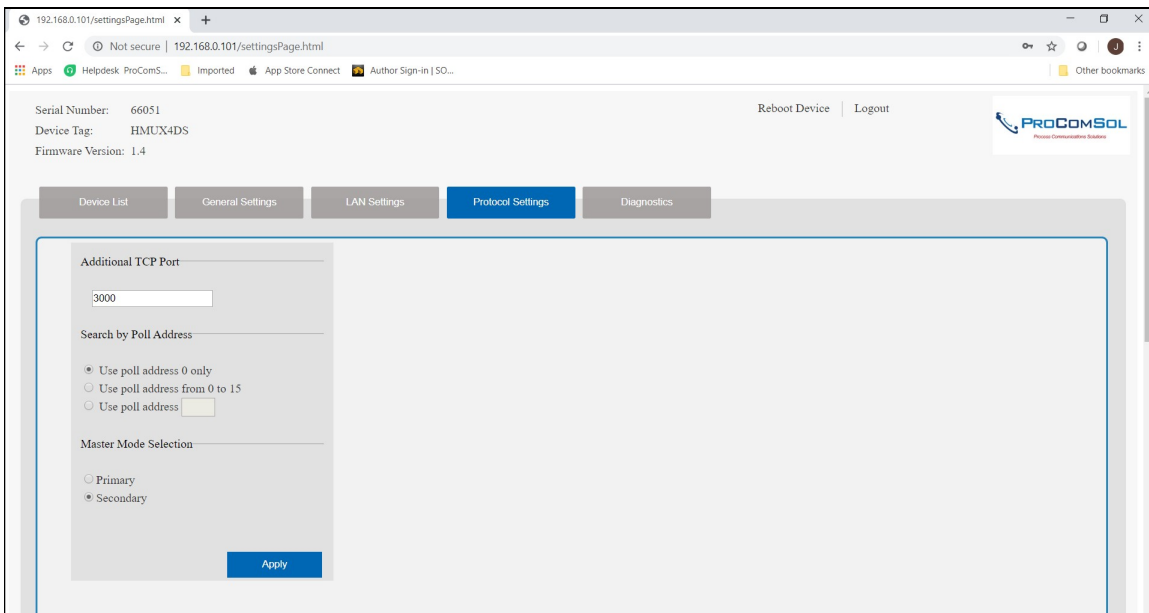
The main configuration area for LAN settings includes:

- Hardware Address:** MAC Address: 00:1a:b6:01:02:03
- LAN IP address:**
 - ☒ Automatic address assignment(DHCP)
 - ☐ Manual Address Assignment
 - IP Address: 192.168.18.20
 - Subnet Mask: 255.255.255.0
 - Default Gateway: 192.168.18.1

An 'Apply' button is located at the bottom right of the configuration area.

Protocol Settings

Click this button to access settings related to HART-IP. This also includes polling settings for finding the HART devices connected to the HM-GW.



The screenshot shows the Protocol Settings page of the ProComSol HM-GW-x web interface. The page is accessed via a browser at 192.168.0.101/settingsPage.html. The interface includes the same header and navigation tabs as the LAN Settings page. The Protocol Settings page displays the following information:

- Serial Number: 66051
- Device Tag: HMX4DS
- Firmware Version: 1.4

The main configuration area for Protocol Settings includes:

- Additional TCP Port:** 3000
- Search by Poll Address:**
 - ☒ Use poll address 0 only
 - ☐ Use poll address from 0 to 15
 - ☐ Use poll address
- Master Mode Selection:**
 - ☐ Primary
 - ☒ Secondary

An 'Apply' button is located at the bottom right of the configuration area.

Diagnostics

Click this button to show diagnostic messages related to the HM-GW performance. This information could be helpful in determining why a connected HART device cannot be found for instance.

Miscellaneous

- Reboot Device

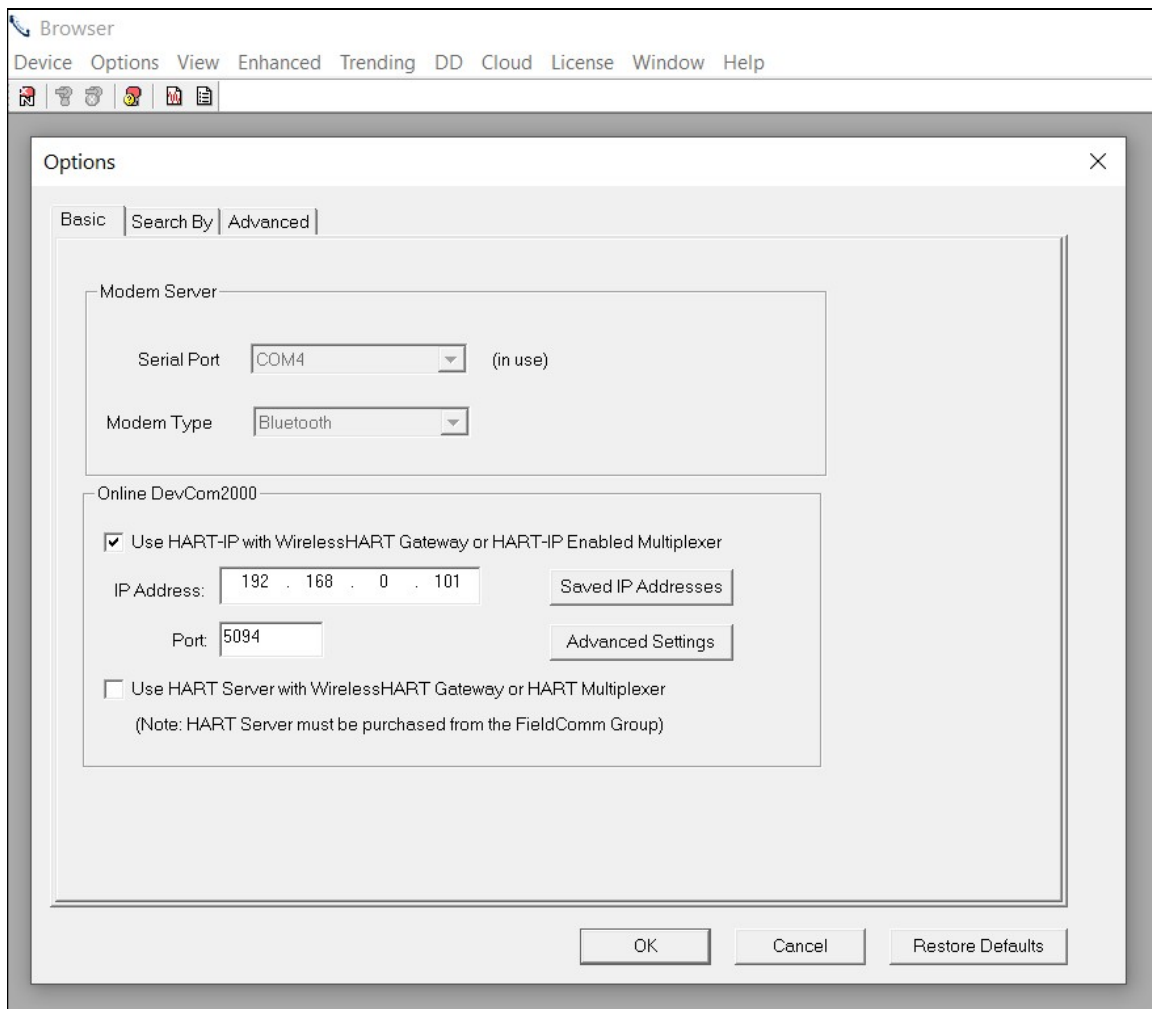
Click this button to reset the HM-GW without disconnecting power. Allow 5 minutes for devices to be re-discovered before attempting HART-IP communications.

- Logout

Click this button to return the browser screen to the initial state. The user must enter a valid password to log back in.

HART-IP Settings for DevCom

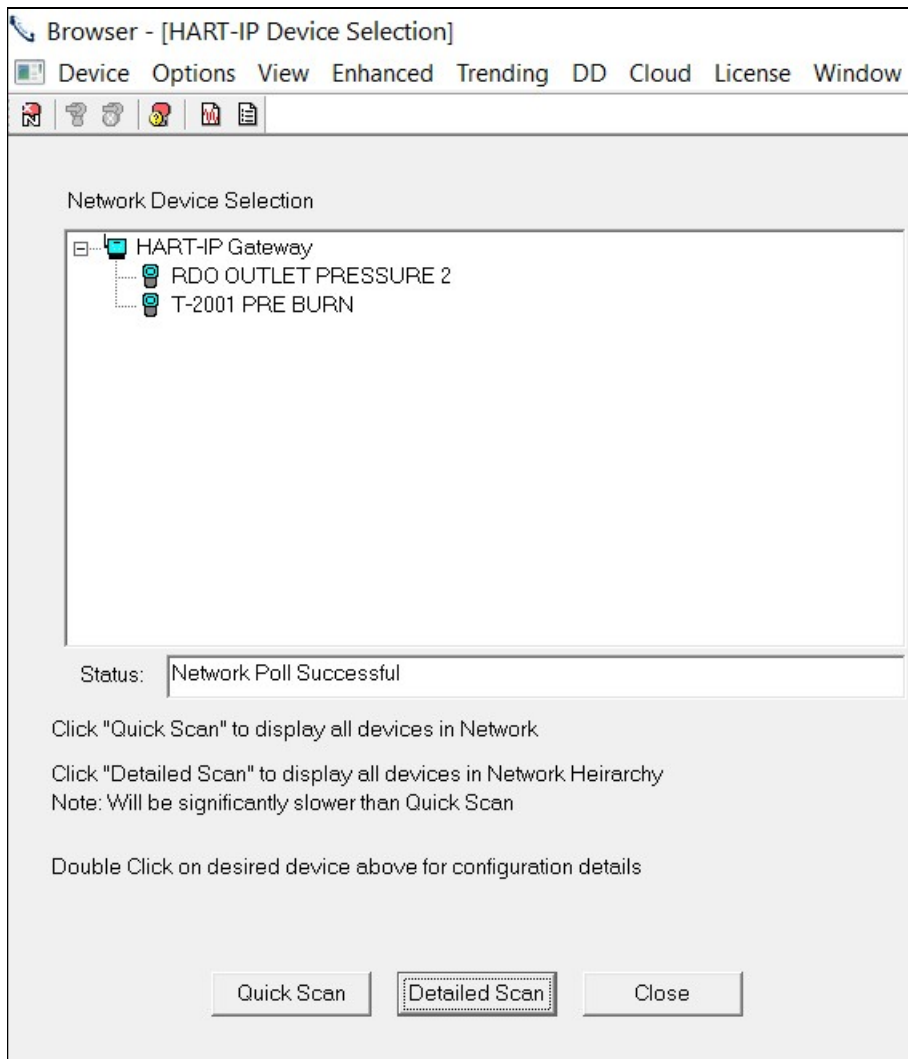
Configuring your HART-IP client (such as the DevCom family of HART Communicator Apps) is straightforward. Simply enter the IP address assigned to the HM-GW and make sure the HART-IP Port is set to the default HART-IP Port number which is 5094. Below is an example for DevCom2000:



The screenshot shows a web browser window with the title "Browser" and a menu bar containing "Device", "Options", "View", "Enhanced", "Trending", "DD", "Cloud", "License", "Window", and "Help". Below the menu bar is a toolbar with several icons. The main content area displays the "Options" dialog box, which has a close button (X) in the top right corner. The dialog box has three tabs: "Basic", "Search By", and "Advanced". The "Basic" tab is selected. Inside the "Basic" tab, there are two sections. The first section, "Modem Server", contains a "Serial Port" dropdown menu set to "COM4" with "(in use)" next to it, and a "Modem Type" dropdown menu set to "Bluetooth". The second section, "Online DevCom2000", contains a checked checkbox labeled "Use HART-IP with WirelessHART Gateway or HART-IP Enabled Multiplexer". Below this checkbox are two input fields: "IP Address" with the value "192 . 168 . 0 . 101" and a "Port" field with the value "5094". To the right of the "IP Address" field is a button labeled "Saved IP Addresses", and to the right of the "Port" field is a button labeled "Advanced Settings". Below these fields is an unchecked checkbox labeled "Use HART Server with WirelessHART Gateway or HART Multiplexer" with a note below it: "(Note: HART Server must be purchased from the FieldComm Group)". At the bottom of the dialog box are three buttons: "OK", "Cancel", and "Restore Defaults".

Network Hierarchy in DevCom

Once the IP address and port are set in the HART-IP client, click New Device to see the network Hierarchy. Below is an example in DevCom2000:



Individual Device

Double click on the device of interest in the hierarchy to open a HART Communicator instance in DevCom. You can now view and edit device parameters, get device status, and save the complete device configuration to disk. Just like if you were at the device with a HART modem.

Troubleshooting

Problem:

No devices show in the Device List

Verify the following:

1. Loop power supply is on.
2. Loop resistance between 250 ohms and 1Kohms.
3. Loop current within HART limits.
4. If multi-drop configuration, all transmitters in loop have unique addresses.

Warranty

The HM-GW is warranted for 1 year for materials and workmanship. Contact Support at ProComSol, Ltd if having any problems. An RMA (Return Material Authorization) number obtained from ProComSol, Ltd is required on all returned items.

Contact Information**ProComSol, Ltd**

Process Communications Solutions
20525 Center Ridge Rd
Suite 320
Rocky River, OH 44116
USA

Phone: 216.221.1550

Email: sales@procomsol.com
support@procomsol.com

Web: www.procomsol.com