D7000 SERIES QUICK START GUIDE

Version 1.0

Overview

All D7000 series modules contain an EEPROM (Electrically Erasable Programmable Read Only Memory) to store setup information and calibration constants. The EEPROM replaces the usual array of calibration potentiometers and DIP switches used to specify baud rate, address, parity, etc. The memory is nonvolatile which means that the information is retained even if power is removed. No batteries are used so it is not necessary to open the module case.

The EEPROM provides tremendous system flexibility allowing the module setup parameters to be configured remotely through the Ethernet port without having to physically change a switch or turn potentiometers. There is one minor drawback in using EEPROM instead of switches; there is no visual indication of the setup information in the module.

Module Connections

The first step towards “Getting Started” with your D7000 series module is to make the appropriate power and ethernet connections. First, connect a CAT-5 Ethernet cable between the module RJ-45 Ethernet port and a network router. Next connect a +10 to +30Vdc power supply to the +Vs and GND terminals on the module. Finally, turn on the power supply.

The D7000 is factory programmed to obtain a network IP address using the DHCP protocol. Using DHCP, the module will automatically obtain an IP from the network DHCP server, usually located in the network router. Once the module is powered up then browse to your network address table in the router to determine the IP Address. Other network IP scanner applications are available for download from the internet, such as FING, for iOS and Android devices.

Device Configuration

The D7000 contains a web-browser for configuring the modules. The web browser allows for network configuration, channel range configuration and enable/disable of other standalone features. Once the IP address has been determined then use a web browser such as Internet Explorer or Firefox to browse to the IP address of the D7000 module. The web server page will appear with a menu bar of user selections across the top. The web browser can also be disabled for security purposes after the device is configured. See typical D7000 web server page below.

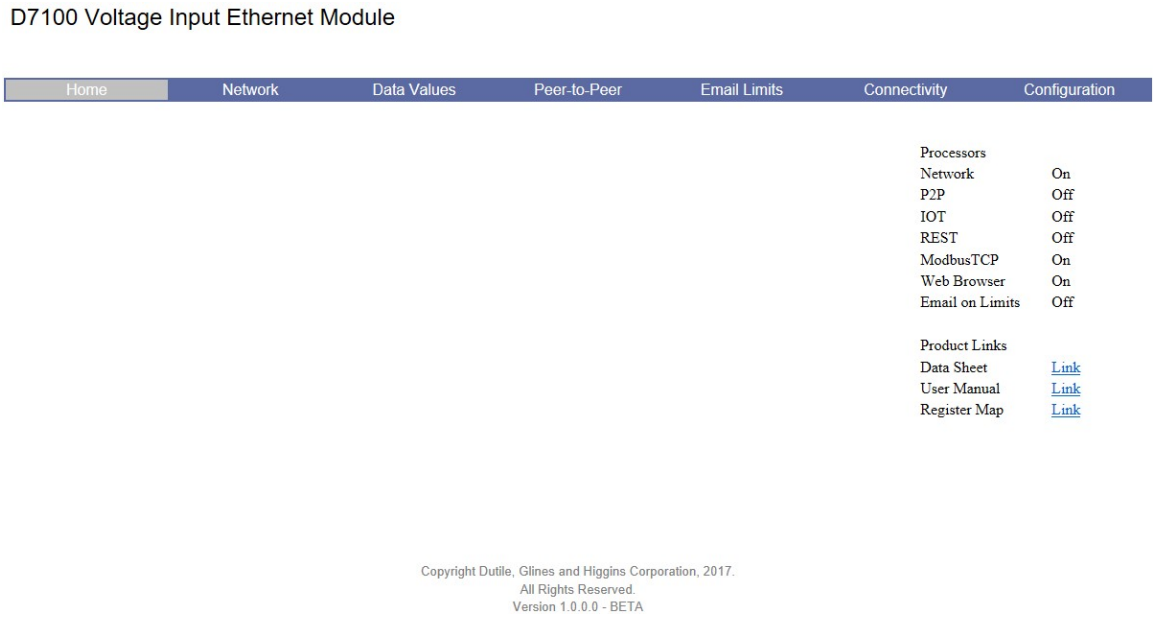

Figure 1.0 Typical D7100 Series Home Page.

The menu selections to the left of “Configuration” are available for viewing the current device settings. Including network, range values, peer to peer, email notification on limits and connectivity settings. The Configuration selection is where the device settings can be changed and saved to EEPROM. See the figures below that display typical settings.

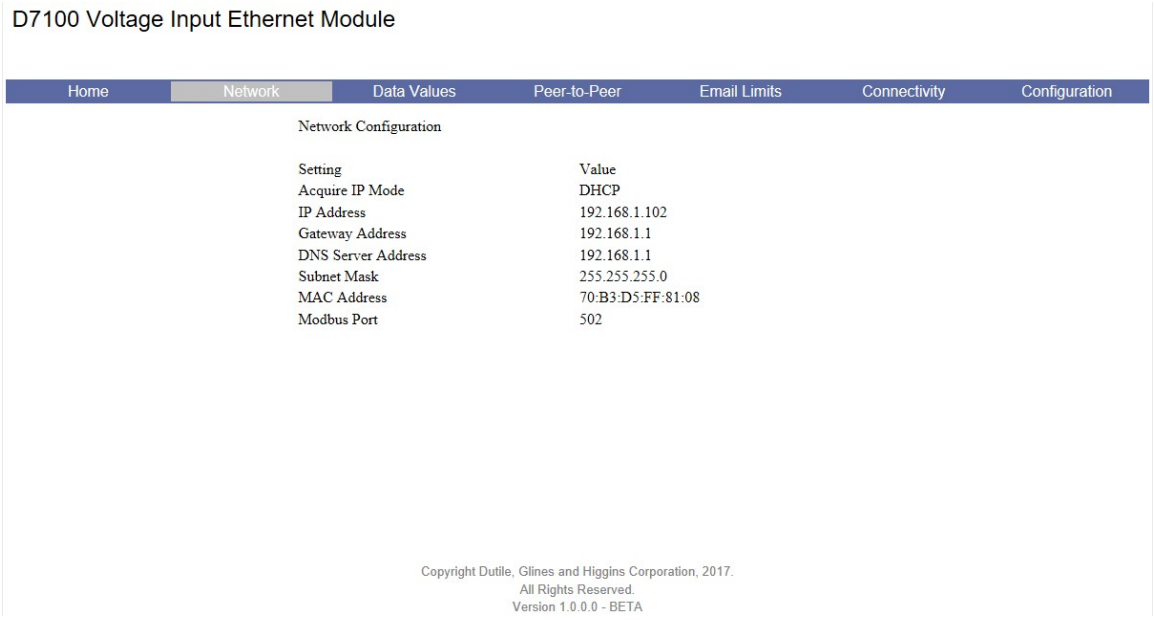

Figure 2.0 Typical D7000 Series Network Settings

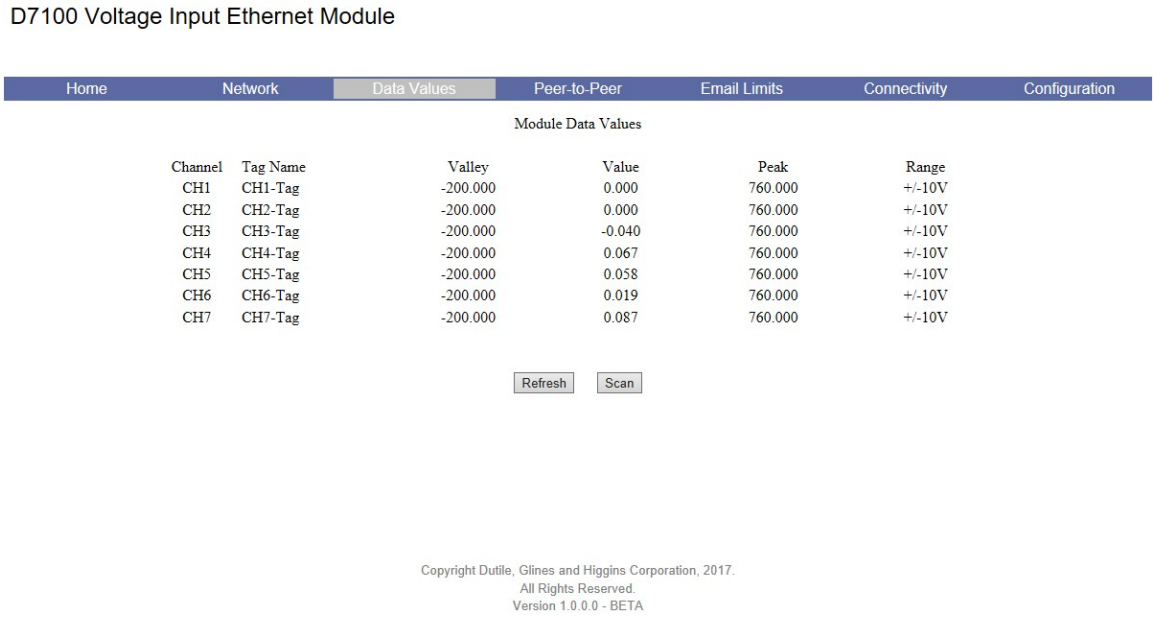

Figure 3.0 Typical D7000 Series Analog Input Data Values

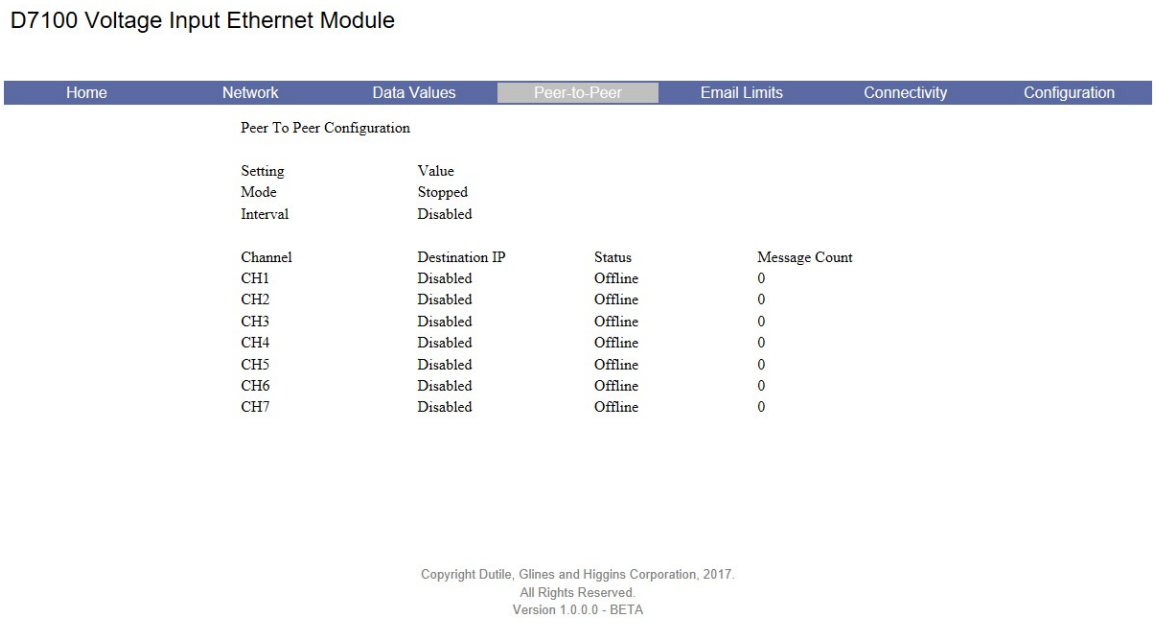

Figure 4.0 Typical D7000 Series Peer-To-Peer Settings

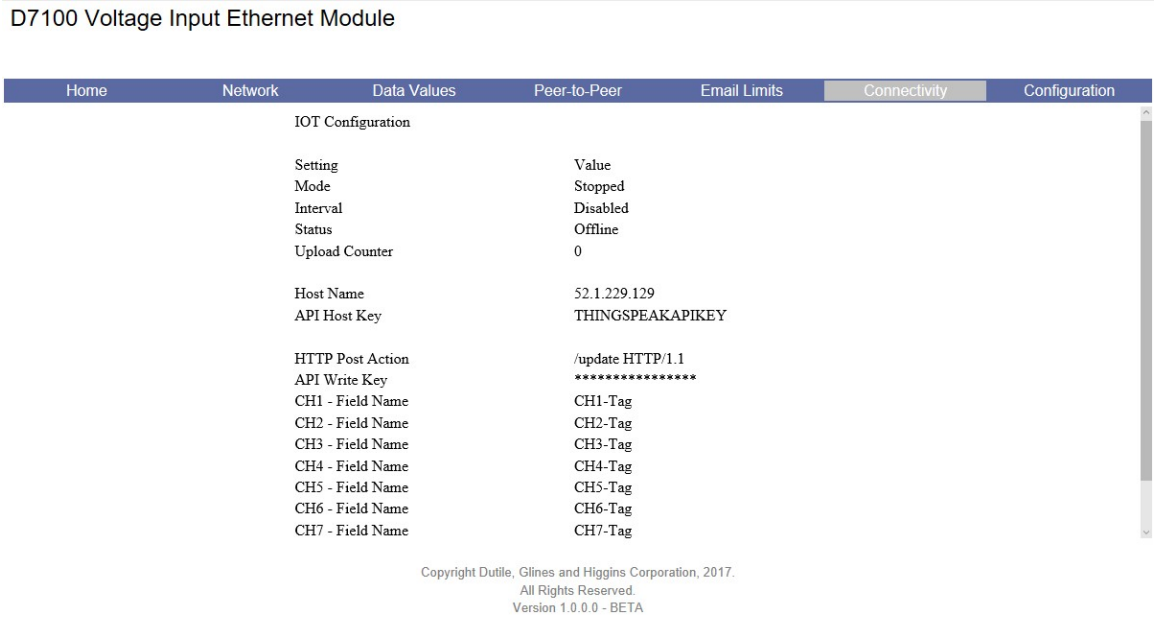

Figure 5.0 Typical D7000 Series Connectivity Settings

Utility Software

Utility Software is available for use with the D7000 series modules. The Utility Software can perform limited configuration of the D7000 and is the best means of quickly reading data values from a module. The channel data values will be displayed on the Utility Software screen, scaled in the units that match the input range selected. For example, thermocouple temperature values will be scaled in Degrees C and voltage readings will be scaled in volts. Users who are interested in the 16-bit unsigned integer raw data values can check the “Hex Data” checkbox located at the bottom of the screen. The raw data is displayed in hexadecimal format.

The Utility Software is provided free of charge and the latest version is always downloadable from www.dghcorp.com. The utility software runs on Windows based computers. Simply download the executable file from the website and then run the installation program. During the installation process, two menu selections will be added under the “Start” button. First, the program will add a menu selection named “DGH DATA ACQUISITION”. Then a sub-menu will be added called “D6000 Utility Software” that should be used to start the Utility Software program. This program can be used to configure any D6000, D7000 and D8000 series module. An icon will also be placed on the computer desktop to start the program.

Once the Utility Software opens then locate the “Connection Type” list box in the upper left corner of the screen. Select “Ethernet TCP/IP” as the connection type. Next, enter the IP address in the four boxes to the right of the Connection Type selector. The “Port #” should remain at 502 as that is the standard port value for the Modbus TCP/IP protocol. See figure 6.0 below.

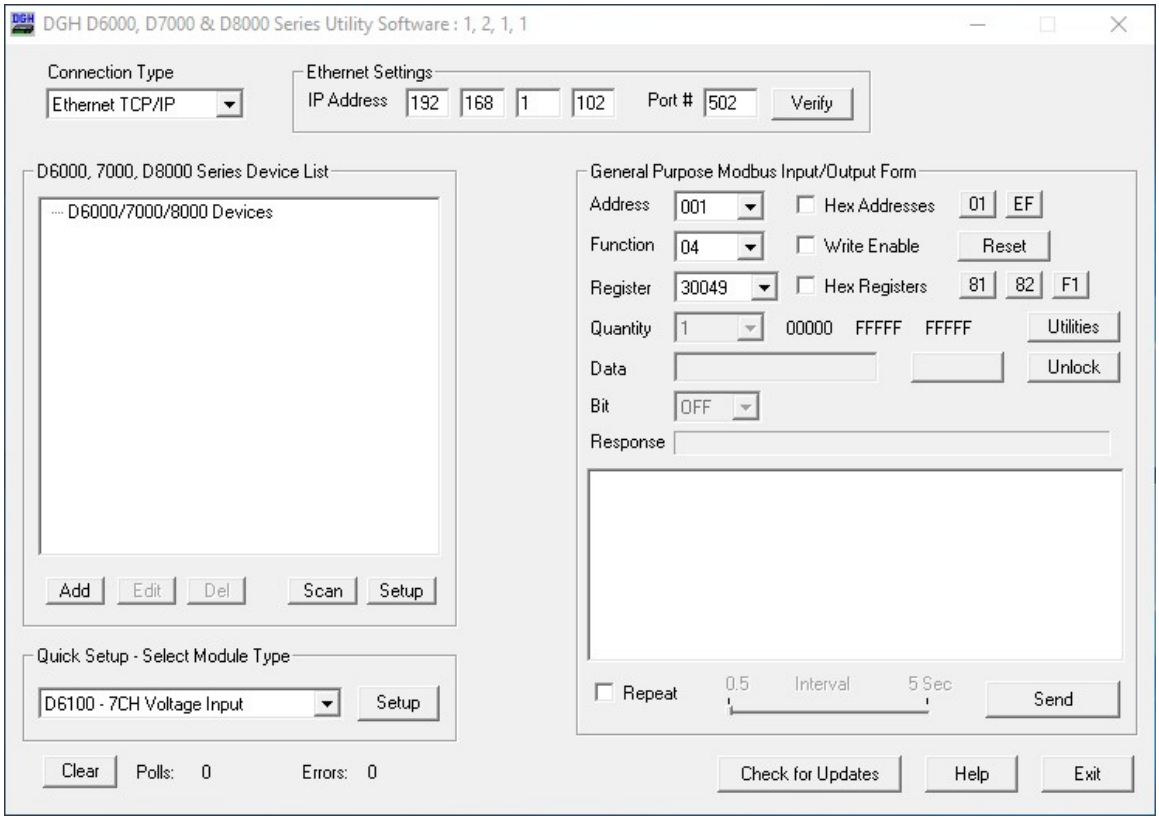

Figure 6.0 D6000 Utility Software

Test Communications

After the IP Address has been entered, press the “Verify” button to the right of the Modbus Port number. If the Utility Software detects the module through the ethernet connection, then “Connection Successful!” will appear in the “Response” block on the right-hand side of the screen.

Setup and Read Data Values

Locate the “Quick Setup” list box in the lower left-hand corner of the screen. Select the correct model number and description that matches your D7000 series module. Then press the “Setup” button to the right. A new screen will appear displaying the specific range values and other options for the specific model number. For example, Figure 7.0 below contains the analog input range values for a D7400 series module.

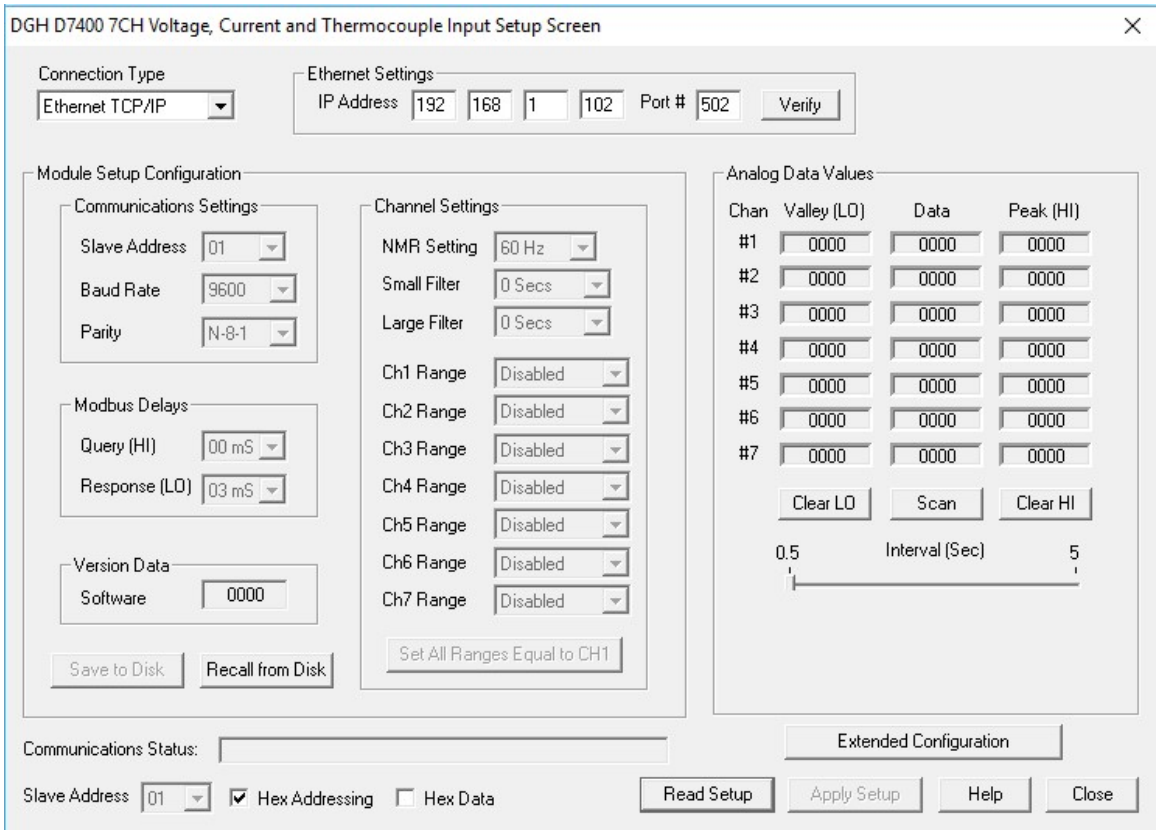

Figure 7.0 D7400 Setup Screen

If you need to read the setup again, review the Ethernet TCP/IP settings at the top of the screen and then press the “Read Setup” button at the bottom of the screen. The Utility Software will read the module channel settings and set the screen list box values. The list box values can be changed to the desired settings and then press the “Apply Setup” button to transmit the changes to the module.

This screen can also be used to display the data values from the D7400 module. Press the “Scan” button on the right-hand side to display the seven data values. The data values will be displayed in units that are applicable to the channel range. For example, if Channel #1 was configured as a K-Type thermocouple then the data values would be displayed in Degrees C. The Modbus 16-bit unsigned integer raw data values can also be displayed by checking the “Hex Data” box in the lower left-hand corner of the screen.

NOTES: