

Connecting to the device  
To configure the WI/O-2-E-N-GBL you connect to it using a web browser on your PC or mobile device.

**Connecting to the module for the first time**

On first connection, you can only connect to the device through its USB port. Once you have connected to the device for the first time, you can enable access through the Ethernet port and remotely through the 802.11 Wireless port.

**Connecting to the device’s USB port**

The USB port is located on the bottom side of the module. To connect, you need an USB cable (USB-A to USB-B) for connecting from your computer to the module’s USB-B port.

If this is the first time you have used your computer to connect to a Weidmueller device through the USB port, then you will need to install the USB driver file provided with the product on USB Flash Memory stick.

You will also need to know the username/password configured for the device. If the module is new out-of-the-box you can use the default settings. Otherwise, you may need to restore these settings. If you have lost the password, you can set the username and password back to the default values. For instructions, see “Restoring the factory default connection settings” on **page 3**.

1. Install the USB Device driver to your PC. You do this by running the installer ".exe" file and following the prompts.
2. Power on the device, and wait for the device to finish booting and for the "PWR" LED to go solid green (about 1 minute).
3. Plug in the USB cable and wait for your computer to recognize the new USB device.
4. Once the device is connected, you will have an additional Network Adapter in your device manager list "Weidmueller WI/O-2-E-N-GBL USB Ethernet/ RNDIS Interface"
5. Open your web browser (recommended Internet Explorer version 10 or later) and type "http://192.168.111.1" into the browser bar. The device’s USB address is always the same. The module responds with a username and password box.
6. Type the username and password. The default username is "user" and the default password is "user".

This connects you to the home page of the Web-based configuration utility. This utility allows you to manage wireless connection links between all modules in the system through a standard browser, such as Microsoft® Internet Explorer®.

**Connecting to the Device’s Ethernet port**

The Ethernet port is located on the bottom side of the module. To connect, you need an Ethernet cable for connecting to the module’s Ethernet port. You also need to know the device’s IP Address and the username/password configured for the device.

The module’s default settings are as follows:

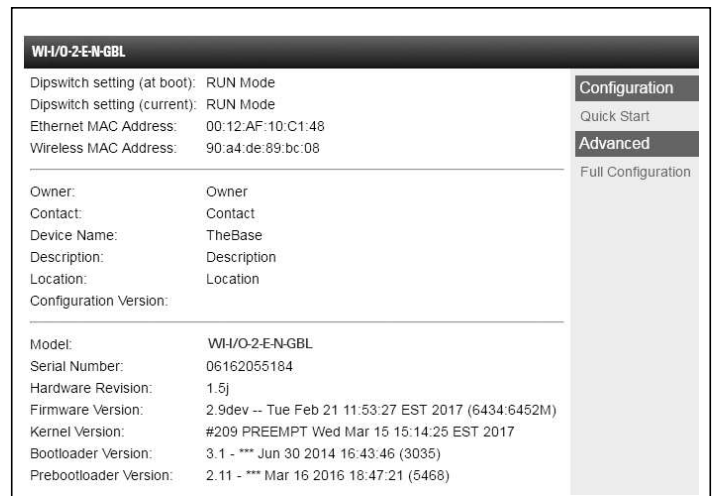
IP Address	192.168.0.1XX (shown on the printed label on the side of the module)
Subnet Mask	255.255.255.0
User Name	user
Password	user

**Note:** You cannot access the device through Ethernet until remote access has been enabled. The first time you access the device, you need to use the USB method described above. Then you can enable remote access on the quick start configuration page.

Once you have the device’s IP address and password:

1. Connect an Ethernet cable between the module’s Ethernet port and the PC.
2. Configure your PC networking settings to be on the same network as the device. For instructions on how to do this, see “Configuring PC networking settings for Ethernet and Wireless” on **page 3**.
3. Open your web browser (recommended Internet Explorer version 10 or later) and type "http://" followed by the IP address of the module and press Enter. The module responds with a username and password box. If the module does not respond, check that you have configured your PC according to the section “Configuring PC networking settings for Ethernet and Wireless” on **page 3**.
4. Type the username and password. The default username is "user" and the default password is "user".

This connects you to the home page of the Web-based configuration utility (see **Figure 1**). This utility allows you to manage wireless connection links between all modules in the system through a standard browser, such as Microsoft® Internet Explorer®.



**Figure 1. Device home page**

## Device Security

The WI/O-2-E-N-GBL supports industrial protocols such as Modbus and WIB that do not provide encryption or authentication. These protocols are convenient to use as they are widely known and supported by an extensive range of equipment.

The downside of using these protocols is that they are also vulnerable to a variety of cyber-attacks, so you must consider the security of the networks that they operate over.

## Quick Start Configuration

Access the quick start configuration by clicking on the "Quick Start" text on the right side menu under "Configuration".

**Figure 2. Quick start**

- For the majority of installations, you will only need to access this Quick Start page. This configuration will get your devices connected and communicating. You can then connect remotely if you need to configure other functionality.
- Click "Full Configuration" to access advanced configuration pages. These pages provide access to additional functionality including Peer-to-Peer I/O mapping, Serial port configuration, Data Logging, Advanced networking configuration, diagnostics, and User management. These pages are described later in this manual.
- If your system is based on Modbus TCP protocol, you need to enable Modbus TCP Server by selecting Full Configuration >> Modbus TCP and checking "Enable Modbus TCP Server". Once you have the device configured, you will be able to access it using a Modbus TCP client (Master) at the IP address you configure.

**Note:** Before navigating away from this page, you need to click the "Save Changes" or "Save Changes and Reset" button at the bottom of the page. Otherwise your changes will be lost.

## Security

**Enable Remote Configuration Access:** Select this to enable access to the device configuration and the dashboard web pages through Ethernet or Wireless interfaces. If this is not selected, you can only access the device web pages through the USB connection.

## Identification

**System Name:** All devices in a system are configured with a common system name. This is used in ProMesh mode as a common network ID for all devices to connect.

**Device Name:** Each device in the system should be configured with a unique device name. This name is used to identify devices in diagnostic display (Connectivity) and is used in Fixed Link mode as the device ID for other devices to connect to.

## Wireless Interface

**Networking Mode:** You can choose one of three networking modes depending on your system requirements:

- **Manual Mode** implements traditional 802.11 networking configuration. You configure units as Access Point or Client. Client units connect to an Access Point with matching SSID (System Address).
- **ProMesh Mode** implements automatic repeater configuration, where devices (Mesh Node) automatically choose and maintain the best path back to a central station (Base). All devices in the network use a common SSID (System Name).
- **Fixed Links Mode** implements a fixed repeater configuration where field devices (Remote) are configured to connect directly or via intermediate sites (Repeater) to a central station (Base).

**802.11 Mode:** This option is available when the Networking mode is set to Manual. A traditional 802.11 network has a single Access Point and one or more Clients.

- **System Address (ESSID):** This is the "Extended Service Set Identification" used in 802.11 mode. For a client to connect, the client needs to have this set to the same value configured on the Access Point.

**ProMesh Mode:** This option is available when the Networking Mode is set to ProMesh. A ProMesh network consists of a single central station (Base), and one or more remote sites (Mesh Nodes) which can each operate as a repeater for other stations.

The Mesh Nodes select the best path to the Base depending on the number of hops to the base, and based on signal strength of the hops in the path. Once connected, the Mesh Nodes monitor the path quality and will swap to use a better path if one comes available.

All devices in a ProMesh network share the same SSID (the configured "System Name").

- **Enable Hotspot:** This option is only available for Mesh Nodes in a ProMesh network. Because the ProMesh is designed to be flexible, the Mesh Nodes devices may not always advertise for a connection. If you want to be able to connect from a non ProMesh device to one of the Mesh Nodes, then select this option on that Mesh Node to ensure it remains available for connection.

**Device Mode:** This option is available when the Networking mode is set to "Fixed Links". A Fixed Link network consists of a central station (Base) accessing a fixed arrangement of repeater stations (Repeater) and remote stations (Remote). All devices ultimately connect to the central station (Base). Repeaters and remotes can either connect directly to the base, or connect using additional repeater stations to extend the radio range.

- **Upstream Device Name:** When the Device Mode is "Repeater" or "Remote", you need to select the Upstream device. When the connection is direct to the base, this is the Device Name of the base station. When the connection is via repeaters, this is the name of the repeater station that is used to reach the base station.

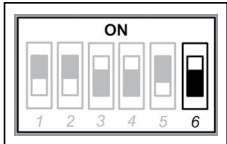
Troubleshooting

**Restoring the factory default connection settings**

You can use this procedure to restore the device to the factory default configuration if you don't have access to credentials to access the device. You will need a USB cable and USB driver files installed on your computer to complete this procedure (see below).

**Note:** The following procedure will delete all configuration, user accounts and log files from the device.

1. Open the side configuration panel on the module, and set DIP switch #6 to "on."

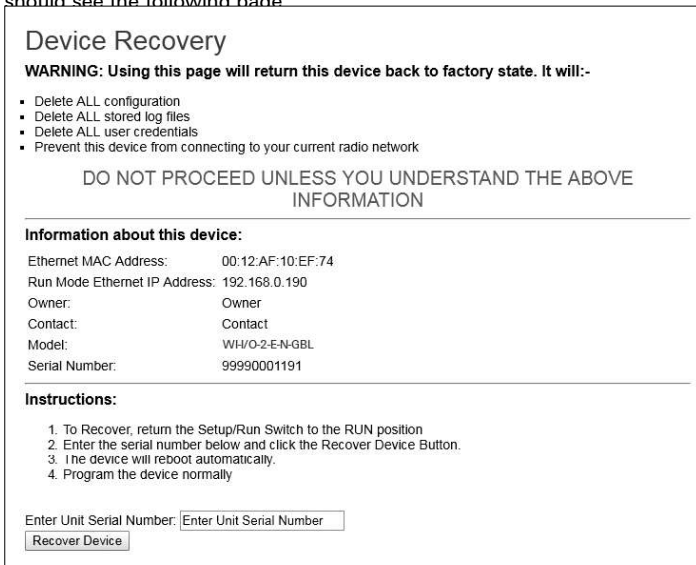


2. Power cycle the module.

When the WH/O-2-E-N-GBL is powered on with DIP switch #6 set to "on," the module goes into a special mode that allows you to restore the device to factory configuration.

Once the device has powered up, connect to the USB port. The USB port is located on the bottom side of the module. To connect, you need an USB cable (USB-A to USB-B) for connecting from your computer to the module's USB-B port. If this is the first time you have used your computer to connect to a Weidmüller device through the USB port, then you will need to download the USB driver file from the product's internet website. This is available from the same location that you downloaded this user manual. The filename is "WH/O-2-E-N-GBL\_USB\_Driver\_1.2.1.0.0".

Open your web browser, and enter the IP address 192.168.111.1. You should see the following page:



Enter the device serial number (as an additional precaution against accidentally deleting the device). Set DIP switch 6 to "off", and click "Recover Device". Click "OK" to start device recovery. Once you have clicked OK, disconnect the USB Cable. Once the device has restarted, you can plug the USB cable back in to access the device using the default credentials.

**Important:** Remember to set DIP switch #6 to "off" and power cycle the module to return to normal operation after you have completed configuration. Otherwise, the module will continue to boot into the default IP address

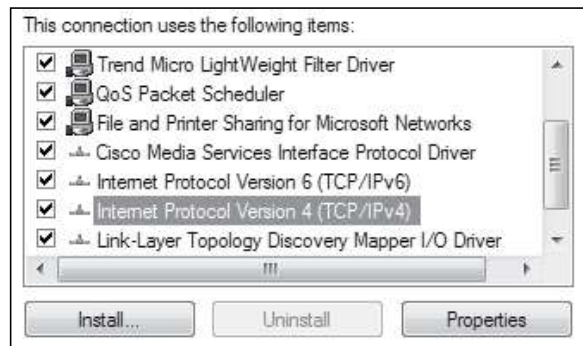
**Configuring PC networking settings for Ethernet and Wireless**

If you are unable to connect to the device through either the Ethernet or Wireless connection, use this guide to ensure you have your PC configured correctly.

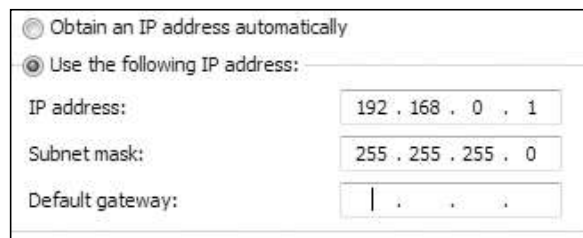
**Note:** To connect Wirelessly you need to have first configured the module to accept the PC wireless connection.

(The following description is for Windows 7. Other operating systems have similar settings)

1. On the PC, open Control Panel, then select **Network and Sharing Center**.
2. Click **"Change Adapter Settings"** on the left of the screen. You should see a list of available network adapters.
3. Find the correct network connection in the list. For Ethernet, this will normally be **"Local Area Connection"**. For Wireless connection, this will normally be **"Wireless Network Connection"**
4. Right click on the network connection and select **Properties** from the context menu.
5. Select **"Internet Protocol Version 4 (TCP/IPv4)"** and click on **Properties**.



6. On the General tab, select **Use the following IP address:** and enter IP address 192.168.0.1, and subnet mask 255.255.255.0, then click **OK**.



**Note:** If you have configured your WH/O-2-E-N-GBL network to provide IP addresses via DHCP, you should select **"Obtain IP address automatically"**.

7. Verify the Ethernet connection to the module by using the "ping" command.

Start a command window (click **Start** menu and type "command" into the search box). At the command prompt, type "ping <IP Address>". If you have restored the default connection settings, then the IP address will be the address printed on the module's side label.