PLUS IoT MODULE PIM101
INSTALLATION GUIDE

IG_PLUS_PIM101_IOT_E01B

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SYSTEM ARCHITECTURE

MINIMUM REQUIREMENTS

The right application of PLUS PIM101 IoT only occurs if all minimum requirements are met by the customer side. The architectural minimum requirements needed to successfully use this device are:

- **Ethernet cable** (included with your PLUS PIM101 IoT)**;**
- **DHCP server;**
- **Web browser with the latest version;**

You must have a DHCP server in your network. The main purpose of this kind of server is to automatically provide and assign IP addresses and other networks parameters to connected devices.
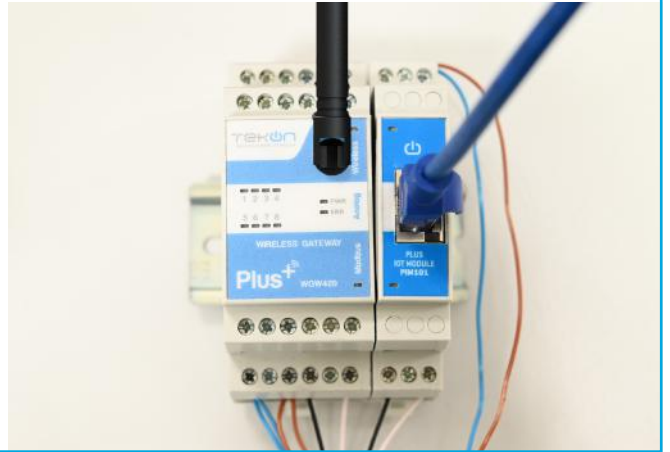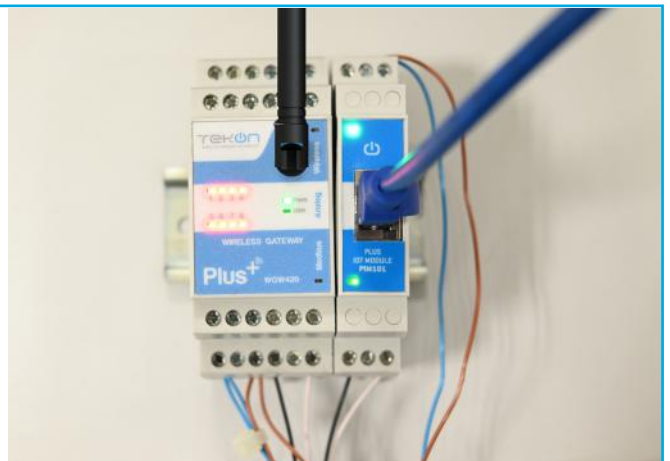
CONFIGURATION AND CONNECTION OF PLUS PIM101 IOT

CONFIGURATION AND CONNECTION

Plug the ethernet cable that follows with your gateway to the device's input and to your network.

Wait until the green LED from PLUS PIM101 IoT goes off and red LED starts to blink.

step
02 | CONFIGURATION AND CONNECTION OF PLUS PIM101 IOT

ACCESS TO PIM101 IoT Module THROUGH WIFI

The access through this interface only allows the configuration and consultation of PLUS PIM101 IoT. Unable to send data to the cloud over this channel.

PLUS PIM101 IoT appear with a SSID with the following configuration *PIM101-<hostname>*. By default, the devices with SSID *PIM101-Tekon*.

Connect to the wifi network provided by the IoT module.

Use the password *bresimar* to login.

PLUS PIM101 IoT has a fixed IP address assigned to be accessed via mobile phone, tablet or pc (through Wi-Fi). The interface designed to interact with the device can be accessed through its fixed IP (192.168.128.1) or its SSID address (http://Tekon). The factory-defined and configurable access data:

- **Login**: admin
- **Password**: admin

NOTE:
First access to the IoT Module may have a long waiting time and should not be confused with a lack of response.

NOTE:
SSID (Tekon) address access is possible until it is changed. After the change, you must access by the user-defined SSID.

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ACCESS TO PIM101 IoT Module THROUGH ETHERNET

The connection PLUS PIM101 IoT via Ethernet is via your web browser by accessing to the fixed IP address (192.168.100.1).

The default login credentials are:

- **Login**: admin
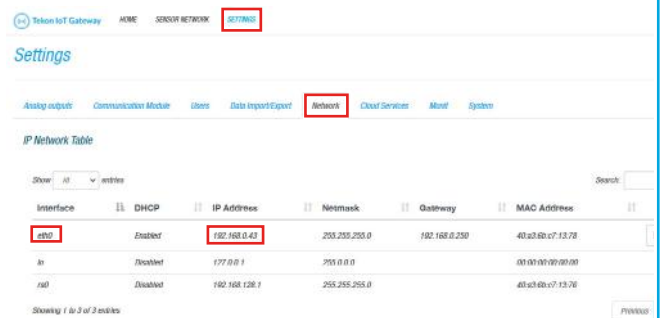- **Password**: admin

NOTE:
PLUS PIM101 IoT access credentials displayed by default can be edited in "Settings" -> "Users" menu.

To check if your gateway already has a ethernet network-assigned IP address, after logging in with the previous credentials, click in *Settings* >> *IP Network* tab.

You can check the IP address assigned to you by the network for your device.

Write down the IP address of your device's ethernet port. It will be needed throughout your manual.
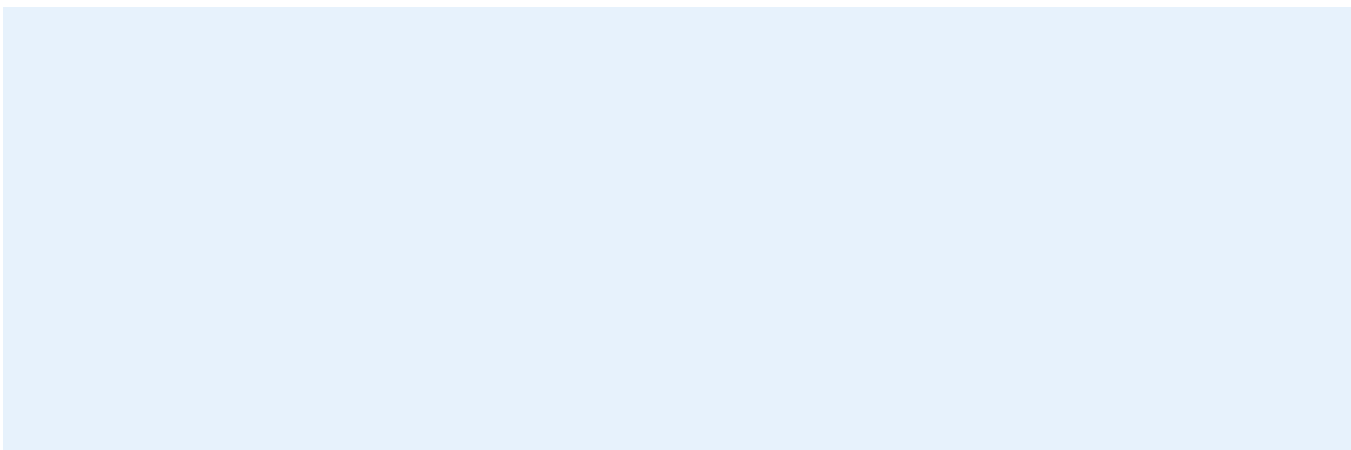
step

03 | TRANSMITTER ACTIVATION

TRANSMITTER ACTIVATION

At login, the graphical interface displays the transmitters that are connected to the network. The first presentation of devices connected to the network is through a vertical listing **(1)**. To get an overview of your system, at the bottom of the main page, you will find information about the activity and links established **(3)**.
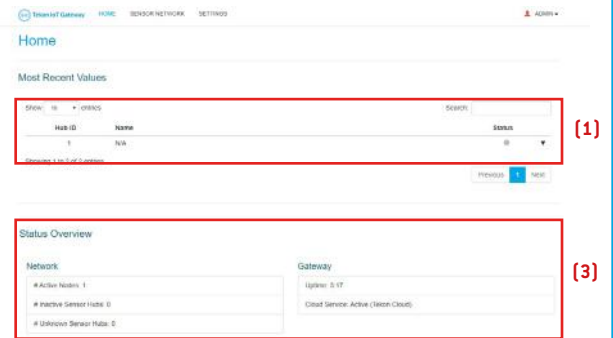
The transmitters are listed in ascending numerical order. By default, the name appears with "N/A" until it is edited and reset. The *Hub ID* field match to the Transmitter ID field defined in Tekon Configurator over the transmitter configuration.

Click oh the Hub ID field of the transmitter to activate. You will be redirected to the selected transmitter page, select the *Properties* tab **(1)** if the status of the device is *Active* **(2)**.
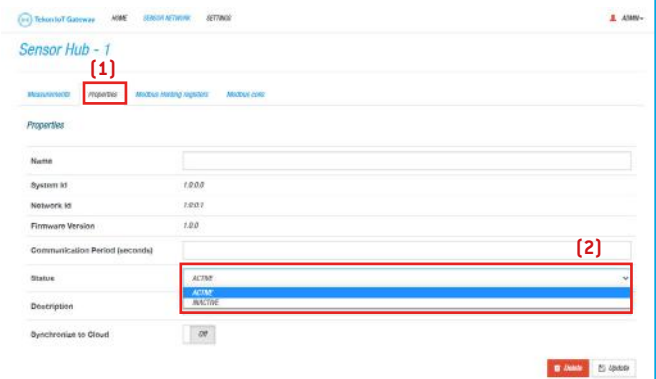
The transmitter is activated.
Transmitter information available for all the interfaces.

If you would like to send data from this transmitter to Tekon IoT Platform, set the *Synchronize to Cloud* field to *On* mode and save the changes. We will return to this subject shortly.

step
03

TRANSMITTER ACTIVATION

In the "Properties" tab, fill in the fields:
 - **"Name"** and **"Description"** according to your preference;
 - **"Communication Period"** according to the intended transmitter communication period;
- **"Synchronize to Cloud"** must be **"ON"** to send data to the cloud

Save the changes in the *Update* button.

The transmitter is configured.

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step
04   CONNECTION TO TEKON IOT PLATFORM

CONNECTION TO TEKON IOT PLATFORM

In the PLUS PIM101 IoT page, go to *Settings* >> *Cloud Services*.
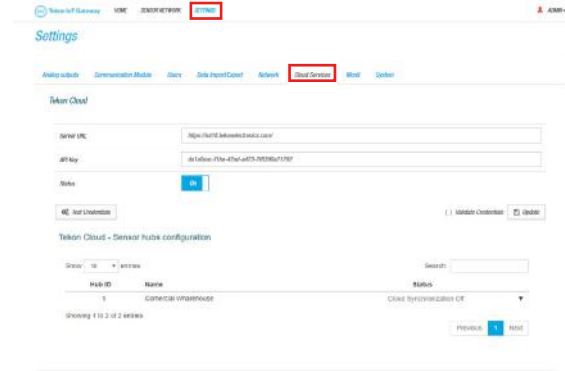
In a new browser page, access your Tekon IoT Platform and go to *Settings* >> *Administration*.

Click on the view option to see the *gateway* user data and copy the API key.
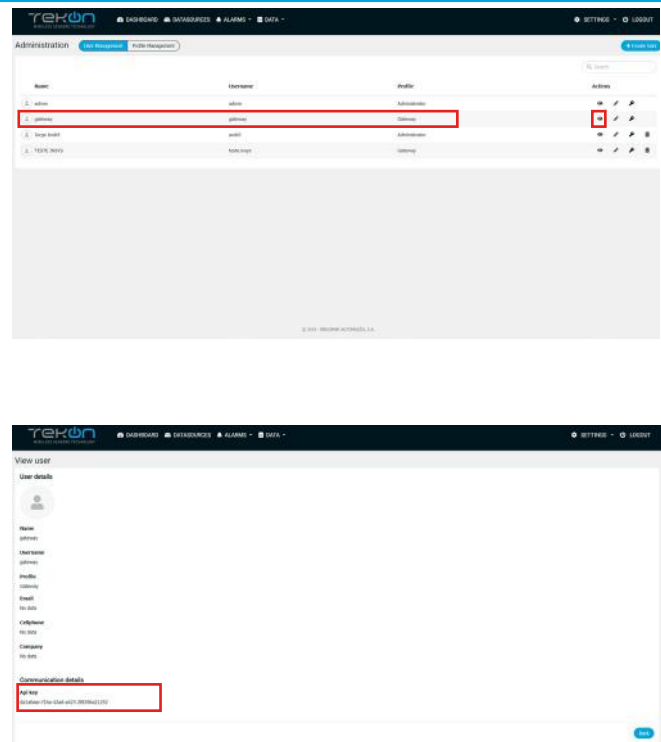
step
04 | CONNECTION TO TEKON IOT PLATFORM

In the PLUS PIM101 IoT page, fill in the fields:
 - **"Server URL"** with your Tekon IoT Platform address;
 - **"API Key"** with the Api key previously copied;

Change the *Status* field value to *On* and click on *Test Credentials* to test your credentials of configuration.

Click in *Update* to save the changes.
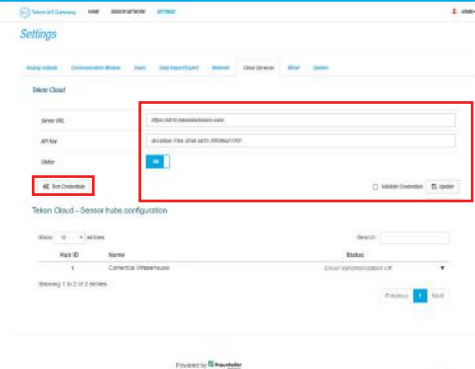
Your PIM101 IoT Module is now connected to your Tekon IoT Platform.

step
05 | SEND TRANSMITTER DATA TO TEKON IOT PLATFORM

SEND TRANSMITTER DATA TO TEKON IOT PLATFORM

Access to your Tekon IoT Platform, click at the *Datasources* menu and the button 🖊 to edit the datasource where you want to send the transmitter data.
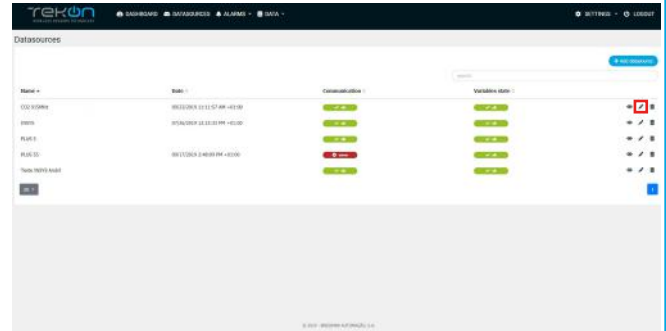
Copy the API key from the datasource and go back to your PLUS PIM101 IoT page.

On the page, select the transmitter you want to match, fill in the *API Key* field with the copied value and click on *Update*.

Click on *Test Credentials* to validate the API Key of your datasource.
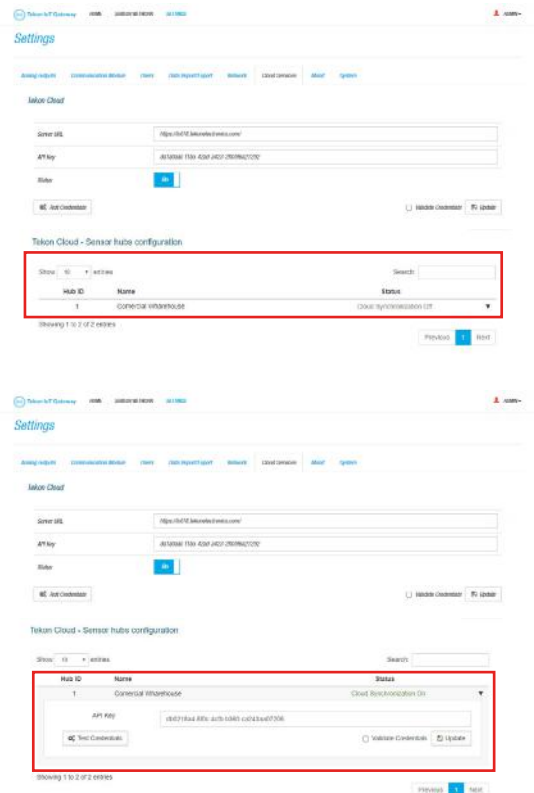
⚠️ **NOTE:**
The message "Cloud Synchronization On" will only be visible if you have activated the option "Synchronize to Cloud" in the "TRANSMITTER ACTIVATION" step to activate your transmitter. If you did not perform the validation, the message "Cloud Synchronization Off" will be displayed in the "Status" field.

✅ Your transmitter is now connected to your Tekon IoT Platform.

step
05 | SEND TRANSMITTER DATA TO TEKON IOT PLATFORM

VERIFY COMMUNICATION WITH TEKON IOT PLATFORM

To verify if the information acquired by the transmitter is effectively reaching your Tekon IoT Platform, click on the Datasources menu and check the date of the latest communication between the platform and the transmitter.

This log will tell if the communication process is on or not.
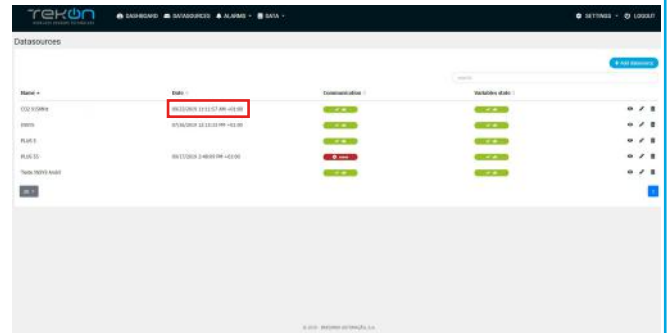
step
06 | DATA COMMUNICATION VIA MODBUS TCP/IP

DATA COMMUNICATION OVER MODBUS TCP/IP

You can preview the PLUS PIM101 IoT graphical interface of Modbus TCP/IP communication. In each transmitter you can analyze different common parameters in modbus communications.

Click on the transmitter / hub you want to analyze and select the Modbus Holding Registers tab.

In this page, you have the selected transmitter modbus scheme.
 - **(1)**: variable names;
 - **(2)**: current value recorded;
 - **(3)**: modbus address;
 - **(4)**: register value;
 - **(5)**: register type;
 - **(6)**: register format;

NOTE:

In this example we used the transmitter / hub 1. The first modbus address of its variables starts at 0. To find the modbus address calculation formula defined for PLUS PIM101 IoT, please refer the datasheet on Tekon Electronics website.

To access to the records via Modbus TCP/IP in real time, you must use a program developed for this purpose, external to Tekon Electronics.

Configuration of Modbus TCP/IP:
 - PLUS PIM101 IoT IP;
 - Port: 1502;

CONFIGURE ANALOG OUTPUTS

CONFIGURE ANALOG OUTPUTS

You can configure PLUS system analog outputs on PLUS PIM101 IoT web interface.

Go to *Settings* >> *Analog outputs* to access to the configuration of the 8 analog outputs.

A list with the 8 analog outputs configuration will be shown.

Click on Manage button of the modbus analog output you want to edit.

A pop-up window will show up with the output values:

 - **(1)**: **Minimum Value** - corresponding to 4 mA;
 - **(2)**: **Maximum Value** - corresponding to 20 mA;
 - **(3)**: **Offset [μA]** - current offset to refine measurement proccess;
 - **(4)**: **Attempts Number** - number of communication failures to notice an error ;
 - **(5)**: **Modbus Address Link** - analog output modbus address ;
 - **(6)**: **Current Value [mA]** - current value measured;
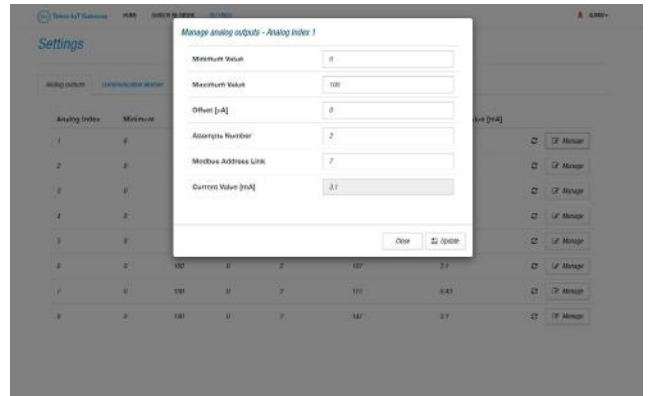
Click on Update to save the configuration.
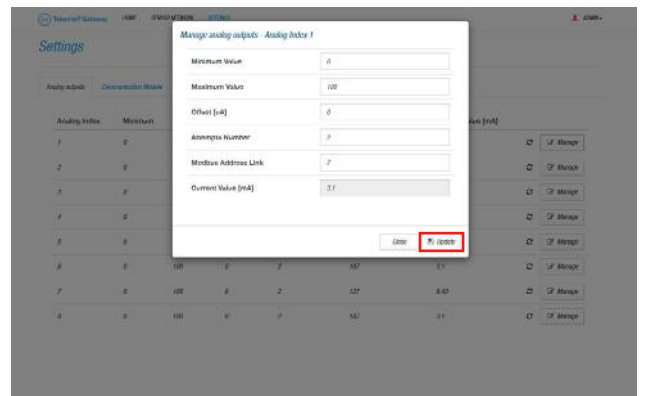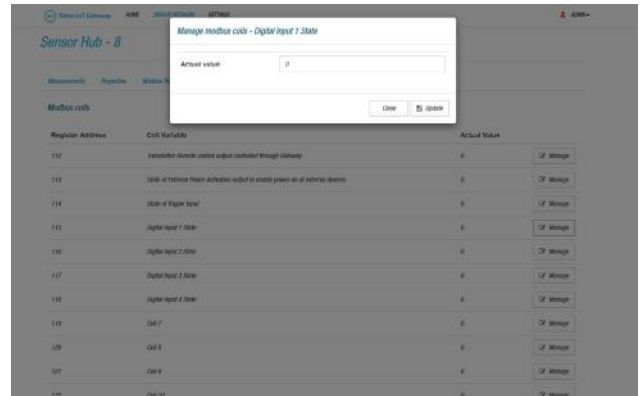
CONFIGURE MODBUS COILS

CONFIGURE MODBUS COILS

You can configure PLUS system modbus coils on
PLUS PIM101 IoT web interface.

Select and click on the sensor hub you want to
configure. Click on *Modbus coils* tab to list the
available modbus coils.

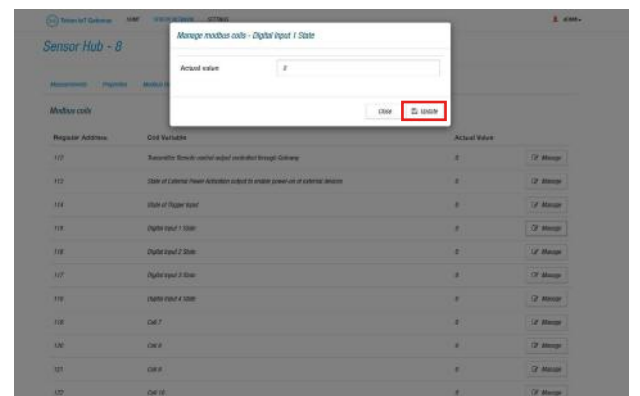Click on Manage button of the modbus coil you
want to edit.

A pop-up window will show up with the coil
value.

Click on Update to save the configuration.
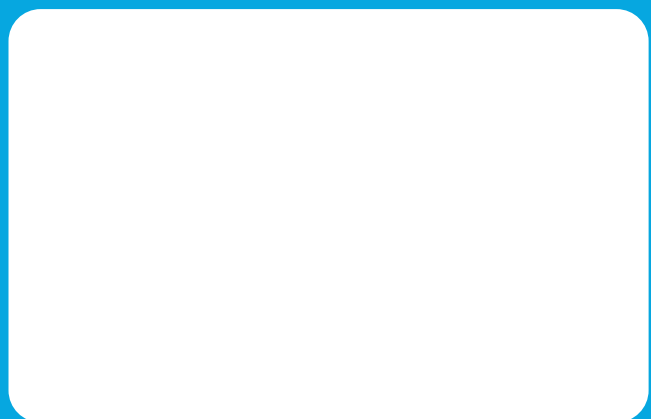
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