



# Connection & Settings Instructions for SEVEN Sensors to Khuatech E-Manager Pro



## 1. Introduction

This document is prepared for Kehua Tech E-Manager Pro users. The steps are explained below to connect SEVEN Sensor Box to Kehua Tech E-Manager Pro.

The following meteorological data are provided by SEVEN Sensor Box. The communication is provided via RS485 with Modbus RTU protocol.

1. 3S-IS, Irradiance Sensor (W/m<sup>2</sup>)
2. 3S-MT-PT1000, Module Temperature Sensor (°C)
3. 3S-AT-PT1000, Ambient Temperature Sensor (°C)
4. 3S-WS-PLS, Wind Speed Sensor (m/s)
5. 3S-WD, Wind Direction Sensor (°)
6. 3S-RH&AT, Relative Humidity Sensor (%)

## 2. Cable Connection

Connect the green wire of the output cable of the Sensor Box to 485-1/A (RS485 A / Data (+)) on the E-Manager Pro RS485 port, and connect the yellow wire of the output cable of the Sensor Box to 485-1/B (RS485 B / Data (-)) on the E-Manager Pro RS485 port. Another free port also can be used for the same purpose.

White and brown wires of the output cable of the Sensor Box power up the Sensor Box as shown in Table 1.

<b>Brown</b>	<b>Power (+)</b>
<b>White</b>	<b>Power (-)</b>
<b>Green</b>	<b>RS485 A / Data (+)</b>
<b>Yellow</b>	<b>RS485 B / Data (-)</b>

Table 1: Communication and Power Cable Color Coding



A communication and power cable with magnetic field protection must be used between sensor and datalogger. Please don't use CAT 6 cable.



SEVEN Sensors are supplied with a voltage of 12-30 VDC. The recommended voltage value is 24 VDC. A high quality power supply must be used for the sensor supply.



SEVEN has the right to make modification on this documentations without notice.

## Ambient Temperature Sensor

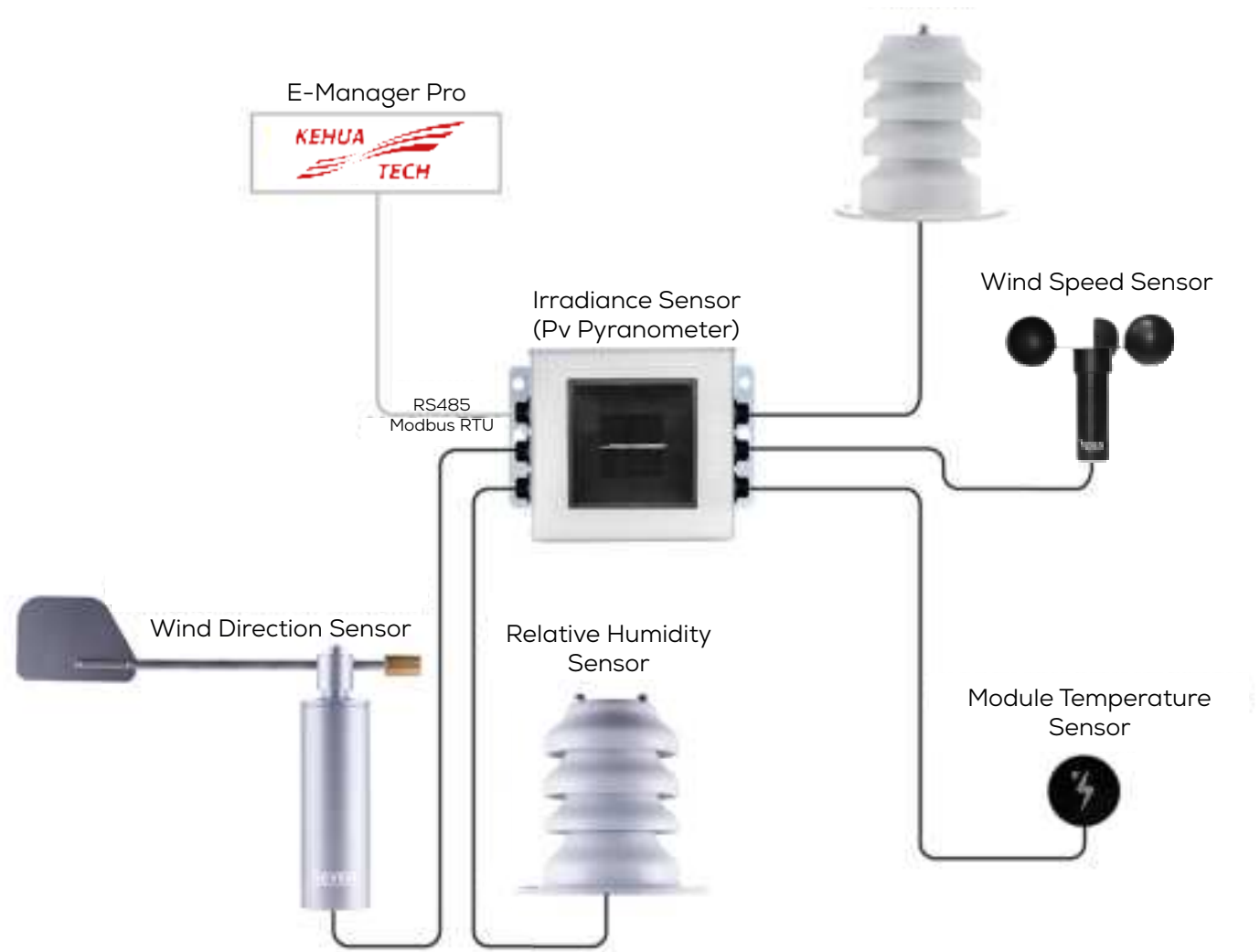


Figure 1: Kehua Tech Weather Station



The sensor model can be different as per the customer's request.



If your sensor model is 3S-2IS, 3S-3IS, 3S-4IS or 3S-CWS, enter each orientation's module number to the configuration tool to monitor the total effective irradiance and total effective module temperature before configuring in KehuaTech Monitoring System.

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### 3. E-Manager Pro IP Address

Connect the PC and the E-Manager Pro LAN port to the network port of the router through the network cable or PC and E-Manager Pro LAN ports must be connected to each other so that they are in the same network.

Go to the router management page and check the **"Internet host list"** to request the IP address of the E-Manager Pro. This IP address is the one assigned by the router to the E-Manager Pro.



In order for the router to assign an IP address to the E-Manager Pro, the automatic assignment (DHCP) must be enabled in the router.

Enter the E-Manager Pro IP address in the browser to log in to the configuration interface.

### 4. Settings

**Step 1 and 2 :** The port to be used by SEVEN Sensor should be active in the **"Smart Device Setting"** section. Values to be entered for the port to be active:

- *Model Code: 9001*
- *Protocol Code: 2*
- *Protocol Ver: 1*

Then select the port where the sensor box is connected. After entering the values, click on **"Save"** button.



Figure 2: Device Configuration Page



In case more than one device is connected to the port you have connected the sensor to, device ID's must be different while baudrate and parity values must be the same. You can change the device ID via SEVEN configuration tool.

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**Step 3 :** To log in to the monitoring system, go to <https://energy.kehua.com> and log in by entering your username and password.



Figure 3: Login Screen

**Step 4 and 5 :** After logging in, click on the **"Operation and Maintenance Mgr."** tab. From the tab, click on the **"User Mgr."** button.

**Step 6 :** Click on **"Add"**

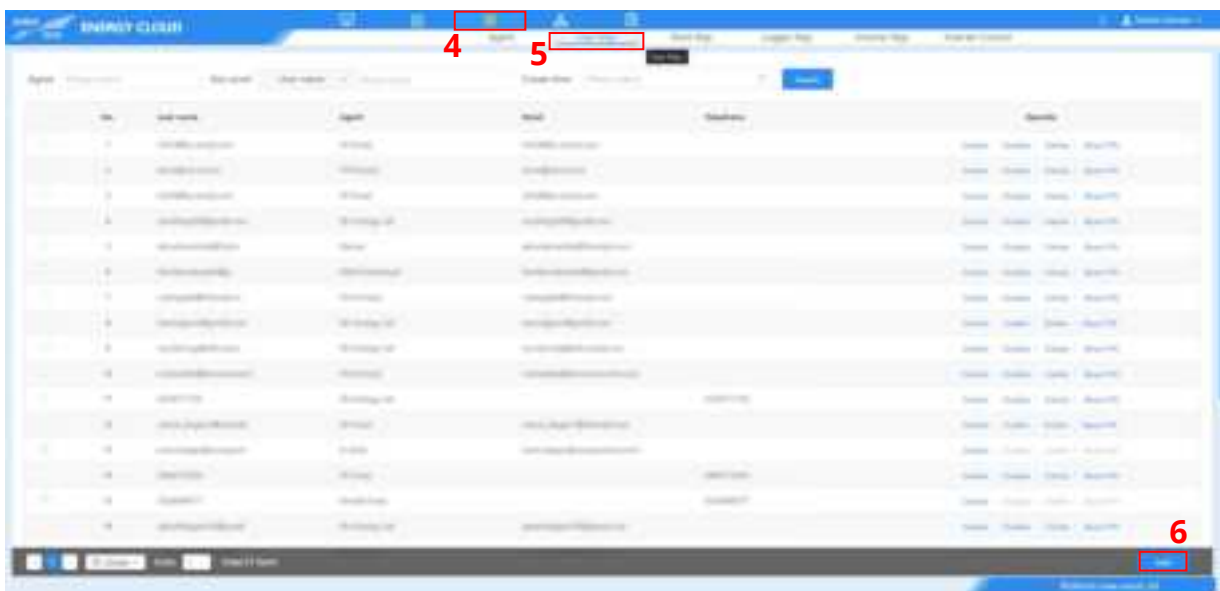


Figure 4: Site Installation

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**Step 7 and 8 :** Select the site and enter the e-mail address. Then click on **“Save and continue creating the plant”**.

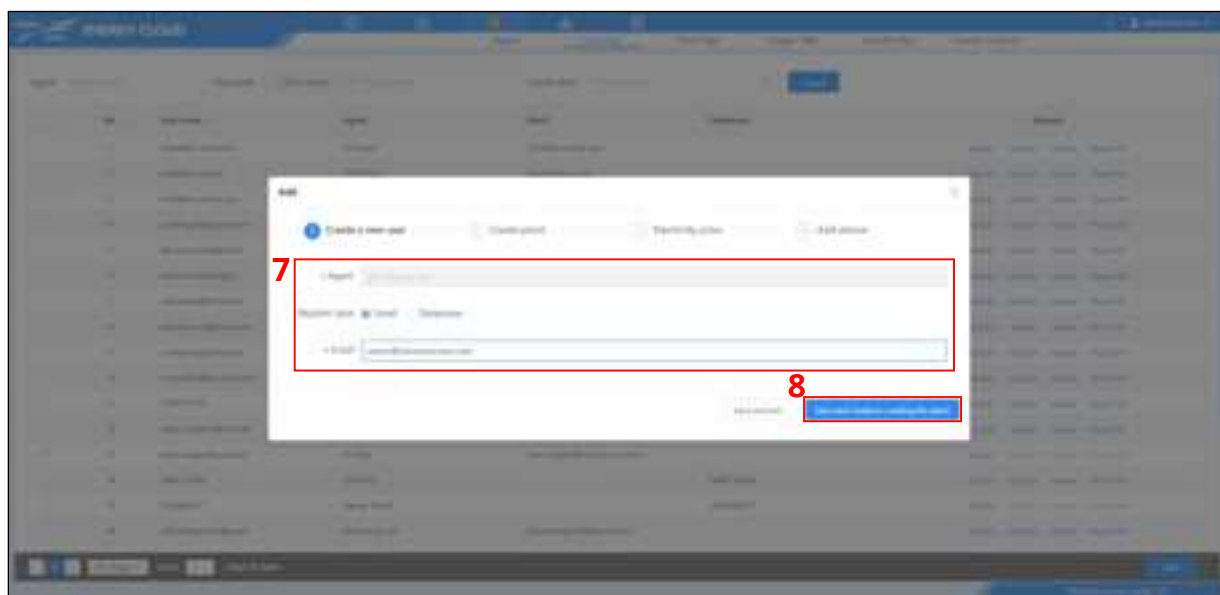


Figure 5: Site Installation

**Step 9 and 10 :** Enter site information in the relevant fields. Then click on **“Save and continue electricity price setting”**.

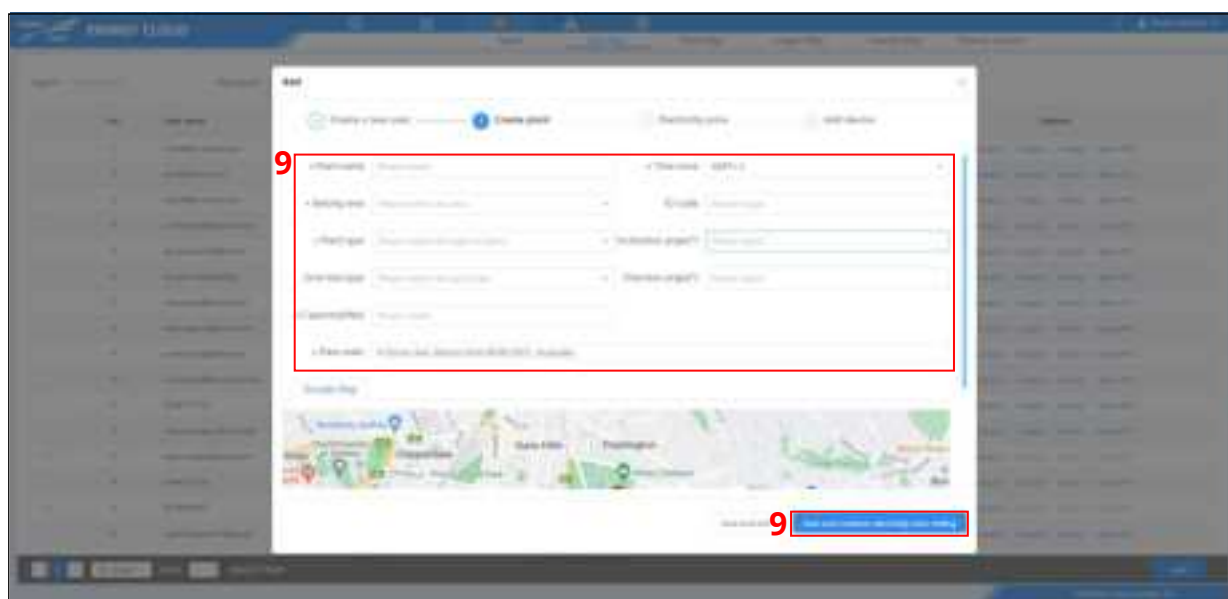


Figure 6: Site Installation

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**Step 11 and 12 :** Click the "Edit" button for adjustments related to electricity fee. Then click on **"Save and continue adding devices"**.

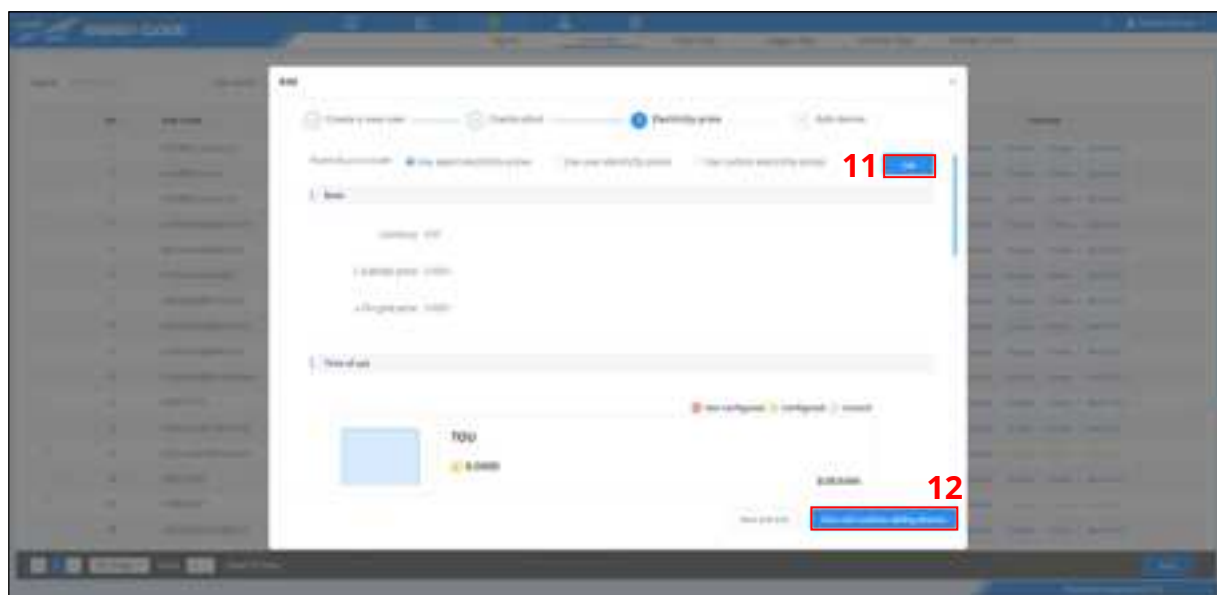


Figure 7: Site Installation

**Step 13 and 14 :** Click on the **"Monitoring center"** tab and click on the **"Monitoring"** button.

**Step 15 and 16 :** Select the site where the sensor box is installed from the tab on the left and select the site on the screen.

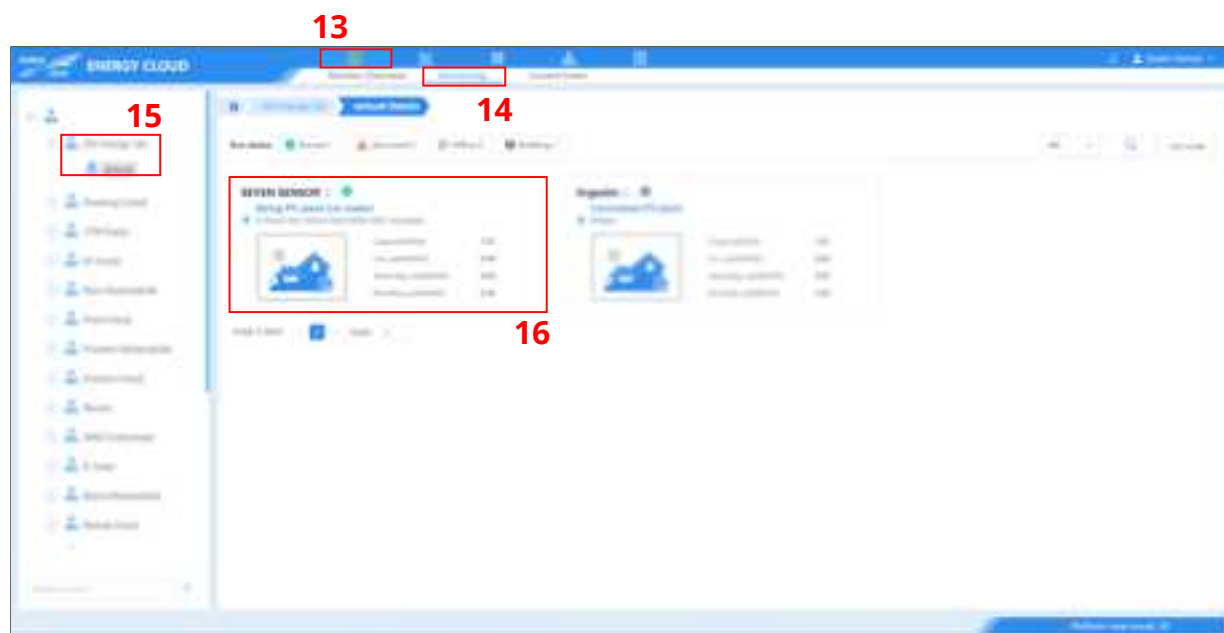


Figure 8: Monitoring System

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**Step 17 :** On the screen that opens, click on the box with the E-Manager Pro serial number in the **"Inverter Details"** section below.

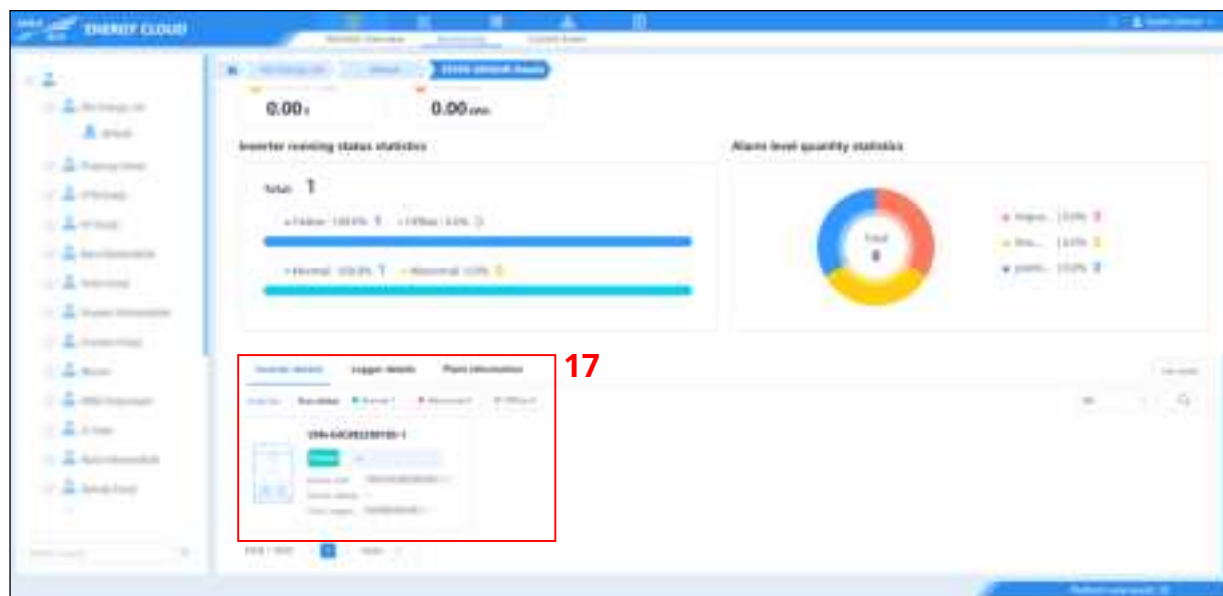


Figure 9: Monitoring System

**Step 18 :** You can see the meteorological data provided by SEVEN Sensors in the **"Device Data"** section.

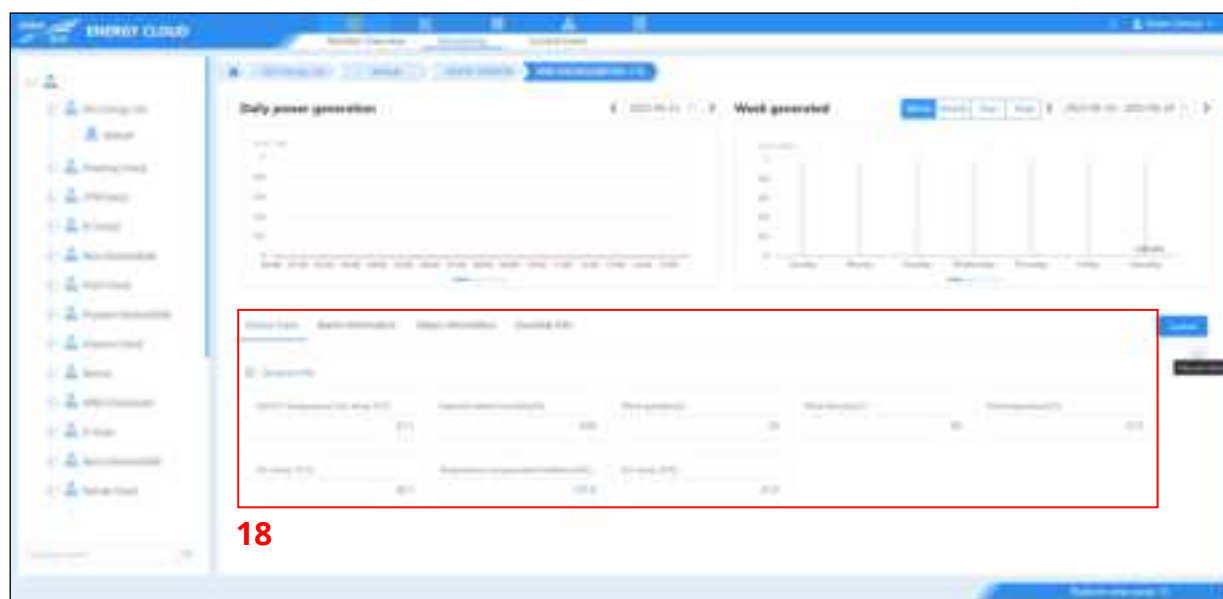


Figure 10: Meteorological Data



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### Contact Informations:

Please feel free to contact our technical team if you face any difficulties during settings.

**Can GÜNDÜZ**

**Cep:** +90 530 425 33 19

**E-mail:** teknik@sevensensor.com