

ESC User Manual

Introduction

Welcome to the ESC Connect system. This manual provides complete operating instructions, an overview of features and functions, and installation guidance for ESC Connect sensors and gateway.

Product Overview

ESC Connect is a wireless environmental sensing system designed for reliable data transmission to the cloud. It consists of:

- **IoT Sensors (ESC3100, ESC3101, ESC3103, ESC3104, ESC3105)** – Wireless, low-power sensors with configurable reporting.
- **Gateway Hub (ESC2100)** – A POE-enabled communication hub that connects sensors to the cloud via Ethernet.

FCC ID: 2AE7J-ESC

IC: 20368-ESC

Features and Functions

Gateway:

- Power over Ethernet (POE) for both power and network connectivity.
- Automatic connection to AWS Cloud
- Status LEDs for power and cloud connectivity indication.
- Wi-Fi capability to connect to a Wi-Fi network.

Sensors:

- Wireless battery-operated design.
- Single-button activation with LED feedback.
- Configurable report frequency via cloud.
- Blink green when powered on.
- Sleep mode for power saving when not in use.
- Demo mode for continuous reports every 15 seconds for demonstration purposes.

Operating Instructions

Gateway

1. Connect to Power and Network:

- If you are setting the gateway close to a LAN point, you can directly connect the gateway to Ethernet.
- Take the POE injector (available with the gateway) and connect to power supply.
- Attach the Ethernet cable directly from your Ethernet wall port into 'LAN' on the box (shown in blue arrow in image below).
- Attach another Ethernet cable from 'POE' on the box (shown in red arrow in image below) to the Ethernet port on the gateway.

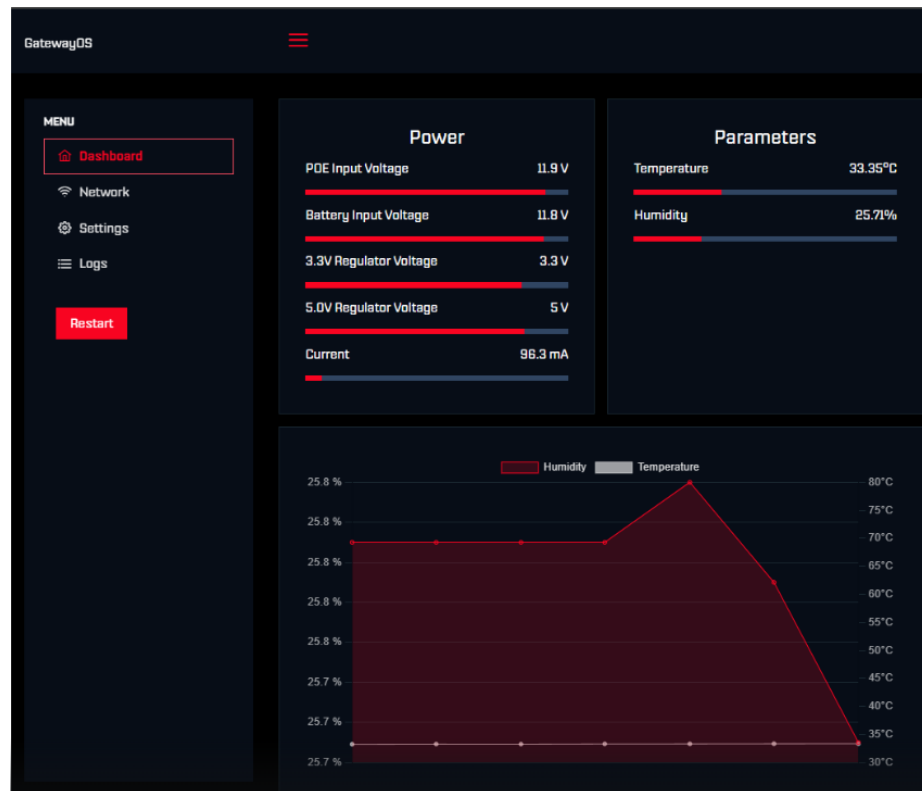


- The gateway LED will be green on power-up.
- The gateway will automatically attempt connection to AWS Cloud.
- A blue LED indicates a successful connection to Cloud.

2. Connect using Wi-Fi:

- Turn on the gateway using ON/OFF switch at the bottom.
- Go to Wi-Fi settings on your computer.
- Search for gateway's Wi-Fi name in the list (Format: Gateway_xxxx').
- Once the connection is successful, open your browser and go to 192.168.4.1

- The Gateway Diagnostics page is displayed



- Navigate to 'Network' tab on the left menu.
- Find Wi-Fi network credentials for the Wi-Fi in range to your gateway.
- Type in the Wi-Fi Id and password and click Save.

The screenshot shows the GatewayOS Network Configuration page. The left menu is the same as the previous screenshot, but 'Network' is now selected. The main area is titled 'Network Configuration' and contains two input fields: 'WiFi SSID:' with the value 'iotlab' and 'WiFi Password:' with a masked password '*****'. There is a 'Save' button below the fields. At the bottom right of the screen, there is a green notification box with a checkmark icon and the text 'Saved. Success!'.

- Wait for the gateway to reboot.
- The LED lights are green on restart and turn blue when connected to Wi-Fi and AWS Cloud.

Sensor

- Press and hold on the front (label area) to turn it ON. The sensor LED flashes green, indicating it is ON.
- If on pressing, the sensor LED blinks red, it means the sensor is already ON.
- To turn it OFF, press and hold again till the LEDs blink red.
- To put sensor in demo mode (reporting every 15 seconds for a period of 10 minutes), turn the sensor OFF first.
- Press and hold the label area for about 10 seconds. The initial slow blinking in green means it is ON. Keep pressing till they blink continuously in green to indicate demo mode is active.

Installation Instructions:

Gateway Hub:

- Mount the gateway on a flat surface or on the wall using the mounting on the back.
- Ensure the location has:
 - Stable POE-enabled Ethernet access/Wi-Fi.
 - Adequate coverage to the area where sensors will be deployed.

Sensors:

- Place sensors within wireless range of the gateway.
- Avoid high interference zones.
- Secure sensors using mounting tape, insert bracket as per the type of sensor.

Troubleshooting

Issue	Cause	Solution
Sensor not blinking	Battery may be depleted	Replace battery
Gateway LED not blue	Network issue or no cloud connection	Check Ethernet, Wi-Fi condition
Gateway LED not displayed on Wi-Fi mode	Battery depleted	Reconnect gateway to power supply

Notices

FCC Compliance Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. this device may not cause harmful interference, and
2. this device must accept any interference received, including interference that may cause undesired operation. Please note that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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ISED Non-Interference disclaimer

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

This device complies with the Canadian ICES-003 Class B specifications. CAN ICES-003(B) / NMB-003 (B).

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempt de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. L'appareil ne doit pas produire de brouillage;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

ISED/FCC RF Exposure Statement

This equipment complies with FCC and ISED RSS-102 radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. In order to avoid the possibility of exceeding the FCC and ISED RSS-102 radio frequency exposure limits, this equipment should be installed and operated with minimum distance 20 cm (7.9 inches) between the antenna and your body during normal operation. Users must follow the specific operating instructions for satisfying RF exposure compliance.

Cet équipement est conforme aux limites d'exposition aux rayonnements FCC et ISED CNR-102 établies pour un environnement non contrôlé. Cet émetteur ne doit pas être installé ou utilisé en conjonction avec une autre antenne ou un autre émetteur. Afin d'éviter la possibilité de dépasser les limites d'exposition aux radiofréquences FCC et ISED, cet équipement doit être installé et utilisé avec une distance minimale de 20 cm (7.9 pouces) entre l'antenne et votre corps pendant le fonctionnement normal. Les utilisateurs doivent suivre les instructions spécifiques d'utilisation pour respecter la conformité à l'exposition aux RF.