

KOSMOS

NCD Hardware Setup Guide

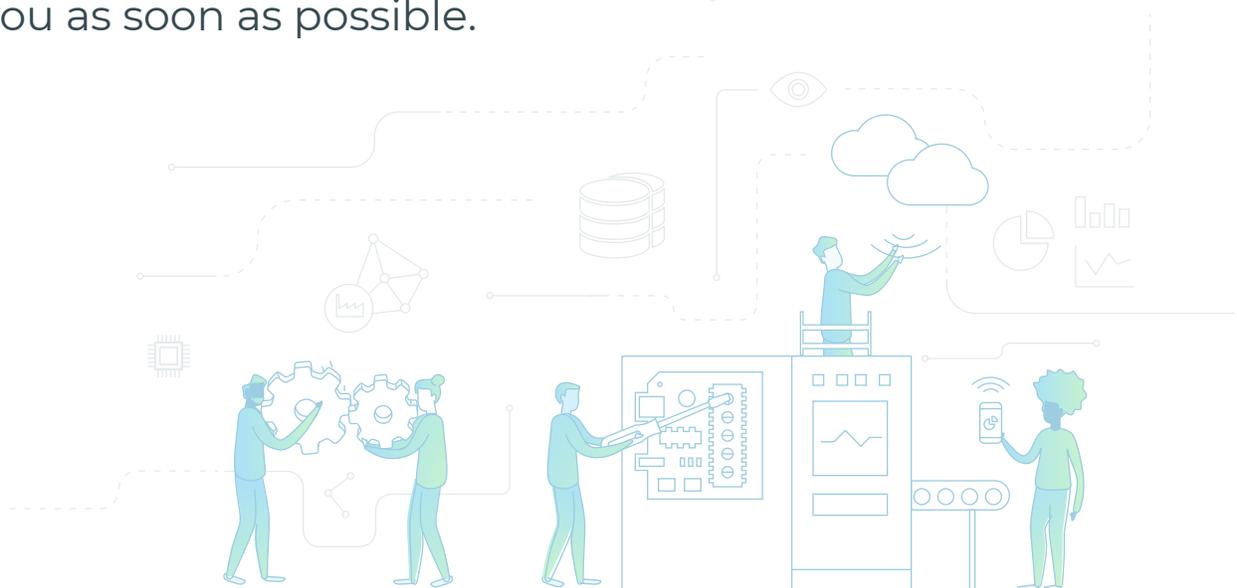
What will this guide teach me?

 25 minutes

This guide contains step-by-step instructions on how to set up **NCD industrial wireless sensors** to connect to the Kosmos industrial IoT platform.

Once you've finished these steps, you'll be ready to start gaining valuable insights from your sensor data using Kosmos' dashboards, alerts, and more.

For questions about setting up your Kosmos IoT System, please email support@temboo.com and we'll get back to you as soon as possible.



What You'll Need



Kosmos Gateway
(Raspberry Pi Model 3 B+)



NCD Industrial
Wireless Sensor



NCD Wireless
Modem



Raspberry Pi 5V 2.5A
Power Adapter



Ethernet Cable



NCD 12V 3A
Power Adapter



Micro SD Card
(8+GB, U3 Speed)



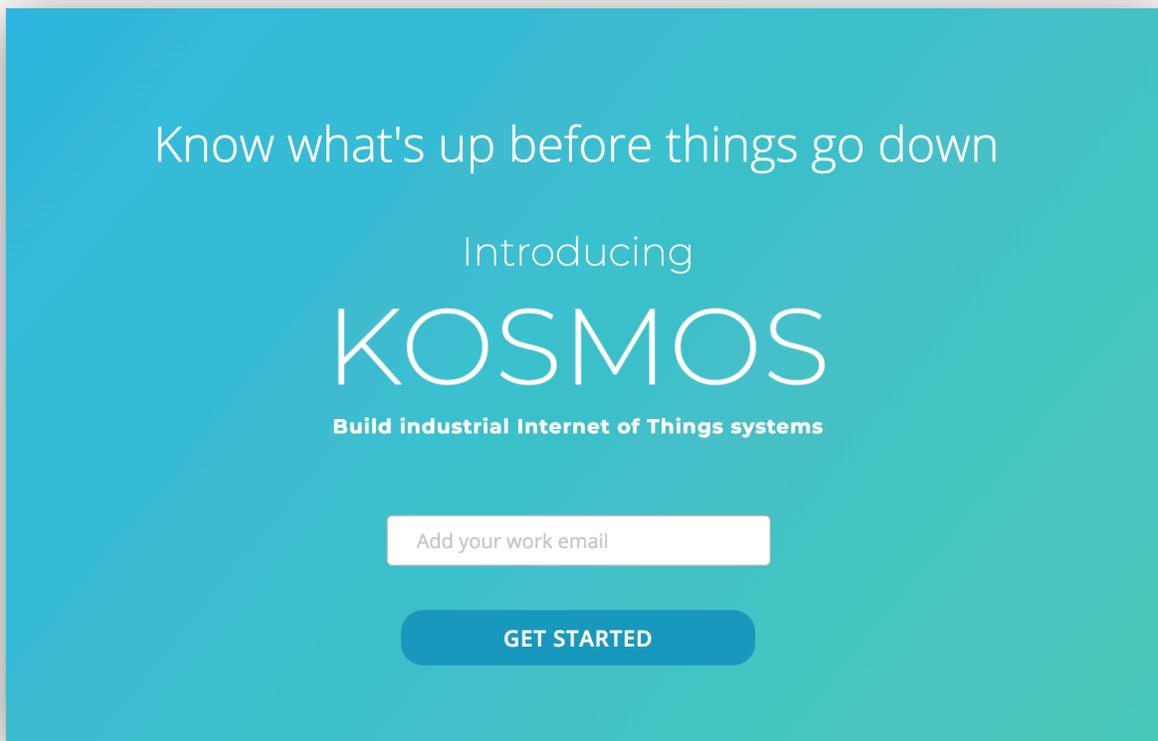
USB Micro SD
Card Reader



USB Flash Drive

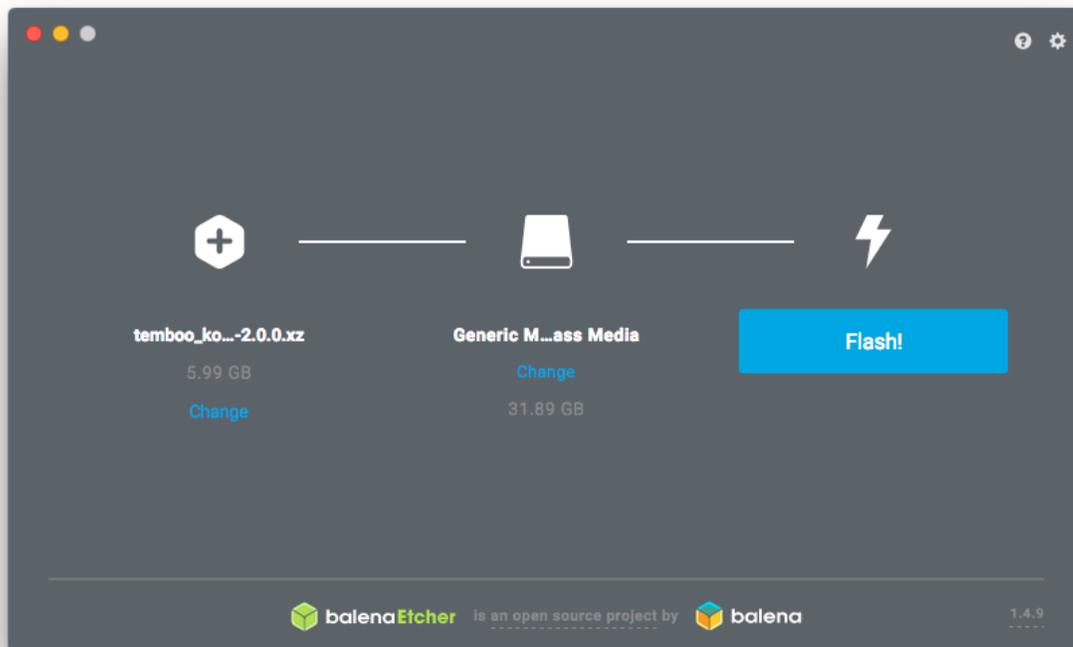
Before You Get Started

Before moving on to the next steps in this guide, please make sure that you've created your Temboo account and generated your Kosmos application files for your chosen hardware. If you haven't, head to temboo.com and complete those steps now!



Gateway Application Setup

- 1 First, install Etcher so that you can copy the Kosmos gateway application to your micro SD card:
<https://www.etcher.io>
- 2 Insert your micro SD card into your USB SD card reader and connect the card reader to your computer.
- 3 Open Etcher and flash the Kosmos gateway **.xz** file onto your micro SD card (you previously downloaded this file while creating your Kosmos application).



Kosmos Gateway Hardware Setup

1

Insert SD Card

Insert the micro SD card into the underside of the gateway (the metal contacts slide in face up).



2

Power Up The Gateway

Connect the 5V 2.5A power adapter to your Kosmos gateway. Then, plug the adapter into a power outlet.



3

Connect Ethernet Cable

Use the ethernet cable to connect your Kosmos gateway to an ethernet outlet.

See instructions later in this guide if you want to connect your gateway via WiFi.



4

Connect NCD Modem

Connect the NCD modem to your gateway via the USB cable provided.

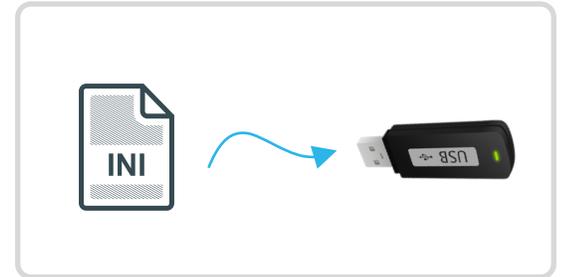


Gateway Hardware Setup (Cont)

5

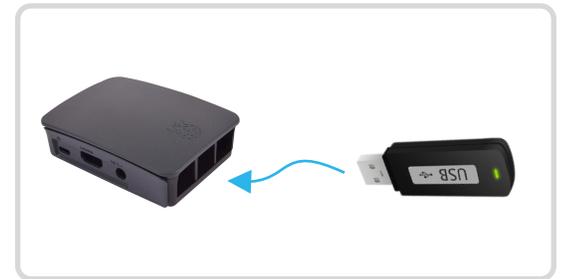
Prepare USB Drive

Copy the Kosmos config file `temboo_kosmos_config.ini` onto your USB drive.

**6**

Insert USB Drive

Insert the USB thumb drive into any available USB port on your Kosmos gateway.



Power On Your NCD sensors

1

Attach the antenna to your NCD sensor(s). Next, decide how you want to power your NCD sensor(s).

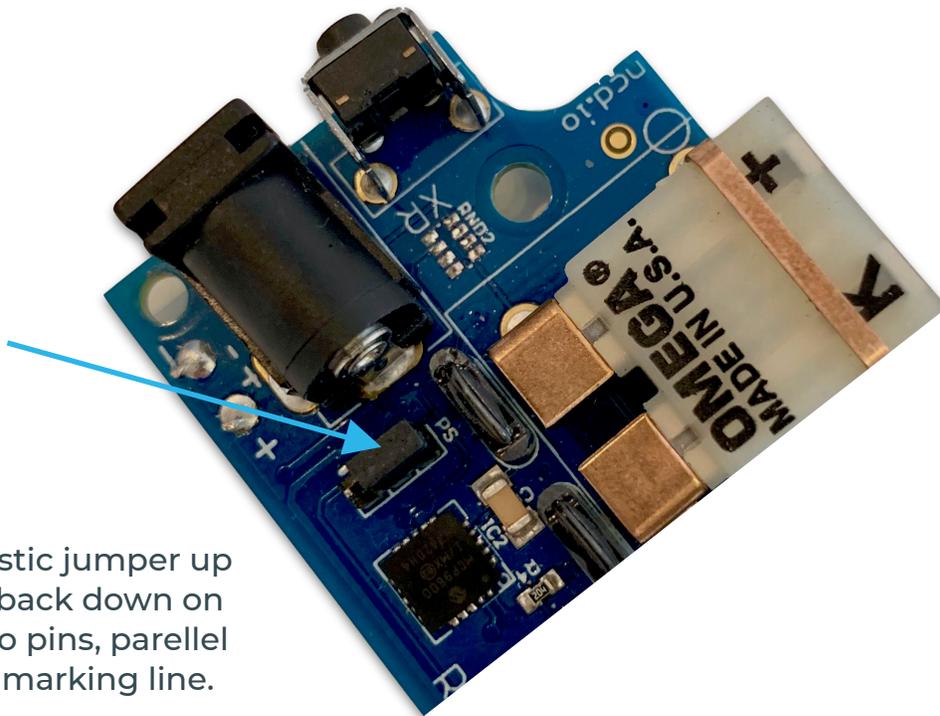


Wired power: connect the NCD power adapter (12V 3A) to the sensor and plug it into a power outlet. The sensor will automatically start sending data to your Kosmos gateway.



Battery power: open the sensor's enclosure and set the PS (power select) jumper parallel to the marking line on the board.

The power select (PS) jumper on your NCD sensor.



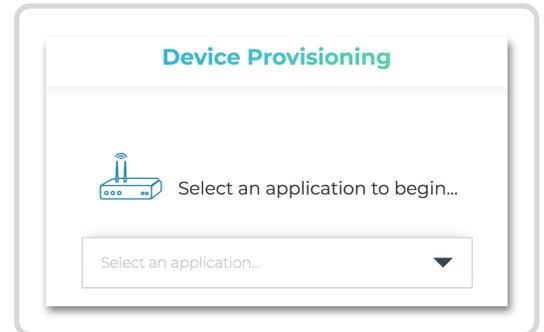
Slide the plastic jumper up and place it back down on the outer two pins, parallel to the white marking line.

Configure your NCD Sensors

1

Log Into Kosmos

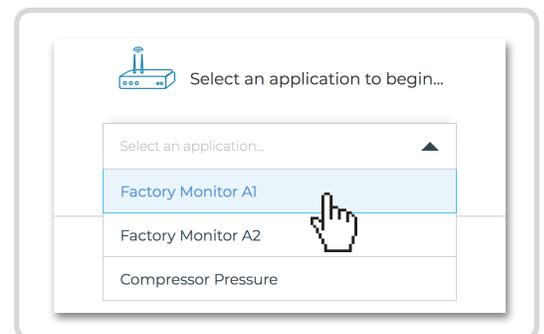
Log in to your Kosmos account and navigate to the [Sensor Provisioning](#) page.



2

Select Your Application

Select the Kosmos application that you want to set up. During this process we'll configure your sensors to communicate securely at your chosen data frequency.



3

Confirm Connectivity

After selecting an application you'll see a screen displaying your gateway's connectivity status. When your gateway is online you can move on to configuring your sensors.



Note: it can take up to one minute for your Kosmos gateway to connect to the internet and show as online on this screen.

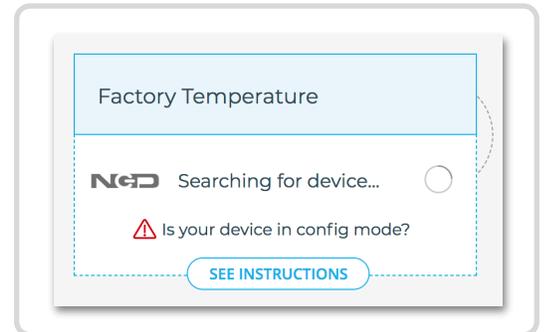
Configure your NCD Sensors (cont)

4

Enter Config Mode

Your NCD sensors must be set to config mode before their settings can be updated.

To enter config mode, press the **RST** button for 5 seconds, release it, and then hold down the **CFG** button until your sensor has been provisioned (this typically takes about 25 seconds).

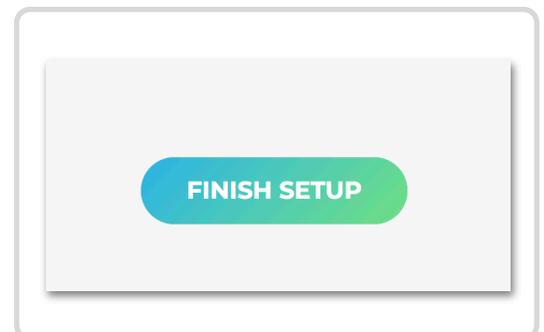
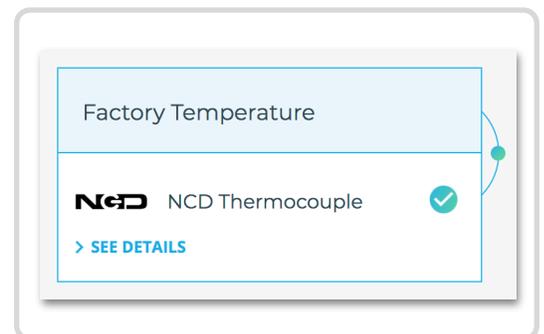


5

Exit Config Mode

Once you've successfully provisioned your sensor(s), hold the **RST** button for 5 seconds to set your sensors back to run mode. Your sensors must be in run mode to send data to your Kosmos dashboard.

When you've finished the provisioning process you automatically will be taken to your dashboard.



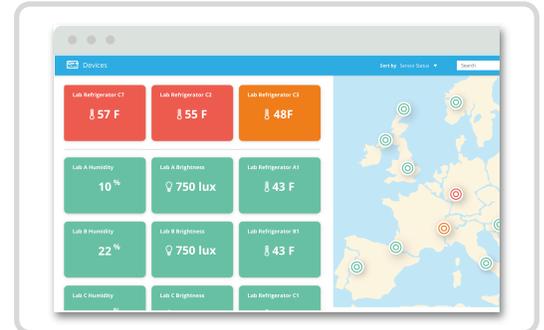
View Your Kosmos Sensor Data

1

Visit Your Dashboard

If you're not there already, navigate to your dashboard:

<https://temboo.com/devices>



2

Monitor Gateway Status

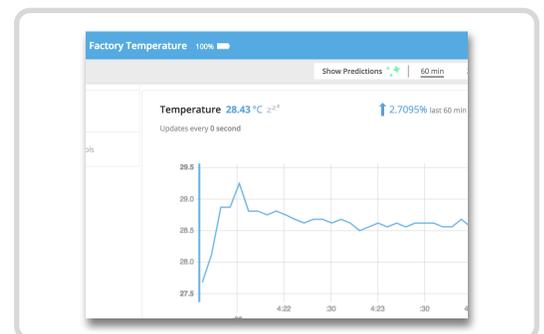
When the gateway connects, a green dot will appear beside the name of your Kosmos application.



3

View Sensor Data

Click into your application and then click on your sensor. You should see the first data point in your graph.



Note: you can press the reset button on your NCD sensor to force another sensor reading to appear in the graph. Make sure to refresh the graph in your dashboard after pressing reset.

Connect Your Gateway Via WiFi (Optional)



We recommend using ethernet to connect your gateway to the Kosmos web dashboard.

- ✓ Fastest setup time
- ✓ Most reliable connection



To use WiFi to connect your Kosmos gateway to the internet, first remove the USB thumb drive from your gateway and plug it into your computer.



Locate the **temboo_kosmos_config.ini** file on the USB thumb drive and open it with your favorite text editor.



Add the details of the WiFi network that you want your gateway to connect to (see lines 14 & 15 in the screenshot below), and then save your config file.



Eject the USB drive from your computer and insert it back into your Kosmos gateway. Remove the gateway's power supply and reconnect it. Your Kosmos gateway will power back up and connect via WiFi.

```
kosmos_gateway_config.ini
1 [credentials]
2 account_name = my-kosmos-account
3 appkey_name = myIndustrialIoTApp
4 appkey_value = WBnnvr12Mu5tlw123uZwaF12vpF1EZj
5
6 [cloud_connection]
7 gateway_id = my_gateway
8 auth_type = standard
9 port = 9009
10 websocket_version = 1
11 ws_url = wss://kosmos.temboo.com
12
13 [wifi]
14 ssid = myWifiNetwork
15 password = my-wifi-password
```

Line 15, Column 28 Tab Size: 4 Plain Text

Troubleshooting Tips

Problem	Solution
Gateway isn't powering up.	When your gateway is powered on you'll see a red LED (solid) and green LED (blinking) inside the case. If you don't see those lights, check that the power supply is securely attached at both ends, and that the wall outlet you are using is active.
Your gateway doesn't appear online in your Kosmos dashboard.	Make sure that you've waited at least 10 minutes after powering on your gateway and that all the hardware is connected as described in this guide. If the gateway is still offline after 10 minutes, try restarting the gateway to connect to Kosmos.
Your graphs have no data.	Wait at least 10 minutes after powering up your gateway for data to arrive in your graphs. If you still don't see data, double-check that the power supply for your sensors (adapter or batteries) is working correctly. Press the reset button on the sensor and refresh the browser in which you are viewing the sensor graph.

Questions?
support@temboo.com

