SENSO8 LoRaWAN® ENV Sensor Configuration Guide

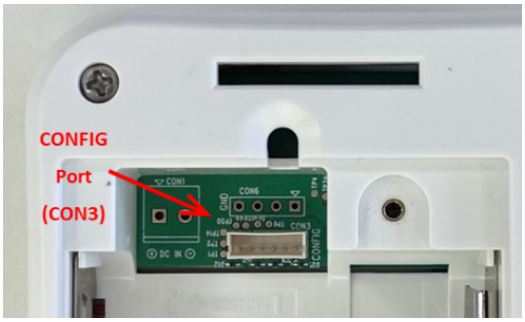
Table of Contents

1. Introduction . . . 1
2. Pin Assignment for CONFIG Port on SENSO8 LoRaWAN® Indoor Environmental Sensor . . . 1
3. Equipment Required . . . 2
4. Configuring ADR on SENSO8 LoRaWAN® Indoor Environmental Sensor . . . 2
5. Configuring Activation Mode on SENSO8 LoRaWAN® Indoor Environmental Sensor . . . 4
5.1. Instructions . . . 5
6. Configuring Keys and IDs for ABP on SENSO8 LoRaWAN® Indoor Environmental Sensor . . . 8
6.1. Instructions . . . 8
7. Configuring Keys and IDs for OTAA on SENSO8 LoRaWAN® Indoor Environmental Sensor . . . 10
7.1. Instructions . . . 10
8. Revision History . . . 12

1. Introduction

This guide provides a quick reference for configuring the SENSO8 LoRaWAN® Indoor Environmental Sensor (IEQ) through the on-board UART CONFIG port.

2. Pin Assignment for CONFIG Port on SENSO8 LoRaWAN® Indoor Environmental Sensor



Pin	Function
1	CONFIG_EN (GND for Configuration)
2	NC
3	VCC (+3.3V)

Pin	Function
4	GND
5	TX (Transmit Data)
6	RX (Receive Data)

3. Equipment Required

- Computer with USB Port and Serial Terminal Program (e.g. putty) with the following settings.

– Baud rate : 115200

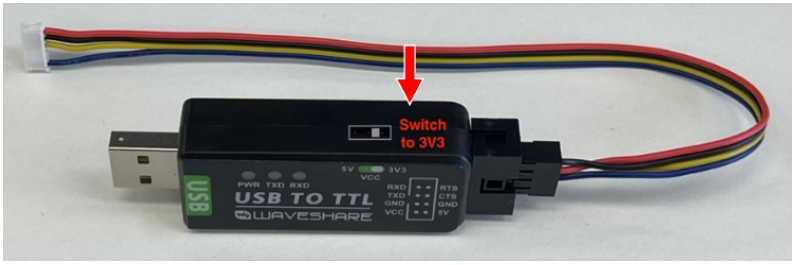
– Format : N81

– Flow control : None

- USB-to-UART Serial Port with External I/O Voltage Supported.

– The I/O voltage of the serial port should follow the Pin 3 of the LRS30100 CONFIG port.

(You can ask for the serial port and cable from your sales representative.)

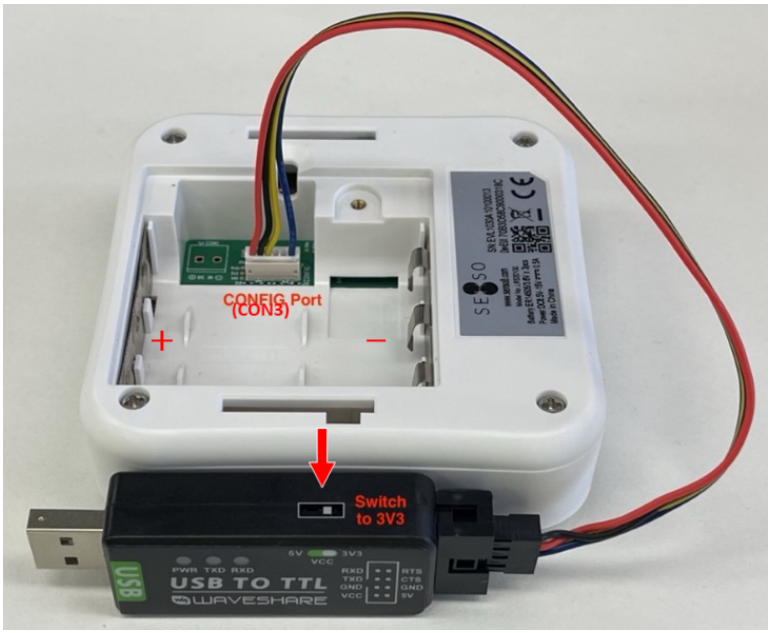


4. Configuring ADR on SENSO8 LoRaWAN® Indoor Environmental Sensor

By default, ADR is enabled on SENSO8 LoRaWAN® IEQ sensor. For flexibility, ADR can be disabled and set to a fixed data rate on SENSO8 LoRaWAN® IEQ sensor

Instructions

1. Connect the USB-to-UART Serial Port to CONFIG Port (CON3).



2. Open a serial terminal software on the computer and connect it to the USB-to-UART converter.
3. Insert three ER14505 batteries into the battery holder of the IEQ to power up the device.
4. Type the password when it prompts for it. Please contact your sales representative for the device password.

```
============================================================
Password: X
```

5. Type ‘1’ to select ‘Network Settings’.

```
============================================================
Main Menu
1. Network Settings
2. Device Settings
3. Sensor Settings
4. -
5. Change Password
6. Test Hardware
7. -
8. Exit
```

6. Type ‘3’ to select ‘ADR’.

```
============================================================
```

```
Network Settings
1. Activation Mode
2. Commission Setting
3. ADR
4. Channel Frequency
5. Network Rejoin
6. Reset LoRaWAN MAC session
x. Exit
```

7. Type ‘n’ to disable ADR.

```
============================================================
ADR [Enable]
ADR Enable (y/n)?
```

8. Type 0-7 to set the data rate from DR0 to DR7, e.g., type ‘5’ to set the data rate to DR5.

```
============================================================
ADR [Enable]
ADR Enable (y/n)?
Data Rate [DR2], new value: 5
```

9. Type ‘y’ to confirm the changes. After confirming the changes, IEQ will update the settings and show the “SUCCESS” message.

```
============================================================
ADR [Enable]
ADR Enable (y/n)?
Data Rate [DR2], new value: 5
New Data Rate [DR5]
Confirm the change (y/n)? y
--- Success ---
```

10. The terminal will return to the Network Settings menu. Type ‘x’ to return to Main Menu and type ‘x’ again to exit the configuration. Then, remove the batteries and the USB-to-UART Serial Port from IEQ.

5. Configuring Activation Mode on SENSO8 LoRaWAN® Indoor Environmental Sensor

The activation mode of SENSO8 LoRaWAN® ENV sensor will be preset to either ‘ABP’ or ‘OTAA’. It

can be changed as follows.

5.1. Instructions

1. Connect the USB-to-UART Serial Port to CONFIG Port (CON3).
2. Open a serial terminal software on the computer and connect it to the USB-to-UART converter.
3. Insert three ER14505 batteries into the battery holder of IEQ to power up the device.
4. Type the password when it prompts for it.

```
============================================================
Password: X
```

5. Type ‘1’ to select ‘Network Settings’.

```
============================================================
Main Menu
1. Network Settings
2. Device Settings
3. Sensor Settings
4. -
5. Change Password
6. Test Hardware
7. -
8. Exit
```

6. Type ‘1’ to select ‘Activation Mode’.

```
============================================================
Network Settings
1. Activation Mode
2. Commission Setting
3. ADR
4. Channel Frequency
5. Network Rejoin
6. Reset LoRaWAN MAC session
x. Exit
```

7. The terminal will show the current activation mode inside the []. To change the activation mode from ‘OTAA’ to ‘ABP’, type ‘1’. Likewise, to change the activation mode from ‘ABP’ to

'OTAA', type '2' and go to Step 9. If there are no changes on the activation mode, go to Step 14.

```
============================================================
Activation Mode [OTAA]
1. ABP
2. OTAA
x. Exit
```

8. Select 'y' to confirm the change and the terminal will show 'Success'. Then, go to Step 10.

To discard the changes, press 'n' and go to Step 14.

```
============================================================
Activation Mode [OTAA]
1. ABP
2. OTAA
x. Exit
ABP
Confirm the change (y/n)?
--- Success ---
```

9. Select 'y' to confirm the changes and the terminal will show 'Success'.

To discard the changes, press 'n' and go to Step 14.

```
============================================================
Activation Mode [ABP]
1. ABP
2. OTAA
x. Exit
OTAA
Confirm the change (y/n)?
--- Success ---
```

10. The terminal will show the network rejoin setting inside the []. Type 'y' for 'Enable'. Type "n" for 'Disable'.

```
============================================================
Network Rejoin [Enable]
Enable Network Rejoin(y/n)?
```

11. If the network rejoin has changed, select ‘y’ to confirm the changes and the terminal will show ‘Success’. To discard the changes, press ‘n’.

```
============================================================
Network Rejoin [Enable]
Enable Network Rejoin(y/n)?
Network Rejoin [Disable]
Confirm the change (y/n)?
--- Success ---
============================================================
Network Rejoin [Disable]
Enable Network Rejoin(y/n)?
Network Rejoin [Enable]
Confirm the change (y/n)?
--- Success ---
```

12. If the network rejoin is ‘Enable’ (that is not depended on Step 11), the terminal will show the network check interval inside the []. Type ‘y’ for modification. Type “n” to keep the existing interval and go to Step 14.

```
============================================================
Rejoin Parameters
Network check interval [6 hour]
Change parameters (y/n)?
```

13. Select the new network check interval from the list, e.g., type ‘8’ to set for 24 hours.

```
============================================================
Rejoin Parameters
Network check interval [6 hour]
Change parameters (y/n)?
Network check interval [6 hour]
1. 1
2. 2
3. 3
4. 4
6. 6
7. 12
8. 24
--- Success ---
```

Remark: – The new network check interval does not require confirmation.

– To set up the commission settings of ABP, follow the steps on ‘6. Configuring Keys and IDs for ABP on SENSO8 LoRaWAN® Indoor Environmental Sensor’.

– To set up the commission settings of OTAA, follow the steps on ‘7. Configuring Keys and IDs for OTAA on SENSO8 LoRaWAN® Indoor Environmental Sensor’.

14. The terminal will return to the Network Settings menu. Type ‘x’ to return to Main Menu and type ‘x’ again to exit the configuration. Then, remove the batteries and the USB-to-UART Serial Port from IEQ.

6. Configuring Keys and IDs for ABP on SENSO8 LoRaWAN® Indoor Environmental Sensor

By default, SENSO8 LoRaWAN® IEQ has the preset DevEUI, device address and keys for ABP.

6.1. Instructions

1. Connect the USB-to-UART Serial Port to CONFIG Port (CON3).
2. Open a serial terminal software on the computer and connect it to the USB-to-UART converter.
3. Insert three ER14505 batteries into the battery holder of IEQ to power up the device.
4. Type the password when it prompts for it.

```
============================================================
Password: X
```

5. Type ‘1’ to select ‘Network Settings’.

```
============================================================
Main Menu
1. Network Settings
2. Device Settings
3. Sensor Settings
4. -
5. Change Password
6. Test Hardware
7. -
8. Exit
```

6. Type ‘2’ to select ‘Commission Setting’.

```
============================================================
Network Settings
1. Activation Mode
2. Commission Setting
3. ADR
4. Channel Frequency
5. Network Rejoin
6. Reset LoRaWAN MAC session
x. Exit
```

7. The terminal will show the current activation mode. To change the Device Address (DevAddr), type ‘1’.

```
============================================================
ABP
1. Device Address
2. NwkSKey
3. AppSkey
4. NetID
5. Receive Delay1
6. Rx1 DR Offset
7. RX2 Frequency
8. Rx2 Datarate
x. Exit
```

8. The terminal will show the current device address and prompt for new address. Then, type in the new device address. After entering 8 characters, the terminal will prompt for confirming the change automatically. Type ‘y’ to confirm the changes and the terminal will show ‘Success’. Otherwise, type ‘n’ to discard the changes. If there are no changes on the keys, go to Step 11 directly.

```
============================================================
Device Address [90000123]
New value: 90000ABC
Confirm the change (y/n)?
--- Success ---
```

9. To continue setting up the Network Session Key, press ‘2’. Then, type in the new network session key. After entering 32 characters, the terminal will prompt for confirming the changes automatically. Type ‘y’ to confirm the changes and the terminal will show ‘Success’. Otherwise, type ‘n’ to discard the changes.

```
============================================================
NwkSKey New value: 1234567890ABCDEF1234567890ABCDEF
Confirm the change (y/n)?
--- Success ---
```

10. To continue setting up the Application Session Key, press '3'. Then, type in the new application session key. After entering 32 characters, the terminal will prompt for confirming the changes automatically. Type 'y' to confirm the changes and the terminal will show 'Success'. Otherwise, type 'n' to discard the changes.

```
============================================================
AppSKey New value: ABCDEF1234567890ABCDEF1234567890
Confirm the change (y/n)?
--- Success ---
```

11. The terminal will return to the Network Settings menu. Type 'x' to return to Main Menu and type 'x' again to exit the configuration. Then, remove the batteries and the USB-to-UART Serial Port from IEQ.

7. Configuring Keys and IDs for OTAA on SENSO8 LoRaWAN® Indoor Environmental Sensor

By default, SENSO8 LoRaWAN® IEQ has the preset DevEUI, join EUI and application key for OTAA.

7.1. Instructions

1. Connect the USB-to-UART Serial Port to CONFIG Port (CON3).
2. Open a serial terminal software on the computer and connect it to the USB-to-UART converter.
3. Insert three ER14505 batteries into the battery holder of IEQ to power up the device.
4. Type the password when it prompts for it.

```
============================================================
Password: X
```

5. Type '1' to select 'Network Settings'.

```
============================================================
```

```
Main Menu
1. Network Settings
2. Device Settings
3. Sensor Settings
4. -
5. Change Password
6. Test Hardware
7. -
8. Exit
```

6. Type ‘2’ to select ‘Commission Setting’.

```
============================================================
Network Settings
1. Activation Mode
2. Commission Setting
3. ADR
4. Channel Frequency
5. Network Rejoin
6. Reset LoRaWAN MAC session
x. Exit
```

7. The terminal will show the current activation mode. To change the join EUI, type ‘1’.

```
============================================================
OTAA
1. Join EUI
2. App Key
x. Exit
```

8. Type in the new join EUI address. After entering 16 characters, the terminal will prompt for confirming the changes automatically. Type ‘y’ to confirm the changes and the terminal will show ‘Success’. Otherwise, type ‘n’ to discard the changes.

```
============================================================
JoinKey New value: FEDCBA0987654321
Confirm the change (y/n)?
--- Success ---
```

9. To continue setting up the Application Key, press ‘2’. Then, type in the new application key. After entering 32 characters, the terminal will prompt for confirming the changes

automatically. Type ‘y’ to confirm the changes and the terminal will show ‘Success’. Otherwise, type ‘n’ to discard the changes.

```
============================================================
AppKey New value: 0987654321FEDCBA0987654321FEDCBA
Confirm the change (y/n)?
--- Success ---
```

10. The terminal will return to the Network Settings menu. Type ‘x’ to return to Main Menu and type ‘x’ again to exit the configuration. Then, remove the batteries and the USB-to-UART Serial Port from IEQ.

8. Revision History

Revision	*Date*	*Description*
1.0	June 2025	Initial Release.
2.0	Oct 2026	First release on docs.senso8.com