

SENSO8 LoRa UART Configuration Guide

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1. Introduction

This guide aims to provide a quick reference for configuring the SENSO8 LoRa sensor through the on-board UART CONFIG port.

2. CONFIG Port Pin Assignment

Pin Number	Function
1	+3.0V voltage from SENSO8, the UART signal voltage level
2	RX pin, receive data from computer
3	TX pin, transmit data to computer
4	Ground

3. Equipment Required

- Computer with USB port and serial terminal program (e.g. putty)

Serial port settings: baud rate: 115200, format: N81, flow control: none

- USB-to-UART serial with external I/O voltage supported. The UART I/O voltage of the USB-to-UART should follow pin 1 on the CONFIG port on SENSO8.

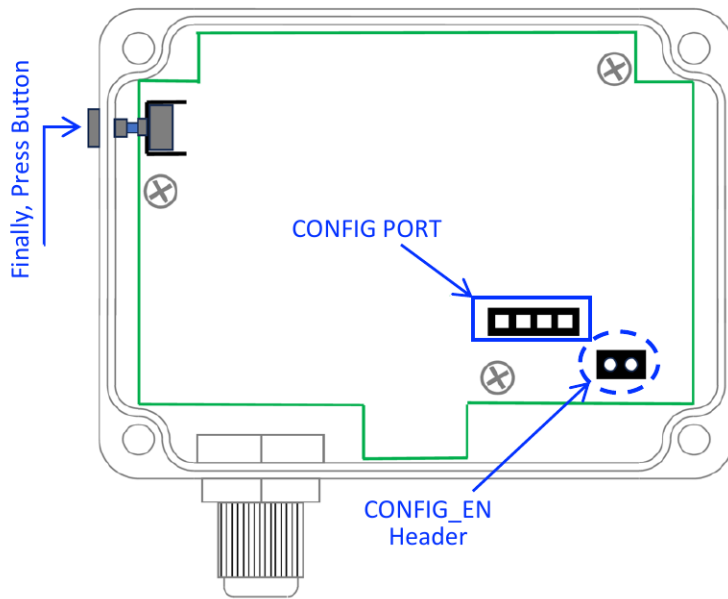
4. Configuring ADR on SENSO8 LoRa Sensor

By default, ADR is enabled on SENSO8 LoRa sensor. For flexibility, SENSO8 LoRa offers an option to disable ADR and select a fixed data rate manually.

Instructions

1. Short the CONFIG_EN header (JP1) with a jumper.
2. Connect a USB-to-UART converter to CONFIG PORT.

UART-to-USB	SENSO8
VCCIO	+3.0V
TXD	CONFIG_RX
RXD	CONFIG_TX
GND	GND



3. Open a serial terminal software on the computer and connect it to the USB-to-UART converter.
4. Insert an ER26500 batteries to the battery holder and press the user button or connect the sensor to DC power supply to power up the device.
5. Type the password when it prompts for it. Please contact your sales representative for the device password.

=====

Device ID | 0123456789012345

```
Device EUID | 9876543210987654
Hardware Ver | 01
Firmware Ver | XX.YY.ZZZ
Build Date | DD:MM:YYYYYY HH:MM:SS
```

```
=====
Password: _
```

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

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

7. Type '4' to select 'ADR'.

```
=====
Network Settings
1. Region
2. Activation Mode
3. Commission Setting
4. ADR
5. Channel Frequency
6. Fixed Tx Power
7. DeviceEUI
x. Exit
-
```

8. Type 'n' to disable ADR.

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

9. Type 0-7 to set the data rate to DR0 to DR7. e.g. to set the data rate to DR5, type '5'.

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

10. Type 'y' to confirm the change. After confirming the change, the sensor will update the settings and show a message "SUCCESS".

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

11. After confirming the selection, the terminal will return to the Network Settings menu. Type 'x' to return to the main menu and type 'x' again to exit the configuration mode. Then remove the battery or DC power supply and USB-to-UART convert from the board.

5. Configuring Activation Mode on SENSO8 LoRa Sensor

5.1. Instructions

1. Short the CONFIG_EN header (JP1) with a jumper.
2. Connect a USB-to-UART converter to CONFIG PORT (CON6).
3. Open a serial terminal software on the computer and connect it to the USB-to-UART converter.
4. Insert an ER26500 batteries to the battery holder and press the user button or connect the sensor to DC power supply to power up the device.
5. Type the password when it prompts for it. Please contact sales representative for the device password.

```
=====
Device ID | 0123456789012345
Device EUI | 9876543210987654
Hardware Ver | 01
Firmware Ver | XX.YY.ZZZ
Build Date | DD:MM:YYYYY HH:MM:SS
```

```
=====
Password: _
```

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

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

7. Type '2' to select 'Activation Mode'.

```
=====
Network Settings
1. Region
2. Activation Mode
3. Commission Setting
4. ADR
5. Channel Frequency
6. Fixed Tx Power
7. DeviceEUI
x. Exit
-
```

8. The terminal will show the current activation mode inside the []. To select 'ABP' as activation mode, type 1. To select 'OTAA' as activation mode, go to Step 10.

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

9. To select 'y' to confirm the change and the terminal will show 'Success'. The terminal will go back to the Network Settings automatically. To discard the change, press 'n'. After confirming the change, set up the ABP address and keys following the steps on "Configuring Keys and IDs for ABP on SENSO8 LoRa Sensor".

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

10. To select OTAA' as activation mode, type 2.

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

11. To select 'y' to confirm the change and the terminal will show 'Success'. The terminal will go back to the Network Settings automatically. To discard the change, press 'n'. After confirming the change, set up the OTAA EUIs and keys following the steps on "Configuring Keys and IDs for OTAA on SENSO8 LoRa Sensor".

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

6. Configuring Keys and IDs for ABP on SENSO8 LoRa Sensor

By default, SENSO8 LoRa has a preset device address, dev EUI and keys for ABP.

6.1. Instructions

1. Short the CONFIG_EN header (JP1) with a jumper.
2. Connect a USB-to-UART converter to CONFIG PORT (CON6).
3. Open a serial terminal software on the computer and connect it to the USB-to-UART converter.
4. Insert an ER26500 batteries to the battery holder and press the user button or connect the sensor to DC power supply to power up the device.
5. Type the password when it prompts for it. Please contact sales representative for the device password.

```
=====
Device ID | 0123456789012345
Device EUI | 9876543210987654
Hardware Ver | 01
Firmware Ver | XX.YY.ZZZ
Build Date | DD:MM:YYYYY HH:MM:SS
=====
Password: _
```

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

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

7. Type '3' to select 'Commission Setting'.

```
=====
Network Settings
1. Region
2. Activation Mode
```

```

3. Commission Setting
4. ADR
5. Channel Frequency
6. Fixed Tx Power
7. DeviceEUI
x. Exit
-

```

8. 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
x. Exit
-

```

9. The terminal will show the current device address and prompt for new address. Then, type in the new device address. After entering 7 characters, the terminal will prompt for confirming the change automatically. Type 'y' to confirm the change and the terminal will show 'Success'. Otherwise, type 'n' to discard the change. If it does not need to change the keys, go to step 12 directly.

```

=====
Device Address [90000109]
New value: 9000010A
Confirm the change(y/n)?
--- Success ---

```

10. 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 change automatically. Type 'y' to confirm the change and the terminal will show 'Success'. Otherwise, type 'n' to discard the change.

```

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

```

11. 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 change automatically. Type 'y' to confirm the change and the terminal will show 'Success'. Otherwise, type 'n' to discard the change.

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

12. Type 'x' to back to main menu and type 'x' to exit the configuration mode. Then remove the battery and USB-to-UART convert from the SENSO8.

7. Configuring Keys and IDs for OTAA on SENSO8 LoRa Sensor

By default, SENSO8 LoRa has a preset dev EUI, join EUI and application key for OTAA.

7.1. Instructions

1. Short the CONFIG_EN header (JP1) with a jumper.
2. Connect a USB-to-UART converter to CONFIG PORT (CON6).
3. Open a serial terminal software on the computer and connect it to the USB-to-UART converter.
4. Insert an ER26500 batteries to the battery holder and press the user button or connect the sensor to DC power supply to power up the device.
5. Type the password when it prompts for it. Please contact sales representative for the device password.

```
=====
Device ID | 0123456789012345
Device EUI | 9876543210987654
Hardware Ver | 01
Firmware Ver | XX.YY.ZZZ
Build Date | DD:MM:YYYYYY HH:MM:SS
=====
Password: _
```

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

```
=====
```

Main Menu

1. Network Settings
2. Device Settings
3. Sensor Settings
4. Advance Settings
5. Change Password
6. Test Hardware
7. Test LoRa
- x. Exit

–

7. Type '3' to select 'Commission Setting'.

Network Settings

1. Region
2. Activation Mode
3. Commission Setting
4. ADR
5. Channel Frequency
6. Fixed Tx Power
7. DeviceEUI
- x. Exit

–

8. The terminal will show the current activation mode. To change the Join EUI, type '1'.

OTAA

1. Join EUI
2. App Key
- x. Exit

–

9. Type in the new Join EUI address. After entering 16 characters, the terminal will prompt for confirming the change automatically. Type 'y' to confirm the change and the terminal will show 'Success'. Otherwise, type 'n' to discard the change.

```
Join EUI New value: 1234567890ABCDEF
Confirm the change (y/n)?
```

```
--- Success ---
```

10. 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 change automatically. Type 'y' to confirm the change and the terminal will show 'Success'. Otherwise, type 'n' to discard the change.

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

11. Type 'x' to back to main menu and type 'x' to exit the configuration mode. Then remove the battery and USB-to-UART convert from the SENSO8.

8. Revision History

<i>Revision</i>	<i>Date</i>	<i>Description</i>
1.0	Mar 2024	Initial Release.
2.0	Oct 2026	First release on docs.senso8.com