

# Instructions for ABP join mode for Daviteq sensor

## 1. Steps to register Daviteq LRW sensor on the network server using ABP Mode

### Step 1 : Register Daviteq sensors on Network server

- Get Sensor's DevEUI at the label in housing of sensors
- Register sensors on Network Server with ABP join mode
- Get Device Address, AppsKey, Nwskey which are created on Network server

### Step 2: Configure sensors via offline tool

- Write NwkSkey, AppSkey, Device Address into sensors
- Configure join mode as ABP

### Step 3: Install batteries for sensors, then check result on Network server.

## 2. Example of Register Daviteq sensor onto The Things Stack network server.

### Step 1: Register Daviteq sensors on Network server

- Get Sensor's DevEUI at the label in housing of sensors
- Register sensors on Network Server with ABP join mode

The screenshot shows the 'End devices' registration page in The Things Stack. The left sidebar contains navigation links: Overview, End devices (selected), Live data, Payload formatters, Integrations, Collaborators, API keys, and General settings. The main content area displays configuration options for a new device. The 'Frequency plan' is set to 'Europe 863-870 MHz (SF9 for RX2 - recommended)'. The 'LoRaWAN version' is 'LoRaWAN Specification 1.0.3'. The 'Regional Parameters version' is 'RP001 Regional Parameters 1.0.3 revision A'. A link 'Show advanced activation, LoRaWAN class and cluster settings' is visible. Under 'Activation mode', 'Activation by personalization (ABP)' is selected and highlighted with a red box. Other options include 'Over the air activation (OTAA)' and 'Define multicast group (ABP & Multicast)'. The 'Additional LoRaWAN class capabilities' are set to 'None (class A only)'. Under 'Network defaults', 'Use network's default MAC settings' is checked. Under 'Cluster settings', 'Skip registration on Join Server' is unchecked. At the bottom, the 'Provisioning information' section is highlighted with a red box, showing the 'DevEUI' as '35 31 38 31 62 00 00 00'.

phitrantest

Overview

End devices

Live data

Payload formatters

Integrations

Collaborators

API keys

General settings

Frequency plan ⓘ \*

Europe 863-870 MHz (SF9 for RX2 - recommended)

LoRaWAN version ⓘ \*

LoRaWAN Specification 1.0.3

Regional Parameters version ⓘ \*

RP001 Regional Parameters 1.0.3 revision A

Show advanced activation, LoRaWAN class and cluster settings ^

Activation mode ⓘ

☐ Over the air activation (OTAA)

☒ Activation by personalization (ABP)

☐ Define multicast group (ABP & Multicast)

Additional LoRaWAN class capabilities ⓘ

None (class A only)

Network defaults ⓘ

☒ Use network's default MAC settings

Cluster settings ⓘ

☐ Skip registration on Join Server

Provisioning information

DevEUI ⓘ

35 31 38 31 62 00 00 00

- Get Device Address, AppsKey, Nwskey which are generated on Network server.



- Connect the PC to Daviteq sensors using the configuration cable and converter cable



- Click Connect button then, choose Edit=> Enable All
- After that, check the values in READ DATA section

Daviteq Modbus Configuration Tool Version 2.03

FILE EDIT **Status Connected** Tx Rx POLL 2174 Disconnected 2024.04.25 16:24  
COM1 BaudRate 9600 Parity NONE 44.001 Tx: 00 03 00 1B 00 04 35 DF 44.078 Rx: 00 03 00 35 31 38 31 62 30 7D 18 35 52  
DISCONNECTED 44.089 Tx: 00 03 00 1F 00 04 74 1E 44.172 Rx: 00 03 00 01 02 03 04 05 06 07 08 61 EF 44.186 Tx: 00 03 00 23 00 08 84 17  
RECEIVE 2043 Connected 2024.04.25 16:25  
CRC\_OK 2043 Disconnected 2024.04.25 16:42  
CRC\_ERROR 0 Connected  
TIME\_OUT 128

FC	REG	#REG	FORMAT	PARAMETER	VALUE ON MEMMAP	VALUE TO WRITE	EXCEPTION	DESCRIPTION
1	3	27	4 hex	*READ DATA	35 31 38 31 62 30 7D 18			
2	3	31	4 hex	deviceEUI	01 02 03 04 05 06 07 08			Read Only;a 64-bit globally unique End-Device Identifier. Used during JOIN phase in OTAA mode
3	3	35	8 hex	lora appKey	01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F 10			Read Only;a AES 128-bit Root Key; Application key used by both End-Device and Network to d...
4	3	43	8 hex	lora nwkSkey	00 2E F2 54 32 8F 3A 70 54 14 F4 77 33 2F 19 FA			Read Only;a AES 128-bit key; Network session key used by both Network Server and End-Dev...
5	3	51	8 hex	lora appSkey	A6 FD 02 48 19 46 6B DE 96 06 D2 75 C6 B1 AC 52			Read Only;a AES 128-bit Key; Application session key used by both Application Server and En...
6	3	59	2 hex	device addr...	00 C1 ED 56			Read Only;a 32-bit identifier used to identify the device in the current network. Used in ABP mode
7	3	63	2 str...	join mode	ABP			Read Only;OTAA: Over-the-Air activation; ABP: Activation by Personalization
8	3			*CONFIGU...				
9	1	282	8 hex	lora nwkSkey		002EF254328F3A705414F477332F19FA	WRITE_OK	Read/Write;a AES 128-bit key; Network session key used by both Network Server and End-Dev...
10	1	290	8 hex	lora appSkey		A6FD024819466BDE9606D275C6B1AC52	WRITE_OK	Read/Write;a AES 128-bit Key; Application session key used by both Application Server and En...
11	1	298	2 hex	device addr...		00C1ED56	WRITE_OK	Read/Write;a 32-bit identifier used to identify the device in the current network. Used in ABP mo...
12	1	302	1 uint	join mode		0	WRITE_OK	Read/Write;1:OTAA: Over-the-Air activation; 0: ABP: Activation by Personalization

**Note:** The sensor is only active for configuration for 60 since connecting the cable to the sensor.

### Step 3: Install batteries for sensors, then check result on Network server.

Overview Applications Gateways Organizations Engineering Department

Applications > phitrantest > End devices > eui-3531383162307d18 > Live data

**eui-3531383162307d18**  
ID: eui-3531383162307d18

↑ 2 ↓ 1 • Last activity 50 seconds ago

Overview **Live data** Messaging Location Payload formatters General settings

Time Type Data preview Verbose stream Export as JSON Pause Clear

16:44:19 Schedule data downlink for trans... DevAddr: 00 C1 ED 56 Rx1 Delay: 5

16:44:19 Forward uplink data message DevAddr: 00 C1 ED 56 Data rate: SF7BW12S SNR: 10.3 RSSI: -52

16:44:19 Successfully processed data mess... DevAddr: 00 C1 ED 56

16:44:18 Schedule data downlink for trans... DevAddr: 00 C1 ED 56 MAC payload: 92 8F 99 31 35 82 26 CD Rx1 Delay: 1

16:44:18 Update end device [ "activated\_at" ]

16:44:18 Forward uplink data message DevAddr: 00 C1 ED 56 Payload: { CURRENT\_CONFIGURATION: "4e6eb288089000", EVENT\_ID: 0, FW\_VERSION: 2, HW\_VERSION: 2 } 02 02 4E 6E 68 28 00

16:44:18 Successfully processed data mess... DevAddr: 00 C1 ED 56

★ Created Wed, Jan 10, 2024 6:27 AM by [Phi Hoang Tran](#)

✎ Updated Sat, May 4, 2024 2:30 AM by [Phi Hoang Tran](#)