

Senstick Soil Moisture Probe 4.0 LoRaWAN Protocol FW v1.0

1. LoraWAN CONFIG Payload (Uplink)

Parameter:	stat	period	movt	ackco	dr	fid	pid	hw	fw	SUM
Size:	1B	1B	1B	1B	1B	1B	1B	1B	1B	9B

Parameter	Name	Size	Type	Default Value	Description
Status	stat	1B	uint8	0x00	Status Codes: 0x00 - OK Bit0 - Movement Detected Packet Bit1 - Movement Detected Confirmed Bit2 - Accelerometer Failure Bit3 - NFC Failure Bit4 - EUI IC Failure
Send Period	period	1B	uint8	15 min	Data send period in minutes.
Movement Threshold	movt	1B	uint8	0	Movement threshold to send measurement. (32 x movt mg, 0 = OFF, range: 1 - 63)
Packet Confirm	ackco	1B	uint8	24	Request confirmed packed every N transmissions. 0 = OFF
Data Rate	dr	1B	uint8	128 (ADR on, DR0)	Bit0-6 - DRx Bit7 - ADR status (0 = OFF, 1 = ON)
Family Id	fid	1B	uint8	4	Family Id
Product Id	pid	1B	uint8	2	Product Id
Hardware Version	hw	1B	uint8	4.0	Hardware version (hw / 10)
Firmware Version	fw	1B	uint8	1.0	Firmware version (fw / 10)

NOTE: For config packet LoRaWAN Port 3 is used.

2. LoraWAN DATA Payload (Uplink)

Parameter:	stat	bat	soil	SUM
Size:	1B	2B	2B	4/5B

Parameter	Name	Range	Size	Type	Description
Status	stat	0 - 255	0/1B	uint8	Status Codes: Bit0 - Movement Detected Packet Bit1 - Movement Detected Confirmed Bit2 - Accelerometer Failure Bit3 - NFC Failure Bit4 - EUI IC Failure
Battery Level	bat	0 - Vbat	2B	uint8	Battery Level
Soil Moisture	soil	0 - 3100mV	2B	uint16	Soil Moisture

NOTES:

- For regular packet LoRaWAN Port 2 is used.
- Status byte is only visible if any of the status modes is triggered.

3. LoraWAN ALERT Payload (Uplink)

Parameter:	movd	SUM
Size:	1B	1B

Parameter	Name	Size	Type	Default Value	Description
Alert	movd	1B	Bool	0x00	Movement detection flag

NOTE: For alert packet LoRaWAN Port 1 is used.

4. LoRaWAN CONFIG Payload (Downlink) – General setup

Parameter:	period	movt	ackco	dr	SUM
Size:	1B	1B	1B	1B	4B

Parameter	Name	Size	Type	Default Value	Description
Period	period	1B	uint8	15 min	Data send period in minutes
Movement Threshold	movt	1B	uint8	0	Movement threshold to send measurement. (32 x movt mg, 0 = OFF, range: 1 - 63)
Packet Confirm	ackco	1B	uint8	24	Request confirmed packed every N transmissions. 0 = OFF
Data Rate	dr	1B	uint8	128 (ADR on, DR0)	Bit0-6 - DRx Bit7 - ADR status (0 = OFF, 1 = ON)

DEFAULT DOWNLINK PACKET: 0F 00 18 FF

NOTE: For config packet LoRaWAN Port 3 is used.

5. LoRaWAN CONFIG Payload (Downlink) - Send Period

Parameter:	sendp	SUM
Size:	1B	1B

Parameter	Name	Size	Type	Default Value	Description
Send Period	sendp	1B	uint8	15 min	Send period in minutes

DEFAULT DOWNLINK PACKET: 0F

NOTE: For config packet LoRaWAN Port 3 is used.

6. LoRaWAN CONFIG Payload (Downlink) - Reboot

Parameter:	reboot	SUM
Size:	2B	2B

Parameter	Name	Size	Type	Default Value	Description
Reboot	reboot	2B	uint16	0xFFFF	Start REBOOT procedure

DEFAULT DOWNLINK PACKET: FF FF

NOTE: For config packet LoRaWAN Port 3 is used.

7. LoRaWAN CONFIG Payload (Downlink) - Factory Defaults

Parameter:	fdef	SUM
Size:	2B	2B

Parameter	Name	Size	Type	Default Value	Description
Factory Defaults	fdef	2B	uint16	0xEEEE	Erase NFC EEPROM and restore default settings

DEFAULT DOWNLINK PACKET: EE EE

NOTE: For config packet LoRaWAN Port 3 is used.

8. TTN Downlink Guide

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

Uplink **Downlink**

Schedule downlink

Insert Mode

Replace downlink queue
 Push to downlink queue (append)

FPort *

3

Payload type

Bytes JSON

Payload

00 00 00 00 00 |

The desired payload bytes of the downlink message

Confirmed downlink

Schedule downlink

Application > End Device > Messaging > Downlink