

Sensedge
Senspuck Level Meter SLM10
LoRaWAN Protocol
FW v1.0

LoRaWAN

1. LoraWAN SEND Payload (Uplink)

Parameter:	stat	dist	rela	temp	SUM
Size:	1B	2B	1B	2B	6B

Parameter	Name	Range	Size	Type	Description
Status	stat	0 - 1	1B	uint8	Status Codes: Bit 0 - Accelerometer Sensor Failure Bit 1 - NFC IC Failure Bit 2 - EUI IC Failure Bit 3 - Distance Sensor Failure Bit 4 - Recalibration Bit 5 - Battery Low* Bit 6 - Movement Confirmed Bit 7 - Movement Detected
Distance	dist	20 - 2.500	2B	uint16	The distance measured in mm. FOI 21°. Accuracy ±5%.
Reliability	rela	0 - 63	1B	uint8	Reliability of the measurement.
Temperature	temp	0 - 255	1B	uint8	Internal temperature from MCU
Temperature Dec	temp01	0.0 - 0.99	1B	uint8	Internal temperature - dec (t01 * 100)

NOTE: LoRaWAN Port 1 is used for the Alert Packet and Port 2 for the Scheduled packet..

NOTE: Battery Low when battery voltage is below 3.2V.

1. LoRaWAN SEND Payload Config (Uplink)

Param:	dr	ackco	period	movd	movt	hw	fw	SUM
Size:	1B	1B	1B	1B	1B	1B	1B	7B

Parameter	Name	R/W	Size	Type	Default Value	Description
Data Rate	dr	R/W	1B	uint8	0 - 7 (255)	DR0 - DR7 (x = DRx), 255 = ADR On.
Packet Confirm	ackco	R/W	1B	uint8	24	Request confirmed packed every N transmissions. 0 == OFF.
Period	period	R/W	1B	uint8	15 min	Data send period in minutes.
Movement Send Delay	movd	R/W	1B	uint8	1 min	The Movement triggers movement send delay in minutes.
Movement Threshold	movt	R/W	1B	uint8	12 (1 - 127)	Movement threshold to send measurement. (16 x movt mg). 0 == OFF.
Hardware Version	hw	R	1B	uint8	N/A	Hardware version.
Firmware Version	fw	R	1B	uint8	N/A	Firmware version.

NOTE: LoRaWAN Port 3 is used.

2. LoRaWAN RECEIVE Payload Config (Downlink)

Param:	dr	ackco	period	movd	movt	SUM
Size:	1B	1B	1B	1B	1B	5B

Parameter	Name	R/W	Size	Type	Default Value	Description
Data Rate	dr	R/W	1B	uint8	0 - 7 (255)	DR0 - DR7 (x = DRx), 255 = ADR On.
Packet Confirm	ackco	R/W	1B	uint8	24	Request confirmed packed every N transmissions. 0 == OFF.
Period	period	R/W	1B	uint8	15 min	Data send period in minutes.
Movement Send Delay	movd	R/W	1B	uint8	1 min	The Movement triggers movement send delay in minutes.
Movement Threshold	movt	R/W	1B	uint8	12 (1 - 127)	Movement threshold to send measurement. (16 x movt mg). 0 == OFF.

DEFAULT DOWNLINK PACKET: 00 18 05 01 0C

NOTE: LoRaWAN Port 3 is used.

3. LoRaWAN CONFIG Payload (Downlink) - Send Period

Param:	sendp	SUM
Size:	1B	1B

Parameter	Name	R/W	Size	Type	Default Value	Description
Send Period	sendp	R/W	1B	uint8	15 min	Data send period in minutes.

DEFAULT DOWNLINK PACKET: 0F

NOTE: LoRaWAN Port 3 is used.

4. LoRaWAN RECEIVE Payload Calibration (Downlink)

Param:	cali	SUM
Size:	2B	2B

Parameter	Name	R/W	Size	Type	Default Value	Description
Calibrate	cali	R/W	2B	uint8	0xCC00	0xCC00 - No change, 0xCC63 (c) - Start calibrate procedure, 0xCC64 (d) - Set default calibrate parameters*, 0xCC6F (o) - Calculate offset.

DEFAULT DOWNLINK PACKET: 0xCC00

NOTE: LoRaWAN Port 3 is used.

NOTE: To Confirm the received packet, the same packet is sent back to the network.

* DEFAULT CALIBRATION PARAMETERS:

0x61, 0x6a, 0x02, 0xa5, 0x05, 0x20, 0x46, 0x8c, 0x05, 0x0b, 0x04, 0x08, 0x00, 0x04

5. LoRaWAN CONFIG Payload (Downlink) - Reboot

Param:	reboot	SUM
Size:	2B	2B

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

DEFAULT DOWNLINK PACKET: FF FF

NOTE: LoRaWAN Port 3 is used.

6. LoRaWAN CONFIG Payload (Downlink) - Factory Defaults

Param:	fdef	SUM
Size:	2B	2B

Parameter	Name	R/W	Size	Type	Default Value	Description
Factory Defaults	fdef	W	2B	uint16	0xEEEE	Erase NFC EEPROM.

DEFAULT DOWNLINK PACKET: EE EE

NOTE: LoRaWAN Port 3 is used.

7. LED - Blink Sequence

- Boot Ok - 1x Blink
- Boot Error - LED On
- JOIN Ok - 2x Blink

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*

←

Payload type

Bytes JSON ←

Payload

←

The desired payload bytes of the downlink message

Confirmed downlink ←

←

Application > End Device > Messaging > Downlink