BROWAN

Ambient light Sensor

Reference Manual

TBAM100-915
TBAM100-868

Table of Contents

1. Description

The Tabs Ambient Light Sensor utilizes LoRaWAN connectivity to provide measurements of ambient light intensity which matches the human eye's response to light under a variety of lighting conditions.

2. Specifications

2.1 Mechanical

2.1.1 Sensor

Length x Width x Height	50mm x 20mm x 50mm
Weight	30g without battery 40g with battery
Sensor	• Optical sensor LTR-308ALS-WA16 • 16 to 20 bits measurement resolution • Wide dynamic range (0.01 to 157K lux) with linear response

2.2 Environmental

Temperature	0°C to +50°C
IP Rating	IP 50 equivalent

2.3 Radio

Frequency	• 863–870MHz for EU • 902–928MHz for North America
Tx Power	US: +19dBm EU: +17dBm
Rx Sensitivity	-135dBm
Antenna Gain	-2dBi Peak, -5dBi Avg

2.4 Certifications and Conformity

FCC ID: pending
IC:
CE
ROHS REACH

2.5 Power

Source	3.6V 1⁄2 AA Li-SOCl2 1200mAh battery
Maximum Voltage	3.6V
Minimum Voltage	3.1V
Current	TBD

2.6 User Interface

LEDs	One blue LED

2.7 Additional Features

PCB Temperature
Battery Monitoring

3. Operation

3.1 Transport Mode

They are shipped with a plastic battery isolation tab that must be removed to enable operation.

3.2 Default Operation

While in default operation the device will send a join request message after booting a minute. After joining successfully, the device will detect the ambient light every 5 minutes.

- Keep-Alive
    - 5 minutes.

4. Messages

4.1 Payload

Port	104
Payload Length	6 bytes

Bytes	0	1	2	3	4	5
Field	Status	Battery	Temp	Lux		

Status	**Sensors status** Bit [0] 1 - Darker, 0 - Lighter or Keep-Alive Bit [1] 1 - Lighter, 0 - Darker or Keep-Alive Bits [2:3] RFU Bit [4] 1 - Keep-Alive, 0 - Status Change Bits [5:7] RFU
Battery	**Battery level** Bits [3:0] unsigned value v, range 1 – 14; battery voltage in V = (25 + v) ÷ 10. Bits [7:4] RFU
Temp	**Temperature as measured by on-board NTC** Bits [6:0] unsigned value τ, range 0 – 127; temperature in °C = τ - 32. measurement range -32 to 95°C Bit [7] RFU
Lux	**Lux data** Bits [23:0] unsigned value δ. Lux = δ ÷ 100. *Note: little-endian format.

5. Command

RESERVED.