# SPECS OF LORAWAN DATA LOGGER RH

## SPECS.

| Type | RH |
|---|---|
| Memory/Storage | 32k per channel |
| External Sensor | Temperature: Digital sensor<br><br>Range: -29°C to +72°C / -20°F to +161°F<br><br>Accuracy: ±0.2°C at 0° to 10°C, ±1.0°C at extremes / ±0.3°F at 32° to 50°F, ±1.8°F at extremes<br><br>Temperature Resolution: 0.1°C / 0.18°F<br><br>Humidity: Capacitive MEMs<br><br>Range: 0% to 100%<br><br>Accuracy: ±2% from 0% to 100%<br><br>Humidity Resolution: 0.1% |
| Display | LCD screen<br><br>4.4cm(l) x 3.5cm(w) |
| Measurement Intervals | Programmable from 1 minutes |
| Transmission time Interval | Programmable from 30 minutes |
| Alarm Notifications | Alarm condition on-screen, via LoraWan. |
| Computer interface | USB |
| Power source | ER14505 x 3 (3.6V)<br><br>3 year continuous use battery life. |
| LoRaWAN Frequency Bands | US915 |
| LoraWAN Transmit Power | Maximum 22dBm |
| Range | Up to 500m indoor/urban range. |

**FORMAT DATA**

**1. Real time data.**

➢ **Packet 1 (25 bytes)**

| Serial number | 6 bytes | |
|---|---|---|
| "DA" | 2 bytes | |
| Device | 0x11: Humidity, Room temperature | |
| | 0x22: Humidity, LN2 | |
| | 0x33: Humidity, RTD2 | |
| | 0x44: LN2, Room Temperature | |
| | 0x55: RTD2, Room temperature | |
| | 0x66: Humidity, Thermal couple | |
| | 0x77: Thermal couple, Room temperature | |
| Stop time (s, mi, ho, date, mo, y) | 6 bytes | |
| Run time (s, mi, ho, dayl,dayh) | 5 bytes | |
| Status logger | 1 byte | 0xFF: no setting & no run |
| | | 0x11: setting & no run |
| | | 0x44: running |
| | | 0xAA: stop |
| Data | 4 bytes | |

**2. Setting data (Send to gateway).**

Data logger send 3 packet data setting to Gateway. Data logger only send to gateway one time.

➢ **Packet 1 (49 bytes).**

| Serial Number | 6 bytes | |
|---|---|---|
| "S1" | 2 bytes | |
| Device | 0x11: Humidity, Room temperature | |
| | 0x22: Humidity, LN2 | |
| | 0x33: Humidity, RTD2 | |
| | 0x44: LN2, Room Temperature | |
| | 0x55: RTD2, Room temperature | |
| | 0x66: Humidity, Thermal couple | |
| | 0x77: Thermal couple, Room temperature | |
| Unit | 1 byte | 0xAC: ℃ |
| | | 0xAF: º F |
| Continue memory, stop key | 1 byte | 0x00: Continue disable, Stop key: enable |
| | | 0x01: Continue disable,Stop key: disable |
| | | 0x02: Continue enable, Stop key: enable |
| | | 0x03: Continue enable, Stop key: disable |
| Start time (s,mi,ho,date,mo,y) | 6 bytes | |
| Stop time(s,mi,ho,date,mo,y) | 6 bytes | |
| Run time(s,mi,ho,days) | 4 bytes | |
| Status Logger | 1 byte | 0xFF: no setting & no run |
| | | 0x11: setting & no run |
| | | 0x44: running |
| | | 0xAA: stop |
| Setting time(s,mi,ho,date,mo,y) | 6 bytes | |
| Start delay (min) | 1 byte | |
| Duration day | 2 bytes | Duration day (byte low) |
| | | Duration day (byte high) |
| Duration hour | 1 byte | Duration hour |

| Interval hour | 1 byte | |
|---|---|---|
| Interval minute | 1 byte | |
| Interval second | 1 byte | |
| High alarm limit (temperature) | 2 bytes | Byte low |
| | | Byte high |
| Low alarm limit (temperature) | 2 bytes | Byte low |
| | | Byte high |
| High alarm limit (humidity) | 2 bytes | Byte low |
| | | Byte high |
| Low alarm limit (humidity) | 2 bytes | Byte low |
| | | Byte high |
| Firmware version | 2 bytes | |
| Hardware | | |
| | | |

➢ **Packet 2 (49 bytes)**

| Serial Number | 6 bytes |
|---|---|
| "S2" | 2 bytes |
| Device | 0x11: Humidity, Room temperature |
| | 0x22: Humidity, LN2 |
| | 0x33: Humidity, RTD2 |
| | 0x44: LN2, Room Temperature |
| | 0x55: RTD2, Room temperature |
| | 0x66: Humidity, Thermal couple |
| | 0x77: Thermal couple, Room temperature |
| Time zone | 40 bytes |

## ➢ Packet 3 (32 bytes)

| Serial Number | 6 bytes |
|---|---|
| "S3" | 2 bytes |
| Device | 0x11: Humidity, Room temperature |
| | 0x22: Humidity, LN2 |
| | 0x33: Humidity, RTD2 |
| | 0x44: LN2, Room Temperature |
| | 0x55: RTD2, Room temperature |
| | 0x66: Humidity, Thermal couple |
| | 0x77: Thermal couple, Room temperature |
| Description | 20 bytes |
| Interval send lora day | 1 byte |
| Interval send lora hour | 1 byte |
| Interval send lora minute | 1 byte |

## 3. Alarm data (44 bytes).

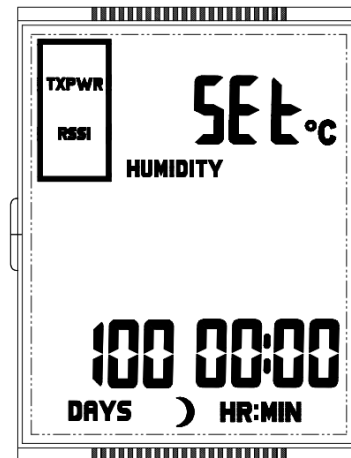| Serial Number | 6 bytes |
|---|---|
| 'AL' | 2 bytes |
| Device | 0x11: Humidity, Room temperature |
| | 0x22: Humidity, LN2 |
| | 0x33: Humidity, RTD2 |
| | 0x44: LN2, Room Temperature |
| | 0x55: RTD2, Room temperature |
| | 0x66: Humidity, Thermal couple |
| | 0x77: Thermal couple, Room temperature |
| Start time (s,mi,ho,date,mo,y) | 6 bytes |

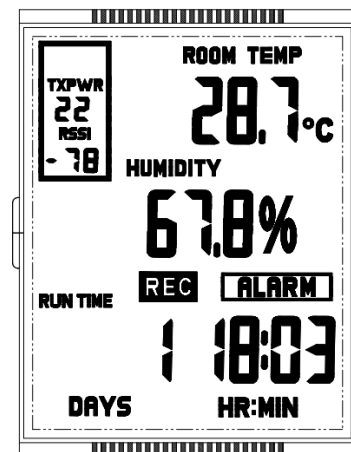| | |
|---|---|
| Stop time(s,mi,ho,date,mo,y) | 6 bytes |
| Run time(s,mi,ho,days) | 4 bytes |
| Total time alarm temperature (s,mi,ho,days) | 5 bytes |
| Time low alarm temperature (s,mi,ho,days) | 5 bytes |
| Total time alarm humidity (s,mi,ho,days) | 5 bytes |
| Time low alarm humidity (s,mi,ho,days) | 5 bytes |
| Room temperature alarm | 2 bytes |
| Humidity/RTD alarm | 2 bytes |

## 4. End logger.

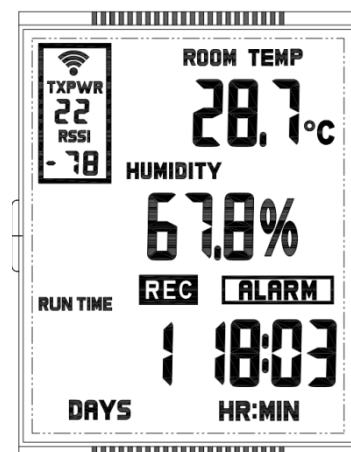| | |
|---|---|
| Serial Number | 6 bytes |
| 'EN' | 2 bytes |
| Device | 0x11: Humidity, Room temperature |
| | 0x22: Humidity, LN2 |
| | 0x33: Humidity, RTD2 |
| | 0x44: LN2, Room Temperature |
| | 0x55: RTD2, Room temperature |
| | 0x66: Humidity, Thermal couple |
| | 0x77: Thermal couple, Room temperature |
| Start time (s,mi,ho,date,mo,y) | 6 bytes |
| Stop time(s,mi,ho,date,mo,y) | 6 bytes |
| Run time(s,mi,ho,days) | 4 bytes |
| Total time alarm temperature (s,mi,ho,days) | 5 bytes |
| Time low alarm temperature (s,mi,ho,days) | 5 bytes |
| Total time alarm humidity (s,mi,ho,days) | 5 bytes |
| Time low alarm humidity (s,mi,ho,days) | 5 bytes |
| Room temperature alarm | 2 bytes |
| Humidity/RTD alarm | 2 bytes |

## LCD DISPLAY

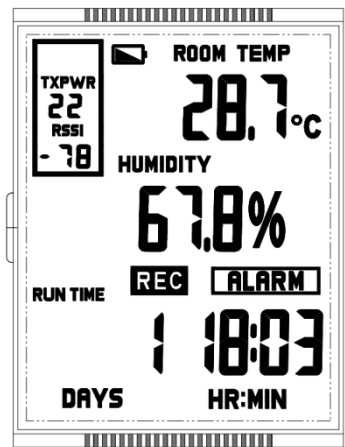## Display after setting.



## Display when logger is running.



## Display when transmit data.

**Low power display.**



**Display when logger is stopping.**