.SPECS OF LORAWAN DATA LOGGER RH

SPECS.

Type	RH
Memory/Storage	32k per channel
External Sensor	Temperature: Digital sensor Range: -29°C to +72°C / -20°F to +161°F 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 Temperature Resolution: 0.1°C / 0.18°F Humidity: Capacitive MEMs Range: 0% to 100% Accuracy: ±2% from 0% to 100% Humidity Resolution: 0.1%
Display	LCD screen 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) 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 (53 bytes)*

Serial number	6 bytes
0xD0	1 byte
Package	2 bytes (low, high)
Data CH1 0	2 bytes (low, high)
Data CH2 0	2 bytes (low, high)
Data CH1 1	1 byte
Data CH2 1	1 byte
….	….
Data CH1 20	1 byte
Data CH2 20	1 byte

➢ *Packet 2 (53 bytes)*

Serial number	6 bytes
0xD1	1 byte
Package	2 bytes (low, high)
Data CH1 0	2 bytes (low, high)
Data CH2 0	2 bytes (low, high)
Data CH1 1	1 byte
Data CH2 1	1 byte
….	….
Data CH1 20	1 byte
Data CH2 20	1 byte

➢ *Packet 3 (53 bytes)*

Serial number	6 bytes
0xD2	1 byte
Package	2 bytes (low, high)
Data CH1 0	2 bytes (low, high)
Data CH2 0	2 bytes (low, high)
Data CH1 1	1 byte
Data CH2 1	1 byte
….	….
Data CH1 20	1 byte
Data CH2 20	1 byte

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 (52 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, dayl,dayh)	5 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

> *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 (50 bytes).

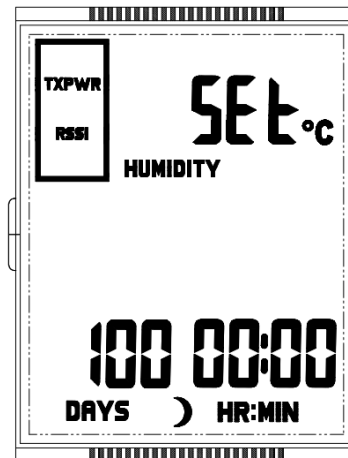| Serial Number	6 bytes
'AL'	2 bytes
Device	0x11: Humidity, Room temperature
	0x22: Humidity, LN2
	0x33: Humidity, RTD2
	0x44: LN2, Room Temperature
	0x55: RTD2, Room temperature
	0x66: Humidity, Thermal couple
	0x77: Thermal couple, Room temperature
Start time (s,mi,ho,date,mo,y)	6 bytes
Stop time(s,mi,ho,date,mo,y)	6 bytes
Run time (s, mi, ho, dayl,dayh)	5 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 (50 bytes).

Serial Number	6 bytes
'EN'	2 bytes
Device	0x11: Humidity, Room temperature

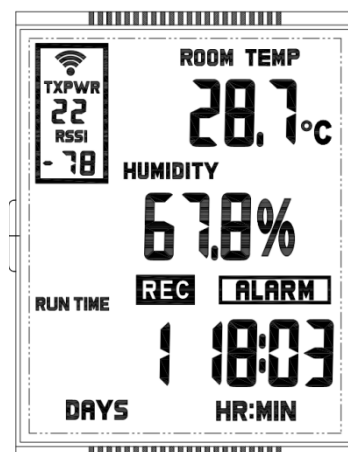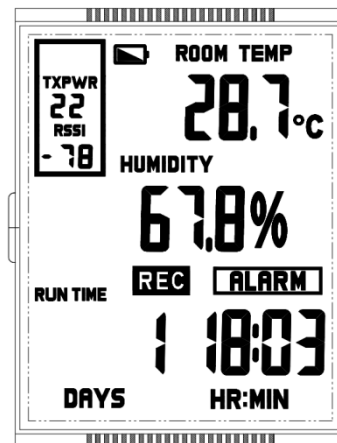|	0x22: Humidity, LN2
	0x33: Humidity, RTD2
	0x44: LN2, Room Temperature
	0x55: RTD2, Room temperature
	0x66: Humidity, Thermal couple
	0x77: Thermal couple, Room temperature
Start time (s,mi,ho,date,mo,y)	6 bytes
Stop time(s,mi,ho,date,mo,y)	6 bytes
Run time (s, mi, ho, dayl,dayh)	5 bytes
Total time 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.

```
     TXPWR        SEt °C
     RSSI      HUMIDITY

              100 00:00
              DAYS  )  HR:MIN
```

Display when logger is running.

```
               ROOM TEMP
     TXPWR        28.7 °C
     22
     RSSI      HUMIDITY
     -78        67.8%
     RUN TIME   REC  [ALARM]

              1 18:03
              DAYS     HR:MIN
```
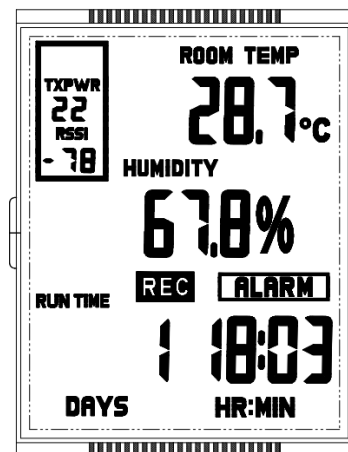
Display when transmit data.

```
               ROOM TEMP
     TXPWR        28.7 °C
     22
     RSSI      HUMIDITY
     -78        67.8%
     RUN TIME   REC  [ALARM]

              1 18:03
              DAYS     HR:MIN
```

Low power display.

Display when logger is stopping.