

# TREK-120

## LoRa-Based Cold Chain Temperature/ Humidity Sensor



### Features

- Supports temperature/humidity sensing
- LoRa technology for efficient long-range wireless data transmissions
- Sensors can be configured to trigger alerts to enable real-time management
- Easy and simple installation in diverse refrigerated vehicles
- IP65-rated protection from water and dust ingress
- Supports IoT cloud services for centralized, real-time exception management
- Long-lasting battery life (up to 36 months)\*\*

### Specifications

|                       | TREK-120   | TREK-120 Probe   |                |
|-----------------------|--|--|----------------|
| Temperature           | Measurement Range  | -40 ~ 70 °C  |                |
|                       | Accuracy Range   | ± 0.2 °C from 0-70 °C<br>± 0.3 °C from -40-0 °C  |                |
|                       | Resolution   | 0.01 °C  |                |
| Relative Humidity     | Measurement Range  | 0-100% RH  |                |
|                       | Accuracy Range   | ± 5% from 0-100% at 25 °C  |                |
|                       | Resolution   | 0.01%  |                |
| NFC                   | Frequency  | 13.56 MHz  |                |
|                       | Function   | Bulk download configuration and sensor data  |                |
| LoRa                  | Wireless Technology  | Advantech LoRa technology  |                |
|                       | Frequency  | 920 ~ 925 MHz for Taiwan, 902 ~ 928 MHz for US, 863 ~ 870 MHz for Europe, 470 ~ 510 MHz for China, 921-922 MHz for Japan |                |
|                       | Wireless Range   | >500 meters (Line of Sight)**  |                |
|                       | Topology   | Star   |                |
| Data Storage Capacity | 5000 data log readings   |  |                |
| LED Indicators        | 1 x Power status, 1 x Alarm                                    |  |                |
| Buttons               | 1 x Start button   |  |                |
| Battery               | 3V/2400mAh wide-temperature primary (non-rechargeable) battery |  |                |
| Data Transmissions    | NFC + LoRa   |  |                |
| Mechanical            | Mount Options  | Fixed by adhesive tape, magnet, fastener, screws   |                |
|                       | Dimensions (W x D x H)   | 123.47 x 65 x 24.5 mm (4.88 x 2.56 x 0.91 in)  |                |
|                       | Weight   | 108 g (0.23 lb)  | 248 g (0.55lb) |
|                       | Probe Cable Length   | N/A  | 2 meter        |
| Environmental         | Operating Temperature  | -40 ~ 70 °C  |                |
|                       | Storage Temperature  | -40 ~ 85 °C  |                |
|                       | IP Rating  | IP65   |                |
|                       | Drop Tolerance   | 4 ft. drop onto concrete   |                |
|                       | Certifications   | CE, FCC, NCC   |                |

\*\*Dependent on usage scenario

### NFC Reader



#### Features

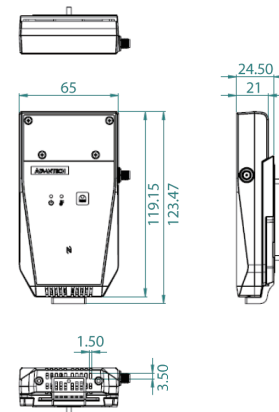
- P/N: TREK-120-ANR000A00
- NFC Frequency: 13.56 MHz
- Host Interface: Micro USB
- Dimensions: 121.63 x 74.18 x 15.6 mm/  
4.78 x 2.92 x 0.61 in
- Weight: 52 g/0.11 lb

### Ordering Information

| Part Number       | Description                    |
|-------------------|--------------------------------|
| TREK-120-BNLTW0A0 | LoRa temp/RH sensor (TW)       |
| TREK-120-BNLS0A0  | LoRa temp/RH sensor (US)       |
| TREK-120-BNLEU0A0 | LoRa temp/RH sensor (EU)       |
| TREK-120-BNLCN0A0 | LoRa temp/RH sensor (CN)       |
| TREK-120-BNLJP0A0 | LoRa temp/RH sensor (JP)       |
| TREK-120-SENDBBAT | Battery+ Sensor board 10 sets  |
| TREK-120-G2BATT   | TREK-120G2 Batt. 10 pcs        |
| TREK-120-BNLTW0A1 | LoRa temp/RH Probe sensor (TW) |

### Dimensions

Unit: mm



# USM-S62

## LoRa Data Gateway for TREK-120 Sensors



### Features

- Can support up to 200 x TREK-120 sensors\*\*
- Backhaul support for LAN/LTE/Wi-Fi
- 9 ~ 20 V wide input voltage range
- VESA mount (75 x 75 mm/2.95 x 2.95 in)

### Specifications

|               |                        |   |
|---------------|------------------------|---|
| General       | Storage                | 8GB micro SD card (default), supports up to 32GB  |
|               | I/O                    | 2 x USB 2.0 host<br>1 x SIM card slot<br>1 x Micro SD card slot (supports SDHC cards)<br>1 x 10/100 Ethernet RJ45 connector<br>1 x Reset button<br>1 x Lockable DC jack |
|               | Indicators             | Orange: Power and GW status<br>Blue: Uplink status/activity   |
| LoRa          | Wireless Technology    | 920 ~ 925 MHz for Taiwan<br>902 ~ 928 MHz for US<br>863 ~ 870 MHz for Europe<br>470 ~ 510 MHz for China<br>921~922 MHz for Japan  |
|               | Wireless Range         | >500 meters (Line of sight)**   |
|               | Topology               | Star  |
| Connectivity  | Ethernet               | 10/100 RJ45 connector   |
|               | Backhaul Support       | 802.11ac/a/b/g/n Wi-Fi (2.4 + 5 GHz) or LTE cat. 4  |
| Power         | Input Voltage          | 9 ~ 20V <sub>DC</sub> via lockable DC jack  |
| Mechanical    | Dimensions (W x H x D) | 128 x 156 x 27.8 mm (5.03 x 6.14 x 1.09 in)   |
|               | Weight                 | 524 g/1.15 lb   |
|               | Mount Options          | VESA, wall, desktop, pole, magnet, DIN rail   |
| Certification | EMC                    | CE/FCC/NCC/TELEC/CCC*   |
|               | EMI                    | Class B   |
| Environment   | Vibration/Shock        | 10 G, IEC 60068-2-27, half sine, 11 ms duration   |
|               | Operating Temperature  | -20 ~ 65 °C/-4 ~ 149 °F   |
|               | Storage Temperature    | -40 ~ 85 °C/-40 ~ 185 °F  |
|               | Operating Humidity     | 90% @ 40 °C/104 °F (non-condensing)   |

\*by project based.

### Ordering Information

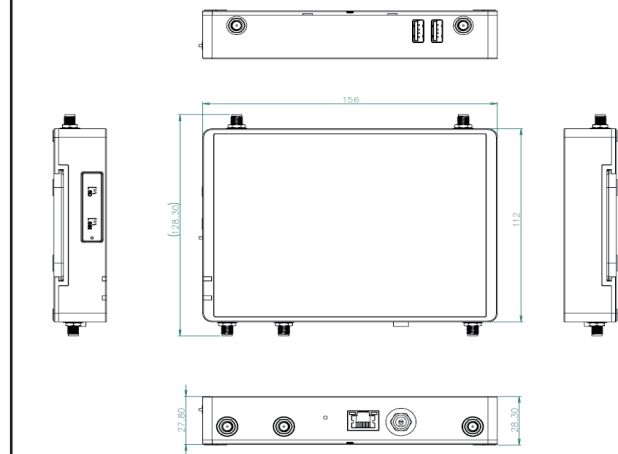
| Part Number   | Description                    |
|---------------|--------------------------------|
| USM-S62-G0000 | Global LoRa gateway            |
| USM-S62-G2000 | Global LoRa gateway + EU LTE   |
| USM-S62-G4000 | Global LoRa gateway + US LTE   |
| USM-S62-G0W00 | Global LoRa gateway + Wi-Fi    |
| USM-S62-C0000 | China LoRa gateway             |
| USM-S62-C6000 | China LoRa gateway + China LTE |
| USM-S62-C0W00 | China LoRa gateway + Wi-Fi     |
| USM-S66-G000  | Global LoRa gateway dongle     |

### Packing List

| Part Number      | Description  |
|------------------|--|
| 96PSA-A36W12W7-5 | Adaptor A/D 100 ~ 240V, 36W, 12V C6 lockable DC jack 62368 |
| 1751000083-01    | 2 x LoRa antenna   |
| 1750008981-01    | 2 x LTE antenna (optional)                                 |
| 1750008772-01    | 2 x Wi-Fi antenna (optional)                               |

### Dimensions

Unit: mm



### Power Cord

| Part Number   | Description                     |
|---------------|---------------------------------|
| 1700001524    | Power Cord Connector USA plug   |
| 1700008921    | Power Cord Connector JP plug    |
| 1700021374-01 | Power Cord Connector China plug |
| 170203180A    | Power Cord Connector UK plug    |
| 170203183C    | Power Cord Connector EU plug    |

### Option Part

| P/N               | Description                             |
|-------------------|---|
| USM-S62-ANT000    | USM-S62 External Antenna 2.4 dB         |
| TREK-120-SENDBBAT | TREK-120 Battery+ Sensor board (10sets) |
| TREK-120-G2BATT   | TREK-120 Battery (10 pcs)               |

# USM-S66



## Features

- Can support up to 200 x TREK-120 sensors\*\*
- Use RS-232/UART/USB to connect with Vehicle Terminal

## USM-S66 LoRa GW Dongle Specification

|              |                        | LEO-S LoRa GW Dongle   |
|--------------|------------------------|--|
| General      | Storage                | 8GB micro SD card (default), supports up to 32GB   |
|              | Indicators             | 1. Green for Power and Red for GW Status<br>2. Blue for Uplink status/activity   |
| I/O          | USB 2.0                | 1 (5VDC power and Data), Type-B  |
|              | Micro-Fit 3x2          | Support 2-wire UART/RS-232, 115,200bps<br>- 2-wire UART (TX/RX), 5V tolerant<br>- RS-232 (TX/RX)                                     |
|              | Micro USB              | 5V-30V <sub>DC</sub> input, with basic OVP protection & surge protection   |
|              | SMA                    | Console mode   |
|              | Reset button           | 2x SMA connector for LoRa antenna<br>>=2s, Reset LoRa GW<br>>=8s, Load factory default   |
| RF           | Technology             | Advantech LoRa technology (WISE-Link)  |
|              | Frequency              | 902-928MHz for North America<br>863-870MHz for Europe<br>920-928MHz for Japan<br>470-510MHz for China                                |
| Power        | Input                  | 5V/1A, through USB connector<br>5V-30V <sub>DC</sub> input, with basic OVP protection & surge protection, through Microfit connector |
| Installation | Mounting               | screw mount, Tie cable   |
| Mechanical   | Dimensions (L x W x H) | 90 x 89.6 x 23.48 mm   |
|              | Weight                 | 270g   |
| Environment  | Operating Temperature  | 0 ~ 65 °C (32 ~ 149 °F)  |
|              | Storage Temperature    | 0 ~ 85 °C (32 ~ 185 °F)  |
|              | Relative Humidity      | 90% @ 40 °C (non-condensing)   |

## Ordering Information

| Part Number   | Description                |
|---------------|----------------------------|
| USM-S66-G0000 | Global Lora gateway dongle |

## Option Part

| P/N            | Description  |
|----------------|--|
| 1700032466-01  | A cable 2x3P-3.0/DC Jack+D-SUB 9P(F) 30cm test cable |
| 1700032465-01  | A cable 2x3P-3.0 30CM TR5A00311                      |
| USM-S62-ANT000 | USM-S62 External Antenna 2.4 dB                      |

## Packing List

| P/N           | Description   |
|---------------|---|
| 1751000083-01 | 2 x USM-S6x LoRa Antenna                            |
| 1700033011-01 | 1 x A cable 2x3P-3.0/D-SUB 9P(F) 30cm for RS-232 PW |
| 1700028201-01 | 1 x USM-S66 USB-B cable                             |

## 1700033011-01 Cable Pin Define

| Pin 1 | Pin 2     | Pin 3     | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|-------|-----------|-----------|-------|-------|-------|-------|-------|-------|
|       | RS-232 TX | RS-232 RX |       | GND   |       |       |       | DC in |

