

# TREK-120

## LoRa-Based Cold Chain Temperature/ Humidity Sensor



### Specifications

Temperature	Measurement Range	-40 ~ 70 °C (-40 ~ 158 °F)
	Accuracy Range	± 0.2 °C from 0-90 °C (± 32.36 °F from 32-194 °F) ± 0.3 °C from -30-0 °C (± 32.54 °F from -22-32 °F)
	Resolution	0.01 °C (32.02 °F)
Relative Humidity	Measurement Range	0-100% RH
	Accuracy Range	± 2% from 0-100% at 25 °C/77 °F
	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)
Environmental	Operating Temperature	-40 ~ 70 °C (-40 ~ 158 °F)
	Storage Temperature	-40 ~ 85 °C (-40 ~ 185 °F)
	IP Rating	IP65
	Drop Tolerance	4 ft. drop onto concrete
	Certifications	CE, FCC, NCC

### 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

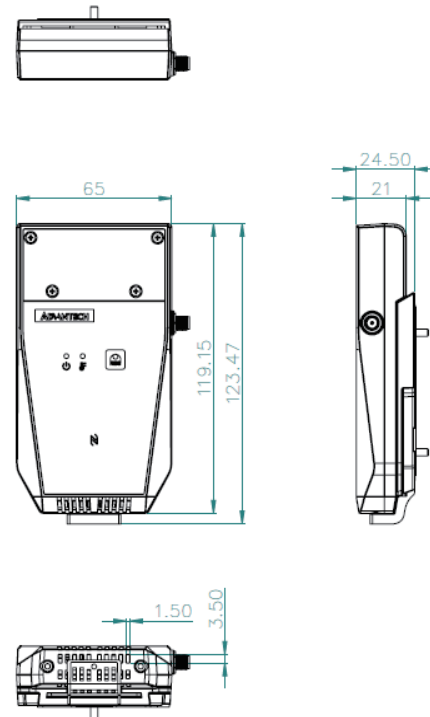
\*\*Dependent on usage scenario

### 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)\*\*

### Dimensions

Unit: mm



### 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-SENBDBAT	Battery+ Sensor board 10 sets
TREK-120-G2BATT	TREK-120G2 Batt. 10 pcs

# 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 1 x SIM card slot 1 x Micro SD card slot (supports SDHC cards) 1 x 10/100 Ethernet RJ45 connector 1 x Reset button 1 x Lockable DC jack
	Indicators	Orange: Power and GW status Blue: Uplink status/activity
LoRa	Wireless Technology	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
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

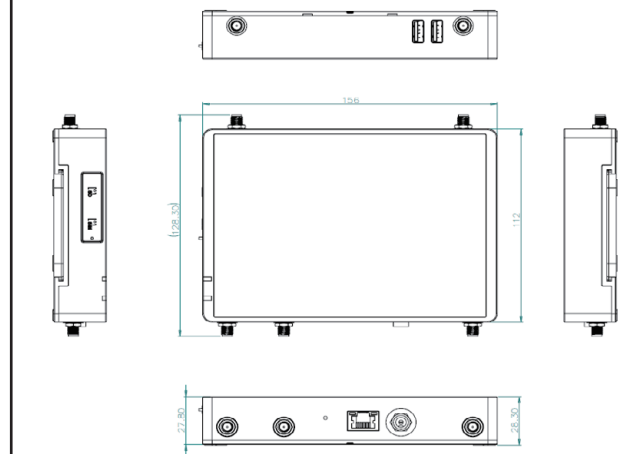
Part Number	Description
USM-S62-G0000	Global LoRa gateway
USM-S62-G2000	Global LoRa gateway + EU LTE
USM-S62-G4000	Global LoRa gateway + US LTE
USM-S62-G0W00	Global LoRa gateway + Wi-Fi
USM-S62-C0000	China LoRa gateway
USM-S62-C6000	China LoRa gateway + China LTE
USM-S62-C0W00	China LoRa gateway + Wi-Fi
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 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 - 2-wire UART (TX/RX), 5V tolerant - RS-232 (TX/RX)
	Micro USB	5V-36V <sub>DC</sub> input, with basic OVP protection & surge protection
	SMA	Console mode
	Reset button	2x SMA connector for LoRa antenna >=2s, Reset LoRa GW >=8s, Load factory default
RF	Technology	Advantech LoRa technology (WISE-Link)
	Frequency	902-928MHz for North America 863-870MHz for Europe 920-928MHz for Japan 470-510MHz for China
Power	Input	5V/1A, through USB connector 5V-36V <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

