WoMaster

Embedded Smart City Box
- PoE Ultra, LTE/WiFi, Fiber, Cloud
- IIoT Serial, IO, Lora, Audio
- Solar Boost /Battery

SCB1000/1200 Series

The SCB1000/1200 series are fully integrated communication systems within an IP67 enclosure for Smart City and Industrial Internet of Thing (IIoT) applications. The Gigabit 802.3bt ultra PoE /802.3at PoE plus ports, Fiber SFP, Serial, Voice, DI, DO are protected by weather proof cable gland connectors. It is greatly flexible with different power in/out sources, internal USB, SD , Ethernet and mCPIe socket for wireless expansion. Comparing with traditional cabinets, the SCB1000/1200 series save you a lot of time and cost for system integration. The embedded MQTT and RESTful API enables public cloud integration such as AWS or Azure. The private cloud platform ThingsMaster can also be deployed for instant and secured access to for surveillance and IIOT management. With the versatile AC/DC/Solar power sources, you can easily install the box on roadside power tower, street light or wall mount on the wall/roof in the field.

IP67

-40~75°C

PoE++ | Ultra PoE | Lte | 2.4G | 5G

ThingsMaster
NetMaster

IEC61000-6-2
IEC61000-6-4
EN50121-4

Features & Benefits

60W Ultra PoE
- 2 Giga Ultra PoE 802.3bt Ports with 60W/per port
- 2 Giga PoE+ 802.3at Ports with 30W/per port
- 1 Internal PoE+ 802.3at WAN port for VPN, NAT, Routing Expansion
- PoE Enable/Disable, Budget Control, Port Control, Port, Priority, PD Alive Check and port status
- Max. 240W power budget for PoE & DC Output

Weather proof IP67 Enclosure and cable gland connectors
- Four Giga PoE ports
- Two 100/1000M Fiber SFP slots
SCB1200 only
- One RS232/422/485 RJ-45 port
- One Audio RJ12 port
- Two Digital Inputs
- Two Relay Outputs
Waterproof M12 connector
   - Two DC24V outputs
   - One AC100~240V Input
Internal One RS232/422/485 DB9 port
Internal One USB, and One SD socket for Storage

Optional Wireless Expansion
- Support mPCIe & SIM socket for wireless expansion
- SCB LTE Module and Antenna Kit
   - LTE Cat.4 Cellular Module
   - LTE+GPS Antenna on the top of the box
   - 150 UL, 50M DL, FDD/TDD-LTE
- SCB Industrial WLAN Module
   - N-Type Antenna Socket on the top of the box
   - 5G/2.4G 802.11ac/n WiFi 2T2R

Optional Basic Solar Kit
- 54V Battery Charge Control board for Solar power input
- Typical 48V/2.5AH Battery for power shortage

Management Features
- Various configuration paths, including WebGUI, CLI SNMP, LAN Utility (ViewMaster), and NMS (NetMaster)
- Support ViewMaster Utility, Remote configuration software utility
- Redundancy: WAN to LTE redundancy
- Diagnostic tool includes Radio LED, Ping, TFTP, SNMP Trap, E-mail Alert and System Log
- LTE watchdog, auto-reconnect cellular connection

ITU-T G.8032 v1/v2 ERPS Ring Redundancy
- An ITU standard Ring redundancy Protocol
- Provide sub-50ms protection and recovery switching for Ethernet traffic
- Interoperate with 3rd party industrial switch and still remain fast recovery time STP/RSTP
- Efficient network interconnection and topology with ERPS Chain, multiple chains

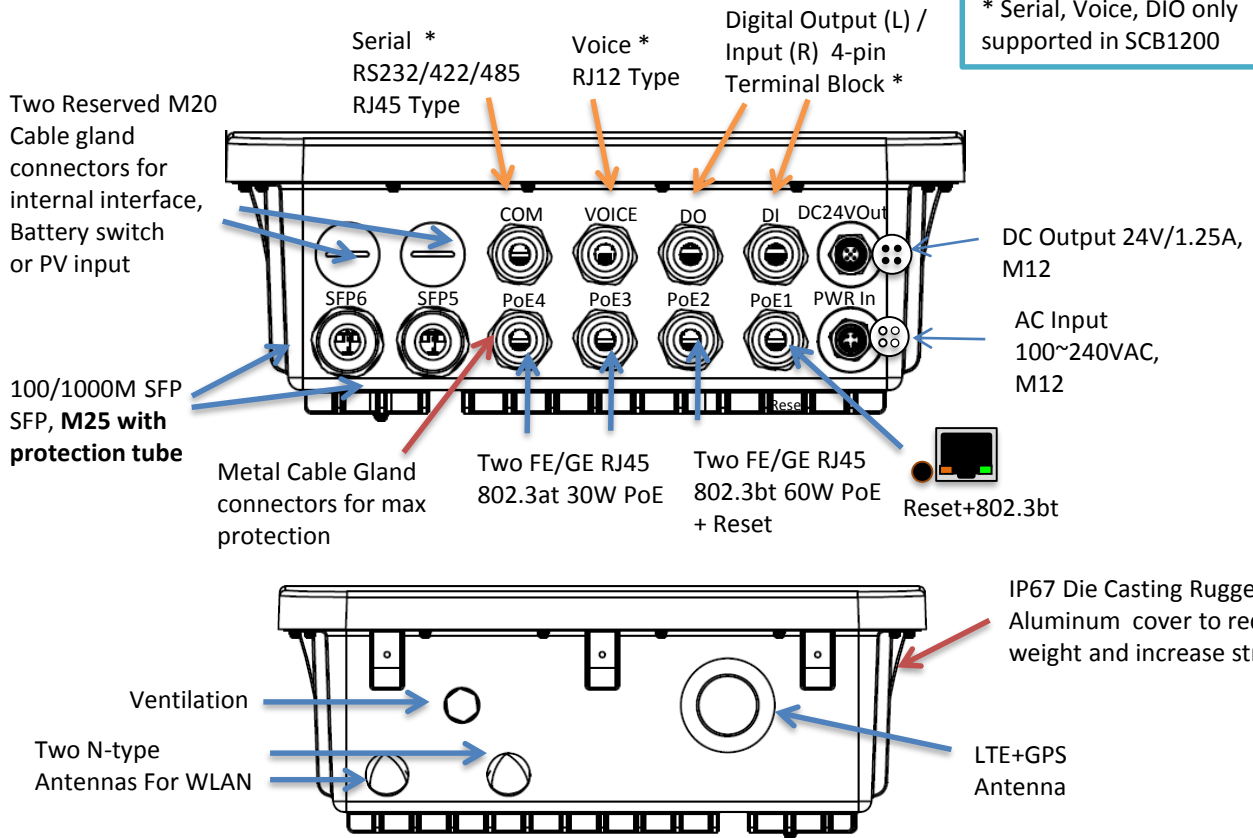### Enhanced Cyber Security for Critical Application
- Firewall for traffic classification, port forwarding
- Support NAT, DMZ for LAN protection
- Support OpenVPN, IPsec for secure connection
- Support HTTPs/SSH secure login

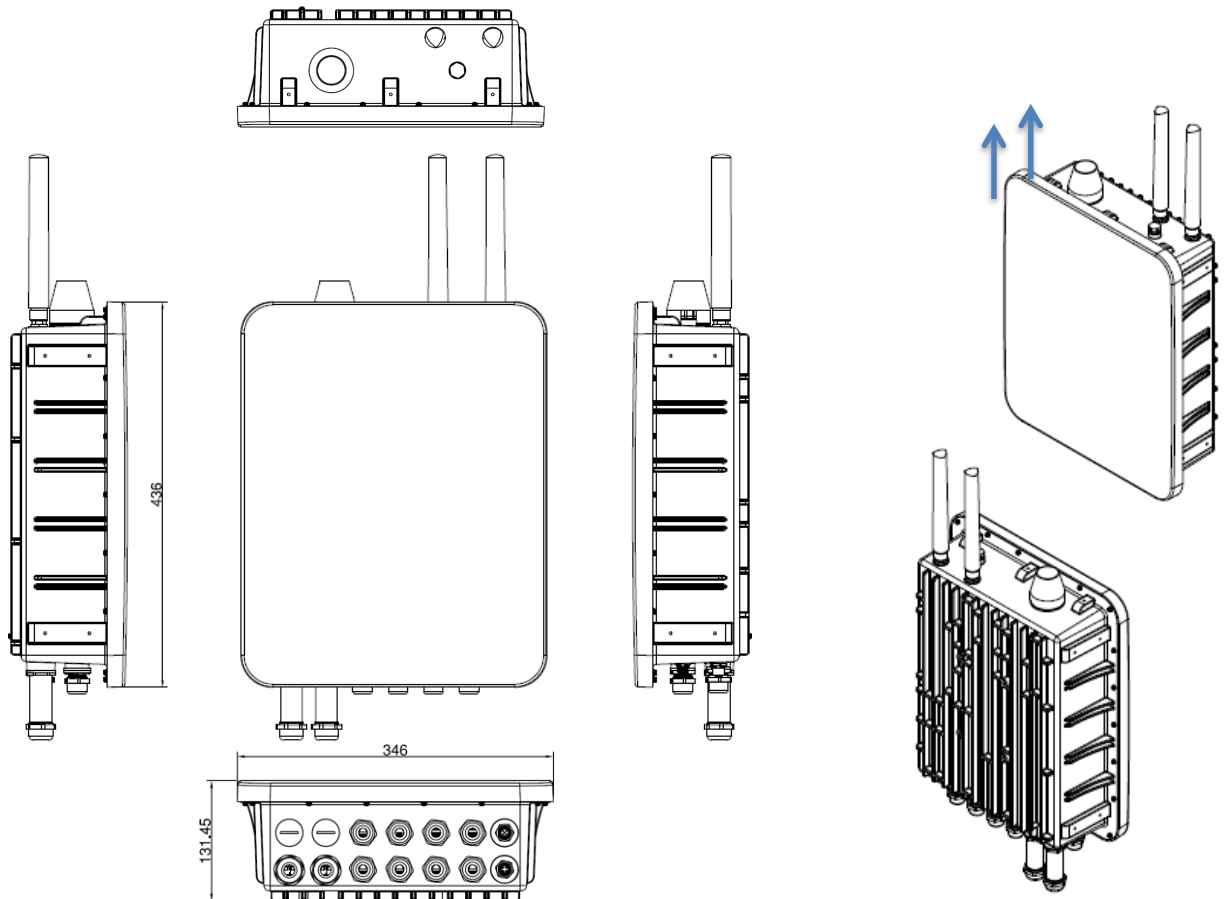### Cloud Management over ThingsMaster
- Support Amazon AWS & Microsoft Azure cloud service
- Support proprietary ThingsMaster cloud service
- Support Modbus Tag to collect data from Modbus devices
- Interactive monitoring dashboard and map shows the status, signal strength, and location
- Supports over-the-air batch device registration, configuration and firmware update
- Set alerts on critical events to prevent downtime (i.e signal strength is too low or temperature is too high)

Interfaces

Serial *
RS232/422/485
RJ45 Type

Voice *
RJ12 Type

Digital Output (L) /
Input (R) 4-pin
Terminal Block *

* Serial, Voice, DIO only supported in SCB1200

Two Reserved M20 Cable gland connectors for internal interface, Battery switch or PV input

COM   VOICE   DO   DI   DC24VOut

SFP6   SFP5   PoE4   PoE3   PoE2   PoE1   PWR In

DC Output 24V/1.25A, M12

AC Input 100~240VAC, M12

100/1000M SFP SFP, **M25 with protection tube**

Metal Cable Gland connectors for max protection

Two FE/GE RJ45 802.3at 30W PoE

Two FE/GE RJ45 802.3bt 60W PoE + Reset

Reset

Reset+802.3bt

IP67 Die Casting Ruggedized Aluminum cover to reduce weight and increase strength

Ventilation

Two N-type Antennas For WLAN

LTE+GPS Antenna

Dimensions

436

346

131.45

Secure IoT Modbus Tags

Tag-based data acquisition with MQTT support

MQTT client acting as publisher and subscriber

The latest TLS encryption and X.509 authentication

Selectable serial port and data type. Sensor alive check and display sensor value.

GPS/BDS/GLONASS/Galileo

Latitude

Longitude

Attitude

Speed

AWS IoT   Azure IoT   Private IoT   **Modbus Device**   RMS

Modbus Logging

Modbus Logging	☑ Enable
Name	Ex: CO2, Temperature
Serial	1	// Tag Name
Slave ID	Ex:1
PLC Address	Ex:1
Function	03 Read Holding Registers	// Slave Address
Data Type	uint16

Submit **Cancel** // Data Address, Register Address

Modbus RTU Slave Tag List

Select	Name	Serial	Slave ID	Address	Function Code	Data Type	Edit	Alive	Value
☐	PM1	1	4	1	03	int16	Edit	Yes	10
☐	PM2_5	1	4	2	03	uint16	Edit	Yes	13
☐	PM10	1	4	3	03	uint16	Edit	Yes	13
☐	CO2	1	1	562	03	uint16	Edit	Yes	1107
☐	Temperature	1	1	564	03	int16	Edit	Yes	255
☐	Humidity	1	1	566	03	int16	Edit	Yes	629
☐	Temperature_f	1	1	1	03	float	Edit	Yes	25.486820

Delete Selected **Delete All** **Refresh**

GPS Status   GPS Setting

GPS Status

GPS

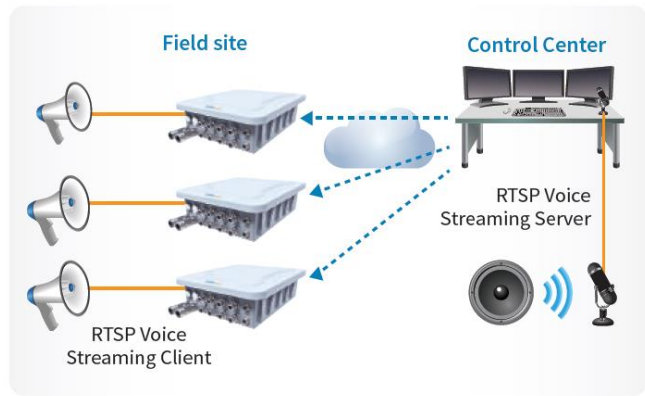| Status	OK **MAP**
Date	140518
UTC	035331.0
Latitude	24 58.4485N
Longitude	121 32.9141E
Altitude(m)	110.0
Speed over ground(Km/h)	0.0
Number of satellites	9

Reload

VoIP Voice Broadcast

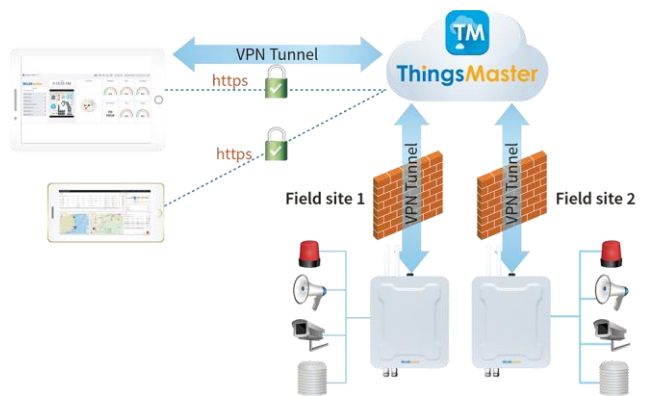RTSP voice streaming Server/Client for VoIP broadcast

1 to N VoIP broadcasting

Secured Multi-sites Management

N to N VPN

Latest TLS encryption and X.509 authentication

Device Management Over-the-Air

Interactive monitoring dashboard and map to show the status, signal strength, and location of devices deployed

Over-the-air batch device registration, configuration and firmware update

3.

IP67 Waterproof Enclosure and abundant interfaces for Smart City Application

Four Gigabit PoE ports
- Two 802.3bt PoE Ultra with max. 60W power
- Two 802.3at PoE Plus with max. 30W power

Two Gigabit SFP LAN Ports for Long Distance Installation

One Internal Gigabit PoE WAN port
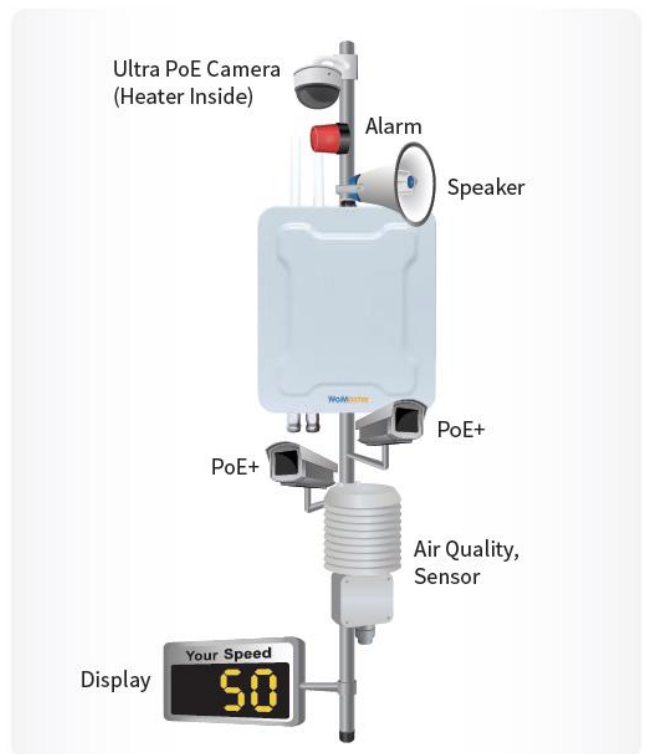- NAT, Firewall and Secure Connectivity features

IIoT Expansion Interfaces
-External: One RS232/422/485, Two DI, Two DO, Audio
-Internal: One RS232/422/485, One USB, One SD

AC Input & DC Output
-100~240V AC Input
-24V/1.25A DC Output

IP67 Outdoor Enclosure
Two mPCIe, dual SIM for Wireless expansion

## ERPS v2 Ring with Two Gigabit Fiber ports

Two Gigabit SFP Ports
-Each supports 100M or 1000M SFP
-Wire-speed Switching, no traffic loss

Ring Redundancy
-802.1D-2004 Rapid Spanning Tree Protocol
-ITU G.8032 Ethernet Ring Protection Switch version 2, <50ms recovery time, flexible Ring architectures

L2 Managements
-VLAN, QoS, IGMP Snooping
-LLDP, SNMP, Rate Control
-Port/MAC/IP Security
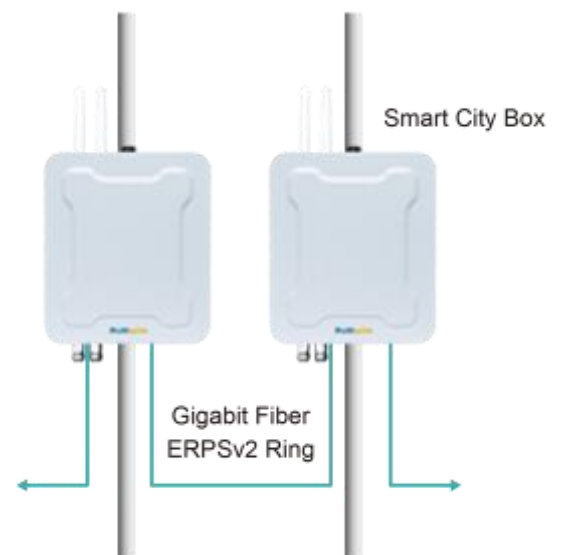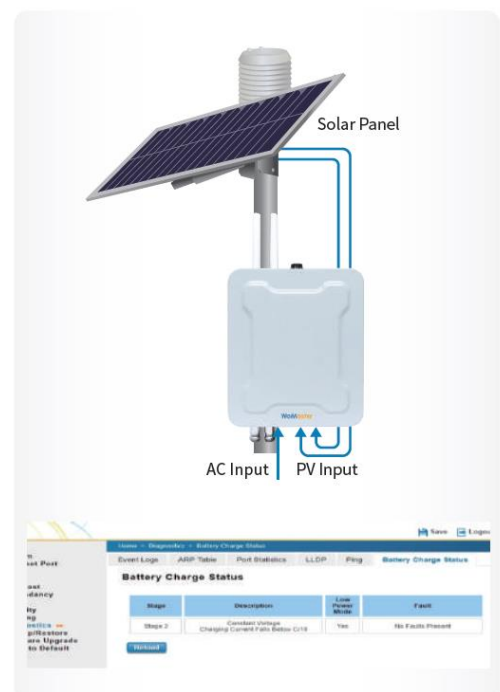

SCB1200 Basic Solar Kit

Basic Solar Kit
▪ Typ. 48V/2.5AH Battery
▪ 54V Battery charger board
▪ Reserved 2xM20 hole for PV input

Test and Assembly prior to shipment

MC4 Connector for PV+/PV- Input

Other optional Solar Power Band by Request
▪ High Power Solar Panel or Panel farm
▪ Pole mount external Battery
▪ Other optional Battery

Ready To Use Cloud Solution

Cloud Service
- Video Surveillance
- Device Management
- Dashboard/Database
- VoIP Broadcast
- Microsoft Azure
- amazon web services
- TM

MQTT RESTful APIs

IIoT Gateway

Modbus

IoT Sensor

Alarm | PoE Cam | Emergency Push Button | CO2 Sensor | PM2.5/PM10 Sensor | Hum. Sensor | EC Sensor | DO Sensor | PH Sensor | Temp. Sensor | Radiation Sensor | Speaker

WoMaster

www.womaster.eu

Smart Energy Solution
-Monitor meter voltage, frequency, power, current, energy consumption, etc.

Industrial 4.0 Solution
Monitor machine downtime, speed, utilization rate, yield rate, productivity, etc.

Smart Farming Solution
Monitor silos weights, silos temperature, silos humidity, etc

Smart Bus Tracking Solution
Monitor bus route, speed, passenger count, fuel etc.

Smart Environment Solution
Monitor PM1/2.5/10, CO2, temperature, humidity, radiation, wind speed, etc.

Smart Metering Solution
Monitor district energy consumed, water consumed, etc.

5.

Specifications

Technology	
Standard	IEEE 802.3 10Base-TX Ethernet
	IEEE 802.3u 100Base-TX Fast Ethernet
	IEEE 802.3ab 1000Base-T Gigabit Ethernet copper
	IEEE 802.3z Gigabit Ethernet Fiber
	IEEE 802.3af/at/bt Power-over-Ethernet
	IEEE 802.1Q for VLAN
	IEEE 802.1p Class of Service
	IEEE 802.1D-2004 Rapid Spanning Tree Protocol
	ITU-T G.8032 Version 2.0 Ethernet Ring Protection Switching (ERPSv2)
	3GPP GSM/GPRS/EDGE/UMTS/HSPA/LTE (By Request)

Interface	
SCB-1000 Series	

Ethernet Port	4 x 10/100/1000Base-T RJ45, M20 Cable Gland
	  - 2 x PoE 802.3af/at,
	  - 2 x PoE 802.3bt
	2 x 100/1000Base-X SFP, M25 Cable Gland
	1 x 10/100/1000Base-T RJ45, 802.3at/af PoE, Inside the box for Internal installation

Ethernet Port LED	TX Port: Link (Green On), Activity (Green Blinking)
Reset	System Reset(2~6 Seconds) / Default Settings Reset(over 7 Seconds) (Mechanical: Together with Port 1)
mPCIe Socket	2 x mPCIe sockets - 1 x mPCIe bus, available for 802.11ac/n/g/a/b WLAN expansion - 1 x USB bus, available for Cellular expansion
SIM Socket	2 x NANO SIM sockets inside, only available for SCB LTE module
Antenna Socket	1 x LTE+GPS Antenna socket for SCB LTE module 2 x N-Type female Sockets for SCB WLAN module
Power Input	Power Input, 4-pin M12 power connector AC Model: 100~240V AC
DC Output	Dual Power Outputs, 4-pin M12 power connector max. 24VDC/1.25A output
Beeper	Continuous Di/Da Short Beep: Power On & System Boot Continuous Beep over 1 minute: System Boot FAILURE
SCB-1200 Series	(Basic SCB-1000 interface)
Serial	2 x Software selectable RS232/422/485 interfaces (RS232 9-pin Full modem) Serial 1: RJ-45 Connector, M20 Cable Gland for external installation Serial 2: 9-pin DB9 within the box for internal installation LED: TX/RX transmission (Green Blinking) 15 KV ESD protection for all signals
Digital Input	2 x Digital Inputs- 4-pin Terminal block, M20 Cable Gland Low: 0~10V, High: 11~30V
Digital Output	2 x Dry Relay Outputs, 0.5A/24VDC, 4-pin Terminal Block, M20 Cable Gland
VOICE	RJ-12 Connector, Mono Amplifier for Speaker Out, M20 Cable Gland Pair 1(2,5): Microphone Pair 2(3,4): Speaker
USB	1 x USB A-Type socket
SD	1 x micro SD socket (Suggest Industrial Grade SD card)
Basic Solar Kit	
Battery Charge Board	Battery Charge Controller Board for AC/Solar power input and battery charge
Internal Battery	Typ. 48V/2.5AH (max. 54.6V) Internal Battery Battery ON/OFF switch to Enable Battery
PV Input Connector	1-pair MC4 Type PV Input connector for PV Input by the reserved holes in the bottom

Power Requirement	
Power Connector	1 x 4 Pin IP66/67 M12 power connector
Power Input Voltage	AC Model: 100~240VAC System Mainboard: 2 x 54VDC inputs
Reverse Polarity Protect	Yes
DC Output	1x 4 Pin IP67 M12 power connector 24VDC, 1.25A max. (DC 1+, DC 1-, DC 2+, DC 2-)
Power Consumption	Max. 250W full traffic with PD loading (Example: 150W for PD Loading, 30W for DC output, 10W for system mainboard.)

PoE	
Power forwarding mode	802.3at Alternative A; 802.3bt draft: 4 pairs
PoE Power Budget	System: Up to 210W, Max. 150W@75°C Port 1/2: 4-pair IEEE 802.3bt Draft 2.0 Type 3, Max. 60W Port 3/4, WAN: IEEE 802.3at, Max. 30W
PoE Standard	IEEE 802.3af/at, IEEE 802.3bt Draft 2.0 Type 3
Management	System/Port Power Budget Control, PoE Scheduling, Priority, PD Alive Check, PoE Status

Software	
Management Interface	CGI WebGUI, Command Line Interface (CLI), SNMP
User Management	Radius client*, TACACS+*, local database
Time Management	NTPv3, SNTP, Cellular Time
Network Management	IPv4, DDNS, SNMP v1/v2c/v3/Trap, LLDP, DHCP Server/Client/Relay, TFTP, System Log, ARP response over 802.2 LLC SNAP, Proxy ARP, DNS (client/proxy), Ping, Traceroute SCB1200: DI, DO, Serial, USB for Firmware upgrade, Configuration backup & restore SCB Wireless Expansion: WLAN AP/CPE mode, ERPS failure to LTE redundant(P2)
Traffic Management	802.1Q VLAN, QoS, IGMP Snooping, Rate control, up to 10K Jumbo Frame NAT Routing, Static Router, Traffic shaping
Security	Port Security, HTTPs, SSH Firewall (Inbound/outbound), DMZ, Port Forwarding
VPN	IPsec, OpenVPN (server/client), L2TP*
Redundancy Protocol	STP/RSTP, ITU-T G.8032 ERPSv2, VRRP
IIoT Industrial Protocol	Modbus TCP, MQTT, RESTful API
Private Cloud	ThingMaster, ThingMaster over-the-air Remote Management
Public Cloud	AWS, Azure Agent
Utility	ViewMaster, NetMaster Network Management System

Mechanical	
Installation	Wall-mount, Pole-mount
Enclosure Material	Aluminum
Vent	Protective Ventilation for Air and Moisture Breathing
GND	Grounding Nut with Washer
Dimension	346 x 406 x 142mm (W x H x D) / without wall-mount poles
Ingress Protection	IP67
Weight	SCB1200-AC: 6.84kg, SCB1200-AC+Battery: 8.01kg, SCB1200-AC+BASICSOLAR: 8.16kg without package. SCB1200-AC: 10.40kg, SCB1200-AC+Battery: 11.65kg, SCB1200-AC+BASICSOLAR: 11.78kg with Mounting & Package

Environmental	
Operating Temperature & Humidity	-40°C~75°C, 5%~95% Non-Condensing -10°C~55°C with Battery/Charger, 5%~95% Non-Condensing
Storage Temperature	-40°C~85°C
MTBF	>200,000 hours
Warranty	5 years (Battery 1 year)

Approval	
CE/FCC	CE(EN501214 Level) / FCC Part 15B
Railway Roadside EMC	EN50121-4
Traffic Control	NEMA-TS2 Compliance

Ordering Information

Model Name	Description
SCB1000-AC	Industrial Smart City Box with 4GT PoE + 2GF, 1GT WAN, AC Input
SCB1200-AC	Industrial Smart City Box with 4GT PoE + 2GF, 1GT WAN, IIoT interfaces, AC Input (IIoT Interfaces: External 1xCOM,2xDI,2xDO,Voice; Internal 1GT WAN, 1xCOM, 1xUSB, 1xSD)
SCB1000-AC+Battery	Industrial Smart City Box with 4GT PoE + 2GF, 1GT WAN, AC Input, Battery Kit (Battery Kit: Typ. 48V/2.5AH Battery and AC charger board pre-installed inside.)
SCB1200-AC+Battery	Industrial Smart City Box with 4GT PoE + 2GF, 1GT WAN, IIoT interfaces, AC Input, Battery Kit (Battery Kit: Typ. 48V/2.5AH Battery and AC charger board pre-installed inside.)
SCB1000-AC+BasicSolar	Industrial Smart City Box with 4GT PoE + 2GF, 1GT WAN, AC Input, Basic Solar Kit (Basic Solar Kit: Typ. 48V/2.5AH Battery, AC/PV charger board & MC4 connector pre-installed inside.)
SCB1200-AC+BasicSolar	Industrial Smart City Box with 4GT PoE + 2GF, 1GT WAN, IIoT interfaces, AC Input, Basic Solar Kit (Basic Solar Kit: Typ. 48V/2.5AH Battery, AC/PV charger board & MC4 connector pre-installed inside.)
	Package List
	Product Unit (Without SFP transceiver)
	Quick Installation Guide
	Mounting Kit & Cable Gland Assembly Pack
SCB1000 Cable Gland Assembly pack	4 xM20 + 2 xM25 Fiber Cable Glands for SCB1000 package Including the Sealing Insert, Clamping Claw, Sealing Nut
SCB1200 Cable Gland Assembly pack	10 xM20 + 2 xM25 Fiber Cable Glands for SCB1200 package Including the Sealing Insert, Clamping Claw, Sealing Nut

Optional Accessory

Ethernet & I/O Accessory	
SFPFExx series	WoMaster 100Mbps SFP transceivers
SFPGExx series	WoMaster 1000Mbps SFP transceivers
Basic Solar Kit	Typ. 48V/2.5AH Battery, AC/PV charger board, mounting plat and screws

Wireless Accessory	
SCB LTE Module and Antenna Kit, EU Band	Industrial LTE Cellular Module, EU Band EU: FDD B1/B3/B5/B7/B8/B20, TDD B38/B40/B41, WCDMA: B1/B5/B8, GSM: B3/B8 Antenna: LTE+GPS Antenna on the top of case GNSS- GPS/GLONASS/BeiDou/Galileo * Check LTE band for your country before purchase, pre-installed service is available.
SCB LTE Module and Antenna Kit, CN Band	Industrial LTE Cellular Module, CN Band CN: FDD B1/B3/B8, TDD B38/B39/B40/B41, TDSCDMA: B34/B39, WCDMA: B1/B8, GSM:900/1800 Antenna: LTE+GPS Antenna on the top of case GNSS- GPS/GLONASS/BeiDou/Galileo * Check LTE band for your country before purchase, pre-installed service is available.
SCB LTE Module and Antenna Kit, US Band	Industrial LTE Cellular Module, US Band US: FDD B2/B4/B12, WCDMA: B2/B4/B5 Antenna: LTE+GPS Antenna on the top of case GNSS-GPS/GLONASS/BeiDou/Galileo * Check LTE band for your country before purchase, pre-installed service is available.
SCB Industrial WLAN Module	Industrial 5G/2.4G 802.11ac/n WiFi 2T2R Module Pre-installed 2x N-Type Female Antenna sockets on the top of case Antenna: 2x External 2.4G/5G Antenna
EN110	Industrial RS485/ModBus_RTU to LoRa Convertor
External Antenna (Omni, Directional)	External 2.4G Antenna Series (Directional, Omni-Antennas) External 5G Antenna Series (Directional, Omni-Antennas)
Antenna Surge Protector	Antenna Surge Protector