WoMaster

Embedded Smart City Box
- PoE+, WAN VPN/Firewall, LTE/WiFi
- IIoT Serial, DI/DO, Audio, USB
- IIoT Cloud, ThingMaster/AWS/Azure

SCB400 Series

The SCB400 series are fully integrated communication systems within an IP67 enclosure for Smart City and Industrial Internet of Thing (IIoT) applications. The 802.3at PoE plus ports, GbE WAN port, Serial, DI, DO, Audio output are protected by weather proof connectors. It is greatly flexible with different power in sources, internal USB, Ethernet and mCPIe socket for wireless expansion. Comparing with traditional cabinets, the SCB400 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

MQTT **ThingsMaster**

Microsoft Azure   **amazon webservices**

PoE++ **Lte** **2.4G** 802.11a/g/n **5G** 802.11ac/n **Modbus** **NetMaster** IEC61000-6-2 / IEC61000-6-4 EN50121-4

Features & Benefits

Weather proof 802.3at PoE+ RJ-45 ports
- 2 10/100M PoE+ 802.3at Ports with 30W/per port
- 12/24V to 54VDC Booster PoE
- M12 T-code for high current power source
- Complete PoE management including per-port Power   Budget Control, PoE Scheduling and PoE Status
- Up to 100W power budget by AC source or 24V to 54V booster PoE power, available for min. 8V input
- Reserved 2/6 internal PoE+ ports by request

Weather proof Gigabit RJ-45 port with Enhanced Cyber Security
- 1 weatherproof 10/100/1000M Ethernet RJ-45 ports
- Firewall for traffic classification, port forwarding
- Support NAT, DMZ for LAN protection
- Support OpenVPN, IPsec for secure connection
- Support HTTPs/SSH secure login

Industrial IoT Available
- Supports 1 RS232/422/485 to connect any kind sensors
- Supports 3 Digital Input to detect signal from the sensors or button
- Supports 2x Digital Output for Alarm or other reaction
- Supports 1 Audio out for Loudspeaker
- All Serial, DI and DO info can be published to IIoT cloud

Weather proof IP67 Enclosure
- 3 RJ-45 type for GbE WAN & PoE+ port
- M8 5-pin connector for RS232/485
- M8 5-pin connector for 2xDI & 1xRelay Output
- M5 2-pin connector for Audio Output
- M12 T-code connector
  - DC24V(8~30V) power input
  - AC100~240V Input
- Effective heat dissipation design for operating in -40~75ºC environments
- Internal USB for Storage, optional audio amplifier board & multiple PoE+ ports for Ethernet expansion

Management Features
- VLAN for LAN management
- Various configuration paths, including WebGUI, CLI SNMP, LAN Utility (ViewMaster), and NMS (NetMaster)
- Support ViewMaster Utility, Remote configuration software utility
- Wireless Redundancy: WAN to LTE redundancy
- Diagnostic tool includes Ping, TFTP, SNMP Trap, E-mail Alert and System Log
- LTE watchdog, auto-reconnect cellular connection
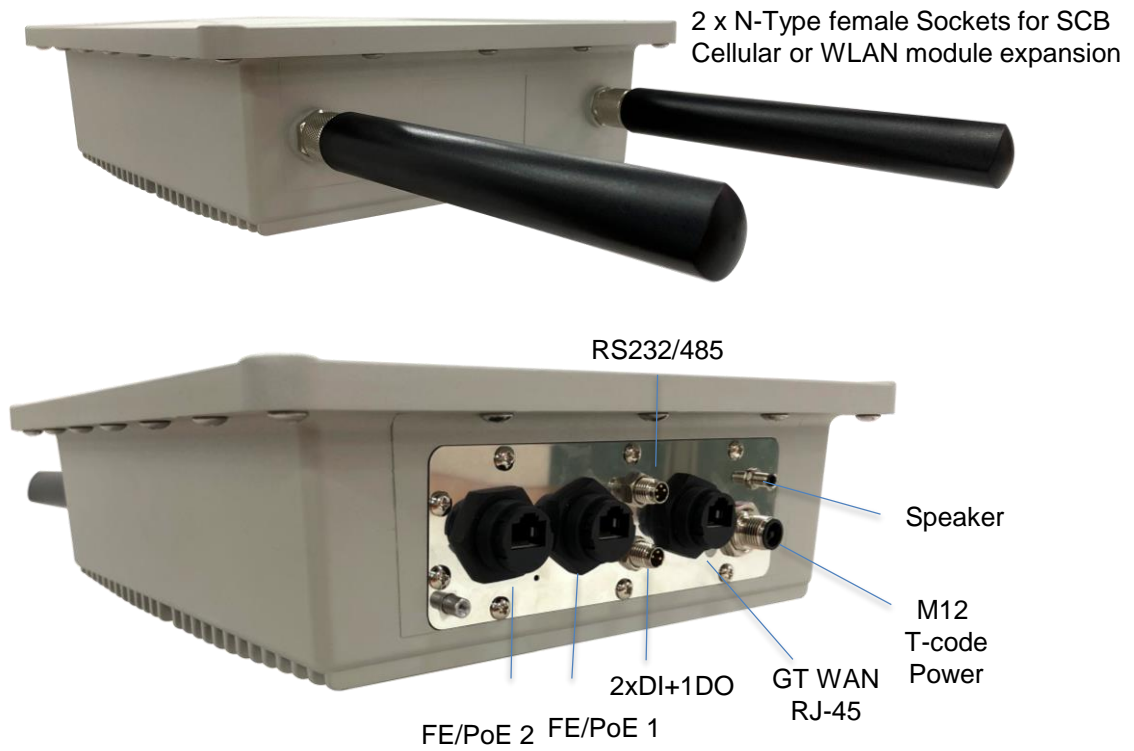
Cloud Management over ThingsMaster
- Support Amazon AWS & Microsoft Azure cloud service
- Support proprietary ThingsMaster cloud service
- Support Modbus Tag to collect data from Modbus devices
- Interactive monitoring dashboard and map shows the status, signal strength, and location
- Supports over-the-air 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)
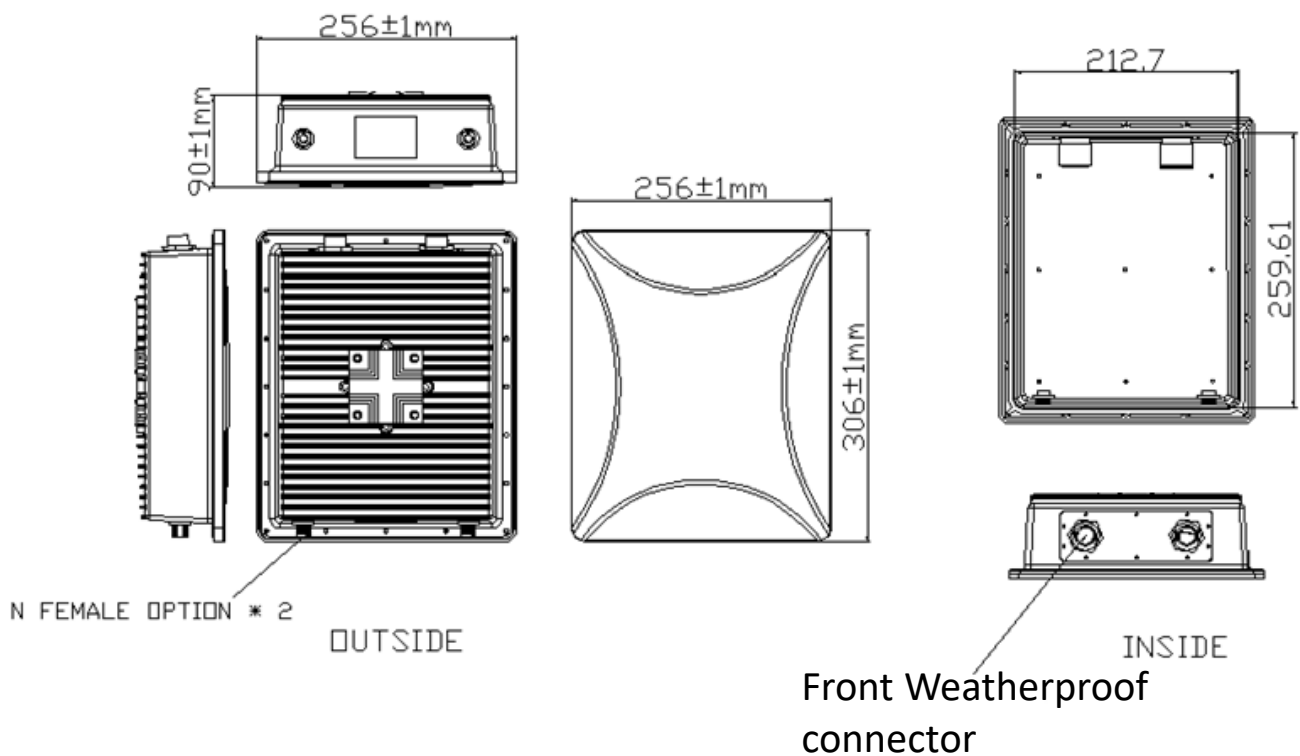
Optional Wireless Expansion
- Support mPCIe & SIM socket for wireless expansion
- SCB LTE Module and Antenna Kit
  - LTE Cat.4 Cellular Module
  - LTE+GPS Antenna on the top of the box
  - 150 UL, 50M DL, FDD/TDD-LTE
- SCB Industrial WLAN Module
  - N-Type Antenna Socket on the top of the box
  - 5G/2.4G 802.11ac/n WiFi 2T2R

Interfaces

2 x N-Type female Sockets for SCB Cellular or WLAN module expansion

RS232/485

Speaker

M12 T-code Power

2xDI+1DO

GT WAN RJ-45

FE/PoE 2 FE/PoE 1

Dimensions

256±1mm

90±1mm

256±1mm

306±1mm

212.7

259.61

N FEMALE OPTION * 2

OUTSIDE

INSIDE

Front Weatherproof connector

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

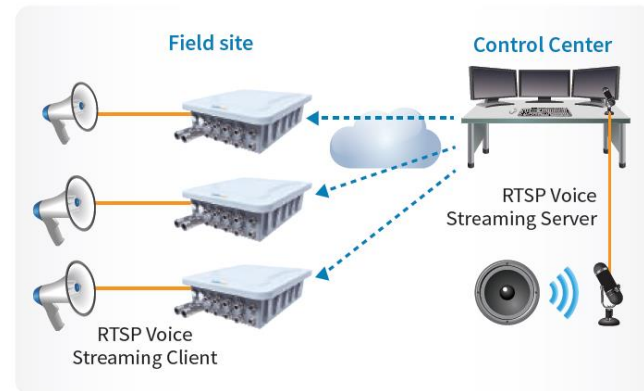| Status | OK **MAP** |
Date	140518
UTC	035331.0
Latitude	24 58.4485N
Longitude	121 32.9141E
Altitude(m)	110.0
Speed over ground(Km/h)	0.0
Number of satellites	9

Reload

VoIP Voice Broadcast

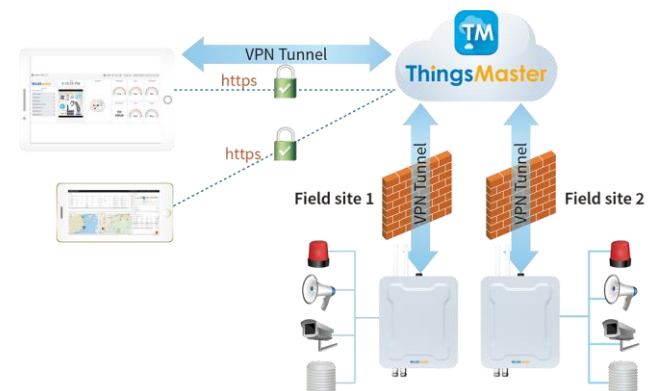RTSP voice streaming Server/Client for VoIP broadcast

1 to N VoIP broadcasting

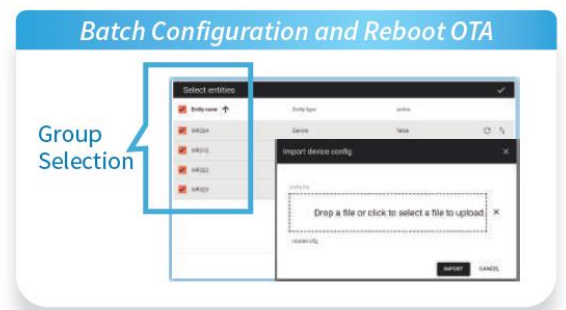## Secured Multi-sites Management
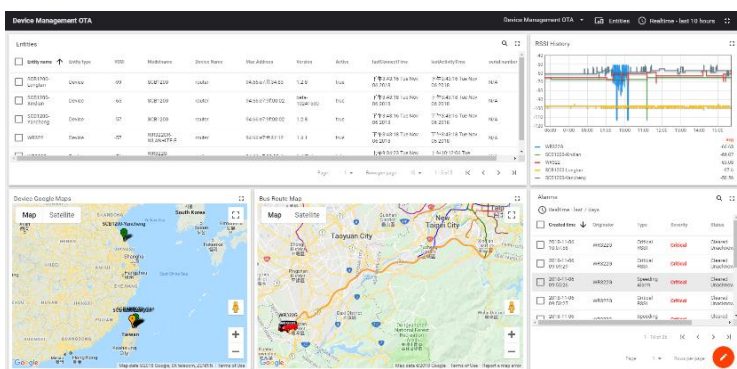
N to N VPN

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 Weatherproof Enclosure and abundant interfaces for Smart City Application

Two 10/100M PoE+ ports
- *Two weatherproof 802.3at PoE Plus with max. 30W power*

One Gigabit PoE WAN port
- *One weatherproof Gigabit WAN port, RJ-45 type*
- *NAT, Firewall and Secure VPN Connectivity features*

IIoT Expansion Interfaces
-External: One RS232/422/485, 2xDI, 1xDO, Audio
-Internal: USB, more PoE+ ports

AC Input & DC Output
-100~240V AC Input
-24V/1.25A DC Input, min. 8V available

IP67 Outdoor Enclosure
Two mPCIe, dual SIM for Wireless expansion
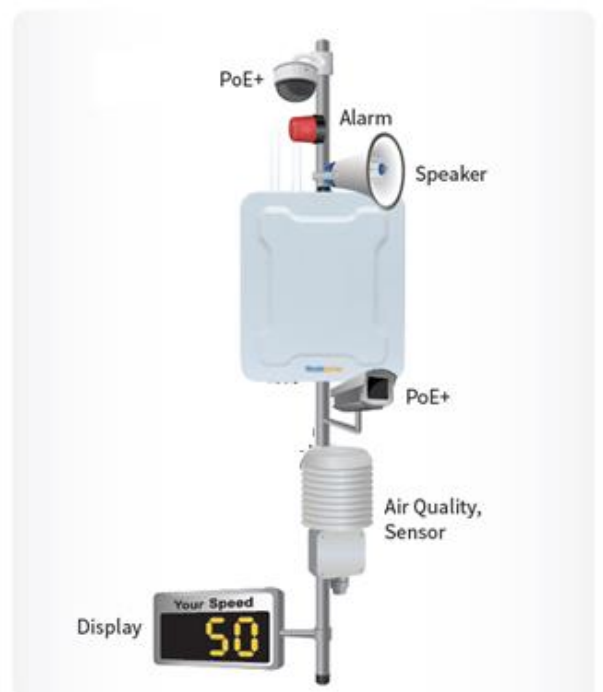
Enhanced Cyber Security for Critical Application

- External Weatherproof Gigabit WAN port
- Firewall for traffic classification, port forwarding
- Support NAT, DMZ for LAN protection
- Support OpenVPN, IPsec for secure connection
- Support HTTPs/SSH secure login

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-400 Series	
Ethernet Port	SCB400/400A: LAN: 2 x 10/100Base-TX 802.3at/af PoE+, Auto MDI/MDI-X, Weatherproof RJ-45 connector WAN: 1 x 10/100/1000Base-T Ethernet, Auto MDI/MDI-X, Weatherproof RJ-45 connector LAN-Reserved: up to 6 10/100Base-TX RJ45, 802.3at/af PoE+, Inside the box by request SCB400-NP: LAN: 2 x 10/100Base-TX Ethernet, Auto MDI/MDI-X, Weatherproof RJ-45 connector WAN: 1 x 10/100/1000Base-T Ethernet, Auto MDI/MDI-X, Weatherproof RJ-45 connector LAN-Reserved: up to 6 10/100Base-TX RJ45, Inside the box by request
Power Input	Power Input, 4-pin M12 T-code power connector AC Model: 100~240V AC DC Model: 24V, range from 8-30V
Serial	1 x Software selectable RS232/485 interfaces, M8 5-pin connector RS232 (DCD, TXD, RXD, DCD, DTR, GND), 2/4-wire RS485(TX-, RX+, TX+, RX-, GND) 15 KV ESD protection for all signals
Digital Input	2 x Digital Inputs, M8 5-pin connector Low: 0~1V, High: 2~30V
Digital Output	1x Dry Relay Outputs, 0.5A/24VDC, M8 5-pin connector
VOICE	1x Audio Output, 8ohm, max. 30W, M5 2-pin connector Optional Mono Amplifier Board for Speaker Out (SCB400A)
mPCIe Socket	2 x mPCIe sockets mPCIe/USB bus, available for both Cellular and 802.11ac/n/g/a/b WLAN expansion
SIM Socket	2 x NANO SIM sockets inside, only available for SCB LTE module Reserved eSIM for project based eSIM requirement
Antenna Socket	2 x N-Type female Sockets for SCB Cellular or WLAN module expansion
USB	Internal 1x USB A-Type socket inside the box Optional industrial grade USB flash disk as storage

Power Requirement	
Power Connector	1 x 4 Pin IP66/67 M12 power connector
Power Input Voltage	AC Model: 100~240VAC DC Model: 24VDC (8~32VDC with booster to 54V) min. 8V low-peak auxiliary voltage SCB400-NP Series: 24VDC (8~32VDC)
Reverse Polarity Protect	Yes
Power Consumption	Max. 100W full traffic with PD loading @ 24V Input (60W for PD Loading, 20W for Audio Amplifier, 10-20W for system)

PoE	
Power forwarding mode	802.3at Alternative A
PoE Power Budget	System: Up to 60W, Max. 60W@75°C Port: 4-pair IEEE 802.3at/af, M6ax. 30W
PoE Standard	IEEE 802.3af/at
Management	System/Port Power Budget Control, PoE Scheduling, Priority, PD Alive Check, PoE Status

Software	
Management Interface	CGI WebGUI, Command Line Interface (CLI), Telnet, SNMP
User Management	Radius client, TACACS+, Multi-User Authentication
Time Management	SNTP, Cellular Time
Network Management	VLAN, IPv4/IPv6, DDNS, SNMP v1/v2c/v3/Trap, MIB II, Entity MIB, MIBs, DHCP server/client, DHCP relay*, TFTP, System Log, ARP response over 802.2 LLC SNAP, Proxy ARP, DNS (client/proxy)
Traffic Management	NAT Routing, Traffic shaping, 1:1 NAT, NAPT(SNAT/DNAT)
Routing	RIPv2, OSPF, Static Route
Security	Firewall, DMZ, Port Forwarding, HTTPs, SSH, Force changing password after 1st login
Redundancy Protocol	WAN/LTE Redundancy, VRRP
VPN	OpenVPN, L2TP, GRE
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
Cellular Configuration (By Optional module)	Radio on/off, 4G LTE/3G HSPA Configuration, SIM Security, Connection Status, Cellular to Eth-WAN Redundancy, GPS positioning
WLAN Configuration (By Optional module)	WLAN Basic Settings: Radio on/off, 2.4G 11n/5G 11ac Band and Frequency selection, SSID/Multi-SSID configuration, SSID broadcast, Cellular to WLAN Auto Offload and advanced WLAN settings, 802.1X

Mechanical	
Installation	Wall-mount, Pole-mount
Enclosure Material	Aluminum
GND	Grounding Nut with Washer
Dimension	256 x 306 x 90mm (W x H x D) / without wall-mount poles
Ingress Protection	IP67
Weight	SCB400-AC: 4kg, SCB400-NP-AC: 3.8kg SCB400-DC: 3.7kg, SCB400-NP-DC: 3.5kg

Environmental	
Operating Temperature & Humidity	-40°C~75°C, 5%~95% Non-Condensing
Storage Temperature	-40°C~85°C
MTBF	>200,000 hours
Warranty	5 years (DC Model), 3 years (AC Model)

Approval

CE/FCC	CE(EN501214 Level) / FCC Part 15B
EMC	EN61000-6-2/EN61000-6-4 Heavy Industrial
Railway Roadside	EN50121-4 Compliance

Ordering Information

Model Name	Description
SCB400-AC	Industrial Smart City Box with 2xFE PoE+, 1GT WAN, 1xCOM+2xDI+1xDO, 8ohm 30W Audio Output, AC Input
SCB400-DC	Industrial Smart City Box with 2xFE PoE+, 1GT WAN, 1xCOM+2xDI+1xDO, 8ohm 30W Audio Output, 24V(8-32V)DC Input
SCB400-NP-AC	Industrial Smart City Box with 2xFE, 1GT WAN, 1xCOM+2xDI+1xDO, 8ohm 30W Audio Output, AC Input
SCB400-NP-DC	Industrial Smart City Box with 2xFE, 1GT WAN, 1xCOM+2xDI+1xDO, 8ohm 30W Audio Output, 24V(8-32V)DC Input
	Package List
	Product Unit
	Quick Installation Guide
	Mounting Kit Including the Sealing Insert, Clamping Claw, Sealing Nut
	SCB400 Assembly Cable Package 1xM20 T-code Power Cable, 1m 2xM8 5-pin Signal Cable for Serial and 2DI+1DO, 1.5m 1xM5 2-pin Signal Cable for Audio Output, 1.5m 3xWaterproof RJ-45 Ethernet Plug, Field-attachable Bayonet Locking type for Ethernet ports

Optional Accessory

Wireless Accessory	
SCB400 LTE Module and Antenna Kit, EU Band	Industrial SCB400 LTE Cellular Module, EU Band EU: FDD B1/B3/B5/B7/B8/B20, TDD B38/B40/B41, WCDMA: B1/B5/B8, GSM: B3/B8 GNSS- GPS/GLONASS/BeiDou/Galileo Antenna: 2x Wide Frequency outdoor Omni-Antenna * Check LTE band for your country before purchase, pre-installed service is available.
SCB400 LTE Module and Antenna Kit, CN Band	Industrial SCB400 LTE Cellular Module, CN Band CN: FDD B1/B3/B8, TDD B38/B39/B40/B41, TDSCDMA: B34/B39, WCDMA: B1/B8, GSM:900/1800 GNSS- GPS/GLONASS/BeiDou/Galileo Antenna: 2x Wide Frequency outdoor Omni-Antenna * Check LTE band for your country before purchase, pre-installed service is available.
SCB400 LTE Module and Antenna Kit, US Band	Industrial SCB400 LTE Cellular Module, US Band US: FDD B2/B4/B12, WCDMA: B2/B4/B5 GNSS-GPS/GLONASS/BeiDou/Galileo Antenna: 2x Wide Frequency outdoor Omni-Antenna * Check LTE band for your country before purchase, pre-installed service is available.
SCB400 Industrial WLAN Module	Industrial 5G/2.4G 802.11ac/n WiFi 2T2R Module Antenna: 2x External 2.4G/5G outdoor Omni-Antennas
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)
GPS Antenna	External GPS Antenna by request
Antenna Surge Protector	Antenna Surge Protector by request