

Outdoor IP68 Compact Modbus RS485 to CAT M1 / NBloT Gateway

SCB111-485-DC

Outdoor Compact RS-485 to NB/Cat.M1 Gateway

The SCB111-485-NB-DC gateway facilitates communication between RS485 RTU devices or sensors and cloud servers using the CAT M1 or NB-IoT cellular network. It securely transmits data in JSON format and MQTT protocol with AES128-bit encryption. The gateway's configuration is by a MicroUSB connection with Windows utility. The device supports up to 20 Modbus slave devices and allows for 80 Modbus Registers polling and sends the data to the cloud server in four MQTT messages. The device is compact, palm-sized, and weatherproof with an IP68 rating, allowing it to operate in outdoor environments with temperatures ranging from -40 ~70°C. The Firmware upgrade can be made by air (ThingsMaster OTA, FOTA), which is ideal for large scale outdoor Industrial IoT applications.



Modbus ThingsMaster OTA



Features & Benefits

4G LTE /IoT Communication

- LTE NB1/2, Cat-M1
- LTE- FDD: B1/3/4/5/8/12/13/14/18/19/20/25/26/27 /28/66/71(Global Band) /85
- GSM850, EGSM900, DCS1800, PCS1900
- Build-In Spring-Type Antenna

RS485 Connection, Relay DO

- One 2-wire RS485A, RS485B
- RTU Serial 1200~9600bps
- One Dry Relay Output
- Spring Type, Screw-less cable connector
- Modbus Polling with DMA access to avoid RTU Device Polling Time-Out

Industrial Application

- Outdoor IP68 Weatherproof Enclosure
- -40 ~ 70°C / 90%H Environment Operating Temperature
- Compliance IEC 61000-6-2/-6-4 Heavy Industrial EMC

Windows® Configuration Tools

- Configuration through micro-USB Interface
- Menu type, Non-Install Utility Tool
- Multifunction Set/Test: Base Station, Cloud Server, RTU
- Modbus Device, Register Setting- 20 Devices, 80 Registers
- USB, Serial Com port simulate

Screw-less wiring, Wide Range Power

- Spring type, screw-less on-board terminal connector
- 9~30V power input with polarity reverse protection

Network and Protocols

- IPv4 / IPv6 Network
- MQTT Cloud Protocol- Published Modbus RTU Register RAW Data in JSON format, Subscribe Relay Control
- Firmware upgrade through the Air (FOTA) by Http
- TCP Client with Serial Data Transparent *
- Base-Station Connection with TLSv1.2

Note:

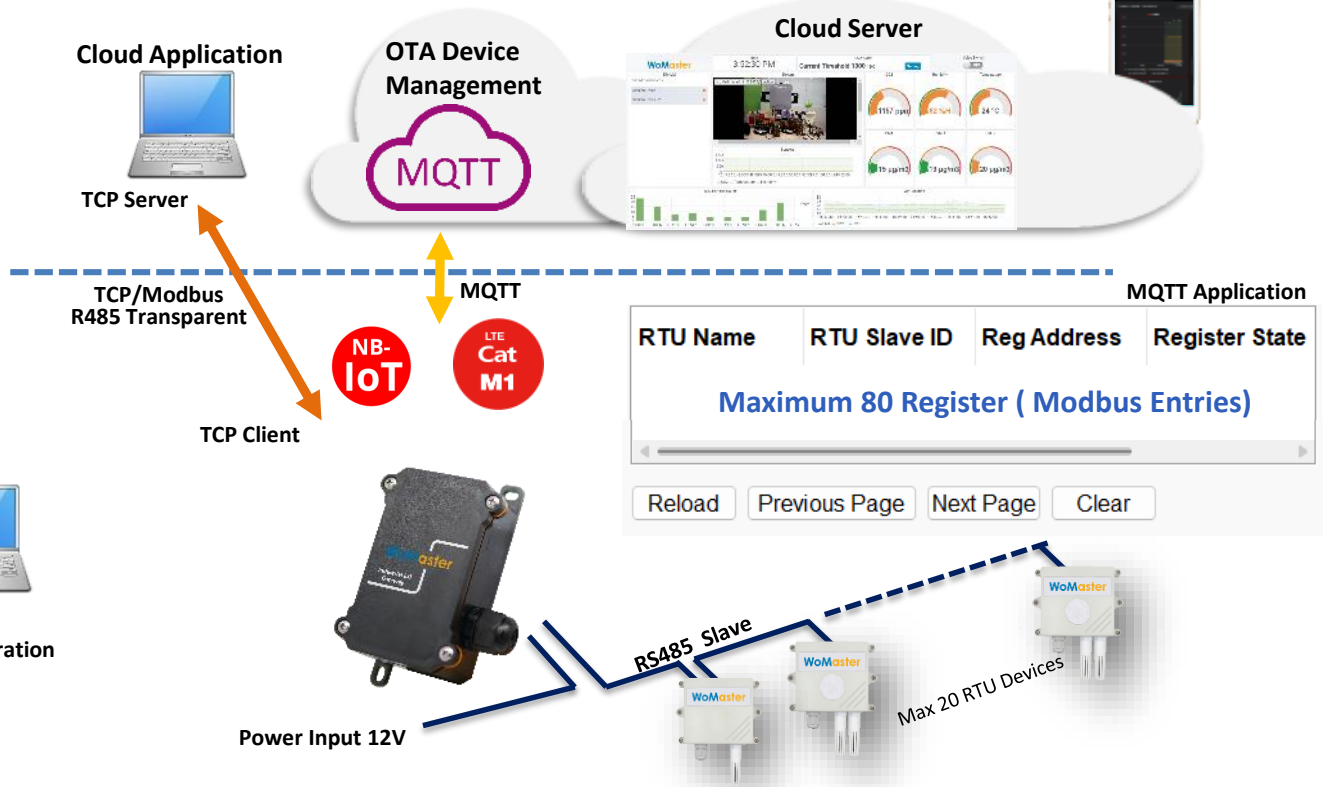
1. The TCP Client Transparent Mode: SCB111-485 (Random IP), Server/Application (Static IP)



Application

✓ Ready Total Solution for IoT

ThingsMaster OTA



✓ Friendly User Configuration Utility

SCB111-485-NB v1.7.3.1

Device Tools

COM: Model Name:

Serial IoT MQTT RTU

Serial Parameters

Serial BaudRate:
 9600
 9600
 4800
 2400
 1200

ModBus Serial Setting

Serial Parity:
 No
 No
 Even
 Odd

Serial Data Bits:
 8

Serial Stop Bits:
 1
 2

IOT Configuration Table

IOT Mode:
 IoT Mode, Connection

APN:

User:

PassWord:

PLMN:

IP:

Status:

MQTT Configuration Table

Cloud Server

IOT Server:

Port:

Topic:

Client ID:

User Name:

Password:

Status:

RTU Parameters

RTU Name :
 RTU Device, Register Setting
 Polling & Time Out Setting

Slave ID:

Address(PLC):

Add

Interval: s
 Reload Apply

Time Out: ms
 Reload Apply



Interfaces

Enclosure Out-looking

Out-Door IP-68
Water-Proof Case

IP-68 Cable Gland

Stainless Screws



Internal Function

Internal Antenna

Nano SIM Socket

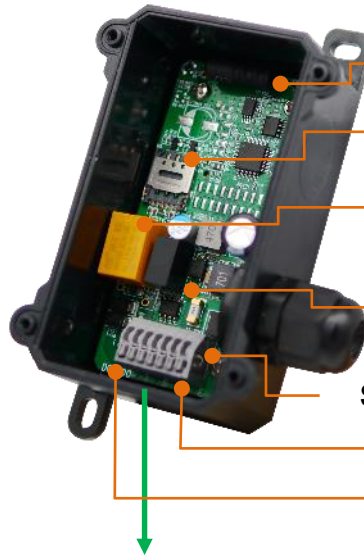
Dry Relay Output

Isolated Serial

Spring Type Connector

Pin #7

Pin #1

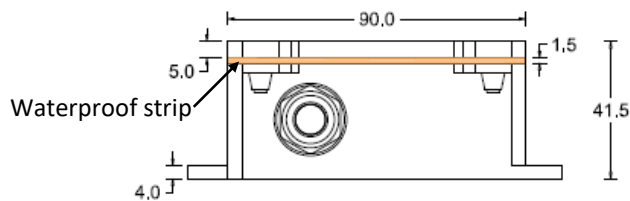
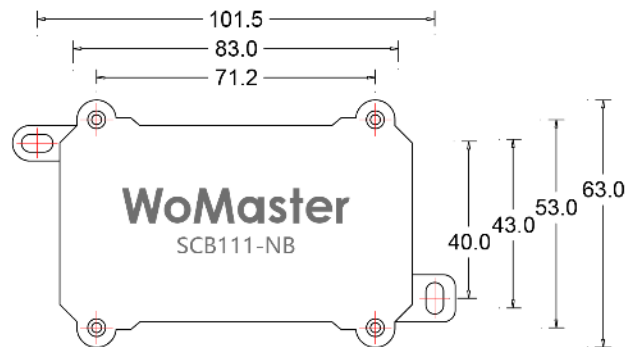
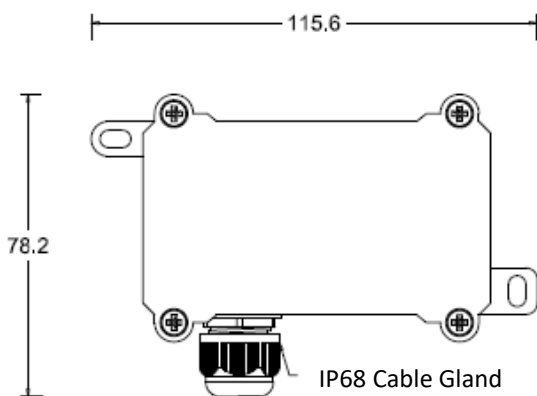


Connector	Pin #1	Pin #2	Pin #3	Pin #4	Pin #5	Pin #6	Pin #7
Function	DO +	DO -	RS485 A	RS485 B	V+	E.G.	V-



Dimensions

(mm)



Technology	
Standard	3GPP Release14 Modbus RTU, TCP/UDP, MQTT
Cellular Properties	
Data Throughput	Cat. M1: 529Kbps (DL)/1119Kbps(UL) Cat. NB2: 136Kbps(DL)/ 150Kbps(UL)
Band Information	Global version Cat.M1 (LTE-FDD):B1/2/3/4/5/8/12/13/14/18/19/20/26/27/28/66/---/ 85 Cat.NB2 (LTE-FDD):B1/2/3/4/5/8/12/13/--- /18/19/20/26/---/28/66/71/85 GSM850/ EGSM900/ DCS1800/ PCS1900 Category=Cat.
Radio RX Sensitivity	Cat. M1 : -103 dBm (Min.) Cat.NB2: -113 dBm (Min.)
Radio TX Power	Cat.M1/ NB2: 20 (+/- 2.7) dBm GSM/EGSM:33 (+/- 2) dBm DCS/PCS: 30 (+/- 2) dBm
Management	
System Management	1 x Micro USB 2.0 internal port for System Configuration
Network	IPv4/ IPv6
Software Utility	Windows [®] Based Utility
Interface (Internal)	
SIM Socket	1x Nano-SIM Socket
USB	1x Micro USB for configuration & firmware upgrade, operating mode adjust by internal jumper
Antenna	1x 3dBi internal Antenna
Relay Output *	On-Board Screw-less, Spring Type Terminal Connector – 2 Conductors Internal Dry Relay Output (DO), Rating: AC250V/1A, 30VDC/3A
RS485	On-Board Screw-less, Spring Type Terminal Connector – 2 Conductor 2-wire RS485A, RS485B with isolation DMA Polling Time: 90 Seconds /Cycle (Maximum) with 80 Registers Routing Polling (Modbus RTU time-out 200ms)
Power Input	On-Board Screw-less, Spring Type Terminal Connector – 2 Conductors Earth Ground (E.G.)- 1 Conductor Power Input: DC24V (Rating 9~30V) Power Consumption: 6W / DC 24V (Maximum)
Interface (External)	
PG9 Cable Gland	4-8mm cable diameter, IP68 Protection
Mechanical	
Installation	Wall Mounting with 2 Mounting holes
Dimension	90*50*42 mm (without mounting holes)
Ingress Protection	IP 68 plastic housing (**)
Weight	100g

*The Relay Output control function will be available in the further firmware release. Please contact your sale distributor.

*The IP68 protection depends on the system and cable installation. If the Waterproof strip and Cable gland does not install correction, or the cover does not lock tightly closed, the IP68 function may malfunction.

Environmental	
Operating Temperature	-40°C~70°C, 0% ~ 90%, Non-Condensing
Storage Temperature	-40°C~80°C, 0% ~ 90%, Non-Condensing
Reliability & Warranty	
MTBF	> 200,000 Hours
Warranty	1 Year



Ordering Information

Model	Description
SCB111-485-DC-G	Industrial Smart Modbus RS485 Gateway, LTE Cat.-NB2, Cat. M1, 1 Nano-SIM, Global Band, DO ,9~30Vdc