Industrial Smart Meter Application Meter-Bus to NB-IoT

SCB111MB-NB-BT

Industrial M-Bus to NB-IoT Converter, Battery

The SCB111-MB-NB is a Meter-Bus to NB-IoT Router. It reads data from Meter-Bus (M-Bus) in Host mode for water meter, gas meter or electricity meter, and send to remote server via MQTT protocol by NB-IoT cellular technology.

The ultra lower power consumption design enables power saving mode, and the power supply self discharge is low by lithium battery. The battery can run up to 3 years in hourly data uploading.

The ThingsMaster OTA safeguards the device from remote control center to detect and fix abnormalities in site.

Features & Benefits

Meter-Bus Protocol

• EN 1434-3 Compliance

• Meter –Bus (M-Bus) Host Mode with 10 M-Bus Entries

• Supports Bus Short Protection, Self Recovery

• 300 ~ 9600bps Communication Baud Rate

NB-IoT Communication

• LTE NB1/NB2 Global Band

• 3GPP Release 14, Class 3 (23dBm)

• MQTT Protocol

• Data Rate : 126kbps (DL)/ 150kbps (UL)

Non-volatile Data Logger

• 16MBytes Non-volatile Flash Memory

• 1 Meter, Hourly Storage for 6 Months

• Export Text File with Voltage, Meter Data

• Data Logger Erase by Windows Utility

Flexible IoT Server Configure

• IP, Port Topic, Client ID

• User Login Registration

Cellular, Cloud, M-Bus Configuration

• System Configure by NB Utility tool

• APN Setting with Login Authentication

• Cloud Server Configuration

• M-Bus Setting, Scan and Data View

Easy Install, Maintenance

• Battery Compartment Design for Battery Change

• Removable Terminal Connector for M-Bus Cable Connection

Harsh Environmental Application

• Polycarbonate Material, UL 94V2

• IP68 Waterproof, Anti-Oil

• Silicon Based O-ring with Stainless Screw

Windows© Configure Tools

• Easy Friendly Use, Auto Recognize Connected Model

• Available Interface, Parameters Auto Display

• Communicate Through Micro-USB Interface

• Firmware upgradeable by USB interface through upgrade tool
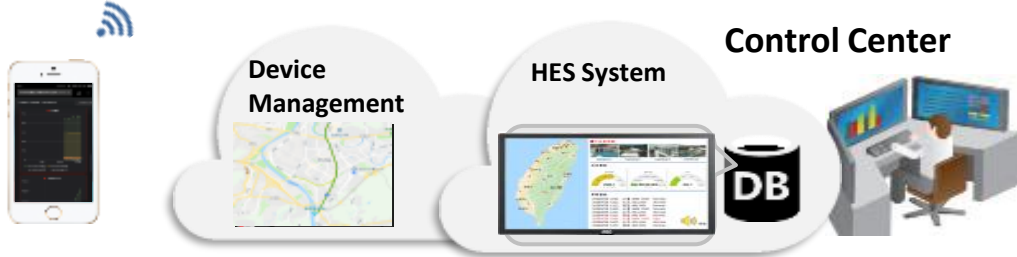
Industrial Application

• -20 ~ 70°C / 90%H Environment Operating Temperature
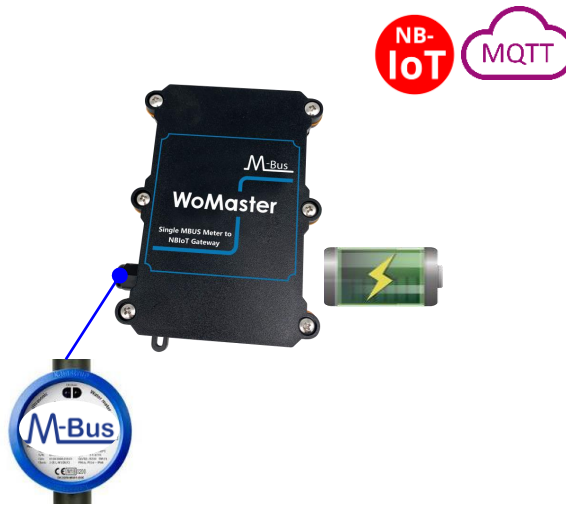
• Compliance EN301489 -1/-52
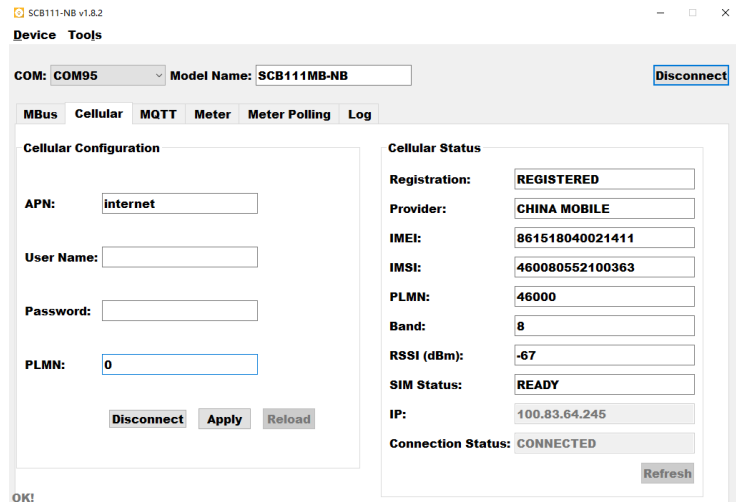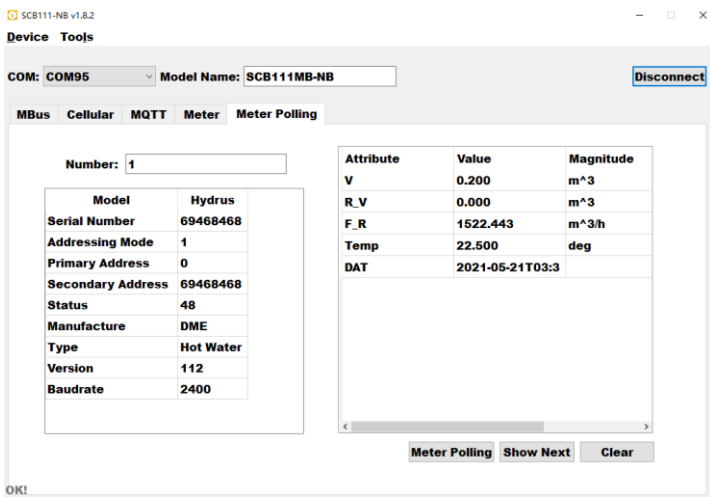
✓ **Ready Total Solution for IoT**

Cloud Service

ThingsMaster OTA

Device Management

HES System

Control Center

NB-IoT   MQTT

USB Configuration Utility

M-Bus

WoMaster
Single MBUS Meter to NBIoT Gateway

M-Bus

✓ **Periodic MBUS Meter Reading to Head End System**

SCB111-NB v1.8.2 — □ ×
Device Tools

COM: COM95   Model Name: SCB111MB-NB   Disconnect

MBus | Cellular | MQTT | Meter | **Meter Polling**

Number: 1

Model	Hydrus
Serial Number	69468468
Addressing Mode	1
Primary Address	0
Secondary Address	69468468
Status	48
Manufacture	DME
Type	Hot Water
Version	112
Baudrate	2400

Attribute	Value	Magnitude
V	0.200	m^3
R_V	0.000	m^3
F_R	1522.443	m^3/h
Temp	22.500	deg
DAT	2021-05-21T03:3	

Meter Polling | Show Next | Clear

OK!

SCB111-NB v1.8.2 — □ ×
Device Tools

COM: COM95   Model Name: SCB111MB-NB   Disconnect

MBus | **Cellular** | MQTT | Meter | Meter Polling | Log

Cellular Configuration

APN: internet

User Name:

Password:

PLMN: 0

Disconnect | Apply | Reload

Cellular Status

Registration:	REGISTERED
Provider:	CHINA MOBILE
IMEI:	861518040021411
IMSI:	460080552100363
PLMN:	46000
Band:	8
RSSI (dBm):	-67
SIM Status:	READY
IP:	100.83.64.245
Connection Status:	CONNECTED

Refresh

OK!

Out-Door Case

IP-68 Water-Proof

Stainless Screws

IP-68 Cable Gland

M-Bus

WoMaster

Single MBUS Meter to
NBIoT Gateway

3.6V Li-SOCL2 Battery

Battery Compartment

Nano-SIM socket

Internal FPC Antenna

Battery Connect

**M-Bus Connector
Terminal Connector**

Enclosure Out-looking

Dimensions

(mm)

183.5

152.5

Mylar

103

IP68 Cable Gland

140.0

6.0

2.0

56.0

5.0
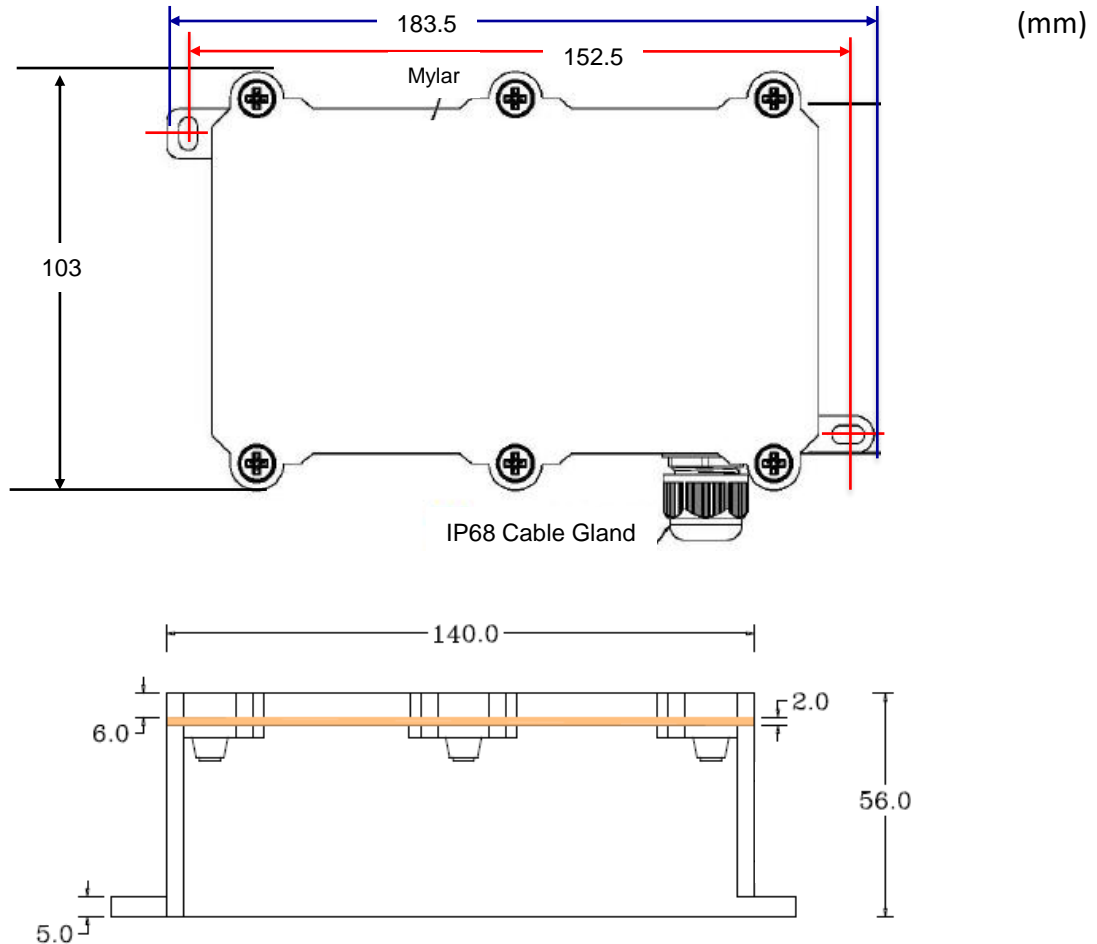
⚙ Specifications

Cellular Specification	
Standard	LTE 3GPP, Release 14 (SIM7020G)
Data Rate	126kbps (DL)/ 150kbps(UL) (SIM7020G)
Band Information	LTE- FDD: (SIM7020G) B1/B2/B3/B4/B5/B8/B12/B13/B17/B18/B19/B20/B25/B26/B28/B66/B70/B71/B85
Radio RX Sensitivity	-131 dBm (95% throughput with repetitions)
Radio TX Power	Single Tone (Cat.NB2): 23 dBm (+/- 2.7dB) (SIM7020G)
SIM Socket	1x Nano-SIM Socket

Management	
Configuration Interface	1 x Micro USB 2.0 internal port for System Configuration & Firmware Upgrade

Data Storage	16MBytes Non-volatile Flash ROM for Data Storage, Export Text file by NB Utility.
	Storage Interval Time (minute): 15/ 20/ 30/ 60 Minutes Adjustable
	Storage Capability:
	    2 Months for 1 Meter, One Data Polling / Per 15 minutes
	    6 Months for 1 Meter, One Data Polling / Per 60 minutes

System Event Log	500 Entries for Information, Alert, Error
Software Tool	NB Utility for System and Meter Configuration

M-Bus Interface	
M-Bus Host	Removable Terminal Connector for 2-Wires M+/ M- Cable connection Provides Cable Short Protection with Self-Recovery, Anti Static 12KV protection

Power Requirement	
Battery Specification	Internal Lithium Thionyl Chloride (Li-SOCl$_2$) Battery, Non-Chargeable, Replaceable 3.6V/ 14500mAh (ER 34615M) – SCB111MB-NB-BT14
Battery. Life	SCB111-MB-BT14: 3 Years (Per Hourly NB Connectivity with one M-Bus Meter Reading). Auto Voltage detection and push to Cloud for Battery maintenance

Mechanical	
Installation	Screw wall mounting, Nylon Cable Tide
Enclosure Material	UL94V2 Plastic with Anti-UV function, 6 x Stainless Screws
Ingress Protection	IP-68 Waterproof
Dimension	103 (W) x 183.5 (H) x 56 mm (D) (Include Mounting Ear)
Weight	Net Weight: 440g (with Battery) / 330g (without Battery)

Environmental	
Operating Temperature	-20°C~70°C, 0% ~ 90%, Non-Condensing
Storage Temperature	-40°C~80°C, 0% ~ 90%, Non-Condensing

Reliability & Warranty	
MTBF	> 200,000 Hours / without Battery Life
Warranty	3 Years

Regular Standards	
EMC	EN55032 /EN55035 * by request
EMC for Radio Equipment	EN301489-1/ EN301489-52 * by request
Safety	EN62368-1 * by request
Health	EN62311 * by request

Ordering Information

Model	Description
SCB111MB-NB-BT14 v5	Industrial Smart Meter Gateway, M-BUS, LTE CAT-NB1/NB2, 1 Nano-SIM, LTE-FDD 1/B2/B3/B4/B5/B8/B12/B13/B17/B18/B19/B20/B25/B26/B28/B66/B70/B71/B85 ,14500mAh (Hardware version 5.0), internal antenna 2dBi

Packing & Accessories	
SCB111MB-NB-BT	1 x Unit
	1 x QIG