
1. General Introduction

NG-1 Data Collection System

NG-1 is 4G-based wireless packet switched technology used to provide end-to-end wide area wireless IP connections, which can transfers data to users in “Packet” mode at a a highspeed. The Cellular module has prominent advantages in many aspects such as the transfer rate, wireless resource management and billing.



Figure 1 GPRS/LTE Data Collection System

2. Feature and Benefit

- GSM/GPRS (900/1800 MHz)/ WCDMA(B1/B8)/FDD LTE(B1/B3/B5/B8)/TDD LTE(B34/B38/B39/B40/B41)
- Over the Air Update
- Supports TCP/UDP/FTP/DNS protocol
- Remote SMS configuration
- Control Via AT Commands
- Supports USB2.0 slave mode
- Update Via USB Port
- Data transfer
 - FDD LTE
 - Max. 10Mbps(DL), Max.5Mbps(UL)
 - TDD LTE

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- Max. 8.96Mbps(DL), Max.3.1Mbps(UL)
WCDMA
 - Max.384Kbps(DL),Max384Kbps(UL)
 - GPRS
 - Max. 85.6Kbps(DL), Max. 85.6Kbps(UL)
- Certification
CE

3. Specifications

- Nominal voltage: 12V dc
- Voltage range: 5V dc-32V dc
- Idle current: 13mA@5V
- communication current: 210mA@5V
- Maximum current: 800mA
- Sensitivity: <-108.5dBm
- SIM interface: 1.8V/3V
- Electrostatic discharge IEC61000-4-2: Air discharge, 15kV, 10 cycles
- operating temperature: -25 °C ~ + 75 °C
- Relative humidity: ≤95%, non-condensing

4. Module Appearance



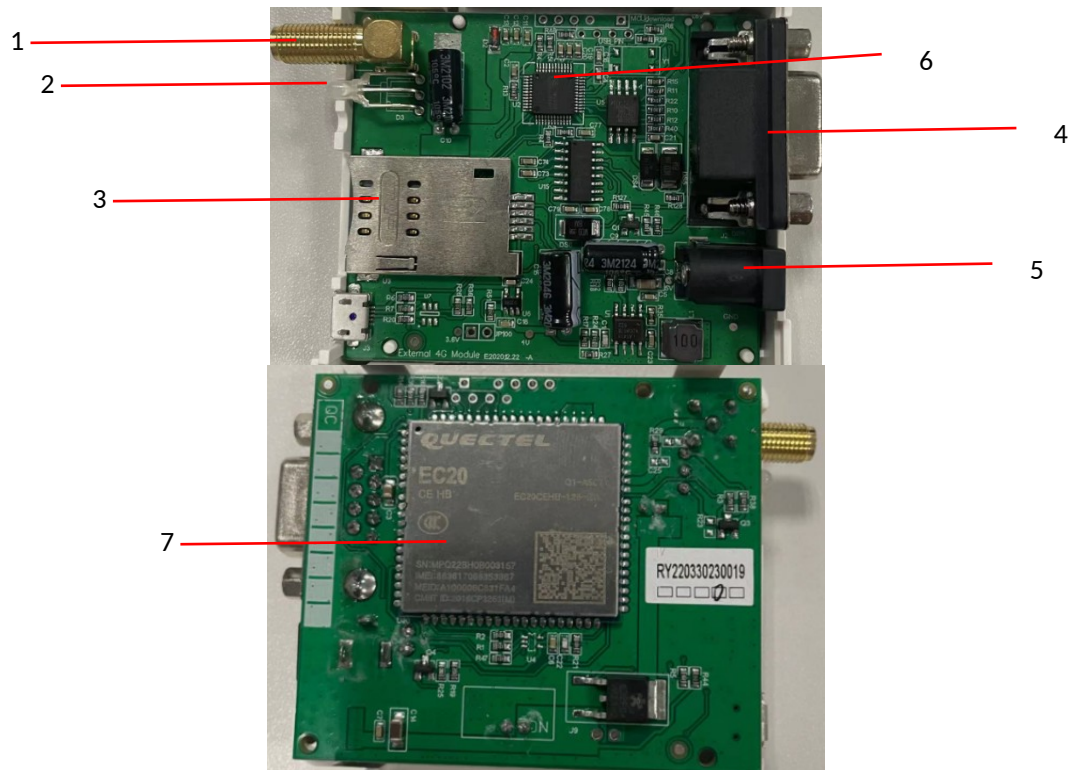


Figure2: NG-1 Module Function Diagram

- 1. Antenna pedestal with SMA type
- 2. Network LED with red always blink
- 3. SIM card pedestal for installing SIM card
- 4. Data cable socket to connect meter
- 5. Power supply socket
- 6. MCU
- 7. EC20 chip

5. Architecture

NG-1 Module is composed of several elements, including:

- CPU is a dual frequency for GSM/LTE chip
- Watch Dog chip to control power supply
- Antenna pedestal with SMA type
- SIM card pedestal for installing SIM card
- LED display to indicate network status
- DC/DC power supply to adjust voltage for 4G CPU

The block diagram below shows the main functional elements of the NG-1 Module:

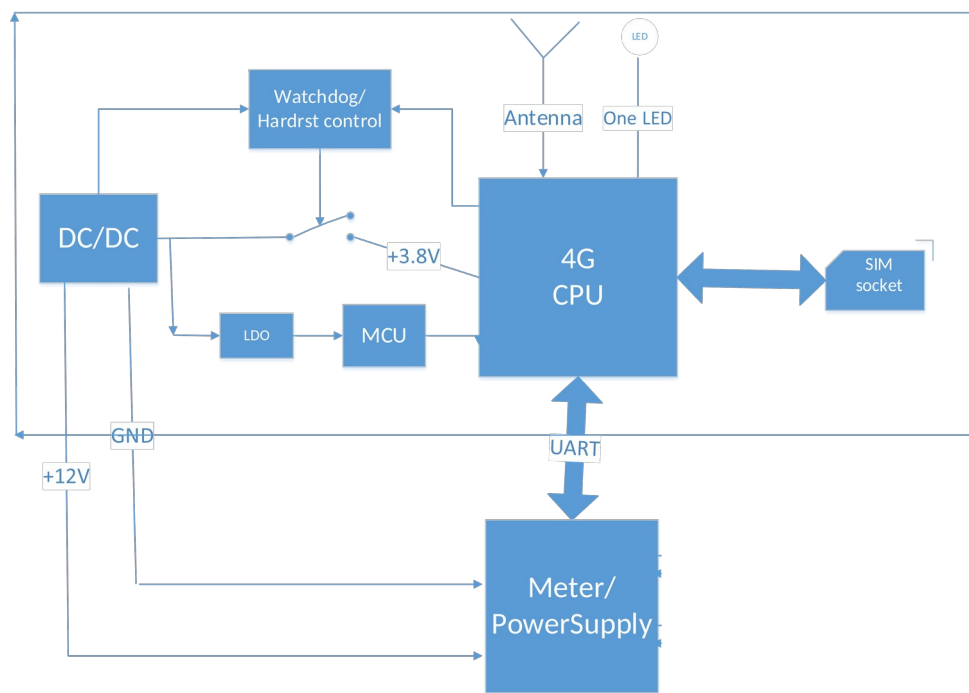


Figure 3: NG-1 Module and Meter System Diagram

6. Dimension

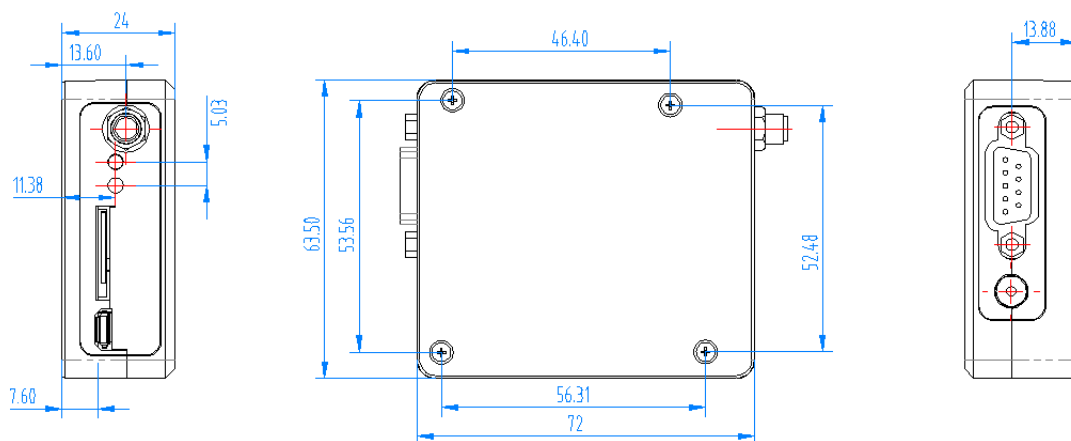
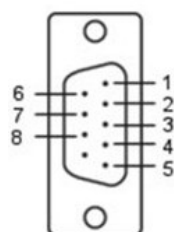


Figure4: NG-1 Module Dimensions

7. RS232 Interface

There are various interfaces in NG-1 Module to connect Meter and Antenna.



Pin	
1	V232
2	TXD (out)
3	RxD (in)
4	NC
5	GND
6	NC
7	NC
8	NC

RS-232 (male) port pin assignment

4G Module Datasheet

Pin No.	Signal Name	Pin Type	Description
1	NC		No connection
2			
3			
4	METER_RXD	Signal (meter input) RS232 TXD	Data from MCU to Meter
5	METER_TXD	Signal (meter output) RS232 RXD	Data from Meter to MCU
6	NC		No connection
7	GND	GND Power	DC Ground
8	NC		No connection
9	NC		No connection
10	NC		No connection

Table 1:NG-1 Module RS232 Interface Definition