

Protoss-PG11

RS485 to GPRS

User Manual

V 1.1



Overview of Characteristic

- ✧ Support Four Frequency Bands, Global Standard (850/900/1800/1900M Hz)
- ✧ Support GSM/GPRS and CMCC or CUCC SIM Card
- ✧ Support RS485 to GPRS Data Transmission, Serial Port Speed Up to 460800bps
- ✧ Supports Max 3 Channel TCP/UDP connections, Each Connection Supports 1400 Bytes of Data Cache, and the Network Channel Can be Bound to the Serial Port.
- ✧ Support Multiple Working Modes: Network Transparent Transmission Mode, HTTP Mode, MQTT, WebSocket
- ✧ Support IOTService Tool, Remotely and Dynamically Modify Module Parameters
- ✧ Support SMS AT Command Configuration

- ✧ Supports Registration Packet , Heartbeat Packet Function, and the Registration Package Supports ICCID, IMEI, IMSI, Software Version number, GPRS Connection Status and other Combinations.
- ✧ Support NTP
- ✧ Support Modbus TCP to RTU, Modbus Master Function
- ✧ Support IOTBridge for Remote Control and Config.
- ✧ Support IOTBridge working time, for example only works from 10:00 to 10:30 to save the data flow charge.
- ✧ Support Serial Port, Network OTA Upgrade Firmware.
- ✧ Multiple Type of Different Power Input:
 - Protoss-PG11-H: 100~240VAC@50~60Hz
 - Protoss-PG11-M: 9~48VDC@1A
- ✧ Size: 102.03 x 64.95 x 27.50 mm (L x W x H) , C45 rail installation

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HISTORY

Ed. V1.0 02-12-2018 First version

Ed. V1.1 03-18-2018 Update RS485 interface

1. PRODUCT OVERVIEW

1.1. General Description

The Protoss-PG11 can meet almost all M2M needs, including automotive and personal tracking services, wireless POS machines, smart metering, industrial PDAs, shared bikes, shared cars and more.

1.2. Device Parameters

Table1. Protoss-PG11 Technical Specifications

Item	Parameter
Wireless Parameter	
GPRS Band	GSM850, EGSM900, DCS1800, PCS1900
GPRS Transmit Power	GSM850/EGSM900: 5dbm~32.5dbm DCS1800/PCS1900: 0dbm~29.5dbm
GPRS Receiving Sensitivity	<-108.5dBm
GPRS Connection Features	GPRS Multi-Slot Level is 10 (default) GPRS Mobile Station Level B
GPRS Date Features	GPRS Data Downlink Transmission: Up to 85.6 kbps GPRS Data Uplink Transmission: Up to 85.6 kbps Encoding Format: CS-1, CS-2, CS-3 and CS-4
GPRS Antenna Interface Characteristic Impedance	50Ω
Serial Port	
Port Number	1
Interface Standard	RS485
Data Bits	7, 8
Stop Bits	1, 2
Check Bit	None, Even, Odd
Baud Rate	TTL: 1200 bps~460800 bps,
Flow Control	No Flow Control Half Flow Control(RS485)
Software	
Configuration	Serial AT Command IOTService Serial Port Configuration Software IOTService Network Configuration Software
Firmware Upgrade	Serial Port or OTA Upgrade
Basic Parameter	
SIM Card Interface	Support Nano-SIM Card: 1.8V, 3V
Working Temp	-40°C~85°C

Storage Temp	-45°C~90°C
Input Voltage	Protoss-PG11-H: 100~240VAC@50~60Hz Protoss-PG11-M: 9~48VDC@1A
Start 20s Average Current	61mA
Networked Standby Average Current	22mA
100 bytes/10 Seconds to Send Data Average Current	57mA
100 bytes/5 Seconds to Send Data Average Current	91mA
100 bytes/2 Seconds to Send Data Average Current	233mA
Peak Current	2A
Size	102.03 x 64.95 x 27.50 mm

1.3. Key Applications

The Protoss-PG11 module connects the serial device to the Internet and conforms to the TCP/IP protocol for transmitting serial data.

- Remote device monitoring
- Production asset tracking and monitoring
- Security field
- Industrial sensors and controllers
- Health medical equipment
- ATM equipment
- Data acquisition equipment
- UPS power management equipment
- Telecommunication equipment
- Data display device
- Hand-held device
- Attendance system and terminal equipment

2. HARDWARE INTRODUCTION

Protoss-PG11 is a GPRS solution for serial device networking. Data transmission via GPRS makes product integration very easy.

2.1. APPEARANCE



Figure 1. Protoss-PG11 Appearance

2.2. Interface Definition



Figure 2. Protoss-PG11 Interface

Table2. Protoss-PG11-H Interface Definition

Pin	Description	Net Name	Signal Type	Comment
1	AC Power Input	L	Power	100~240VAC Input
2	AC Power Input	N	Power	
5		RS485_B-	IO	RS485 B-
6	Signal GND	GND	Power	Used for RS485 GND, usually leave it unconnected
7		RS485_A+	IO	RS485 A+
ANT	Antenna	ANT		GPRS SMA Antenna
SIM	SIM Slot	Nano SIM		
Reload	Restore to factory setting button	Reload	I	Detailed functions see <Notes>
Reset	Reset button	Reset	I	Hardware reset button
Net	Network status LED	Net	O	Boot On: Bootup is OK. 2s Off -> 2s On: GPRS Register is OK. 0.1s Off -> 0.1s On: GPRS data is transferring.
Active	UART Data Transfer	Active	O	Off: No data transfer 0.3s Off -> 0.9s On: UART TX Output 0.3s Off -> 0.3s On: UART RX Receive On: UART bidirection.
Power	Power LED	Power	O	On: Power input OK Off: Power input NG.
Link	Server connection LED	Link	O	On: SOCK A connection OK. Off: no Socket A connection.

Table3. Protoss-PG11-H Interface Definition

Pin	Description	Net Name	Signal Type	Comment
1	DC Power Input	VCC+	Power	9~48VDC@1A Input
2	DC Power Input	GND-	Power	
5		RS485_B-	IO	RS485 B-
6	Signal GND	GND	Power	Used for RS485 GND, usually leave it unconnected
7		RS485_A+	IO	RS485 A+
ANT	Antenna	ANT		GPRS SMA Antenna
SIM	SIM Slot	Nano SIM		
Reload	Restore to factory setting button	Reload	I	Detailed functions see <Notes>
Reset	Reset button	Reset	I	Hardware reset button
Net	Network status LED	Net	O	Boot On: Bootup is OK. 2s Off -> 2s On: GPRS Register is OK. 0.1s Off -> 0.1s On: GPRS data is transferring.
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Power	Power LED	Power	O	On: Power input OK Off: Power input NG.
Link	Server connection LED	Link	O	On: SOCK A connection OK. Off: no Socket A connection.

<Notes>:

I — Input; O — Output; Power—Power Supply

nReload Pin (Button) function:

1. After module is powered up, long press this button (“Low” > 3s) and loose to make the module recover to factory setting.

2.3. RS485 Interface

RS485 use two wire links, A(DATA+), B(DATA-). Connect A(+) to A(+), B(-) to B(-) for communication. Suggest to connect GND together when interference is very severe.

The RS485 interface support maximum 32 485 device, device. The cable maximum length is 1200 meters. Need to add 120Ohm terminal resistor for over 300 meters.

2.4. Mechanical Size

The dimensions of Protoss-PG11 are defined as following pictures(mm):

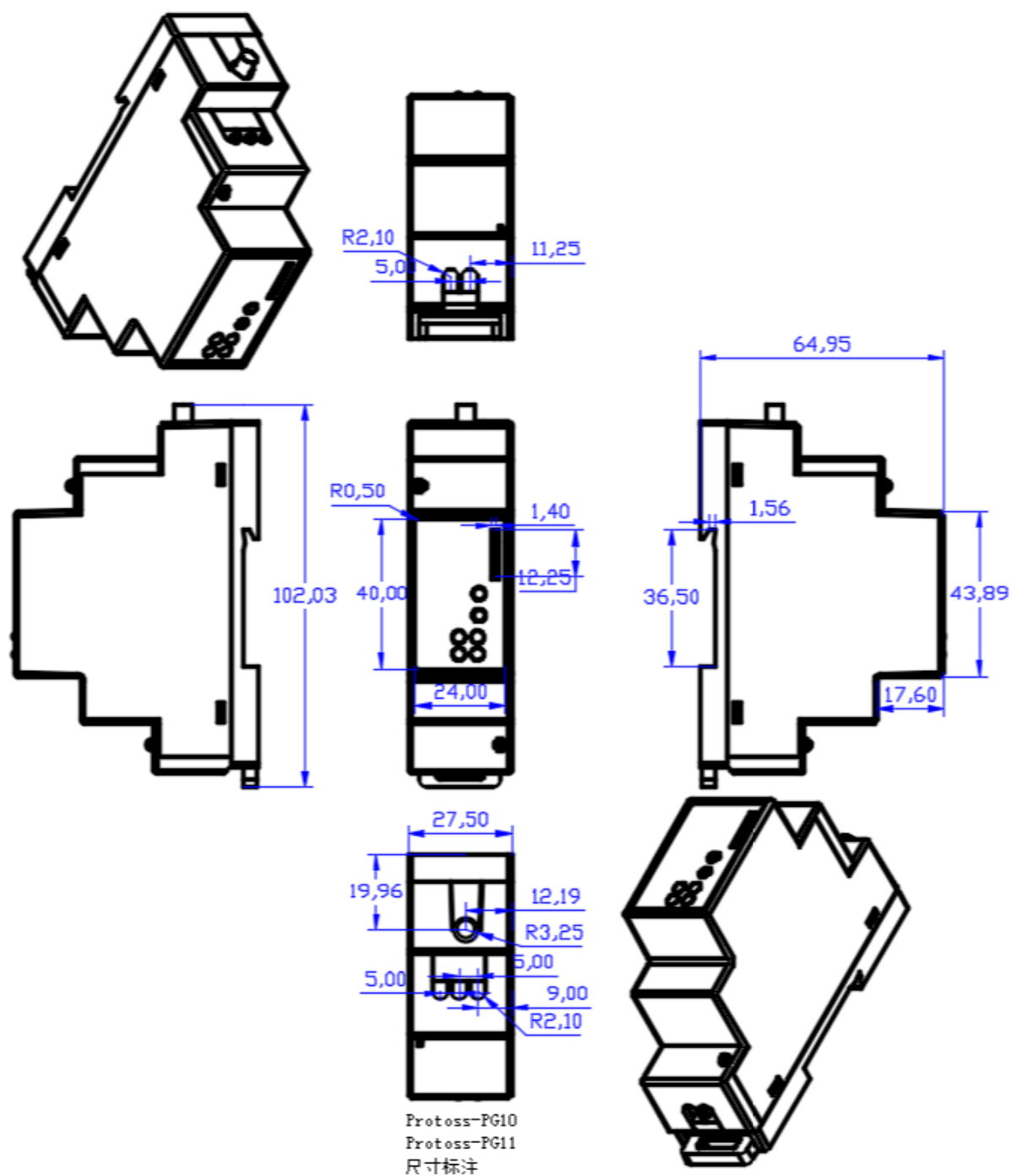




Figure 3. Protoss-PG11 Mechanical Size

2.5. Product Installation



Figure 4. C45 Rail Installation

2.6. Product Order Information

Based on customers detailed requirements, we provide different configuration Protoss-PG11, details as below:

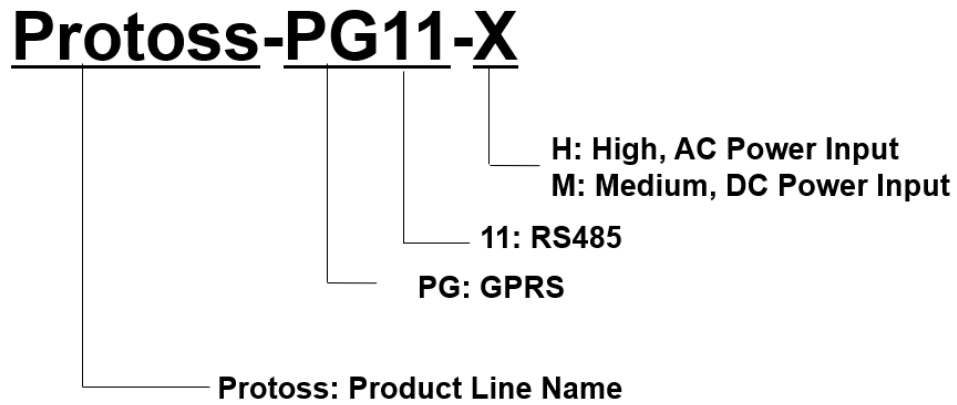


Figure 5. Protoss-PG11 Product Order Information

3. FUNCTION DESCRIPTION

Refer to “4G_2G_NB DTU Products Functions” document for more detailed function.

APPENDIX A: CONTACT INFORMATION

Address: Room1002 , #1Building, No.3000 Longdong Avenue, Pudong District, Shanghai, China 201202

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