

Robustel



Modbus RTU master for AMR

Edition: Sep. 2013

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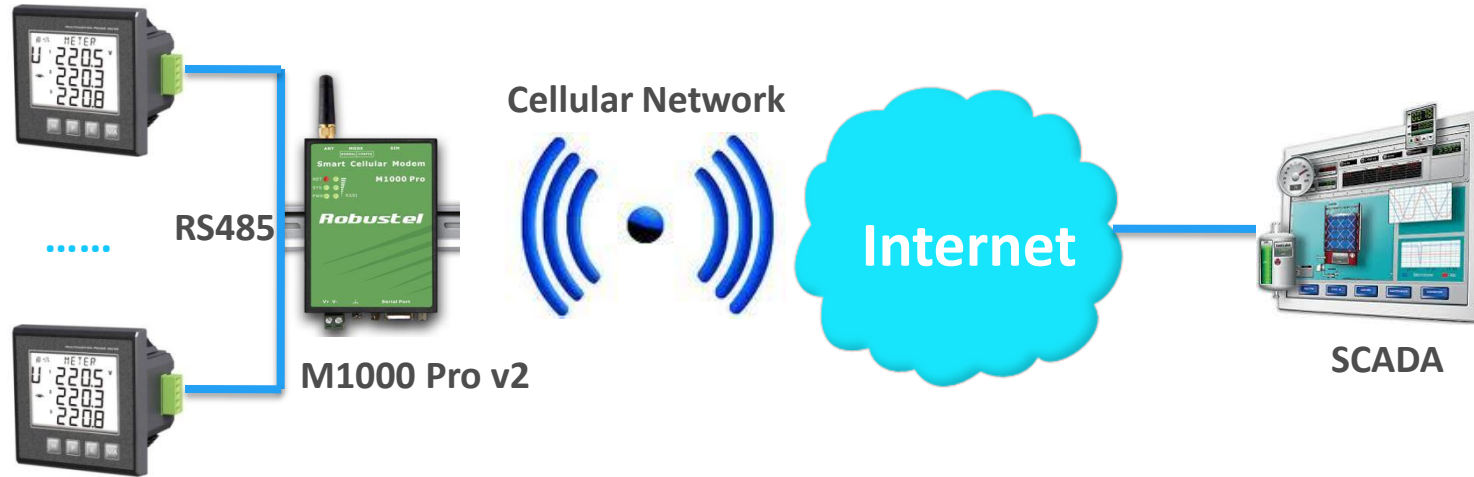
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AMR Introduction



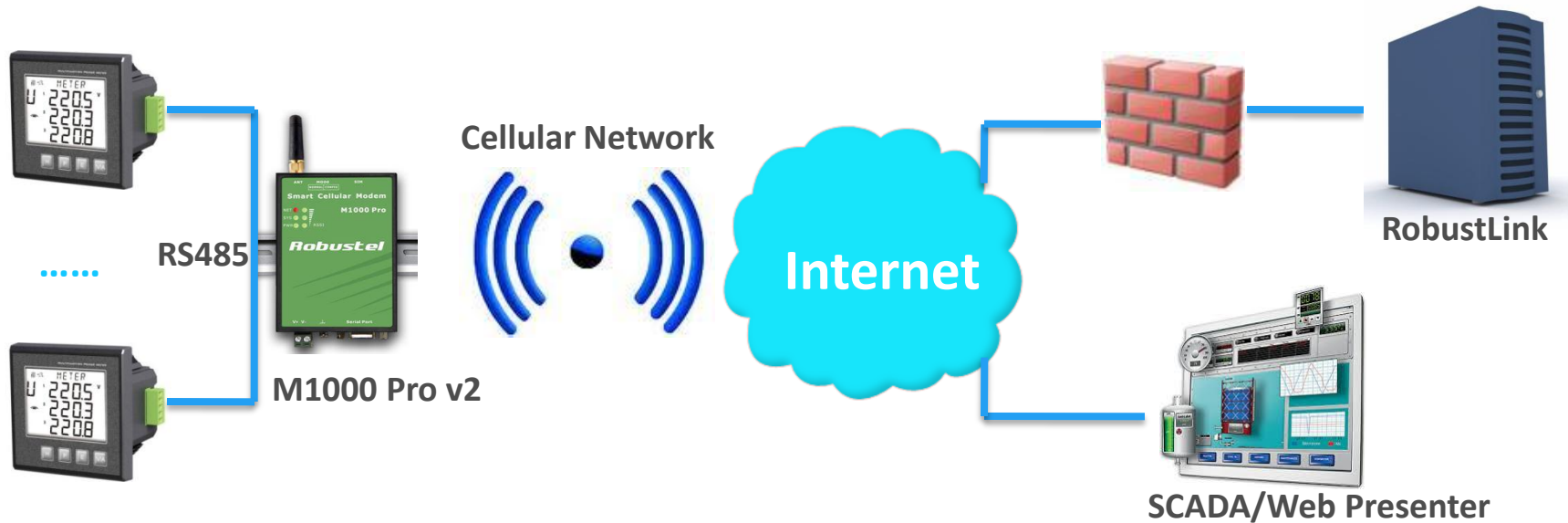
Automatic meter reading, or **AMR**, is the technology of automatically collecting consumption, diagnostic, and status data from energy metering devices (gas, electric) or water meter and transferring that data to a central database for billing, troubleshooting, and analyzing. This technology mainly saves utility providers the expense of periodic trips to each physical location to read a meter.

Solution 1: Modbus RTU to Modbus TCP



- M1000 Pro v2 works as Modbus RTU to Modbus TCP Gateway.
- M1000 Pro v2 connects to multi meters (Modbus RTU slave) via RS485.
- SCADA (Modbus TCP master) connects to M1000 Pro v2 via cellular network.
- SCADA sends Modbus TCP polling to M1000 Pro v2.
- M1000 Pro v2 translates this polling from Modbus TCP to Modbus RTU, and forward it to the correspond meter.
- Meter receives Modbus RTU polling from M1000 Pro v2, then sends meter data to it.
- M1000 Pro v2 translates this meter data from Modbus RTU to Modbus TCP, and transmit it to the SCADA.

Solution 2: Modbus Master



- M1000 Pro v2 works as Modbus/RTU Master.
- M1000 Pro v2 Polls, stores and converts all the meter data in local storage.
- M1000 Pro v2 uploads local meter data to RobustLink server in preset interval (1-1440 minutes) via cellular network.
- RobustLink server stores the meter data in correspond file folder (one file folder corresponds one modem).
- SCADA/Web Presenter fetches the files for further processing using FTP or HTTP protocol.

Why Modbus Master solution

- **Time Effective**

In solution 1, SCADA need to send Modbus polling to each meter, and waiting for their responds. This will waste a lot of time if deploying plenty of meters!

Solution 2 can avoid this problem because SCADA only need to fetch the meter data from RobustLink Server.

- **Data Traffic Effective**

In Solution 2 M1000 Pro v2 does not need to receive Modbus polling from SCADA and it will save a lot of data traffic.

- **Cost Effective**

In solution 2, customers even do not need to deploy SCADA in their central location, because M1000 pro v2 does not need to receive Modbus polling from central location any more. One more thing is that the meter data store in RobustLink is human-readable, so customers can use other cost effective ways like web to fetch and read these meter data.

Why Modbus Master solution

- **More Reliable**

In solution 2, even the cellular connection is unavailable temporary, M1000 Pro v2 can store the meter data in local storage, and re-upload the data to RobustLink when the cellular connection restore to avoid the data missing.

- **No Fixed Public IP/Domain Name Required**

In solution 1, M1000 Pro v2 need to work under TCP server mode to waiting and receive the Modbus polling from SCADA. So fixed public IP/domain name is required.

Solution 2 can avoid this problem because M1000 pro v2 only need to work under TCP client mode and upload meter data to RobustLink. So no fixed public IP/domain name is required and customers can use normal standard SIM.

- **Centralized Control**

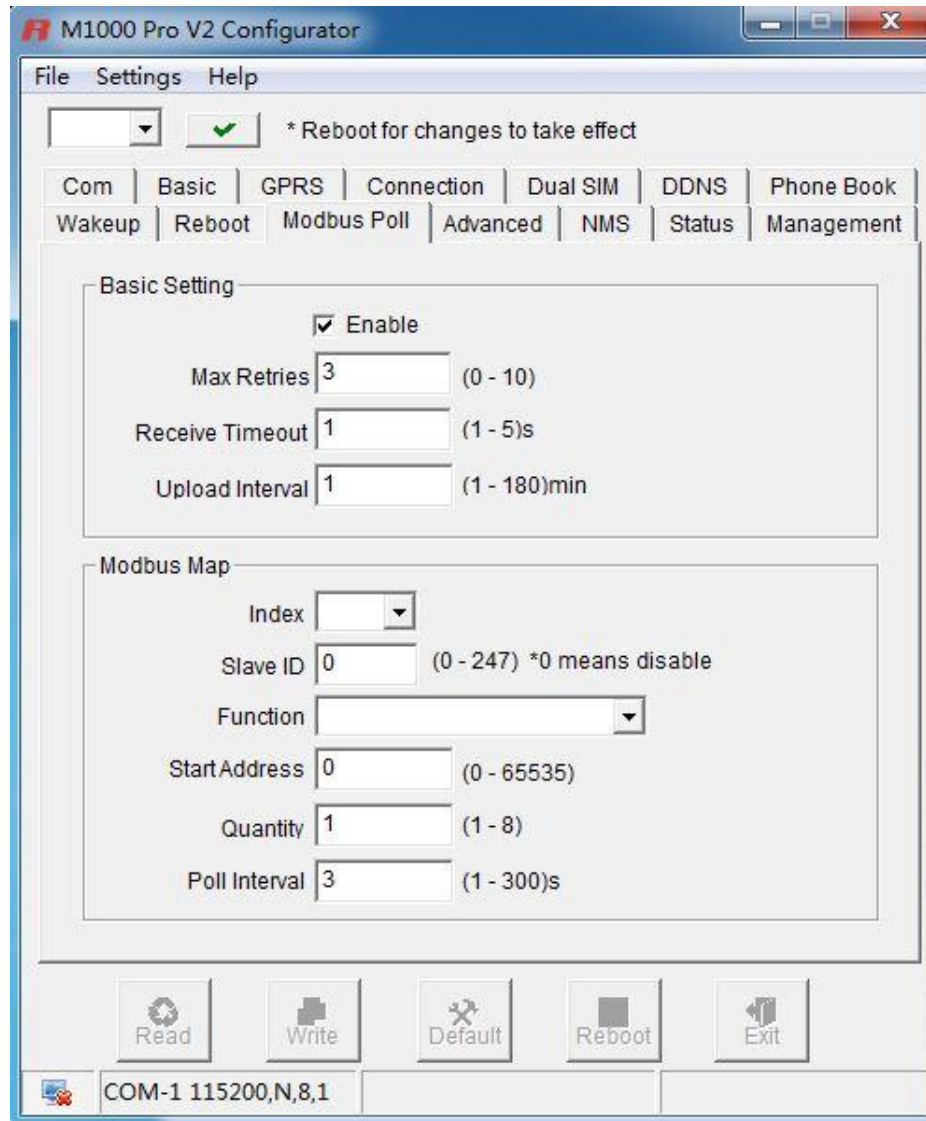
In solution 2, RobustLink can provide centralized, over-the-air monitoring, configuration and upgrading for all the deployed M1000 pro v2.

M1000 Pro v2



- Dual SIM redundancy for continuous cellular connections.
- Supports GPRS/EDGE/UMTS networks.
- Transparent TCP and UDP socket connections.
- Auto GPRS connect/reconnect (no AT commands required), watchdog for reliable communications.
- Always online or dial on demand such as wake up by serial data/caller ID/SMS and offline when idle.
- Supports ICMP, DDNS, Virtual COM, Modbus/RTU to Modbus/TCP.
- **Modbus RTU Master is coming soon.**
- Auto reboot via SMS/Caller ID or during a preset time of a day.
- Auto SMS of IP for dynamic IP SIM Card.
- RS232/RS485 selectable by software.
- Six LED indicators provide signal strength (RSSI) and status.
- 9 to 36 VDC input and -25 to 60 ° C operating temperature.
- Din-Rail or Wall mounting installation.

M1000 Pro v2



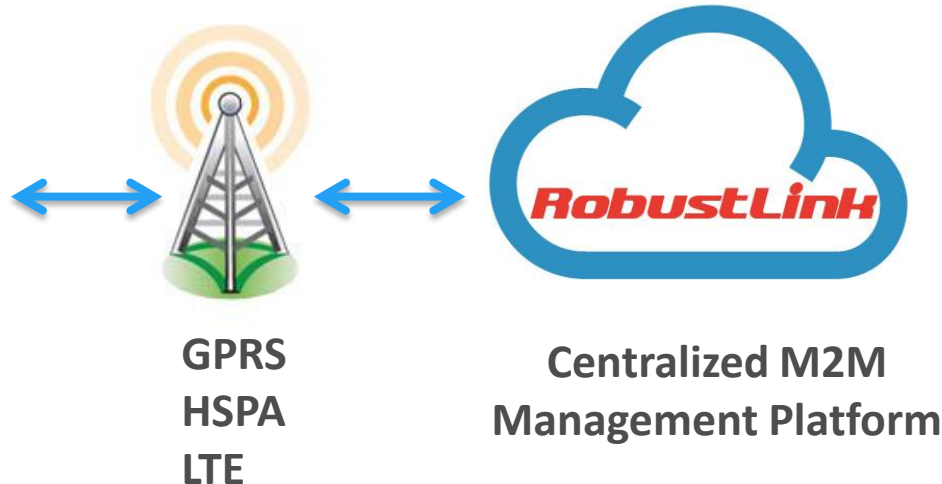
RobustLink Centralized M2M Management Platform



M1000 Pro V2
Serial to Cellular Gateway



R3000
Industrial Cellular VPN Router



- Remote Monitoring & Configuration
- Remote Firmware Updates
- **Meter Data Storage**
- Data Forwarding
- Number of Devices: 1000+
- Management: Web

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HOME CONFIGURATION ADMINISTRATION HELP

Records per page: 25 Search:

Index	Status	Device ID	Device Type	IMEI	RSSI	IP Address	Version	Region	Sync	Details
1	✘	11234	M1000_ProV2		0					Config
2	✔	123456789012352	M1000_ProV2	310098562764001	28	172.16.2.1	2.0.0		⚠	Config
3	✔	123456789012359	M1000_ProV2	310098562764002	22	172.16.2.2	2.0.0		⚠	Config
4	✔	123456789012366	M1000_ProV2	310098562764003	23	172.16.2.3	2.0.0		⚠	Config

Device ID: 123456789012366
Device Type: M1000_ProV2
IMEI: 310098562764003
IMSI: 567896843267003
RSSI: 23
Register: Registered Home Network
Operator: Mobile Company
Cell ID: 2839,C903
SMS Center: 1380020003
ToTal SIM Number: 2
Current SIM Number: SIM2
IP Address: 172.16.2.3
DNS1: 119.80.8.3
DNS2: 119.80.8.4
Online Time: 30
Transmit State: 0

Records from 1 to 25 (Total: 31) First Prev 1 2 Next Last

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Thank you!

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