

MA304M

Smart Three Phase Meter with Direct Connection



SPECIFICATION

| | | | |
|------------------------------|--|-------------------------------|-----------------------------|
| Connection | 3 Phase, 4 Wire | Meter Constant | 1000 imp/kWh, 1000imp/kVarh |
| Accuracy Class | Active : 1.0 Reactive : 2.0 | Frequency Range | 50 Hz \pm 5% |
| Operating Temperature | -20°C to 55°C | Impulse Voltage Rating | 10 kV |
| Storage Temperature | -25°C to 70°C | High Voltage Rating | 4 kV |
| Humidity | 95% RH | Surge Test | 4 kV |
| Dimension | 250mm x 170mm x 89mm | Degree of Protection | IP54 |
| Lifetime | 15 years | | |
| Weight | 1.5 kg | | |
| Voltage Range | 230V \pm 20% | | |
| Starting Current | 0.4 % Ib | | |
| Nominal Current | 10(100) A | | |
| Power Consumption | Voltage : < 1W, 4VA Current Circuit < 2VA | | |

CHARACTERISTIC

- Improve revenue and energy efficiency with AMI solution
- Modular designed for flexible energy data management
- Compliant with DLMS/COSEM
- Fraud or tampering protecting, alarms and events record
- High reliability and data security
- RS232 port of RJ45 type support external devices
- Remote connect/disconnect
- Replaceable external battery



PROUD BEING
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FEATURES

- Communication frequency: 433 MHz ISM Band
- Auto-repeater, network self-healing
- Meter auto-registration
- Meter can work as repeater
- Up to two repeater level

TECHNICAL PARAMETERS

Electrical Specifications

| | |
|---------------------|--------------------------------------|
| RF Output impedance | Typical 50Ω |
| Power Supply | Min. 15Vdc, Typical 16Vdc, Max 17Vdc |
| Consumption (RX) | Min. 0.6W, Typical 0.7W, Max 0.8W |
| Consumption (TX) | Min. 1.3W, Typical 1.4W, Max 1.5W |

TX Specifications

| | |
|-----------------------------------|---|
| TX frequency (5 Channel) | Min. 433.05 MHz, Typical 433.92 MHz, Max. 434.79MHz |
| TX power (ERP) | 10 dBm |
| Modulation Type: CSS (LoRa) | |
| Unwanted Emission (9 kHz - 1 GHz) | -36 dBm |
| Unwanted Emission (1 kHz - 4 GHz) | -30 dBm |

RX Specifications

| | |
|-----------------------------------|---|
| RX frequency (5 Channel) | Min. 433.05 MHz, Typical 433.92 MHz, Max. 434.79MHz |
| RX sensitivity (4.588kbps @ SF=7) | Min. -125 dBm, Typical -127 dBm, Max. -129 dBm |
| Blocking (@2MHz) | Min. 30 dBm, Typical 72 dBm |
| Blocking (@10MHz) | Min. 58 dBm, Typical 78 dBm |



CR116

RF Module



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FEATURES

- Communication frequency: CLENEC Band A
- Auto-Repeater, network self-healing
- Meter auto-registration
- Meter can work as repeater
- MAC-layer security

TECHNICAL PARAMETERS

| | |
|--------------------|---|
| Modulation | Robust/DBPSK/DQPSK/D8PSK |
| Frequencies | 33.8-94.6 kHz, subcarrier spacing of $\Delta f = 1.5.625$ kHz. Number of carriers is 36 |
| Transmission rates | 2.4 - 42.6kbps |
| Power consumption | <2.4W |
| Power Supply | 16Vdc ($\pm 3\%$) |



CP114

PLC Module



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FEATURES

- **Performance and Availability:** Support reconnection behavior after detecting an unexpected interrupted communication session
- **Roaming:** 1. Support national roaming between GPRS networks of different national telecom provides
2. Support SIM cards with multiple IMSIs
- **SIM:** 1. Support 2FF SIM card
2. Support IMEI lock of the USIM card
- **Indication of GPRS signal strength:** 1. Indicate GPRS signal strength in a minimum of 4 separate levels
2. RSSI value is readable
- **Antenna:** 1. Support both internal antenna and external antenna
2. Exchange the antenna without de-energizing the meter
- **Wake-up:** 1. Support fully qualified domain names
2. Receive and store the IP addresses of the primary and secondary address when establishing a PDP context based on the DHCP protocol.
3. Support data pushing
- **Authentication and security:** 1. Changeable APN/password
2. Support RADIUS authentication using PAP or CHAP
3. Network access information is not saved on the SIM cards
4. Communication settings to be remotely configurable
- **Assign IP address:** GPRS module support dynamic IP address assignment

TECHNICAL PARAMETERS

Electrical Specifications

| | |
|---------------------|---------------------------------------|
| RF Output Impedance | Typical 50Ω |
| Power supply | Min. 15Vdc, Typical 16Vdc, Max. 17Vdc |
| Consumption (RX) | Min. 0.6W, Typical 0.7W, Max. 0.8W |
| Consumption (TX) | 2.5W |

GPRS Specifications

| | |
|--------------------|--|
| Frequency bands | GSM850, EGSM900, DCS1800, PCS1900 |
| Transmitting power | Class 4(2W) at GSM850 and EGSM900 Class 1(1W) at DCS1800 and PCS1900 |
| Data GPRS | GPRS data downlink transfer: max. 85.6kbps GPRS data uplink transfer: max. 42.8kbps |
| Coding scheme | CS-1, CS-2, CS-3 and CS-4 |
| SIM Card | Internal embedded, 1.8V/3V, type: 2FF |
| Antenna | Internal PCB Antenna |



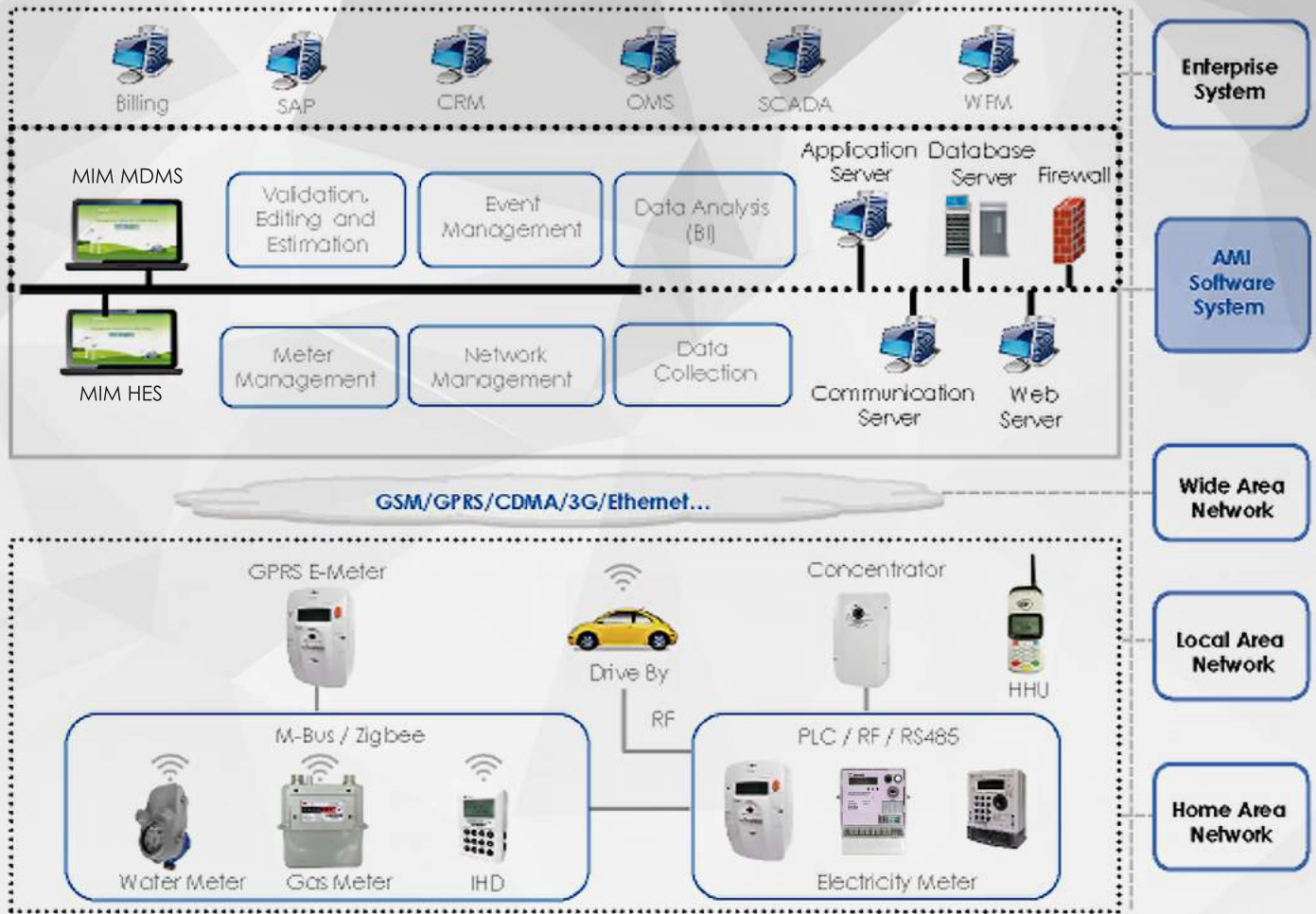
CG116

GPRS Module



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EMPOWER AMI SYSTEM

FEATURES

Interoperability

- Modular protocol adapter, support multiple protocols
- Latest DLMS green book 8th edition, blue book 12th edition
- Integrated protocols up to now:
 - Dutch DSRM 4.2, 5.0
 - UK GBCS
 - Spanish T5
 - IDIS package 2
- Provide IEC61968-9 Web Service interface to other system, e.g. MDMS

Capability

- Support millions of meters
- Achieve to 99.99% availability with fault tolerance solution

Flexibility

- Multi-channel communication (e.g. GPRS/LTE/Eth./PLC/RF) supported
- Support multi-database, such as Oracle, SQL Server, Informix, My SQL
- Support Windows and Linux OS
- Scalable deployment, depends on the scale of the roll-out

Benefits for Customer

- Correct metering data and bill data
- Real time / near time data
- Improve grid service to satisfy customer with in time events report and response
- Reduce the cost by time of use



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