

MA304M

Smart Three Phase Meter
with Direct Connection



SPECIFICATION

Connection	3 Phase, 4 Wire		
Accuracy Class	Active : 1.0 Reactive : 2.0	Meter Constant	1000 imp/kWh, 1000imp/kVarh
Operating Temperature	-20°C to 55°C	Frequency Range	50 Hz $\pm$ 5%
Storage Temperature	-25°C to 70°C	Impulse Voltage Rating	10 kV
Humidity	95% RH		
Dimension	250mm x 170mm x 89mm	High Voltage Rating	4 kV
		Surge Test	4 kV
		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



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



PROUD BEING
MALAYSIAN
www.mim.net.my

Malaysian Intelligence Meters Sdn. Bhd. (Reg. 503540-V)
No. 3, Jalan Pemberita U1/49, Temasya Industrial Park, Seksyen U1,
Glenmarie Shah Alam, 40150, Selangor Darul Ehsan, Malaysia
T: +603 5569 5461 | F: +603 5569 5468 | E: info@mim.net.my

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



PROUD BEING
MALAYSIAN
www.mim.net.my

Malaysian Intelligence Meters Sdn. Bhd. (Reg. 503540-V)
No. 3, Jalan Pemberita U1/49, Temasya Industrial Park, Seksyen U1,
Glenmarie Shah Alam, 40150, Selangor Darul Ehsan, Malaysia
T: +603 5569 5461 | F: +603 5569 5468 | E: info@mim.net.my

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



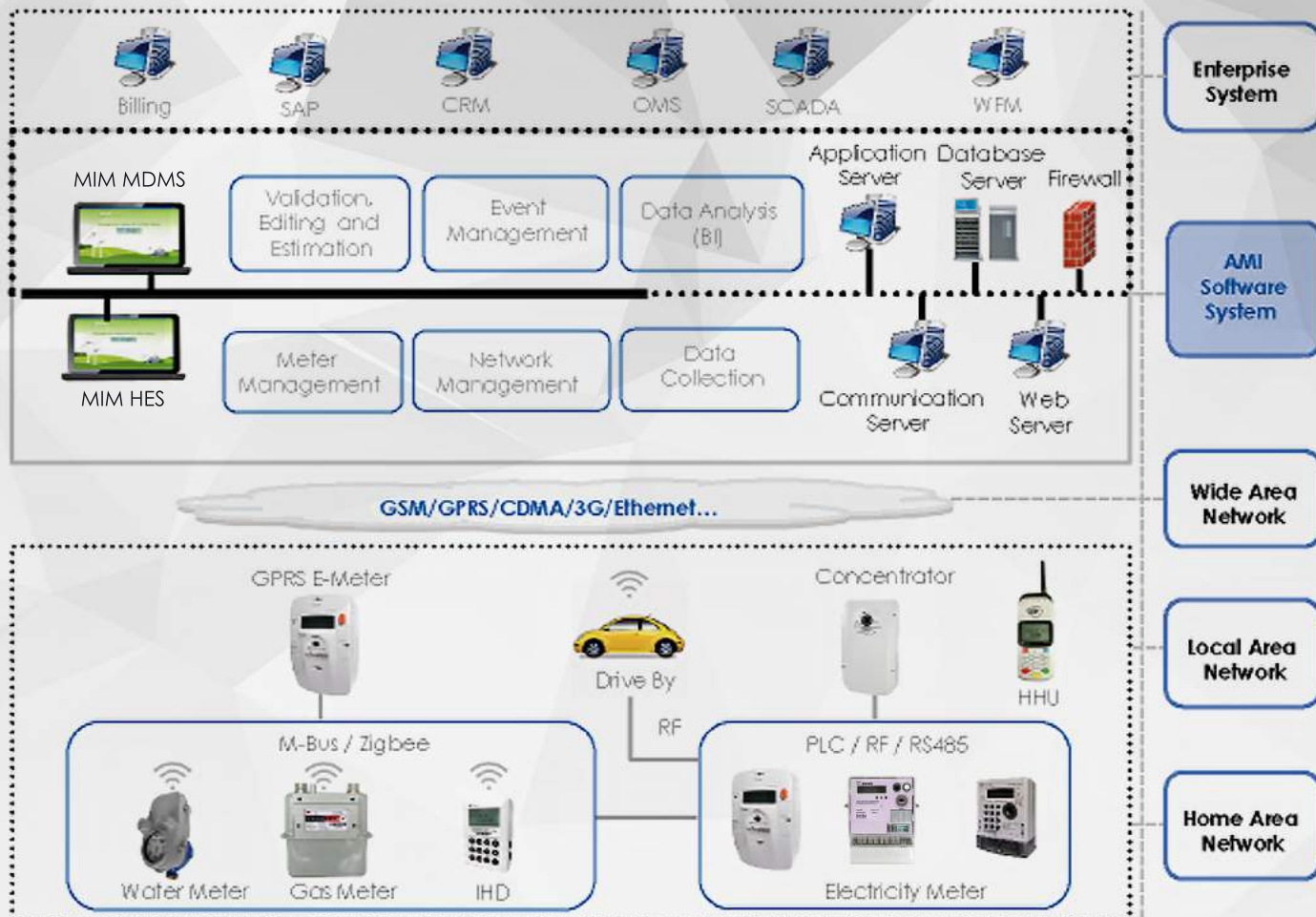
CG116

GPRS Module



PROUD BEING
MALAYSIAN
www.mim.net.my

Malaysian Intelligence Meters Sdn. Bhd. (Reg. 503540-V)
No. 3, Jalan Pemberita U1/49, Temasya Industrial Park, Seksyen U1,
Glenmarie Shah Alam, 40150, Selangor Darul Ehsan, Malaysia
T: +603 5569 5461 | F: +603 5569 5468 | E: info@mim.net.my



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 DSMR 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