



Taiace

ENERGY MONITORING SYSTEM AND SMART METER



ENERGY MONITORING SYSTEM (EMS)

SCALABLE & RELIABLE EMS Solution

Our EMS Solutions offers a robust system to gather data from hundreds of thousands of meters and devices in the field. Its user-friendly interface provides useful reports to the daily operation of our business.

REAL TIME DATA ANALYSIS

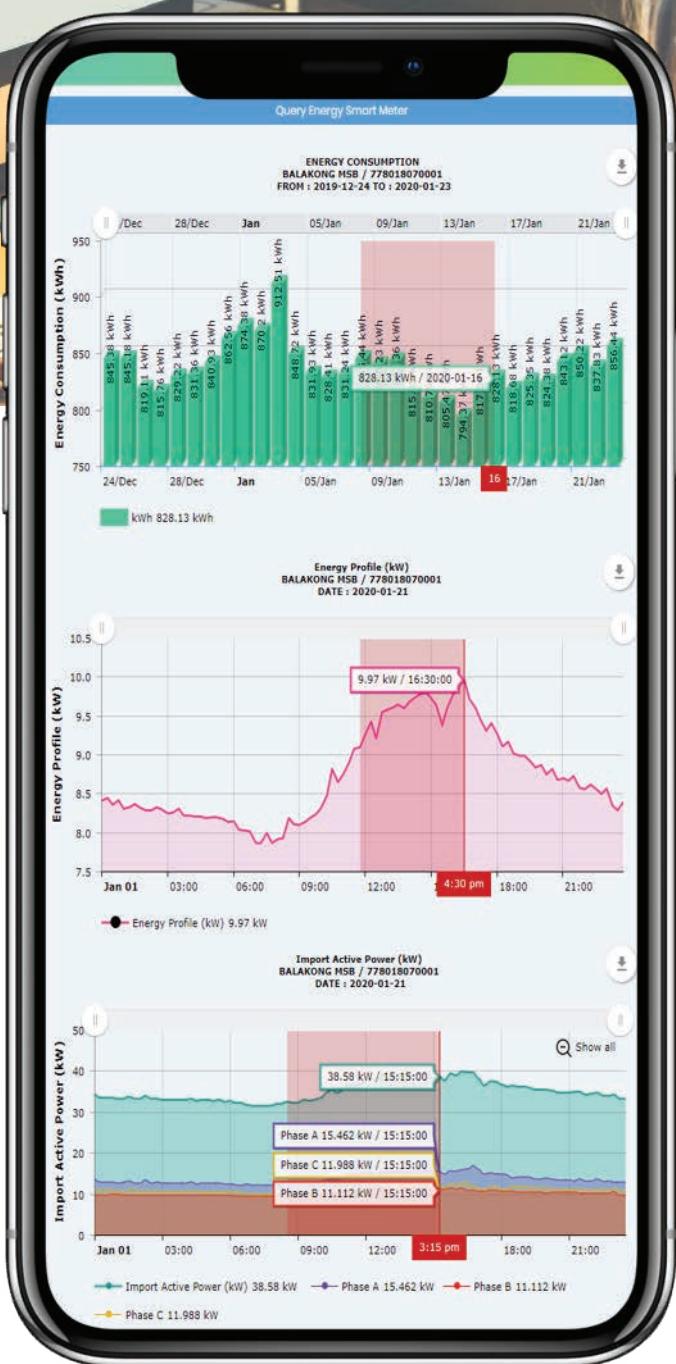
Providing Customer With Full Visibility On Real Time Energy Savings Performance Via Remote Monitoring Solutions Accessible Through Internet

ESTABLISHED SINCE 2016

Our EMS Solution technology developed since 2016.
More than 1000 Device Deploy around Malaysia and Indonesia.

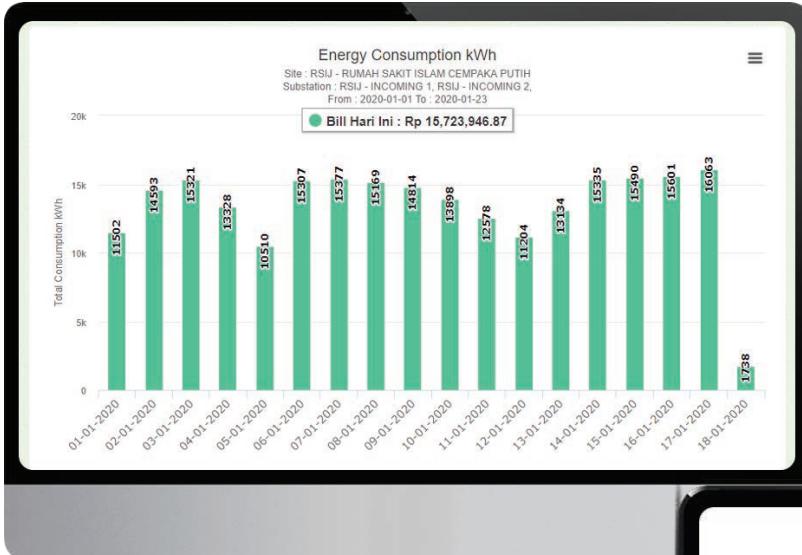


Monitor, Measure, Control Electrical Building Loads



OUR ONLINE MONITORING SYSTEM (EMS)

Monitor, Measure, and Control Electrical building loads

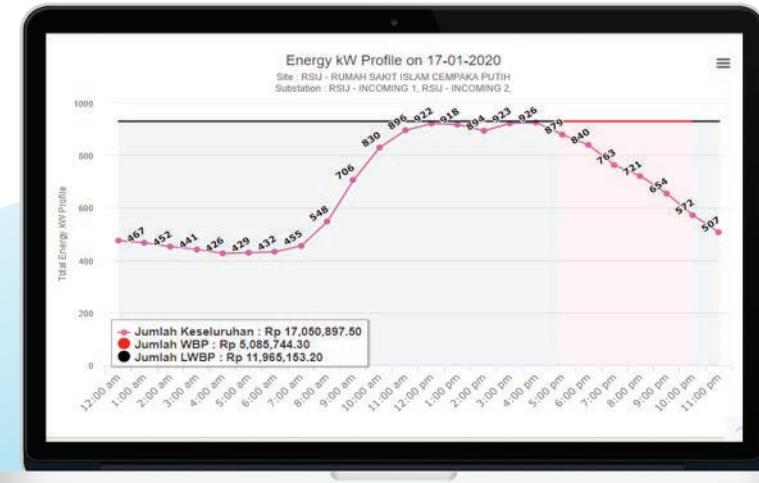
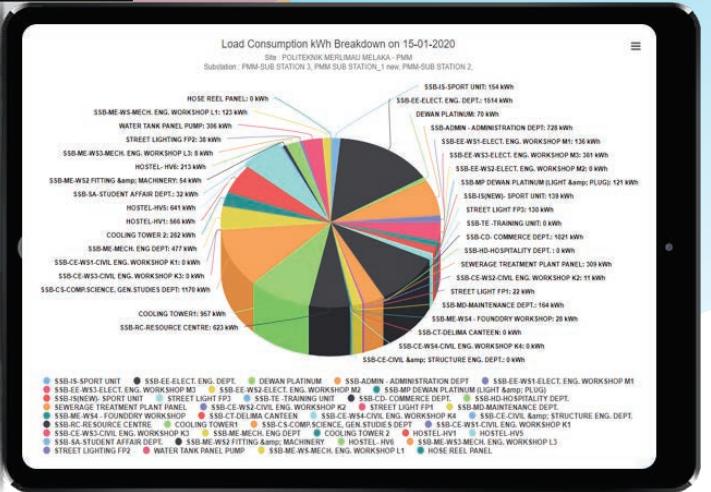
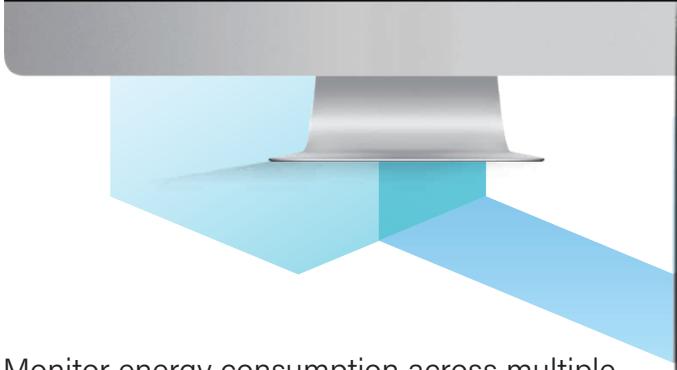


Monitor Energy (Kwh) Consumption by

- Hour,
- Daily,
- Monthly
- Yearly

Read and Export Smart Meter Reading

- Current (A)
- Voltage (V)
- Power Factor (F)
- Active Power (Kw)
- Others



Drill it! So you can identify areas that use a lot of energy during peak load times through our EMS System

Not only this ! But there are many more exciting other features in our EMS system.

Our Smart Meters Overview

DLMS compliant, MID Approved top-quality smart meters; reliable and cost-effective one-stop metering solutions. Here We have 3 types of smart meters depending on scenario site deployment.



P2000-T (Transformer Operated Three Phase Smart Meter)

P2000-T (Transformer Operated Three Phase Smart Meter)

C2000 Single Phase / Two Phase Smart Meter

Energy Data Acquisition Terminal (EDAT)

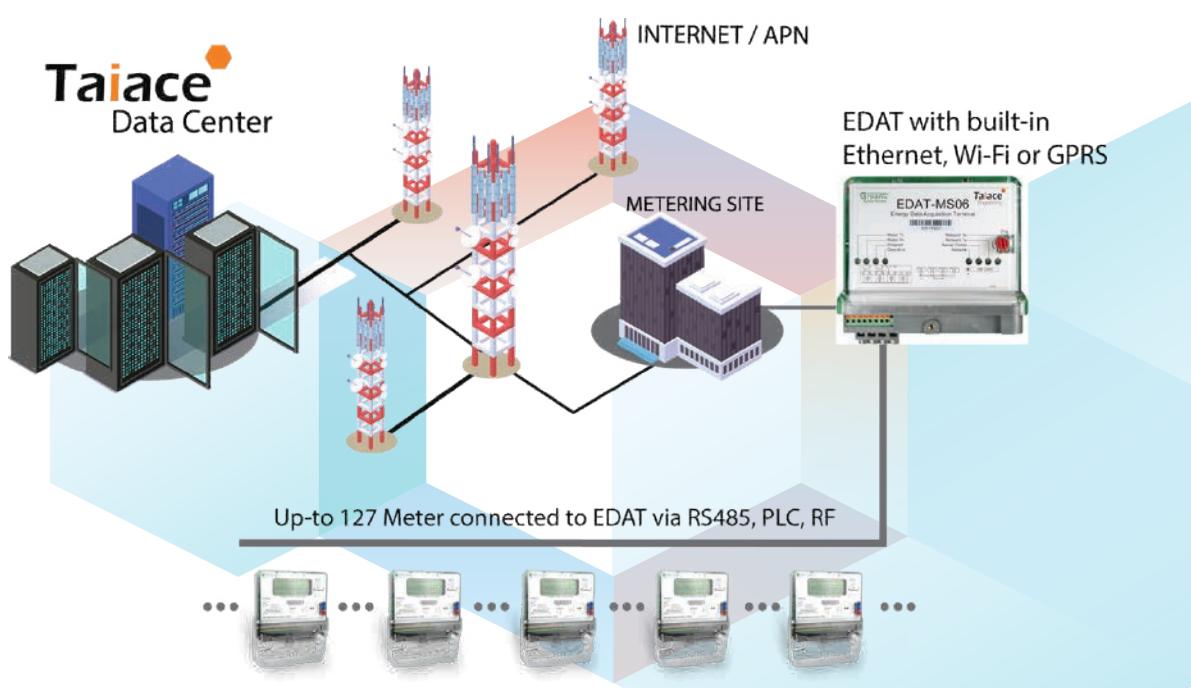


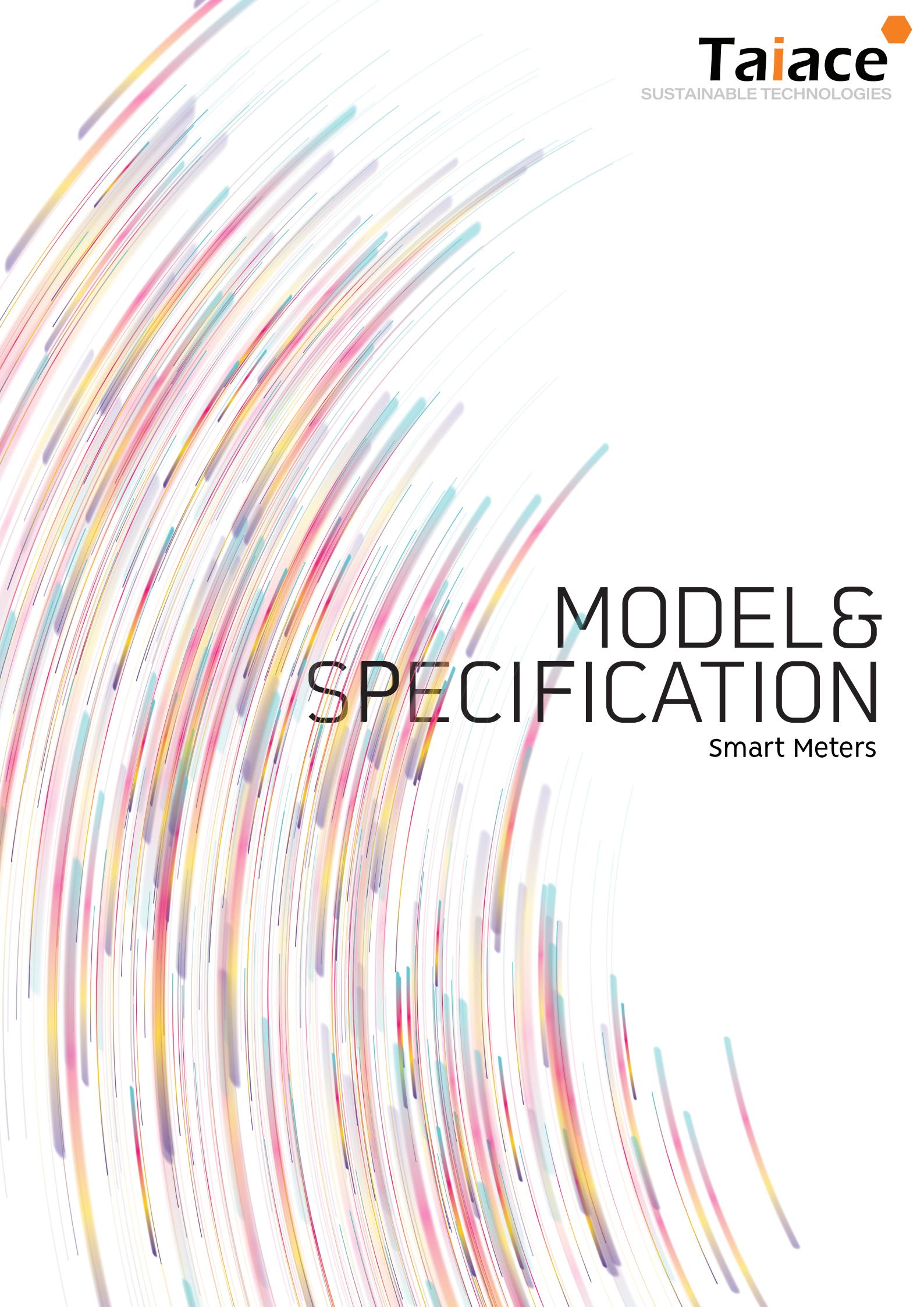
Hot-Pluggable Module for Our Smart Meters

Wireless GSM/GPRS Modem

Wireless 4G/LTE Modem

Example Scenario of our Smart Meter Deployment





The background of the page features a dense, abstract pattern of thousands of thin, curved lines in various colors, including shades of blue, green, yellow, red, and purple, which curve and overlap across the entire surface.

MODEL & SPECIFICATION

Smart Meters

P2000-T

Transformer Operated *Three-Phase Smart Electricity Meter*

Class 0.2s, Class 0.5s, Class 1.0

Certified by 



FEATURES

- High accuracy measurement of kWh, kvarh, & kVAh
- Maximum demand registration of kW, kvar & kVA
- Instrumentation of voltage, current, power, power factor & harmonics
- Time of Use (TOU) control with flexible programming for up-to 8 tariffs
- 2 configurable load profiles with recording of ≥ 450 days at 60'interval
- 4 event logs with configurable power quality or tampering events
- High quality 8 or 11-digit LCD display with large characters & backlight
- Internal real-time clock (RTC) with super capacitor and backup battery
- Supports DLMS, IEC 62056-21, or MODBUS communication protocols
- Encapsulation type meter casing design for reliability and security
- Replaceable backup battery for meter reading without power

OPTIONS

- AMR ready w/ hot-pluggable internal GPRS, Wi-Fi, or Ethernet module
- Local communication options: Optical port, RS485, RS232, PLC, RF
- Dual source measurement and registration
- Sub-meter reading via RS485 and data aggregation features
- STS certified prepayment mode with tokens or contactless smart card
- Remote or local firmware upgrade support

APPLICATION

- Transformer-operated CT or CT/PT
- Generation, transmission, substation, and distribution billing
- 3-phase 4-wire or 3-phase 3-wire connections
- All voltage and current ratings

BENEFITS

- High accuracy measurement under all operational conditions
- Instrumentation and power quality data for monitoring & diagnostics
- AMR ready with hot-pluggable communication modules
- Supports DLMS communication protocol (Certified)
- Multiple local and remote communication technology options available
- Flexible software configurations for measurement, billing, TOU, display, load profile and event logs
- Patented IP54 whole case design for superior strength and anti-tampering

ELECTRICAL

Connection Type	Transformer operated
Measurement Modes	3-phase 4-wire / 3-phase 3-wire
Accuracy Class	Class 0.2s, Class 0.5s, Class 1.0
Rated Voltage	57.7/100V to 240/415V
Rated Current	1 (10) A, 1 (5) A, 5 (20) A
Starting Current	< 0.1% I _n
Rated Frequency	50 or 60 Hz
Power Consumption	< 1W, < 2.5VA per Phase
Voltage Circuit	< 0.1VA
Current Circuit	

MECHANICAL

Dimensions	255mm x 200mm x 84.5mm
Weight	1.55 kg (approximately)
Insulation	Protective Class II
Ingress Protection	IP54
Case / Terminal Cover	High Quality Polycarbonate
Terminal Block	Flame-Retardant Bakelite

ENVIRONMENT

Working Temp.	-25°C to +75°C
Storage Temp.	-40°C to +85°C
Humidity	0 - 95% non condensing
Fast Transient Burst	4kV
Static Discharge	8kV Contact / 15kV Air Discharge
Impulse Voltage	6kV, 1.2/50μs pulse
AC Voltage	4kV, 50Hz

REAL-TIME CLOCK

Accuracy	< 0.5 seconds / 24 hours
Backup Battery	Lithium Battery (20 years life)
Backup Time	≥ 15 years without power
Clock Synchronization	Local or remote via AMR

DISPLAY

LCD Display	2 line, 8 or 11-digit LCD display
Display Mode	Automatic, Push Button, Test
Display Item	200 configurable display items

INPUT & OUTPUT

Electric Pulse I/O	4 Programmable Ports (optional)
Test Pulse Output	400 - 16000 imp/kWh, kvarh
LED Pulse Output	400 - 16000 imp/kWh
Pulse Constant	Programmable
Auxiliary Power	110V - 240V (optional)

COMMUNICATION OPTIONS

Local Communication	Optical/Infrared, RS232, RS485, PLC, RF (433/866MHz)
Remote Communication	GPRS/GSM, Wi-Fi, Ethernet
Communication Protocol	DLMS/COSEM, IEC62056-21, MODBUS

MEASUREMENT & BILLING

Energy	Total & per phase import/export kWh, kvarh, kVAh; 4-quadrant kvarh; Absolute or net metering (optional)
Maximum Demand	Total & per phase import/export kW, kvar, kVA
Automatic Billing Data Recording / MD Reset	Date & Time Programmable

INSTRUMENTATION

Instantaneous Values	Current, Voltage, Power, Average Demand, Power factor, Phase Angles and Frequency
Harmonics	1 to 31st order voltage & current harmonics & THD (optional)
Voltage Sag & Swell	25 levels with sub-second detection (optional)

LOAD PROFILE

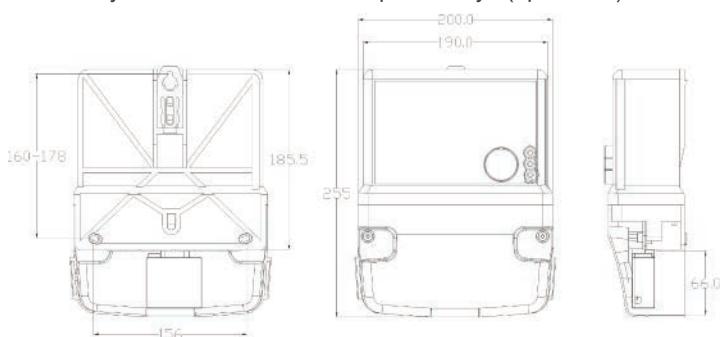
Load Profile	2 configurable load profiles
Channels	24/32 configurable channels
Available Data	All energy, demand, & instrumentation data (see above for details)
Integration Period	1 to 60 minutes configurable
Memory Space	450 days with 60' interval
Data Retention	25 Years

EVENT LOG

Event Log	5 configurable event logs
Trigger Events	Power break, phase failure, phase voltage loss, voltage over, voltage under, current loss, current over, current imbalance, reverse current flow, reverse power, reverse energy, phase reverse, overload, terminal cover open, meter top cover open
Data Recording at Event	8 configurable channels of energy, demand, & instrumentation data recording
Program Record	Last 100 program records

TIME OF USE (TOU) CONTROL

Tariff Profiles	Daily profile, week table, season table, and holiday/special days
Number of Tariffs	4 tariffs, or 8 tariffs (optional)
Daily Profiles	12 daily profiles, 14 tariff slots
Week Tables	12 week tables
Seasons	12 seasons
Holidays	100 special days (up-to 250)



P2000-D

Direct Connected Three-Phase Smart Electricity Meter

Class 1.0

Certified by 



FEATURES

- Accurate measurement of kWh, kvarh, & kVAh
- Maximum demand registration of kW, kvar & kVA
- Instrumentation of voltage, current, power, frequency & power factor
- Time of Use (TOU) control with flexible programming for up-to 8 tariffs
- 2 load profiles with recording of up-to 180 days at 30' interval
- 4 event logs with configurable power quality or tampering events
- High quality 11-digit LCD display with large characters & backlight
- Internal real-time clock (RTC) with super capacitor and backup battery
- Supports DLMS, IEC 62056-21, or MODBUS communication protocols
- Encapsulation type meter casing design for reliability and security
- Replaceable backup battery for meter reading without power

OPTIONS

- AMR ready w/ hot-pluggable internal GPRS, Wi-Fi, or Ethernet module
- Local communication options: Optical port, RS485, RS232, PLC, RF
- Dual source measurement and registration
- Remote, scheduled, or on-demand, or event-triggered load control
- Energy dispenser with configurable daily consumption limit
- Sub-meter reading via RS485 and data aggregation features
- STS certified pre-payment feature with up-to 100A internal contactor
- Remote or local firmware upgrade support

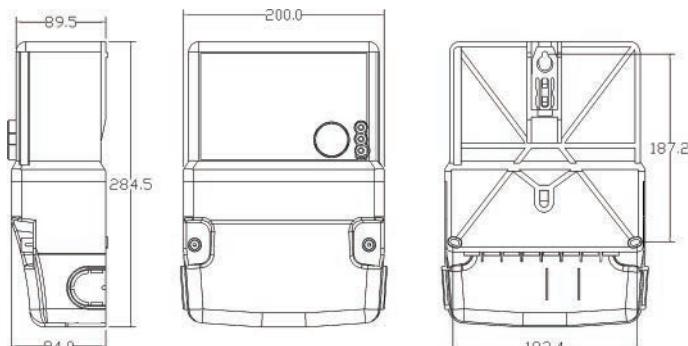
APPLICATION

- Direct connected (Whole current)
- Industrial, commercial, or residential billing
- 3-phase 4-wire connection

BENEFITS

- High accuracy measurement of energy and maximum demand
- Instrumentation and power quality data for monitoring & diagnostics
- AMR ready with hot-pluggable communication modules
- Supports DLMS communication protocol (Certified)
- Flexible software configurations for measurement, billing, TOU, display, load profile and event logs
- Patented IP54 whole case design with multiple sealing provisions
- Large contact area between wire and terminal & increased distance between phases
- Sealable wiring cover to protect wiring and isolate signal terminals

ELECTRICAL		MEASUREMENT & INSTRUMENTATION	
Connection Type	Direct connected (Whole current)	Energy	Total & per phase import/export kWh, kvarh, kVAh; Absolute or net metering
Measurement Modes	3-phase 4-wire 3-element	Maximum Demand	Total & per phase import/export kW, kvar, kVA
Accuracy Class	Class 1.0	Automatic Billing Data Recording / MD Reset	Date & Time Programmable
Rated Voltage	110/190V to 240/415V	Instantaneous Values	Current, Voltage, Power, Average Demand, Power factor, Phase Angles and Frequency
MECHANICAL		LOAD PROFILE	
Dimensions	285 mm x 200 mm x 94mm	Load Profile	2 configurable load profiles
Weight	2 kg (approximately)	Channels	16 configurable channels
Insulation	Protective Class II	Available Data	All energy, demand, & instrumentation data (see above for details)
Ingress Protection	IP54	Integration Period	15 to 60 minutes configurable
Case / Terminal Cover	High Quality Polycarbonate	Memory Space	Up-to 180 days with 30' interval
Terminal Block	Flame-Retardant Polycarbonate	Data Retention	25 Years
ENVIRONMENT		EVENT LOG	
Working Temp.	-25°C to +75°C	Event Log	5 configurable event logs
Storage Temp.	-40°C to +85°C	Trigger Events	Power break, phase failure, phase voltage loss, voltage over, voltage under, current loss, current over, current imbalance, reverse current flow, reverse power, reverse energy, phase reverse, overload, terminal cover open, meter top cover open
Humidity	0 - 95% non condensing	Data Recording at Event	8 configurable channels of energy, demand, & instrumentation data recording
Fast Transient Burst	4kV	Program Record	Last 100 program records
Static Discharge	8kV Contact / 15kV Air Discharge		
Impulse Voltage	6kV, 1.2/50μs pulse		
AC Voltage	4kV, 50Hz		
REAL-TIME CLOCK		TIME OF USE (TOU) CONTROL	
Accuracy	< 0.5 seconds / 24 hours	Number of Tariffs	4 tariffs, or 8 tariffs (optional)
Backup Battery	Lithium Battery (20 years life)	Daily Profiles	12 daily profiles, 14 tariff slots
Backup Time	≥ 15 years without power	Week Tables/Seasons	12 week tables, 12 seasons
Clock Synchronization	Local or remote via AMR	Holidays	120 special days (up-to 250)
DISPLAY		PREPAYMENT & LOAD CONTROL	
LCD Display	2 line, 8-digit LCD display	Prepayment Feature	STS certified via token or smart card
Display Mode	Automatic, Push Button, Test	User-Friendly Prepayment Modes	Friendly hours/days, emergency credit and vital necessity power
Display Item	200 configurable display items	Load Control	Scheduled / on-demand or event triggered load control
INPUT & OUTPUT		Internal Contactor	100A internal contactor
Electric Pulse I/O	4 Programmable Ports		
Test Pulse Output	400 - 8000 imp/kWh, kvarh		
LED Pulse Output	400 - 8000 imp/kWh		
Pulse Constant	Programmable		
Auxiliary Power	110V - 240V (optional)		
COMMUNICATION OPTIONS			
Local Communication	Optical/Infrared, RS232, RS485, PLC, RF (433/866MHz)		
Remote Communication	GPRS/GSM, Wi-Fi, Ethernet		
Communication Protocol	DLMS/COSEM, IEC62056-21, MODBUS		



EDAT-MS16

Energy Data Acquisition Terminals



FEATURES

- Collects and aggregates data from up-to 127 meters
- Integrates industrial and residential meters into AMR/AMI network
- GPRS, PSTN, Wi-Fi, or Ethernet for up-link communication
- RS485, RF, PLC, Wi-Fi, or Ethernet for local communications
- Scheduled or on-demand data acquisition with configurable channels
- Upload data to AMI server system (TMR-2012) automatically
- Supports DLMS, IEC62056-21, IEC870-5-102 or MODBUS protocol
- Compatible with third-party meters with open protocol
- Short message service (SMS) configuration in real-time

TECHNICAL SPECIFICATIONS

External Dimensions	180mm x 163mm x 64mm
Operation Voltage	85 - 265 VAC, 50/60 Hz
Power Supply	Three Phase or Single Phase
Power Consumption	≤ 5W
Operation Temperature	-25 °C ~ +70 °C
Memory Storage	4 MBytes to 16 MBytes
Meter Capacity	Up-to 127 meters, 1-phase or 3-phase
Input & Output	2 channel input for tampering detection, 1 channel output for control signals
Communication Channel to AMR server	GPRS/GSM, PSTN, Wi-Fi, or 10/100 M Ethernet
to meters	RS485, RF, PLC, Wi-Fi, or Ethernet

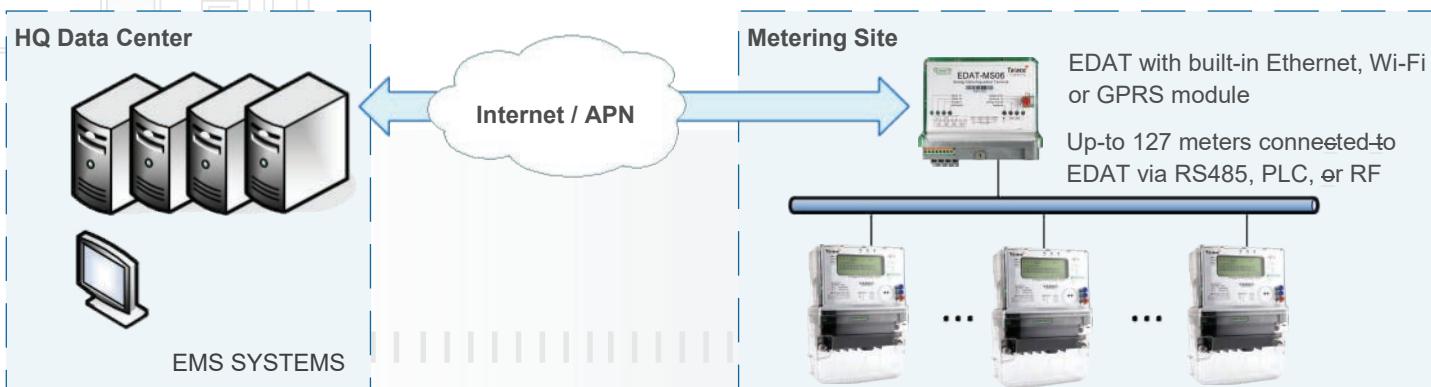
APPLICATION

- Provide AMR solutions for residential or commercial meters in batch
- Integrate existing non-smart meters to AMI systems
- Support third-party meters from different vendors

BENEFITS

- Reduce communication cost for multiple adjacent meters
- Convert different protocols into one to reduce system complexity
- Large storage capacity to avoid data loss due to power outage
- Compact design with superior strength and easy to install
- Sealing provision and anti-tamper input signals for device security
- 4xRJ-45 sockets for multiple plug-and-play meter connections

SAMPLE APPLICATION



Taiace



MALAYSIA

TAIACE ENGINEERING SDN BHD
TAIACE ENERGY SERVICES SDN BHD
No. 43A, Jalan Permata 1,
Arab Malaysian Industrial Park,
71800 Nilai, Negeri Sembilan,
MALAYSIA.

(+60) 6799 7478

INDONESIA

PT. GREEN SOLUTIONS INDONESIA
Menara Bidakara 2, lantai 16.
Jl. Gatot Subroto, kav 71-73,
Menteng dalam, Tebet, J
akarta Selatan 12870,
INDONESIA

INDONESIA

PT. GREEN SOLUTIONS INDONESIA
LT. 1, Gedung PUSDIKLAT RSIJ
Jl. Cempaka Putih Tengah V1,
No 4. RT 11, RW 05. Kel,
Cempaka Putih Timur, Kec,
Cempaka Putih Jakarta Pusat,
DKI Jakarta, 10510,
INDONESIA