

MICROSTAR

# 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 prepayment 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

Connection Type	Direct connected (Whole current)
Measurement Modes	3-phase 4-wire 3-element
Accuracy Class	Class 1.0
Rated Voltage	110/190V to 240/415V
Rated Current	5 (120) A, 10 (100) A, 10 (160) A
Starting Current	< 0.1% I <sub>n</sub>
Rated Frequency	50 or 60 Hz
Power Consumption	
Voltage Circuit	< 1W, < 2.5VA per Phase
Current Circuit	< 0.1VA

### MECHANICAL

Dimensions	285 mm x 200 mm x 94mm
Weight	2 kg (approximately)
Insulation	Protective Class II
Ingress Protection	IP54
Case / Terminal Cover	High Quality Polycarbonate
Terminal Block	Flame-Retardant Polycarbonate

### 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-digit LCD display
Display Mode	Automatic, Push Button, Test
Display Item	200 configurable display items

### INPUT & OUTPUT

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

### MEASUREMENT & INSTRUMENTATION

Energy	Total & per phase import/export kWh, kvarh, kVAh; Absolute or net metering
Maximum Demand	Total & per phase import/export kW, kvar, kVA
Automatic Billing Data Recording / MD Reset	Date & Time Programmable
Instantaneous Values	Current, Voltage, Power, Average Demand, Power factor, Phase Angles and Frequency

### LOAD PROFILE

Load Profile	2 configurable load profiles
Channels	16 configurable channels
Available Data	All energy, demand, & instrumentation data (see above for details)
Integration Period	15 to 60 minutes configurable
Memory Space	Up-to 180 days with 30' 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

Number of Tariffs	4 tariffs, or 8 tariffs (optional)
Daily Profiles	12 daily profiles, 14 tariff slots
Week Tables/Seasons	12 week tables, 12 seasons
Holidays	120 special days (up-to 250)

### PREPAYMENT & LOAD CONTROL

Prepayment Feature	STS certified via token or smart card
User-Friendly Prepayment Modes	Friendly hours/days, emergency credit and vital necessity power
Load Control	Scheduled / on-demand or event triggered load control
Internal Contactor	100A internal contactor

