

**MICROSTAR  
P2000-T**

*Transformer Operated*

*Three-Phase Smart Electricity Meter*

**Class 0.2s and Class 0.5s**

*Certified by*



**FEATURES**

- Record kWh, kvarh, & kVAh including Maximum Demand plus V&I THD
- 2 Communication ports: Optical & 1 x Serial (RJ45)
- Instantaneous reading of voltage, current, power, power factor, frequency & harmonics
- Time of Use (TOU) control with 8 tariffs and flexible programming
- Event logs with up to 200 Power Quality and Tamper events
- 4 event logs with configurable power quality or tampering events
- 11-digit LCD with large characters (10mm) including backlight
- Internal real-time clock (RTC) with super capacitor and backup battery
- Supports DLMS or IEC 62056-21 communication protocols
- Encapsulation meter case design, provides extreme weather proofing
- Read LCD and Program meter (optical port) without power supply

**OPTIONS**

- AMI ready hot-swappable 3G, 4G, LoRa RF and Ethernet modules
- Auxiliary supply: 110VAC or 240VAC
- In-Built communication options: RS485, RS232, PLC
- Standard 2 Load Profile sets, more available upon special request
- Replaceable battery for meter reading/programming without supply
- STS certified prepayment mode with tokens or contactless smart card controlling external contactor
- Individual Phase energy recording and display
- CT & PT error correction, multiple points, factory set

**APPLICATION**

- Transformer-operated CT or CT/PT
- Generation, transmission, substation and distribution
- 3-phase 4-wire or 3-phase 3-wire connections
- Wide range voltage supply

**BENEFITS**

- High accuracy option with extended measurement options
- Bidirectional active and reactive energy recording: 4 Quadrant
- TOU control and multi-tariff support
- Configurable LCD
- Extensive load profile recording
- Anti-tampering features & event log
- AMI ready with hot swappable communication modules
- Individual harmonic monitoring between 1st and 31st
- High speed Sag Swell voltage monitoring
- 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 <sub>n</sub>             |
| Rated Frequency                   | 50 or 60 Hz                       |
| Power Consumption Voltage Circuit | < 1W, < 2.5VA per Phase           |

### MECHANICAL

|                       |                            |
|-----------------------|----------------------------|
| Dimensions            | 563mm x 175mm x 83mm       |
| 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 +70°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      | 12kV @ 9 Joule                   |
| 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, 11-digit LCD display    |
| Display Mode | Automatic, Push Button override |
| Display Item | 200 configurable display items  |
| Display sets | 5 sets (Optional) 1 Standard    |

### 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)          |

### MEASUREMENT & INSTRUMENTATION

|   |  |
|---|--|
| Energy                                      | Total, Per Phase, Import/Export kWh, kvarh, kVAh; Gross or Net metering  |
| Maximum Demand                              | Total & Per Phase Import/Export Kw, kvar, kVA  |
| Automatic Billing Data Recording / MD Reset | Date & Time Programmable   |
| Instantaneous Values                        | Per Phase: Current, Voltage, Power, Average Demand, Power factor, Phase Angles, V&I, Individual harmonics (1st to 31st), THD |

### LOAD PROFILE

|                 |  |
|-----------------|--|
| Load Profile    | 2 configurable load profiles               |
| Channels        | 32 channels per load profile set           |
| Available Data  | All energy, demand, & instantaneous values |
| Interval Period | 1 to 60 minutes configurable               |
| Memory Space    | 1000+ days 2ch, 30min interval             |
| Data Retention  | 25 Years                                   |

### EVENT LOG

|                   |  |
|-------------------|--|
| Trigger Events    | Voltage loss, High Speed Voltage Sag & Swell, Current loss, Current Over limit, Power Factor, Reverse energy, Over load, Terminal and Main cover detection, Current Unbalance, Power up & Power down |
| Meter Program Log | Last 100 programming events  |

### TIME OF USE (TOU) CONTROL

|                     |                                    |
|---------------------|------------------------------------|
| Number of Tariffs   | 8 tariffs                          |
| Daily Profiles      | 12 daily profiles, 14 tariff slots |
| Week Tables/Seasons | 12 week tables, 12 seasons         |
| Holidays            | Re-Occuring and 100 special days   |

### COMMUNICATION OPTIONS

|                        |                                     |
|------------------------|-------------------------------------|
| Local Communication    | Optical Infrared, RS232, RS485, PLC |
| Remote Communication   | 3G, 4G, LoRa RF (433Mhz), Ethernet  |
| Communication Protocol | DLMS/COSEM, IEC62056-21             |

