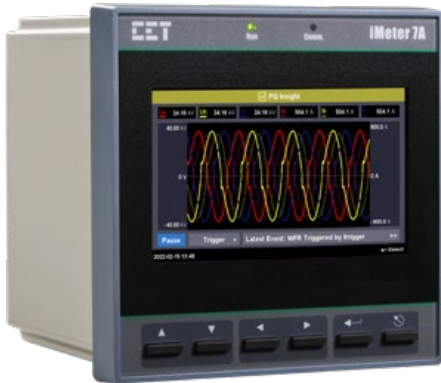


# iMeter 7A

## Advanced Power Quality Analyzer

# iMeter 7A



**iMeter 7A** is one of CET's latest Advanced PQ Analyzer designed for the compliance monitoring market as it offers unsurpassed functionality by combining Class 0.2S Accuracy and advanced PQ Features in a compact DIN 144 form factor with a stunning, high resolution, color TFT LCD display. The iMeter 7A complies with such standards as IEC 62053-22 Class 0.2S, IEC61000-4-30 Ed. 3.1 Class A, IEC61000-4-15, IEC61000-4-7, EN 50160, IEEE Std 519-2022 and IEC61850 for Substation Automation. Further, the iMeter 7A offers 4GB memory, dual 10/100BaseT Ethernet and one RS-485 ports as well as extensive I/O with 4xDI, 3xDO and optionally 2xSS Pulse Output, 2xAI or 2xRTD. These features likely make the iMeter 7A one of the most Advanced PQ Analyzers for an intelligent Power Quality Monitoring System.

## Typical Applications

- PQ monitoring at HV, MV and LV Utility Substations
- Data Centers, Semiconductor Fabs, Heavy Industries
- Renewable Energy Applications
- 7x24 Automated Manufacturing Facilities
- Mains and critical feeder monitoring
- Dips/Swells/Interruptions, Transients, Flickers & Harmonics Monitoring
- IEC61850 support for Substation Automation and Smart Grid
- Retrofit applications with optional Class 1 Split-Core Current Probes (SCCPs)

## Basic Features

- IEC62053-22 Class 0.2S kWh metering with Multi-Tariff TOU
- True RMS @ 1024 samples/cycle sampling
- 4GB on-board log Memory
- Industrial-grade, 5" High-Resolution Color TFT LCD @ 800x480
- Device Operating Time (Running Hours)
- Time Sync. via IRIG-B, NTP, IEEE 1588 (PTP) or GPS 1PPS Output
- 64 Programmable Setpoints
- Dual 10/100BaseT Ethernet and one RS-485 Port

## Display and Web Interface

- True RMS Real-time, Harmonics, Power and Energy Measurements
- Phasor Diagram
- Demands and Multi-Tariff TOU
- Max. & Min. Logs
- Deviation, Sequence & Unbalance
- Real-time WFC of 3-phase U & I @ 128 samples/cycle x 4 cycles
- Event Waveforms, RMS Recording and ITIC/SEMI F47 Curves
- Harmonics & Interharmonics Histogram
- Device and SOE Logs, PQ Counters and I/O Status
- Device Configuration and Diagnostics
- Remote access to Front Panel display via Web Interface

## Power Quality Features

- IEC61000-4-30 Ed. 3.1 Class A Certified
- EN 50160 and IEEE Std 519-2022 Reporting
- 2kHz to 150kHz Conducted Emission Measurements
- Dips, Swells, Interruptions, Transients, Rapid Voltage Changes, Inrush Current, Mains Signalling Voltage and Flicker monitoring
- Real-time Waveform Capture (WFC), Waveform Recording (WFR) & Disturbance Waveform Recording (DWR)
- Disturbance Direction Indicator for Dips, Swells and Interruptions
- Statistical Data Recording and ½ cycle RMS Recording
- Waveform Recording in COMTRADE file format

## Multi-Tariff TOU Capability

- Two independent sets of TOU Schedule
  - Up to 12 Seasons
  - 90 Holidays or Alternate Days and 3 Weekdays
  - 20 Daily Profiles, each with 12 Periods in 15 min intervals
  - 8 Tariffs, each providing the following information:
    - kWh/kvarh Import/Export and kVAh
    - P & Q Import/Export Max. Demands
    - Register rollover at 100,000,000,000.000 kWh
- Switching between two TOU schedules manually or according to pre-programmed time
- 12 Historical Logs for Energy and Max. Demand

# Advanced Power

## Power Quality Metering

### PQ Parameters as per IEC61000-4-30 Ed. 3.1 Class A Certified

- Power Frequency
- Magnitude of the Supply Voltage
- Flicker
- Supply Voltage Interruptions, Dips and Swells
- Supply Voltage Unbalance
- Voltage Harmonics and Interharmonics
- Mains Signalling Voltage on the Supply Voltage
- Rapid Voltage Changes
- Measurement of Over Deviation and Under Deviation Parameters
- Magnitude of Current
- Current Harmonics and Interharmonics
- Current Unbalance
- 2kHz to 150kHz Conducted Emission Measurements

### Harmonic and Interharmonic Measurements

- K-Factor for Current, Crest Factor for Current and Voltage
- U and I THD, TOHD, TEHD, TIHD, TOIHD, TEIHD and TH (RMS)
- U and I Individual Harmonics (%HD and RMS) from 2<sup>nd</sup> to 63<sup>rd</sup>#
- U and I Individual Interharmonics (%IHD and RMS) from 1<sup>st</sup> to 63<sup>rd</sup>#
- Total Harmonic P, Q, S and PF
- Harmonic P, Q, S and PF from 2<sup>nd</sup> to 63<sup>rd</sup> in RMS
- Fundamental U, I, P, Q, S Phase Angle and Displacement PF
- Harmonic Phase Angle from 2<sup>nd</sup> to 63<sup>rd</sup>
- U and I DC Components

#%HD and %IHD can be configured as % of Fundamental, % of U/I nominal or % of RMS

### Conducted Emissions in the 2kHz to 150kHz Range

- Real-time amplitude (150/180-cycle) and the Max., Min., Avg. and 95<sup>th</sup> percentile values (in 1-min interval) for Voltage channels with a total of 106 frequency segments (2kHz-150kHz range) and Current channels with a total of 35 frequency segments (2kHz-9kHz range)
- Daily Heat Map display on the Web Interface for the Max., Min., Avg. and 95<sup>th</sup> percentile values

### Sequence and Unbalance

- Zero, Positive and Negative Sequence Components
- U and I Unbalance based on Zero and Negative Sequence Components

### Transients Recording

- Transients capture as short as 20us @ 50Hz or 16.67us @ 60Hz at 1024 samples for sub-cycle disturbances such as capacitor switching and resonance phenomena
- Trigger for DO, SOE Log, WFR, DWR, RMSR, iTrigger and Alarm Email
- Display of Event specific WFR, DWR and/or RMSR on the Front Panel and Web Interface

### Dips, Swells, Interruptions Recording

- Dips, Swells and Interruptions detection @ 10ms (½ cycle at 50Hz)
- Trigger for DO, SOE Log, DR, WFR, DWR, RMSR, iTrigger and Alarm Email
- Configurable DO triggered by Start or End of a PQ disturbance
- Display of Event specific WFR, DWR and/or RMSR as well as the associated ITIC/SEMI F47 plot on the Front Panel and Web Interface
- ITIC/SEMI F47 Alarm trigger for DO and iTrigger upon the detection of PQ disturbances that are outside of the respective tolerance curves

### Rapid Voltage Change (RVC)

- Detection of a quick transition in RMS Voltage between two steady-states

### Inrush Current Monitoring

- Monitoring of the ½ cycle RMS Current and capturing of the Current waveforms associated with events such as motor starting and transformer being energized

### Disturbance Direction Indicator

- Determine if a PQ Event is located upstream or downstream
- Pinpoint if the cause of the event is external or internal

### PQ Event Counter

- Dips, Swells, Interruptions, Transients, Rapid Voltage Changes, Inrush Currents, Mains Signalling Voltages and Total PQ Event Counters

## Metering

### Basic Measurements (1-second update)

- 3-phase U, I, P, Q, S and PF as well as U4, I4, Ung, Frequency and IR

### High-Speed Measurements

- 3-phase U, I, P, Q, S and PF as well as U4 and I4 @ ½ cycle
- Frequency @ 1 cycle

### Energy

- Per-phase kWh, kvarh Import/Export/Net/Total and kVAh Total
- Total RMS kWh, kvarh Import/Export/Net/Total and kVAh Total
- Total Fundamental kWh, kvarh Import/Export/Net/Total
- Total Harmonic kWh, kvarh Import/Export/Net/Total
- Total Harmonic kWh, kvarh Import/Export from 2<sup>nd</sup> to 63<sup>rd</sup>

### Demand

- Present and Predicted Demand for 3-phase U, I, I Fund., P, Q, S, PF as well as U4, I4, I4 Fund., Frequency
- Present Demand for 4-phase U & I THD/TOHD/TEHD, 4-phase Current K-Factor, U and I Unbalances as well as Voltage Deviations and Frequency Deviation
- Max./Min. values per Demand Interval
- Maximum Demands for This Month & Last Month (or Since Last Reset & Before Last Reset)
- Demand Synchronization with DI

## Setpoints

### PQ Setpoint

- Transients, Dips, Swells, Interruptions, ITIC Alarm, SEMI F47 Alarm
- Rapid Voltage Changes, Inrush Current
- Trigger DO, DR, SOE Log, WFR, DWR, RMSR, iTrigger and Alarm Email

### Motor Start Setpoint

- Monitoring motor startup procedure with recording of Max. Starting Current, Minimum Voltage and Duration
- Trigger DO, SOE Log, WFR, DWR, RMSR, iTrigger and Alarm Email

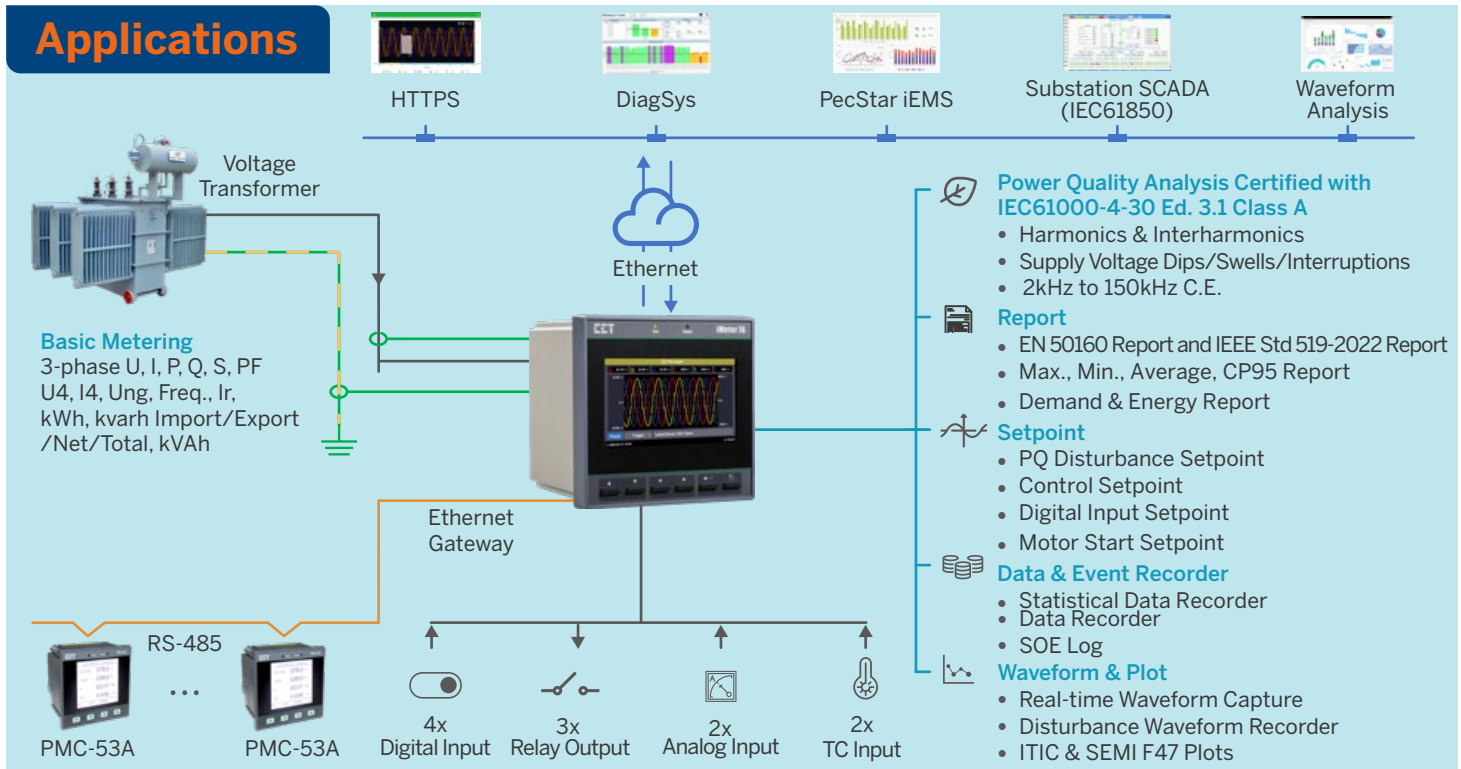
### Control Setpoint

- 64 Control Setpoints can be configured with extensive monitoring sources including U, I, P, Q, S, Demands, Harmonics, Unbalances, Deviations, Flickers, Phase Reversal/Loss, TC and AI, etc.
- Configurable thresholds and time delays
- Trigger DO, DR, SOE Log, WFR, DWR, RMSR, iTrigger and Alarm Email

### Digital Input Setpoint

- Provides Control Output Actions in response to changes in DI status
- Trigger DO, DR, SOE Log, WFR, DWR, RMSR, iTrigger and Alarm Email

## Applications



## Data and Event Recorders

### Non-Volatile Log Memory

- 4GB on-board Log memory

### Interval Energy Recorder (IER) and Accumulative Energy Recorder (AER)

- Both IER Log and AER Log support the recording of per-phase and Total RMS kWh, kvarh Import/Export/Total/Net and kVAh Total, Total Fundamental/Harmonic kWh, kvarh Import/Export
- Recording Interval from 1 minute to 65,535 minutes
- Max. Recording Depth @ 65,535 records
- Support FIFO and Stop-When-Full mode

### Statistical Data Recorder (SDR)

- 8 SDR Logs of max. 64 parameters each
- Recording of the Max., Min., Avg. and 95<sup>th</sup> percentile values for Real-time Measurements including U, I, P, Q, S, PF, Freq., Harmonics, Deviations and Unbalances
- Recording Interval from 1 to 60 minutes
- 90 days @ 3-minute, 300 days @ 10-minute, 450-day @ 15-minute
- Downloadable via free software
- Support FIFO or Stop-When-Full mode

### Max./Min. Recorder (MMR)

- 4 Max./Min. Recorders of 20 parameters each
- RMS/Fundamental/Harmonic/Interharmonic Measurements, Demands, Mains Signalling Voltages, Unbalances and Flicker
- Two transfer modes:
  - Manual: Max./Min. Since Last Reset & Before Last Reset
  - Auto: Max./Min. of This Month & Last Month

### Data Recorder (DR)

- 8 DR Logs of max. 64 parameters each
- RMS/Fundamental/Harmonic/Interharmonic Measurements, Demands, Deviations, MSV, Unbalances and Flicker
- Configurable Recording Offset and Interval from 1s to 40 days
- Max. Recording Depth @ 65,535 records
- Support FIFO or Stop-When-Full mode

### SOE Log

- 1024 FIFO events time-stamped to  $\pm 1\text{ms}$  resolution
- Setpoint events, I/O operations, Dips, Swells, Interruptions, Transients, Rapid Voltage Changes, Inrush Current, Mains Signalling Voltages, Motor Start, iTrigger, etc.
- Record the characteristic data for Setpoint events as well as WFR, DWR, RMSR, ITIC and SEMI F47 Curve for PQ events

### Device Log

- 1024 FIFO entries time-stamped to  $\pm 1\text{ms}$  resolution
- Power On/Off, Setup changes, Time Sync., Device Operations and Self-diagnostics

### Real-Time Waveform Capture (WFC) and Waveform Recorder (WFR)

- Real-time WF Capture @ 128 samples/cycle x 4 cycles
- WFR with max. 128 entries
- Simultaneous capture of 4-phase Voltage and Current Inputs
- (Range of Cycles) x Samples/Cycles with programmable pre-fault and post-fault cycles: (40-400)x1024, (40-800)x512, (40-1600)x256, (40-3200)x128
- Scheduled WFR with max. repetition of 10,000 times and programmable schedule from 1 to 65,535 min.
- COMTRADE file format, downloadable from the on-board Web Server or FTPS Server

# iMeter 7A

## Disturbance Waveform Recorder (DWR)

- 128 entries
- Simultaneous recording of all Voltage (U1-U4) and Current (I1-I4) Inputs
  - Initial Fault: 35 cycles @ 512 samples/cycle
  - Extended Fault: Up to 150 cycles @ 16 samples/cycle
  - Steady State: Up to 360s of 1-cycle absolute peak values
  - Post Fault: 15 cycles @ 512 samples/cycle

## RMS Recorder (RMSR)

- 128 entries
- 16 channels max., selectable U, I, P, Q, S, PF, Freq., Freq. Deviation
- Recording Interval from 0.5 to 60 cycles
- Recording Width @ 7200 samples per parameter
- Configurable pre-fault samples from 100 to 500
- 72 seconds of ½ cycle RMS recording @ 50Hz or 60 seconds @ 60Hz

## iTrigger

- Cross trigger DO, SOE Log, WFR, DWR, RMSR and Alarm Email with other iMeter devices within the same local area network (LAN)
- Provides Group ID and MAC Address as the trigger source

## IEEE Std 519-2022 Report

- 365 Daily Reports for statistical evaluations on Voltage and Current Harmonics based on 99<sup>th</sup> percentile very short time (3 s) values
- 52 Weekly Reports for statistical evaluations on Voltage Harmonics (95<sup>th</sup> percentile) and Current Harmonics (95<sup>th</sup> and 99<sup>th</sup> percentile) short time (10 min) values
- Programmable settings for Report Mode, PCC Voltage, Max. Short Circuit Current, etc.

## Inputs and Outputs

### Digital Input

- Standard 4 or optional 8 channels, volt free dry contact, 24VDC Internal Excitation
- 1000Hz sampling for status monitoring with programmable debounce
- Pulse counting with programmable weight for each channel for collecting WAGES (Water, Air, Gas, Electricity, Steam) information
- Demand Synchronization and Tariff Switching based on DI Status

### Digital Output

- Standard 2 and optional 4 channels Form A Mechanical Relay for general purpose control or alarming
- Optional 2 SS Relays for Energy pulsing applications
- 1 Normally Closed Mechanical Relay for LOP Alarm

### Analog Input (Optional)

- Optional 2xAI, 0/4-20mA DC input with programmable zero and full scales that can be used to measure external transducer signal
- Optional 2xRTD for Temperature Measurements (PT100 Sensor not included)

## Time Synchronization

- Battery-backed Real-time clock @ 6ppm ( $\leq 0.5s/day$ )
- Time Sync. with auto-selection among Modbus RTU, NTP, GPS 1PPS, IRIG-B and IEEE 1588 (PTP)

## Communications

### Ethernet Port (P1, P2)

- Dual 10/100BaseT Ethernet Ports with RJ45 connector
- Selectable IP Addressing Mode – DHCP and Static
- White List for Client Access Control
- Protocols supported: Modbus TCP, HTTPS, NTP, SMTPS, SNMP, FTPS, MQTT, IPsec VPN and IEC61850
- Built-in password protected Web Server with multiple user accounts and pre-defined roles for easy data viewing, setup configuration and firmware upgrade
- Simultaneous client connections for 12xModbus TCP and 4xIEC61850

### RS-485 (P3)

- One optically isolated RS-485 port with Baud Rate from 1.2 to 38.4 kbps
- Support Modbus RTU and Ethernet Gateway

## System Integration

### PecStar® iEMS

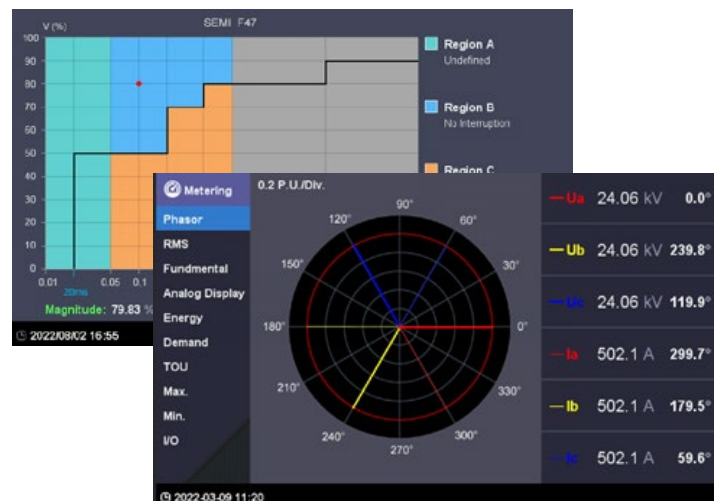
- The iMeter 7A is supported by CET's PecStar® iEMS

### iPQ Explore

- Compact, password protected free software for simultaneous connection with multiple iMeter series Analyzers
- Support configurations for all Setup parameters
- Display of Real-time Measurements, PQ Events and Waveforms
- Export of IER, AER, DR and SDR Logs as well as EN50160 and IEEE Std 519-2022 Reports

### 3<sup>rd</sup> Party System Integration

- Easy integration into Substation Automation or Utility SCADA systems via Modbus RTU, Modbus TCP or IEC61850
- The on-board, password protected Web Server provides user-friendly access to its data and supports the configuration for most Setup parameters via a web browser without the use of proprietary software
- The on-board, password protected FTPS Server allows the Excel files for the logged C.E. Measurement data, IEEE Std 519-2022 Daily and Weekly reports and the COMTRADE files for the waveform records to be downloaded without any special software. The downloaded files can be subsequently viewed using software that supports these industry standard file formats



# Accuracy

| Parameters                | Accuracy               | Resolution                                    |
|---------------------------|------------------------|---|
| Voltage (U)               | ±0.1%                  | 0.001V  |
| I1, I2, I3, I4            | 5A/1A                  | ±0.1%   |
|                           | SCCT/SCCTA             | ±0.1%+Error of SCCT                           |
|                           | SCCPA                  | ±0.1%+Error of SCCP                           |
| P, Q, S                   | 5A/1A                  | ±0.2%   |
|                           | SCCT/SCCTA             | ±0.5%   |
|                           | SCCPA                  | ±0.5%   |
| kWh, kVAh                 | 5A/1A                  | IEC62053-22 Class 0.2S                        |
|                           | SCCT/SCCTA             | IEC62053-21 Class 1                           |
|                           | SCCPA                  | IEC62053-21 Class 1                           |
| kvarh                     | 5A/1A                  | IEC62053-24 Class 0.5S<br>IEC62053-23 Class 2 |
|                           | SCCT/SCCTA             | IEC62053-24 Class 1<br>IEC62053-23 Class 2    |
|                           | SCCPA                  | IEC62053-24 Class 1<br>IEC62053-23 Class 2    |
|                           |                        | 0.1kvarh                                      |
| PF                        | 5A/1A                  | ±0.2%   |
|                           | SCCT/SCCTA             | ±0.5%   |
|                           | SCCPA                  | ±0.5%   |
| Fundamental Phase Angle   | 5A/1A                  | ±0.2°   |
|                           | SCCT/SCCTA             | ±0.2°+Phase Error of SCCT                     |
|                           | SCCPA                  | ±0.2°+Phase Error of SCCP                     |
| Harmonics Phase Angle     | 5A/1A                  | ±5°   |
|                           | SCCT/SCCTA             | ±5°+Phase Error of SCCT                       |
|                           | SCCPA                  | ±5°+Phase Error of SCCP                       |
| Freq., Freq. Deviation    | ±0.003Hz               | 0.001Hz                                       |
| Harmonics, Interharmonics | IEC61000-4-7 Class I   | 0.01%   |
| U Unbalance               | ±0.1%                  | 0.01%   |
| I Unbalance               | ±0.5%                  | 0.01%   |
| Pst, Plt                  | IEC61000-4-15 Class F1 | 0.001   |

## Current Inputs (-I11, I12, -I21, I22, -I31, I32, -I41, I42)

|                  |  |   |
|------------------|--|---|
| Standard (In)    | 5A (Standard), 1A (Optional)               |   |
| Range            | 1% to 400% In                              |   |
| Starting Current | 0.1% In                                    |   |
| Overload         | 4xIn continuous, 10xIn for 1s              |   |
| Burden           | < 0.5VA/per phase @ 5A                     |   |
|                  | < 0.1VA/per phase @ 1A                     |   |
| CT Ratio         | Primary                                    | 1-30,000A   |
|                  | Secondary                                  | 1-50A   |
|                  | I4 Primary                                 | 1-30,000A   |
|                  | I4 Secondary                               | 1-50A   |
| SCCP Options     | SCCP-50A-500mV                             | 5A/50A (In/Imax), max. 500mV Output                           |
|                  | SCCP-200A-200mV                            | 20A/200A (In/Imax), max. 200mV Output                         |
|                  | SCCP-500A-500mV                            | 500A Imax, max. 500mV Output                                  |
|                  | SCCP-5000A-500mV                           | Selectable 500A/5000A (Imax) Rogowski Coil, max. 500mV Output |
| SCCT Options     | PMC-SCCT-100A-40mA-16-A, Ø=16mm, Class 0.5 |   |
|                  | PMC-SCCT-200A-40mA-24-A, Ø=24mm, Class 0.5 |   |
|                  | PMC-SCCT-400A-40mA-35-A, Ø=35mm, Class 0.5 |   |
|                  | PMC-SCCT-800A-40mA-A, 80x50mm, Class 0.5   |   |
|                  | PMC-SCCT-1600A-40mA-A, 130x55mm, Class 0.5 |   |
| SCCTA Option     | PMC-SCCT-5A-2mA-16-A, Ø=16mm, Class 1      |   |

## Digital Inputs (DIC, DI1, DI2, DI3, DI4, DIC2, DI5, DI6, DI7, DI8)

|            |                                      |
|------------|--------------------------------------|
| Standard   | Dry contact, 24VDC internally wetted |
| Sampling   | 1000Hz                               |
| Hysteresis | 1ms minimum                          |

## Digital Outputs (DO11, DO12, DO21, DO22, DO31, DO32, DO41, DO42)

|         |                         |
|---------|-------------------------|
| Type    | Form A Mechanical Relay |
| Loading | 5A @ 250VAC/30VDC       |

## Alarm Output (Alarm)

|         |                      |
|---------|----------------------|
| Loading | 5A @ 250VAC or 30VDC |
|---------|----------------------|

## Optional Solid State Pulse Outputs (E1+, E1-, E2+, E2-)

|                      |                          |
|----------------------|--------------------------|
| Type                 | Form A Solid State Relay |
| Isolation            | Optical                  |
| Max. Load Voltage    | 30VDC                    |
| Max. Forward Current | 100mA                    |

## Optional Analog Inputs (AI1+, AI1-, AI2+, AI2-, SH)

|          |                 |
|----------|-----------------|
| Type     | 0-20/4-20 mA DC |
| Overload | 24 mA maximum   |

## Optional Temperature Inputs (TC11, TC12, TC21, TC22, SH)

|                   |                                    |
|-------------------|------------------------------------|
| RTD Type          | 2-Wire PT100 (sensor not included) |
| Measurement Range | -40°C to +200°C                    |

## GPS Input (CLK+, CLK-, SH)

|          |             |
|----------|-------------|
| Type     | GPS, IRIG-B |
| Accuracy | 1ms         |

## Terminals Max. Torque

|                              |        |
|------------------------------|--------|
| U & I Inputs                 | 1.2N·m |
| DI, DO, AI, TC, GPS & RS-485 | 0.4N·m |

# Technical Specifications

## Voltage Inputs (V1, V2, V3, VN, V4, V4N)

|                      |                                    |              |
|----------------------|------------------------------------|--------------|
| Standard (Un)        | 400VLN/690VLL +20%                 |              |
| Range                | 5V to 2Un for 400VLN nominal       |              |
| Overload             | 2xUn continuous, 4xUn for 1s       |              |
| Burden               | < 0.5VA/per phase                  |              |
| PT Ratio             | Primary                            | 1-1,000,000V |
|                      | Secondary                          | 1-1,500V     |
|                      | V4 Primary                         | 1-1,000,000V |
|                      | V4 Secondary                       | 1-1,500V     |
| Measurement Category | CAT III 1000V                      |              |
| Frequency            | 40Hz-60Hz @ 50Hz, 48Hz-72Hz @ 60Hz |              |

## Power Supply (L+, N-)

|                      |                                      |
|----------------------|--------------------------------------|
| Standard             | 95-250VAC/VDC ± 10%, 47-440Hz        |
| Optional             | 20-60VDC                             |
| Burden               | < 14VA/10W @ 250VAC/DC, < 6W @ 24VDC |
| Overvoltage Category | OVC III 300V                         |

# Standards of Compliance

| Safety Requirements   |   |
|---|---|
| CE LVD 2014/35/EU   | EN61010-1: 2010<br>EN61010-2-030: 2010                    |
| Electrical Safety in Low Voltage Distribution Systems up to 1000Vac and 1500 Vdc                            | IEC61557-12: 2018 (PMD)                                   |
| Insulation<br>AC Voltage: 2kV @ 1 minute<br>Insulation Resistance: >100MΩ<br>Impulse Voltage: 6kV, 1.2/50μs | IEC62052-11: 2003<br>IEC62053-22: 2003<br>EN61010-1: 2010 |

# EMC Compatibility

CE EMC Directive 2014/30/EU (EN61326: 2013)

| Immunity Tests (EN50082-2)     |                                       |
|--------------------------------|---------------------------------------|
| Electrostatic Discharge        | EN61000-4-2: 2009                     |
| Radiated Fields                | EN61000-4-3: 2006 +A1: 2008 +A2: 2010 |
| Fast Transients                | EN61000-4-4: 2012                     |
| Surges                         | EN61000-4-5: 2014 +A1: 2017           |
| Conducted Disturbances         | EN61000-4-6: 2014                     |
| Magnetic Fields                | EN61000-4-8: 2010                     |
| Voltage Dips and Interruptions | EN61000-4-11: 2004 +A1: 2017          |
| Ring Wave                      | EN61000-4-12: 2017                    |

| Emission (EN50081-2)   |                             |
|--|-----------------------------|
| Limits and Methods of Measurement of Electromagnetic Disturbance Characteristics of Industrial, Scientific and Medical (ISM) Radio-Frequency Equipment | EN55011: 2016               |
| Limits and Methods of Measurement of Radio Disturbance Characteristics of Information Technology Equipment   | EN55032: 2015               |
| Limits for Harmonic Current Emissions for Equipment with Rated Current ≤16A  | EN61000-3-2: 2014           |
| Limitation of Voltage Fluctuations and Flicker in Low-Voltage Supply Systems for Equipment with Rated Current ≤16A                                     | EN61000-3-3: 2013           |
| Emission Standard for Industrial Environments  | EN61000-6-4: 2007 +A1: 2011 |

| Mechanical Tests   |                   |
|--------------------|-------------------|
| Spring Hammer Test | IEC62052-11: 2003 |
| Vibration Test     | IEC62052-11: 2003 |
| Shock Test         | IEC62052-11: 2003 |

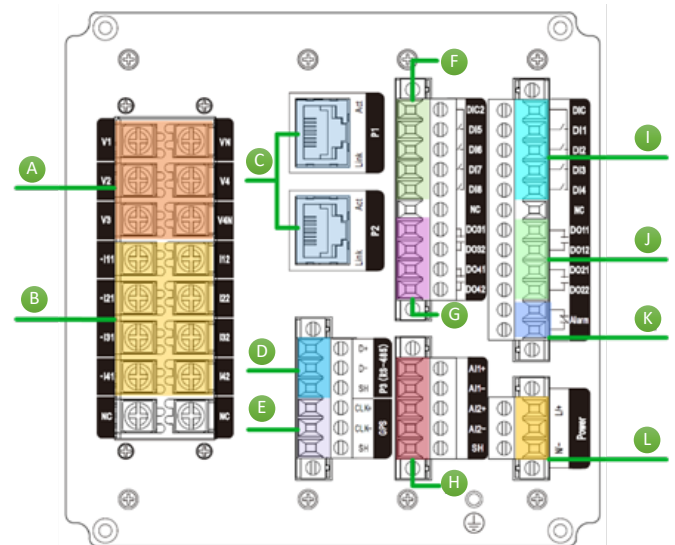
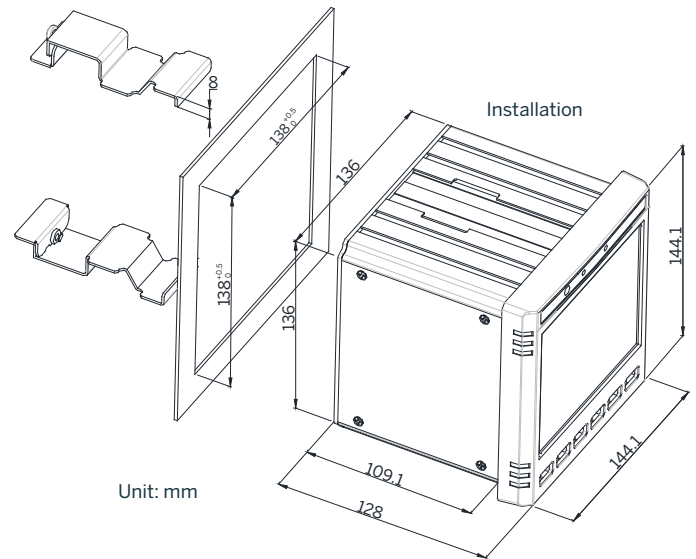
| Power Quality   |   |
|---|---|
| Voltage Characteristics of Electricity Supplied by Public Distribution Systems  | EN50160: 2010                                 |
| General Guide on Harmonics and Interharmonic Measurements and Instrumentation, for Power Supply Systems and Equipment Connected Thereto | IEC61000-4-7: 2009                            |
| Flickermeter-Functional and Design Specifications   | IEC61000-4-15: 2010                           |
| Testing and Measurement Techniques-Power Quality Measurement Methods  | IEC61000-4-30: 2021 Ed. 3.1 Class A Certified |
| Power Quality Measurement in Power Supply Systems-Part 2: Functional Tests and Uncertainty Requirements                                 | IEC62586-2: 2021 Ed. 2.1                      |

# Environmental and Mechanical Specifications

| Environmental Conditions |                          |
|--------------------------|--------------------------|
| Operating Temperature    | -25°C to 70°C            |
| Storage Temperature      | -40°C to 85°C            |
| Humidity                 | 5% to 95% non-condensing |
| Atmospheric Pressure     | 63 kPa to 110 kPa        |
| Pollution Degree         | 2                        |

| Mechanical Characteristics |                |
|----------------------------|----------------|
| Panel Cutout               | 138x138 mm     |
| Unit Dimensions            | 144x144x128 mm |
| IP Rating                  | 52             |

# Dimensions and Installation



- A Voltage Inputs
- B Current Inputs
- C 10/100BaseT Ethernet Ports
- D RS-485 Port
- E GPS Input
- F Optional Digital Inputs
- G Optional Digital Outputs
- H Optional Analog Inputs
- I Standard Digital Inputs
- J Standard Digital Outputs
- K Alarm Output
- L Power Supply

# Ordering Information

| Product Code  |  |                    |  |  |  |  |  |  |  | Description |
|---|--|--------------------|--|--|--|--|--|--|--|-------------|
| iMeter 7A Advanced Power Quality Analyzer                       |  |                    |  |  |  |  |  |  |  |             |
| Basic Feature   |  | A                  |  |  | IEC61000-4-30 Ed. 3.1 Class A Certified with 2kHz-9kHz C. E. Measurements      |  |  |  |  |             |
|   |  | B*                 |  |  | IEC61000-4-30 Ed. 3.1 Class A Certified with 2kHz-150kHz C. E. Measurements    |  |  |  |  |             |
| Input Current   |  | 5                  |  |  | 5A   |  |  |  |  |             |
|   |  | 1                  |  |  | 1A   |  |  |  |  |             |
|   |  | SCCT               |  |  | For use with 100A/200A/400A/800A/1600A to 40mA SCCTs (SCCTs not included)      |  |  |  |  |             |
|   |  | SCCTA              |  |  | For use with 5A/2mA SCCT (SCCTs not included)                                  |  |  |  |  |             |
|   |  | SCCPA <sup>^</sup> |  |  | SCCP Option for use with CT Clamps with max. 500mV output (SCCPs not included) |  |  |  |  |             |
| Input Voltage   |  | 9                  |  |  | 400VLN/690VLL +20%   |  |  |  |  |             |
| Power Supply  |  | 2                  |  |  | 95-250VAC/DC±10%, 47-440Hz   |  |  |  |  |             |
|   |  | 3                  |  |  | 20-60VDC   |  |  |  |  |             |
| System Frequency  |  | 5                  |  |  | 50Hz   |  |  |  |  |             |
|   |  | 6                  |  |  | 60Hz   |  |  |  |  |             |
| I/O   |  | A                  |  |  | 4xDI +3xDO   |  |  |  |  |             |
|   |  | B                  |  |  | 4xDI +1xDO +2xSS Pulse Output  |  |  |  |  |             |
|   |  | C*                 |  |  | 8xDI +5xDO+2xAI  |  |  |  |  |             |
|   |  | D*                 |  |  | 8xDI +5xDO +2xRTD Input  |  |  |  |  |             |
| Communications  |  | A                  |  |  | 2x100BaseT +1xRS-485   |  |  |  |  |             |
| Display Language  |  | E                  |  |  | English  |  |  |  |  |             |
| iMeter 7A - A 5 9 2 5 A A E iMeter 7A-A5925AAE (Standard Model) |  |                    |  |  |  |  |  |  |  |             |

\* Additional charges apply.

<sup>^</sup> SCCPA option does not come with any Current Clamp. Please refer to the "Optional SCCPs" section for more information.

## Optional SCCPs

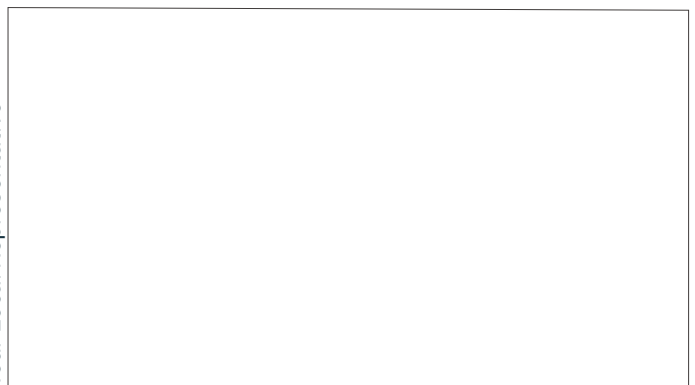
|                        |  |  |  |  |
|------------------------|---|---|--|---|
| Model No.              | PMC-SCCP-50A-500mV-B-A-B  | PMC-SCCP-200A-200mV-B-B-B   | PMC-SCCP-500A-500mV-B-B-B  | * PMC-SCCP-5kA-500mV-B-C-C-371/254/150/100  |
| Measurement Range      | 5A<br>(50A I <sub>max</sub> )   | 20A/200A<br>(200A I <sub>max</sub> )  | 500A<br>(500A I <sub>max</sub> )   | 500A/5000A Rogowski Coil<br>(5000A I <sub>max</sub> )                                 |
| Max. Allowable Current | 50A   | 260A  | 500A   | 10, 000A  |
| Output Voltage         | AC 10mV/A<br>(Max. 500mV)   | AC 10mV/A @ 20A<br>AC 1mV/A @ 200A<br>(Max. 200mV)                                  | AC 1mV/A<br>(Max. 500mV)   | AC 1mV/A @ 500A<br>AC 0.1mV/A @ 5000A<br>(Max. 500mV)                                 |
| Accuracy               | ±0.3% rdg.<br>±0.02% f.s.   | ±0.3% rdg.<br>±0.02% f.s.   | ±0.3% rdg.<br>±0.02% f.s.  | ±2.0% rdg.<br>(1% - 200%) I <sub>n</sub>  |
| Protection             | CAT III 300V  | CAT III 600V  | CAT III 600V   | CAT III 1000V<br>CAT IV 600V  |
| Diameter               | 15mm  | 24mm  | 50mm   | 371/254/150/100mm   |
| Cable Length           | 3m  | 3m  | 3m   | 3m  |
| Termination            | BNC   | BNC   | BNC  | BNC   |

\* The Rogowski coil & integrator set comes with an external Power Supply.

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Your Local Representative



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