CET
Electric
Technology

iMeter D7
DIN-Rail Advanced Power Quality Analyzer

- True RMS @ 1024 Samples/Cycle
- IEC 62053-22 Class 0.2S Compliant
- IEC 61000-4-30 Ed. 3 Class A Certified
- IEC 61000-4-15 Flickermeter
- PQ Disturbance Detection
- Disturbance Waveform Recording
- Comprehensive SDR and Energy Logs
- Dual Ethernet and 1xRS-485
- Modbus RTU/TCP, HTTPS, NTP, SMTPS
- Extended Temperature Range
- Extended Warranty
- 3.5” IPS Color Dot-Matrix LCD Display
- 4 GB Log Memory
- EN50160 and IEEE Std 519-2022 Report
- IEC 61000-4-7 Harmonics/Interharmonics
- ½ cycle RMS Recorder
- WF Recording in COMTRADE format
- 2kHz - 150kHz C. E. Measurements
- IEC 61850 Support
- Optional Split-Core Current Probes
- Industrial Grade Components
- Standard Tropicalization

Designed For Reliability *Manufactured To Last*

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The iMeter D7 is CET's Advanced DIN-Rail Mount PQ Analyzer designed for the compliance monitoring market as it offers un-surpassed functionality by combining Class 0.2S accuracy and advanced PQ features in a compact 145*124*77mm housing with a High-Resolution, IPS Color Dot-Matrix Display. The iMeter D7 complies with such standards as IEC 62053-22 Class 0.2S, IEC 61000-4-30 Ed.3 Class A, IEC 61000-4-15, IEC 61000-4-7, EN 50160, IEEE Std 519-2022 as well as IEC 61850 for Substation Automation. Further, it offers a large logging capacity with 4GB of on-board memory, extensive I/O, multiple Time Sync. methods, 2x100BaseT Ethernet and 1xRS-485 ports. In addition, it optionally supports wireless connection, 2xAI for measuring external transducer signal or 1xIresidual Input & 1xRTD for Leakage Current and Temperature Measurements. These features likely make the iMeter D7 the most advanced DIN-Rail PQ Analyzer for an intelligent Power Quality Monitoring System.

Typical Applications

- PQ monitoring at LV Utility Substations
- Data Centers, Semiconductor Fabs and Heavy Industries
- 7x24 Automated Manufacturing Facilities
- Mains and critical feeder monitoring
- Renewable Energy Applications
- Dips, Swells, Interruptions, Transients, Flickers and Harmonics monitoring
- IEC 61850 support for Substation Automation and Smart Grid
- Retrofit applications with optional Class 1 Split-Core Current Probes

Basic Features

- IEC 62053-22 Class 0.2S kWh metering with Multi-Tariff TOU
- True RMS @ 1024 samples/cycle sampling
- 4GB on-board log memory
- High-Resolution IPS Color LCD Display @ 320x240
- Time Sync. via IRIG-B, NTP, IEEE 1588 (PTP), or GPS 1PPS output
- Device Operating Time (Running Hours)
- 64 Programmable Setpoints
- Dual 100BaseT Ethernet and one RS-485 ports

Power Quality Features

- IEC 61000-4-30 Ed. 3 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
- Fault Capture up to 2,000V peak to peak (400VLN Input)
- Waveform Recording in COMTRADE file format

Front Panel 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 Metering

PQ Parameters as per IEC 61000-4-30 Ed.3 Class A Certified

- Power Frequency
- Magnitude of the Supply Voltage
- Flicker
- Supply Voltage Dips, Swells and Interruptions
- 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 2nd to 63rd #
- U and I Individual Interharmonics (%IHD and RMS) from 1st to 63rd #
- Total Harmonic P, Q, S and PF
- Harmonic P, Q, S and PF from 2nd to 63rd in RMS
- Fundamental U, I, P, Q, S, Phase Angle and Displacement PF
- Harmonic Phase Angle from 2nd to 63rd
- 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 95th 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 95th percentile values

Sequence and Unbalance

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

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 trigger for the 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

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

Rapid Voltage Changes (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 Dip/Swell/Interruption Event is located upstream or downstream
- Pinpoint if the cause of the event is external or internal

PQ Event Counters

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

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Metering

Basic Measurements (1-second update)
- 3-phase U, I, P, Q, S and PF as well as U4, I4, Ung, Frequency, IR# and optional Ir#

#IR – Calculated Residual Current, Ir – Measured Residual Current

High-Speed Measurements
- 3-phase U, I, P, Q, S and PF as well as U4 and I4 @ ½ cycle
- Frequency @ 5 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 2nd to 63rd

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

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

Setpoints

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

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

Data and Event Recorders

Non-Volatile Log Memory
- 4GB on-board Log Memory

SOE Log
- 1024 FIFO events time-stamped to ±1ms resolution
- Setpoint event, I/O operation, Dip, Swell, Interruption, Transient, Rapid Voltage Change, Inrush Current, Mains Signalling Voltage, 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 ±1ms resolution
- Power On/Off, Setup changes, Time Sync., Device Operations and Self-diagnostics

Statistical Data Recorder (SDR)
- 8 SDR Logs of max. 64 parameters each
- Recording of the Max., Min., Avg. and 95th percentile values for real-time measurements including U, I, Freq., P, Q, S, PF, 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

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 @ 65535 records
- 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, Deviations, 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

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/Net/Total and kVAh Total, Total Fundamental and Total Harmonic kWh, kvarh Import/Export
- Recording Interval from 1 minute to 65535 minutes
- Max. Recording Depth @ 65535 records
- Support FIFO and Stop-When-Full mode

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 65535 min.
- COMTRADE file format, downloadable from the on-board Web Server or FTPS Server

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

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Inputs and Outputs

Digital Inputs

- Standard 4 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 Outputs

- Standard 2 channels Form A and 1 channel Form C Mechanical Relays for general purpose control or alarming
- Optional 3 SS Relays for Energy pulsing applications

Analog Inputs (Optional)

- Optional 2xAI, 0/4-20mA DC input with programmable zero and full scales that can be used to measure external transducer signal
- Optional 1xIresidual Input for Leakage Current & 1xRTD for Temperature Measurements (Residual Current Transducer and PT100 Sensor not included)

Communications

Ethernet Ports (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, IPSecVPN and IEC 61850
- 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 4xIEC 61850

RS-485

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

4G (Optional)

- Optionally equipped with Built-in 4G LTE CAT4 modem
- Frequency bands supported[#]:
  - 4G LTE: B1/B3/B5/B7/B8/B20/B28/B38/B40/B41
  - 3G DC-HSPA+/HSPA/UMTS: B1/B5/B8
  - 2G GSM: 900/1800 MHz

[#]Availability and supported carrier vary by region

Time Synchronization

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

System Integration

PecStar® iEMS

- The iMeter D7 is supported by CET's PecStar® iEMS.
- In addition, the iMeter D7 can be easily integrated into other 3rd party systems because of its support of multiple communication ports as well as different industry standard protocols such as Modbus and IEC 61850

DiagSys

- Display of Real-time Measurements, PQ Events, Waveforms and Statistical Trend charts
- Export of IER, AER and SDR Logs as well as EN 50160 Reports
- Generation and export of self-defined PQ Analysis Reports

3rd Party System Integration

- Easy integration into Substation Automation or Utility SCADA systems via Modbus RTU, Modbus TCP or IEC 61850
- 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 Excel files for the logged C.E. Measurement data, IEEE Std 519-2022 Daily and Weekly reports and waveform records in COMTRADE format to be downloaded without any special software
- The downloaded files can be subsequently viewed using software that supports these industry standard file formats

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 600V
Frequency	40Hz-60Hz @ 50Hz, 48Hz-72Hz @ 60Hz
Current Inputs (·I11, I12, ·I21, I22, ·I31, I32, ·I41, I42)	
Standard (In)	5A (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	Split-Core Current Probe Input @ max. 500mV
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
Power Supply (L+, N-)	
Standard	95-250VAC/VDC ± 10%, 47-440 Hz
Optional	20-60VDC
Burden	< 7VA / 10W @ 250VAC or 60VDC
Digital Inputs (DIC, DI1, DI2, DI3, DI4)	
Standard	Dry contact, 24VDC internally wetted
Sampling	1000Hz
Hysteresis	1ms minimum
Form A Relay Outputs (DO11, DO12, DO21, DO22)	
Type	Form A Mechanical Relay
Loading	5A @ 250VAC or 30VDC
Form C Relay Outputs (Alarm 1, 2, 3)	
Type	Form C Mechanical Relay
Loading	8A @ 250VAC or 24VDC
Optional Pulse Outputs (E1+, E1-, E2+, E2-, E3+, E3-)	
Type	Form A Solid State Relay
Isolation	Optical
Max. Load Voltage	30VDC
Max. Forward Current	100mA
Optional Analog Input (AI1+, AI1-, AI2+, AI2-)	
Type	0-20 / 4-20 mA DC
Overload	24 mA maximum
Optional Residual Current Input (·IR, IR)	
In	0.5mA
Range	2-200%In
Optional RTD Temperature Inputs (TC11, TC12)	
RTD Type	2-Wire PT100 (sensor not included)
Range	-40°C to +200°C
Accuracy	±1°C
Clock Input (CLK+, CLK-)	
Type	GPS, IRIG-B
Accuracy	1ms
Terminals Max. Torque	
Current Inputs	1.0 N·m
Power Supply, Voltage Inputs, DI, DO, AI, IR, TC, CLK & RS-485	0.44 N·m

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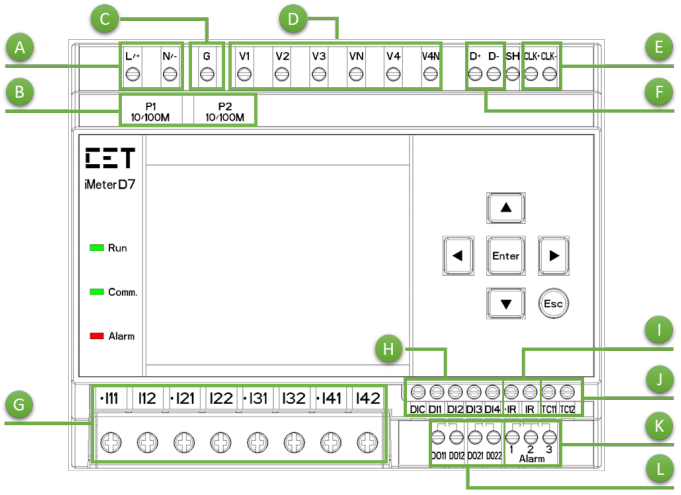
Environmental Conditions	
Operating Temp.	-25°C to 70°C
Storage Temp.	-40°C to 85°C
Humidity	5% to 95% non-condensing
Atmospheric Pressure	63 kPa to 110 kPa
Pollution Degree	2
Mechanical Characteristics	
Mounting	35mm DIN Rail
Unit Dimensions	144.8*115.8*75.6 mm
IP Rating	30

Accuracy

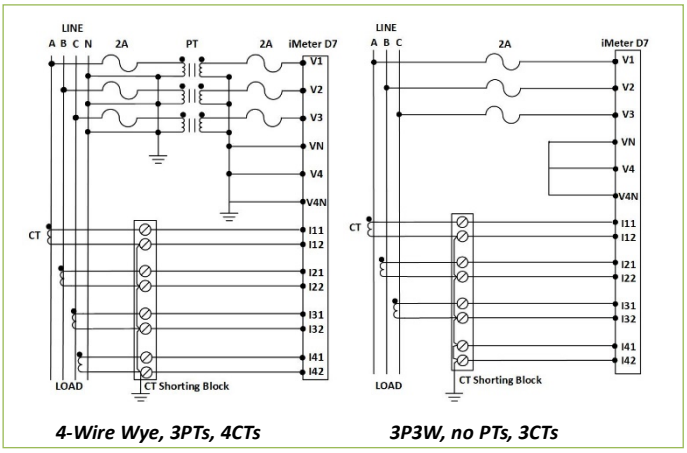
Parameters	Accuracy		Resolution
Voltage (U)		±0.1%	0.001V
I1, I2, I3, I4	5A/1A	±0.1%	0.001A
	SCCT/SCCTA	±0.1%+Error of SCCT	
	SCCPA	±0.1%+Error of SCCP	
P, Q, S	5A/1A	±0.2%	0.001W/ var/VA
	SCCT/SCCTA	±0.5%	
	SCCPA	±0.5%	
kWh, kVAh	5A/1A	IEC 62053-22 Class 0.2S	0.1kXh
	SCCT/SCCTA	IEC 62053-21 Class 1	
	SCCPA	IEC 62053-21 Class 1	
kvarh	5A/1A	IEC 62053-24 Class 0.5S IEC 62053-23 Class 2	0.1kvarh
	SCCT/SCCTA	IEC 62053-24 Class 1 IEC 62053-23 Class 2	
	SCCPA	IEC 62053-24 Class 1 IEC 62053-23 Class 2	
PF	5A/1A	±0.2%	0.001
	SCCT/SCCTA	±0.5%	
	SCCPA	±0.5%	
Fundamental Phase Angle	5A/1A	±0.2°	0.1°
	SCCT/SCCTA	±0.2°+Phase Error of SCCT	
	SCCPA	±0.2°+ Phase Error of SCCP	
Harmonics Phase Angle	5A/1A	±5°	0.1°
	SCCT/SCCTA	±5°+Phase Error of SCCT	
	SCCPA	±5°+ Phase Error of SCCP	
Freq., Freq. Dev.		±0.003Hz	0.001Hz
Harmonics/ Interharmonics		IEC 61000-4-7 Class I	0.01%
U Deviation		±0.1%	0.01%
U Unbalance		±0.1%	0.01%
I Unbalance		±0.5%	0.01%
Pst, Plt		IEC 61000-4-15 Class F1	0.001

Terminals Diagram



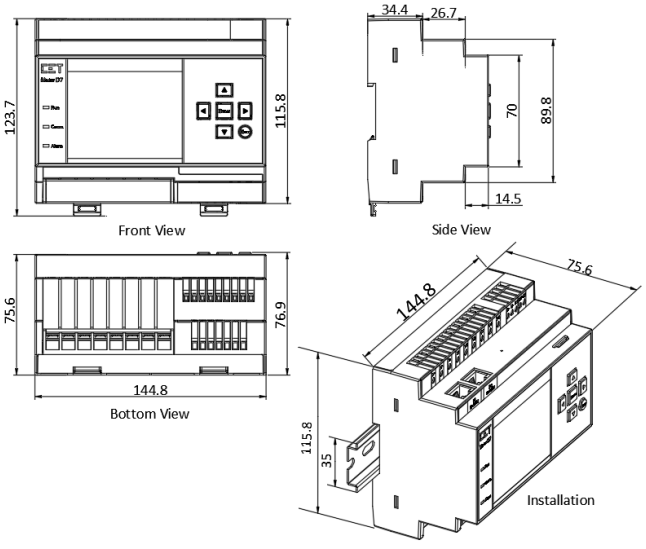
A Power Supply	E 1x GPS Time Sync.	I 1x Residual Current Input
B 2x Ethernet Port	F RS-485 Port	J 1x Temperature Input
C Chassis Ground	G 4x Current Input	K 1x Alarm Output
D 4x Voltage Input	H 4x Digital Input	L 2x Digital Output

Typical Wiring



4-Wire Wye, 3PTs, 4CTs *3P3W, no PTs, 3CTs*

Device Views and Mounting Diagram (unit: mm)



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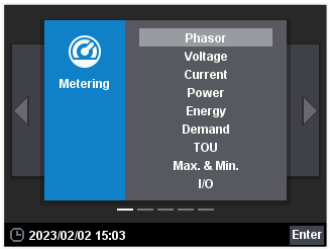
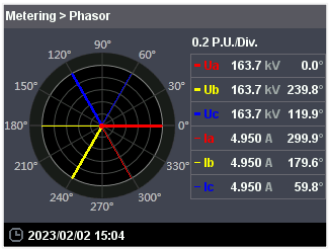
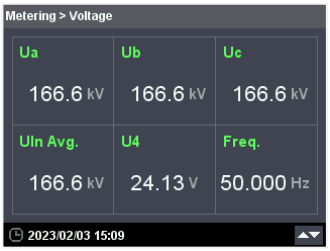
Front Panel User Interface



Main Menu

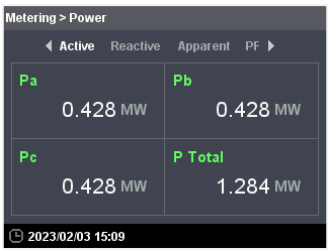


Phasor Diagram

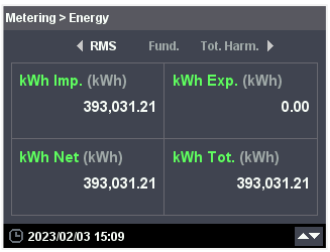


Voltage Metering

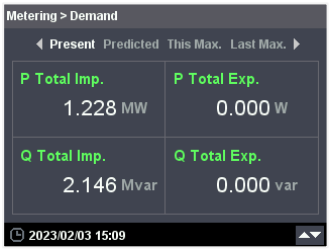
Current Metering



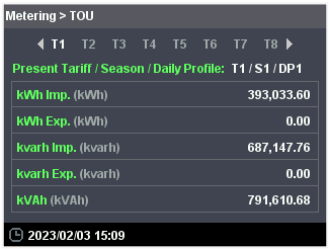
Active Power



RMS Energy

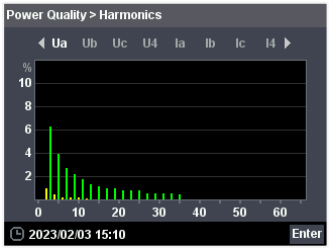


Present Demand

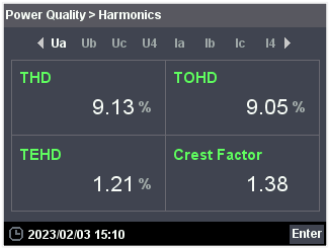


TOU Energy

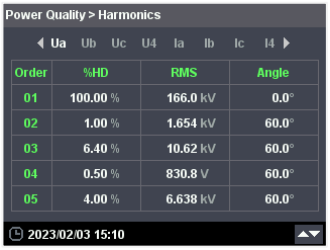
Max. Log



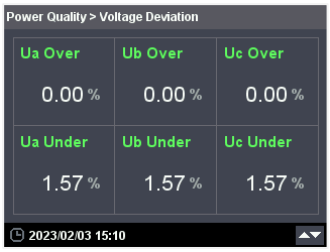
Harmonics Histogram



Harmonics Measurement

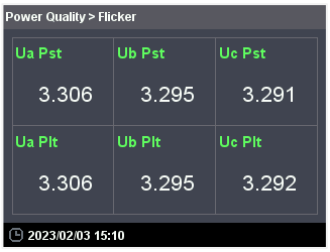


Individual Harmonics

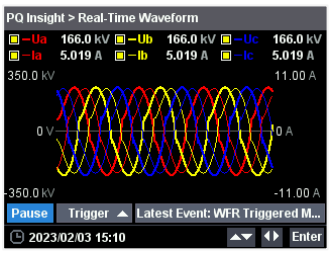


Voltage Deviation

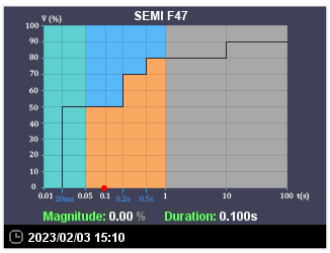
Unbalance



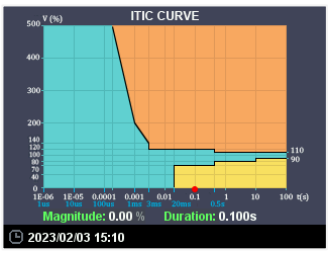
Flicker



Real-Time Waveform



SEMI F47 Plot



ITIC Curve

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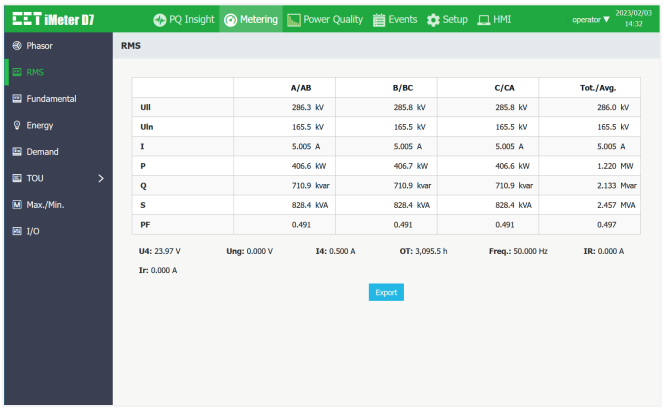
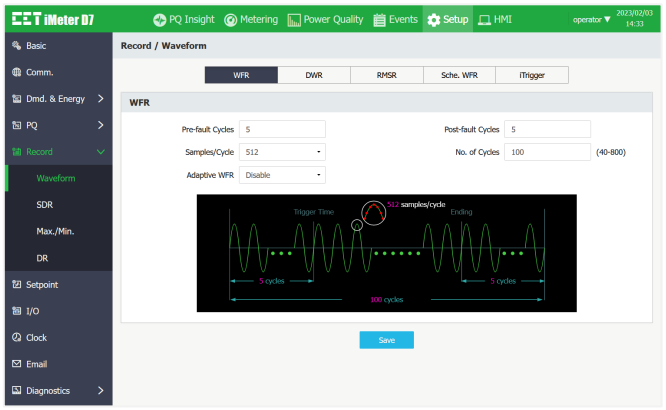
iMeter D7
DIN-Rail Advanced Power Quality Analyzer

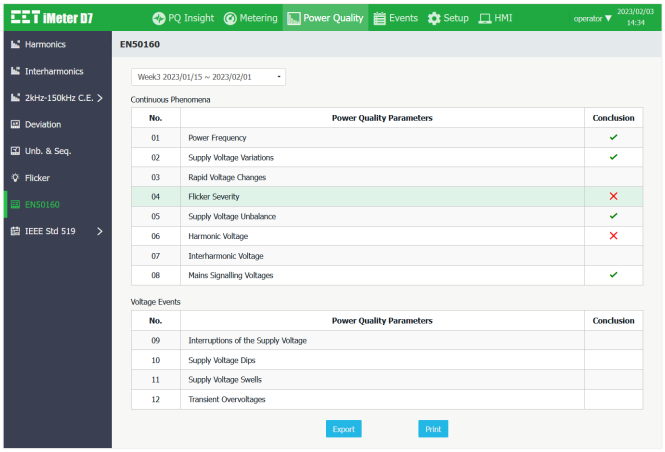
Web Interface



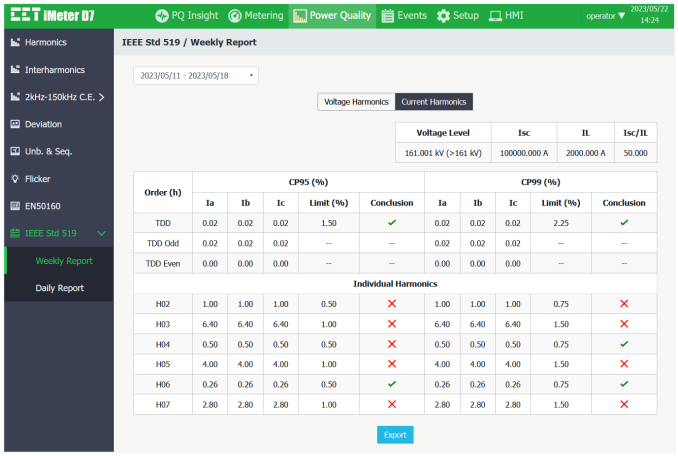
RMS Metering



WFR Setup

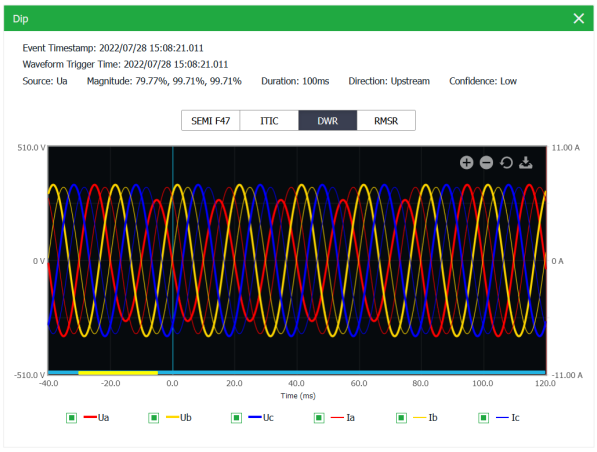


EN 50160 Report



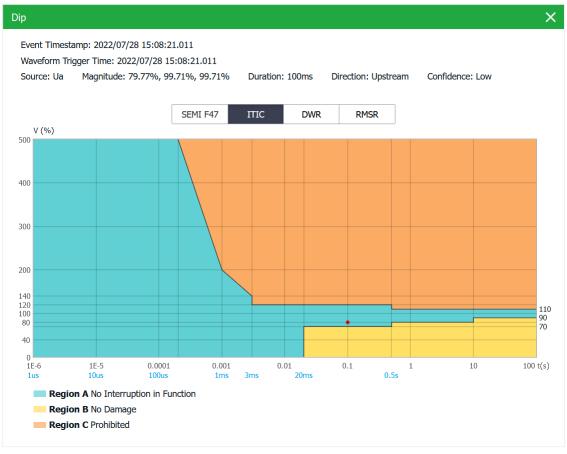
IEEE Std 519-2020 Weekly Current Harmonic Compliance Report

RMSR Plot



Disturbance Waveform

SEMI F47 Plot



ITIC Plot

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DIN-Rail Advanced Power Quality Analyzer

Standards of Compliance

Safety Requirements	
CE LVD 2014 / 35 / EU	EN61010-1: 2010 EN61010-2-030: 2010
Electrical Safety in Low Voltage Distribution Systems up to 1000Vac and 1500 VDC	IEC 61557-12: 2018 (PMD)
Insulation AC Voltage: 2kV @ 1 minute Insulation Resistance: >100MΩ Impulse Voltage: 6kV, 1.2/50μs	IEC 62052-11: 2003 IEC 62053-22: 2003 EN 61010-1: 2010
EMC Compatibility CE EMC Directive 2014 / 30 / EU (EN 61326: 2013)	
Immunity (EN50082-2)	
Electrostatic Discharge	EN 61000-4-2: 2009
Radiated Fields	EN 61000-4-3: 2006+A1: 2008+A2: 2010
Fast Transients	EN 61000-4-4: 2012
Surges	EN 61000-4-5: 2014+A1: 2017
Conducted Disturbances	EN 61000-4-6: 2014
Magnetic Fields	EN 61000-4-8: 2010
Voltage Dips and Interruptions	EN 61000-4-11: 2004+A1: 2017
Ring Wave	EN 61000-4-12: 2017
Emission (EN50081-2)	
Limits and Methods of Measurement of Electromagnetic Disturbance Characteristics of Industrial, Scientific and Medical (ISM) Radio-Frequency Equipment	EN 55011: 2016
Limits and Methods of Measurement of Radio Disturbance Characteristics of Information Technology Equipment	EN 55032: 2015
Limits for Harmonic Current Emissions for Equipment with Rated Current ≤16 A	EN 61000-3-2: 2014
Limitation of Voltage Fluctuations and Flicker in Low-Voltage Supply Systems for Equipment with Rated Current ≤16 A	EN 61000-3-3: 2013
Emission Standard for Industrial Environments	EN 61000-6-4: 2007+A1: 2011
Mechanical Tests	
Spring Hammer Test	IEC 62052-11: 2003
Vibration Test	IEC 62052-11: 2003
Shock Test	IEC 62052-11: 2003
Power Quality	
Voltage Characteristics of Electricity Supplied by Public Distribution Systems	EN 50160: 2010
General Guide on Harmonic and Interharmonic Measurements and Instrumentation, for Power Supply Systems and Equipment Connected Thereto	IEC 61000-4-7: 2009
Flickermeter - Functional and Design Specifications	IEC 61000-4-15: 2010
Testing and Measurement Techniques - Power Quality Measurement Methods	IEC 61000-4-30: 2015 Ed.3 Class A Certified
Power Quality Measurement in Power Supply Systems-Part 2: Functional Tests and Uncertainty Requirements	IEC 62586-2: 2017 Ed.2
Harmonic Control in Electrical Power Systems	IEEE Std 519-2022

Ordering Guide

CET Electric Technology

Version 20230510

Product Code	Description
iMeter D7 DIN-Rail Advanced Power Quality Analyzer	
Basic Feature	
A	IEC 61000-4-30 Ed.3 Class A Certified with 2kHz-9kHz C.E. Measurements
B*	IEC 61000-4-30 Ed. 3 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^	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 (Mechanical Relay)
B	4xDI + 3xSS Pulse Outputs
Analog Inputs	
X	None
A*	2xAI
B*	1xIr + 1xRTD
Communications	
A	2x100BaseT + 1xRS-485
B*	2x100BaseT + 1xRS-485 + 4G
Display Language	
E	English

iMeter D7	-	A	5	9	2	5	A	X	A	E	iMeter D7-A5925AXAE (Standard Model)

*Additional charges apply

^ The SCCPA option is compatible with the SCCP models listed in the "SCCP Option" sheet. This option does not come with any Current Clamp. Please refer to the "SCCP Option" sheet for more information and order the desired model and quantity as a separate item.

CET Electric Technology Inc.

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Your Local Representative

Revision Date: May 24, 2023

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