

SYSTEM CALIBRATED E2X SERIES

Uni-directional, Bi-directional,
Modbus & BACnet



System calibrated Enercept E2x Series power and energy meters provide a unique solution for measuring energy data. Designed with the user in mind, these meters offer maximum application flexibility for retrofit applications.

These meters provide innovative three-phase networked (Modbus RTU and BACnet MS/TP) power transducers that calibrate measurement electronics, high accuracy industrial grade CTs and fusing protection in a single package. External mounting is eliminated, greatly reducing installation and configuration time and cost. Color coordination between voltage leads and CTs makes phase matching easy. Communicating models support auto detection of baud rate, parity and protocol for Modbus RTU and BACnet MS/TP. Up to 63 Enercept meters can be daisy-chained on a single RS-485 network.

SPECIFICATIONS

MEASUREMENT ACCURACY¹

Real Power & Energy, 1/3 Volt Current Input Mode	IEC 62053-21 Class 1S, ANSI C12.1, 1%
Real Power & Energy, Rogowski Current Input Mode	IEC 62053-21 Class 1S, ANSI C12.1, 1%
Reactive Power & Energy	IEC 62053-24 Class 1, 1%
System Accuracy	± 1% (split-core models). 1% on Rogowski models reading from 5 to 100% of rated current of the CTs. This is accomplished by matching the CTs with electronics and calibrating them as a system.

INPUT VOLTAGE CHARACTERISTICS

Measured AC Voltage	Min. 90 V _{L-N} (156 V _{L-L}) for stated accuracy; UL max.: 480 V _{L-L} (277 V _{L-N}); CE max.: 300 V _{L-N}
Impedance	2.5 MΩ _{L-N} / 5 MΩ _{L-L}
Frequency Range	45 to 65 Hz
Measurement Input Range	0 to 0.333 Vac (+20% over-range)
Impedance	33 kΩ

CONTROL POWER

AC	AC: Drawn from phase A-B line-to-line voltage input; 4 VA max.: 90 V _{L-N} min.; UL max.: 480 V _{L-L} (277 V _{L-N}); CE max.: 300 V _{L-N}
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Pre-wired & factory calibrated

Meter, CTs and fuse pack pre-wired and factory calibrated for time-saving installation and improved system-level accuracy ... meter + CTs + Fuse pack (ANSI models ONLY), meter + CTs (IEC models)

90 to 480 Vac

Application versatility with fewer models to stock

One part number

One part number simplifies ordering ... meter + CTs + fuse pack (ANSI models ONLY), meter + CTs (IEC models)

Easy ordering & stocking

Modbus and BACnet protocols along with uni-directional and bi-directional feature sets in one unit

Easy installation

DIN rail or screw mount options (with included mounting bracket)

Protocol support

Modbus RTU and BACnet MS/TP

APPLICATIONS

- Energy monitoring (BAS)
- Renewable energy
- Energy management
- Commercial submetering
- Industrial monitoring
- Cost allocation

Ride-through Time	50 ms at 120 Vac
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MECHANICAL CHARACTERISTICS

Ingress Protection (IEC 60529)	IP20
Plug Wire Size (I/O, Communications)	24 to 16 AWG (0.2 to 1.5 mm ²)
Optional Bracket: Rail Mounted	T35 (35 mm) DIN rail per EN 50022
Optional Bracket: Wall Mounted	Two #10 or M5 screws, 2.953" (75 mm) center-to-center

CT RATINGS

E23C5-xx, E23C6-xx	1000 Vac reinforced insulation rating
E23C5-101, E23C6-101, E23C5-201, E23C6-201	600 Vac basic insulation rating, 300 Vac reinforced insulation rating
E23C5-401, E23C6-401	1000 Vac basic insulation rating, 600 Vac reinforced insulation rating

ENVIRONMENTAL CONDITIONS

Operating Temp.	0 to 70 °C (32 to 158 °F)
Storage Temp. (with CTs)	-40 to 85 °C (-40 to 185 °F)
Storage Temp. (with Rogowski Coils)	-40 to 70 °C (-40 to 158 °F)

SPECIFICATIONS (CONT.)

Humidity Range	<95% RH (non-condensing)
Altitude of Operation	3 km max.
Pollution Degree	2
Mounting Location	Not suitable for wet locations. For indoor use only.

METERING CATEGORY

UL	CAT III; for distribution systems up to 277 V _{L-N} / 480 Vac _{L-L}
CE	CAT III; for distribution systems up to 300 V _{L-N}
Dielectric Withstand	Per UL 61010-1, EN 61010-1
Conducted and Radiated Emissions	FCC part 15 Class A, EN 61000-6-4, EN 61326-1 Class A (industrial)
Conducted and Radiated Immunity	EN 61000-6-2, EN 61326-1 (industrial)

AGENCY APPROVALS

US and Canada	UL 61010-1
Europe (CE)	IEC/EN 61010-1

WARRANTY

Limited Warranty	5 years
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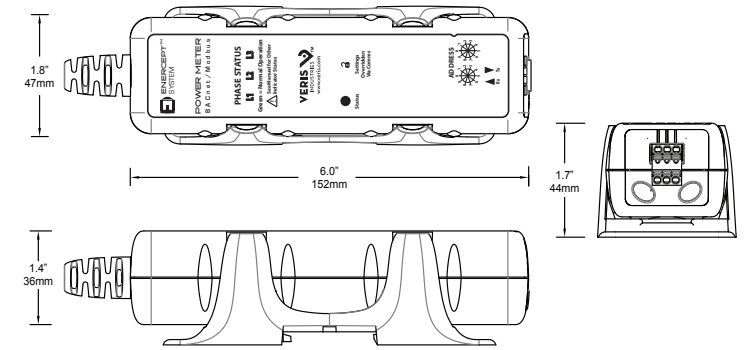


1. The meters were tested compliant to the norms:
- ANSI C12.1, Class 1 from 1% to 100% rated current
 - IEC 62053-21, Class 1 from 1% to 100% rated current
 - IEC 62053-24 Class 1, from 1% to 100% rated current

ORDERING INFORMATION

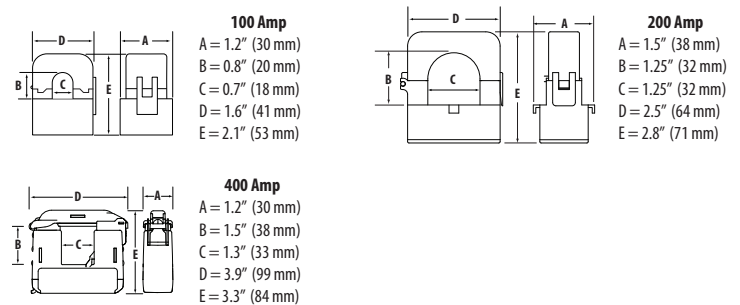
	E23Cx-xxx
MEASUREMENT CAPABILITY - FULL DATA SET	
Bi-directional Energy Measurements	•
Power (3-phase Total and Per Phase): Real (kW) Reactive (kVAR) and Apparent (kVA)	•
Power Factor: 3-Phase Average and Per Phase	•
Present Power Demand: Real (kW), Reactive (kVAR) and Apparent (kVA)	•
Import and Export Totals of Present Power Demand: Real (kW), Reactive (kVAR) and Apparent (kVA)	•
Peak Power Demand: Real (kW), Reactive (kVAR) and Apparent (kVA)	•
Current (3-Phase Average and Per Phase)	•
Voltage: Line-Line and Line-Neutral (3-phase Average and Per Phase)	•
Frequency	•
Accumulated Net Energy: Real (kWh), Reactive (kVARh) and Apparent (kVAh)	•
Accumulated Real Energy by Phase (kWh)	•
Import and Export Accumulators of Real and Apparent Energy	•
Reactive Energy Accumulators by Quadrant (3-phase Total and Per Phase)	•
Demand Interval Configuration: Fixed or Rolling Block	•
Demand Interval Configuration: External Sync to Comms	•
OUTPUTS	
RS-485 Serial (Modbus RTU Protocol)	•
RS-485 Serial (BACnet MS/TP Protocol)	•

DIMENSIONAL DRAWING



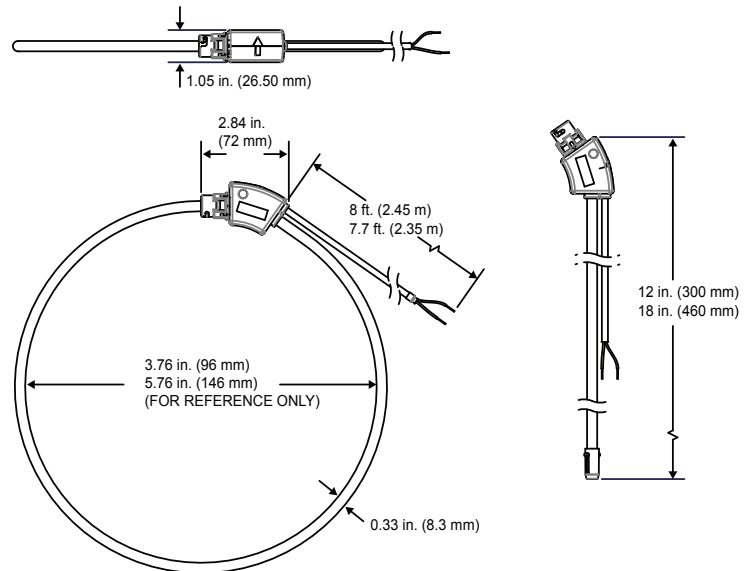
100A, 200A & 400 A CTS

Dimensional Drawings



12" & 18" ROGOWSKI CT

Dimensional Drawing



ORDERING INFORMATION

Data Set	I/O	System Types & Wires	CT Size
E			
23 = Uni/Bi Dir (FDS)	C = Modbus RTU & BACnet MS/TP	5 = IEC international wire code 6 = ANSI North & South America wire code	101 = 3 ph, 3 wire, 100 A, split-core micro 201 = 3 ph, 3 wire, 200 A, split-core mini 401 = 3 ph, 3 wire, 400 A, split-core small 12 = 3 ph, 3 wire, 12" Rogowski 18 = 3 ph, 3 wire, 18" Rogowski
Example:			
E	23	C	6 - 201