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 ACCURACY
- Real Power & Energy, 1/3 Volt Current Input Mode: IEC 62053-22 Class 1S, ANSI C12.1, 1%
- Real Power & Energy, Rogowski Current Input Mode: IEC 62053-22 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 (156 V_L-N) for stated accuracy; UL max.: 480 V_L (277 V_L-L); 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: Drawn from phase A-B line-to-line voltage input; 4 VA max.: 90 V_L (277 V_L-L); CE max.: 300 V_L-N

MECHANICAL CHARACTERISTICS
- Ingress Protection (IEC 60529): IP20
- Plug Wire Size (I/O, Communications): 24 to 16 AWG (0.2 to 1.5 mm²)
- 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.: -30 to 70 °C (-22 to 158 °F)
- Storage Temp.: -40 to 85 °C (-40 to 185 °F)
- Humidity Range: <95% RH (non-condensing)
- Altitude of Operation: 3 km max.

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

EASY ORDERING & STOCKING
- 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)
- Easy installation: Modbus and BACnet protocols along with uni-directional and bi-directional feature sets in one unit

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)

RIDE-THROUGH TIME
- 50 ms at 120 Vac

PROTOCOL SUPPORT
- Modbus RTU and BACnet MS/TP
**SPECIFICATIONS (CONT.)**

- Pollution Degree: 2
- Mounting Location: Not suitable for wet locations. For indoor use only.

**METERING CATEGORY**

- UL: CAT II; for distribution systems up to 277 V_LN / 480 V_LL
- CE: CAT III; for distribution systems up to 300 V_LN

**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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**ORDERING INFORMATION**

**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)

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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

2. The system calibrated Enercept E2x Series is limited to an operating temperature of -15 to 60 °C (5 to 140 °F) when calibrated with Rogowski CTs.

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**DIMENSIONAL DRAWING**

**100A, 200A & 400A CTS**

**Dimensional Drawings**

**12” & 18” ROGOWSKI CT**

**Dimensional Drawing**

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**ORDERING INFORMATION**

**I/O**

- Data Set: E23C
- I/O: 101 = 3 ph, 3 wire, 100 A
- System Types & Wires: 6 = ANS/ North & South America wire code
- CT Size: 201 = 3 ph, 3 wire, 400 A, split-core small
  - Example: E 23 C 6 201

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**POWER MONITORING SINGLE-CIRCUIT | Enercept SYSTEM E20 SERIES**

**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)