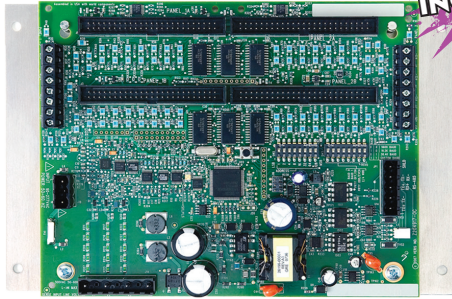


Panelboard Monitoring System

E3x Series



E3xA/B/C

**1% SYSTEM
ACCURACY
INCLUDING
CT'S**

**INTEGRATED
ETHERNET W/
SNMP BACNET &
MODBUS**



E3xE

**Monitor Current, Voltage, & Energy
Consumption with One Device**

FEATURES

- Revenue Grade measurements
- ANSI & IEC Class 1 metering system accuracy (including CT's)
- Solid-core CT strip models for new construction
- Split-core CT strip models for retrofit applications
- Reports volts, amps, power, demand, & energy for each circuit... one product covers two complete 42 breaker panelboards
- 92 circuits with one product (84 branch circuits, 2 3-phase mains, 2 neutrals)...saves space
- User configurable meters provide multi-phase totals for loads with any combination of 1, 2, 3 pole breaker positions
- 3/4", or 1", or 18 mm spaced solid-core current sensors... flexible installation
- 4 user-configurable alarm threshold registers...improved load management
- Selectable orientation and numbering of the circuits
- 50mA to 100 amp monitoring...widest dynamic range in the industry
- Modbus RTU standard on all models
- Modbus TCP over Ethernet standard on E3xExxx models and available on others with addition of U013-0012
- BACnet IP or MS/TP standard on E3xExxx models available on others with addition of E8950
- SNMP support standard on E3xE models, available on others with addition of E8950

SPECIFICATIONS

**5 Year
Warranty**

Agency Approvals	UL508, EN61010-1, Cat. III, pollution degree 2
INPUTS	
Input Power	90-277VAC, 50/60 Hz
Auxiliary CT Current Input Range	0-0.333V; CTs must be rated for use with Class 1 voltage inputs
ACCURACY	
Power/Energy	IEC 62053-21 Class 1, ANSI C12.1-2008. 1% system accuracy (including 50A or 100A branch CTs)
Voltage	±0.5% of reading
Current	±0.5% of reading
"ON" Current	50mA
OPERATION	
Sampling Frequency	2560 Hz
OUTPUTS	
Serial Protocols	Modbus RTU & (BACnet MS/TP on E3xE models)
Serial Connection	2-wire, RS-485 (A/B/C models & support 4-wire RS-485)
Address	Selectable address 1 to 247 (uses 2 addresses for Modbus RTU)
Baud Rate	Selectable 9600, 19200, 38400
Parity	Selectable NONE, ODD, EVEN
Communication Format	8-data-bits, 1-start-bit, 1-stop-bit
Terminal Block Torque	4.4 to 5.3 in-lb (0.5 to 0.6 N-m)
Ethernet Protocols	Modbus TCP, BACnet IP, SNMP V2c (E models)
Ethernet Connection	RJ-45 10/100 Mbit (E models)
MECHANICAL	
Ribbon Cable Support	4 ft. (0.9 m) ribbon cable ships standard; 18" (0.5m) to 20 ft. (6 m) flat and round cables available
ENVIRONMENTAL	
Operating Temp Range	0° to 60°C (32° to 140°F) (<95% RH noncondensing)
Storage Temp Range	-40° to 70°C (-40° to 158°F)
Altitude of Operation	3000 m

DESCRIPTION

The **E3x Series Panelboard Monitoring System** provides a cost effective solution for electrical load management, making it ideally suited for applications where loads are dynamic, such as the data storage industry, lighting panels, etc.

The E3x series monitors the current, voltage, instantaneous power, demand & energy consumption of each circuit in a panelboard including the main feed. As a circuit approaches the user-configured thresholds, alarm indicators are triggered, preventing costly downtime from overloaded circuits or failed loads. (See graph, facing page)

APPLICATIONS

- Load based cost allocation
- Overload protection
- Data Center PDU's
- Lighting Control Panels
- Load management
- Load balancing

PRODUCT CAPABILITIES

Monitoring at Mains	E3xA	E3xB	E3xC	E3xE
Current per phase	●	●	●	●
Max. current per phase	●	●	●	●
Current demand per phase	●	●	●	●
Max. current demand per phase	●	●	●	●
Current phase angle	●	●		●
Energy (kWh) per phase	●	●		●
Real Power (kW) per phase	●	●		●
Apparent Power (kVA)	●	●		●
Power factor total*	●	●		●
Power factor per phase	●	●		●
Voltage, L-L and average	●	●		●
Voltage, L-N and average	●	●		●
Voltage, L-N and per phase	●	●		●
Frequency (phase A)	●	●		●
Monitoring at Branch Circuit				
Current	●	●	●	●
Max. current	●	●	●	●
Current demand	●	●	●	●
Max. current demand	●	●	●	●
Current phase angle	●			●
Real power (kW)	●			●
Real power (kW) demand	●			●
Real power (kW) demand max.	●			●
Energy (kWh) per circuit	●			●
Power factor	●			●
Apparent Power (kVA)	●			●
Modbus Alarms				
Voltage over/under	●	●		●
Current over/under	●	●	●	●
Protocols Supported				
Modbus RTU	●	●	●	●
Modbus TCP	*1	*1	*1	●
BACnet MS/TP	*2	*2	*2	●
BACnet IP	*2	*2	*2	●
SNMP V2	*3	*3	*3	●

* Based on a 3-phase breaker rotation. *1 with U013-0012 or E8950 added
 *2 with E8950 added *3 with E8950 added; requires (1) E8950 for each meter

ACCESSORIES

Ribbon Cables, round or flat (CBLxxx)
 E3x cover (AE001)
 Modbus TCP Gateway (U013-0012)
 Modbus-to-BACnet Converter (E8950)
 Network Display (H8932, H8936)
 CTs (E31CT0, E31CT1, E31CT3)
 Split-core CTs for auxiliary inputs (H681x)
 Solid-core CTs for auxiliary inputs (E682x)
 Repair kit for E30 (AE006)

E31CT0
E681A500V3E31CT1
E681B101V3E31CT3
E681C201V3

H681x



E682x



AE006



AE001



U013-0012

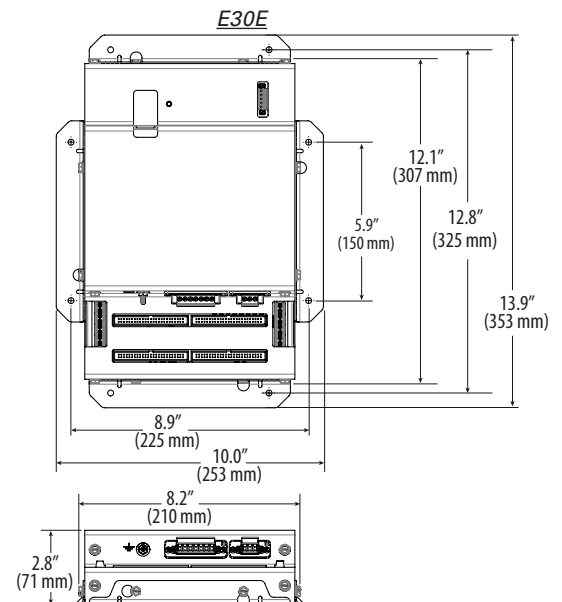
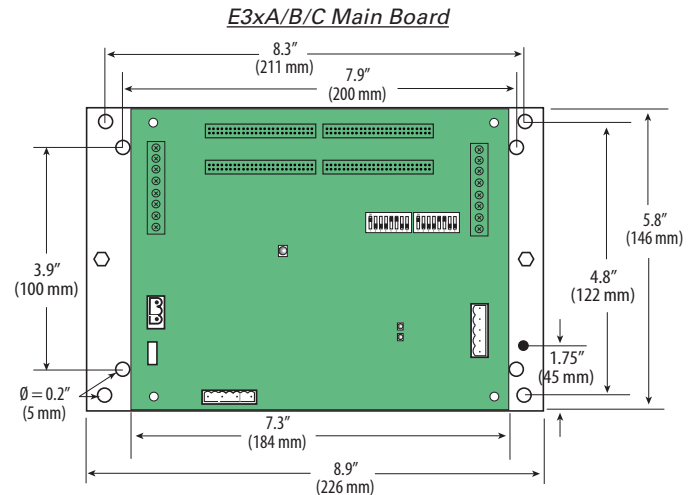


E8950

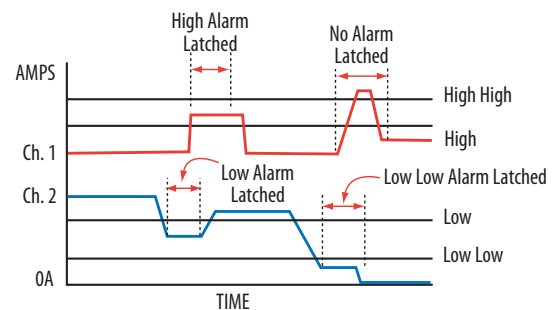


H8932/H8936

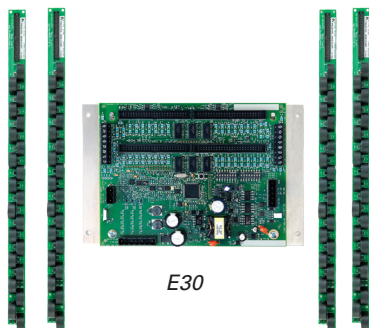
DIMENSIONAL DRAWINGS



OPERATION EXAMPLE

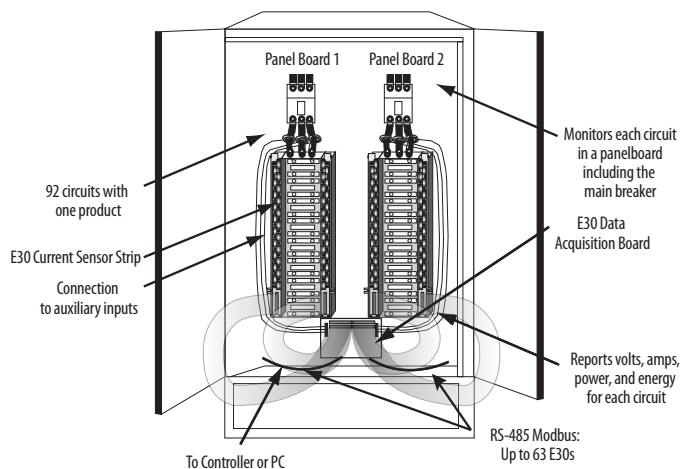


Panelboard Monitoring System – Solid-Core



E30

WIRING DIAGRAM

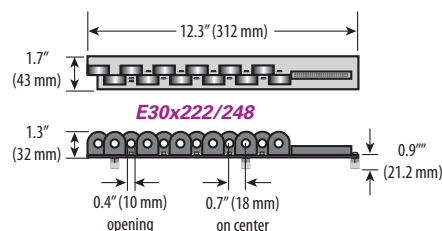
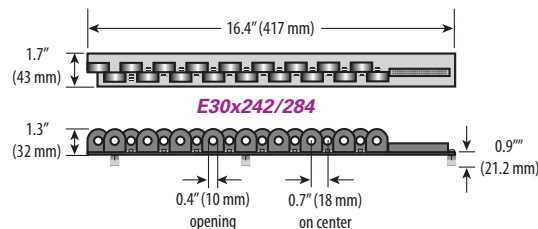
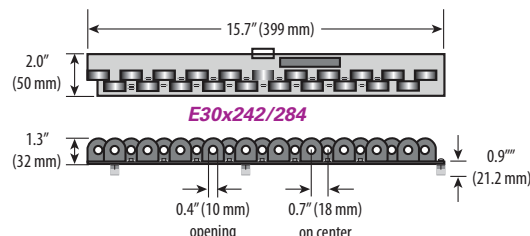
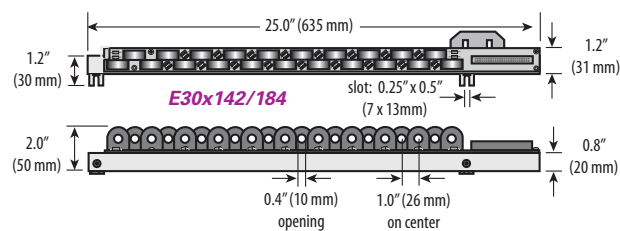
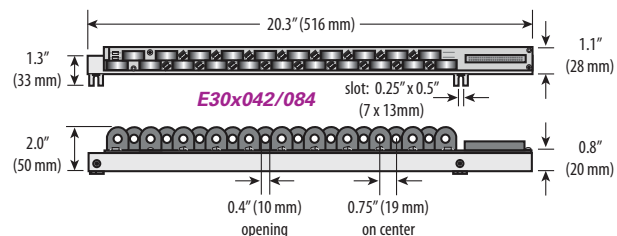


SOLID-CORE CT SPECIFICATIONS

	100A Solid-Core CT
Voltage Rating	300VAC
Accuracy	Included in system accuracy
Temperature	0° to 60°C
Agency	UL508 Recognized, EN61010

DIMENSIONAL DRAWINGS

Current Sensor Strips



ORDERING INFORMATION



Description

- E30**
- A = Advanced
B = Intermediate
C = Basic
E = Advanced w/ethernet

CT Option

- 0 = 100A, 3/4" spacing
1 = 100A, 1" spacing
2 = 100A, 18 mm spacing

of CTs & Ribbon Cables

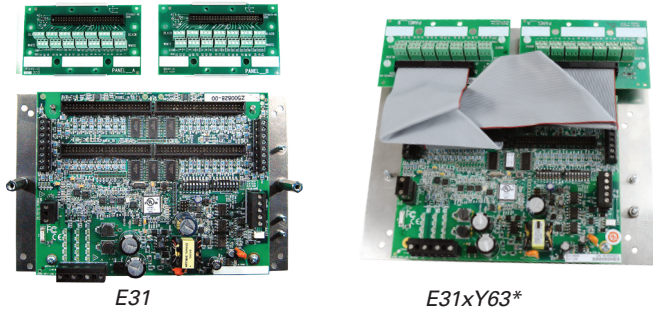
- 24 = 2 strips of 12 CTs (18 mm only)
36 = 2 strips of 18 CTs (18 mm only)
42 = 2 strips of 21 CTs (3/4", 1", or 18 mm) with two 4-ft. flat ribbon cables
48 = 4 strips of 12 CTs (18 mm only)
72 = 4 strips of 18 CTs (18 mm only)
84 = 4 strips of 21 CTs (3/4", 1", or 18 mm) with four 4-ft. flat ribbon cables

Example:

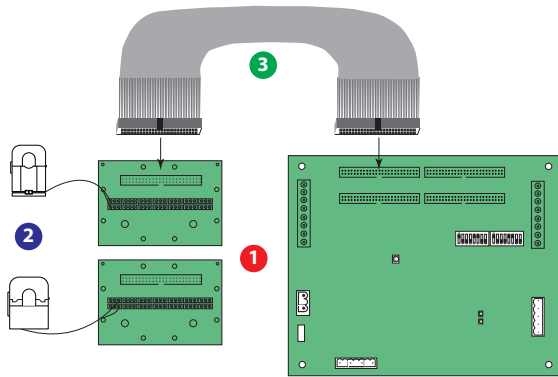
E30 A 0 42

Free Configuration tool available from www.veris.com.
Consult factory for additional mounting options.

Panelboard Monitoring System – Split-Core

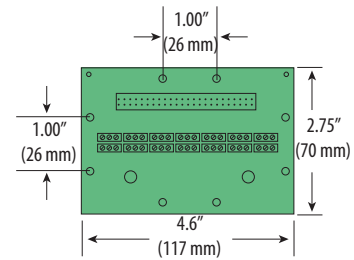


WIRING DIAGRAM

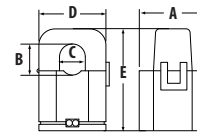


DIMENSIONAL DRAWINGS

E31 Adapter Board



E31 CTs



E31CT0 50 Amp

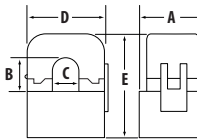
A = 1.0" (26 mm)

B = 0.5" (11 mm)

C = 0.4" (10 mm)

D = 0.9" (23 mm)

E = 1.6" (40 mm)



E31CT1 100 Amp

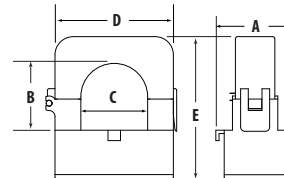
A = 1.5" (39 mm)

B = 0.8" (20 mm)

C = 0.7" (16 mm)

D = 1.6" (40 mm)

E = 2.1" (53 mm)



E31CT3 200 Amp

A = 1.5" (39 mm)

B = 1.25" (32 mm)

C = 1.25" (32 mm)

D = 2.5" (64 mm)

E = 2.8" (71 mm)

ORDERING INFORMATION



1 Boards

Description

of CTs

E31



A = Advanced board 002 = 2 adapter boards, no CTs, no cables
B = Intermediate board 004 = 4 adapter boards, no CTs, no cables
C = Basic board 42 = 2 adapter boards, 42 50A CTs, 2 4 ft. round ribbon cables
84 = 4 adapter boards, 84 50A CTs, 4 4 ft. round ribbon cables
Y63* = 2 adapter boards, flat ribbon cables,
pre-assembled on one bracket, CTs not included

2 CTs (up to 21 CTs per adapter board)

E31CT0 Six-pack, 50A CT, 6 ft. (1.8 m) lead
E31CT0R20 Six-pack, 50A CT, 20 ft. (6 m) lead
E31CT1 Six-pack, 100A CT, 6 ft. (1.8 m) lead
E31CT1R20 Six-pack, 100 CT, 20 ft. (6 m) lead
E31CT3 Single CT, 200A CT, 6 ft. (1.8 m) lead
E31CT3R20 Single CT, 200A CT, 20 ft. (6 m) lead

3 Ribbon Cable (order 1 cable per adapter board)

CBL031 Round Ribbon Cable, 18 in. (0.5 m)
CBL032 Round Ribbon Cable, 30 in. (0.8 m)
CBL022 Round Ribbon Cable, 4 ft. (1.2 m)
CBL033 Round Ribbon Cable, 8 ft. (2.4 m)
CBL023 Round Ribbon Cable, 10 ft. (3 m)
CBL024 Round Ribbon Cable, 20 ft. (6 m)
CBL008 Flat Ribbon Cable, 18 in. (0.5 m)
CBL016 Flat Ribbon Cable, 4 ft. (1.2 m)
CBL017 Flat Ribbon Cable, 5 ft. (1.5 m)
CBL018 Flat Ribbon Cable, 6 ft. (1.8 m)
CBL019 Flat Ribbon Cable, 8 ft. (2.4 m)
CBL020 Flat Ribbon Cable, 10 ft. (3 m)
CBL021 Flat Ribbon Cable, 20 ft. (6 m)

Ordering Examples:

Option A: For monitoring 42 or 84 circuits, order a pre-made kit from Group 1 only (see Application/Wiring Diagram above).

Example: E31x42 or E31x84

Option B: For monitoring other configurations, build your own kit by selecting from Groups 1, 2, and 3.

Example kit for an 18-circuit panel retrofit:

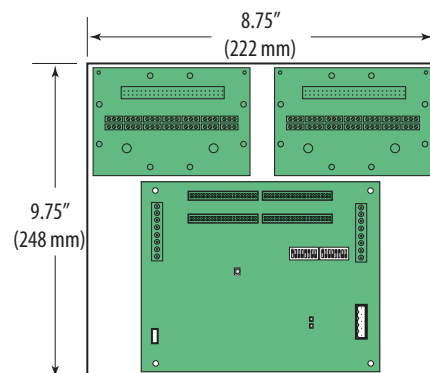
1 E31A002 - Advanced board, 2 adapter boards (1 unit)

2 E31CT0 - 50A CT six-pack (3 units)

3 CBL023 - 10 ft. round ribbon cable (2 units)

NOTE: CTs for mains (used on E31A & E31B models) must be ordered separately. Use 0-0.333V CTs rated for use with Class 1 voltage inputs.

*E31xY63 Boards with Bracket**



SPLIT-CORE CT SPECIFICATIONS

	50A Split-Core CT	100A Split-Core CT	200A Split-Core CT
Voltage Rating	300VAC	600VAC	600VAC
Accuracy	Included in system accuracy		
Temperature	0° to 60°C	0° to 60°C	0° to 60°C
Agency	UL508 Recognized, EN61010	UL508 Recognized, EN61010	UL508 Recognized, EN61010