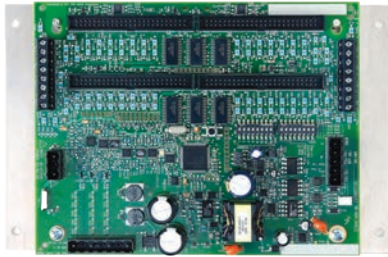# E30 & E31 SERIES
Monitor Entire Panelboards with One Device

E3xA/B/C

Integrated
Ethernet with SNMP,
BACnet, & Modbus

E3xE

The E30 & E31 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 E30 & E31 Series monitors the current, voltage, instantaneous power, demand, and 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).

* E3xB/C models have less capability.

Revenue grade
ANSI and IEC Class 1 metering system accuracy including branch CTs

50 mA to 100 A
Widest dynamic range in the industry, 50 mA to 100 A monitoring

Versatility
Flexible installation with 3/4", 1", or 18 mm spaced solid-core branch CT strips

Retrofit or new construction
New construction and retrofit applications with solid-core and split-core CT models

Up to 92 Channels
Monitor up to 92 circuits per unit providing unlimited possibilities for monitoring

Configure the meters you want
Choose 4, 8, 14 or 28 3-phase meters. User-configurable to any combination of 1-, 2-, 3-phase meters. Reconfigure channels as needed to monitor neutral current.

APPLICATIONS

- Load-based cost allocation
- Overload protection
- Data center PDUs
- Sub-tenant billing

- Lighting control panels
- Load management
- Load balancing
- Energy management

SPECIFICATIONS

INPUTS

Input Power	E3xA/B/C: 90 to 277 Vac line-to-neutral, 50/60 Hz, 8 VA E3xE: 100 to 277 Vac line-to-neutral, 50/60 Hz, 15 VA

ACCURACY

Power/Energy	IEC 62053-21 Class 1, ANSI C12.1-2008. 1% system accuracy (includes main board and 50 A or 100 A branch CTs)
Voltage	±0.5% of reading 90 to 277 Vac line-to-neutral
Current	±0.5% of reading
Minimum ON Current	50 mA

OPERATION

Sampling Frequency	2560 Hz
Update Rate	2 seconds (both panels)
Overload Capability	22 kAIC

OUTPUTS

Serial Protocols	All: Modbus RTU E3xE models: BACnet MSTP
Serial Connection	All: 2-wire, RS-485 E3xA/B/C models: 4-wire RS-485
Address	E3xA/B/C models: Selectable address 1 to 247 (uses 2 addresses for Modbus RTU) E3xE models: Selectable at address 1 to 247 for Modbus RTU; 0 to 127 for BACnet MS/TP
Baud Rate	All: 9600, 19200, 38400 (selectable on A/B/C models)

Parity	All: Modbus RTU: NONE, ODD, EVEN (selectable on A/B/C models) E3xE models: BACnet MS/TP: NONE (fixed)
Terminal Block Torque	4.4 to 5.3 in-lb (0.5 to 0.6 N-m)
Ethernet Protocols	All: Modbus TCP E3xE models: BACnet IP, SNMP V2c
Ethernet Connection	E3xE models only: RJ-45 10/100 Mbit

ENVIRONMENTAL

Operating Range	0 to 60 °C (32 to 140 °F) (<95% RH non-condensing)*
Storage Temp Range	-40 to 70 °C (-40 to 158 °F)
Altitude of Operation	3000 m

WARRANTY

Limited Warranty	5 years

AGENCY APPROVALS

Agency Approvals	UL508, EN61010-1, Cat. III, pollution degree 2
Type Approval***	California Code of Regulations, Title 4, Division 9, Article 1. National Uniformity Exceptions and Additions, 2016 edition

CE **
c UL us LISTED
BTL (E31E only)

* Indoor use only.
**The CE mark indicates RoHS2 compliance. Please refer to the CE Declaration of Conformity for additional details.
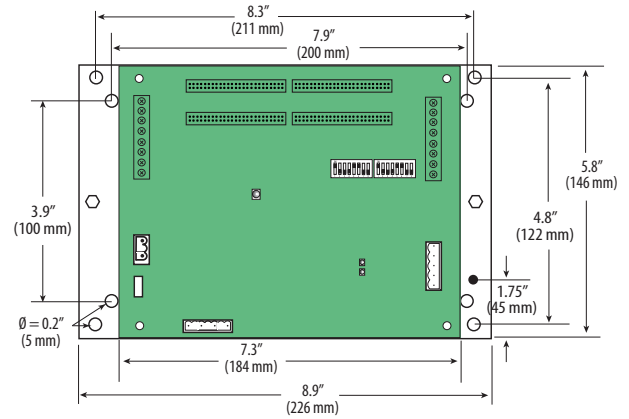***E30xxx (solid-core) models only.

PRODUCT CAPABILITIES

	E3xA	E3xB	E3xC	E3xE
MONITORING AT MAINS				
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	**	**	**	•
BACnet MS/TP	†	†	†	•
BACnet IP with BBMD support	†	†	†	•
SNMP V2	‡	‡	‡	•

* Based on a 3-phase breaker rotation.
** With UO13-0012 or E8951 added.
† With E8951 added.
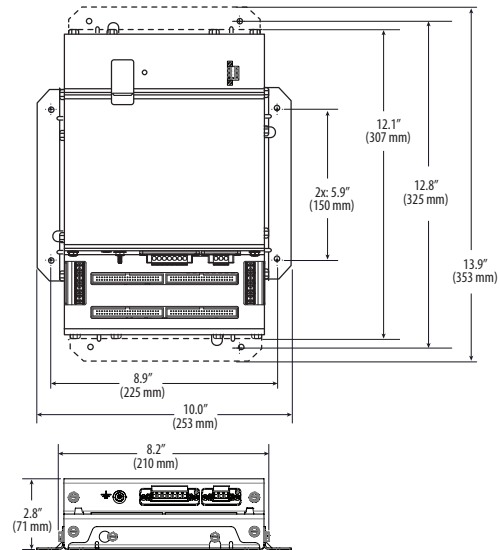‡ With E8951 added; requires one E8951 for each meter.

E30A/B/C & E31A/B/C MAIN BOARD
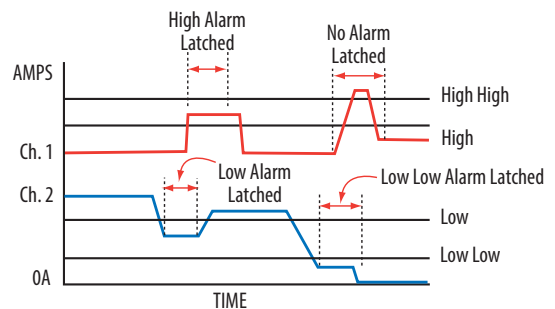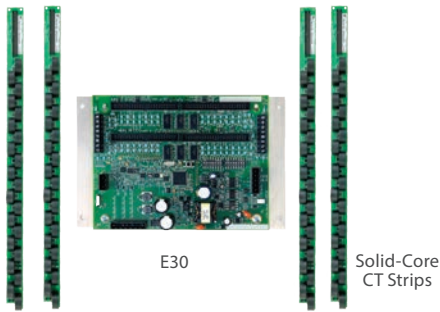Dimensional Drawing

E30E & E31E
Dimensional Drawing

OPERATION EXAMPLE

E30   Solid-Core
CT Strips

BRANCH CT STRIPS
Dimensional Drawing

20.3" (516 mm)

1.3" (33 mm)   1.1" (28 mm)

slot: 0.25" x 0.5" (7 x 13mm)

2.0" (50 mm)   0.8" (20 mm)

0.4" (10 mm) opening   0.75" (19 mm) on center

25.0" (635 mm)

1.2" (30 mm)   1.2" (31 mm)

slot: 0.25" x 0.5" (7 x 13mm)

2.0" (50 mm)   0.8" (20 mm)

0.4" (10 mm) opening   1.0" (26 mm) on center

15.7" (399 mm)

2.0" (50 mm)

1.3" (32 mm)   0.9" (21.2 mm)

0.4" (10 mm) opening   0.7" (18 mm) on center

16.4" (417 mm)

1.7" (43 mm)

1.3" (32 mm)   0.9" (21.2 mm)

0.4" (10 mm) opening   0.7" (18 mm) on center

12.3" (312 mm)

1.7" (43 mm)

1.3" (32 mm)   0.9" (21.2 mm)

0.4" (10 mm) opening   0.7" (18 mm) on center

PANELBOARD
Wiring Diagram

Monitor Mains
Using 0.333 V CTs

Solid-Core
CT Strips

E30
Main Board
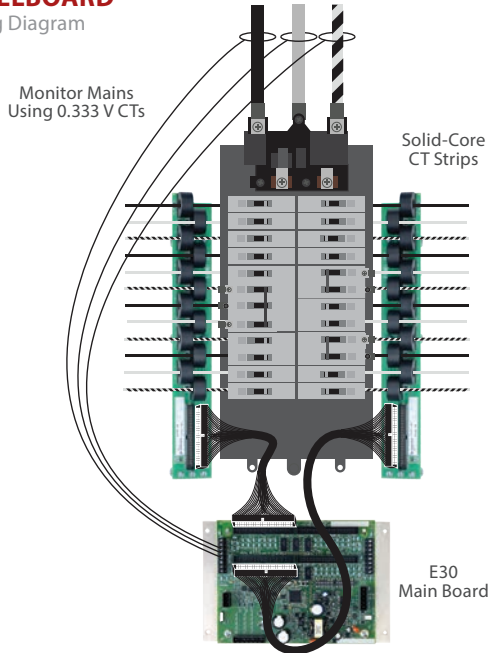
SOLID-CORE BRANCH CTs

	100 A SOLID-CORE BRANCH CT
Voltage Rating	300 Vac
Temperature	0 to 60 °C
Agency	EN61010-1

Observe precautions for handling static sensitive devices to avoid damage to the circuitry that is not covered under the factory warranty.

E30 (SOLID-CORE) ORDERING INFORMATION

Description	Branch CT Spacing	# of Branch CTs & Ribbon Cables
E30 [ ]	[ ]	[ ]

Description:
A = Advanced
B = Intermediate
C = Basic
E = Advanced w/Ethernet

Branch CT Spacing:
0 = 100 A, ¾" spacing
1 = 100 A, 1" spacing
2 = 100 A, 18 mm spacing

# of Branch CTs & Ribbon Cables:
24 = 2 strips of 12 branch CTs (18 mm only) and two 4-ft. round ribbon cables
36 = 2 strips of 18 branch CTs (18 mm only) and two 4-ft. round ribbon cables
42 = 2 strips of 21 branch CTs (¾", 1", or 18 mm) and two 4-ft. round ribbon cables
48 = 4 strips of 12 branch CTs (18 mm only) and four 4-ft. round ribbon cables
72 = 4 strips of 18 branch CTs (18 mm only) and four 4-ft. round ribbon cables
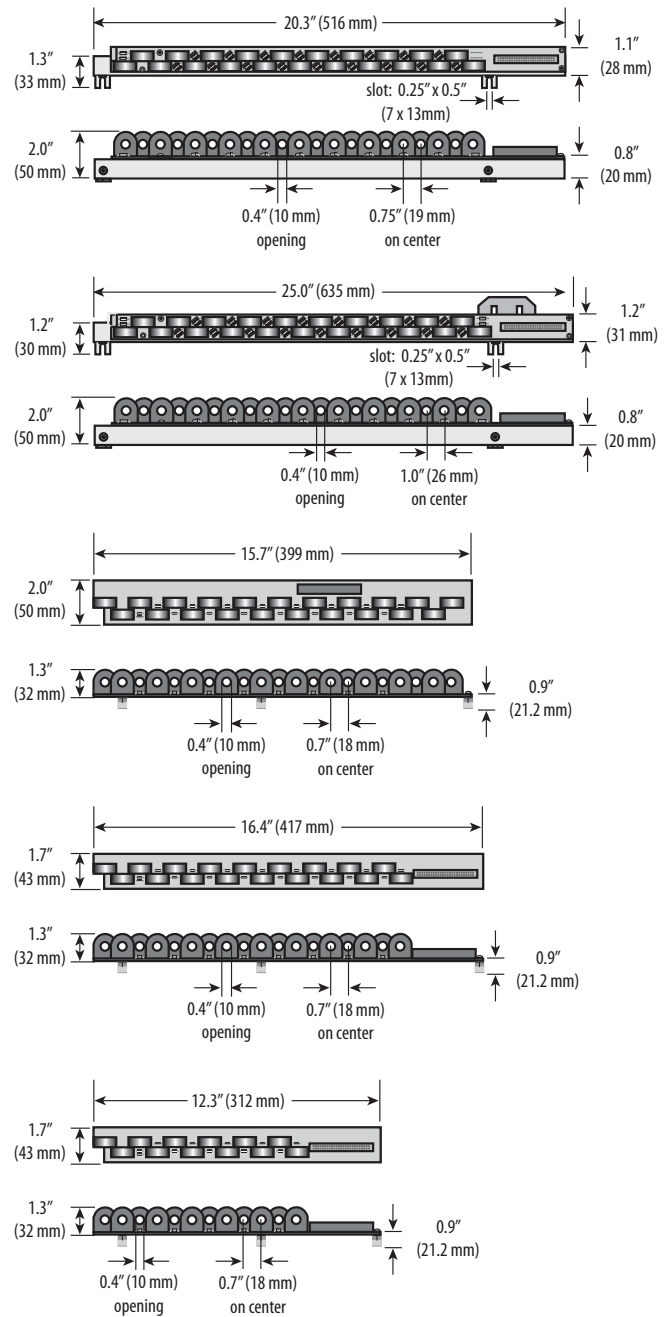84 = 4 strips of 21 branch CTs (¾", 1", or 18 mm) and four 4-ft. round ribbon cables

Example:

E30	A	0	42

NOTE: CTs for mains (not used on E3xC models) must be ordered separately.
Use 0 to 0.333V CTs rated for use with Class 1 voltage inputs.

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

E31 (SPLIT-CORE) ORDERING INFORMATION

① Boards

	Description	# of CTs
E31	☐	☐

A = Advanced board
B = Intermediate board
C = Basic board
E = Advanced with Ethernet

002 = 2 adapter boards, no CTs, no cables
004 = 4 adapter boards, no CTs, no cables
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
   (not available with E31E models)

② Branch CTs (up to 21 CTs per adapter board)

Description

E31CT ☐

0 = 6-pack, 50A Branch CT, 6 ft. (1.8 m) lead
0R20 = 6-pack, 50A Branch CT, 20 ft. (6 m) lead
1 = 6-pack, 100A Branch CT, 6 ft. (1.8 m) lead
1R20 = 6-pack, 100A Branch CT, 20 ft. (6 m) lead

3 = Single CT, 200A Branch CT,
 6 ft. (1.8 m) lead
3R20 = Single CT, 200A Branch CT,
 20 ft. (6 m) lead

③ Ribbon Cable (order 1 cable per adapter board)

Description

CBL0 ☐

34 = Round Ribbon Cable, 1 ft. (0.3 m)
31 = Round Ribbon Cable, 18 in. (0.5 m)
32 = Round Ribbon Cable, 30 in. (0.8 m)
22 = Round Ribbon Cable, 4 ft. (1.2 m)
33 = Round Ribbon Cable, 8 ft. (2.4 m)
23 = Round Ribbon Cable, 10 ft. (3 m)
24 = Round Ribbon Cable, 20 ft. (6 m)

08 = Flat Ribbon Cable, 18 in. (0.5 m)
16 = Flat Ribbon Cable, 4 ft. (1.2 m)
17 = Flat Ribbon Cable, 5 ft. (1.5 m)
18 = Flat Ribbon Cable, 6 ft. (1.8 m)
19 = Flat Ribbon Cable, 8 ft. (2.4 m)
20 = Flat Ribbon Cable, 10 ft. (3 m)
21 = 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 Branch CT six-pack (3 units)
 ③ CBL023 - 10 ft. round ribbon cable (2 units)

NOTE: CTs for mains (not used on E3xC models) must be ordered separately.
Use 0 to 0.333 V CTs rated for use with Class 1 voltage inputs.

E31

E31xY63

SPLIT-CORE BRANCH CTs

|	50 A SPLIT-CORE BRANCH CT	100 A SPLIT-CORE BRANCH CT	200 A SPLIT-CORE BRANCH CT
Voltage Rating	300 Vac	300 Vac (CE), 600 Vac (UL)	300 Vac (CE), 600 Vac (UL)
Measurement Range	0 to 60 A	0 to 120 A	0 to 240 A
Temperature	0 to 60 °C	0 to 60 °C	0 to 60 °C
Agency	UL 61010-1 Recognized, EN61010-1	UL 61010-1 Recognized, EN61010-1	UL 61010-1 Recognized, EN61010-1

E31 ADAPTER BOARD
Dimensional Drawing
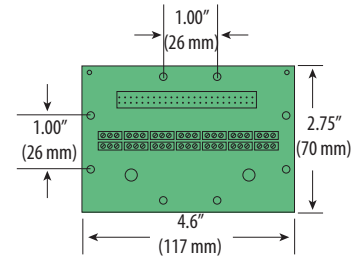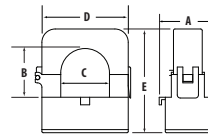

BRANCH CTs
Dimensional Drawing
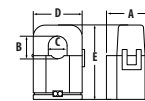
E31CT0 50 Amp (0 to 60 Amp Range)
A = 1.0" (26 mm)
B = 0.5" (11 mm)
C = 0.4" (10 mm)
D = 0.9" (23 mm)
E = 1.6" (40 mm)
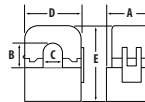
E31CT1 100 Amp (0 to 120 Amp Range)
A = 1.5" (39 mm)
B = 0.8" (20 mm)
C = 0.7" (16 mm)
D = 1.6" (40 mm)
E = 2.1" (53 mm)

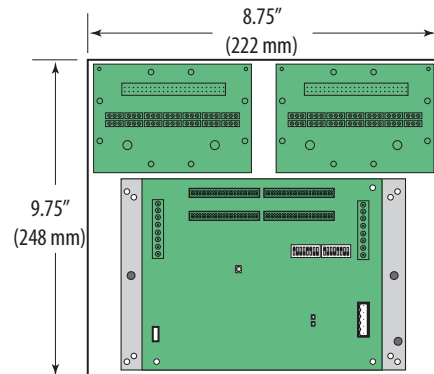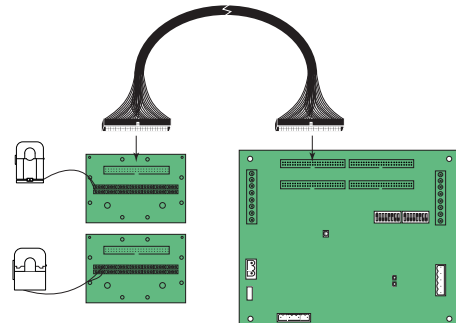**E31CT3 200 Amp (0 to 240 Amp Range)**
A = 1.5" (39 mm)
B = 1.25" (32 mm)
C = 1.25" (32 mm)
D = 2.5" (64 mm)
E = 2.8" (71 mm)

E31XY63 BOARDS WITH BRACKET
Dimensional Drawing

WIRING DIAGRAM

ATTENTION Observe precautions for handling static sensitive devices to avoid damage to the circuitry that is not covered under the factory warranty.