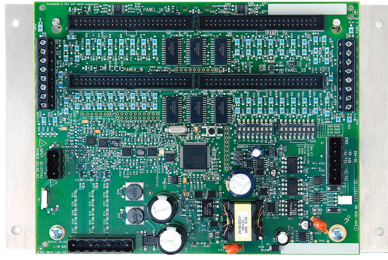


# E30 & E31 SERIES

Monitor Entire Panelboards with One Device



E30A/E30B/E30C  
E31A/E31B/E31C



E30E/E31E  
Integrated Modbus RTU and TCP, BACnet MS/TP and IP, SNMP

The E30 and E31 Panelboard Monitoring Systems provide a cost-effective solution for high density monitoring in critical applications. A single meter can monitor up to 84 circuits and two branches (eight circuits). Each meter's circuits can be assigned to logical meters representing single, dual or three phase circuits.

Tailored for high density breaker panels, the E30 comes with 100A solid-core current transformer (CT) strips, with spacing that matches typical breaker spacing. This allows for the alignment of the metering instruments and reduces the chance of miswiring the CTs when all circuits have the same rating, such as in a data center power distribution unit (PDU).

Adaptable to a large variety of loads, the E31 supports different split core CTs for larger windows and ratings between 50A, 100A and 200A.

Each meter is available in four variants: Models A, B, C and E.

Models B and C are intended for simple current monitoring (Model C) and power factor and energy monitoring (Model B).

Models A and E measure all of the Model B and C data points as well as power and total harmonic distortion (THD). Model E is Ethernet enabled.

## SPECIFICATIONS

INPUTS	
Input Power	A/B/C models: 90 to 277 Vac line-to-neutral, 50/60 Hz, 8 VA E models: 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 (when both panels and all circuits are used)
Overload Capability	22 kAIC

E30/E31 MODEL A, B OR C SERIAL COMMUNICATION	
Physical Interface	DIP switch-selectable 2-wire or 4-wire, RS-485
Protocols Supported	Modbus RTU
Address Range	DIP switch-selectable address 1 to 247 (in pairs of 2)

## Revenue grade

ANSI and IEC Class 1 metering system accuracy including branch CTs

## Measure THD

Identify load inefficiencies and avoid early wear and tear

## 50 mA to 100 A

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

## Site adapted metering

Choose 4, 8, 14 or 28 3-phase meters. Configurable to any combination of 1-, 2-, 3-phase meters. Channels can be reassigned as needed.

## APPLICATIONS

- Data center PDU
- High density applications
- Critical buildings
- Load-based cost allocation
- Load management
- Load balancing
- Energy management

Baud Rate	DIP switch-selectable 9600, 19200, 38400
Parity	DIP switch-selectable NONE, ODD, EVEN

E30/E31 MODEL E SERIAL COMMUNICATION	
Physical Interface	2-wire RS-485
Protocols Supported	Modbus RTU or BACnet MSTP
Address Range	1 to 247 for Modbus RTU; 0-127 for BACnet MS/TP
Baud Rate	9600, 19200, 38400
Parity	Modbus RTU: NONE, ODD, EVEN BACnet MS/TP: NONE (fixed)

E30/E31 MODEL E ETHERNET COMMUNICATION	
Physical Interface	RJ45 connector with 10/100 Mbit Ethernet
Protocols Supported	Modbus TCP, BACnet IP, SNMP V2c concurrently

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
Mounting Location	Not suitable for wet locations. For indoor use only.

WARRANTY	
Limited Warranty	5 years

AGENCY APPROVALS	
Agency Approvals	UL508 Listed, EN61010-1, UKCA (UK), Cat. III, Pollution Degree 2



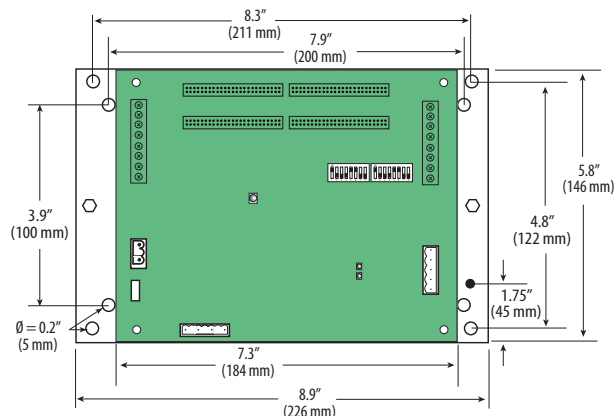
**PRODUCT CAPABILITIES**

	E30A/ E31A	E30B/ E31B	E30C/ E31C	E30E/ E31E
<b>MONITORING AT MAINS</b>				
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)	•	•		•
<b>MONITORING AT BRANCH CIRCUIT</b>				
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)	•			•
V-LL THD, V-LN THD & Current THD %	•			•
<b>MODBUS ALARMS</b>				
Voltage over/under	•	•		•
Current over/under	•	•	•	•
<b>PROTOCOLS SUPPORTED</b>				
Modbus RTU	•	•	•	•
Modbus TCP	**	**	**	•
BACnet MS/TP	**	**	**	•
BACnet IP with BBMD support	**	**	**	•
SNMP V2	**	**	**	•

\* Based on a 3-phase breaker rotation.  
 \*\* With E8951 added.

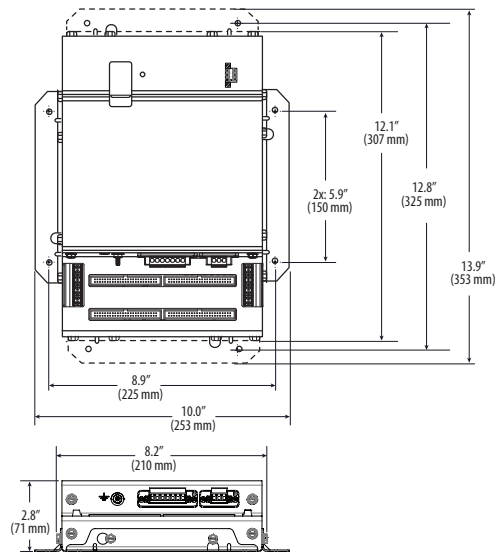
**A/B/C MODELS MAIN BOARD**

Dimensional Drawing

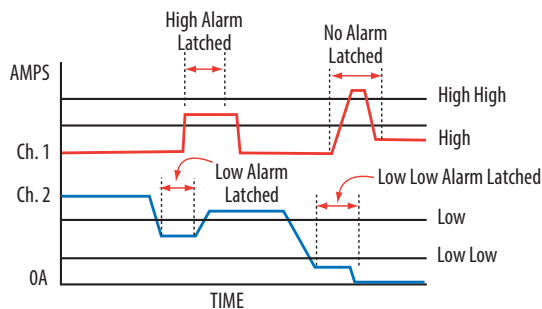


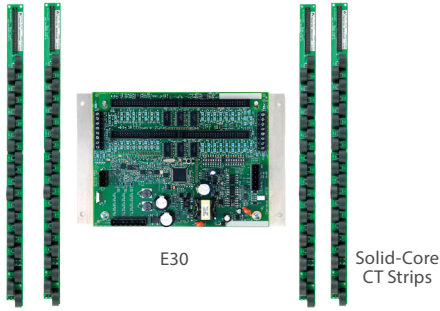
**E MODELS**

Dimensional Drawing

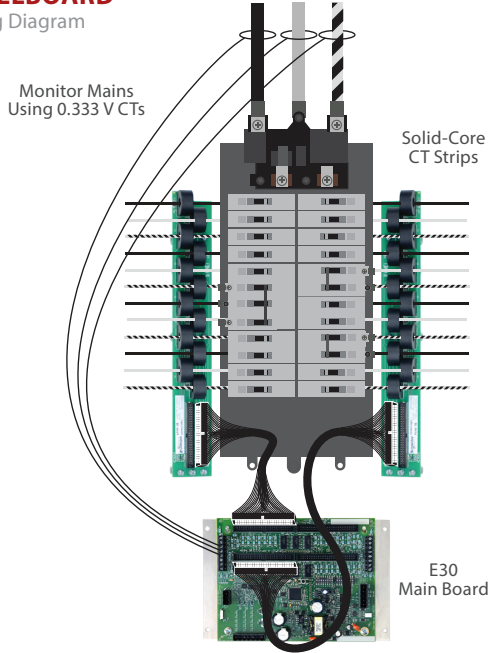


**OPERATION EXAMPLE**





**PANELBOARD**  
Wiring Diagram



**SOLID-CORE BRANCH CTs**

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

**ATTENTION**  
OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

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 <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A = Advanced	0 = 100 A, 3/4" spacing	24 = 2 strips of 12 branch CTs (18 mm only) and two 4-ft. round ribbon cables
B = Intermediate	1 = 100 A, 1" spacing	36 = 2 strips of 18 branch CTs (18 mm only) and two 4-ft. round ribbon cables
C = Basic	2 = 100 A, 18 mm spacing	42 = 2 strips of 21 branch CTs (3/4", 1", or 18 mm) and two 4-ft. round ribbon cables
E = Advanced w/Ethernet		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 (3/4", 1", or 18 mm) and four 4-ft. round ribbon cables

Example: **E30**

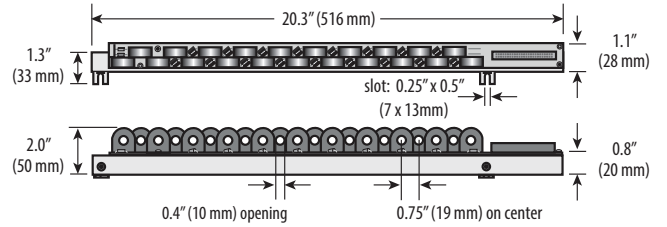
NOTE: CTs for mains (not used on C models) must be ordered separately. Use 0 to 0.333V CTs rated for use with Class 1 voltage inputs.

Free configuration tool available from [www.veris.com](http://www.veris.com). Consult factory for additional mounting options.

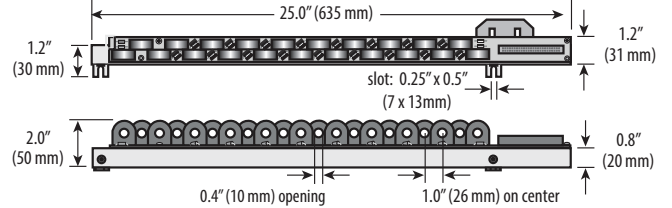
**BRANCH CT STRIPS**

Dimensional Drawing

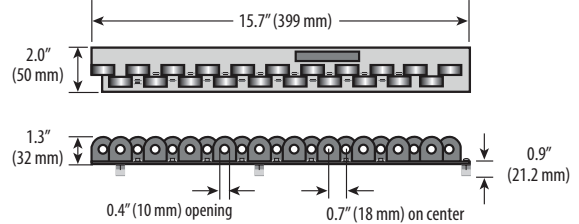
E30x242 - 42 branch CTs, 3/4" spacing



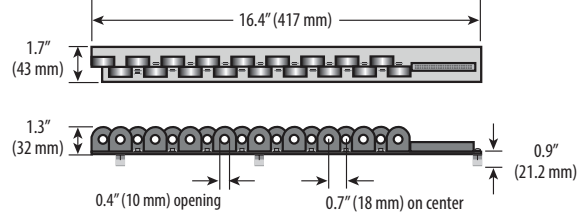
E30x242 - 42 branch CTs, 1" spacing



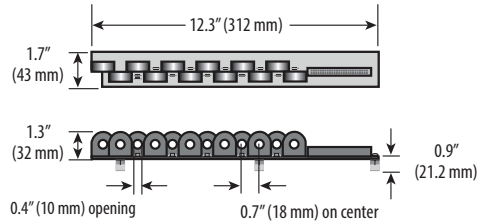
E30x242 - 42 branch CTs, 18 mm spacing



E30x236 - 36 branch CTs, 18 mm spacing



E30x224 - 24 branch CTs, 18 mm spacing



### E31 (SPLIT-CORE) ORDERING INFORMATION

#### 1 Boards

Description	# of CTs
<b>E31</b>	
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
E = Advanced with Ethernet	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	
<b>E31CT</b>	
0 = 6-pack, 50A Branch CT, 6 ft. (1.8 m) lead	3 = Single CT, 200A Branch CT, 6 ft. (1.8 m) lead
OR20 = 6-pack, 50A Branch CT, 20 ft. (6 m) lead	3R20 = Single CT, 200A 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 Ribbon Cable (order 1 cable per adapter board)

Description	
<b>CBLO</b>	
31 = Round Ribbon Cable, 18 in. (0.5 m)	08 = Flat Ribbon Cable, 18 in. (0.5 m)
32 = Round Ribbon Cable, 30 in. (0.8 m)	16 = Flat Ribbon Cable, 4 ft. (1.2 m)
22 = Round Ribbon Cable, 4 ft. (1.2 m)	17 = Flat Ribbon Cable, 5 ft. (1.5 m)
33 = Round Ribbon Cable, 8 ft. (2.4 m)	18 = Flat Ribbon Cable, 6 ft. (1.8 m)
23 = Round Ribbon Cable, 10 ft. (3 m)	19 = Flat Ribbon Cable, 8 ft. (2.4 m)
24 = Round Ribbon Cable, 20 ft. (6 m)	20 = Flat Ribbon Cable, 10 ft. (3 m)
	21 = Flat Ribbon Cable, 20 ft. (6 m)

#### Ordering Examples:

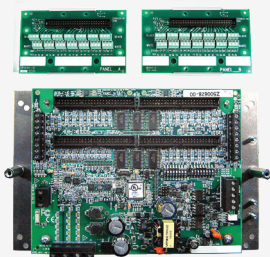
Option A: For monitoring 42 or 84 circuits, order a pre-made kit from Group 1 only (see Application/Wiring Diagram above). Example: E31x42 or E31x84

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

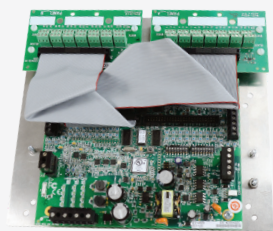
Example kit for an 18-circuit panel retrofit:

- 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



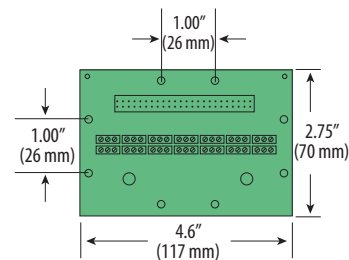
E31xY63

### 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

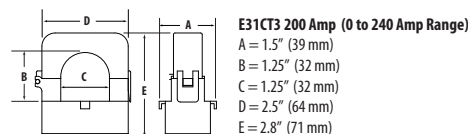
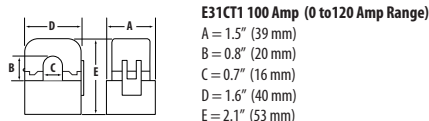
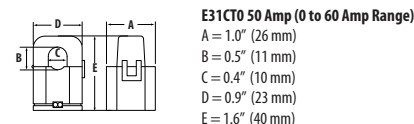
### E31 ADAPTER BOARD

Dimensional Drawing



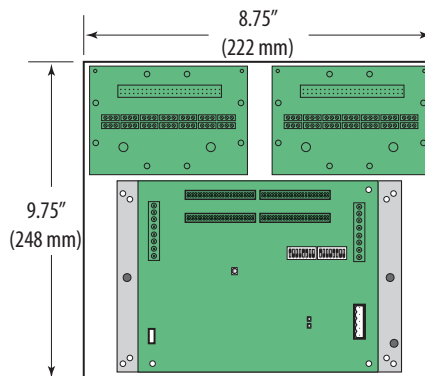
### BRANCH CTs

Dimensional Drawing

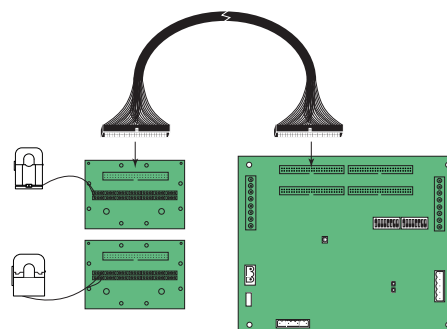


### E31XY63 BOARDS WITH BRACKET

Dimensional Drawing



### WIRING DIAGRAM



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

