

# E53/E54 SERIES

## Versatile Energy Monitoring Solution



The E53 and E54 Energy Meters provide a solution for measuring all essential values (current, voltage, energy, etc.) on a 1-phase or 3-phase electrical installation. They also report diagnostic information such as power factor and reactive power. The E54C3B allows direct measurement, while the E53B3C and E54C3C models work with standard 1A or 5A CTs. E54 models have Modbus communication capability.

These devices are MID compliant when installed in an IP51 enclosure.

### SPECIFICATIONS

#### POWER SUPPLY

Measured Voltage	100 to 277 VLN; 173 to 480 VLL $\pm$ 20%
Frequency	50/60 Hz $\pm$ 10%

#### CURRENT INPUTS (E53B3C AND E54C3C)

Nominal Current	Nominal: 1 or 5 A; Measured: 20 mA to 6 A
Frequency	50/60 Hz $\pm$ 10%

#### CURRENT MEASUREMENT (E54C3B)

Maximum Current	63A (CTs are internal to meter)
Measured Current	0.5 to 63 A

#### PULSE OUTPUT (E53B3C)

Type	Optical coupler (50 Form)
Number of Pulses per kWh	Configurable
Pulse Width	Configurable, 50 msec minimum
Voltage	5 to 30 Vdc
Current	1 to 15 mA

#### DIGITAL INPUT (E54C3B AND E54C3C)

Type	Type 1 (IEC 61131-2)
Maximum Input	40 Vdc, 4 mA
Voltage	On: 11 to 40 Vdc; Off: 0 to 5 Vdc; Nominal: 24 Vdc

#### DIGITAL OUTPUT (E54C3B AND E54C3C)

Type	SPST N.O. (Form A)
Maximum Input	5 to 40 Vdc, 50 mA

#### MODBUS COMMUNICATION (E54C3B AND E54C3C)

Parity	Even, Odd, None
Baud Rate	9600, 19200, 38400

## Faster installation Modbus

Multi-tariff feature...compare power use at peak and off-peak times of day (E54 models only)

Allows efficient data collection and communication (E54 models only)

## Direct

E54C3B measures current directly...no external CTs required

## Bi-directional

4-quadrant energy measurement...allows bi-directional metering (E54 models only)

## Easy integration

Easily connect industry standard 1 or 5 A CTs to E53B3C & E54C3C... easy integration with standard systems

## Large display

Easy to read...scrolls through all measurements showing values, date and time stamp, units and tariff (if applicable)

### APPLICATIONS

- Tenant sub-metering
- Real-time power monitoring
- Backup generators
- Solar installations (E54 models)

#### OPERATING CONDITIONS

Operating Temperature Range	-25 to 55 °C (-13 to 131 °F) (5% to 95% RH non-condensing)
Storage Temperature Range	-40 to 85 °C (-40 to 185 °F)
Altitude of Operation	< 2000 m
Mounting Location	Not suitable for wet locations. For indoor use only.

#### MEASUREMENT ACCURACY (E53B3C)

Real Energy for x/1 A Current Input	1%; Class 1 conforming to IEC 62053-21 and IEC 61557-12 (PMD SD): I <sub>max</sub> =1.2 A, I <sub>n</sub> =1 A, and I <sub>st</sub> =0.002 A Class B conforming to EN 50470-3: I <sub>max</sub> =1.2 A, I <sub>n</sub> =1 A, I <sub>min</sub> =0.01 A, and I <sub>st</sub> =0.002 A
Real Energy for x/5 A Current Input	0.5%; Class 0.5S conforming to IEC 62053-22 and IEC 61557-12 (PMD SD): I <sub>max</sub> =6 A, I <sub>n</sub> =5 A, and I <sub>st</sub> =0.005 A Class C conforming to EN 50470-3: I <sub>max</sub> =6 A, I <sub>n</sub> =5 A, I <sub>min</sub> =0.05 A, and I <sub>st</sub> =0.005 A

#### MEASUREMENT ACCURACY (E54C3B)

Real Energy	1%; Class 1 conforming to IEC 62053-21 and IEC 61557-12 (PMD DD): I <sub>max</sub> =63 A, I <sub>b</sub> =10 A, and I <sub>st</sub> =0.04 A Class B conforming to EN 50470-3: I <sub>max</sub> =63 A, I <sub>ref</sub> =10 A, I <sub>min</sub> =0.5 A, and I <sub>st</sub> =0.04 A
Reactive Energy	Class 2 conforming to IEC 62053-23 and IEC 61557-12 (PMD DD): I <sub>max</sub> =63 A, I <sub>b</sub> =10 A, and I <sub>st</sub> =0.05 A

#### MEASUREMENT ACCURACY (E54C3C)

Real Energy for x/1A Current Input	1%; Class 1 conforming to IEC 62053-21 and IEC 61557-12 (PMD Sx): I <sub>max</sub> =1.2 A, I <sub>n</sub> =1 A, and I <sub>st</sub> =0.002 A Class B conforming to EN 50470-3: I <sub>max</sub> =1.2 A, I <sub>n</sub> =1 A, I <sub>min</sub> =0.01 A, and I <sub>st</sub> =0.002 A
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**SPECIFICATIONS (CONT.)**

Reactive Energy for x/1A Current Input	Class 2 conforming to IEC 62053-23 and IEC 61557-12 (PMD Sx): $I_{max}=1.2\text{ A}$ , $I_n=1\text{ A}$ , and $I_{st}=0.003\text{ A}$
Real Energy for x/5 A Current Input	0.5%; Class 0.5S conforming to IEC 62053-22 and IEC 61557-12 (PMD SD): $I_{max}=6\text{ A}$ , $I_n=5\text{ A}$ , and $I_{st}=0.005\text{ A}$ Class C conforming to EN 50470-3: $I_{max}=6\text{ A}$ , $I_n=5\text{ A}$ , $I_{min}=0.05\text{ A}$ , and $I_{st}=0.005\text{ A}$
Reactive Energy for x/5 A Current Input	Class 2 conforming to IEC 62053-23 and IEC 61557-12 (PMD Sx): $I_{max}=6\text{ A}$ , $I_n=5\text{ A}$ , and $I_{st}=0.015\text{ A}$

**WARRANTY**

Limited Warranty	2 years
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**COMPLIANCE INFORMATION**

Approvals	CE; UL 61010-1; IEC/EN 61010-1; IEC 62053-31
Housing	IP40 front panel, IP20 casing, Pollution Degree 2, IK08 impact rating
MID	2004/22/EC compliance

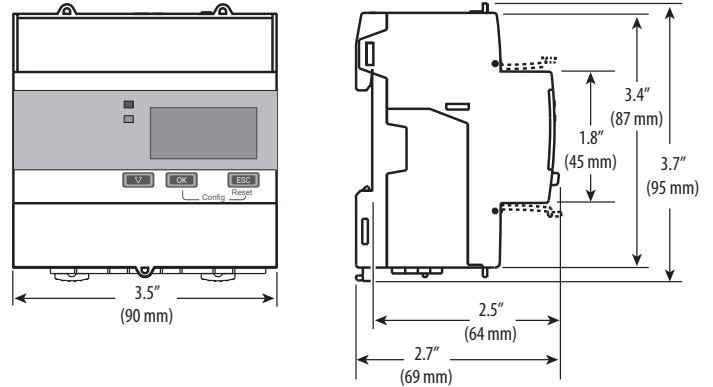


**ORDERING INFORMATION**

	E53B3C	E54C3B	E54C3C
<b>MEASUREMENT CAPABILITY</b>			
Bi-directional Energy Measurements		•	•
Total Real Energy Import	•	•	•
Total Real Energy Export		•	•
Total Reactive Energy Import		•	•
Total Reactive Energy Export		•	•
Partial Real Energy Import	•	•	•
Partial Reactive Energy Import		•	•
Real Energy Import Per Tariff (T1 - T4)		•	•
Average Voltage		•	•
Current Per Phase		•	•
Real Power (kW)		•	•
Reactive Power (kVAR)		•	•
Apparent Power (kVA)		•	•
Power Factor		•	•
Frequency		•	•
Operation Time		•	•
Diagnostics Code	•	•	•
<b>OUTPUTS</b>			
Pulse	•		
Digital		•	•
Modbus Communication		•	•
<b>INPUTS</b>			
Direct In-line Measurement (current and voltage)		•	
1 or 5 A CTs	•		•

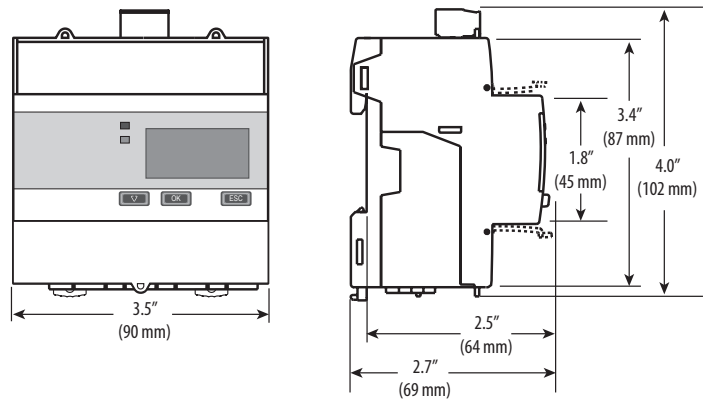
**E53B3C**

Dimensional Drawing



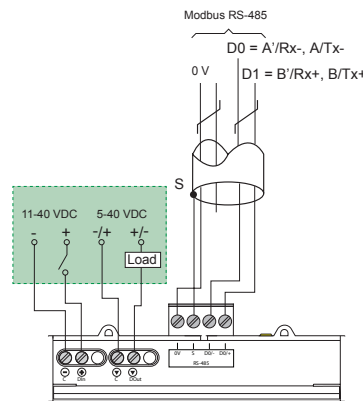
**E54C3B/E54C3C**

Dimensional Drawing



**E54C3B/E54C3C DIGITAL OUTPUT**

Wiring Diagram



**E53B3C PULSE OUTPUT**

Wiring Diagram

