

Metering and Accessories

Meters are used to monitor a boat's DC and AC electrical systems. Meters help the boater avoid overloads of shore cords, determine the proper time to charge battery banks, and know when alternators and chargers are not functioning properly. Analog meters are highly readable, DIN meters follow European style, and Blue Sea Systems digital multimeters combine various meter functions into one convenient and splash-proof package.



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Analog DIN Meters

DC DIN Meters

Easy to read European style analog DC meters

Common Features

- Standard European 72mm design
- White matte dial with black printed scale and knife-edge pointer
- Back-lit meter face (separate 12 or 24V DC backlight connections)
- Terminal cover included to prevent accidental short circuit
- Includes appropriate external DC shunt (page 95), when required

Specifications

I_{oc} (Meter)	Amperage Operating Current	1 mA at full scale
I_{oc} (Backlight)	Amperage Operating Current	16 mA@12V DC 20 mA@24V DC



1050



1051



1052

PN	Function	Shunt Type	Connection	Weight lb (kg)
1050	Voltmeter 8–16V	-	2 wire to DC positive (+) and negative (-)	0.33 (0.15)
1051	Voltmeter 18–32V	-	2 wire to DC positive (+) and negative (-)	0.33 (0.15)
1052	Ammeter 0–25A	Internal	2 wire - no other power required	0.33 (0.15)
1053	Ammeter 0–50A	External—50 mV at full scale	2 wire from shunt - no other power required	0.53 (0.24)
1054	Ammeter 0–100A	External—50 mV at full scale	2 wire from shunt - no other power required	0.53 (0.24)
1055	Ammeter 0–150A	External—50 mV at full scale	2 wire from shunt - no other power required	0.53 (0.24)



1053



1054



1055

AC DIN Meters

Easy to read European style analog AC meters

Common Features

- Standard European 72mm design
- White matte dial with black printed scale and knife-edge pointer
- Back-lit meter face (separate 12 or 24V DC backlight connections)
- Terminal cover included to prevent accidental short circuit
- Includes appropriate external AC Current Transformer (page 95), when required

Specifications

I_{oc} (Meter)	Amperage Operating Current	50 mA AC at full scale (Ammeter only)
I_{oc} (Backlight)	Amperage Operating Current	16 mA@12V DC 20 mA@24V DC



1056

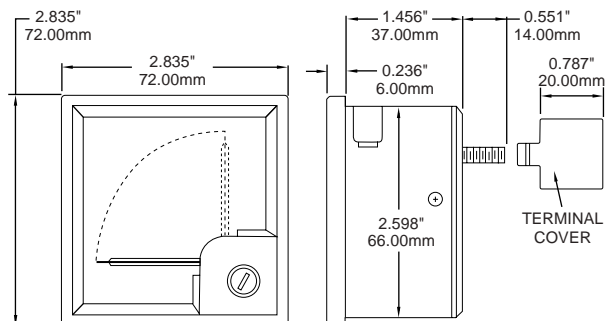


1057



1058

PN	Function	Connection	Weight lb (kg)
1056	Voltmeter 0–150V	2 wire to AC hot and neutral	0.33 (0.15)
1057	Voltmeter 0–250V	2 wire to AC hot and neutral	0.33 (0.15)
1058	Ammeter 0–50A	2 wire from coil slipped over wire to be measured	0.43 (0.19)



See page 18 for a full selection of related products located in the 360 Panel System section of this catalog.

Analog Meters

DC Analog Meters

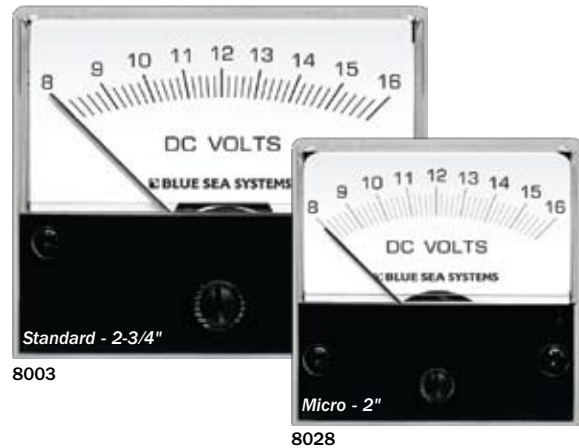
Standard and Micro size meters with backlighting for low light conditions

- Includes appropriate external DC shunt (page 95), when required
- Back-lit meter face (separate 12 or 24V DC backlight connections)

Specifications

I_{oc} (Meter)	Amperage Operating Current	1 mA at full scale
I_{oc} (Backlight)	Amperage Operating Current	16 mA@12V DC 20 mA@24V DC

See page 18 for a full selection of related products located in the 360 Panel System section of this catalog.



8003

8028

PN	Function	Shunt Type	Connection	Meter Face Size	Weight lb (kg)
8003	Voltmeter 8–16V DC	-	2 wire to DC positive (+) and negative (-)	2-3/4"	0.25 (0.11)
8240	Voltmeter 18–32V DC	-	2 wire to DC positive (+) and negative (-)	2-3/4"	0.25 (0.11)
8028	Micro Voltmeter 8–16V DC	-	2 wire to DC positive (+) and negative (-)	2"	0.19 (0.09)
8243	Micro Voltmeter 18–32V DC	-	2 wire to DC positive (+) and negative (-)	2"	0.19 (0.09)
8005	Ammeter 0–25A DC	Internal	2 wire - no other power required	2-3/4"	0.25 (0.11)
8022	Ammeter 0–50A DC	External—50 mV at meter full scale	2 wire from shunt - no other power required	2-3/4"	0.60 (0.27)
8016	Ammeter 0–75A DC	External—50 mV at meter full scale	2 wire from shunt - no other power required	2-3/4"	0.60 (0.27)
8017	Ammeter 0–100A DC	External—50 mV at meter full scale	2 wire from shunt - no other power required	2-3/4"	0.60 (0.27)
8018	Ammeter 0–150A DC	External—50 mV at meter full scale	2 wire from shunt - no other power required	2-3/4"	0.60 (0.27)
8019	Ammeter 0–200A DC	External—50 mV at meter full scale	2 wire from shunt - no other power required	2-3/4"	0.60 (0.27)
8038	Micro Ammeter 0–15A DC	Internal	2 wire - no other power required	2"	0.20 (0.09)
8041	Micro Ammeter 0–50A DC	External—50 mV at meter full scale	2 wire from shunt - no other power required	2"	0.40 (0.18)
8250	Micro Ammeter 0–100A DC	External—50 mV at meter full scale	2 wire from shunt - no other power required	2"	0.40 (0.18)
8252*	Zero Center Ammeter 50–0–50A DC	External—50 mV at meter full scale	2 wire from shunt - no other power required	2-3/4"	0.58 (0.26)
8253*	Zero Center Ammeter 100–0–100A DC	External—50 mV at meter full scale	2 wire from shunt - no other power required	2-3/4"	0.58 (0.26)
8254*	Zero Center Micro Ammeter 50–0–50A DC	External—50 mV at meter full scale	2 wire from shunt - no other power required	2"	0.40 (0.18)



8240



8243



8253



8254



8005



8038



8022



8041

* Meters read both discharge and charge current

Analog Meters


AC Analog Meters

Standard and Micro size meters with backlighting for low light conditions


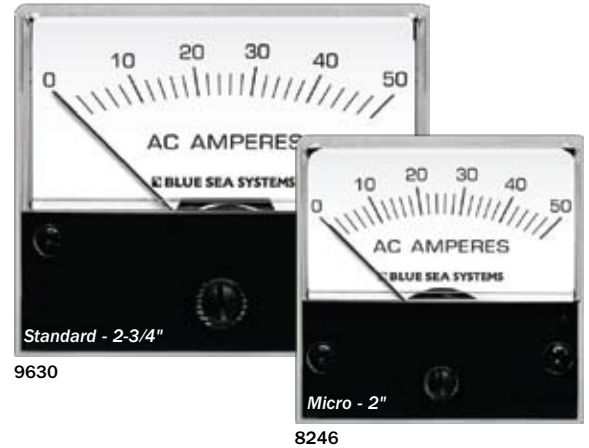
- Includes appropriate external AC Current Transformer (page 95), when required
- Back-lit meter face (separate 12 or 24V DC backlight connections)

Specifications

I_{oc} (Meter)	Amperage Operating Current	50 mA AC at full scale (Ammeter only)
I_{oc} (Backlight)	Amperage Operating Current	16 mA @ 12V DC 20 mA @ 24V DC



See page 18 for a full selection of related products located in the 360 Panel System section of this catalog.

9630

8246

PN	Function	Connection	Meter Face Size	Weight lb (kg)
9353	Voltmeter 0–150V AC	2 wire to AC hot and neutral	2-3/4"	0.25 (0.11)
9354	Voltmeter 0–250V AC	2 wire to AC hot and neutral	2-3/4"	0.26 (0.12)
8244	Micro Voltmeter 0–150V AC	2 wire to AC hot and neutral	2"	0.19 (0.09)
8245	Micro Voltmeter 0–250V AC	2 wire to AC hot and neutral	2"	0.19 (0.09)
9630	Ammeter 0–50A AC	2 wire from coil slipped over wire to be measured	2-3/4"	0.30 (0.14)
8258	Ammeter 0–100A AC	2 wire from coil slipped over wire to be measured	2-3/4"	0.32 (0.15)
8246	Micro Ammeter 0–50A AC	2 wire from coil slipped over wire to be measured	2"	0.26 (0.12)



9353



8244



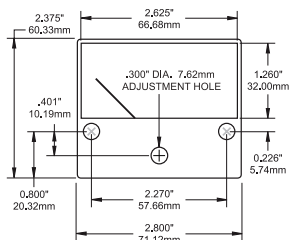
9354



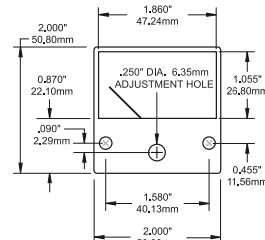
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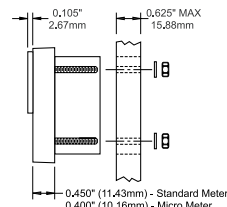
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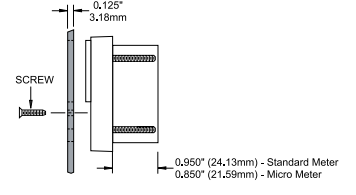
Standard Meter



Micro Meter



Surface Mount



Panel Mount

Digital Meters

DC Digital Meters

Allows easy monitoring of key DC functions

- Large, bright LED characters
- Three levels of brightness
- Splash-proof case
- Easy to surface mount in a 2" round hole

Specifications

Input Voltage Supply	8–32V DC
Input Voltage Measurement	0–60V DC*
Minimum Power Consumption	0.010 Watt†
Maximum Power Consumption	0.027 Watt†
Display Character Size	9/16" (14.29mm)
Dimensions	
Width	2.90" (73.66mm)
Height	2.43" (61.72mm)
Depth	3.40" (86.36mm)



8248



8251



8235



8236

PN	Description	Amperage Display	Voltage Display	Sleep Mode	Audio/Visual Alarms	Included Shunt	Weight lb (kg)
8248	DC Multimeter with Alarm	-500 to +500	0–60	Programmable	High and low voltage	500A Shunt 8255 (page 95)	1.12 (0.51)
8251	DC Voltmeter with Alarm	-	0–60	Programmable	High and low voltage	-	0.45 (0.20)
8235	DC Voltmeter	-	0–60	Manual	-	-	0.45 (0.20)
8236	DC Ammeter	-500 to +500	-	Manual	-	500A Shunt 8255 (page 95)	1.11 (0.50)

Current Measurement

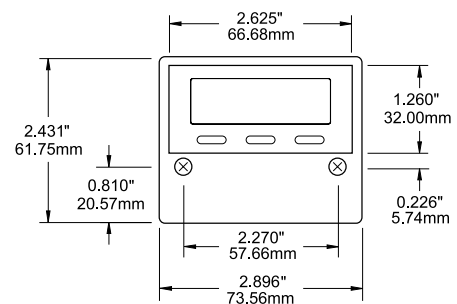
Shunt:	500A/50mV
Range:	±500A DC
Resolution (0.0–99.9):	0.1A DC
Resolution (100–500):	1.0A DC
Accuracy (% of Reading):	±0.5%†

Voltage Measurement

Range:	0–60V DC
Resolution:	0.01V DC
Accuracy (% of Reading)	±0.5%†

360 PANEL SYSTEM

See page 18 for a full selection of related products located in the new 360 Panel System section of this catalog.



* Applicable for 12, 24, 32, 36, and 42 Volt DC systems | † Variable with voltage, display intensity, segments illuminated and sleep mode | ‡ ±1 least digit of resolution

Digital Meters

AC Digital Meters

Allows easy monitoring of key AC functions

- Large, bright LED characters
- Three levels of brightness
- Splash-proof case
- Easy to surface mount in a 2" round hole

Specifications

Input Voltage		80–249V AC*
Minimum Power Consumption		0.010 Watt†
Maximum Power Consumption		0.027 Watt†
Display Character Size		9/16" (14.29mm)
Dimensions	Width	2.90" (73.66mm)
	Height	2.43" (61.72mm)
	Depth	3.40" (86.36mm)



8247



8239



8238



8237

PN	Description	Amperage Display	Voltage Display	Power Display	Frequency Display	Sleep Mode	Audio/Visual Alarms	Included Current Transformer	Weight lb (kg)
8247	AC Multimeter with Alarm	0–150	80–249	0–35 kW	40–90 Hz	Programmable	High and low voltage, high current	8256 (page 95)	0.78 (0.35)
8239	AC Frequency Meter	-	-	-	40–90 Hz	Manual	-	-	0.72 (0.35)
8237	AC Voltmeter	-	80–249	-	-	Manual	-	-	0.72 (0.35)
8238	AC Ammeter	0–150	-	-	-	Manual	-	-	0.78 (0.35)

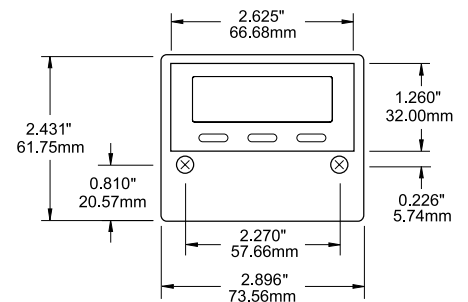
Current Measurement
 Current Transformer: 150A/50mA
 Range 1 (Resolution 0.01A): 0.00–9.99A AC (RMS)
 Range 2 (Resolution 0.10A): 10–150A AC (RMS)
 Accuracy (% of Reading): ±1.0%†

Frequency Measurement
 Range: 40–90Hz
 Resolution: 0.1Hz
 Accuracy (% of Reading): ±1.0%†
 (Calibrated with sine wave input)

Voltage Measurement
 Range: 80–249V AC
 Resolution: 0.1V AC
 Accuracy (% of Reading)
 90–249V AC (RMS): ±1.0%†
 80–90V AC (RMS): ±5.0%†

Power Measurement
 Range 1 (Resolution 10W): 0.00–9990W
 Range 2 (Resolution 0.01kW): 10–35kW
 Accuracy (% of Reading): ±5.0%†

360 PANEL SYSTEM
 See page 18 for a full selection of related products located in the new 360 Panel System section of this catalog.



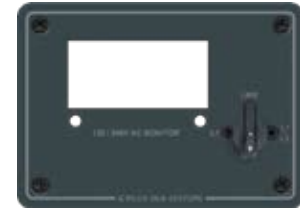
* Applicable for 120–240 Volt AC single phase systems | † Variable with voltage, display intensity, segments illuminated and sleep mode | ‡ ±1 least digit of resolution

120/240V AC Digital Meter Panel

Intended for use with AC Digital Multimeter PN 8247 (page 93) for monitoring 120/240V AC Systems

- Monitor Line 1 or Line 2 to Neutral and Line 1 to Line 2 voltages
- Includes two additional Current Transformers 8256 (page 95) and mounting screws

PN	Description	Width in (mm)	Height in (mm)	Weight lb (kg)
8410	120/240V AC Digital Meter Panel	5.25 (133.35)	3.75 (95.25)	0.85 (0.39)



8410

DC Analog Voltmeter Panel

Enables voltage monitoring on up to 3 battery banks with one analog meter

- Includes standard 2-3/4" 8003 DC Analog Voltmeter (page 90)
- Displays voltage from 8–16 Volts DC
- 3 position switch for multiple battery banks

Specifications

V_{mxo} Voltage Maximum Operating 16 Volts DC Maximum

PN	Description	Width in (mm)	Height in (mm)	Weight lb (kg)
8015	DC Analog Voltmeter Panel	5.25 (133.35)	3.75 (95.25)	0.49 (0.22)



8015

DC Digital Voltmeter Panel

Enables voltage monitoring on up to 3 battery banks with one digital meter

- Includes 8235 DC Digital Voltmeter (page 92)
- 4 digit LED display—Displays voltage from 0–60 Volts DC
- 3 position switch for multiple battery banks

Specifications

V_{mxo} Voltage Maximum Operating 60 Volts DC Maximum

PN	Description	Width in (mm)	Height in (mm)	Weight lb (kg)
8051	DC Digital Voltmeter Panel	5.25 (133.35)	3.75 (95.25)	0.64 (0.29)



8051

Meter Mounting Panels

Provides easy mounting of standard analog and digital meters

- Panel mounts standard 2-3/4" Analog or Digital Meters (pages 90–93)
- Includes mounting screws and center adjustment hole plug

PN	Description	Width in (mm)	Height in (mm)	Weight lb (kg)
8013	Meter Mounting Panel For (1) 2-3/4"	5.25 (133.35)	3.75 (95.25)	0.25 (0.11)
8014	Meter Mounting Panel For (2) 2-3/4"	5.25 (133.35)	7.50 (190.50)	0.36 (0.16)



8013

Mini Clamp Multimeter

Compact and feature-rich AC/DC Multimeter eases diagnosis of marine electrical problems

- Clamp allows measurement of AC and DC current in wires without disturbing the circuits or contacting live terminals
- Compact size allows comfortable one hand operation, portability, and access to confined areas
- Auto range simplifies operation by automatically selecting the range that best fits the data
- Additional functions include: Data Hold, Overload Display, and Auto Power-Off
- True RMS AC measurement is accurate for normal sine wave and modified sine wave inverter output

Specifications

AC Amperes (Current)	0.01–400 Amps
AC Voltage	0.001–600 Volts
DC Amperes (Current)	0.01–400 Amps
DC Voltage	0.001–600 Volts
Resistance/Continuity Alarm	0.1–40M Ω
Measurement Resolution	4300 counts

Regulatory

- CE Marked
- CAT II, 600 Volts

PN	Description	Weight lb (kg)
8110	Mini Clamp Multimeter	0.47 (0.21)



8110

(Includes test leads and carrying case)

Shunts and Transformers

DC Shunts

For use with DC Ammeters (pages 89, 90, 92)

- For continuous operation, it is recommended that shunts not be run at more than two-thirds (66%) the rated current under normal conditions

Specifications

Shunt Type	Resistive
Full Scale	50 mV
I_{mx0} Amperage Maximum Operating	66% of Rated Current
I_{300} Amperage Intermittent Rating (5 min.)	100%—Full scale rating
I_3 Amperage Intermittent Rating (3 seconds)	300%—Full scale rating

PN	Description	Ratio	Weight lb (kg)
9228	Analog Ammeter Shunt	50A DC/50mV DC	0.20 (0.09)
9229	Analog Ammeter Shunt	75A DC/50mV DC	0.20 (0.09)
9230	Analog Ammeter Shunt	100A DC/50mV DC	0.20 (0.09)
9231	Analog Ammeter Shunt	150A DC/50mV DC	0.20 (0.09)
9233	Analog Ammeter Shunt	200A DC/50mV DC	0.71 (0.32)
8255	Digital Ammeter Shunt	500A DC/50mV DC	0.71 (0.32)



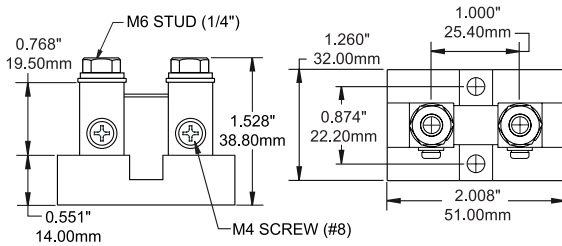
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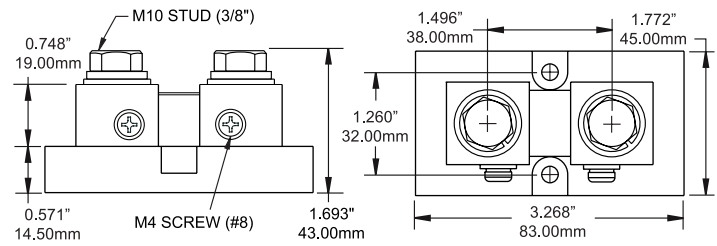
9233



8255



9228 - 9231



9233 and 8255

AC Current Transformers

For use with AC Ammeters (pages 89, 91, 93)

Specifications

Dimensions	0.60" (15.24mm) Inside Diameter
	1.38" (35.05mm) Outside Diameter

PN	Description	Ratio	Weight lb (kg)
8073	Analog Ammeter Transformer	50A AC/50mA AC	0.10 (0.05)
8257	Analog Ammeter Transformer	100A AC/50mA AC	0.20 (0.09)
8256	Digital Ammeter Transformer	150A AC/50mA AC	0.20 (0.09)



8073