



# Specifications

## General Specifications

Display	3 ½ digit LCD (2000 counts, displays 0 to 1999)
Accuracy (of reading)	$\pm (0.075\% + 1 \text{ digit})$ or $\pm 3$ digits, whichever is greater
Meter Power	9 volt battery or optional AC adaptor
Loop Power	12V DC (412300 only)
Maximum Load	350 ohms at 20 mA
Dimensions	3.8 x 4.2 x 1.8" (96 x 108 x 45mm) folded
Weight	12 oz. (340g)
Accessories Supplied	9V battery and calibration cable with spade lugs
Optional Accessories	AC Adaptor, NIST Certificate, and Carrying Case

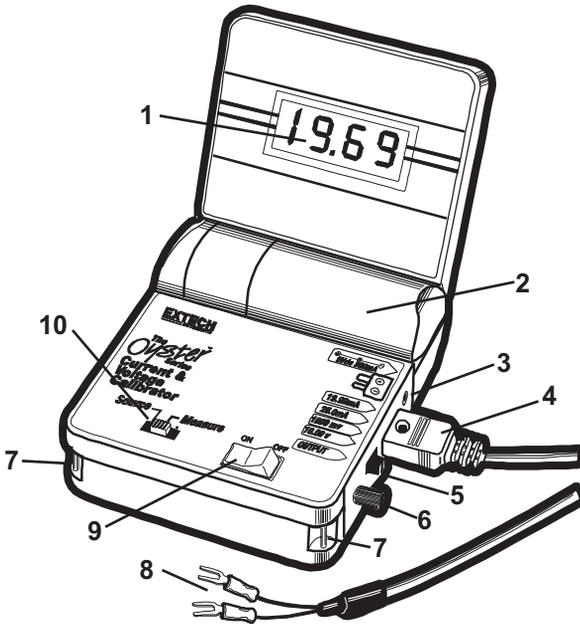
## Range Specifications

<b>Model 412300 Current Calibrator</b>	
Measurement range (resolution)	0 to 50mA (0.1mA)
Output ranges (resolution)	0 to 19.99mA (0.01mA)
	0 to 24.0mA (0.1mA)
	-25% to +125% (0.1%) (0% = 4mA, 100% = 20mA)
<b>Model 412355 Current and Voltage Calibrator</b>	
Measurement ranges (resolution)	0 to 50mA (0.1mA)
	0 to 19.99V (0.01V)
Output ranges (resolution)	0 to 19.99mA (0.01mA))
	0 to 25.0mA (0.1mA)
	0 to 1999mV (1mV)
	0 to 10.00V (0.01V)

# Meter Description

Refer to the Model 412300 diagram. The Model 412355, pictured on the front cover of this user guide, has the same switches, connectors, jacks, etc. Operational differences are described in this manual.

1. LCD display
2. Battery Compartment for 9V Battery
3. AC Adapter input jack
4. Calibrator cable input
5. Range switch
6. Fine output adjustment knob
7. Neck-strap connector posts
8. Calibration spade lug connectors
9. ON-OFF switch
10. Mode switch



# Operation

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## Battery and AC Adapter Power

1. This meter can either be powered by one 9V battery or an AC adapter.
2. Note that if the meter is going to be powered by the AC adapter, remove the 9V battery from the battery compartment.
3. If the LOW BAT display message appears on the LCD display, replace the battery as soon as possible. Low battery power may cause inaccurate readings and erratic meter operation.
4. Use the ON-OFF switch to turn the unit ON or OFF. The meter can be automatically shut off by closing the case with the meter on.

## MEASURE (Input) Mode of Operation

In this mode, the unit will measure up to 50mADC (both models) or 20VDC (412355 only).

1. Slide the Mode switch to the MEASURE position.
2. Connect the Calibration Cable to the meter.
3. Set the Range switch to the desired measurement range.
4. Connect the Calibration Cable to the device or circuit under test.
5. Turn the meter on.
6. Read the measurement on the LCD display.

## SOURCE (Output) Mode of Operation

In this mode, the unit can source current up to 24mADC (412300) or 25mADC (412355). The Model 412355 can source up to 10VDC.

1. Slide the Mode switch to the SOURCE position.
2. Connect the Calibration Cable to the meter.
3. Set the Range switch to the desired output range. For the -25% to 125% output range (Model 412300 only) the output range is 0 to 24mA. Refer to the Table below.

Display	-25%	0%	25%	50%	75%	100%	125%
mA output	0mA	4mA	8mA	12mA	16mA	20mA	24mA

4. Connect the Calibration Cable to the device or circuit under test.
5. Turn the meter on.
6. Adjust the fine output knob to the desired output level. Use the LCD display to verify the output level.

### **POWER/MEASURE Mode of Operation (412300 only)**

In this mode the unit can measure current up to 24mA and power a 2-wire current loop. The maximum loop voltage is 12V.

1. Slide the Mode switch to the POWER/MEASURE position.
2. Connect the Calibration Cable to the meter and to the device to be measured.
3. Select the desired measurement range with the range switch.
4. Turn the calibrator on.
5. Read the measurement on the LCD.

Important Note: Do NOT short the Calibration Cable leads while in the POWER/MEASURE mode. This will cause excess current drain and may damage the calibrator. If the cable is shorted the display will read 50mA.

### **Battery Replacement**

When the LOW BAT message appears on the LCD, replace the 9V battery as soon as possible.

1. Open the calibrator's lid as far as possible.
2. Open the battery compartment (shown in Meter Description section earlier in this manual) using a coin at the arrow indicator.
3. Replace the battery and close the cover.

## Warranty

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EXTECH INSTRUMENTS CORPORATION warrants this instrument to be free of defects in parts and workmanship for one year from date of shipment (a six month limited warranty applies on sensors and cables). If it should become necessary to return the instrument for service during or beyond the warranty period, contact the Customer Service Department at (781) 890-7440 ext. 210 for authorization or visit our website at [www.extech.com](http://www.extech.com) for contact information. A Return Authorization (RA) number must be issued before any product is returned to Extech. The sender is responsible for shipping charges, freight, insurance and proper packaging to prevent damage in transit. This warranty does not apply to defects resulting from action of the user such as misuse, improper wiring, operation outside of specification, improper maintenance or repair, or unauthorized modification. Extech specifically disclaims any implied warranties or merchantability or fitness for a specific purpose and will not be liable for any direct, indirect, incidental or consequential damages. Extech's total liability is limited to repair or replacement of the product. The warranty set forth above is inclusive and no other warranty, whether written or oral, is expressed or implied.

## Calibration and Repair Services

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Extech offers repair and calibration services for the products we sell. Extech also provides NIST certification for most products. Call the Customer Service Department for information on calibration services available for this product. Extech recommends that annual calibrations be performed to verify meter performance and accuracy.



### **Support Hotline (781) 890-7440**

Tech support: Ext. 200; Email: [support@extech.com](mailto:support@extech.com)

Repair>Returns: Ext. 210; Email: [repair@extech.com](mailto:repair@extech.com)

Website: [www.extech.com](http://www.extech.com)

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