

Models 412440, 610022, 41233
Calibration Checkers**1. Introduction**

Extech's Checkers are user friendly and provide a quick and accurate way to check the performance of a device. Three models are available to provide simulated outputs of current, pH or temperature (Type J or K thermocouple).

2. Current Loop Checker (412440)

2.1 Features

- Three check points (low/mid/high)
- Push-button range selection for one hand operation
- Bright red LEDs indicates simulation point, low battery power and overload (over 240 ohms)

2.2 Description

The current loop checker is a handheld battery operated device that provides a quick and easy simulated output of 4mA, 12mA and 20mA for use in testing and calibrating instruments. Also the ideal device to set up indicating ranges on panel meters and controllers.

2.3 Specifications:

- Accuracy: 0.1mA
- Check Points: 4mA, 12mA 20mA
- Overload: When load exceeds 240 ohms

2.4 Operation

Plug the 60" coiled calibration cable into the checker and connect the spade lugs to the device under test. Using the calibrator's push button, select the desired calibration point and check the device under test for proper display or other desired response. If the device under test responds within specification, then it can be considered in proper calibration. If the device under test does not respond within specification, calibration is required.

3. pH Checker (610022)

3.1 Features

- Three check points (low/mid/high)
- Push-button range selection for one hand operation.
- Bright red LEDs indicate simulation point, low battery power and high ohm check.

3.2 Theory of operation

The pH checker is a handheld battery operated device that provides a convenient 4.00, 7.00 and 10.00 pH simulated output (referenced to 25°C) for testing the functionality of pH meters and other devices. The high ohm button is used to check the input impedance of the device under test. With this button depressed, check to see if the readings are lower then with the button not depressed, if the readings are in fact lower than the device under test has a lower impedance than some probes can handle.

The checker should not be used for calibrating a pH meter. Calibration of a pH meter must be performed with the pH electrode that will be used with the meter..

3.3 Specifications

- Accuracy: ± 0.1 pH @ 25 °C
- Check Points: 4.00, 7.00, 10.00pH

3.4 Operation

Plug the calibration cable into the checker and attach the BNC or spade lug connector to the device under test. Using the Calibrator's push-button, select the desired calibration point and check the response of the device under test. If the device under test responds within specification, then it can be considered in proper calibration. If the device under test does not respond within specification, calibration is required.

4. Thermocouple Checker (41233J/K)

Note: When using the white, copper calibration cable, maximum accuracy is achieved when both calibrator and unit being calibrated have similar internal temperatures.

4.1 Features

- Four check points in both degree C and F
- Push button range selector switch for one hand operation.
- Bright red LEDs indicate simulation points and low battery power.

4.2 General Description

The thermocouple checker is a handheld battery operated device that provides a convenient simulation of Type J or K thermocouples for testing and calibrating instruments.

4.3 Specifications

Accuracy: $\pm (0.25\% \pm 1^{\circ}\text{C or } 1.8^{\circ}\text{F})$ at $23.0^{\circ}\text{C} \pm 1.0^{\circ}\text{C}$

Check points:

Type J		Type K	
32°F	(0°C)	32°F	(0°C)
212°F	(100°C)	212°F	(100°C)
392°F	(200°C)	932°F	(500°C)
752°F	(400°C)	1832°F	(1000°C)

4.4 Operation

Plug one end of the 60" coiled calibration cable into the checker and attach the other connector to the device under test. Make sure the plug is inserted with the proper polarity. Using the Calibrator's push button, select the desired calibration point and check the response of the device under test. If the device under test responds within specification, then it can be considered in proper calibration. If the device under test does not respond within specification, calibration is required.

5. CALIBRATION / REPAIR SERVICES

Extech offers complete repair and calibration services for all of the products we sell. For periodic calibration, NIST certification or repair of any Extech product, call customer service for details on services available. Extech recommends that calibration be performed on an annual basis to insure calibration integrity.

6. WARRANTY

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 for authorization. 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.

Copyright © 1999 Extech Instruments Corporation. All rights reserved including the right of reproduction in whole or in part in any form.