

# EZTest<sup>®</sup> Incubator

## OPERATION MANUAL



**Model 1410**

## DECLARATION OF CONFORMITY

(In accordance with EN 45014 and ISO/IEC Guide 22)

*We (manufacturer),*

Mesa Labs  
10 Evergreen Drive  
Bozeman, MT 59718 USA

*Declare under our sole responsibility that the product:*

Model Name: Biological Indicator Incubator  
Model Number: 1410

*to which this declaration relates meets the following standards:*


Safety: CAN/CSA-C22.2 No. 61010-1-04  
CAN/CSA-C22.2 No. 61010-2-10:04  
UL Std. No. 61010-1 (2<sup>nd</sup> Edition)

EMI/EMC: EN 61326-1 Class A  
EN 61000-3-2 Class A  
EN 61000-3-3

*and is in conformity with the provisions of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC.*

Year of CE Marking: 2011

Authorized by:

  
\_\_\_\_\_  
Dr. John R. Gillis  
Technical Director  
Mesa Labs



Date: 14-March-2011

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## Introduction

The EZTest<sup>®</sup> incubator is designed for 37°C (*Bacillus atrophaeus*) or 60°C (*Geobacillus stearothermophilus*) incubation of EZTest biological indicators. The incubator features a built-in thermometer with LED display, an integrated crushing activation (crushing) cavity, and 13 incubation cavities.

An EZTest self-contained biological indicator consists of a capped thermoplastic culturing vial containing a glass media ampoule and a carrier inoculated with bacterial spores. Upon removal from the sterilizer, the indicator is activated by flexing the plastic culturing vial to crush the inner glass ampoule which allows the growth medium to contact the spore carrier. The activated indicator is then incubated for a specified length of time and observed for color change of the growth medium. If the medium turns yellow during incubation, the test is positive indicating growth and inadequate sterilization.



# Safety Information

Handle with caution. The surface of the incubator may become hot to the touch.

The incubator has been designed with function, reliability, and safety in mind. It is the user's responsibility to install it in conformance with local electrical codes. For safe operation, please pay attention to the alert boxes throughout the manual.



# Installation and Warm Up

The incubator is designed for continuous operation and does not have a power switch. The incubator will power up when it is plugged into a power source.



Note: the incubator must be installed in a location where temperature is maintained between **10°C** (50°F) and **35°C** (95°F).

1. Remove the incubator from its packaging.
2. Unpack the power supply. The power supply ships with four interchangeable blades (plugs). Select the appropriate blades for your region and attach the blades to the power supply.
3. Plug the power supply into a power source.
4. Insert the small connector from power supply into the matching receptacle in the back of incubator.
5. The incubator will automatically power on and perform a self-test. Upon completion, the installed firmware revision will be displayed on the LED screen for two seconds.
6. The incubator will begin its warm-up phase. During this time the configured temperature setpoint will fade in and out on the LED screen.
7. The incubator is ready to use when the LED screen displays the current operating temperature of the incubator.



Note: it may take between 15 and 30 minutes for the incubator to come up to operating temperature, depending on the selected incubation temperature and the temperature of the environment in which the incubator is installed.

# Temperature Selection

The incubator can be configured to operate at 37°C for biological indicators containing *Bacillus atropheus*, or 60°C for biological indicators containing *Geobacillus stearothermophilus*. The incubator is initially configured to operate at 60°C.



Caution: failure to set the correct incubation temperature will yield invalid test results. It is not possible to incubate at both 37°C and 60°C simultaneously.

1. With the incubator powered on, simultaneously press and hold the two small buttons on the rear of the incubator for ~2 seconds until the currently selected temperature setpoint blinks on the LED display.
2. Use the two small buttons on the rear of the incubator to select between the available temperature setpoints (37°C or 60°C).
3. When the desired temperature setpoint is blinking on the display, press and hold both buttons for ~2 seconds.
4. The configured setpoint will fade in and out on the LED screen until the incubator has reached temperature, after which the actual temperature of the incubator will be displayed.

## Operation



**Note: refer to the instructions for use supplied with your biological indicators for information on processing, incubation, interpretation of results, and using positive controls.**

When the incubator has warmed up to the configured temperature, the actual temperature of the incubator will be shown on the LED display, indicating that the unit is ready to accept biological indicators. Verify that the temperature displayed is within the allowable range for your biological indicator before proceeding (see the instructions for use that came with your biological indicators).

## Biological Indicator Activation

Prior to incubation, the biological indicator must be activated by crushing its internal glass medium ampoule. This allows the color-change medium from the ampoule to contact the spore carrier.



**WARNING:** allow a processed BI to cool for at least 10 minutes upon removal from the sterilizer. Failure to do so may cause the glass medium ampoule to burst during activation, resulting in injury from hot liquid or flying debris.

The incubator contains an activation (crushing) cavity to simplify activation. Place the processed or positive control biological indicator into the left side of the activation cavity and flex the indicator to the right until the glass ampoule breaks.



Note: you may have to grip the incubator by the base while activating a BI so that it does not tip over.

## **Incubation**

To confirm adequate sterilization (negative result), self-contained biological indicators must be incubated for the appropriate length of time (“incubation time”). Please refer to the instructions for use that came with your biological indicators for the proper incubation time.

Immediately upon activation, place the indicator into one of the thirteen numbered incubation cavities. Record the incubation start time and cavity number.

Observe the color of the growth medium in the BI at regular intervals during incubation. A color change to yellow during the incubation time indicates bacterial growth (positive test). If the incubation time expires and no color change to yellow is observed, this indicates a negative test.



**Caution:** if a positive control does not grow, do not use the remaining units from the box and contact your dealer immediately. A positive control that does not turn yellow is a serious problem. Fortunately, the causes are few: a grossly malfunctioning incubator, inadvertent sterilization of the control vial, inadvertent sterilization of the box of indicators, or improper storage. If the control is negative because of one of the latter two causes, do not use any of the other biological indicators in the same box.

Dispose of positive or negative BIs immediately per the instructions for

use that accompany each box of indicators, or per your organization's policy.

# Maintenance & Service

The incubator requires no maintenance other than cleaning as necessary.

## Cleaning

1. Unplug the incubator before cleaning.
2. To clean the exterior, use a cloth dampened with isopropyl alcohol.
3. To clean the incubation and activation cavities, use a cotton swab dampened with isopropyl alcohol.



WARNING: DO NOT IMMERSE THE UNIT IN ANY LIQUID AND DO NOT SPRAY OR POUR LIQUID DIRECTLY ONTO THE UNIT. DOING SO MAY DAMAGE THE INCUBATOR AND VOID YOUR WARRANTY.

## Replacement Parts

Description	Quantity Required	Part Number
Power Supply	1	P6-1000

## Temperature Verification

The incubator, including the LED temperature display, is factory calibrated using an NIST traceable temperature standard and does not require user calibration.

Incubation temperature can be verified by placing an NIST traceable thermometer into one of the incubation cavities and allowing 30 minutes for temperature stabilization. The temperature reading should be within +/- 2°C of the incubator set-point temperature.

## **Service**

The incubator is not field-servicable. In the unfortunate event of an incubator malfunction, please contact your dealer immediately.

When requesting service, please have ready the model and serial number of the incubator. The model and serial number are located on the bottom of the unit.

Prior to returning any materials, a Return Goods Authorization (RGA) must be obtained from your dealer. Any materials returned without an RGA will be refused.

# Warranty

Mesa Labs warrants that if a Model 1410 Biological Indicator Incubator manufactured by Mesa Labs and sold within the continental United States or Canada proves to be defective in material or construction, Mesa Labs will provide you, without charge, for a period of 90 days, the labor, and a period of one year, the parts, necessary to remedy any such defect. Outside the continental United States and Canada, the warranty period shall commence either six months following the date the product is sold by Mesa Labs or on the date it is purchased by the original retail consumer, whichever date occurs first.

All warranty inspections and repairs must be performed by and parts obtained from an authorized Mesa Labs dealer or Mesa Labs.

Mesa Labs's sole obligation, with respect to its product, shall be to repair or replace the product. Under no circumstances shall it be liable for incidental or consequential damage.

THE WARRANTY STATED HEREIN IS THE SOLE WARRANTY APPLICABLE TO MESA LABS FOR THE MODEL 1410 BIOLOGICAL INDICATOR INCUBATOR. MESA LABS EXPRESSLY DISCLAIMS ANY AND ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR USE.

If this equipment is not used in a manner specified by Mesa Labs, the protection provided by the equipment may be impaired.

# Specifications

## Incubator

Catalog Number	1410	
Overall Dimensions	Width	3.5 in / 9 cm
	Height	2.0 in / 5.8 cm
	Depth	4.0 in / 10.2 cm
	Weight	0.89 lb / 0.4 kg
Incubation Cavities	Number	13
	Diameter	.375 in / .94 cm
	Depth	1 in / 2.54 cm
Thermometer	Accuracy	+ / - 1°C
Electrical Ratings (for use with certified class 2 power supply)	Volts	12VDC
	Watts	18.0
	Amps	1500 mA
Operating Range	Temperature	37°C / 60°C
Environmental Conditions	Ambient Temperature	10°C - 35°C
	Relative Humidity	20% - 80% Non-condensing
Conformance	CSA/C/US, CE, RoHS, FCC Part 15 Class A, ICES-003 Class A	

Catalog Number	P6-1000
Rated Input Voltage	100 – 240VAC
Input Voltage Range	90 – 264VAC
Rated Frequency	50-60Hz
Rated Input Current	1.0A
Output Voltage	12VDC
Max Output Current	2.5A
Max Output Wattage	30W
Safety Approvals	UL/cUL, GS, CCC, RCM
EMC/EMI	FCC class B, CE, VCC I class II
RoHS Compliant	Yes
Storage Temperature	-10°C – 70°C
Storage Humidity	10 – 90%
Operating Temperature	0 – 40°C
Operating Relative Humidity	20 – 80%

**Model 1410**

## Power Supply

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**Model 1410**