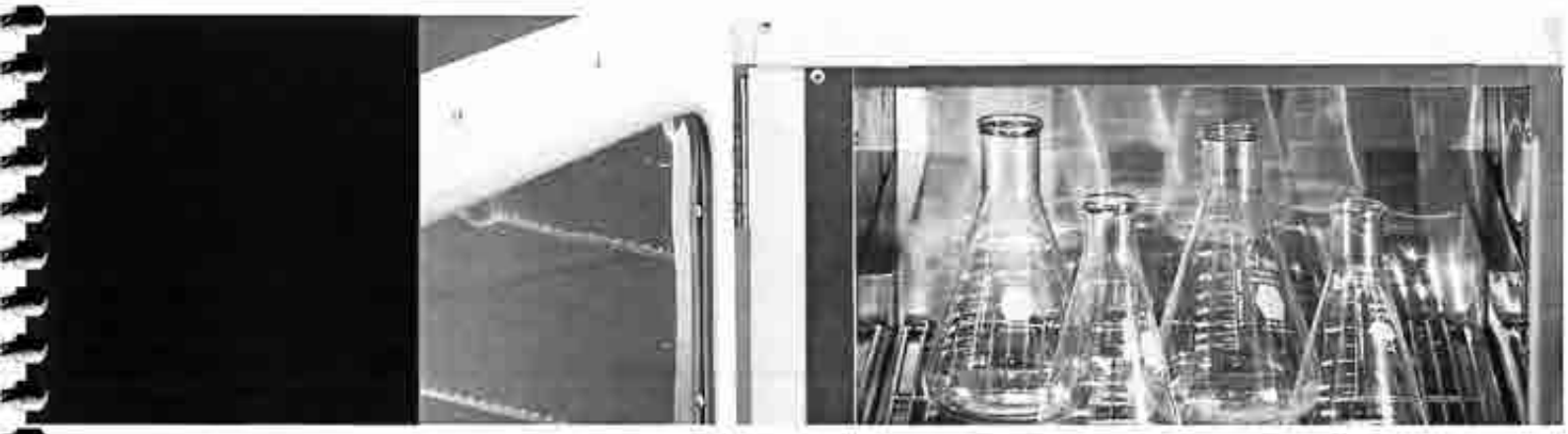
Nº INV. 0901040000495

Precision Premium Ovens

3050 Series

Operating Manual and Parts List LT2148X2 Rev. 0



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Models covered in this manual			
Models	**Size**	**Voltage**	**Forced Air/Gravity**
PR305040G (6947) - Small	2.5 cu ft	240V	Gravity
PR305040GCN (6948) - Small	2.5 cu ft	240V	Gravity
PR305040M (6949) - Small	2.5 cu ft	240V	Forced Air
PR305040MCN (6950) - Small	2.5 cu ft	240V	Forced Air
PR305045G (6951) - Small	2.5 cu ft	120V	Gravity
PR305045M (6952)- Small	2.5 cu ft	120V	Forced Air
PR305050G (6953) - Medium	3.8 cu ft	240V	Gravity
PR305050GCN (6954) - Medium	3.8 cu ft	240V	Gravity
PR305050M (6955) - Medium	3.8 cu ft	240V	Forced Air
PR305050MCN (6956) - Medium	3.8 cu ft	240V	Forced Air
PR305055G (6957) - Medium	3.8 cu ft	120V	Gravity
PR305055M (6958) - Medium	3.8 cu ft	120V	Forced Air
PR305060G (6959) - Large	5 cu ft	240V	Gravity
PR305060GCN (6960) - Large	5 cu ft	240V	Gravity
PR305060M (6961) - Large	5 cu ft	240V	Forced Air
PR305060MCN (6962) - Large	5 cu ft	240V	Forced Air
PR305065G (6963) - Large	5 cu ft	120V	Gravity
PR305065M (6964) - Large	5 cu ft	120V	Forced Air

MANUAL NUMBER LT2148X2 (7006947)

REV	ECR/ECN	DATE	DESCRIPTION	By
0	--	4/22/10	Transfer to Marietta (was LT2148X2 2/8/10)	CCS

Important Read this instruction manual. Failure to read, understand and follow the instructions in this manual may result in damage to the unit, injury to operating personnel, and poor equipment performance. ▲

Caution All internal adjustments and maintenance must be performed by qualified service personnel. ▲

Material in this manual is for information purposes only. The contents and the product it describes are subject to change without notice. Thermo Fisher Scientific makes no representations or warranties with respect to this manual. In no event shall Thermo be held liable for any damages, direct or incidental, arising out of or related to the use of this manual.

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Important operating and/or maintenance instructions. Read the accompanying text carefully.

Potential electrical hazards. Only qualified persons should perform procedures associated with this symbol.

Equipment being maintained or serviced must be turned off and locked off to prevent possible injury.

Hot surface(s) present which may cause burns to unprotected skin, or to materials which may be damaged by elevated temperatures.

Marking of electrical and electronic equipment, which applies to electrical and electronic equipment falling under the Directive 2002/96/EC (WEEE) and the equipment that has been put on the market after 13 August 2005.

This product is required to comply with the European Union's Waste Electrical & Electronic Equipment (WEEE) Directive 2002/96/EC. It is marked with the WEEE symbol. Thermo Fisher Scientific has contracted with one or more recycling/disposal companies in each EU Member State European Country, and this product should be disposed of or recycled through them. Further information on Thermo's compliance with this directive, the recyclers in your country and information on Thermo products will be available at www.thermofisher.com.

- ✔ Always use the proper protective equipment (clothing, gloves, goggles, etc.)
- ✔ Always dissipate extreme cold or heat and wear protective clothing.
- ✔ Always follow good hygiene practices.
- ✔ Each individual is responsible for his or her own safety.

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Our **Sales Support** staff can provide information on pricing and give you quotations. We can take your order and provide delivery information on major equipment items or make arrangements to have your local sales representative contact you. Our products are listed on the Internet and we can be contacted through our Internet home page.

Our **Service Support** staff can supply technical information about proper setup, operation or troubleshooting of your equipment. We can fill your needs for spare or replacement parts or provide you with on-site service. We can also provide you with a quotation on our Extended Warranty for your Thermo Scientific products.

Whatever Thermo Scientific products you need or use, we will be happy to discuss your applications. If you are experiencing technical problems, working together, we will help you locate the problem and, chances are, correct it yourself...over the telephone without a service call.

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Regardless of your needs, our professional telephone technicians are available to assist you Monday through Friday from 8:00 a.m. to 6:00 p.m. Eastern Time. Please contact us by telephone or fax. If you wish to write, our mailing address is:

Thermo Fisher Scientific
401 Millcreek Road, Box 649
Marietta, OH 45750

International customers, please contact your local Thermo Scientific distributor.

Table of Contents

Section 1 Introduction

Thermo Scientific Precision 3050 Series premium ovens are available in three sizes: small, medium and large. All ovens provide PID Microprocessor control at operating temperatures ranging from 50°C (122°F) to 275°C (527°F).

The forced air models provide improved temperature uniformity and control, as well as faster drying. In these models, fresh air enters through an air intake on the bottom of the oven, then is heated in a plenum below the chamber. A blower circulates the heated air into the wall plenums and the oven chamber itself in uniform flow patterns. Exhaust air is vented through a port at the top of the oven.

Gravity flow models inlet air through a port located under the oven floor. Heat generated convection then gently moves the air in a vertical circulation pattern. Exhaust air is vented through a port at the oven top.

Temperature readouts and control parameters are shown on red LEDs. Three additional LEDs indicate when heater power is being applied, an error condition is encountered, or the temperature is being set.

The small ovens accommodate a maximum of five shelves. The medium hold eight shelves, while the large each hold eleven.

Precision ovens incorporate a variety of safety features. A safety backup is built into the controller software: if the primary heater control fails, the backup will maintain control at 5°C above the set point. An alarm LED then indicates that the backup controller is operating the oven. A circuit breaker protects the oven from power surges. If primary backup heater controls fail, an independent Over Temperature Device will disengage heater operation.

The silicon rubber gasket supplied with the oven is good for continuous use up to 250°C and intermittent use to 275°C. This gasket provides a better seal than the high temperature gasket and is supplied with the unit. An optional high temperature braided gasket is available for customers using the oven frequently above 250°C.

The part numbers of the supplied and optional gasket are listed below:

Oven	Silicon Rubber Gasket Part # (Supplied with Oven)	Braided Gasket Part # (High Temp Gasket Optional)
Small - 40 & 45	SPN 101908	SPN 95782
Medium 50 & 55	SPN 101909	SPN 95783
Large - 60 & 65	SPN 101910	SPN 95784

Section 2 Specifications

Performance Characteristics

Operating Range ..... 50 to 275°

Average Uniformity @ 200°*

Forced Air Models ..... ±3°C

Gravity Models ..... ±4°C

Control Resolution ..... 1°C

Control Sensitivity ..... ±0.5°C

Recovery Time @ 200°C**

PR305045M, -40M & -40MCN ..... 1.0 minutes

PR305045G, -40G & -40GCN ..... 2.0 minutes

PR305055M, -50M & -50MCN ..... 2.0 minutes

PR305055G, -50G & -50GCN ..... 3.0 minutes

PR305065M, -60M & -50MCN ..... 2.5 minutes

PR305065G, -60G & -60GCN ..... 4.0 minutes

Rise Time to 275°C

PR305045M, -40M & -40MCN ..... 70 minutes

PR305045G, -40G & -40GCN ..... 40 minutes

PR305055M, -50M & -50MCN ..... 80 minutes

PR305055G, -50G & -50GCN ..... 80 minutes

PR305065M, -60M & -50MCN ..... 80 minutes

PR305065G, -60G & -60GCN ..... 100 minutes

Air Exchanges per Hour*

PR305045M, -40M & -40MCN 43

PR305045G, -40G & -40GCN 24

PR305055M, -50M & -50MCN 29

PR305055G, -50G & -50GCN 16

PR305065M, -60M & -50MCN 22

PR305065G, -60G & -60GCN 2

BTU/hr Output	@100°C	@200°C
PR305045M, -40M & -40MCN	1125	2750
PR305045G, -40G & -40GCN	470	1325
PR305055M, -50M & -50MCN	1325	2925
PR305055G, -50G & -50GCN	1040	2025
PR305065M, -60M & -50MCN	1325	3095
PR305065G, -60G & -60GCN	1150	2040

**as per ASTM E145*
***door open one minute*

Electrical Requirements

Small - Forced Air
PR305045M .....120 V, 11.5A, 1380W, 60 Hz
PR305040M .....240 V, 5.8A, 1392W, 50/60 Hz
PR305040MCN ...240 V, 5.8A, 1392W, 50/60 Hz

Small - Gravity
PR305045G .....120 V, 11A, 1320W, 60Hz
PR305040G .....240 V, 5.5A, 1320W, 50/60Hz
PR305040GCN ....240 V, 5.5A, 1320W, 50/60Hz

Medium - Forced Air
PR305055M .....120 V, 15.5A, 1860W, 60 Hz
PR305050M .....240 V, 7.8A, 1870W, 50/60 Hz
PR305050MCN ...240 V, 7.8A, 1870W, 50/60 Hz

Medium - Gravity
PR305055G .....120 V, 15A, 1800W, 60Hz
PR305050G .....240 V 7.5A, 1800W, 50/60Hz
PR305050GCN ....240 V 7.5A, 1800W, 50/60Hz

Large - Forced Air
PR305065M .....120 V, 15.5A, 1860W, 60 Hz
PR305060M .....240 V, 7.8A, 1872W, 50/60 Hz
PR305060MCN ...240 V, 7.8A, 1872W, 50/60 Hz

Electrical requirements (continued)

Large - gravity

PR305065G .....120 V, 15A, 1800W, 60Hz

PR305060G .....240 V, 7.5A, 1800W, 50/60Hz

PR305060GCN ....240 V, 7.5A, 1800W, 50/60Hz

Chamber Volumes

Small .....2.5 cu ft

Medium .....3.8 cu ft

Large .....5.0 cu ft

Chamber Dimensions (W x D x H)

Small ..... 18 x 18 x 13.5 in

Medium ..... 18 x 18 x 20 in

Large ..... 18 x 18 x 26.5 in

Environmental Conditions

Operating: ...17°C to 27°C; 20% to 80% RH, non-condensing.

Installation Category II (overvoltage) in accordance with IEC 664.

Pollution Degree 2 in accordance wth IEC 664.

Altitude Limit: .....2,000 meters.

Storage: .....-25°C to 65°C 10% to 85% RH

Section 3 Installation

The oven requires an area approximately 2 ft. x 2 ft. The bench selected must be capable of supporting at least 120 lbs. for the small ovens, 130 lbs. for medium ovens, or 135 lbs. for the large. Proper electrical power must be available. Locate the oven such that no extension cord is required. The oven shall have a 2" air clearance on all sides (6" if combustible materials) and a minimum of 24" air clearance on top to allow heat dissipation and prevent temperature build ups.

Warning Do not use top of oven as a shelf. ▲

Do not cover oven vent hole.

Keep combustible materials away from oven vent hole.

Warning Hot Surface Oven vent and exiting air are hot. Keep hands away.

Unpacking

Thermo Scientific Precision ovens are shipped in a single carton. After unpacking, locate each item shown in the list below. Report any missing items, by name and part number, to your Thermo distributor. In the event of shipping damage, retain the shipping material and file a claim with the final carrier.

Shelves

Small and medium units - one provided

Large units - two provided

Shelf Supports

Small and medium - two provided

Large - four provided

Note If the equipment is used in a manner not specified by the manufacturer, protection provided by the equipment may be impaired. ▲

Preparing the Oven

To prepare the oven for operation, perform the following procedures:

1. Install the shelf.
2. Make certain all packing material has been removed from oven chamber.
3. Connect the line cord to an appropriate electrical outlet.
4. The oven is now ready for operation. No preliminary adjustments or calibrations are required. Depending on the customer application and customer laboratory procedures an initial calibration may be done at this point. (See **Display Offsets**).

Power Switch

The 3050 Series ovens feature a front panel mounted power switch which is a combination; power switch and circuit breaker, eliminating the need for separate fusing. The circuit breaker will interrupt power in the event of an oven heater malfunction. Press the I (upper) half of the rocker-type power switch to turn the oven On. Press the 0 (lower) half to turn Off oven power. To reset the breaker, first place the switch in the Off position, then return it to the On position.

Caution See dataplate on oven for voltage, current and line frequency specifications. Check that the power requirements of the oven will not overload the circuit to which it will be connected. ▲

Section 4 Controls

The following sections briefly describe the locations and functions of various display fields and keypad controls. More detailed descriptions are provided, when required, in the operating sections of the manual.

Display

The 3050 Series controller features a bright, one-half inch LED numeric display which reads out the oven temperature. Three smaller LEDs indicate, respectively, an alarm condition, that power is being applied to the oven heaters or that the control temperature is being set. Each display field is discussed separately below.

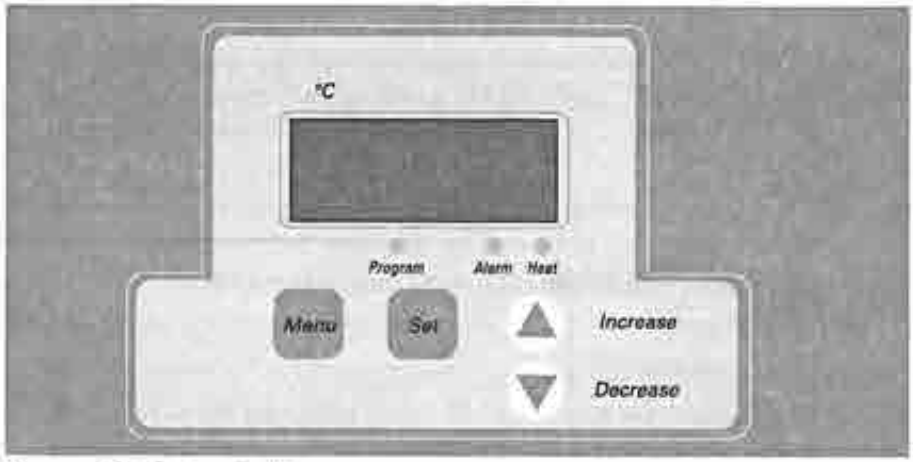

Figure 4-1. Display Fields

Temperature Display

In the normal operating mode, shows the current oven temperature. During programming, indicates the oven set temperature target.

Heat Indicator

Lights when power is being supplied to the oven heater.

Alarm Indicator

Lights if the actual oven temperature exceeds the alarm temperature. The alarm temperature is factory-adjusted to be 5°C above the set temperature.

Program Indicator

Lights when the control temperature is being The 3050 Series The

Keypad

The 3050 Series incorporates a four-key, tactile keypad. Refer to Figure 4-1 on the previous page. The function of each key is discussed individually below.

- Pressing MENU while holding down the SET key decreases the oven set temperature, as indicated on the temperature display.
- Pressing INCREASE arrow while holding down the SET key increases the oven set temperature, as indicated on the temperature display.
- Pressing DECREASE arrow while holding down the SET key decreases the oven set temperature, as indicated on the temperature display.
- Pressing SET causes the display to show the set temperature. Used with INCREASE and DECREASE arrows to change the set temperature. With MENU to access entry of a temperature display offset.