Installation and Operation Manual

Thermo Scientific Jewett HemaPro^{2000} Surveillance Center

Part of Thermo Fisher Scientific

Thermo SCIENTIFIC

Hema*Pro*^{2000} SURVEILLANCE CENTER

GENERAL INFORMATION

START UP PROCEDURES

Now that your BBR Series Blood Bank Refrigerator or BPL Series Blood Plasma Freezer is set in place and in operation, the following items should be accomplished to place the Hema*Pro*^{2000} Surveillance Center into operation.

1. Fill the upper and lower solution bottle to within 1" of the top with the proper solution:

   BBR Models **10% Glycerin and 90% water**

   BPL Models **50% Glycol Base Antifreeze and 50% water**

   The probes should be placed back into the bottles ensuring that the lower 4" of the probes are completely immersed.

   The sensor to be placed in the upper solution bottle has a black top; the sensor for the lower solution bottle has a blue top.

2. Connect the back-up battery (9 volt) to the center. The battery is located on the back of the center.

3. Set the date and time of day using the instructions located in the Operation of the Center section of this manual.

4. If a remote monitor will be utilized in conjunction with this center, note the instructions located in the Operation of the Center section of this manual.

5. After 24 hours of operation, the Surveillance Center should be checked for proper operation. By using this manual as a guide, operate the various functions. This will not only ensure proper operation, but will also familiarize you and your staff with its correct operation.

The Hema*Pro*^{2000} Surveillance Center is a sophisticated precision electronic instrument. Its primary purpose is to assure the user of stored product safety. The center is designed to be a separate and distinct system which operates and functions independently from the refrigeration control system.

11 BASIC FEATURES OF THE HemaPro^{2000} SURVEILLANCE CENTER

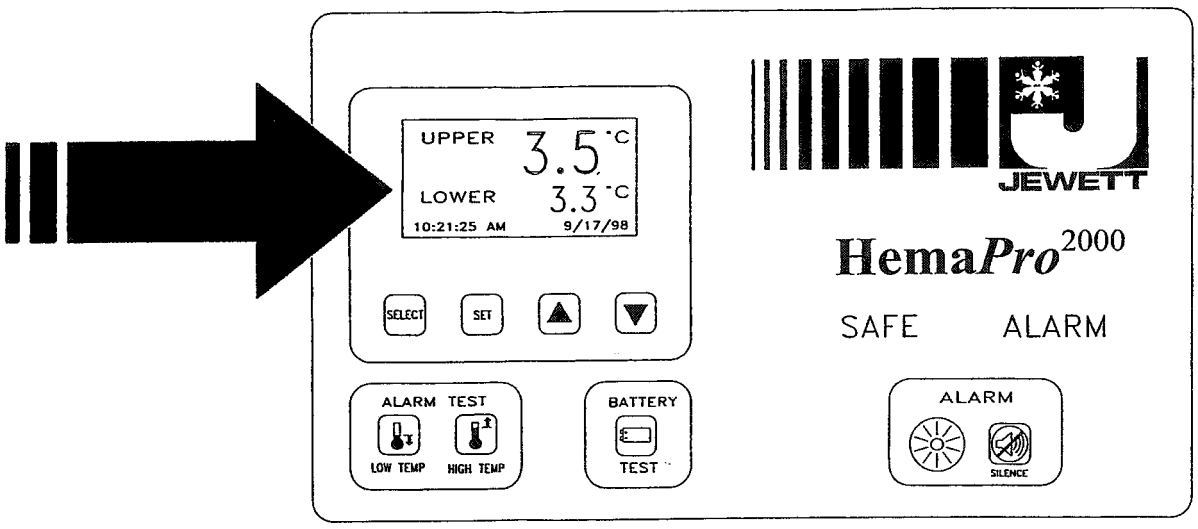
1	***Large LCD Screen***	Large 2.75" LCD display with back light for excellent contrast.
2	***Alarm Self Test Function***	This alarm test feature physically heats or cools the thermistor inside the probe to simulate the alarm function.
3	***Monitor of Temperature With or Without A/C Power***	The center will monitor the temperature of the upper solution bottle during an A/C power failure. The 9 volt back up battery will power the center for approximately 6 hours.
4	***Constant Display of Solution Bottle Temperatures***	The upper and lower solution bottle temperatures will be constantly displayed with the except during an alarm condition, at which time only the upper solution will be displayed.
5	***Door Ajar Status***	A visual and audible alarm will be present if the door is opened for more than three minutes.
6	***A/C Power Status***	If the A/C power fails, a visual and audible alarm will be present.
7	***Back Up Battery Status***	If the 9 volt back up battery voltage decreases to 7 volts under load, there will be a visual and audible alarm.
8	***Compressor Status***	If the condenser discharge line temperature reaches +40° C. (+105° F.), there will be a visual and audible alarm.
9	***Event Log***	Whenever an adverse event occurs, the time and date of when the event occurred and when it is corrected will be logged. This log is an excellent method of recording events that may occur while personnel are not present.
10	***Adjustable Alarm Points***	In addition to the standard alarm settings, this center also offers adjustable alarm set points.
11	***PC Interface***	This unit has the ability to interface to your personal computers RS232 port. Contact *JEWETT* Technical Service for further information.

OPERATION OF THE HemaPro^{2000} SURVEILLANCE CENTER

The surveillance center face panel is divided into four separate sections. The following paragraphs describe the indications and functions within these sections.

LCD DISPLAY SECTION

This section has four function keys which control the ability to set parameters and access data accumulated during its surveillance process. The main or default screen continually displays the upper and lower solution bottle temperatures, time and date. The menu screens can be accessed by using a combination of the function keys.



By pressing the **SELECT** key the *Main Menu* screen will be displayed. This menu contains the following:

SELECT DISPLAY

STATUS
SETUP
EVENT LOG
PRODUCT INFORMATION
COMPANY INFORMATION
EXIT

The **STATUS** line is highlighted. Press the **SELECT** key and the state of five important conditions is displayed:

STATUS

DOOR		CLOSED
BATTERY		GOOD
AC PWR		GOOD
COMPRESSOR		GOOD
TEMP	4.0° C	
1.5	SAFE	5.5

To return to the default screen, press the **DOWN ARROW** key until the **EXIT** line is highlighted. Then press the **SELECT** key.

Press the **DOWN ARROW** key until the **SET UP** line is highlighted. Then press the **SELECT** key. The following *Set Up Screen Menu* will appear:

SETUP

SET TIME AND DATE
ADJUST CONTRAST
ADVANCED SETUP
EXIT

The **SET TIME AND DATE** line is highlighted. To set the time and date, press the **SELECT** key. Either the 12 or 24 hour format will be highlighted. Select the format desired by pressing the **DOWN ARROW** key followed by the **SELECT** key. Continue pressing the **SELECT** and **DOWN ARROW** keys until the time and date is correct. If the 12 hour format is selected, note that there is an AM and PM. When the time and date are entered, press the **SET** key and the *Set Up Screen Menu* will return.

SET TIME/DATE

FORMAT	(12/24) 12 HOUR
TIME:	12:35:14 pm
DATE:	1/01/1999

HIT SET TO EXIT

Press the **DOWN ARROW** key until the **ADJUST CONTRAST** line is highlighted, then press the **SELECT** key. Adjust the contrast by pressing the **UP ARROW** key for darker or **DOWN ARROW** key for lighter. After the adjustment is made press the **SET** key to return to the *Set Up Screen Menu.*

CONTRAST ADJUSTMENT

HIT ARROW KEYS TO
ADJUST CONTRAST

HIT SET TO EXIT

Press the **DOWN ARROW** key until the **ADVANCED SET UP** line is highlighted. Press the **SELECT** key and the *Advanced Set Up Menu* will appear:

ADVANCED SETUP

CLEAR EVENT LOG
SELECT MODEL
COMPRESSOR ALARM
REMOTE OUTPUT FORMAT
EXIT

The **CLEAR EVENT LOG** line is highlighted. Press the **SELECT** key and then erase the event log by pressing the **SET** key (any other key will save the existing event log). The *Advance Set Up Menu* will reappear.

Press the **DOWN ARROW** key until the **SELECT MODEL** line is highlighted, then press the **SELECT** key. Highlight the Model required by again depressing the **SELECT** key.

SELECT MODE

	DEG C	
MODEL	LOW	HIGH
T100-1	1.5	5.5
T100-3	none	-20.0
CUSTOM	0.0	0.0

This center allows for adjustable set points to best meet your product storage needs. To specify your own alarm set points, press the **DOWN ARROW** key to highlight the **CUSTOM** menu option. Utilizing the **UP** and **DOWN ARROW** keys, enter your value for the lowest temperature allowable for your specific product stored. Press the **SELECT** key and repeat the process above to set your products maximum allowable temperature. ***Caution:*** *Allow a reasonable degree span (4 to 5 degrees) between set points to avoid nuisance alarms caused by the normal cycling of the refrigeration system.* Press the **SET** key to save your customized set points and return to the *Advanced Set Up Menu.*

Press the **DOWN ARROW** key until the **COMPRESSOR ALARM** line is highlighted. Press the **SELECT** key to access the temperature set point. Press either the **UP** or **DOWN ARROW** key to set the temperature required. This temperature is sensed on the condenser discharge line in the compressor compartment. Press the **SET** key to return to the *Advanced Set Up Menu.*

USE ARROW KEYS TO
ADJUST MAXIMUM
COMPRESSOR TEMP
MAX TEMP 50.0° C
HIT SET TO EXIT

Press the **DOWN ARROW** key until the **REMOTE OUTPUT FORMAT** line is highlighted. Then press the **SELECT** key. Press the **DOWN ARROW** key to select **DC** or **PULSE** setting.

Format	Compatible with JEWETT Models
DC	TMSRB or T100 Center
PULSE	DTPMR or TPMR

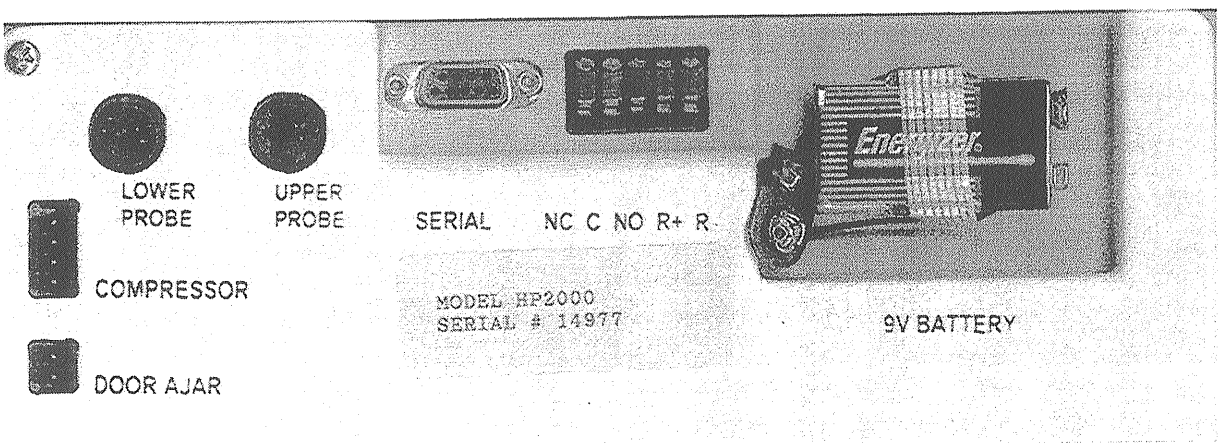
The optional JEWETT Models DTPMR and TMR Remote Monitors permit the temperature and power monitoring functions performed by the master Hema*Pro*^{2000} Surveillance

Center to be transmitted audibly and visually (no digital display) to a remote location. Transmission of data from the master Hema*Pro*^{2000} Surveillance Center to the DTPMR or TMR is by two-conductor, low voltage (#20 to #20 gauge) wire that is easily connected to external terminals on each unit. Up to 2,600 feet of wire may be used between the master and remote unit. Connection of two-conductor wire between the R (+) and R (-) terminals of the DTPMR/TMR and the master Hema*Pro*^{2000} Surveillance Center is required. Maintain Polarity – Transmission voltage is DC.

USER-SUPPLIED REMOTE LOCATION EQUIPMENT INTERFACE

The JEWETT Hema*Pro*^{2000} Surveillance Centers is equipped with three external terminals. These are the Common (C), Normally Open (NO) and the Normally Closed (NC) dry contacts of a hermetically sealed relay. This relay is energized when all conditions are safe and de-energized when any unsafe condition occurs. The current-carrying capability of this relay is 1 ampere at 150/60/1 VAC (resistive) or 1 ampere at 28 VDC (resistive). This feature permits the Hema*Pro*^{2000} to be connected to a master remote monitoring system that has its own source of power.

Connect two-conductor wire from user's existing remote location with either normally open and common or normally closed and common terminals. A single pole, double throw, normally open switch inside the monitor is connected to the exterior terminals. The switch remains open when the green LED is on and the temperature in the monitored space is within operating range. Switch will close when the Red LED is on and Green LED is off. This indicates that the temperature in the monitored space has varied above or below operating range or power has failed.



Press the **DOWN ARROW** key until the **EXIT** line is highlighted. Then press the **SELECT** key to return to the *Advanced Set Up Menu.* Press the **DOWN ARROW** key until the **EXIT** line is highlighted. Then press the **SELECT** key to return to the *Set Up Screen*

Menu. Press the **DOWN ARROW** key until the **EXIT** line is highlighted. Then press the **SELECT** key to return to the *Main Menu.*

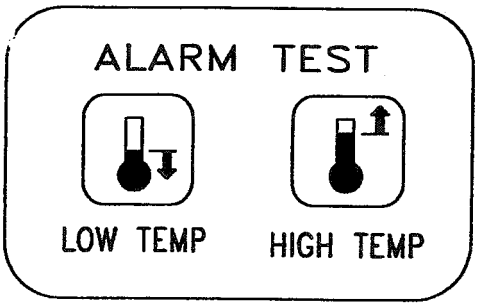
Press the **DOWN ARROW** key until the **EVENT LOG** line is highlighted, then press the **SELECT** key. All adverse events will be listed in chronological order. This log should be checked daily as part of your Standard Operating Procedures. Press the **SET** key to return to the *Main Menu.*

Press the **DOWN ARROW** key until the **PRODUCT INFORMATION** line is highlighted. Press the **SELECT** key to access the Model Number, Serial Number and the Revision Number of this center. Press the **SET** key to return to the *Main Menu.*

Press the **DOWN ARROW** key until the **COMPANY INFORMATION** line is highlighted. Press the **SELECT** key to access the address and phone number of JEWETT Inc. Press the **SET** key to return to the *Main Menu.*

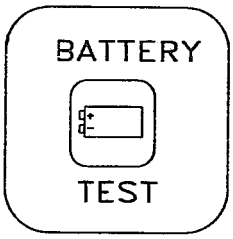
Press the **DOWN ARROW** key until the **EXIT** line is highlighted. The press the **SELECT** key to return to the *Default Screen.* ***Note:*** *This Default Screen will automatically reappear if no keys are pressed within approximately 30 seconds.*

ALARM SELF TEST FUNCTIONS



This modules **ALARM TEST** feature is activated by pressing either the **LOW TEMP** or **HIGH TEMP** keys. When the **HIGH TEMP** key is pressed and released, the temperature of the thermistor will slowly rise until it reaches the standard high alarm setting *(Blood Bank Refrigerators +5.5° C. or Blood Plasma Freezers -20° C.).* When the **LOW TEMP** key is pressed and released, the temperature of the thermistor will slowly fall until it reaches the standard low alarm setting *(Blood Bank Refrigerators +1.5° C., no low alarm on Blood Plasma Freezers).*

BATTERY BACK UP TEST



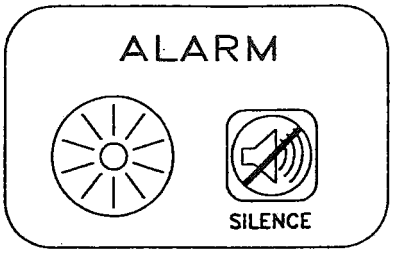
To test the back up battery, press and hold the **BATTERY TEST** key. This will simulate an A/C power failure. While pressing the **BATTERY TEST** key, the back light on the LCD display will extinguish, the words **POWER FAILURE** will flash and an audible alarm will be present. Release the **BATTERY TEST** key and the LCD display screen will return to normal.

BATTERY TEST CAUTION

The battery test button should be used only for regulatory testing requirements or by authorized field service personnel.

Frequent use of the battery test button could result in excessive battery drain and reduced battery life. The manufacturer recommends that the battery test button should be used no more than once per month.

AUDIBLE SILENCE FUNCTION



When any adverse event occurs an audible alarm will be present. To silence the alarm press the **ALARM SILENCE** key. The LCD screen will display a 5 minute delay. If a longer time delay is desired, press the **UP ARROW** key. The time period will increase by 5 minute increments. When the desired length of time is displayed, press the **SET** key to begin the silence period. If the failure is corrected, the remaining time will automatically be canceled.

SAFE AND FAILURE LED

When all conditions are normal, the word **SAFE** will be illuminated. When any adverse event occurs, the word **FAILURE** will be illuminated.

REPLACEMENT PARTS LIST

Part Number	Description
MOD-D0049	Front Panel
MOD-D0048	Dust Cover
MOD-D0045	Upper Thermistor Assembly (Refrigerators)
MOD-D0046	Upper Thermistor Assembly (Freezers)
MOD-D0050	Lower Thermistor Assembly
MOD-D0051	P. C. Board
Available at Retail Outlets	9 Volt Alkaline Battery

GENERAL SPECIFICATIONS

- *SENSOR* - Thermistor type, stainless steel with 8 ft. (2.44 m) wires instantaneous response
- *DIGITAL DISPLAY* - Clear, fast, continuous temperature in LED format
- *ALARM SYSTEM* - A different visual and audible alarm for each occurrence of power supply interrupt or improper temperature
- *ALARM SILENCE* - Audible alarm can be silenced for either 5 or 45 minutes. Silence period will be canceled if temperature returns to safe mode
- *ACCURACY* - Accurate to within .1° C.
- *CALIBRATION* - Microprocessor tests for accuracy
- *BATTERY BACK UP* - Replaceable nine volt DC battery for emergency operation during power outage (2 hours approximately) audible signal for low battery

SUGGESTED QUALITY CONTROL PROCEDURE

FOR JEWETT TEMPERATURE MONITORING & RECORDING EQUIPMENT

Surveillance Centers and Temperature/Power Monitors should be tested for both low and high temperature activation, where applicable, on a regular basis. If additional wire is required to move the upper solution thermistor or mercurial sensor to the outside of the refrigerator or freezer, there is approximately 4' of wire stored in the compressor compartment (T100 Series only).

PROCEDURE:

Always check the low activation first.

1. **LOW ALARM ACTIVATION - +1.5° C. WHERE APPLICABLE**
   - **a.** Fill an 8 ounce glass half full of chilled water (+4° C.).
   - **b.** Crush ice 1/8" particles in a separate container.
   - **c.** Remove the sensor from the upper solution bottle, tape this sensor to the test thermometer (NBS Certified) then insert into the glass.
   - **d.** Slowly add crushed ice at the proper rate to provide a temperature drop of 0.5° C./minute (approximately 1 teaspoonful every 15 to 25 seconds).
   - **e.** Stir the test thermometer/monitor sensor constantly in a circular motion, keeping the ends in the lower liquid, not in the upper ice slurry.
   - **f.** Log the low alarm activation.

2. **HIGH ALARM ACTIVATION - +5.5° C. OR -20° C.**
   - **a.** +5.5° C. Slowly add warm water to the ice slurry at the proper rate to provide a temperature rise of 0.5° C./minute.
     -20° C. Slowly add warm water to a container of pre-cooled antifreeze solution (-30° C.) at the proper rate to provide a temperature rise of 0.5° C./minute.
   - **b.** Constantly stir the test thermometer/monitor sensor as in step "e" above.
   - **c.** Log high alarm activation.

3. Check and log the reaction of the remote monitor during these test procedures if applicable.

4. The rate of rise and fall of the solution bottle temperature used in testing is critical. Observe the 0.5° C./minute rate of change or testing errors will occur.

5. This procedure can be used for other temperature settings. Those stated are the most popular for whole blood and blood plasma storage.

* Recording Thermometers can be checked using the procedure outlined above.

Calibration of Display to Center Air Temperature

1. Place a reliable independent temperature measuring sensor in a center-air location and allow it to reach a stabilized reading.
2. Record the current display readings of the upper and lower HP2000 bottle sensors.
3. Turn power to unit off. If the HP-2000 is a freestanding module, unplug it. If built into the appliance, unplug the appliance to remove power to the module.
4. Disconnect the 9v DC backup battery, so module is completely dead. The battery is found on the back of the unit in a steel clip. If combined with a chart recorder, one backup battery may be used for both. All power must be removed from the unit for step 5 to work.
5. This step may take two people. The following three keys must be held down while the unit is powered back on: Up Key, Down Key, Select Key.
6. While holding down the 3 keys, return power to the unit.
7. When power has been restored, release all keys.
8. The calibration display should appear. If the display shows a black screen press and hold the down arrow key to brighten the screen. See note below if screen cannot be cleared at this point. A black screen may appear if all keys are not properly held down while unit is repowered.
9. When the calibration screen appears you will see readings for the upper and lower bottle sensors, and also for the compressor temperature sensor. Use the Select key to scroll to the parameter to be calibrated. Use the up and down arrow keys to calibrate the bottle sensor to match the center air temperature as indicated by a reliable independent temperature measuring device. All of the visible parameters may be calibrated at this time.
10. Press the Set key to save the calibration settings, then wait. If the screen goes black press the down arrow key until it clears, then follow the displayed instructions when prompted to push Set to exit.
11. A "Watch Dog Reset" message will appear, then the display changes until the Contrast Adjust screen appears. Adjust contrast as needed and press exit to return to the normal display.

If you get a black screen during the above process you must clear the screen then start over from step 1. When the black screen appears, push and hold the Down arrow key until the screen clears. If this does not work you must look down at the screen from a steep angle, and you will see that the screen can be read. Reading the screen from this angle, scroll through the menu to the Contrast Adjust option, and clear the screen from this menu. Again, after the screen is clear restart the calibration process from step 1. If you try to restart without first clearing the screen you will always get a black screen when the unit is repowered. The unit must have a clear screen when unpowered in step 1.

WEEE Compliance

WEEE Compliance. This product is required to comply with the European Union's Waste Electrical & Electronic Equipment (WEEE) Directive 2002/96EC. It is marked with the following symbol. Thermo Fisher Scientific has contracted with one or more recycling/disposal companies in each EU Member State, and this product should be disposed of or recycled through them. Further information on our compliance with these Directives, the recyclers in your country, and information on Thermo Scientific products which may assist the detection of substances subject to the RoHS Directive are available at **www.thermo.com/**

Great Britain

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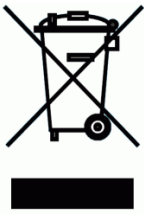
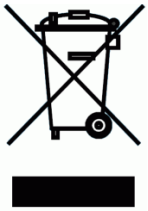
Deutschland



Conformità WEEE. Questo prodotto deve rispondere alla direttiva dell' Unione Europea 2002/96EC in merito ai Rifiuti degli Apparecchi Elettrici ed Elettronici (WEEE). È marcato col seguente simbolo.Thermo Fischer Scientific ha stipulato contratti con una o diverse società di riciclaggio/smaltimento in ognuno degli Stati Membri Europei. Questo prodotto verrà smaltito o riciclato tramite queste medesime. Ulteriori informazioni sulla conformità di Thermo Fisher Scientific con queste Direttive, l'elenco delle ditte di riciclaggio nel Vostro paese e informazioni sui prodotti Thermo Scientific che possono essere utili alla rilevazione di sostanze soggette alla Direttiva RoHS sono disponibili sul sito **www.thermo.com**/

Italia



Conformité WEEE. Ce produit doit être conforme à la directive euro-péenne (2002/96EC) des Déchets d'Equipements Electriques et Electroniques (DEEE). Il est marqué par le symbole suivant. Thermo Fisher Scientific s'est associé avec une ou plusieurs compagnies de recyclage dans chaque état membre de l'union européenne et ce produit devraitêtre collecté ou recyclé par celles-ci. Davantage d'informations sur laconformité de Thermo Fisher Scientific à ces directives, les recycleurs dans votre pays et les informations sur les produits Thermo Fisher Scientific qui peuvent aider le détection des substances sujettes à la directive RoHS sont disponibles sur www.thermo.com/

France

Important

For your future reference and when contacting the factory, please have the following information readily available:

Model Number: _____

Serial Number: _____

Date Purchased: _____

The above information can be found on the dataplate attached to the equipment. If available, please provide the date purchased, the source of purchase (manufacturer or specific agent/rep organization), and purchase order number.

IF YOU NEED ASSISTANCE:

SALES DIVISION

Phone: 1-866-984-3766
1-866-9-THERMO

LABORATORY PARTS and SERVICE

Phone: 1-800-438-4851

TECHNICAL SUPPORT

Phone: 1-800-438-4851

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