

Laboratory Equipment

Refrigerated Incubator

User Manual & Setup Guide

TMLR-200

STAR 700 Touchscreen

Thermoline Scientific Equipment Pty. Ltd.
ABN 80 000 859 129
10-12 Ross Place
Wetherill Park, NSW 2164. Australia.
Phone: +61 2 9604 3911
email: hello@thermoline.com.au
www.thermoline.com.au

Contents

General Information	4	LAN Connection	26
Product Specification	5	Auto Test	27
Product Specifications	6	Alarm Auto Test	27
Operating Environment	7	Calibration Auto Test	27
Cabinet Location	7	Calibration Screen	28
Electrical	8	How to Calibrate	28
Setup	10	General Controls	29
Uncrating/Unpacking	10	BMS Output	29
Moving	10	Troubleshooting	30
Castors	11	Technical and Repair Support	30
Cabinet Location	12	Warranty	31
Cleaning	13		
Door Gasket	13		
Port Hole	13		
Loading the TPS-18	14		
Loading the TPS-18	15		
Start Up Procedure	17		
Security Screen Saver	18		
Shut Down Procedure	19		
STAR 700 User Guide	20		
Main Screen	20		
USB and Ethernet	20		
Alarms	21		
USB Downloading	22		
Settings Screen	23		
Contact Details Screen	24		
Alarm/Events Screen	24		
Trend Screen	25		
System Settings Screen	26		



**General
Warning Sign**

Warning sign: signifies a general warning, and indicates a risk to people specified by the supplementary sign that if not avoided, may result in death or serious injury.



**Warning;
Flammable**

Warning; Flammable: signifies a flammable warning, and indicates a risk of flammable content as specified by the supplementary sign that if not avoided, may result in a fire by igniting flammable material.



**Warning;
Electricity**

Warning; Electricity: signifies a electricity warning, and indicates a risk of contact with electricity as specified by the supplementary sign that if not avoided, could result in injury.



**Warning; Hot
Surface**

Warning; Hot Surface: signifies hot surface warning, and indicates a risk to people specified by the supplementary sign that if not avoided, will result in contact with hot surface.



**General
Prohibition Sign**

General Prohibition: signifies a prohibited action, indicates a risk to people specified by the supplementary sign that if not avoided, will result in death or serious injury.



**Do Not Expose
Outside**

Do Not Expose Outside: signifies prohibiting the exposure to direct sunlight, and indicates a raised temperature due to sunlight or placement on hot surface can cause harmful damage to cabinet.

General Information

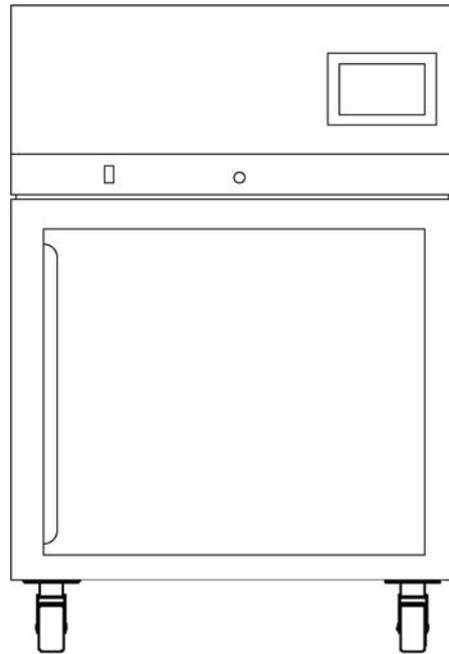
Refrigerated Incubator User Manual
By Thermoline Scientific

This user manual is intended for TMLR-200 Refrigerated Incubator. We recommend that you read this user manual the whole way through before you start using the cabinet. Consider this manual as a part of the cabinet and an integral part to its function. We recommend keeping it close and within easy access.

This Australian made refrigerated incubator has been designed to maintain a temperature controlled environment for laboratory equipment with heat output up to 200 watts. The temperature is factory set at 22°C. Forced air circulation provides uniform air flow and temperature control.

The TMLR-200 cabinet is set to function with specific operating ranges. The optimum operating conditions will be explained further in this manual.





Dimensions

External

TMLR-200

WxDxH (mm)

740x840x1100

Internal

Width (mm)

600x550x530

Clearance

TMLR-200

Front (mm)

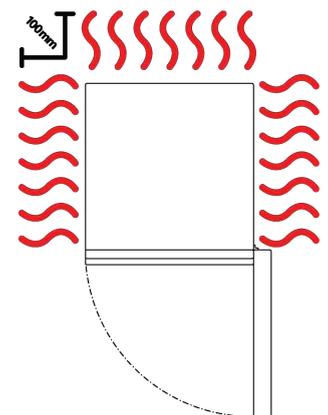
740

Back (mm)

100

Sides (mm)

100



Technical Specification**TMLR-200**

Temperature Range	Factory set at 22°C with alarm setpoints at 20.5°C and 23.5°C
Temperature Control Stability	+/- 0.1°C
Temperature Uniformity	+/- 1.0°C
Nominal Capacity	200L
Refrigeration	Internal equipment maximum heat output of 200 watts
Porthole Diameter	13mm
Weight	90kg
Electrical	450W/230V

Features

Castors	✓
Fan Forced Air Circulation	✓
STAR 700 7" Colour Touch Screen Controller	✓
Door Locks	✓
BMS Plug	✓
Ecofoam Insulation	✓

Safety

Over Current Protection	✓
Over Temperature Safety	✓

Options

Adjustable Feet	On request
-----------------	------------

Cabinet Location

Ensure the TMLR-200 is placed in the correct environment, away from direct sunlight or direct heat sources such as heaters (Fig 1). The product shouldn't be placed in a room where the ambient temperature exceeds that of which it was designed to operate.

The TMLR-200 should be stored inside at all times. Failure to adhere to this could cause significant drops in cabinet performance and damage to items stored inside.

Extreme Operating Environment:

- **Temperature:** 10°C to 32°C
- **Humidity:** Up to 85%RH

Optimal Environment: (Fig 2)

- **Temperature:** 23°C (+/-2.0°C)
- **Humidity:** 50%RH (+/-5%RH)

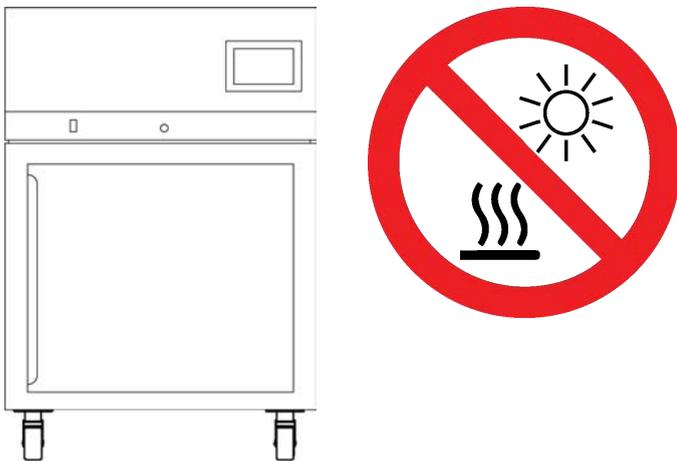


Fig 1. Suitable Environment

Operating Environment

Electrical

The TMLR-200 requires a 10amp, 230V, 50hz power supply. A dedicated outlet should be used for the supply, do not use power boards or the like. A 3-pin moulded plug is supplied as standard to the mains.

Electrical Conditions:

- All TMLR-200 cabinets include a 2.5m removable mains power lead with a three pin plug and female IEC plug. Ensure the product is reasonably distanced from the power supply. (**Fig 1**)
- On the cabinet itself is a male IEC socket (**Fig 2**) and (**Fig 3**).



Fig 3. 10A/230V IEC socket location.

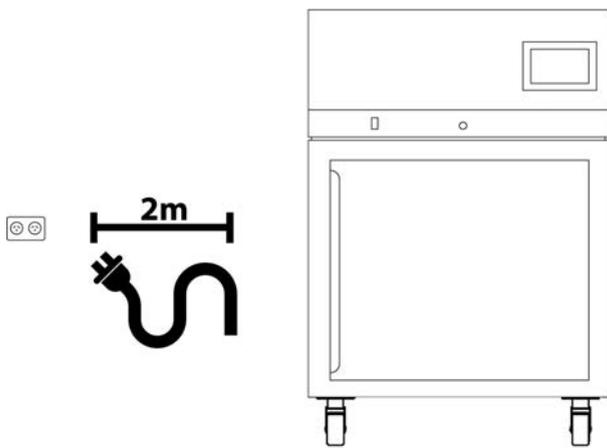


Fig 1. suitable cord distance (2m)

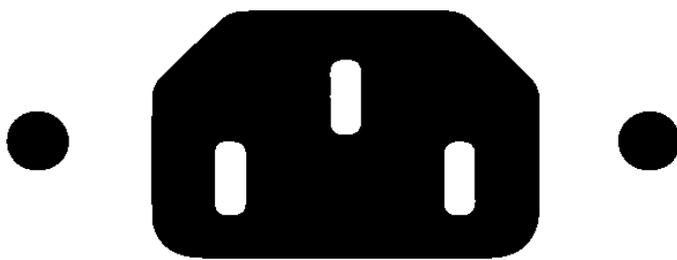


Fig 2. 10amp IEC socket

Operating Environment Warnings



TMLR-200 cabinets require ventilation around them. 100mm on either side and the back is required.

TMLR-200 cabinets should be stored inside at all times. Failure to adhere to this could cause significant drops in cabinet performance and damage to items stored inside.



TMLR-200 cabinets are not suitable for use with flammable solvents! They are fitted with components that may be the source of ignition.

Uncrating/Unpacking

Unpacking process for foam wrapped and crated:

- In most cases, the TMLR-200 cabinet will be delivered foam wrapped and on its castors via sensitive freight. (Fig 1)
- The TMLR-200 cabinet may be delivered to remote areas in a crate. To remove the crate packaging that comes with some cabinets, unscrew both the left and right sides of the packaging. (Fig 2) A forklift is needed to remove the cabinet from the crate.
- Please don't dispose of the packaging until the cabinet is inspected. If damage is present upon opening your package, notify your supplier or Thermoline Scientific without delay on +61 2 9604 3911 or email at service@thermoline.com.au.



Fig 1. Unpacking Process (foam wrapped)

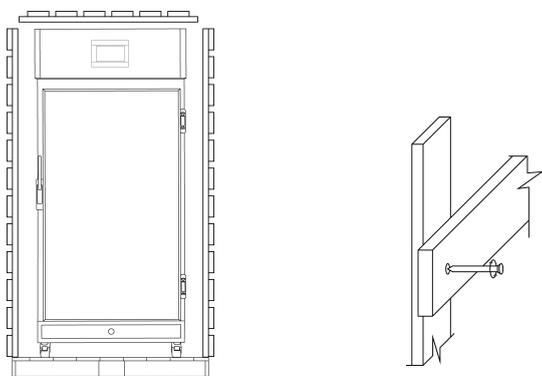


Fig 2 . Unpacking Process (Crate)

Moving

Moving the TMLR-200:

- Ensure that the TMLR-200 cabinet is rolled on an even and flat surface. Uneven surfaces can cause the incubator to fall over.

NOTE: TMLR-200 cabinets are 'Top Heavy'. Do not move the cabinet too quickly. (Fig 3 & 4)

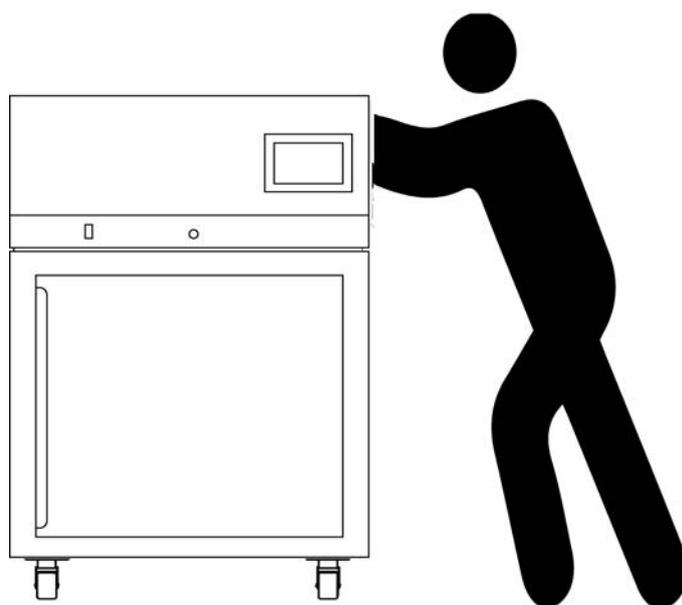


Fig 3 . Safe moving of cabinet.

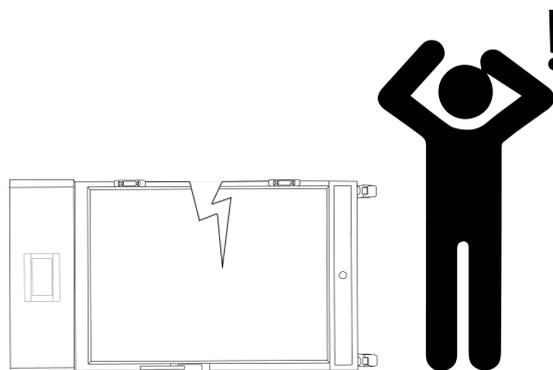


Fig 4.

Setup

Castors

The TMLR-200 cabinets are equipped with lockable castors to prevent cabinet movement.

Castor Setup:

- Ensure the TMLR-200 is placed on an even flat surface. Uneven surfaces can cause issues within the cabinet. Uneven surfaces can cause the cabinet to fall over or roll away with unlocked castors.
- Castors can be fixed in place by pushing down on the brake lever. Ensure the castors are locked to prevent unwanted movement from the drying oven (**Fig 1**).
- Ensure when placing the TMLR-200 into place that the castors can be accessed so they can be locked (**Fig 3**) and unlocked (**Fig 2**). Please contact your supplier or Thermoline should there be any damage to the castors.

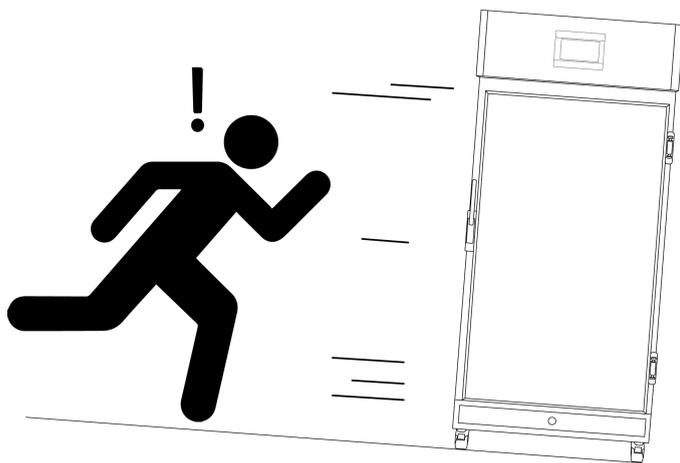


Fig 1.

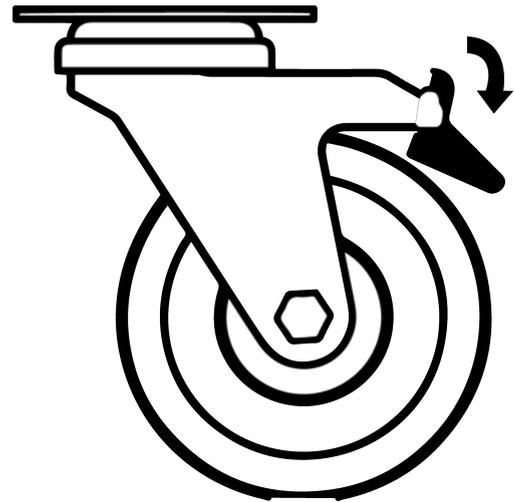


Fig 2. Castor Locked

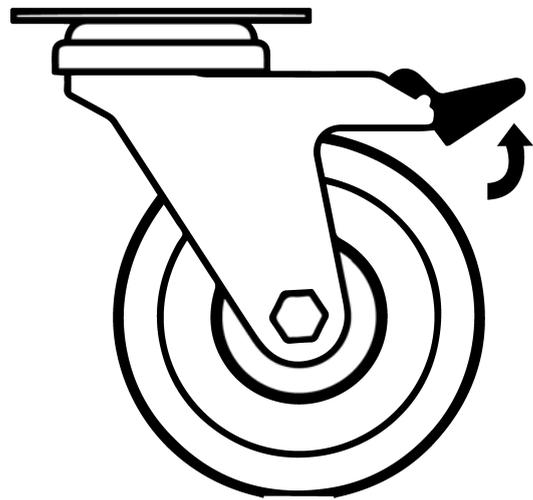


Fig 3. Castor Unlocked

Setup

Cabinet Location

Location Requirements:

- TMLR-200 cabinets require a level surface to operate correctly. **(Fig 1)**
- Do not store items on top of the cabinet.
- The TMLR-200 cabinet requires ventilation. Thermoline suggests 100mm on the sides and back, which also aids with accessibility **(Fig 3)**. 300mm at the top to also ensure good ventilation **(Fig 2)**.
- The cabinet door should also be allowed to open and close at full range **(Fig 3)**.

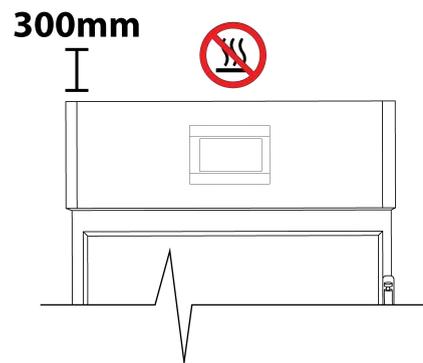


Fig 2.

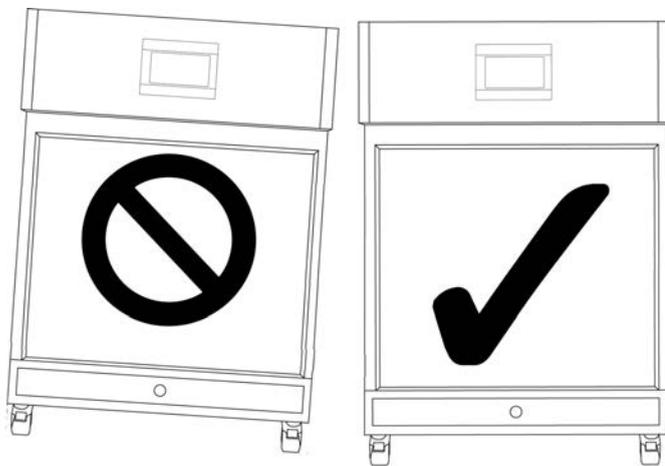


Fig 1 . Correct Levelling

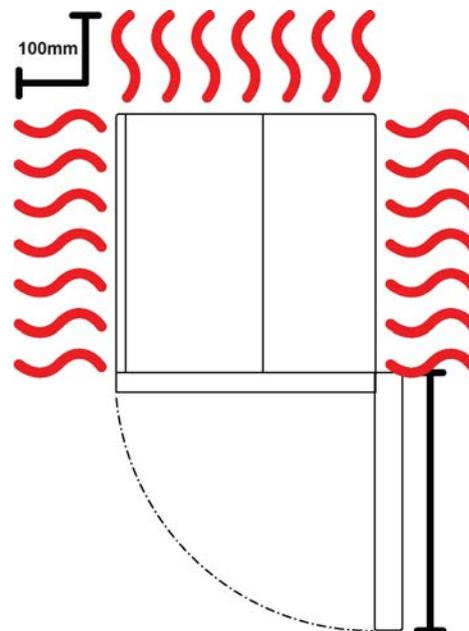
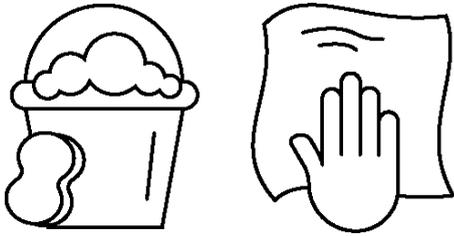


Fig 3.

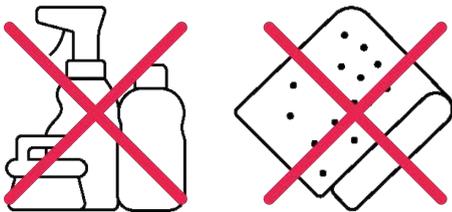
Setup

Cleaning

The interior, exterior, and door gasket can be cleaned as often as required using a soft cloth and soapy water. Never use abrasive cleaners or scouring pads as these will scratch the surface and may result in corrosion. Never use caustic type cleaning agents.

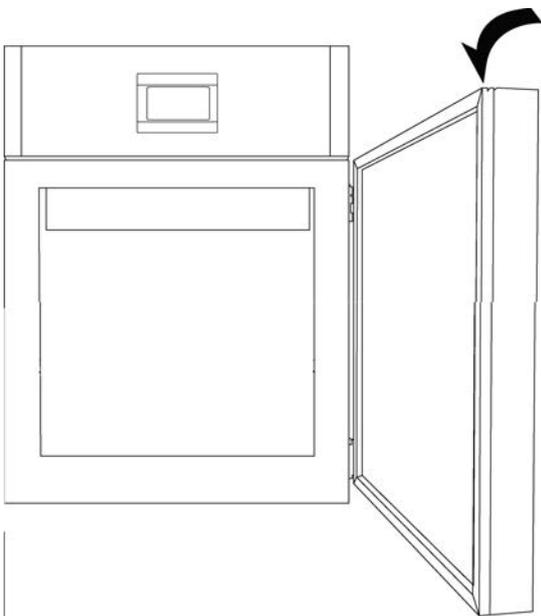


All cabinets have electrical components. These items should not be subjected to any levels of moisture.



Door Gasket

The door gasket should be cleaned regularly with a mild soap solution. If a gasket is to be replaced, please contact Thermoline Scientific. Regular inspection is recommended.

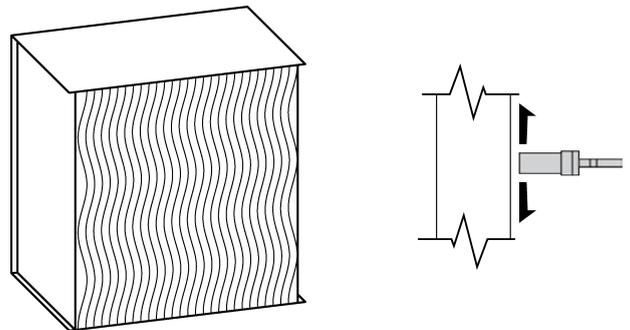


Turn off power at the power point before cleaning the condenser.

The condenser is located on the behind the front panel. To remove the panel simply lift upwards to remove. At this point you would have full access to the condenser and would be able to clean it.

NOTE: Use a soft brush and/or vacuum with a soft brush attachment to remove any build up of lint and/or dust. Take extreme care not to damage the aluminium fins on the condenser face.

NOTE: the touch screen will remain connected to the front panel. The cables are long enough to lay the panel on top of the cabinet while cleaning.



Port Hole

The cabinet comes equipped with a 54 mm port hole and a 13mm port hole. The 54mm port hole is used for the BMS lead.



Setup

Loading the TPS-18

The TMLR-200 is able to house the TPS-18 platelet shaker and supply it with power and a BMS connection.

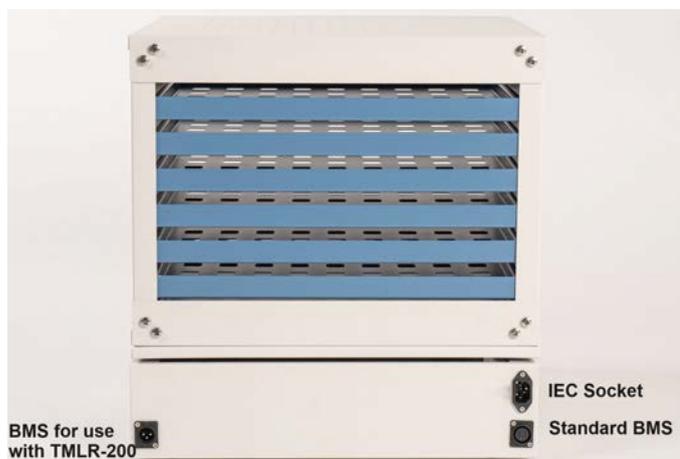
Thermoline suggests that this is a two-person job using a trolley to assist. The TPS-18 weighs approximately 29kg.



Supplied with the TMLR-200 is a power lead to connect the TPS-18 to the incubator. On the TMLR-200, there is a lead to connect to the special socket for BMS on the TPS-18. Both of these leads go through the 54mm port hole on the side of the TMLR-200.



Power down the TMLR-200 before installing the TPS-18. Plug the power lead into the port on the side of the TMLR-200 and feed both leads through the 54mm port hole. Using a trolley, bring the TPS-18 close to the open door of the TMLR-200 and connect the power and BMS leads. Carefully slide the TPS-18 into the TMLR-200.



Setup

Loading the TPS-18



Once the TPS-18 has been placed inside, pull the excess cable back out through the 54mm port hole. This will reduce the risk of the TPS-18 fouling on either cable while in operation.



Turn the TMLR-200 back on and start the agitation on the TPS-18. The heat generated by the TPS-18 helps control the internal temperature of the refrigerated incubator, so it should be left on at all times other than when it is being loaded with samples.

Setup Warnings



Castors can be fixed in place by pushing down on the brake lever. Ensure all castors are locked to prevent unwanted movement from the cabinet.

Ensure that the cabinet is rolled on an even and flat surface. Uneven surfaces can cause the cabinet to fall over and damage the product.

Failure to adhere to the requirements can lead to improper ventilation. Failure to observe these guidelines will void manufacturing warranty.

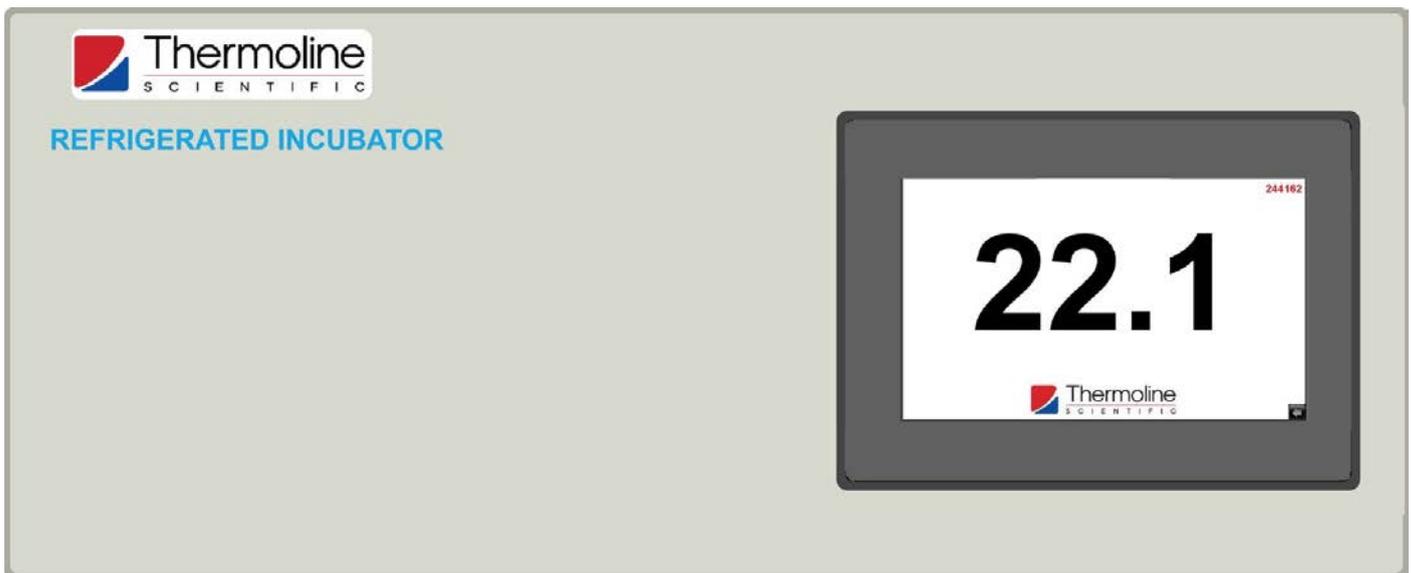
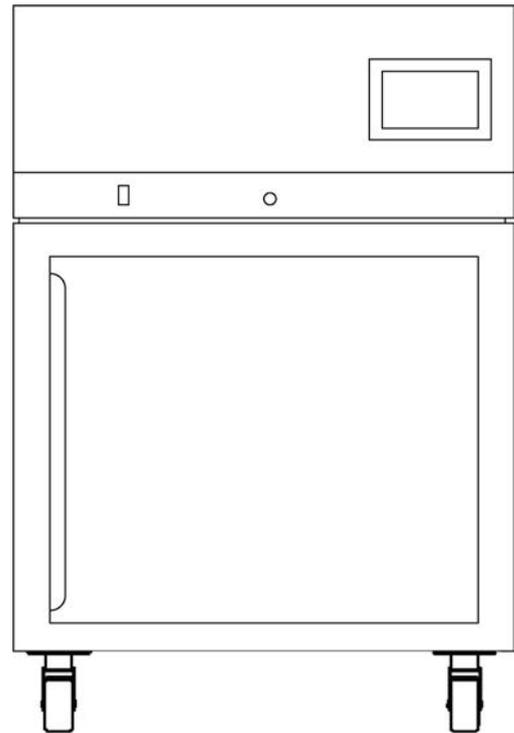


Packaging supplied on cabinets can be sharp and cause injury. Caution must be taken when removing the crate or using knives to cut tape and cardboard.

Start Up Procedure

Start-Up process for TMLR-200 cabinet:

- Before proceeding, please ensure that all internal and external packaging has been removed from the cabinet and that all tape, plastic bags and foam pieces have been removed.
- Take the supplied lead and plug it into the male IEC socket on the rear of the incubator. Next, plug the 3 pin plug into a 10 amp General Purpose Outlet.
- The controller will go through a warm-up period and then show the security screensaver (SOV mode).



Temperature Controller 

Factory Settings:

- Upon first start-up, the temperature will be set at 22.0°C.

Start Up Procedure

Security Screen Saver

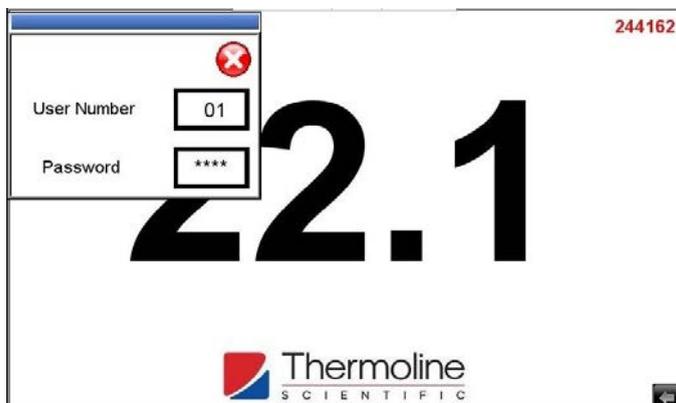
On initial power-up or any time the touchscreen has power cycled to it, the screensaver is displayed. Follow the instructions below to navigate this section and get to the Main Screen.



To exit the screen saver, you will need to input the security code. Press the Thermoline logo, as shown below, to access the passcode.

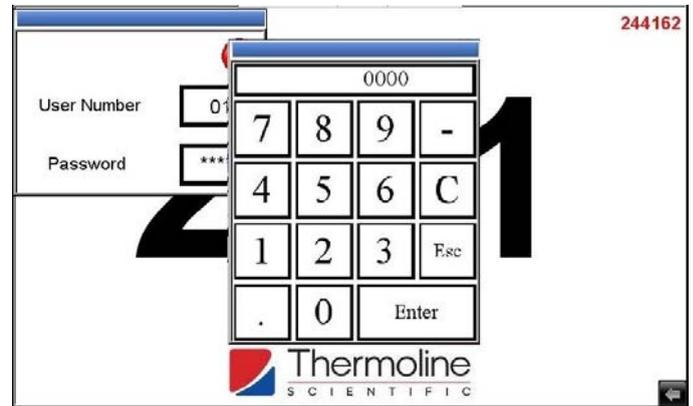


At this point, you should be seeing the User Access window shown below.

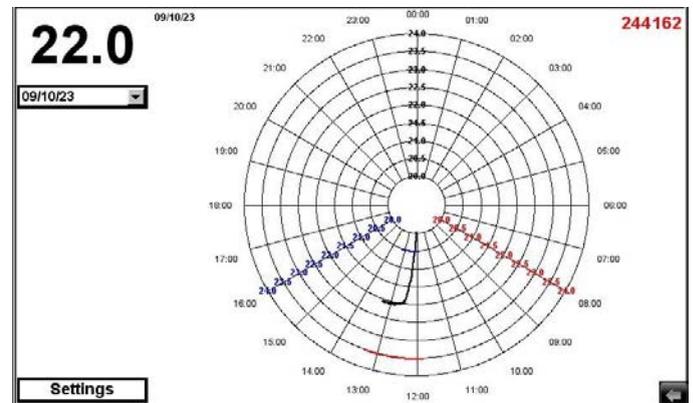


Pressing on the user number first the numeric keypad will pop up. Enter 01, then press enter. Press on the password and enter 1111 and again, press enter.

NOTE: For this section of the STAR 700 controller, use the User Number '01' and the Passcode '1111'.



After entering the passcode, press anywhere above the Thermoline logo to continue to the main screen and then close the User Access window.



Shut Down Procedure

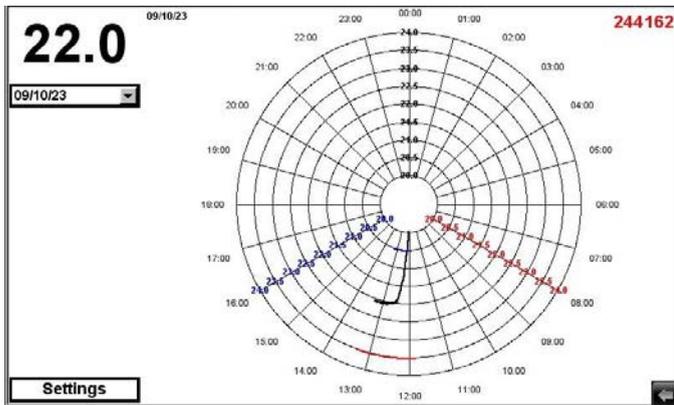
Shutdown process for the TMLR-200 cabinet:

- Because of the battery backed up alarm system just turning off the power will cause a power fail alarm to show on the screen.
- The power to the controller needs to be interrupted by pressing the red button and holding it in while turning off the mains power to the cabinet.



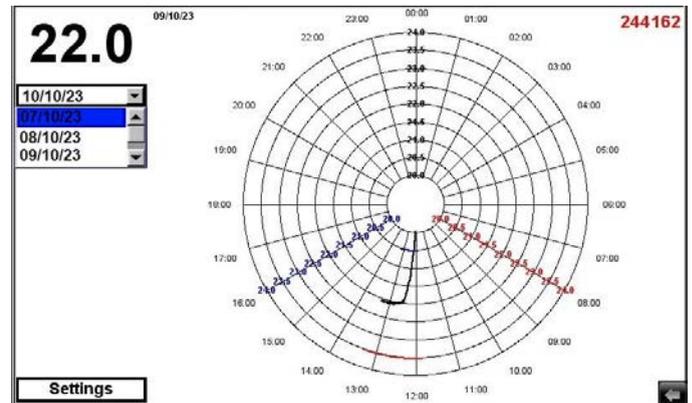
The temperature controller on the TMLR-200 is a STAR 700 touchscreen. The Thermoline STAR 700 has been designed and configured to provide ease of use and a suitable level of security. The STAR 700 has a unique identifier that allows traceability back to the instrument.

Main Screen



The temperature on the TMLR-200 is fixed at 22.0°C. The temperature shown in the top left corner is the block temperature.

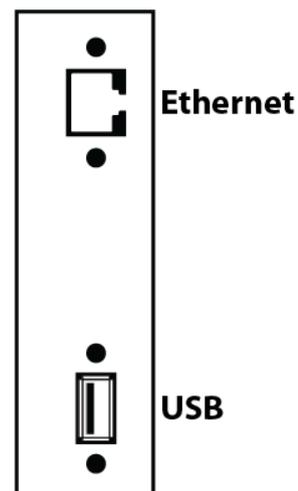
Also on the main screen is a circular chart of the performance of the cabinet. The red and blue lines are the high and low alarm points.



You can use the drop down menu to view data from different dates on the main screen. Select the date you require to view and the circular chart will automatically show the data for that date.

USB and Ethernet

The TMLR-200 comes with a built-in USB and Ethernet connection located on the left side of the touchscreen control panel. It can be identified by the diagram below.



Alarms

The STAR 700 is equipped with various alarms. The instructions below will run through each alarm and its primary function.

Power Fail: The STAR 700 has a controller battery backup in the event of a power failure. A fully charged battery will power the alarms and touch screen for approximately 24 hours. If the power loss is extended and you wish to turn off the cabinet and alarms, please use the shutdown procedure shown in the manual.

Battery Fail: Approximately every seven days the STAR 700 touch screen checks the battery health. If, during the 5-minute test, the battery voltage falls below 22vdc, a battery alarm will occur. If the alarm occurs, the battery may need to be replaced.

Door Alarm: The STAR 700 shows a door open message every time the door is opened. If the door is held open for more than 1 minute, the door alarm will trigger.

Shaker Alarm: The TPS-18 has an alarm that triggers if power is disconnected or if the TPS-18 stops moving. If power is disconnected to the TPS-18, the alarm will trigger immediately. If the TPS-18 stops moving but is still powered, the alarm triggers after one minute.

Temperature Alarm: The air temperature high/low alarm will trigger if the temperature within the cabinet exceeds 30°C or goes below 10°C. This is a latching alarm and will require the operator to acknowledge.

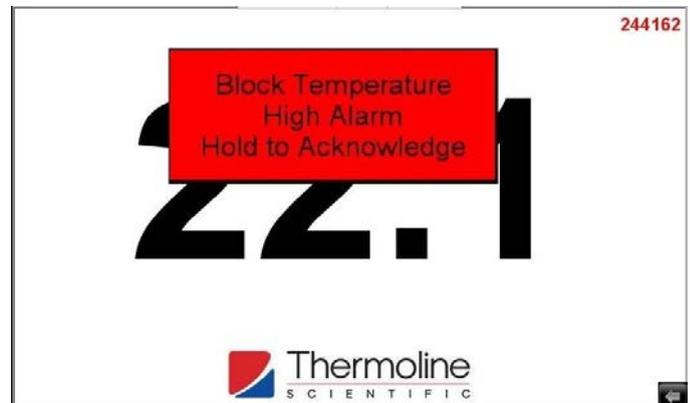
Ambient Air Alarm: The ambient air high/ low alarm will trigger if the air temperature within the cabinet exceeds 43°C or goes below 5°C. This is a latching alarm and will require the operator to acknowledge.

Latching Alarm: 'Latching alarm' means that if the alarm activates and subsequently the condition returns to normal, the alarm will remain *latched*, or visible, until the alarm acknowledge button is pressed. While the alarm can be muted, it will return in 15 minutes unless the condition has been resolved and the alarm is acknowledged.

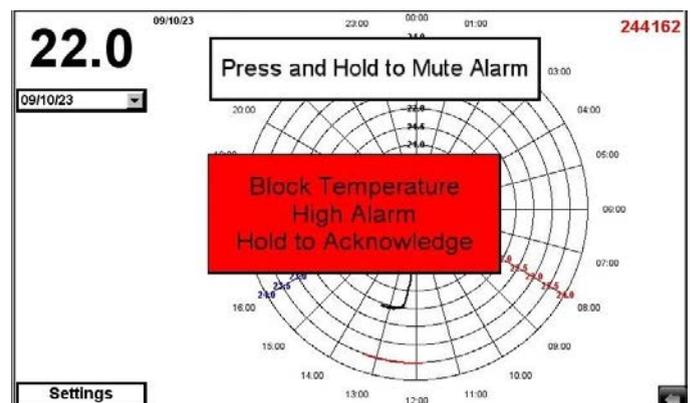
Temperature Deviation Alarm (block high and low alarm): The high alarm will become active if the temperature inside the simulated product block exceeds 23.5°C. This is a latching alarm and will require the operator to acknowledge. The high alarm can only be acknowledged if the block temperature is in its normal temperature range of 21°C to 23°C.

The low alarm will become active if the temperature inside the simulated product block falls below 20.5°C. This is a latching alarm and will require the operator to acknowledge. The low alarm can only be acknowledged if the block temperature is in its normal temperature range of 21°C to 23°C.

NOTE: If alarms and issues persist, please call a trained and qualified service technician.



NOTE: You must log into the main screen to mute and acknowledge alarms. Alarms can only be acknowledged once the condition has returned to a non alarm state.



USB Downloading

To download the logged data from the STAR 700 controller, simply insert a USB memory stick and the data is downloaded automatically. Do not remove the USB stick until all the data has been downloaded. The following messages appear on the screen when data is downloading and when it is safe to remove the USB memory stick. Data is logged every 1 minute. Using the unique identifier number, data can be traced back to the instrument.

Files are in daily formats. Each file name is the date backwards (YY/MM/DD). A maximum of 90 Days can be held on the screen and be downloaded.

The below screen is the USB screen saver indicating a USB memory stick has been inserted, and the historical data and alarm/events are being downloaded. This will happen automatically when a USB memory stick is inserted into the cabinet.

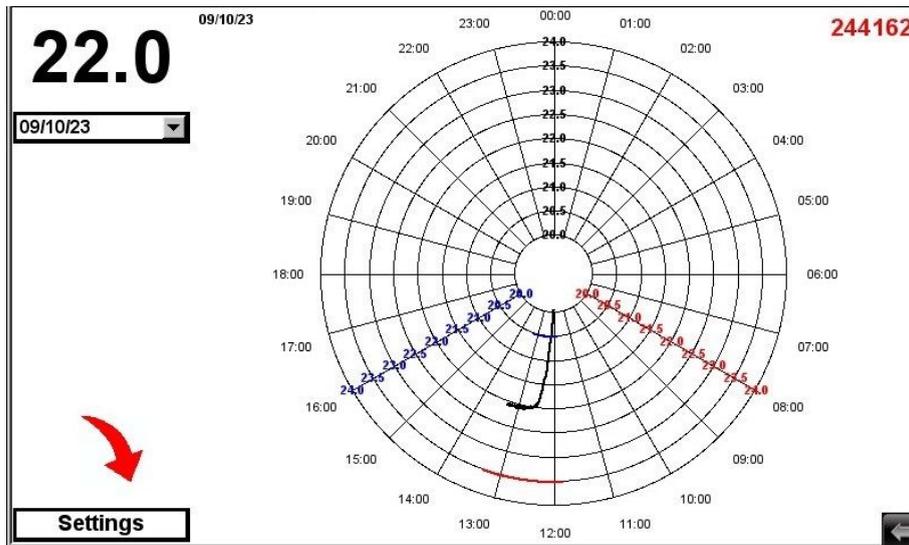


Once the data has been downloaded, the STAR 700 controller will notify you that it is safe to remove the hardware, as shown above.

NOTE: Downloaded data is formatted in comma-separated format (CSV). This can be easily opened in most spreadsheet programs.

Settings Screen

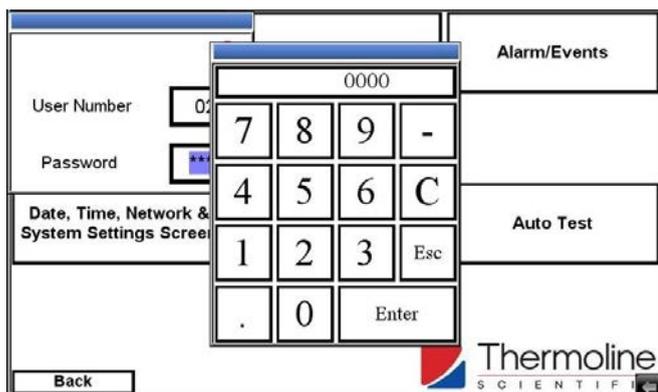
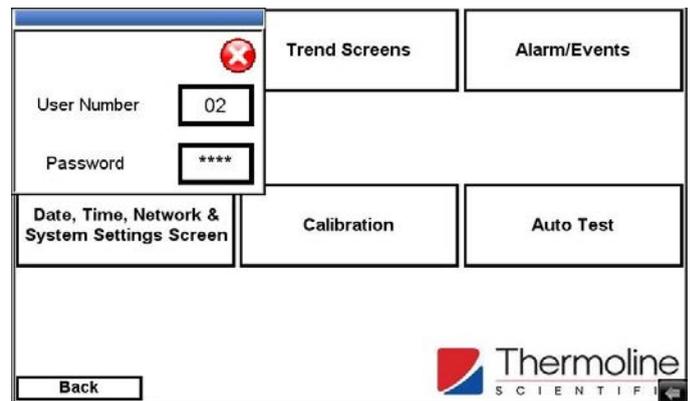
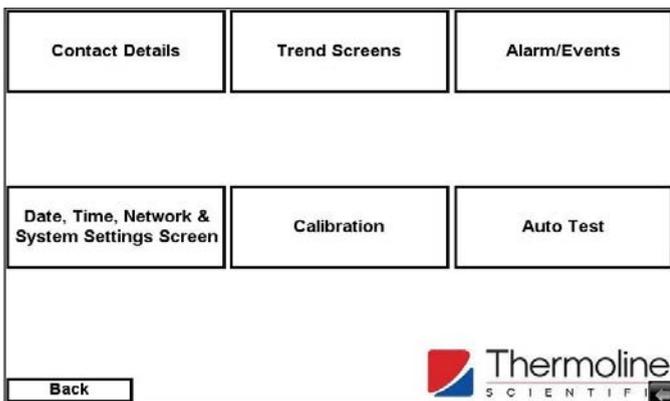
Below is the Main Screen. To access the settings from this screen, simply press the settings button located on the bottom left.



The next screen is the settings screen and is shown below. From here, you can access all other functions present on your STAR 700.

No additional passcode is needed to access the functions on the first row. Access to the bottom row options is passcode protected. To access, simply touch anywhere on the Thermoline logo in the bottom right corner, and the User Access window will appear. You will require **User Number 02** and **Passcode 2222**.

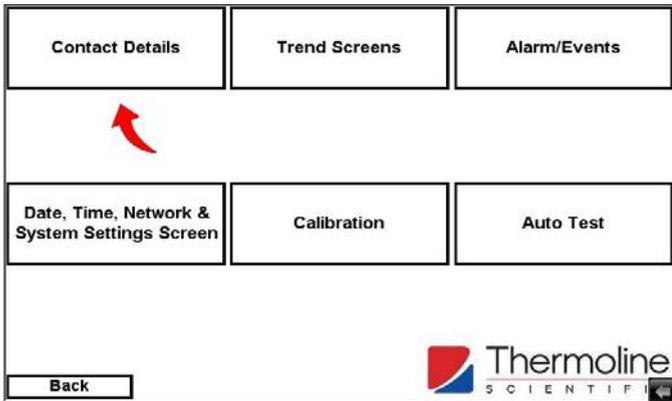
NOTE: After entering the 2222 Passcode you must then press your selection (before shutting the dialog box with the X) or the password will be required to be re entered.



NOTE: After exiting, you will need to enter the passcode again to access these sections.

Contact Details Screen

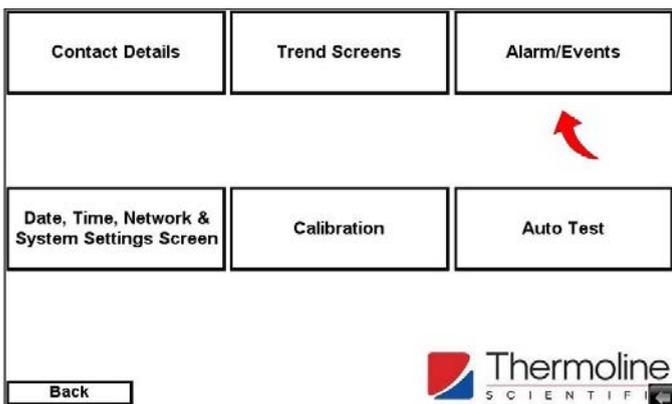
If you need to contact Thermoline for any reason, our contact details are available by pressing the Contact Details Screen button on the settings page.



Alarm/Events Screen

The Alarm/Events Screen is accessed via the settings menu. This screen records alarms and events that occur within the touch screen. Things such as logins, operator access to different screens and operator functions being activated and deactivated are all recorded on this screen.

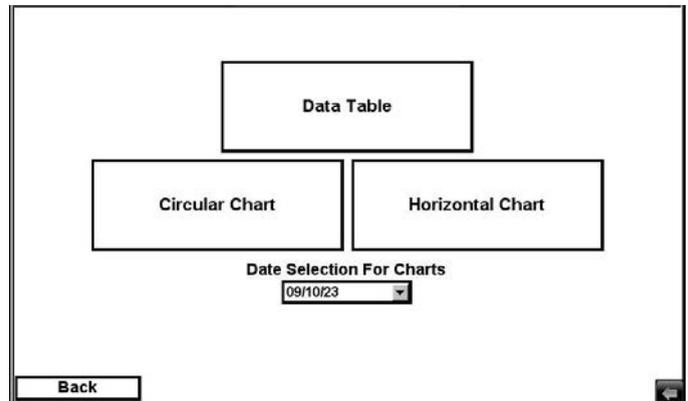
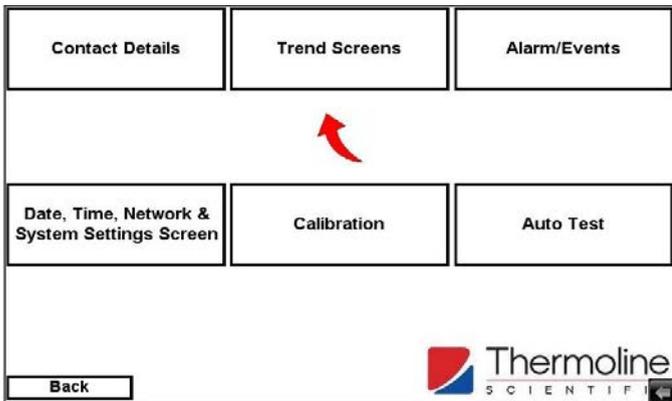
The below screen is the Historical Data and Alarm/Events screen. Entries highlighted in **RED** are when events or alarms occurred and entries in **GREEN** are when the Alarm/Event is normalised.



STAR 700 User Guide

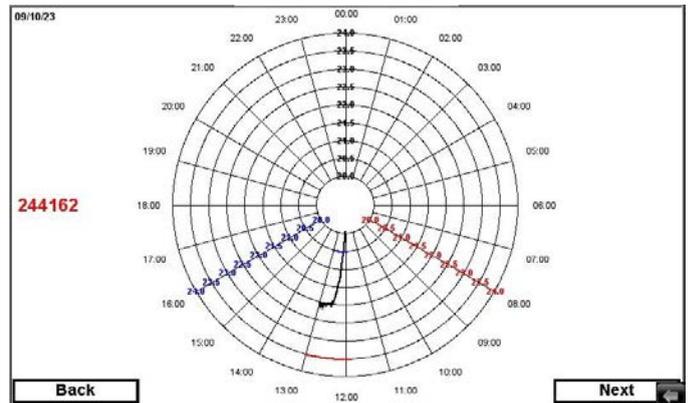
Trend Screen

There are three types of trend screens available. Two graphs and a data table. There is a circular chart and a horizontal chart. You can choose which of the three trend screens you want from the menu that will pop up after selecting the trend screens option from the settings screen. You also choose the date for the data from the drop down menu.



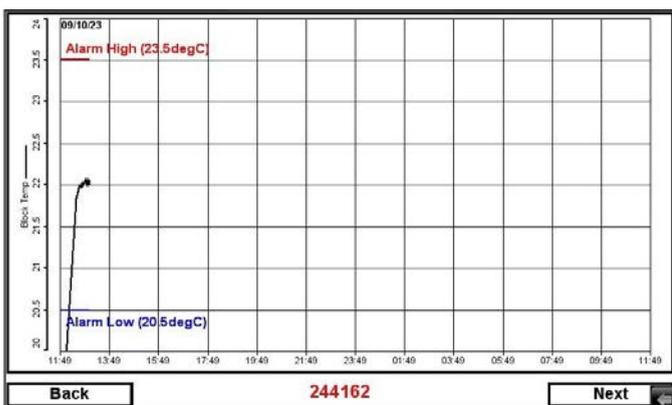
On the circular and horizontal charts there are three ranges that can be cycled through using the next and back buttons at the bottom of the screen.

72	12:00:28	09/10/23	022.0	022.0	-17.8	023.5	020.5	244162
71	12:59:28	09/10/23	022.0	022.0	-17.8	023.5	020.5	244162
70	12:58:28	09/10/23	022.0	022.0	-17.8	023.5	020.5	244162
69	12:57:28	09/10/23	022.0	022.0	-17.8	023.5	020.5	244162
68	12:56:28	09/10/23	022.0	022.0	-17.8	023.5	020.5	244162
67	12:55:28	09/10/23	022.0	022.0	-17.8	023.5	020.5	244162
66	12:54:28	09/10/23	022.0	022.0	-17.8	023.5	020.5	244162
65	12:53:28	09/10/23	022.0	022.0	-17.8	023.5	020.5	244162
64	12:52:28	09/10/23	022.0	022.0	-17.8	023.5	020.5	244162
63	12:51:28	09/10/23	022.1	022.0	-17.8	023.5	020.5	244162
62	12:50:28	09/10/23	022.0	022.0	-17.8	023.5	020.5	244162
61	12:49:28	09/10/23	022.0	022.0	-17.8	023.5	020.5	244162
60	12:48:28	09/10/23	022.0	022.0	-17.8	023.5	020.5	244162
59	12:47:28	09/10/23	022.0	022.0	-17.8	023.5	020.5	244162
58	12:46:28	09/10/23	022.0	022.0	-17.8	023.5	020.5	244162
57	12:45:28	09/10/23	022.0	022.0	-17.8	023.5	020.5	244162
56	12:44:28	09/10/23	022.0	022.0	-17.8	023.5	020.5	244162
55	12:43:28	09/10/23	022.0	022.0	-17.8	023.5	020.5	244162
54	12:42:28	09/10/23	022.0	022.0	-17.8	023.5	020.5	244162
53	12:41:28	09/10/23	022.0	022.0	-17.8	023.5	020.5	244162
52	12:40:28	09/10/23	022.0	022.0	-17.8	023.5	020.5	244162
51	12:39:28	09/10/23	022.0	022.0	-17.8	023.5	020.5	244162
50	12:38:28	09/10/23	022.0	022.0	-17.8	023.5	020.5	244162
49	12:37:28	09/10/23	022.0	022.0	-17.8	023.5	020.5	244162
48	12:36:28	09/10/23	022.0	022.0	-17.8	023.5	020.5	244162
47	12:35:28	09/10/23	022.0	022.0	-17.8	023.5	020.5	244162
46	12:34:28	09/10/23	021.9	022.0	-17.8	023.5	020.5	244162



Data Table

Circular Chart



Note: If the TMLR-200 has a USB drive inserted and option will show up on the circular and horizontal chart of "Print Screen".

If the print screen button is pressed a jpeg file of the current graph will be saved onto the inserted USB drive. If there is no drive inserted this option will not appear.

Horizontal Chart

System Settings Screen

NOTE: Use the User Number '02' and the Passcode '2222' to access this screen.

To access the system settings screen, simply press on the System Settings button in the Settings menu. From this screen, the user is able to see the Network Communication Parameters, Time, Date, Memory Information and Screen Saver Timeouts. The user is also able to change passcodes from this screen.

System Settings

Network Settings: This shows the network address once the touchscreen is connected to a network.

Time and Date Settings: To change the Time and Date, simply touch the parameter that needs to be changed and enter the current or required time and date.

NOTE: The STAR 700 does not adjust for daylight savings; this must be done manually.

NOTE: Remember this will be the time and dates stored on the data logging. If it is wrong, so will the time and date on the logged data.

Screen Timeout: Screensaver timeout and Backlight timeout can be adjusted. The screen saver timeout can be adjusted from 1 minute to 255 minutes. The backlight timeout can be adjusted from 0 minutes to 255 minutes. 0 minutes will disable the backlight timeout function and keep the screen illuminated.

Passcodes: Passcodes can be changed if needed. Passcode Number 1 is the passcode for User 1. This is the passcode required to exit the screen saver mode. Passcode number 2 is the passcode for user 2 and allows access to the calibration, System Settings page and the Program Screen.

NOTE: Thermoline takes no responsibility for lost/forgotten passcodes. If passcodes are forgotten, they cannot be retrieved. It will require a factory reset, which will erase all previously logged data.

Log Information: Memory Information shows the amount of memory left on the touchscreen before old data is lost. The number shown beneath indicates how many days of data storage you have; this can be as high as 365 days. The size of the raw data files is indicative of the amount of memory being used.

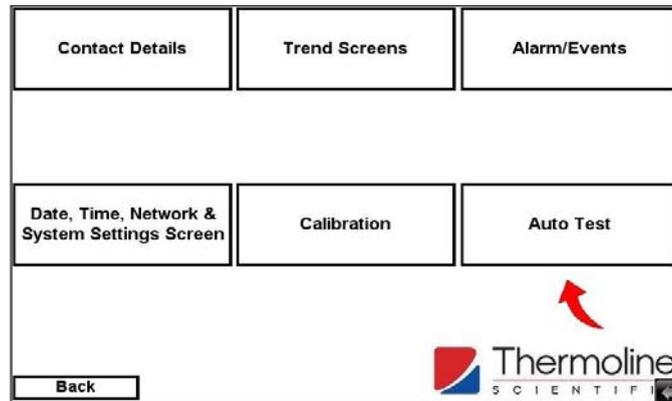
NOTE: The data erase button needs to be held for at least 10 seconds. This is a preventative measure to avoid accidental erasure.

LAN Connection

Thermoline cabinets that use the STAR X controller can be connected via a LAN connection to clone the screen so they can be viewed at a remote location. As standard, the STAR X is set to automatically assign an IP address when connected to an active network and is shown on the System Settings page. If a manual IP address is required, please contact Thermoline for additional instructions.

Auto Test

The TMLR-200 has been fitted with an auto test function that physically heats and cools the block but will not alter the temperature in the incubator. Access to the auto test screen is passcode protected. To access, simply touch the Thermoline logo, and the User Access window will appear.



NOTE: Use the User Code '02' and the passcode '2222' to access this screen.

Alarm Auto Test

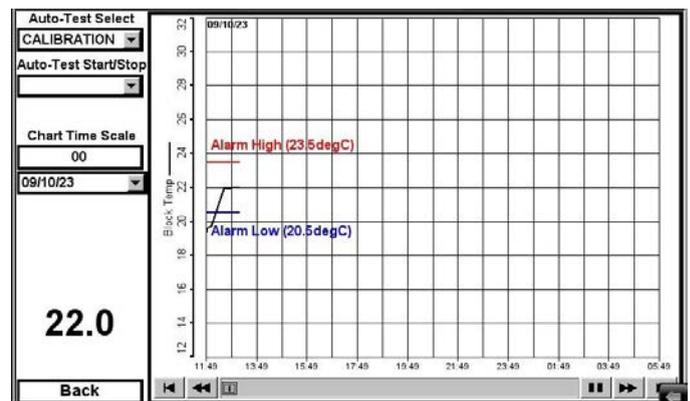
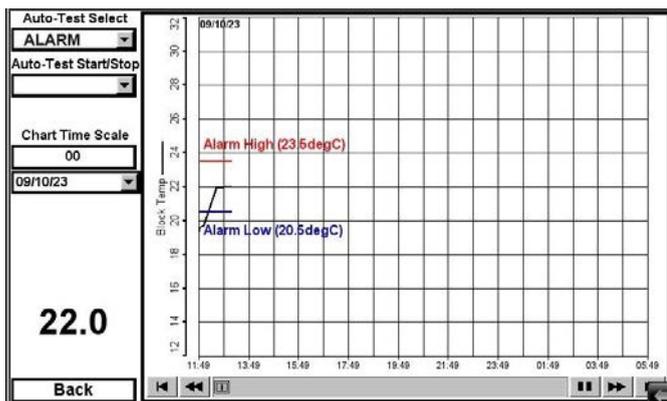
In most cases the alarm auto test will be used. The top drop down menu allows the operator to select whether they would like to do an alarm test or a calibration test. Select the required test and then use the Start/Stop drop down menu to start or stop the test.

The Alarm Test simply cools the aluminium block to 20°C and holds it for five minutes, then heats the aluminium block to 24°C and holds it for five minutes. The alarms should trigger at 20.5°C and 23.5°C. The total time for an alarm test is approximately 15-20 minutes.

Calibration Auto Test

The Calibration test will cool the sensor to 17°C and hold for 15 minutes and then heat to 27°C and hold for 15 minutes. Ideally a calibrated reference probe will also be installed into the aluminium block and used as a cross reference when the block is at 17°C and at 27°C.

This test allows for qualified technicians to test the linear accuracy of the block sensor. The total time for the calibration test is approximately 45-55 minutes.

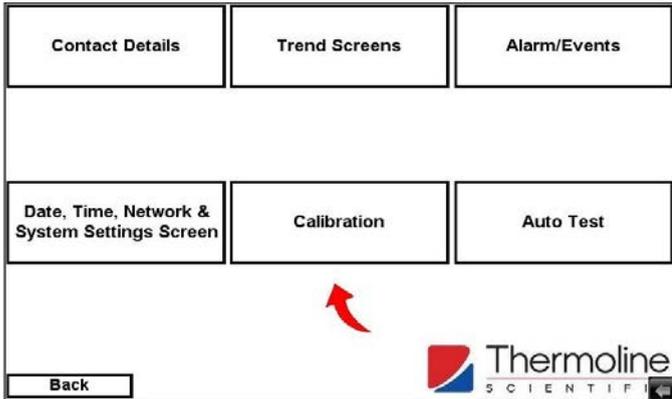


Calibration Screen

NOTE: It is advised that all calibrations be made by a trained service technician.

The Thermoline touchscreen has been fitted with a simple one-point calibration adjustment. Access to the Calibration Screen is passcode protected. To access, simply touch the Thermoline logo, and the User Access window will appear.

NOTE: Use the User Code '02' and the passcode '2222' to access this screen.

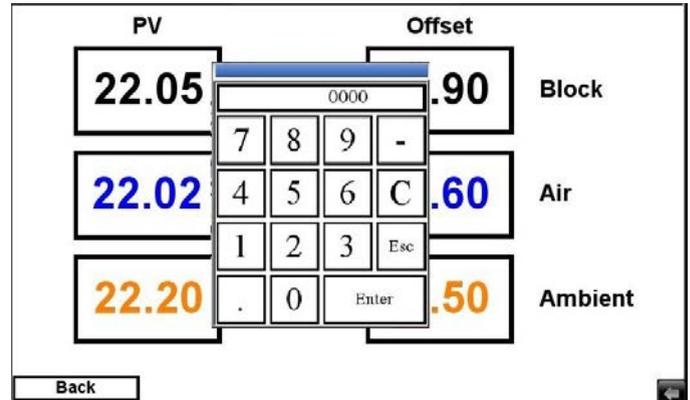


Calibration screen seen with associated values.



How to Calibrate

To adjust the calibration, simply press the offset window you require to adjust.



Use a calibrated reference device placed in the block and then compare that reading to value the screen. Then, enter the difference between the PV and your calibrated device. If the block sensor has been calibrated, the reading is not 22°C, then adjusting the air offset will allow you to modify the control setpoint to bring it into range.

NOTE: The calibration auto test mentioned previously only allows you to check on the linear accuracy of the block probe.

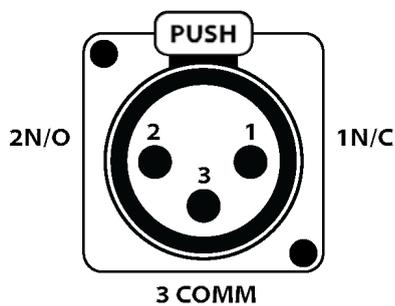
BMS Output

The TMLR-200 cabinet is fitted with a 3-pin socket to allow for connection to a building monitoring system or phone dialler. A plug is also supplied separately to connect the socket to your system.

The alarm contacts have no voltage, but we recommend that a suitably qualified technician connect the wiring.

An alarm can be triggered by the following:

- Loss of power
- High and low temperature alarms
- Door ajar alarm



1N/C: Will open loop upon alarm situation. This is the optimal option, as any break in the loop is detected.
2N/O: Will close loop upon alarm situation.
3COMM: At least one wire is connected to this pin.



Location of BMS socket

Troubleshooting

Problem	Fix	Part Number
Battery Alarm still occurs every 7 days, even after being acknowledged and reset.	One of the back up battery's voltage could be low. The battery needs to be replaced	70320 - Sealed Lead Acid Battery Backup (12V 9.5A)
I cannot acknowledge the alarm.	Alarm Condition Is the chamber still in the alarm condition? This will need to be fixed before the alarm can be properly acknowledged. Muting the alarm will only do so for 15 minutes. Once the issue has been fixed, to acknowledge the alarm, you will need to press and hold the alarm acknowledgement down for 10 seconds.	

Troubleshooting

Technical and Repair Support

When contacting Thermoline regarding information about the product, it is important to have the Serial Number and other related information with you. The serial number is on a silver sticker, usually located near the power IEC socket.

Contact Thermoline service on +61 2 9604 3911 or email at service@thermoline.com.au



ABN 80 000 859 129
SALES AND MANUFACTURING
10-12 Ross Place, Wetherill Park NSW 2164 Australia
Phone: +61 2 9604 3911 Email: sales@thermoline.com.au



Model:
Serial No:
Watts/Amps:
Volts:

Have the following information available when you contact the service department. Model number and serial number. This is generally found on the exterior of the cabinet in the form of a stick-on label. The company name, address, contact name, contact phone number. A brief description of the problem. All warranty claims must be reported to, and agreed to by a Thermoline representative prior to any work being carried out.

Standard 24 Month Warranty

Thermoline Scientific Equipment Pty Ltd ABN 80 000 859 129 ('Thermoline')

Thermoline warrants to the original purchaser that this product will perform to its product specification for a period of 2 years from date of purchase, provided that the installation of the product has been carried out in accordance with the latest version of the manufacturer's instructions and further provided that the use of the product complies with that specified in the relevant specification. Thermoline is not responsible for any loss or damage arising from incorrect usage, usage outside the suitability of the product as stipulated in the manufacturer's instruction, damage caused by accident, fire, flood, act of God or failure to properly install, operate or maintain the goods in accordance with the printed instructions provided.

The following statement applies only to product sales that fall within the definition of a Consumer Sale set out in the Australian Consumer Law contained within the Competition and Consumer Act (Cth) 2012:

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure. Notwithstanding the preceding clause and to the extent permissible by law, the liability of Thermoline is limited, in relation to the warranted product and at the option of Thermoline to:

Replacing the product or the supply of equivalent product;
The repair of the product;
The payment of the cost of replacing the product or of acquiring equivalent product; or
The payment of the cost of having the product repaired.

To the extent permitted by law, all other warranties whether implied or otherwise, not set out in this Warranty are excluded and Thermoline is not liable in contract, tort (including, without limitation, negligence or breach of statutory duty) or otherwise to compensate the Purchaser for:

any increased costs or expenses;
calibration/certification services;
any loss of profit, revenue, business, contracts or anticipated savings;
any loss or expense resulting from a claim by a third party. Any special, indirect or consequential loss or damage of any nature whatsoever caused by Thermoline's failure in complying with its obligations or the purchaser's failure due to accident damage, impact, misuse or negligence.

The benefits given to the purchaser in this Warranty are in addition to other rights and remedies under a law in relation to the products or services to which this warranty applies. This warranty applies only to products purchased and installed in Australia and does not cover any consumable items e.g. filters, light globes, ultrasonic nebulizers. The warranty does not extend to labour and freight costs where the warranted product is located outside Australia.

To make a warranty claim, contact Thermoline on 02 9604 3911 or service@thermoline.com.au.

We are proudly Australian owned

We will continue to invest in Australian
manufacturing.

