

Solar Powered Blood Bank Refrigerators



General Features

The Solar Blood Bank Refrigerator is a dual powered refrigerator works on solar cells and electricity to give power to refrigerator using power obtained from Solar photovoltaic cells and electricity. Temperature range from 2 to 6 °C with micro controller based temperature controller includes digital temperature display of set value and process value with 48 hours Temperature and controller backup. Works at WHO solar reference period 3.5kWh/m²/24hr. Recommended solar array size of at least 600Wp, the refrigerator will operate with just 125W/m² of solar radiation available. Solar direct drive refrigerator. Input Voltage: 24 to 45 VDC. Built-in handle with lock, strong metal hinges, heavy duty castors for easy handling Stacking baskets for easy-access stock management

Cabinet Construction

- 1.The cabinet of MEDITECH refrigerators is insulated with high density CFC free Poly Urethane Foam 60 mm thick insulation.
- 2.Interior chamber is finished resistant stainless Steel (304, 0.8 mm thick).
- 3.The exterior is Sky Blue/white Pure Polyester powder coated (1.0 mm thick) Mild Steel and the door has a magnetic gasket with a keyed lock.
- 4.Stainless steel trays are provided for storage inside.
5. The refrigerators are provided with handle and lock for safety and security.

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Specification Reference: BTS/RFS.3

Purpose of Equipment: A refrigerator for the storage of whole blood/red cell packs in a blood bank

Type of Equipment: Compression refrigerator which uses CFC free refrigerant gas and electricity from solar energy

Laboratory Test Procedure: Standard Test Procedure: BTS/ Proc/ 5

Construction: Chest type

Internal : Stainless Steel 304 lining Or Corrosion Resistant Steel.

External: Corrosion Resistant (CR at least 1mm thickness) CFC-free insulation

Blood pack racks for easy packing or retrieval of packs

Solid door

Electrical Characteristics: Input voltage: Direct Current to Required Voltage. Direct Current to Required Voltage Equipment meets electrical safety specifications such as that of IEC

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Minimum Compressor Starting Voltage: 22% below nominal

Voltage. Minimum starting power - 40W refrigerator and 40W freezer

Internal Temperature Control: Electronic temperature control,
range +2 °C to +6 °C with setting accuracy of ± 1 °C whatever the load

External Ambient Temperature: Performs in an ambient

Temperature of up to +43 °C and 60% humidity.

Hold-Over Time*: A full load of blood packs at +4 °C (± 1 °C)

takes at least 2 hrs to rise to above +6 °C. 83 hr 42 min at +43°C ; 122 hr 34 min at +32°C. Holdover time as per DIN 8985. As per WHO PQS protocol (+2°C to +8°C with minimal sun and at max temp.) 77 hr 57 min at +43°C; 118 hr 51 min at +32°C

Cooling Down Time*: A full load of blood packs at +37 °C

takes a maximum of 10 hrs for all the packs to reach below +6 °C

Provision to connect to AC power supply

Description	MTBBR1	MTBBR2	MTBBR3	MTBBR4	MTBBR5	MTBBR6
Capacity in Litres	100 Ice pack 0.6 litres x 6 nos	150 Ice pack – 0.6 litres x 9 nos	200 Ice pack – 0.6 litres x 12 nos	300 Ice pack 0.6 litres x 18 nos	400 Ice pack – 0.6 litres x 24 nos	500 Ice pack 0.6 litres x 30 nos
Temperature	Refrigerator from 2 to 8 degree C (settable) and -20 to -40 Freezer					
Power Supply	12-45 volts . Provision to connect to AC power supply and Provision to connect to mains electricity					
Controller and Display	PLC based LED Controller					
Overall Dimension (mm)	568x560x845	760x560x845	980x560x845	1055x735x835	1440x620x835	1640x620x835
Net weight (kgs)	40	44	48	60	77	86
Wheels	Heavy Duty swivel caster wheels					

Advance LED based PLC Based Controller



Scrolling LIVE Data logger on LED screen

1. Temperature
2. Incoming Voltage
3. Ambient Temperature
4. Time in hours of revolution chart
5. Current Date
6. Current Time
7. Battery Voltage









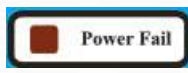

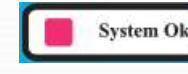
LED INDICATION

1. Line In
2. Power
3. Comp On
4. Heater On
5. Battery On
6. Battery Low
7. Temp High
8. Temp Low
9. Power Fail
10. Sensor Fail
11. System On

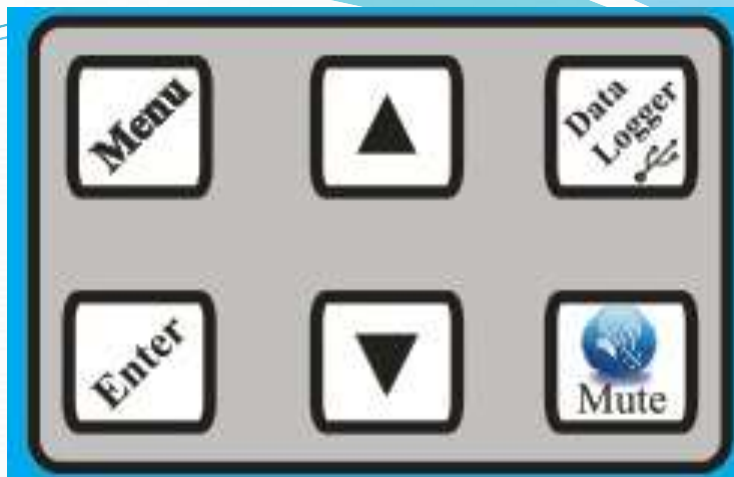
User Friendly Settings










1. Date
2. Time
3. High Temp Alarm
4. Low Temp Alarm
5. Hysteresis
6. Compressor Delay

6.0 LED Indicators

Sl.No	Photos	Function Indication
1.		This LED is on when there is a power supply to the machine from the main source
2		This LED is on when the Controller is in working condition.
3		This LED is on when the compressor is in working condition
4		This LED is on when the heater is in working condition
5		This LED is on when the battery is in working condition
6		This LED is on when the battery is discharged
7		This LED is on when the inside compartment temperature of the refrigerator is high above the set temp
8		This LED is on when the inside compartment temperature of the refrigerator is Low below the set temp
9		This LED is on when there is power failure.
10		This LED is on when there is sensor fail
11		This LED is on when all functions of the System is in working condition

7.0 Keypad Functions



Sl.No	Photos	Function Indication
1		The Menu button is pressed to enter into MENU option.
2		The Enter button is pressed to enter into “ENTER” option.
3		The Up Arrow button is pressed to go Upwards in the menu option.
4		The Down Arrow button is pressed to go Downwards in the menu option.
5		The data logger is pressed to get the data from the PLC to the computer
6		The MUTE button is pressed to MUTE any Alarms and sounds
7		The Door Open LED is activated along with the buzzer sound indicating the Door Open function
8		The ON button is pressed to switch on the refrigerator
9		The USB is provided to connect the Refrigerator to the computer system.