skcbiotech™

USER MANUAL

Refrigerator · Freezer User Manual

7-inch Touch Controller · Inverter Type

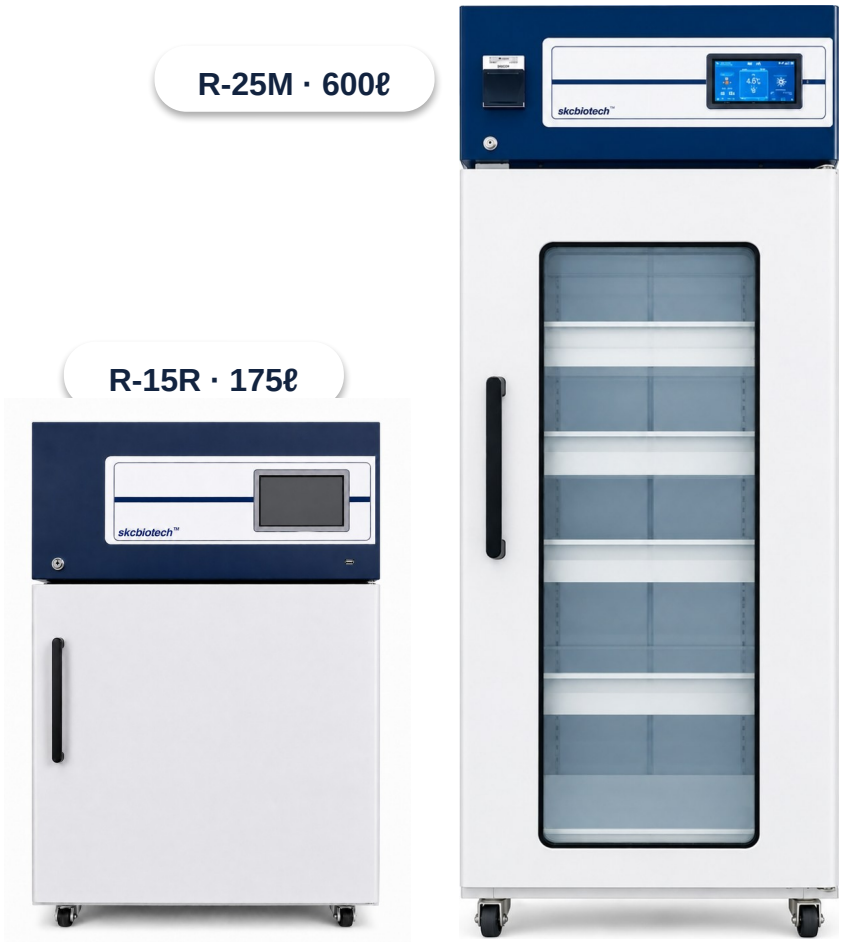
R-M Series Pharmaceutical Refrigerator

R · F · RF Series Reagent Refrigerator · Freezer · Combination

Read this manual completely before use and keep it for future reference.

SKCBIOTECH Co., Ltd.

INVERTER REFRIGERATOR · FREEZER



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From safety instructions to controller operation, inspection and warranty, in order.

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Products Covered by This Manual

Common manual for 7-inch touch controller units: operation is identical; only temperature range and specs differ.

R-M

+2 ~ +8℃

Refrigerator for vaccines and refrigerated pharmaceuticals

R

+2 ~ +8℃

Filter-type reagent refrigerator for reagents and samples

F

−15 ~ −20℃

Filter-type reagent freezer for reagents and samples

RF

Refrigerator + Freezer

Reagent cabinet with separate refrigerator and freezer chambers

Common

Inverter · Sealed circulation · 7-inch touch · USB records

Reagent cabinets (R · F · RF)

Corrosion-resistant · Gas filter · Adj. shelves

Do not store

Food, drinks, flammable or explosive items

Reading the Safety Labels

These instructions protect users from injury and property damage. They are grouped into three levels by degree of risk.

WARNING — Failure to follow may result in death or serious injury

CAUTION — Failure to follow may result in injury or property damage

NOTICE — No risk of injury, but needed to protect the product and stored items

Symbols used in this manual



Hazard or caution required



Prohibited action



Mandatory action



Grounding to prevent electric shock and failure

Warnings

WARNING Risk of death or serious injury

Keep children from entering or operating the unit
A closed door seals the unit and may cause suffocation.

Do not touch the plug or unit with wet hands
Risk of electric shock.

Have a technician replace a damaged power cord
Continued use may cause electric shock.

Test the earth leakage breaker at least twice a month
A faulty breaker may cause fire or electric shock.

Always ground the unit during installation
Without grounding, failure or electric shock may occur.

Install indoors only
Rain or water may cause electrical leakage or shock.

Do not store flammable or explosive substances
The unit is not explosion-proof; this may cause explosion or fire.

Do not spray water directly on the unit
May cause electrical leakage or shock.

Do not disassemble, repair or modify the unit
Risk of fire, electric shock or injury.

Use a dedicated outlet with rated power (220V~, 60Hz)
Power strips and extension cords may cause overheating or fire.

Cautions

CAUTION Risk of injury or property damage

Move the unit with a forklift or at least 4 adults
Forcing it may cause injury or damage.

Prevent tipping and cord damage when moving
May cause electric shock, fire or injury.

Wear work clothes and gloves during installation
Prevents clothing from getting caught and hand injuries.

Clean the plug and insert it fully
Pull by the plug, not the cord, when unplugging.

Install in a dry place where water does not collect
Moisture may cause electrical leakage and failure.

Leave at least 30cm above and at the sides
Space for inspection and parts replacement.

Do not place objects on top of the unit
Objects may fall and cause injury or damage the unit.

Do not put your hands under the unit
May cause injury.

Cut the power during thunder and lightning
Damage from natural disasters is not covered by the free warranty.

Do not leave the door open for long
The internal temperature rises and stored items may be damaged.

Choosing the Installation Site

30cm or more

Inspection space above and at sides

For easy inspection and parts replacement

10cm or more

Between rear/sides and wall

Ventilation and less vibration noise

220V~ 60Hz

Grounded dedicated outlet

Check the voltage before connecting

Indoors: keep away from rain and water.

Dry place: water must not collect on the floor.

No flammable materials near the installation site.

Level and firm floor: place the unit horizontally.

Direct sunlight and heaters: keep the unit away from them.

Glass doors may form condensation in humid places.

Checking the Ground

Case 1

220V outlet with ground terminal

With an AC 220V outlet with a ground terminal, no separate grounding is needed.

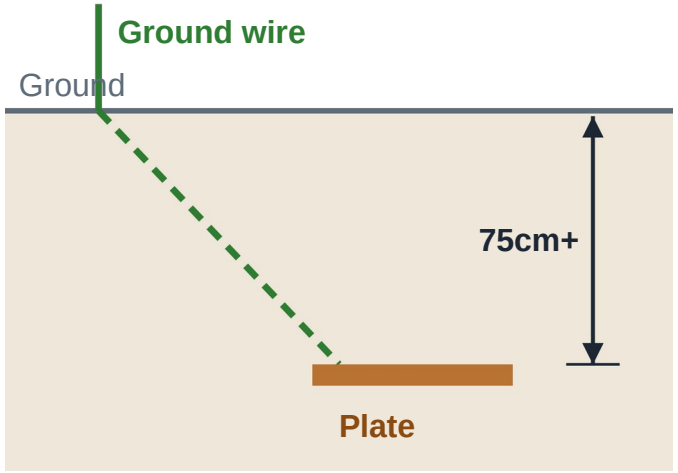
Always check whether the outlet is grounded before installation.

Case 2

Building without ground wiring

Connect the ground wire to a copper plate buried 75cm+ deep in moist soil.

Copper plate: 0.7mm thick, 900cm² area



WARNING Do not ground to gas pipes, water pipes or telephone lines. Have grounding work done by a qualified electrician.

First Use

1

Install

Place the unit level on a firm floor.

2

Ground & power

Check grounding and plug into a dedicated 220V~ outlet.

3

Power on

The lock screen appears and cooling starts at the factory setting.

4

Check stability

Run empty and confirm the set range is held for two days in a row.

5

Start storage

Load items once the temperature is stable.

NOTICE

Depending on factory settings, alarms start working a set time after first power-on (R-M: **2 hours**). This prevents unnecessary alarms while the temperature is coming down.

Parts and Names

Temperature recorder
R-M standard (HPP-250) · Option for others

Key lock
Key box type lock

Door handle
Opens and closes the door

Glass door (option)
Condensation may form in humid places



Touch controller
7-inch screen · Temperature setting, alarms, records

Machine compartment
Do not open or disassemble

Internal circulation fan
Circulates cold air evenly · Do not block

Sliding shelves
Pull forward to remove · See specifications for count

Casters · For moving

SKCBIOTECH · Refrigerator & Freezer User Manual · Photo: R-15M (may vary by model)

Specifications

Products with the 7-inch touch controller
Each cell: Model · Capacity · Power consumption

Series	Set temperature	Size 15	Size 25	Size 45
Dimensions (W×D×H)	mm	650 × 690 × 1,060	742 × 815 × 1,940	1,260 × 815 × 1,940
R-M Pharmaceutical	+2 ~ +8℃	R-15M · 175ℓ · 160W	R-25M · 600ℓ · 160W	R-45M · 1,200ℓ · 320W
R Reagent refrig.	+2 ~ +8℃	R-15R · 175ℓ · 160W	R-25R · 600ℓ · 160W	R-45R · 1,200ℓ · 320W
F Reagent freezer	−15 ~ −20℃	F-15R · 175ℓ · 220W	F-25R · 600ℓ · 220W	F-45R · 1,200ℓ · 440W
RF Reagent combo	Ref. + Freezer	—	RF-25R · 210+210ℓ · 250W	RF-45R · 600+600ℓ · 430W
Weight	kg	80	130 (RF-25R 135)	210
Shelves	Sliding	5 tiers	5 tiers (RF-25R 4 tiers)	10 tiers

Common specifications

Inverter compressor · Indirect cooling · Sealed circulation · 7-inch touch controller · 220 VAC 60Hz

R-M Series

Uniformity ±1.5℃ · Rated current 2.7 / 2.7 / 5.4A

Controller Screens



Lock screen

Appears first at power-on. Shows the internal and set temperatures.



Monitor

Appears after unlocking. Shows sensor temperatures and output status.



Setup

Sets temperature (Set_Temp), alarms (Set_Alarm), permissions (Permission) and control (Ctrol).

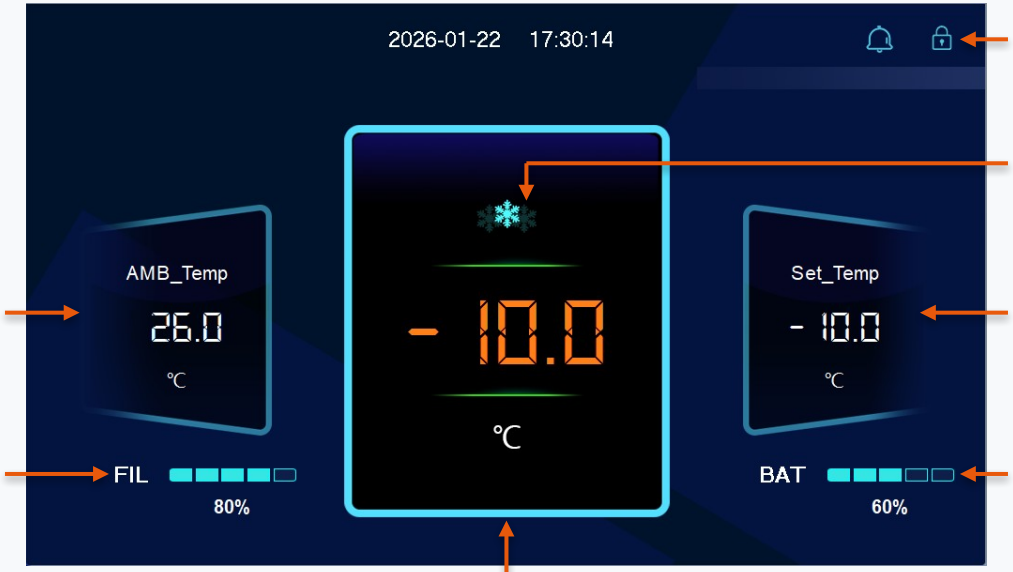


Data

Shows alarm logs, event logs, temperature history and graphs.

NOTICE Use the tabs at the top (Monitor · Data · Setup). The factory settings screen is for service technicians only.

Reading the Lock Screen



Top bar
Date/time, alarm (bell), lock (padlock)

Cooling indicator
Compressor running

AMB_Temp · Ambient temperature
VOCs concentration (ppm) when VOCs function is used

Set_Temp · Set temperature
Target temperature set by the user

FIL · Filter life remaining
When the filter function is used

BAT · Battery level
When the power-failure battery is used

Internal temperature · Currently measured

Unlock	Tap the center temperature or padlock and enter the password to open Monitor.	**Initial password: [ ]** Admin only

User Permissions

Permission function OFF (default)

One lock screen password opens the screen.

Permission function ON

Tap 'Not logged in' at top right, select a user and enter the password. Who changed what is recorded in the event log.

The administrator account has no password at first

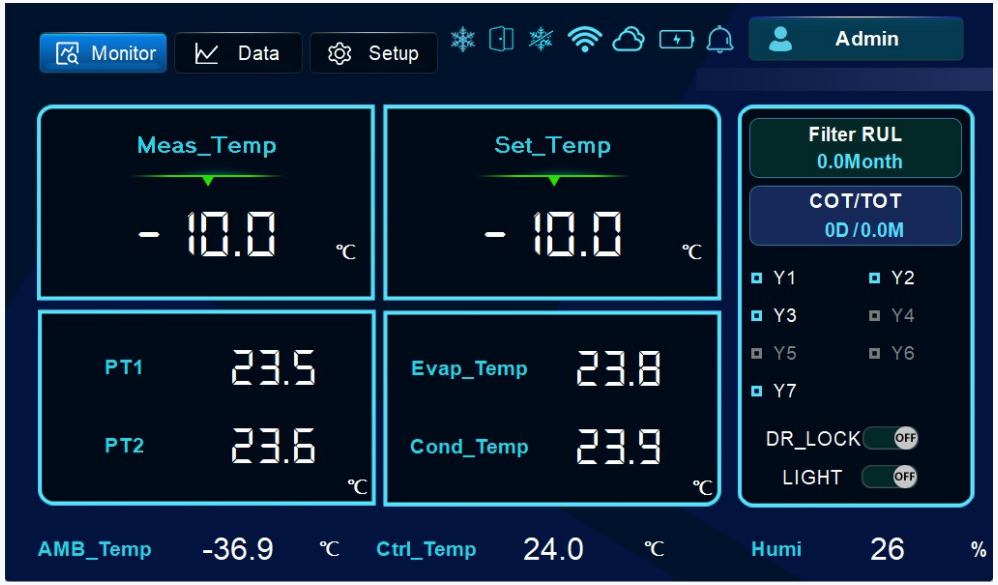
Set the admin password first when enabling permissions.

Permissions that can be given to users

Permission	What it allows
Temperature setting	Change the set temperature
Alarm setting	Change alarm thresholds and delays
Control parameters	Lighting, screen saver, auto logout, etc.
Export	Export records to USB
Delete	Delete alarm logs, event logs and history data
Permission management	Grant permissions to other users

Only the administrator can grant 'Permission management'. New users are created with all permissions off.

Reading the Monitor Screen



Top icons

A red dot on the bell icon means there are unchecked alarms. Tap it to go to the alarm log. The padlock icon locks the screen again, and the logged-in user is shown at the far right.

Display	Meaning
Meas_Temp	Measured internal temperature
Set_Temp	Set temperature
PT1 · PT2	Auxiliary temperature sensors
Evap_Temp	Evaporator temperature
Cond_Temp	Condenser temperature
AMB_Temp	Ambient (room) temperature
Ctrl_Temp	Control reference temperature
Humi	Humidity (%)
Filter RUL	Filter life remaining
Y1 ~ Y7	Output status (blue on · gray off)
DR_LOCK · LIGHT	Door lock · Light switch

Setting the Temperature



STEP 1 Unlock the screen or log in.

STEP 2 Tap the **Setup** tab at the top.

STEP 3 Select the **Set_Temp** menu on the left.

STEP 4 Tap the **Set_Temp** value field and enter the temperature.

STEP 5 Check the set temperature on the **Monitor** tab and lock the screen with the padlock.

The orange frames in the photo show where to tap in STEP 2–4. Setting changes are recorded in the event log.

Setting range
Refrigerator +2 ~ +8°C
Freezer −15 ~ −20°C

Factory setting
R-M +5.0°C
Others [ ]

Alarm setting

Change these under Setup tab › Set_Alarm. High/low temperature alarms are set as a **deviation from the set temperature**.

Item	Function	Setting range	R-M factory value
High temp. deviation	Above 'set temp. + deviation' for the delay time	0 ~ 50.0℃	+3.0℃
Low temp. deviation	Below 'set temp. + deviation' for the delay time	−50.0 ~ 0℃	−3.0℃
Temp. alarm delay	Wait time from temperature fault to alarm	0 ~ 9,999 s	[ ]
Door alarm delay	Alarm if the door is open longer than this	0 ~ 9,999 s	30 s
Re-alarm time	Time until the alarm sounds again after muting (0 = off)	0 ~ 255	[ ]
Ambient high temp.	Alarm if room temperature exceeds this value	0 ~ 80.0℃	[ ]
Power failure alarm	Detects power failure, supply voltage and battery faults	ON / OFF	[ ]

R-M example With a set point of +5.0℃ and deviation ±3.0℃, the alarm sounds when the internal temperature leaves **+2 ~ +8℃**.

Alarm Types

R-M alarms start working 2 hours after power-on

Alarm	When it sounds	What to do
High · Low temp.	Internal temp. out of alarm range beyond the delay time	Check door and loading; contact A/S if repeated
Door open	Door open longer than the set time (R-M: 30 s)	Close the door fully
Sensor fault	Measurement error such as sensor short or open circuit	Contact the A/S center immediately
Power failure · fault	Supply voltage below the threshold	Check plug, breaker and building power
Low battery	Power-failure battery at 0%	Contact the A/S center
Condenser high temp.	Condenser temperature above the limit	Check space and ventilation; contact A/S if repeated
Ambient high temp.	Room temperature above the threshold	Lower the room temperature
Communication error	Communication fault between screen and control board	Contact the A/S center

Some alarms may not be used depending on the configuration. Opening the door for over 1 minute in hot, humid conditions may trigger a high-temperature alarm.

When an Alarm Sounds

1
Check the alarm

A red alarm bar appears at top right with a beep.

2
Mute the beep

Tap anywhere to mute. The alarm display remains.

3
Fix the cause

Check door, recent opening/loading, room temp. and power.

4
Confirm recovery

The alarm clears when the temperature recovers. Check times in the alarm log.

Call the A/S center when

an alarm repeats, temperature does not recover, or a sensor/communication error appears

Stored items

Decide on items stored out of range according to your institution's guidelines.

Viewing and Exporting Records



Alarm log **AlarmLog**	Red rows are active, black rows are cleared alarms (with end time)
Event log **EventLog**	Power on, login, user/setting changes, export/delete
History data **His_Data**	Set the save interval and view saved temperature records
History graph **His_Chart**	Select a period to view trends; move or zoom the axes

Export to USB

USB → [Export] → [OK]. Export **≤100,000 records** at a time. PDF ≈ 1 min per 5,000; CSV ≈ 5 s per 10,000 records.

Storage Tips

Leave space on shelves

Leave gaps between items and walls for airflow; keep items off the floor.

Keep air paths clear

Blocking the circulation fan or vents makes the temperature uneven.

Open the door briefly

Decide what to take out in advance and reduce how often and how long the door is open.

Seal reagent containers

Close lids, label containers and separate incompatible reagents.

Drugs in original packaging

Store as received; keep food and other items out.

Check and record temperature

Check and record regularly. Vaccines: twice a day, keep records 2 years.

References: KDCA vaccine storage guidance, U.S. CDC Vaccine Storage and Handling Toolkit. Follow your institution's own guidelines where they exist.

Regular Inspection

Item	Method	Interval
Earth leakage breaker	Press the test button; it is normal if the switch turns OFF.	Twice a month or more
Power cord · Plug	Check for damaged or worn insulation and dust.	Regular Inspection
Internal temperature	Check and record that it stays within the set range.	Twice a day or more
Alarm log	Check the alarm log for unchecked alarms.	Daily
Filter	Check Filter RUL (remaining life) on the screen and replace when due.	Monthly
Door	Check that the door closes fully without gaps.	Each use

WARNING Always turn the power OFF before inspection or cleaning.

Troubleshooting

The screen is off

- Check that the plug is inserted
- If the rear breaker is down, switch it up
- If the breaker keeps tripping, call A/S
- If normal, check building power

It smells when the door opens

- Clean up broken containers or open lids
- Check filter replacement timing
- Check that the door closes fully

There is unusual noise

- Check that the floor is level and firm
- Keep rear/sides 10cm or more from walls
- Remove objects from the top

I feel a tingling shock

- Stop using it and unplug
- Check the grounding (page 8)
- Call A/S if the cause is unknown

High-temp. alarms repeat

- Reduce door opening time and frequency
- Check room temperature and ventilation
- Do not overfill

Still not resolved?

Tell us the model, serial number and the alarm shown on the screen.

042-931-0228

Cleaning and Care

Cleaning

- Turn off the power and unplug before starting.
- Wipe with a soft cloth and mild detergent.
- Do not spray water directly.
- Wipe dry completely before restarting.

Daily care

- Inspect often and keep the unit clean.
- Do not use in very humid places.
- Cut the power during thunder and lightning.

Long-term non-use

- Remove all items and unplug the unit.
- Clean the interior and dry it thoroughly.
- Before reuse, confirm the temperature is stable.

Disposal

- Contains refrigerant and insulation.
- Dispose through a licensed contractor in line with local regulations.
- Remove the door to prevent child entrapment.

Warranty Information

Free repair

Defects from initial installation or failures during normal use

Warranty period	Coverage	Repair	Replace
1 year	Controller & sensors	Free	Parts free

Defects caused by installation work by SKCBIOTECH or its authorized contractor are repaired free of charge if found within the warranty period.

Paid repair

Charged after warranty, and in these cases:

- Faults from poor installation or unauthorized modification
- Faults from user negligence or intent
- Faults from impact or damage
- Faults from external wiring or breakers
- Faults from abnormal voltage
- Faults from natural disasters, flooding or fire
- Faults from improper cleaning or storage
- Repairs by anyone other than an authorized technician

Warranty Card

Product

Item	Details
Product name	
Model	
Serial number	
Purchase date	YYYY / MM / DD

Dealer · Customer

Item	Details
Dealer name	
Dealer phone	
Customer name	
Customer phone	

Fill in the blanks at purchase and show this card when requesting service. The warranty period starts from the purchase date.

Customer Support

A/S · Product inquiries

042-931-0228

Please tell us the model, serial number and the alarm shown on the screen so we can help you faster.

Head office	55-12, Techno 11-ro, Yuseong-gu, Daejeon, Korea
Fax	042-931-0229
E-mail	info@skcbiotech.co.kr
Website	www.skcbiotech.co.kr
IoT monitoring	monitor.skcbiotech.co.kr