MEDITECH center

User Manual

"MediTech Pharmaceutical Refrigerator"

Content

Thank you for purchasing MediTech Refrigerator. Users should read manual carefully before first use this refrigerator and please carry out the following actions:

- Check that the refrigerator doesn't have any damaged during transportation.
- If any damaged is found. Please report to our customer services center on 099-273-3777 or 092-273-3789
- The MediTech refrigerator should be placed on upright position at least 24 hours before using for the first time.
- Every MediTech refrigerator pass Quality Control and Certificate from Standard Lab. Please check the certificate.
- The MediTech refrigerator should be placed in s dry, well ventilated site and away from heat sources. (Appropriate Room Temperature is between 25-30 Celsius. and Humidity of the room is not over 60%)
- The MediTech refrigerator should be taken care from specialist. Please do not attempt any repairs with yourselves.
- The MediTech refrigerator must be checked and maintenance the alarm system regularly.

Transporting and using pharmaceutical refrigerator

- The position of refrigerator should be placed in dry and well-ventilated site, away from heat sources.
- The MediTech refrigerator must be placed on a level surface.
- Should have a distance between the MediTech refrigerator and other objects to provide adequate ventilation following: 10 cm for sides, 6 cm for behind, 2.5 cm for top.
- Before any maintenance activity, pull the plug out of the socket by gripping the plug.
- Do not use double wire extension cords for safety certificate.
- Do not try to attempt any repairs the refrigerator without specialist.
- Do not store explosive substances such as aerosol cans with a flammable propellant in the MediTech refrigerator.

Moving the MediTech refrigerator.

Moving the MediTech refrigerator should be move in upright position. But if cannot avoid, the MediTech refrigerator should not be tilted more than 40°. If it is tilted more than 40°, the power supply must not be connected until the MediTech refrigerator has stood upright for at least 24 hours.

Saving Energy's Tips

- Position the MediTech refrigerator away from heat resources.
- Make sure the air can circulate freely around the refrigerator, do not block ventilation grid.
- Products being stored in the refrigerator should be lower than room temperature upon entry.
- Closing the door as fast as possible and opening as little as possible to prevent unnecessary temperature fluctuations.

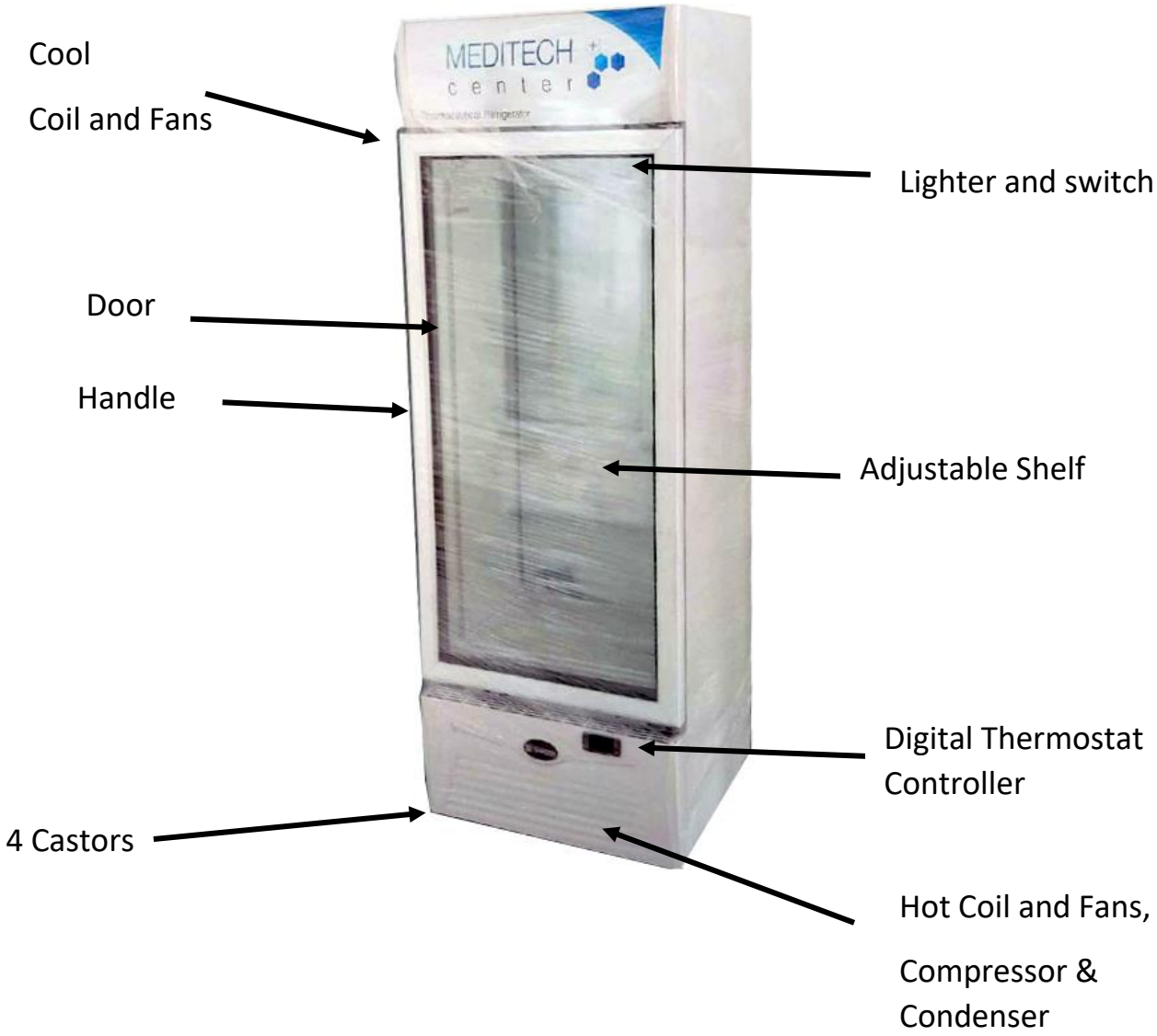
Cautions about the refrigerant

The MediTech refrigerator contains environment-friendly, non-ozone depleting refrigerant R600a (R134a for older version). However, R-600a is flammable gas. User should consider about using and place the refrigerator. If the refrigeration circuit is damaged, avoid using a naked flame in the vicinity of the refrigerator and connecting power to the refrigerator. Also make sure there is good ventilation in the room.

- Keep ventilation openings, in the appliance enclosure or in the built-in structure, clear of obstruction.
- Do not use mechanical devices or other means to accelerate the defrosting process, other than those recommended by the manufacturer.
- Do not damage the refrigerant circuit

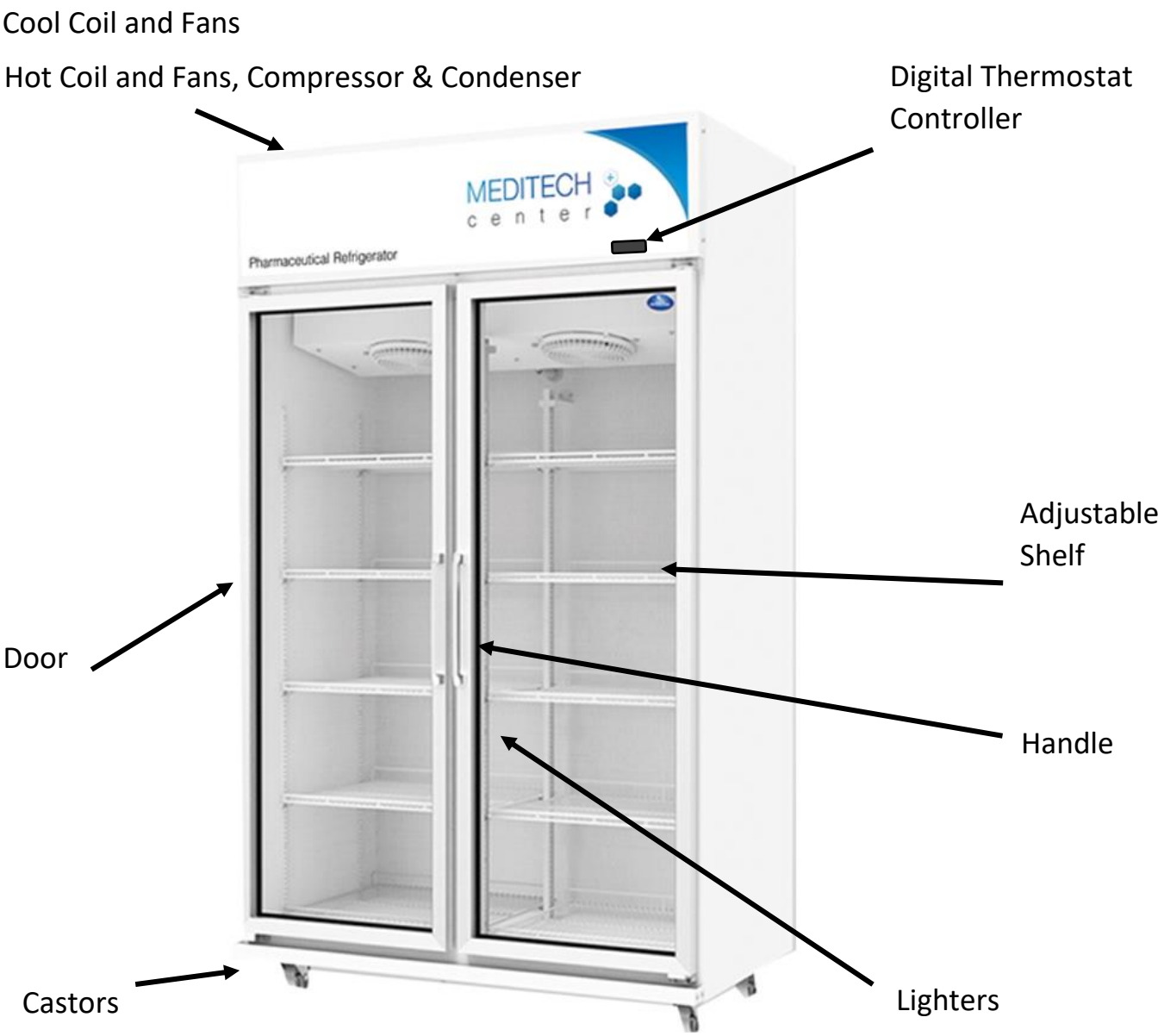
Product Information: MEDITECH CENTER 1 Doors

Pharmaceutical Refrigerator is built with the intention of the product being used within a Pharmacy and to store contents between +2°C to +8°C. (normal case)



Product Information: MEDITECH CENTER 2 Doors

Pharmaceutical Refrigerator is built with the intention of the product being used within a Pharmacy and to store contents between +2℃ to +8℃. (normal case)



Product Information: MEDITECH CENTER 3 Doors

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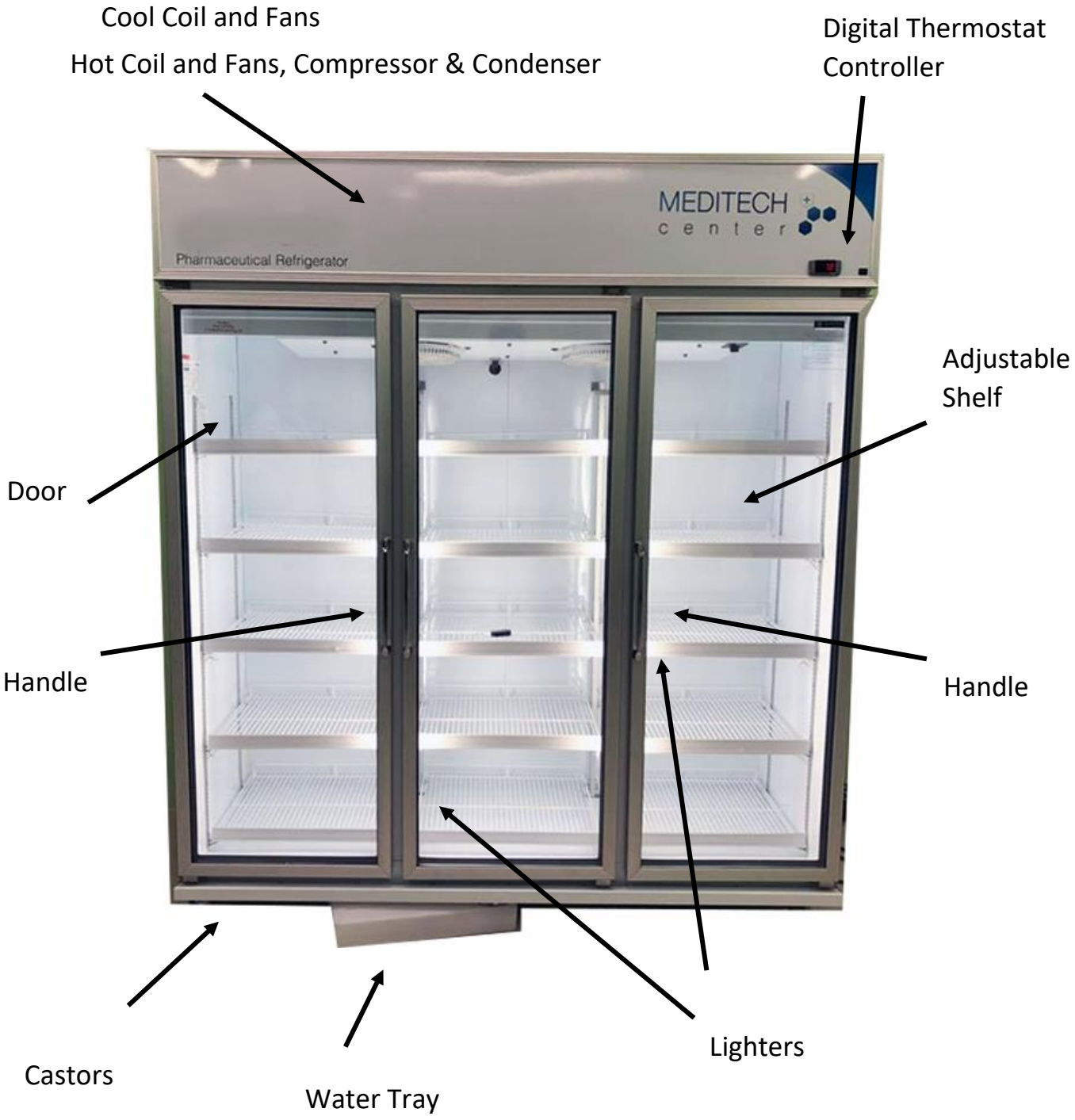


Using Water Temperature in the MediTech refrigerator

Normally the MediTech Controller is passed ISO17025 certification by Standard Lab. To prove that the controller has efficient to control the refrigerator in 2-8 Celsius range. However, if user want to test the refrigerator by put Thermometer on the shelf. User will find that **there is some different between thermometer and the MediTech refrigerator's controller.**

This happened because the MediTech Refrigerator put the probe inside the water tube and measure the liquid temperature instead. It can be referred as the vaccine liquid which can control the temperature correctly. Anyway, by using this method, Meditech Center use the research from "Centers for Disease Control and Prevention." Research, named "Vaccine Storage and Handling Toolkits" which wrote that...

As can be seen from the experiment, a normal probe, due to its vulnerability to intermittent air currents, shows high temperature fluctuations, especially when there are door openings or during defrosts cycles. With the standard deviation and the graphs in the experiment, we can see without a doubt that temperature measurements recorded by a normal probe are very unstable. On the other hand, a glycol-encased probe consistently shows stable temperature measurements and undoubtedly is better at representing the temperature of vaccines inside refrigerators. With the experiment being tested with different types of refrigerators, this experiment not only meticulously demonstrated the very difference between glycol-encased probes and normal probes, but also corroborated the CDC's recommendation. Using a normal probe can result in many problems, of which the most obvious is wasting viable vaccines due to inaccurate readings. Therefore, choosing a glycol-encased probe over a normal probe would not only provide more accurate temperature readings and help to protect your medical materials, but also save you a lot of money in the long term.

References

Centers for Disease Control and Prevention. "Vaccine Storage & Handling Toolkit." June 2016. 15 July 2016

Digital Controller Description

1. Light switch (prohibit) because building on/off light switch seperately
2. Defrost switch
3. Set switch
4. Maximum Temperature / Up
5. Minimum Temperature / Down
6. On/Off Switch (Prohibited, preventing accidently touch)
7. Display

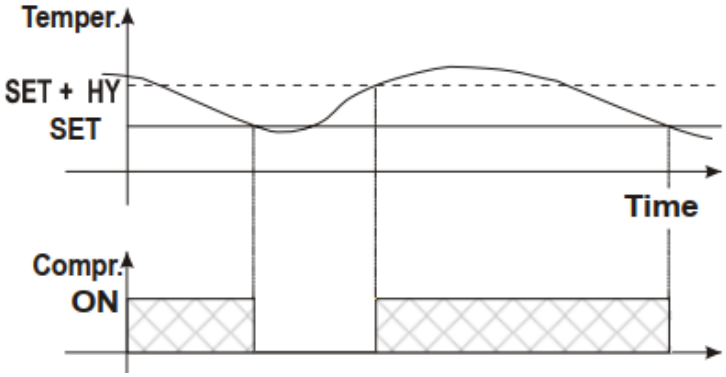
LED	TOESTAND	FUNCTIE
❄	AAN	Compressor in werking
❄	Knipperen	Anti-pendel beveiliging actief
❄	AAN	Ontdooiing actief
(!)	ON	An alarm is occurring
❄	AAN	Continu cyclus in werking
☀	AAN	Energy saving actief
°C/°F	AAN	Meeteenheid
°C/°F	Knipperen	In programmatie mode

Viewing and Resetting minimum and maximum temperatures

This digital controller can record the maximum temperature and minimum temperature that has happened since start the engine. Moreover, users also can reset the record.

- **To view Maximum temperature,** press  once, the display will show "HI" and show the maximum temperature, then press  for 5 seconds to go back to normal display.
- **To view Minimum temperature,** press  once, the display will show "Low" and show the minimum temperature, then press  for 5 seconds to go back to normal display.
- **To reset air temperature, press**  hold for 3 seconds, then the display will show "rSt", to confirm the order "rSt" will winking

Changing SET POINT and changing Temperature range



On setting from the MediTech Lab, controller is set the lowest temperature that users want it to be lowest point, called "SET POINT" then plus the value to go to the highest temperature that users want to be highest point, called "HY". For example, users set the set point at +2 and set HY at +5. Then the refrigerator will work between +2 to +7

- **To view the SET POINT,** press SET, then the display will show “the SET POINT”, then press SET or leave it for 5 seconds, the display will go back to normal display.
- **Changing the SET POINT,** press SET and hold for 3 seconds, the value that has been settled, then LED ❄ และ ✤ will start winking, then press ^ or v to change, and press SET again to confirm.

- **Changing the temperature scale HY,** Value that plus to increase from the SET POINT to the value that compressor will start working.

1. Press SET and v together and hold for 3 seconds, the display will show LED °C/°F and wink.
2. Press SET and v together and hold again for 7 seconds until the display will show “Pr2” and then parameter “HY” will show on display. Then press SET to change by pressing ^ or v, then press SET again to confirm.
3. Pull off the plug and plug in again to start using the change.

Setting the alarm alerting and important parameter

The MediTech Refrigerator (Basic) has alert alarm for notification if temperature go out of the range. This notification by alert sound at the digital controller. Users can press any button to turn off the alarm. MediTech Lab set the alarm at +2 Celsius and +8 Celsius. If users want to change the range, users can do following this:

- **Changing the high alarm temperature "ALU"**
    1. Press SET and ▽ together and hold for 3 seconds, the display will show LED °C/°F and wink.
    2. Press SET and ▽ together and hold again for 7 seconds until the display will show "Pr2" and then parameter "HY" will show on display. Press ▽ to find "ALU"
    3. Press SET to change the value by pressing △ or ▽, then press SET again to confirm. Then plug and plug in again to start using the change.
- **Changing the low alarm temperature "ALU"**
    1. Press SET and ▽ together and hold for 3 seconds, the display will show LED °C/°F and wink.
    2. Press SET and ▽ together and hold again for 7 seconds until the display will show "Pr2" and then parameter "HY" will show on display. Press ▽ to find "ALL"
    3. Press SET to change the value by pressing △ or ▽, then press SET again to confirm. Then plug and plug in again to start using the change.

- **Changing the hold time before alert “ALd”**
    1. Press SET and ▼ together and hold for 3 seconds, the display will show LED °C/°F and wink.
    2. Press SET and ▼ together and hold again for 7 seconds until the display will show “Pr2” and then parameter “HY” will show on display. Press ▼ to find “ALd”
    3. Press SET to change the value by pressing ▲ or ▼, then press SET again to confirm. Then plug and plug in again to start using the change.

(ALd is the holding time before alert. Sometime users want to store somethingin the refrigerator so we set the holding time for 5 minutes. If the temperature goes higher than 8 Celsius will not alert within 5 minutes.)

- **Changing the hold time since first plug in “dAO”**
    1. Press SET and ▼ together and hold for 3 seconds, the display will show LED °C/°F and wink.
    2. Press SET and ▼ together and hold again for 7 seconds until the display will show “Pr2” and then parameter “HY” will show on display. Press ▼ to find “dAO”
    3. Press SET to change the value by pressing ▲ or ▼, then press SET again to confirm. Then plug and plug in again to start using the change.

(dAO is the hold time since the first plug in. When the first use, the refrigerator has temperature inside so far from the set point. So the refrigerator (which is set dAO at 1.30) will not alert until 1.30 hours pass.)

Other Alarm Displays

ข้อความ	สาเหตุ	เอาท์พุท
“P1”	หัววัดเทอร์โทสตัสชำรุด	คอมเพรสเซอร์เอาต์พุตขึ้นอยู่กับพารามิเตอร์ “COn” และ ‘COF”
“P3”	หัววัดอุณหภูมิที่ 3 ชำรุด	เอาต์พุตไม่เปลี่ยน
“P4”	หัววัดอุณหภูมิที่ 4 ชำรุด	เอาต์พุตไม่เปลี่ยน
“HA”	สัญญาณเตือนอุณหภูมิสูง	เอาต์พุตไม่เปลี่ยน
“LA”	สัญญาณเตือนอุณหภูมิต่ำ	เอาต์พุตไม่เปลี่ยน
“HA2”	สัญญาณเตือนอุณหภูมิที่คอนเดนเซอร์สูง	เอาต์พุตไม่เปลี่ยน
“LA2”	สัญญาณเตือนอุณหภูมิที่คอนเดนเซอร์ต่ำ	เอาต์พุตไม่เปลี่ยน
“dA”	สัญญาณเตือนสวิทช์ประตู	คอมเพรสเซอร์ และพัดลม เริ่มทำงานใหม่
“EA”	สัญญาณเตือนภายนอก	เอาต์พุตไม่เปลี่ยน
“CA”	สัญญาณเตือนภายนอกที่สำคัญ (i1F = bAL)	เอาต์พุตไม่เปลี่ยน
“CA”	สัญญาณเตือนสวิทช์แรงดัน (i1F = PAL)	เอาต์พุตไม่เปลี่ยน

Parameter ต่าง ๆ

Label	Name	Range	°C/°F	
Set	Set point	LS÷US	3.0	- - -
Hy	Differential	0,1÷25.5°C/ 1÷ 255°F	2.0	Pr1
LS	Minimum set point	-50°C÷SET/-58°F÷SET	-50.0	Pr2
US	Maximum set point	SET÷110°C/ SET ÷ 230°F	110	Pr2
Ot	Thermostat probe calibration	-12÷12°C /-120÷120°F	0.0	Pr1
P3P[1]	Third probe presence	n=not present; Y=pres.	n	Pr2
O3[1]	Third probe calibration	-12÷12°C /-120÷120°F	0	Pr2
P4P	Fourth probe presence	n=not present; Y=pres.	n	Pr2
O4	Fourth probe calibration	-12÷12°C /-120÷120°F	0	Pr2
OdS	Outputs delay at start up	0÷255 min	0	Pr2
AC	Anti-short cycle delay	0 ÷ 50 min	1	Pr1
CCt	Continuos cycle duration	0.0÷24.0h	0.0	Pr2
CCS	Set point for continuous cycle	(-55.0÷150,0°C) (-67÷302°F)	3	Pr2
COn	Compressor ON time with faulty probe	0 ÷ 255 min	15	Pr2
COF	Compressor OFF time with faulty probe	0 ÷ 255 min	30	Pr2
CH	Kind of action	CL=cooling; Ht= heating	cL	Pr1
CF	Temperature measurement unit	°C ÷ °F	°C	Pr2
rES	Resolution	in=integer; dE= dec.point	dE	Pr1
dLy	Display temperature delay	0 ÷ 20.0 min (10 sec.)	0	Pr2
IdF	Interval between defrost cycles	1 ÷ 120 ore	8	Pr1
MdF	(Maximum) length for defrost	0 ÷ 255 min	20	Pr1
dFd	Displaying during defrost	rt, it, SEt, DEF	it	Pr2
dAd	MAX display delay after defrost	0 ÷ 255 min	30	Pr2
ALc	Temperat. alarms configuration	rE= related to set; Ab = absolute	Ab	Pr2
ALU	MAXIMUM temperature alarm	Set÷110.0°C; Set÷230°F	110	Pr1
ALL	Minimum temperature alarm	-50.0°C÷Set/ -58°F÷Set	-50.0	Pr1
AFH	Differential for temperat. alarm recovery	(0,1°C÷25,5°C) (1°F÷45°F)	1	Pr2
ALd	Temperature alarm delay	0 ÷ 255 min	15	Pr2
dAo	Delay of temperature alarm at start up	0 ÷ 23h e 50'	1.3	Pr2
AL2	Condenser for low temperat. alarm	(-55 ÷ 150°C) (-67÷ 302°F)	-40	Pr2
AU2	Condenser for high temperat. alarm	(-55 ÷ 150°C) (-67÷ 302°F)	110	Pr2
AH2	Differ. for condenser temp. alar. recovery	[0,1°C ÷ 25,5°C] [1°F ÷ 45°F]	5	Pr2
Ad2	Condenser temperature alarm delay	0 ÷ 254 (min.) , 255=nU	15	Pr2
dA2	Delay of cond. temper. alarm at start up	0.0 ÷ 23h 50'	1,3	Pr2
bLL	Compr. off for condenser low temperature alarm	n(0) - Y(1)	n	Pr2
AC2	Compr. off for condenser high temperature alarm	n(0) - Y(1)	n	Pr2
i1P	Digital input polarity	oP=opening;CL=closing	cL	Pr1
i1F	Digital input configuration	EAL, bAL, PAL, dor; dEF; Htr, AUS	dor	Pr1
did	Digital input alarm delay	0÷255min	15	Pr1
nPS	Number of activation of pressure switch	0 ÷15	15	Pr2
odc	Compress status when open door	no; Fan; CPr; F_C	no	Pr2
rrd	Regulation restart with door open alarm	n – Y	y	Pr2
HES	Differential for Energy Saving	(-30°C÷30°C) (-54°F÷54°F)	0	Pr2
Adr	Serial address	0÷247	1	Pr2
PbC	Kind of probe	Ptc; ntc	ntc	Pr1
onF	on/off key enabling	nu, oFF; ES	nu	Pr2
dP1	Room probe display	--	--	Pr1
dP3	Third probe display	--	--	Pr1
dP4	Fourth probe display	--	--	Pr2
rSE	Real set point value	actual set	--	Pr2
rEL	Software release	--	--	Pr2
Ptb	Map code	--	--	Pr2

Troubleshooting

Problem	Reason	Solution
The refrigerator does not work.	A gap in the electric system circuit.	1. Make sure the plug is properly inserted into the socket. 2. Make sure the socket is not faulty. 3. Make sure the power supply cord in not damaged.
	The compressor hardly ever activates.	1. Check to see if the ambient temperature is below +10C.
The temperature inside the refrigerator is not low enough (the compressor operates continuously).	The door does not shut tight or is opened too often.	1. Rearrange the products so they do not hamper the door. 2. Shorter the time the door is open for.
	The ambient temperature is above that which has been outlined in the product specification.	1. Check that the refrigerator is operating an ambient temperature that meet the product specification.
	Air circulation at the back of the refrigerator is hampered.	1. Move the refrigerator further away from the wall
	The refrigerator is placed such that it is subjected to constant sunlight, or another heat resource.	1. Move the refrigerator to a different place away from heat rescources.
Water collects at the bottom part of the refrigerator.	The contents touch the back wall of the cabinet	1. Move the products so they are not in contact with the back wall.
	The drain opening is clogged	1. Take the cleaning plug and unclog the condensate opening
The refrigerator makes too much noise.	The refrigerator is not level	1. Place the refrigerator on an even surface or use adjustable feet.
	The appliance is touching another object.	1. Reposition the refrigerator so it is detached from any other objects.

Call Center Information

- Sales Department:

  Email : meditechcen@gmail.com

  Tel : 098-273-3982

- Spares and After Sales Service:

  Email : sale.thanacool@gmail.com

  Tel : 099-273-3777 / 092-273-3789

- Address of Headquarter:

  Thanawaan Intercool Co.,Ltd

  117/1 Moo 7, Klongsuanplu, Phranakhonsriayutthaya,

  Phranakhonsriayutthaya, 13000

- Any other information please visit:

  www.meditechcenter.com