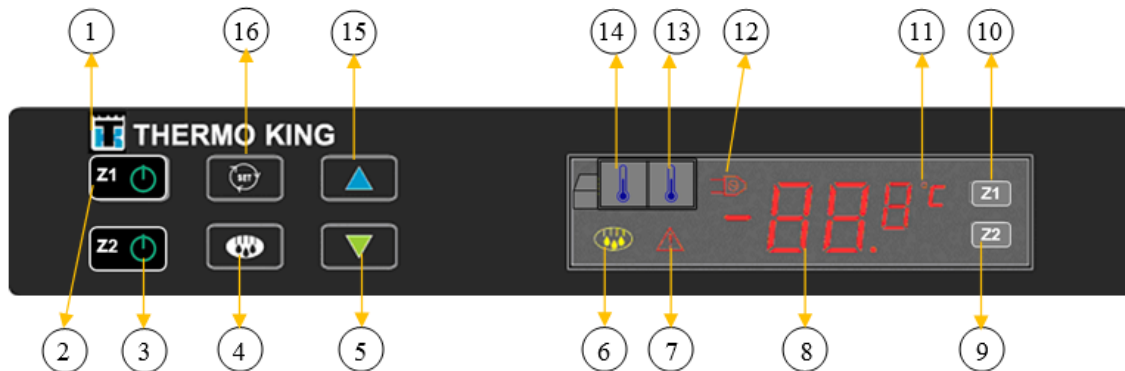


SV-400/600/800 SPECTRUM

Operation Manual (REV.02.2018)














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1、 Control panel



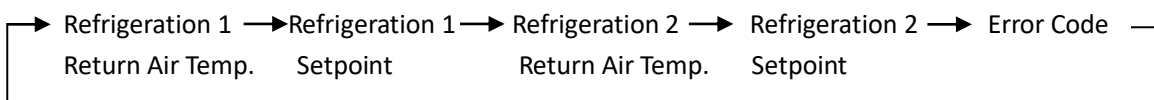
1. THERMO KING logo
2. Power on/off switch for refrigeration 1 operation
3. Power on/off switch for refrigeration 2 operation
4. Manual defrost switch
5. Down arrow key
6. Defrost indicator
7. Malfunction indicator
8. Temperature display zone
9. Refrigeration 2 temperature setup indicator and operation indicator
10. Refrigeration 1 temperature setup indicator and operation indicator
11. Celsius degree indication
12. Standby power input indicator
13. Refrigeration 2 operation indicator
14. Refrigeration 1 operation indicator
15. Up arrow key
16. Temperature setup key


II、 Unit ON/OFF


1. Power ON/OFF Switch For Refrigeration 1 Operation 
 - a. Initialization display:
All illuminated → setpoint → defrost mode → defrost interval → standard display
 - b. Standard display:
  are lit on,  display return air temperature of refrigeration 1.
2. Power ON/OFF Switch For Refrigeration 2 Operation 
 - a. Initialization display:
All illuminated → setpoint → defrost mode → defrost interval → standard display
 - b. Standard display:
  are lit on,  display return air temperature of refrigeration 2.
3. Other description:
 - Only for SV Spectrum unit.
 - When refrigeration 1 and 2 are on together, Standard display  display return air temperature of refrigeration 1/2 alternately (interval is 3 second).
When  is lit on,  display return air temperature of refrigeration 1; When  is lit on,  display return air temperature of refrigeration 2.

III、 Setpoint Temperature

During Unit is operating, press  key to display the following cycles:



Press  key to change the setpoints for Refrigeration 1 and 2

Increase the setpoint with  key

Decrease the setpoint with  key

Save the setpoint by press the  key again.

IV、 Defrost

There are two ways to defrost. It is selectable through d4 in maintenance mode.

d4=0 off- cycle Unit off for defrost

d4=1 hot-gas Hot gas defrost

Initiate defrost

Defrost can be initiated automatically by defrosting timer, or by pressing down the defrost switch manually. Before initiation, the temperature of defrosting sensor should not be more than 0°C.

Defrost termination

Defrost termination is selectable through d7 in maintenance mode:

d7=0 defrost timeout, or temperature of defrosting sensor increased.

D7=1 defrost timeout.


Note:

Defrost interval is selectable through d5 in maintenance mode. Its unit is hour.

Defrost time limit is selectable through d6 in maintenance mode. Its unit is minute.

If d1=-30, d4=0 can not be selected.

V、 Error Code

If there is any error,  symbol will illuminate. If there is not any error, display [---].

Error Code	Description	Remarks
E1	RTS1<-60°C or Open Circle	Set d11=2 to avoid this alarm for units w/o Z1
E2	RTS1>80°C or Short Circle	Set d11=2 to avoid this alarm for units w/o Z1
E3	CTS1<-60°C or Open Circle	Set d11=2 to avoid this alarm for units w/o Z1
E4	CTS1>80°C or Short Circle	Set d11=2 to avoid this alarm for units w/o Z1
E51	RTS2<-60°C or Open Circle	Set d11=1 to avoid this alarm for units w/o Z2
E52	RTS2>80°C or Short Circle	Set d11=1 to avoid this alarm for units w/o Z2
E53	CTS2<-60°C or Open Circle	Set d11=1 to avoid this alarm for units w/o Z2
E54	CTS2>80°C or Short Circle	Set d11=1 to avoid this alarm for units w/o Z2
E61	DTS<-40°C or Open Circle	
E62	DTS>180°C or Short Circle	
E91	Hi/Lo Pressure Switch Reset Fail	Hi/Lo Pressure Switch can not be reset any more
E92	Hi/Lo Pressure Switch acting	Hi/Lo Pressure Switch acting 3 times in 5 minutes
E93	DTS>=130°C (d17)	Released when DTS<105°C and restart the unit
E97	Overload Reset Fail	Overload relay can not be reset any more
E98	Overload	3 times overload in 60 minutes
E99	Writing error on EEP-ROM	
F1	FUSE1 Open	
F2	FUSE2 Open	
F3	FUSE3 Open	
F4	FUSE4 Open	
F5	FUSE5 Open	
F6	FUSE6 Open	

VI、 Maintenance Mode


Only authorized personnel can enter into maintenance mode and change parameters. Improper parameter settings will reduce unit performance. If you need to look for or change the controller parameter of the unit, please contact your local Thermo King agent.


VII、 Evacuation Mode


- In Evacuation Mode, the RS1、RS2、HGS1 and HGS2 solenoid valve will be energized and keep open, which is convenient for vacuuming or Charging the Refrigeration System.

- How to enter/quit the Evacuation mode:


- 1、 Switch off the controller.

- 2、 Press the  key and do not release it.



- 3、 Then press the  key.

- 4、 “Pr” display in 4 seconds later. And the Evacuation mode is on. Now the  key can be released.



- 5、 “Pr” will flicker during the Evacuation mode.



- 6、 Hit the  key again to quit the Evacuation mode.



VIII、 Priority Mode



If Z1 or Z2 is on alone after turn on,  or  will be light alone.

If Z1 & Z2 are on together after turn on:

According to the Priority, the states of  &  are shown below.

Description		
No Priority	light	light
Z1 Priority	flicker	light
Z2 Priority	light	flicker

The Priority will be changed by pressing  or  lasts for 3 seconds. The new priority are shown below.

Description		Previous Priority		
		No Priority	Z1 Priority	Z2 Priority
New Priority	Pressing 	Z1 Priority	No Priority	Z1 Priority
	Pressing 	Z2 Priority	Z2 Priority	No Priority

The selected Priority will be remembered automatically when the unit are running. Switch off the unit, the Priority Mode will quit.

IX、 Fuse Setup

SV-400 spectrum unit (Amp)

	F1	F2	F3	F4	F5	F6
12V	20A	20A	20A	40A	20A	20A
24V	10A	10A	10A	25A	10A	10A

SV-600 spectrum unit (Amp)

	F1	F2	F3	F4	F5	F6
12V	25A	25A	25A	40A	20A	25A
24V	20A	20A	20A	25A	15A	20A

SV-800 spectrum unit (Amp)

	F1	F2	F3	F4	F5	F6
24V	25A	10A	25A	40A	15A	10

Revision Update History

Rev.	Description	Date	Author
Rev 01, 2018	Released	Feb. 26, 2018	Kevin Chen
Rev 02, 2018	Add SV-400/600 Spectrum Unit fuse setup	June. 26, 2018	Kevin Chen