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HOSHIZAKI
CONTROLLER BOARD

MODEL IM-N series (HE)

SERVICE MANUAL

This service manual provides information on the controller board used for Hoshizaki IM series cubers.
Please also refer to the applicable service manual for each model.
If any information contained herein is inconsistent with the instruction or installation manual, follow the latter manual.

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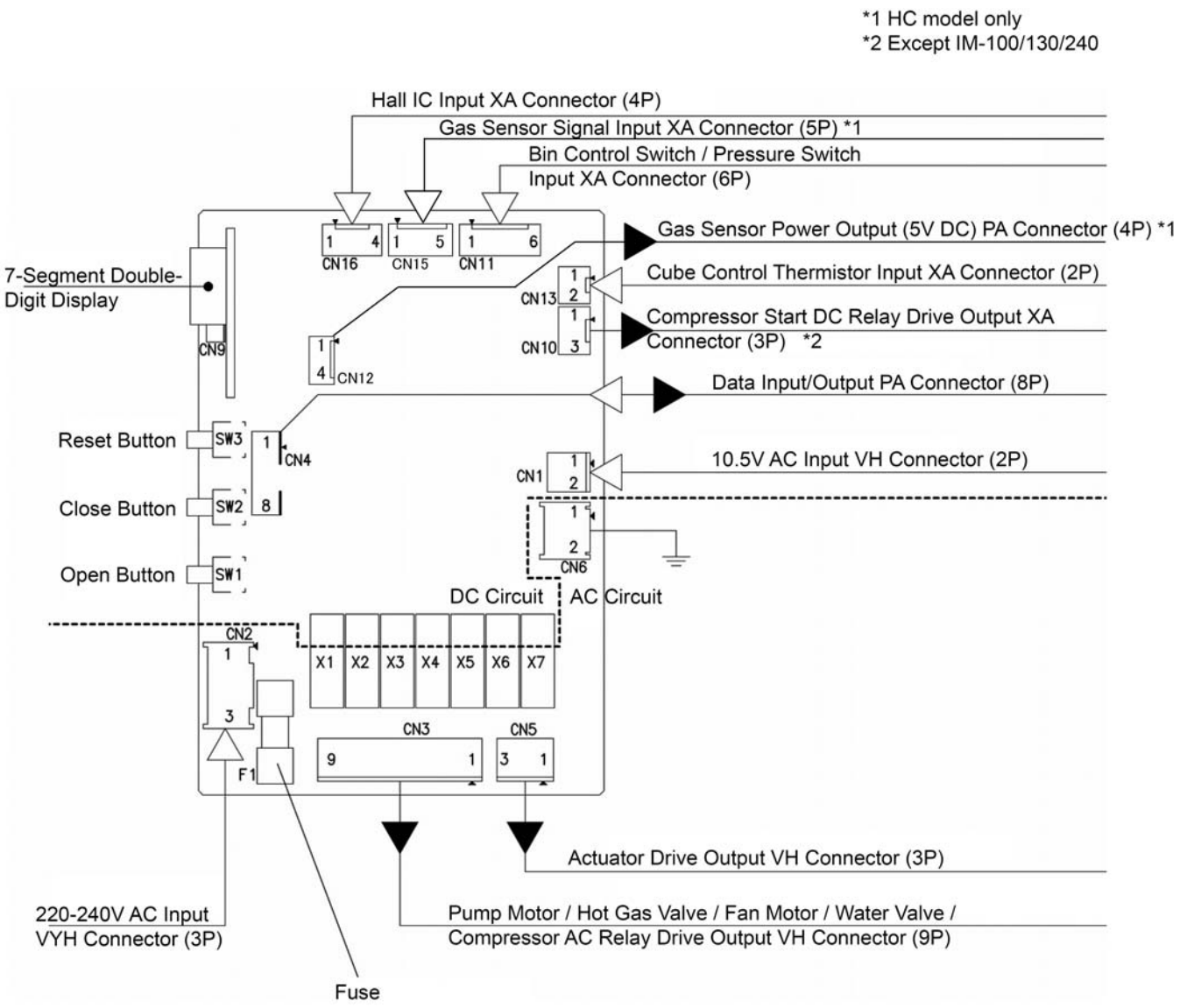
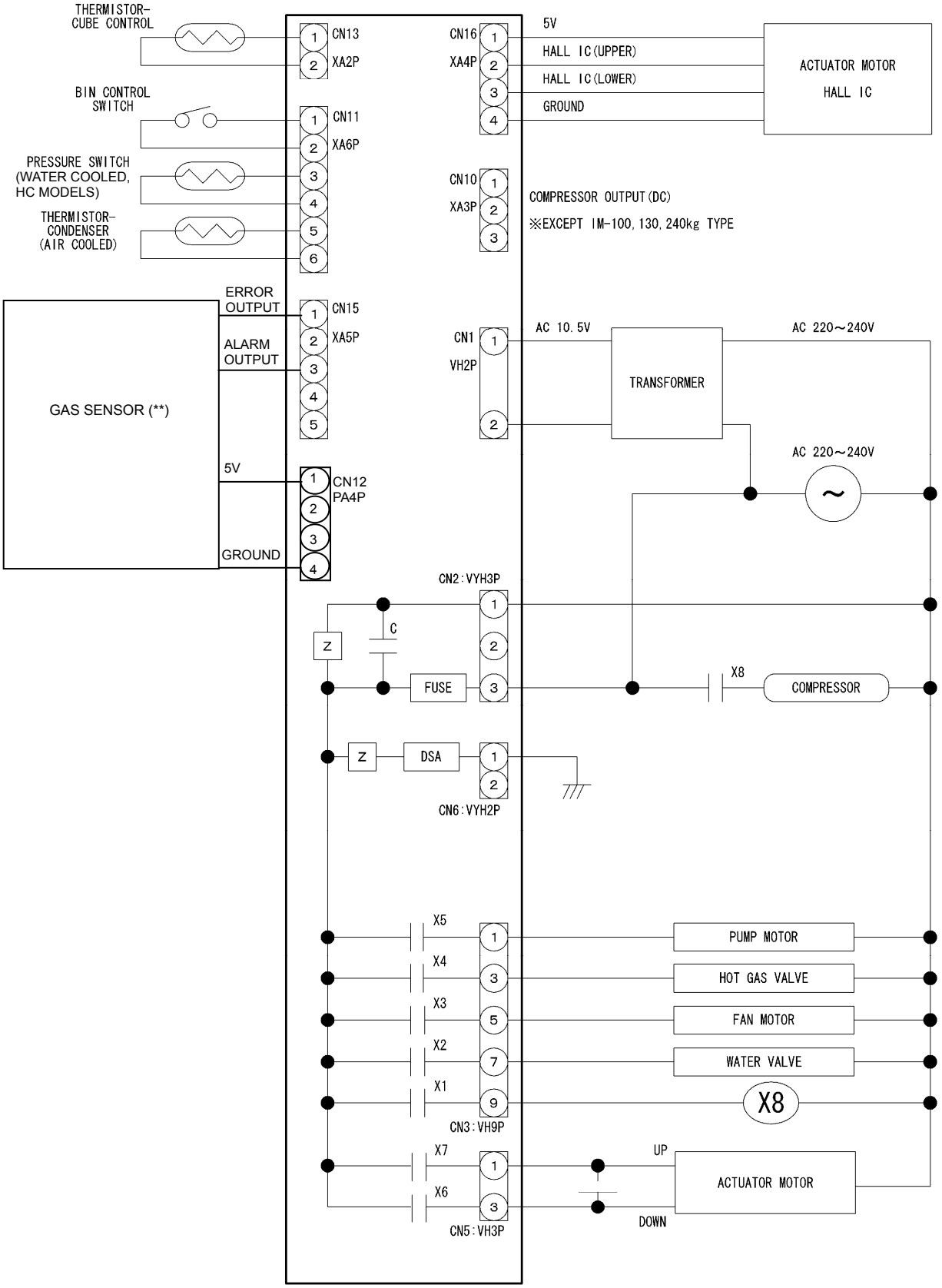
1. CONFIGURATION

[a] INPUT/OUTPUT LAYOUT

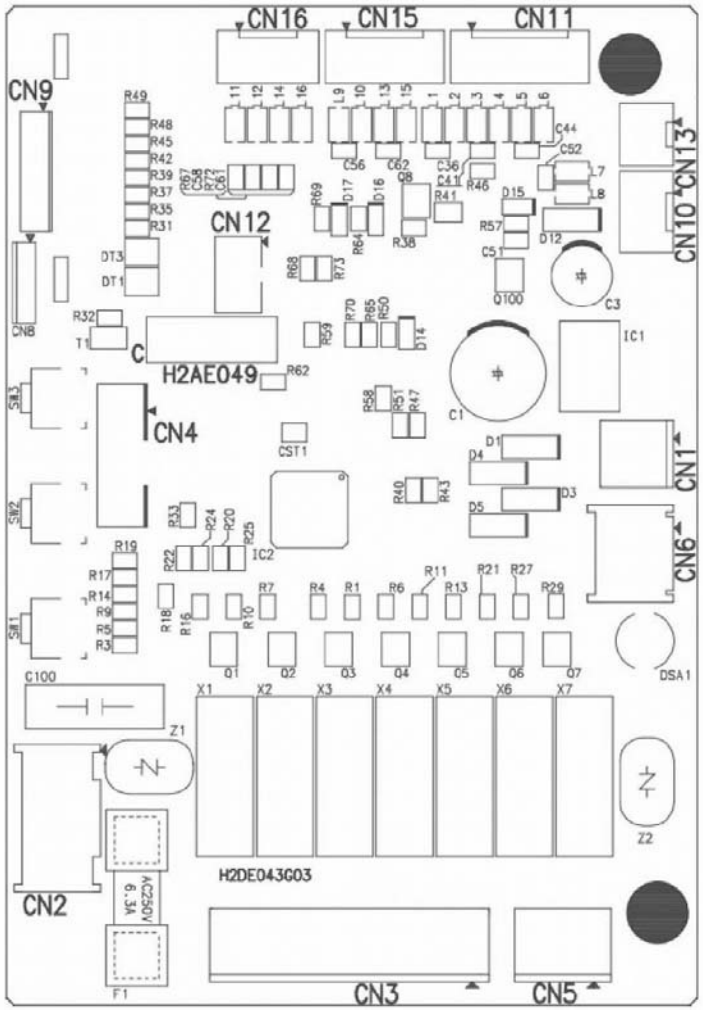


[b] INPUT/OUTPUT CIRCUIT (**: HC MODEL ONLY)

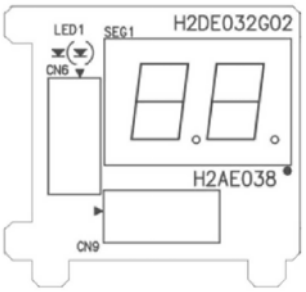


[c] BOARD CONFIGURATION

[Main Board]

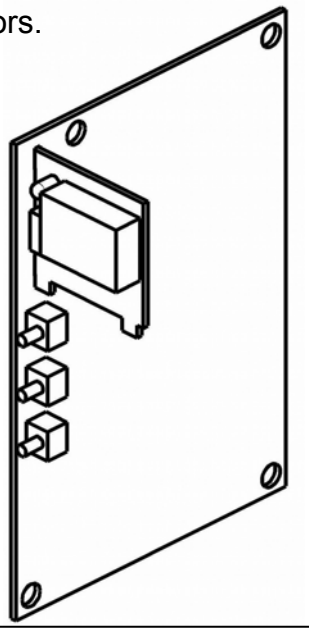


[Sub Board]

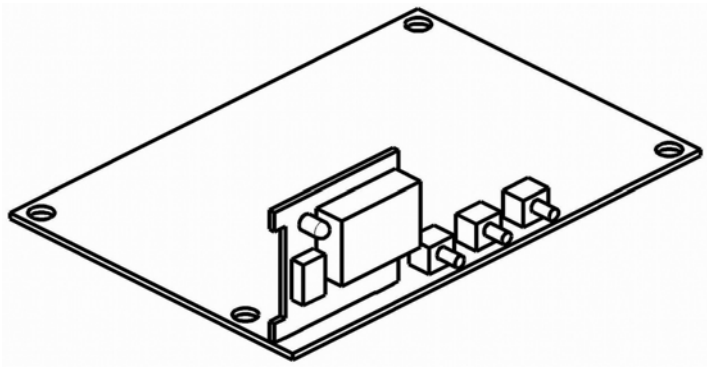


7-segment display board

The direction to install the sub board depends on models and is easily changeable by connectors.



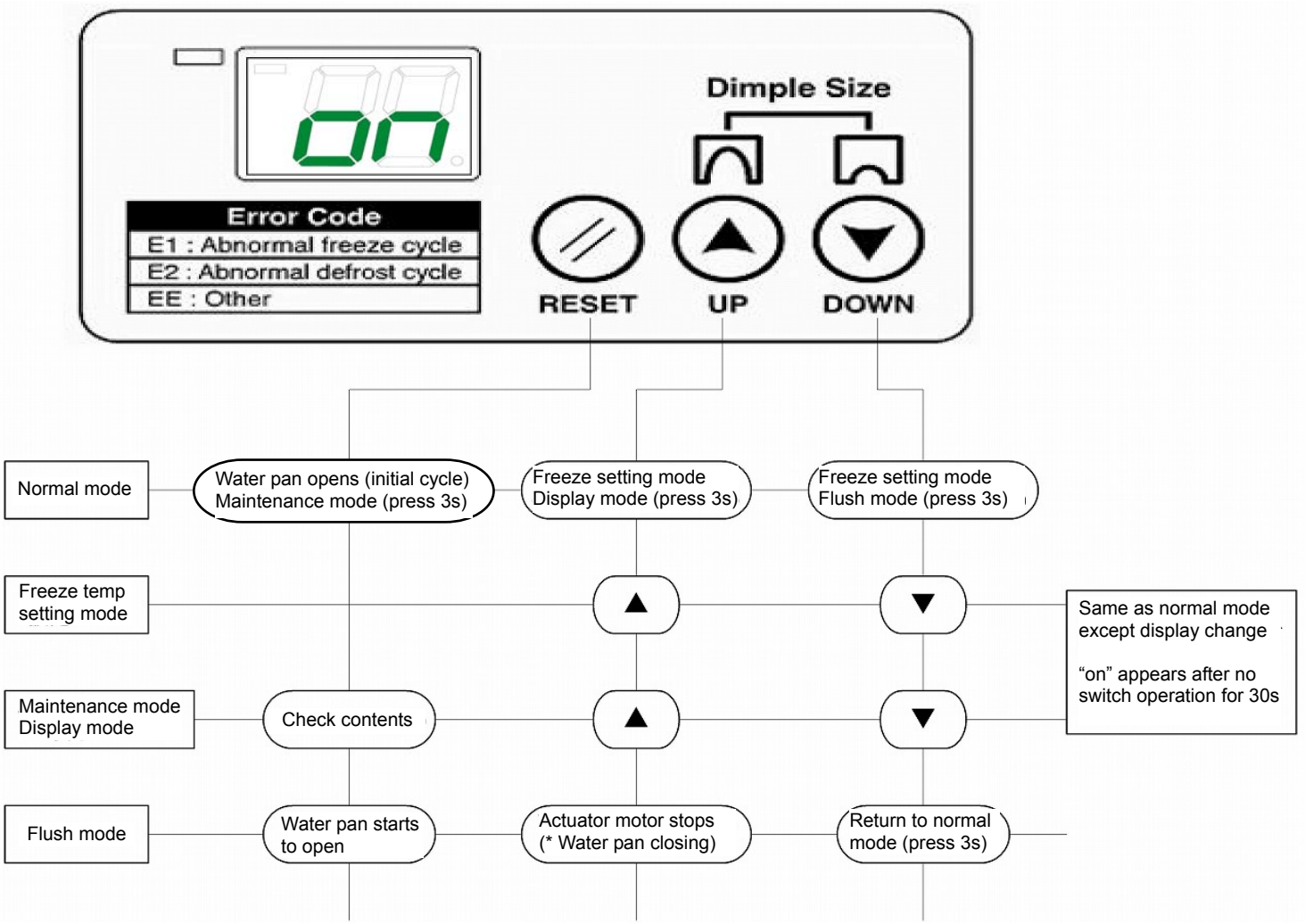
Vertical installation into control box



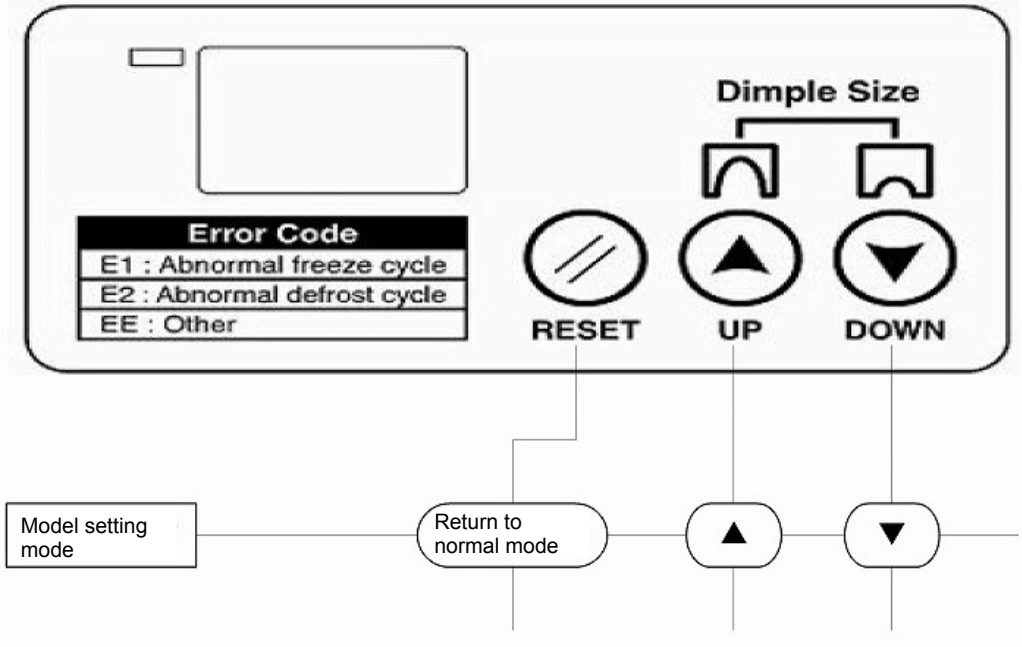
Horizontal installation into control box

[d] SWITCH OPERATION

1) The following is the switch operation flow in different modes. When pressed and released, the switch detects the operation by its pressing duration.



2) To clear the current model code information and enter the model setting mode, press the up and down switches together for 15 seconds while the model code is indicated in the display mode (see “3. [c] DISPLAY MODE”).



2. OPERATION

This service manual specifies the basic operation of the controller board “Ver. 1.0A”.

[a] SOFT START

1) When the power supply is turned on, the 7-segment LED shows “on” and the hot gas valve opens. After 30 seconds, the defrost cycle starts.
   * If the reset switch is pressed during the 30-second standby time, the unit resets soft start and immediately starts operation.

[b] WATER PAN OPENS

1) The hot gas valve opens, the actuator motor starts, and the water pan starts to open.
2) After 20 seconds, the water valve opens to supply defrosting water (water pan cleaning water) for a specific time.
   * The defrosting water supply time varies between the water temperatures above and below 13°C.
   * In the initial cycle, the water temperature is not detected and assumed to be below 13°C, resulting in a longer defrosting water supply time.

* The defrosting water supply time is adjustable in the maintenance mode (see “3. [b] MAINTENANCE MODE”).

3) The opening backup timer starts counting when the water pan starts to open. If the hall IC does not turn on within 3 minutes, the display shows “EE” and the unit stops for 60 minutes. If the error recurs after the unit resumes operation, the display shows “EE” and the unit shuts down (recorded as “E3” in error history).

[c] DEFROST CYCLE

1) After the water pan opens, the hot gas valve opens until the defrost completion temperature is reached.
2) If the defrost completion temperature is not reached even when the defrost backup timer counts up (30 minutes after water pan starts to open), the display shows “E2” and the unit stops.
   If the hot gas valve fails to open, the unit may stop with the “E2” error.
   * The defrost completion temperature is adjustable in the maintenance mode (see “3. [b] MAINTENANCE MODE”).

[d] WATER PAN CLOSES

1) When the cube control thermistor senses the evaporator temperature above the defrost completion temperature, the hot gas valve closes, the fan motor starts, and the water pan starts to close.
2) The closing backup timer starts counting when the water pan starts to close. If the hall IC does not turn on within 3 minutes, the display shows “EE” and the unit stops for 60 minutes. If the error recurs after the unit resumes operation, the display shows “EE” and the unit shuts down (recorded as “E4” in error history).
   * In the initial cycle or when the water temperature is below 13°C, the water valve opens to supply defrosting water for 10 seconds after the water pan starts to close.

[e] FREEZE CYCLE

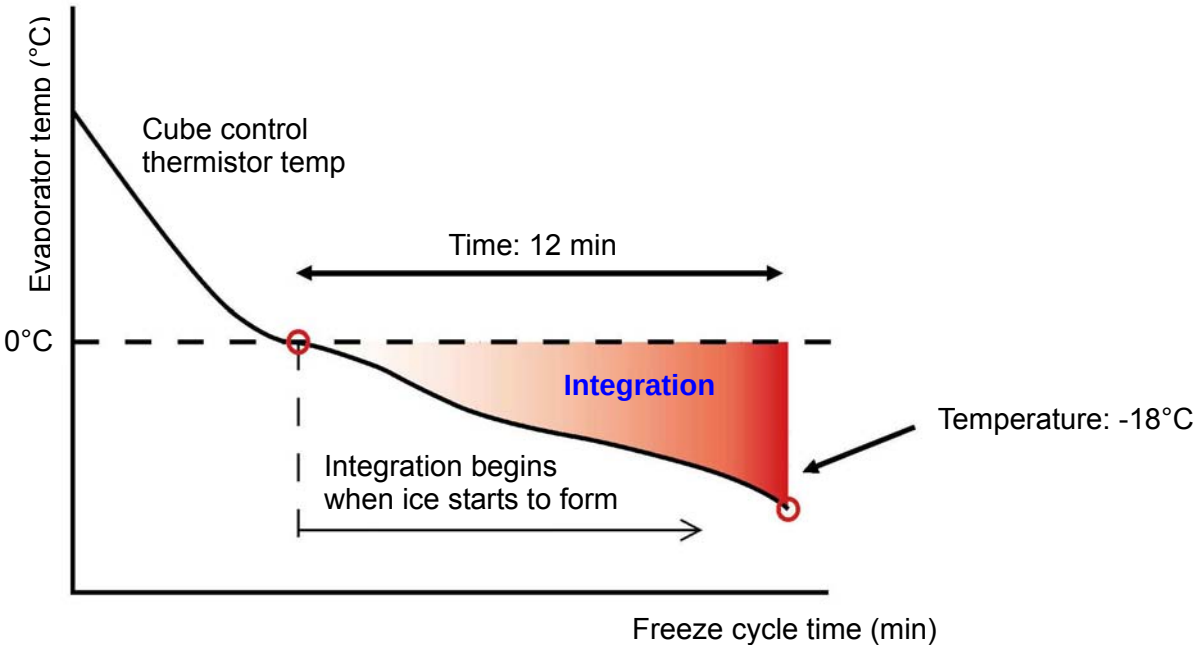
1) When the water pan closes and the hall IC turns on, the water valve opens to supply icemaking water for a specific time. The icemaking water supply time varies between startup, reset, and the end of bin control cycle and between partial drain flush and full drain flush (see note below).
   * The icemaking water supply time and additional water supply time are adjustable in the maintenance mode (see “3. [b] MAINTENANCE MODE”).

Note:
Full drain flush - After a freeze cycle ends, the unit drains all the remaining water in the tank and refills the tank in the next freeze cycle.
Partial drain flush (default setting) - After a freeze cycle ends, the unit leaves the remaining water in the tank and adds some water to fill the tank in the next freeze cycle.

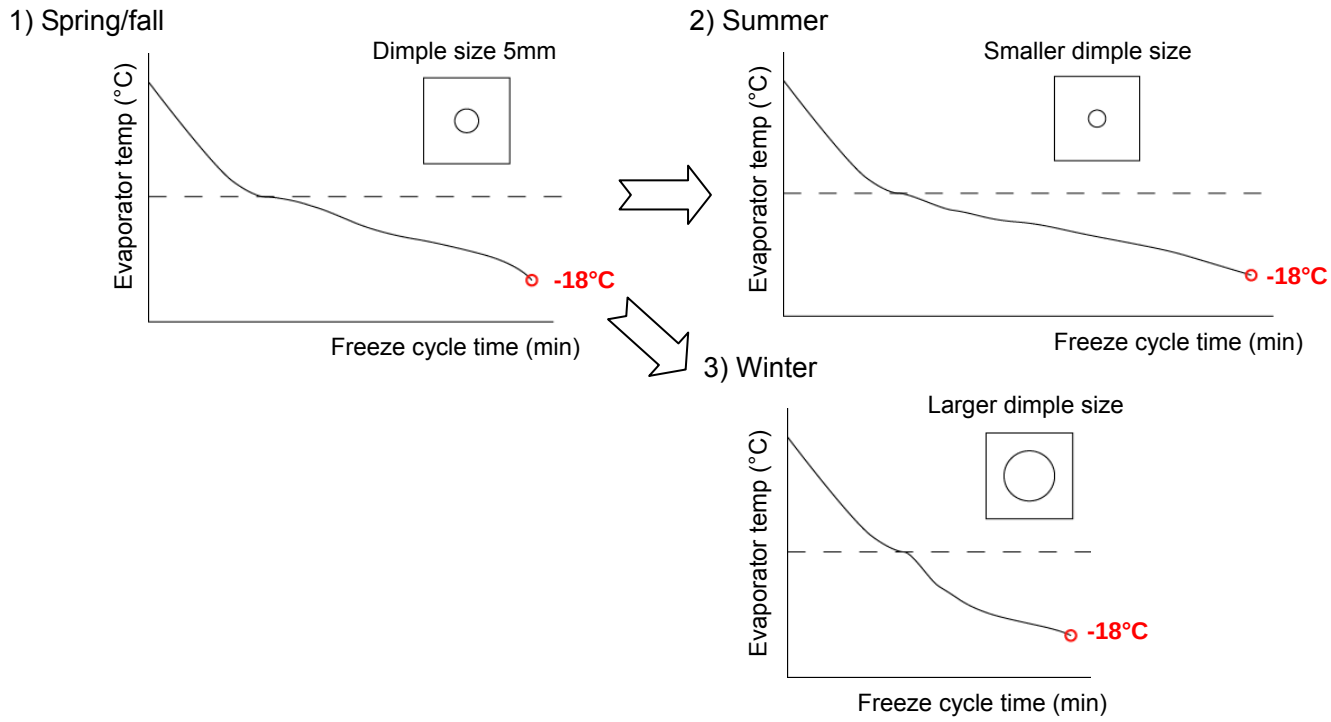
2) After icemaking water has been supplied, the pump motor starts.
3) After 30 seconds, the cube control thermistor senses the temperature that will be added with a predetermined offset value and used as the water temperature in the freeze cycle, water pan opening cycle, defrost cycle, and water pan closing cycle.
   * The offset value for the cube control thermistor temperature is adjustable in the maintenance mode (see “3. [b] MAINTENANCE MODE”).
4) The freeze cycle is considered to be 100% complete when the predetermined target integrated values are reached.
   * The target integrated values (temperature and time) for the freeze completion are adjustable in the maintenance mode (see “3. [b] MAINTENANCE MODE”).
5) To reduce ice forming on the water pan when the freeze completion rate reaches 100% at an ambient temperature below 30°C, the hot gas valve opens and closes two times for a specific time to raise the water pan temperature. Then, the actuator motor starts to open the water pan.
   While the hot gas valve opens and closes, the freeze cycle is not considered to be complete and the pump motor and fan motor keep running.
   * The ambient temperature setting and hot gas valve opening/closing time are adjustable in the maintenance mode (see “3. [b] MAINTENANCE MODE”).
6) Even if the freeze backup timer counts up (45/60 minutes after water pan starts to close), the unit stops with the “E1” error when the evaporator temperature is above 0°C.
   If the hot gas valve fails to close, the unit may stop with the “E1” error.
   * The backup timer setting is adjustable in the maintenance mode (see “3. [b] MAINTENANCE MODE”).

[f] FREEZE COMPLETION CONTROL

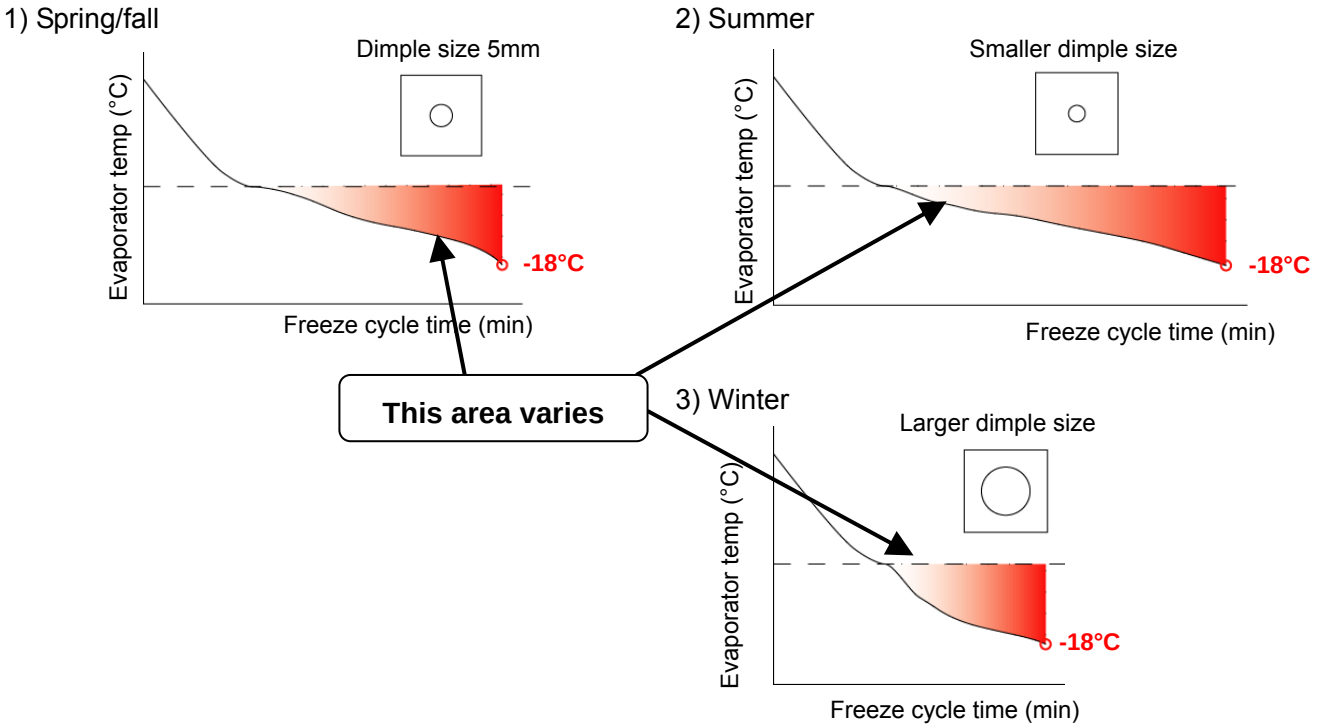
1) The target integrated values (cube control thermistor temperature and freeze cycle time) are set for freeze completion.
   * The target integrated freeze completion temperature and time are adjustable in the maintenance mode (see “3. [b] MAINTENANCE MODE”).
2) After the cube control thermistor senses a temperature below 0°C, the cube control thermistor temperature and freeze cycle time are integrated every second.
3) When the integrated values reach the target, the freeze cycle completes.



As the previous freeze completion control depended on the freeze completion temperature only, the dimple size varied in 1) spring/fall, 2) summer, and 3) winter even at the same freeze completion temperature.
For example, when the freeze completion temperature is -18°C and the dimple size is 5 mm, the freeze cycle time becomes longer and dimple size smaller in summer, and the freeze cycle time becomes shorter and dimple size larger in winter.



Comparison of the evaporator temperature curves finds that the red-colored area varies in different seasons.



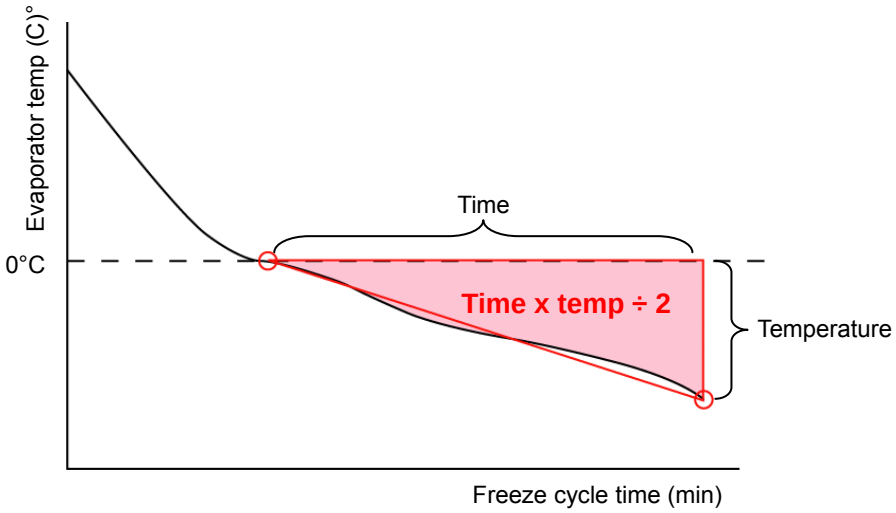
This area corresponds to the energy on ice. Making these different areas into one can equalize the dimple size.

To calculate the energy required for ice production, the actual ice production area under 0°C in the evaporator temperature curve is approximated into a triangle.
This area can be calculated by

Time x temperature ÷ 2

Therefore,

Energy required for ice production = time x temperature ÷ 2



Providing the calculated energy to icemaking water can produce ice with fixed dimple size not affected by ambient conditions.

Actually, after the evaporator temperature becomes 0°C, the icemaker adds thermistor sensed temperature every second and continues ice production until the energy value calculated above (target freeze completion value) is reached.

To have stable ice production, it is necessary to calculate icemaking energy internally with the microprocessor. This energy calculation requires not just temperature but also time as shown in the above graph.
For this reason, both temperature and time are used to determine freeze completion for the IM_N models (HE).

[g] WATER SUPPLY CONTROL

1) When the water pan closes and the hall IC turns on, the water valve opens to supply icemaking water for a specific time. The icemaking water supply time varies between startup, reset, and the end of bin control cycle and between partial drain flush and full drain flush.
   * The icemaking water supply time and additional water supply time are adjustable in the maintenance mode (see “3. [b] MAINTENANCE MODE”).
2) After the water pan starts to open, the water valve opens in 20 seconds to supply defrosting water (water pan cleaning water) for a specific time. The defrosting water supply time varies between the water temperatures above and below 13°C. If the water temperature is below 13°C, the water valve opens for 10 seconds after the water pan starts to close.
   * The defrosting water supply time is adjustable in the maintenance mode (see “3. [b] MAINTENANCE MODE”).
3) The water temperature is determined by a predetermined offset value plus the cube control thermistor temperature after icemaking water is supplied as mentioned in 1) and the pump motor runs for 30 seconds.
   * The water temperature offset value is adjustable in the maintenance mode (see “3. [b] MAINTENANCE MODE”).

[h] AMBIENT TEMPERATURE CORRECTION

1) At low ambient temperatures, the dimple diameter of ice cubes is increased by a predetermined rate between the ambient temperature and target integrated freeze completion value to prevent reduction in the evaporator temperature leading to excessive ice production.
   * The rate between the ambient temperature and integrated value is adjustable in the maintenance mode (see “3. [b] MAINTENANCE MODE”).

[i] DIMPLE DIAMETER SETTING

1) When the up or down switch is pressed, the current set point temperature (maintenance mode No. 2) is displayed (see “3. [b] MAINTENANCE MODE”).
2) When the up or down switch is pressed again, the set point temperature goes up or down in 0.5°C increments.
3) When the switches are not pressed for 30 seconds, the set point temperature is determined with “on” in the display.

[j] BIN CONTROL CYCLE

1) When the bin control switch stays on for more than 10 seconds, the bin control cycle starts and the icemaker stops. After the bin control switch stays off for more than 80 seconds, the bin control cycle ends and the icemaker restarts. (The hot gas valve opens 30 seconds before the icemaker restarts.)
   For IM-240D/X_NE(-C) series only, if the bin control switch trips in the freeze cycle, the icemaker stops after completing the freeze and defrost cycles.
2) After the bin control cycle ends (or when the power supply is turned on), the water pan starts to open (if the icemaker stopped while the water pan was closing).
3) If the bin control switch turns on while the water pan is opening after the power supply is turned on (or after the reset switch is pressed), the bin control cycle does not start. When the water pan opens and the hall IC turns on, the bin control cycle starts after 10 seconds and the icemaker stops.

[k] RESET SWITCH

1) When the reset switch is pressed and released after the power supply is turned on, the soft start is reset within 3 seconds and the water pan starts to open in the initial cycle.
2) When the reset switch is pressed and released during operation (water pan opening or closing, defrost or freeze cycle), the icemaker returns to the initial cycle within 3 seconds and the water pan starts to open.
   * The above control is available because the water pan position is detected by the hall IC not by a change switch.
3) When the reset switch is pressed and released while the icemaker is off in the bin control cycle, the icemaker returns to the initial cycle within 3 seconds, the bin control cycle ends and the water pan starts to open.
4) When the reset switch is pressed and released while the icemaker is off with an error, the icemaker returns to the initial cycle within 3 seconds, the error is reset and the water pan starts to open.
   * When the icemaker returns to the initial cycle by the reset switch operation, the water temperature is assumed to be 0°C (below 13°C), the freeze back up timer is extended, the icemaking water supply time including additional water supply with the water pan closed doubles and the number of freeze cycles becomes 0.

[l] 7-SEGMENT LED

1) When the power supply is turned on, the display shows “on” and the automatic icemaking process starts.
2) When the up or down switch is pressed, the display shows the current setting. When the switch is pressed again, the setting becomes adjustable. When the switches are not pressed for 30 seconds, the adjusted setting is determined with “on” in the display.
3) When an error occurs, the display flashes the applicable error code.
4) In the maintenance mode, the display shows various settings.
5) In the display mode, the display shows various values and the error history.
6) In the water circuit flush mode, the segments of the ones digit light up in rotation.
   * See “4. 7-SEGMENT DISPLAY” for further details.

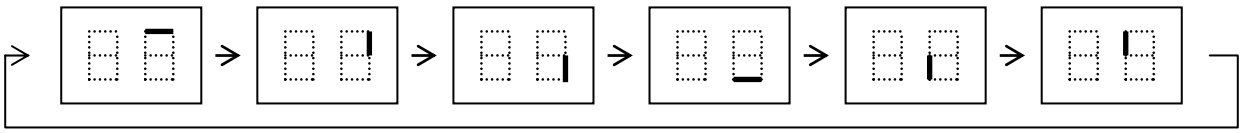
[m] GAS LEAKEAGE ALARM (HC MODEL ONLY)

1) If the gas sensor detects gas leakage and sets off an alarm and E1 or E2 occurs, the icemaker stops with EF error. To diffuse the leaked gas, the condenser fan motor runs continuously.
2) If the gas sensor continues to detect gas leakage for the time set in the maintenance mode No. 91 and E1 or E2 does not occur, the icemaker determines that the sensor is sensitized and sets off A1 alarm.
3) If the detecting part of the gas sensor deteriorates causing an open circuit, the icemaker sets off A2 alarm.
4) When A1 and A2 alarms occur, icemaking operation continues but the condenser fan motor runs continuously just in case of gas leakage.
   * The gas sensor is sensitive enough to detect flammable gas from outside as well as leaked gas from the icemaker. It cannot selectively detect gas leakage only from the icemaker. Therefore, a combination of the gas sensor and E1 and E2 errors is used for selective detection of gas leakage from the icemaker.
   * If the gas sensor is exposed to high-concentrated flammable gas or silicon-base gas, it becomes irreversibly sensitized causing false detection (sensitization). Do not spray gas to the sensor to check operation or use silicone-type lubricant spray near the sensor.

3. MODE SETTING

[a] WATER CIRCUIT FLUSH MODE

1) When the down switch is pressed for 3 seconds during operation, the water circuit flush mode starts. The ones digit in the LED display lights up as follows.



2) There is no 30-second standby time after the power supply is turned on. While the compressor stays off, the actuator motor starts to open the water pan. After the water pan closes, the water valve opens to supply water. Then, the pump motor starts.
3) When the reset switch is pressed during the flush process, the water pan opens to drain the water pan and water tank. Then, the water pan closes again, the water valve opens to supply water, and the pump motor starts.
4) Repeat the above step 3) as required.
   * Manually press the reset switch to open the water pan to drain water. If the icemaker keeps running in the flush mode with the water pan closed, the freeze backup timer operates and the display shows “E1”.
   * If the cube control thermistor senses a temperature below the defrost completion temperature, the water pan keeps open, the defrost backup timer operates and the display shows “E2”.

To reset, press the down switch for 3 seconds.

Note:
1. The freeze backup timer and defrost backup timer are available in the water circuit flush mode. As the compressor is off in the flush mode, these timers operates to stop the icemaker in case the freeze or defrost cycle does not complete.
2. As the compressor is off in the flush mode, be sure to drop all ice cubes in the defrost cycle before starting the flush mode. If any ice cube is left on the evaporator, the defrost backup timer operates to stop the icemaker.
3. After the flush mode is reset, the icemaker resumes operation from the defrost cycle.
   * If the up switch is pressed while the water pan is closing in the flush mode, the actuator motor stops and icemaking water is supplied for a specific time. Then, the pump motor starts to spray water. This allows for checking whether the spray holes are clogged or not.

[b] MAINTENANCE MODE

When the reset switch is pressed for more than 3 seconds, the maintenance mode starts to allow various set values to be checked or adjusted.

1) Press the reset switch for more than 3 seconds while the unit is running. The display shows “1”.
2) Press the up switch to increase the number and the down switch to decrease the number.
3) Press the reset switch to select the desired number. The current set value flashes in the display.
4) Press the up switch to increase the set value and the down switch to decrease the set value.
5) Press the reset switch to select the desired value. The display shows the number again.

To reset, leave the switches untouched for 30 seconds.

Maintenance Mode List (**: HC MODEL ONLY)

	No	Item	Range	Step
Basic	1	Defrost completion temp	2 to 20°C	1
	2	Integrated constant 1 (temp)	-5 to -40°C	0.5
	3	Integrated constant 2 (time)	5 to 90 min	1
	4	Ambient temp correction operating temp for integrated value	10 to 50°C	1
	5	Ambient temp correction rate for integrated value	10 to 100% (00 = 100)	1
	6	Freeze backup timer	45 to 90 min	5
Water supply	10	Defrosting water supply time, water temp less than 13°C	1 to 99 sec, 99 = continuous	1
	11	Defrosting water supply time, water temp 13°C or more	1 to 99 sec	↑
	12	Icemaking water supply time, normal	0 to 90 sec	1
	13	Water temp measurement correction value	+0 to +20K	1
	14	Full / partial drain flush selection	0: full / 1: partial	1
	15	Additional icemaking water supply time	0 to 90 sec	1
Other	21	Double stack bin control	0: No / 1: Yes	1
	22	Refrigeration unit operation in bin control cycle	0: No / 1: Yes	1
Model	30	Type	0: water-cooled (large) 1: small 2: medium / large 3: separate	1
Defrost cycle low temp control	34	Operating temp	40 to 70°C	1
Water regulator	36	Water regulator error detecting temp	0 to 50°C, 0: cancel	1
Compressor	37	Compressor output selection	0: X8 (DC relay) on 1: X1 (AC relay) on	1
Slush ice	50	Pump off time	0 to 90 sec, 0: no control	1
	51	Water supply time	0 to 5 sec	1
Hard water	60	Operating condition	10 to 100% (00 = 100)	1
	61	Water supply time	0 to 90 sec	1
Ice left in water pan	70	Operating temp	10 to 60°C	1
	71	Hot gas valve on time	0 to 20 sec	1
	72	Hot gas valve off time	10 to 60 sec	1
Ice bridge	73	Hot gas valve off time	0 to 30 sec	1
Low temp in defrost cycle	74	Operating temp	0 to 40°C	1
High Pressure	80	Sensed temp	55 to 70°C	1
Gas sensor (**)	90	Gas sensor type	0: No sensor 1: FIS 2: Cosmos	1
	91	Gas sensor sensitization detecting time	0 to 99 (1=10 min)	1

Maintenance Mode Descriptions (**: HC MODEL ONLY)

	No	Item	Description
Basic	1	Defrost completion temp	Temperature to complete defrost cycle (detected by cube control thermistor).
	2	Integrated constant 1 (temp)	Target integrated value inside controller board is determined by constants 1 and 2. Temperature in freeze cycle is integrated, and freeze cycle continues until target integrated value is reached. Basically, the smaller constant 1 gets, the bigger integrated value and the smaller dimple diameter become.
	3	Integrated constant 2 (time)	Target integrated value inside controller board is determined by constants 1 and 2. Temperature in freeze cycle is integrated, and freeze cycle continues until target integrated value is reached. Basically, the smaller constant 2 gets, the smaller integrated value and the bigger dimple diameter become.
	4	Ambient temp correction operating temp for integrated value	Upper temperature limit to trip control to ensure minimum dimple size in low temp conditions like at 1°C / wt 5°C.
	5	Ambient temp correction rate for integrated value	Percentage of integrated value in low temp conditions against target integrated value to ensure minimum dimple size in low temp conditions like at 1°C / wt 5°C based on integrated value inside controller board determined by constants 1 and 2.
	6	Freeze backup timer	Timer setting to forcibly complete freeze cycle if cube control thermistor cannot sense freeze completion temp.
Water supply	10	Defrosting water supply time, water temp less than 13°C	Time to supply defrosting water to melt ice on water pan at water supply temp less than 13°C. Adjustable between 1 and 99 sec. When set to “99”, defrosting water keeps running until cube control thermistor senses defrost completion temp.
	11	Defrosting water supply time, water temp 13°C or more	Time to supply defrosting water to melt ice on water pan at water supply temp of 13°C or more. Adjustable between 1 and 99 sec. When set to “99”, defrosting water keeps running until cube control thermistor senses defrost completion temp.
	12	Icemaking water supply time, normal	Time to supply icemaking water depending on partial or full drain flush.
	13	Water temp measurement correction value	Setting to correct difference between water temp measured by cube control thermistor and actual water supply temp.
	14	Full / partial drain flush selection	Selection between full and partial drain flush of icemaking water tank in case of cloudy ice production even after hard water control. Icemaking water supply time and water tank overflow pipe direction need to be changed.

Water supply	15	Additional icemaking water supply time	Time to supply additional icemaking water required after pump motor starts following normal icemaking water supply time (necessary for IM-240 type).
Other	21	Double stack bin control	Selection of bin control in case of double stack application.
	22	Refrigeration unit operation in bin control cycle	Selection of control to prevent ice in storage bin from melting in bin control cycle (by operating refrigeration unit).
Model	30	Type	Selection of fan motor type. When set to “0”, unit operates as water-cooled model.
Defrost cycle low temp control	34	Operating temp	Set temp for continuous fan motor operation in defrost cycle to lower temp inside control box if ambient temp at the beginning of defrost cycle exceeds set point.
Water regulator	36	Water regulator error detecting temp	Thermistor temp (water regulator outlet) in case of water regulator error and cooling water failure for water-cooled model.
Compressor	37	Compressor output selection	Selection between AC supply and DC supply (normal setting = AC supply). Transformer voltage drop is too large to input both.
Slush ice	50	Pump off time	Pump off time for slush ice control to stop pump after 2 min at evaporator temp of 3 to 4°C, quickly refrigerate evaporator before icemaking water supercools, and form ice core. When set to “0”, there is no slush ice control.
	51	Water supply time	Time to supply water while pump is off for slush ice control. If slush ice is too much and cannot be prevented solely by pump off in No. 50, water is supplied while pump is off to slightly raise tank water temp.
Hard water	60	Operating condition	Condition to operate cloudy ice control in hard water application indicated in percentage against target integrated value. After icemaking water supply starts, ice begins to form and freeze cycle integrated value reaches a certain level. Then, additional water is supplied to dilute concentrated icemaking water in water tank.
	61	Water supply time	Time to supply water for hard water control.
Ice left in water pan	70	Operating temp	Upper limit of operating temp to control ice left in water pan at the end of freeze cycle. Decrease amount of defrosting water by reducing ice left in opening water pan after freeze cycle.
	71	Hot gas valve on time	Hot gas valve opening time to control ice left in water pan.
	72	Hot gas valve off time	Hot gas valve closing time to control ice left in water pan.
Ice bridge	73	Hot gas valve off time	Time to keep hot gas valve closed after 20 sec in defrost cycle. Prevent ice bridge in bin by delaying ice dropping time (especially for IM-240DNE type in multi-stack applications).
Low temp in defrost cycle	74	Operating temp	Upper temperature limit at the beginning of defrost cycle.

High Pressure	80	Sensed temp	Temperature sensed by condenser thermistor
Gas Sensor (**)	90	Gas sensor type	Type of gas sensor. Gas sensor is invalid if “0” is selected.
	91	Gas sensor sensitization detecting time	If gas sensor detects flammable gas and E1 or E2 does not occur, sensitization of gas sensor is doubted. If gas sensor continues to detect gas leakage for the set time and E1 or E2 does not occur, A1 alarm is set off to notify sensitization.

Maintenance Mode Settings (**: HC MODEL ONLY)

	No	Item	21CNE (50Hz)	30CNE (50Hz)	30CNE-25 (50Hz)
Basic	1	Defrost completion temp	5	5	5
	2	Integrated constant 1 (temp)	-17.5	-17.5	-17.5
	3	Integrated constant 2 (time)	10	13	9
	4	Ambient temp correction operating temp for integrated value	23	38	38
	5	Ambient temp correction rate for integrated value	80	75	80
	6	Freeze backup timer	45	45	45
Water supply	10	Defrosting water supply time, water temp less than 13°C	15	15	15
	11	Defrosting water supply time, water temp 13°C or more	6	6	6
	12	Icemaking water supply time, partial drain flush	20	20	20
		* Icemaking water supply time, full drain flush			
	13	Water temp measurement correction value	4	7	7
	14	* Full / partial drain flush selection	0	0	0
	15	Additional icemaking water supply time, partial drain flush	0	0	0
		* Additional icemaking water supply time, full drain flush	0	0	0
Other	21	Double stack bin control	1	1	1
	22	Refrigeration unit operation in bin control cycle	0	0	0
Model	30	Type	1	1	1
Defrost cycle low temp control	34	Operating temp	45	45	45
Water regulator	36	Water regulator error detecting temp	0	0	0
Compressor	37	Compressor output selection	0	0	0
Slush ice	50	Pump off time	0	0	0
	51	Water supply time	0	0	0
Hard water	60	Operating condition	10	10	10
	61	Water supply time	0	0	0
Ice left in water pan	70	Operating temp	38	38	38
	71	Hot gas valve on time	10	10	0
	72	Hot gas valve off time	20	20	0
Ice bridge	73	Hot gas valve off time	0	0	0
Low temp in defrost cycle	74	Operating temp	15	15	15

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

	No	Item	30CWNE (50Hz)	21CNE NAVY (115V 60Hz)	30CNE (60Hz)
Basic	1	Defrost completion temp	6	5	5
	2	Integrated constant 1 (temp)	-17.5	-18.0	-17.5
	3	Integrated constant 2 (time)	11	12	12
	4	Ambient temp correction operating temp for integrated value	30	23	15
	5	Ambient temp correction rate for integrated value	85	75	75
	6	Freeze backup timer	45	45	45
Water supply	10	Defrosting water supply time, water temp less than 13°C	15	15	15
	11	Defrosting water supply time, water temp 13°C or more	6	6	6
	12	Icemaking water supply time, partial drain flush	20	20	20
		* Icemaking water supply time, full drain flush			
	13	Water temp measurement correction value	6	5	7
	14	* Full / partial drain flush selection	0	0	0
	15	Additional icemaking water supply time, partial drain flush	0	0	0
		* Additional icemaking water supply time, full drain flush	0	0	0
Other	21	Double stack bin control	1	1	1
	22	Refrigeration unit operation in bin control cycle	0	0	0
Model	30	Type	0	1	1
Defrost cycle low temp control	34	Operating temp	45	40	40
Water regulator	36	Water regulator error detecting temp	0	0	0
Compressor	37	Compressor output selection	0	0	0
Slush ice	50	Pump off time	0	0	0
	51	Water supply time	0	0	0
Hard water	60	Operating condition	10	10	10
	61	Water supply time	0	0	0
Ice left in water pan	70	Operating temp	38	43	43
	71	Hot gas valve on time	0	10	10
	72	Hot gas valve off time	0	20	20
Ice bridge	73	Hot gas valve off time	0	0	0
Low temp in defrost cycle	74	Operating temp	0	0	15

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

	No	Item	45CNE (50Hz)	45CNE-25 (50Hz)	45CNE (60Hz)
Basic	1	Defrost completion temp	5	6	5
	2	Integrated constant 1 (temp)	-22.5	-20.0	-22.5
	3	Integrated constant 2 (time)	10	7	10
	4	Ambient temp correction operating temp for integrated value	23	20	23
	5	Ambient temp correction rate for integrated value	90	90	90
	6	Freeze backup timer	45	45	45
Water supply	10	Defrosting water supply time, water temp less than 13°C	15	15	15
	11	Defrosting water supply time, water temp 13°C or more	7	7	7
	12	Icemaking water supply time, partial drain flush	22	22	22
		* Icemaking water supply time, full drain flush			
	13	Water temp measurement correction value	3	6	3
	14	* Full / partial drain flush selection	0	0	0
	15	Additional icemaking water supply time, partial drain flush	0	0	0
		* Additional icemaking water supply time, full drain flush	0	0	0
Other	21	Double stack bin control	1	1	1
	22	Refrigeration unit operation in bin control cycle	0	0	0
Model	30	Type	1	1	1
Defrost cycle low temp control	34	Operating temp	45	45	45
Water regulator	36	Water regulator error detecting temp	0	0	0
Compressor	37	Compressor output selection	0	0	0
Slush ice	50	Pump off time	0	0	0
	51	Water supply time	0	0	0
Hard water	60	Operating condition	10	10	10
	61	Water supply time	0	0	0
Ice left in water pan	70	Operating temp	47	47	47
	71	Hot gas valve on time	2	0	2
	72	Hot gas valve off time	28	0	28
Ice bridge	73	Hot gas valve off time	0	0	0
Low temp in defrost cycle	74	Operating temp	20	20	20

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

	No	Item	45NE (50Hz)	45NE-25 (50Hz)	45NE (60Hz)
Basic	1	Defrost completion temp	6	6	5
	2	Integrated constant 1 (temp)	-20.0	-19.0	-21.0
	3	Integrated constant 2 (time)	10	9	10
	4	Ambient temp correction operating temp for integrated value	20	20	27
	5	Ambient temp correction rate for integrated value	85	90	95
	6	Freeze backup timer	45	45	45
Water supply	10	Defrosting water supply time, water temp less than 13°C	15	15	15
	11	Defrosting water supply time, water temp 13°C or more	7	7	7
	12	Icemaking water supply time, partial drain flush	22	22	22
		* Icemaking water supply time, full drain flush			
	13	Water temp measurement correction value	4	4	5
	14	* Full / partial drain flush selection	0	0	0
	15	Additional icemaking water supply time, partial drain flush	0	0	0
		* Additional icemaking water supply time, full drain flush	0	0	0
Other	21	Double stack bin control	1	1	1
	22	Refrigeration unit operation in bin control cycle	0	0	0
Model	30	Type	1	1	1
Defrost cycle low temp control	34	Operating temp	45	45	48
Water regulator	36	Water regulator error detecting temp	0	0	0
Compressor	37	Compressor output selection	0	0	0
Slush ice	50	Pump off time	0	0	0
	51	Water supply time	0	0	0
Hard water	60	Operating condition	10	10	10
	61	Water supply time	0	0	0
Ice left in water pan	70	Operating temp	47	45	46
	71	Hot gas valve on time	2	0	2
	72	Hot gas valve off time	28	0	28
Ice bridge	73	Hot gas valve off time	0	0	0
Low temp in defrost cycle	74	Operating temp	20	20	20

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

	No	Item	45NE-25 (60Hz)	45WNE (50Hz)	45WNE (60Hz)
Basic	1	Defrost completion temp	5	6	5
	2	Integrated constant 1 (temp)	-21.0	-19.0	-21.0
	3	Integrated constant 2 (time)	8	10	10
	4	Ambient temp correction operating temp for integrated value	27	25	20
	5	Ambient temp correction rate for integrated value	95	90	90
	6	Freeze backup timer	45	45	45
Water supply	10	Defrosting water supply time, water temp less than 13°C	15	15	15
	11	Defrosting water supply time, water temp 13°C or more	7	7	7
	12	Icemaking water supply time, partial drain flush	22	22	22
		* Icemaking water supply time, full drain flush			
	13	Water temp measurement correction value	5	5	6
	14	* Full / partial drain flush selection	0	0	0
	15	Additional icemaking water supply time, partial drain flush	0	0	0
		* Additional icemaking water supply time, full drain flush	0	0	0
Other	21	Double stack bin control	1	1	1
	22	Refrigeration unit operation in bin control cycle	0	0	0
Model	30	Type	1	0	0
Defrost cycle low temp control	34	Operating temp	48	45	48
Water regulator	36	Water regulator error detecting temp	0	0	0
Compressor	37	Compressor output selection	0	0	0
Slush ice	50	Pump off time	0	0	0
	51	Water supply time	0	0	0
Hard water	60	Operating condition	10	10	10
	61	Water supply time	0	0	0
Ice left in water pan	70	Operating temp	46	47	45
	71	Hot gas valve on time	0	0	0
	72	Hot gas valve off time	0	0	0
Ice bridge	73	Hot gas valve off time	0	0	0
Low temp in defrost cycle	74	Operating temp	20	0	0

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

	No	Item	45WNE-25 (60Hz)	65NE (50Hz)	65NE-25 (50Hz)
Basic	1	Defrost completion temp	5	6	6
	2	Integrated constant 1 (temp)	-16.0	-19.5	-19.5
	3	Integrated constant 2 (time)	10	11	9
	4	Ambient temp correction operating temp for integrated value	25	17	25
	5	Ambient temp correction rate for integrated value	95	85	85
	6	Freeze backup timer	45	45	45
Water supply	10	Defrosting water supply time, water temp less than 13°C	15	13	13
	11	Defrosting water supply time, water temp 13°C or more	7	10	10
	12	Icemaking water supply time, partial drain flush	22	29	29
		* Icemaking water supply time, full drain flush			
	13	Water temp measurement correction value	6	6	5
	14	* Full / partial drain flush selection	0	0	0
	15	Additional icemaking water supply time, partial drain flush	0	0	0
		* Additional icemaking water supply time, full drain flush	0	0	0
Other	21	Double stack bin control	1	1	1
	22	Refrigeration unit operation in bin control cycle	0	0	0
Model	30	Type	0	1	1
Defrost cycle low temp control	34	Operating temp	48	48	48
Water regulator	36	Water regulator error detecting temp	0	0	0
Compressor	37	Compressor output selection	0	0	0
Slush ice	50	Pump off time	0	0	0
	51	Water supply time	0	0	0
Hard water	60	Operating condition	10	10	0
	61	Water supply time	0	0	0
Ice left in water pan	70	Operating temp	45	47	47
	71	Hot gas valve on time	0	10	10
	72	Hot gas valve off time	0	20	20
Ice bridge	73	Hot gas valve off time	0	0	0
Low temp in defrost cycle	74	Operating temp	0	17	17

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

	No	Item	65NE-C (50Hz)	65NE-Q (50Hz)	65NE (60Hz)
Basic	1	Defrost completion temp	9	7	4
	2	Integrated constant 1 (temp)	-22.0	-19.5	-19.5
	3	Integrated constant 2 (time)	22	40	12
	4	Ambient temp correction operating temp for integrated value	25	35	17
	5	Ambient temp correction rate for integrated value	85	90	85
	6	Freeze backup timer	60	60	45
Water supply	10	Defrosting water supply time, water temp less than 13°C	13	1	13
	11	Defrosting water supply time, water temp 13°C or more	10	1	10
	12	Icemaking water supply time, partial drain flush	25	0	29
		* Icemaking water supply time, full drain flush			
	13	Water temp measurement correction value	5	6	6
	14	* Full / partial drain flush selection	0	0	0
	15	Additional icemaking water supply time, partial drain flush	0	15	0
		* Additional icemaking water supply time, full drain flush	0	0	0
Other	21	Double stack bin control	1	1	1
	22	Refrigeration unit operation in bin control cycle	0	0	0
Model	30	Type	1	1	1
Defrost cycle low temp control	34	Operating temp	48	48	48
Water regulator	36	Water regulator error detecting temp	0	0	0
Compressor	37	Compressor output selection	0	0	0
Slush ice	50	Pump off time	0	0	0
	51	Water supply time	0	0	0
Hard water	60	Operating condition	10	10	10
	61	Water supply time	0	0	0
Ice left in water pan	70	Operating temp	50	47	47
	71	Hot gas valve on time	10	0	10
	72	Hot gas valve off time	20	0	20
Ice bridge	73	Hot gas valve off time	0	0	0
Low temp in defrost cycle	74	Operating temp	0	0	17

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

	No	Item	65NE-25 (60Hz)	65WNE (50Hz)	65WNE (60Hz)
Basic	1	Defrost completion temp	8	6	5
	2	Integrated constant 1 (temp)	-18.5	-18.0	-20.0
	3	Integrated constant 2 (time)	9	14	10
	4	Ambient temp correction operating temp for integrated value	25	40	30
	5	Ambient temp correction rate for integrated value	85	95	100
	6	Freeze backup timer	45	45	45
Water supply	10	Defrosting water supply time, water temp less than 13°C	13	13	13
	11	Defrosting water supply time, water temp 13°C or more	10	10	10
	12	Icemaking water supply time, partial drain flush	29	29	29
		* Icemaking water supply time, full drain flush			
	13	Water temp measurement correction value	5	6	5
	14	* Full / partial drain flush selection	0	0	0
	15	Additional icemaking water supply time, partial drain flush	0	0	0
		* Additional icemaking water supply time, full drain flush	0	0	0
Other	21	Double stack bin control	1	1	1
	22	Refrigeration unit operation in bin control cycle	0	0	0
Model	30	Type	1	0	0
Defrost cycle low temp control	34	Operating temp	48	48	48
Water regulator	36	Water regulator error detecting temp	0	0	0
Compressor	37	Compressor output selection	0	0	0
Slush ice	50	Pump off time	0	0	0
	51	Water supply time	0	0	0
Hard water	60	Operating condition	10	0	10
	61	Water supply time	0	0	0
Ice left in water pan	70	Operating temp	47	40	47
	71	Hot gas valve on time	10	10	10
	72	Hot gas valve off time	20	20	20
Ice bridge	73	Hot gas valve off time	0	0	0
Low temp in defrost cycle	74	Operating temp	0	0	0

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

	No	Item	65WNE-25 (60Hz)
Basic	1	Defrost completion temp	6
	2	Integrated constant 1 (temp)	-15.0
	3	Integrated constant 2 (time)	11
	4	Ambient temp correction operating temp for integrated value	40
	5	Ambient temp correction rate for integrated value	100
	6	Freeze backup timer	45
Water supply	10	Defrosting water supply time, water temp less than 13°C	13
	11	Defrosting water supply time, water temp 13°C or more	10
	12	Icemaking water supply time, partial drain flush	29
		* Icemaking water supply time, full drain flush	
	13	Water temp measurement correction value	5
	14	* Full / partial drain flush selection	0
	15	Additional icemaking water supply time, partial drain flush	0
		* Additional icemaking water supply time, full drain flush	0
Other	21	Double stack bin control	1
	22	Refrigeration unit operation in bin control cycle	0
Model	30	Type	0
Defrost cycle low temp control	34	Operating temp	48
Water regulator	36	Water regulator error detecting temp	0
Compressor	37	Compressor output selection	0
Slush ice	50	Pump off time	0
	51	Water supply time	0
Hard water	60	Operating condition	10
	61	Water supply time	0
Ice left in water pan	70	Operating temp	40
	71	Hot gas valve on time	10
	72	Hot gas valve off time	20
Ice bridge	73	Hot gas valve off time	0
Low temp in defrost cycle	74	Operating temp	0

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

	No	Item	100NE (50/60Hz)	100NE-C (50Hz)	100NE-23 (50/60Hz)
Basic	1	Defrost completion temp	6	7	6
	2	Integrated constant 1 (temp)	-23.5	-20.0	-22.0
	3	Integrated constant 2 (time)	12	26	12
	4	Ambient temp correction operating temp for integrated value	44	44	44
	5	Ambient temp correction rate for integrated value	90	95	95
	6	Freeze backup timer	45	45	45
Water supply	10	Defrosting water supply time, water temp less than 13°C	90	90	90
	11	Defrosting water supply time, water temp 13°C or more	30	30	30
	12	Icemaking water supply time, partial drain flush	35	35	35
		* Icemaking water supply time, full drain flush	70	70	70
	13	Water temp measurement correction value	8	8	7
	14	* Full / partial drain flush selection	1	1	1
	15	Additional icemaking water supply time, partial drain flush	0	0	0
		* Additional icemaking water supply time, full drain flush	0	0	0
Other	21	Double stack bin control	1	1	1
	22	Refrigeration unit operation in bin control cycle	0	0	0
Model	30	Type	2	2	2
Defrost cycle low temp control	34	Operating temp	48	48	48
Water regulator	36	Water regulator error detecting temp	0	0	0
Compressor	37	Compressor output selection	1	1	1
Slush ice	50	Pump off time	0	0	0
	51	Water supply time	0	0	0
Hard water	60	Operating condition	10	10	10
	61	Water supply time	0	0	0
Ice left in water pan	70	Operating temp	44	44	44
	71	Hot gas valve on time	10	10	10
	72	Hot gas valve off time	20	20	20
Ice bridge	73	Hot gas valve off time	0	0	0
Low temp in defrost cycle	74	Operating temp	27	27	30

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

	No	Item	100NE-21 (50/60Hz)	100CNE (50Hz)	100CNE-23 (50Hz)
Basic	1	Defrost completion temp	6	6	7
	2	Integrated constant 1 (temp)	-11.0	-23.5	-23.5
	3	Integrated constant 2 (time)	5	13	11
	4	Ambient temp correction operating temp for integrated value	44	10	10
	5	Ambient temp correction rate for integrated value	100	100	100
	6	Freeze backup timer	45	45	45
Water supply	10	Defrosting water supply time, water temp less than 13°C	90	90	90
	11	Defrosting water supply time, water temp 13°C or more	30	30	30
	12	Icemaking water supply time, partial drain flush	35	35	35
		* Icemaking water supply time, full drain flush	70	70	70
	13	Water temp measurement correction value	7	9	7
	14	* Full / partial drain flush selection	1	1	1
	15	Additional icemaking water supply time, partial drain flush	0	0	0
		* Additional icemaking water supply time, full drain flush	0	0	0
Other	21	Double stack bin control	1	1	1
	22	Refrigeration unit operation in bin control cycle	0	0	0
Model	30	Type	2	2	2
Defrost cycle low temp control	34	Operating temp	48	48	48
Water regulator	36	Water regulator error detecting temp	0	0	0
Compressor	37	Compressor output selection	1	1	1
Slush ice	50	Pump off time	0	0	0
	51	Water supply time	0	0	0
Hard water	60	Operating condition	10	10	10
	61	Water supply time	0	0	0
Ice left in water pan	70	Operating temp	44	44	44
	71	Hot gas valve on time	10	10	10
	72	Hot gas valve off time	20	20	20
Ice bridge	73	Hot gas valve off time	0	0	0
Low temp in defrost cycle	74	Operating temp	30	27	30

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

	No	Item	100WNE (50/60Hz)	100WNE-21 (50/60Hz)	130NE (50Hz)
Basic	1	Defrost completion temp	4	5	4
	2	Integrated constant 1 (temp)	-23.5	-10.0	-23.5
	3	Integrated constant 2 (time)	12	9	13
	4	Ambient temp correction operating temp for integrated value	10	10	44
	5	Ambient temp correction rate for integrated value	100	100	90
	6	Freeze backup timer	45	45	45
Water supply	10	Defrosting water supply time, water temp less than 13°C	90	90	90
	11	Defrosting water supply time, water temp 13°C or more	30	30	30
	12	Icemaking water supply time, partial drain flush	35	35	35
		* Icemaking water supply time, full drain flush	70	70	70
	13	Water temp measurement correction value	8	8	10
	14	* Full / partial drain flush selection	1	1	1
	15	Additional icemaking water supply time, partial drain flush	0	0	0
		* Additional icemaking water supply time, full drain flush	0	0	0
Other	21	Double stack bin control	1	1	1
	22	Refrigeration unit operation in bin control cycle	0	0	0
Model	30	Type	0	0	2
Defrost cycle low temp control	34	Operating temp	48	48	48
Water regulator	36	Water regulator error detecting temp	0	0	0
Compressor	37	Compressor output selection	1	1	1
Slush ice	50	Pump off time	0	0	0
	51	Water supply time	0	0	0
Hard water	60	Operating condition	10	10	10
	61	Water supply time	0	0	0
Ice left in water pan	70	Operating temp	30	30	44
	71	Hot gas valve on time	0	0	10
	72	Hot gas valve off time	0	0	20
Ice bridge	73	Hot gas valve off time	0	0	0
Low temp in defrost cycle	74	Operating temp	0	0	27

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

	No	Item	130NE-23 (50Hz)	130NE-21 (50Hz)	130WNE (50Hz)
Basic	1	Defrost completion temp	6	12	5
	2	Integrated constant 1 (temp)	-20.0	-17.0	-20.0
	3	Integrated constant 2 (time)	12	5	13
	4	Ambient temp correction operating temp for integrated value	44	50	29
	5	Ambient temp correction rate for integrated value	90	95	90
	6	Freeze backup timer	45	45	45
Water supply	10	Defrosting water supply time, water temp less than 13°C	90	90	90
	11	Defrosting water supply time, water temp 13°C or more	30	30	30
	12	Icemaking water supply time, partial drain flush	35	35	35
		* Icemaking water supply time, full drain flush	70	70	70
	13	Water temp measurement correction value	9	6	10
	14	* Full / partial drain flush selection	1	1	1
	15	Additional icemaking water supply time, partial drain flush	0	0	0
		* Additional icemaking water supply time, full drain flush	0	0	0
Other	21	Double stack bin control	1	1	1
	22	Refrigeration unit operation in bin control cycle	0	0	0
Model	30	Type	2	2	0
Defrost cycle low temp control	34	Operating temp	48	45	48
Water regulator	36	Water regulator error detecting temp	0	0	0
Compressor	37	Compressor output selection	1	1	1
Slush ice	50	Pump off time	0	30	0
	51	Water supply time	0	0	0
Hard water	60	Operating condition	10	10	10
	61	Water supply time	0	0	0
Ice left in water pan	70	Operating temp	44	44	44
	71	Hot gas valve on time	10	0	0
	72	Hot gas valve off time	20	0	0
Ice bridge	73	Hot gas valve off time	0	20	0
Low temp in defrost cycle	74	Operating temp	28	32	0

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

* Copeland compressor: auxiliary code B0 and earlier					
	No	Item	240NE (50Hz)	240NE-23 (50Hz)	240WNE (50Hz)
Basic	1	Defrost completion temp	6	6	4
	2	Integrated constant 1 (temp)	-20.0	-24.0	-19.5
	3	Integrated constant 2 (time)	13	12	13
	4	Ambient temp correction operating temp for integrated value	40	45	43
	5	Ambient temp correction rate for integrated value	95	100	90
	6	Freeze backup timer	45	45	45
Water supply	10	Defrosting water supply time, water temp less than 13°C	95	95	95
	11	Defrosting water supply time, water temp 13°C or more	30	30	30
	12	Icemaking water supply time, partial drain flush	30	30	30
		* Icemaking water supply time, full drain flush	60	60	60
	13	Water temp measurement correction value	11	12	10
	14	* Full / partial drain flush selection	1	1	1
	15	Additional icemaking water supply time, partial drain flush	22	22	22
		* Additional icemaking water supply time, full drain flush	44	44	44
Other	21	Double stack bin control	1	1	1
	22	Refrigeration unit operation in bin control cycle	0	0	0
Model	30	Type	2	2	0
Defrost cycle low temp control	34	Operating temp	50	50	48
Water regulator	36	Water regulator error detecting temp	0	0	0
Compressor	37	Compressor output selection	1	1	1
Slush ice	50	Pump off time	0	0	0
	51	Water supply time	0	0	0
Hard water	60	Operating condition	10	10	10
	61	Water supply time	0	0	0
Ice left in water pan	70	Operating temp	40	43	43
	71	Hot gas valve on time	2	0	2
	72	Hot gas valve off time	28	0	28
Ice bridge	73	Hot gas valve off time	0	15	0
Low temp in defrost cycle	74	Operating temp	33	28	0

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

* Copeland compressor: auxiliary code B0 and earlier					
	No	Item	240DNE (50Hz)	240DNE-C (50Hz)	240DNE-32 (50Hz)
Basic	1	Defrost completion temp	6	8	5
	2	Integrated constant 1 (temp)	-19.0	-22.5	-19.0
	3	Integrated constant 2 (time)	11	18	17
	4	Ambient temp correction operating temp for integrated value	10	26	10
	5	Ambient temp correction rate for integrated value	100	90	100
	6	Freeze backup timer	45	45	45
Water supply	10	Defrosting water supply time, water temp less than 13°C	95	95	95
	11	Defrosting water supply time, water temp 13°C or more	30	30	30
	12	Icemaking water supply time, partial drain flush	30	30	30
		* Icemaking water supply time, full drain flush	60	60	60
	13	Water temp measurement correction value	9	10	9
	14	* Full / partial drain flush selection	1	1	1
	15	Additional icemaking water supply time, partial drain flush	22	22	22
		* Additional icemaking water supply time, full drain flush	44	44	44
Other	21	Double stack bin control	1	1	1
	22	Refrigeration unit operation in bin control cycle	0	0	0
Model	30	Type	2	2	2
Defrost cycle low temp control	34	Operating temp	48	48	48
Water regulator	36	Water regulator error detecting temp	0	0	0
Compressor	37	Compressor output selection	1	1	1
Slush ice	50	Pump off time	0	0	0
	51	Water supply time	0	0	0
Hard water	60	Operating condition	10	10	10
	61	Water supply time	0	0	0
Ice left in water pan	70	Operating temp	44	37	44
	71	Hot gas valve on time	5	10	0
	72	Hot gas valve off time	25	20	0
Ice bridge	73	Hot gas valve off time	0	0	0
Low temp in defrost cycle	74	Operating temp	27	17	27

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

* Copeland compressor: auxiliary code B0 and earlier					
	No	Item	240DNE-23 (50Hz)	240DNE-21 (50Hz)	240DWNE (50Hz)
Basic	1	Defrost completion temp	6	7	4
	2	Integrated constant 1 (temp)	-19.0	-9.5	-19.0
	3	Integrated constant 2 (time)	13	5	11
	4	Ambient temp correction operating temp for integrated value	10	10	30
	5	Ambient temp correction rate for integrated value	100	100	90
	6	Freeze backup timer	45	45	45
Water supply	10	Defrosting water supply time, water temp less than 13°C	95	95	95
	11	Defrosting water supply time, water temp 13°C or more	30	30	30
	12	Icemaking water supply time, partial drain flush	30	30	30
		* Icemaking water supply time, full drain flush	60	60	60
	13	Water temp measurement correction value	9	7	11
	14	* Full / partial drain flush selection	1	1	1
	15	Additional icemaking water supply time, partial drain flush	22	22	22
		* Additional icemaking water supply time, full drain flush	44	44	44
Other	21	Double stack bin control	1	1	1
	22	Refrigeration unit operation in bin control cycle	0	0	0
Model	30	Type	2	2	0
Defrost cycle low temp control	34	Operating temp	48	48	48
Water regulator	36	Water regulator error detecting temp	0	0	0
Compressor	37	Compressor output selection	1	1	1
Slush ice	50	Pump off time	0	0	0
	51	Water supply time	0	0	0
Hard water	60	Operating condition	10	10	10
	61	Water supply time	0	0	0
Ice left in water pan	70	Operating temp	44	30	47
	71	Hot gas valve on time	0	0	5
	72	Hot gas valve off time	0	0	25
Ice bridge	73	Hot gas valve off time	0	20	0
Low temp in defrost cycle	74	Operating temp	27	30	0

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

* Copeland compressor: auxiliary code B0 and earlier					
	No	Item	240DWNE-C (50Hz)	240DWNE-32 (50Hz)	240DWNE-23 (50Hz)
Basic	1	Defrost completion temp	8	4	4
	2	Integrated constant 1 (temp)	-24.0	-19.0	-19.0
	3	Integrated constant 2 (time)	18	18	13
	4	Ambient temp correction operating temp for integrated value	44	30	30
	5	Ambient temp correction rate for integrated value	95	90	90
	6	Freeze backup timer	45	45	45
Water supply	10	Defrosting water supply time, water temp less than 13°C	95	95	95
	11	Defrosting water supply time, water temp 13°C or more	30	30	30
	12	Icemaking water supply time, partial drain flush	30	30	30
		* Icemaking water supply time, full drain flush	60	60	60
	13	Water temp measurement correction value	10	10	10
	14	* Full / partial drain flush selection	1	1	1
	15	Additional icemaking water supply time, partial drain flush	22	22	22
		* Additional icemaking water supply time, full drain flush	44	44	44
Other	21	Double stack bin control	1	1	1
	22	Refrigeration unit operation in bin control cycle	0	0	0
Model	30	Type	0	0	0
Defrost cycle low temp control	34	Operating temp	48	48	48
Water regulator	36	Water regulator error detecting temp	0	0	0
Compressor	37	Compressor output selection	1	1	1
Slush ice	50	Pump off time	0	0	0
	51	Water supply time	0	0	0
Hard water	60	Operating condition	10	10	10
	61	Water supply time	0	0	0
Ice left in water pan	70	Operating temp	44	47	47
	71	Hot gas valve on time	10	0	0
	72	Hot gas valve off time	20	0	0
Ice bridge	73	Hot gas valve off time	0	0	0
Low temp in defrost cycle	74	Operating temp	0	0	0

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

* Copeland compressor: auxiliary code B0 and earlier					
	No	Item	240DWNE-21 (50Hz)	240DNE (60Hz)	240DNE-23 (60Hz)
Basic	1	Defrost completion temp	4	6	6
	2	Integrated constant 1 (temp)	-14.0	-19.0	-19.0
	3	Integrated constant 2 (time)	5	9	12
	4	Ambient temp correction operating temp for integrated value	30	10	10
	5	Ambient temp correction rate for integrated value	95	100	100
	6	Freeze backup timer	45	45	45
Water supply	10	Defrosting water supply time, water temp less than 13°C	95	95	95
	11	Defrosting water supply time, water temp 13°C or more	30	30	30
	12	Icemaking water supply time, partial drain flush	30	30	30
		* Icemaking water supply time, full drain flush	60	60	60
	13	Water temp measurement correction value	10	9	9
	14	* Full / partial drain flush selection	1	1	1
	15	Additional icemaking water supply time, partial drain flush	22	22	12
		* Additional icemaking water supply time, full drain flush	44	44	24
Other	21	Double stack bin control	1	1	1
	22	Refrigeration unit operation in bin control cycle	0	0	0
Model	30	Type	0	2	2
Defrost cycle low temp control	34	Operating temp	48	48	48
Water regulator	36	Water regulator error detecting temp	0	0	0
Compressor	37	Compressor output selection	1	1	1
Slush ice	50	Pump off time	0	0	0
	51	Water supply time	0	0	0
Hard water	60	Operating condition	10	10	10
	61	Water supply time	0	0	0
Ice left in water pan	70	Operating temp	47	44	44
	71	Hot gas valve on time	0	5	0
	72	Hot gas valve off time	0	25	0
Ice bridge	73	Hot gas valve off time	0	0	0
Low temp in defrost cycle	74	Operating temp	0	27	27

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

* Copeland compressor: auxiliary code B0 and earlier					
	No	Item	240DNE-21 (60Hz)	240DWNE (60Hz)	240DWNE-21 (60Hz)
Basic	1	Defrost completion temp	6	5	6
	2	Integrated constant 1 (temp)	-14.0	-19.5	-15.0
	3	Integrated constant 2 (time)	5	11	5
	4	Ambient temp correction operating temp for integrated value	10	30	30
	5	Ambient temp correction rate for integrated value	100	90	90
	6	Freeze backup timer	45	45	45
Water supply	10	Defrosting water supply time, water temp less than 13°C	95	95	95
	11	Defrosting water supply time, water temp 13°C or more	30	30	30
	12	Icemaking water supply time, partial drain flush	30	30	30
		* Icemaking water supply time, full drain flush	60	60	60
	13	Water temp measurement correction value	9	9	9
	14	* Full / partial drain flush selection	1	1	1
	15	Additional icemaking water supply time, partial drain flush	12	22	22
		* Additional icemaking water supply time, full drain flush	24	44	44
Other	21	Double stack bin control	1	1	1
	22	Refrigeration unit operation in bin control cycle	0	0	0
Model	30	Type	2	0	0
Defrost cycle low temp control	34	Operating temp	48	48	48
Water regulator	36	Water regulator error detecting temp	0	0	0
Compressor	37	Compressor output selection	1	1	1
Slush ice	50	Pump off time	0	0	0
	51	Water supply time	0	0	0
Hard water	60	Operating condition	10	10	10
	61	Water supply time	0	0	0
Ice left in water pan	70	Operating temp	44	49	49
	71	Hot gas valve on time	0	5	0
	72	Hot gas valve off time	0	25	0
Ice bridge	73	Hot gas valve off time	0	0	0
Low temp in defrost cycle	74	Operating temp	27	0	0

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

* Copeland compressor: auxiliary code B0 and earlier					
	No	Item	240ANE (50Hz)	240ANE-23 (50Hz)	240AWNE (50Hz)
Basic	1	Defrost completion temp	5	5	4
	2	Integrated constant 1 (temp)	-16.5	-20.0	-20.0
	3	Integrated constant 2 (time)	10	13	9
	4	Ambient temp correction operating temp for integrated value	35	10	47
	5	Ambient temp correction rate for integrated value	95	100	90
	6	Freeze backup timer	45	45	45
Water supply	10	Defrosting water supply time, water temp less than 13°C	95	95	95
	11	Defrosting water supply time, water temp 13°C or more	30	30	30
	12	Icemaking water supply time, partial drain flush	30	23	30
		* Icemaking water supply time, full drain flush	60	46	60
	13	Water temp measurement correction value	10	10	10
	14	* Full / partial drain flush selection	1	1	1
	15	Additional icemaking water supply time, partial drain flush	22	22	22
		* Additional icemaking water supply time, full drain flush	44	44	44
Other	21	Double stack bin control	1	1	1
	22	Refrigeration unit operation in bin control cycle	0	0	0
Model	30	Type	2	2	0
Defrost cycle low temp control	34	Operating temp	48	48	48
Water regulator	36	Water regulator error detecting temp	0	0	0
Compressor	37	Compressor output selection	1	1	1
Slush ice	50	Pump off time	0	0	0
	51	Water supply time	0	0	0
Hard water	60	Operating condition	10	10	10
	61	Water supply time	0	0	0
Ice left in water pan	70	Operating temp	35	45	47
	71	Hot gas valve on time	2	0	2
	72	Hot gas valve off time	28	0	28
Ice bridge	73	Hot gas valve off time	0	15	0
Low temp in defrost cycle	74	Operating temp	25	35	0

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

* Copeland compressor: auxiliary code B0 and earlier					
	No	Item	240AWNE (60Hz)	240AWNE-23 (60Hz)	240AWNE-21 (60Hz)
Basic	1	Defrost completion temp	4	6	6
	2	Integrated constant 1 (temp)	-19.0	-20.0	-14.0
	3	Integrated constant 2 (time)	12	14	5
	4	Ambient temp correction operating temp for integrated value	45	32	32
	5	Ambient temp correction rate for integrated value	90	85	85
	6	Freeze backup timer	45	45	45
Water supply	10	Defrosting water supply time, water temp less than 13°C	95	95	95
	11	Defrosting water supply time, water temp 13°C or more	30	30	30
	12	Icemaking water supply time, partial drain flush	30	30	30
		* Icemaking water supply time, full drain flush	60	60	60
	13	Water temp measurement correction value	10	10	10
	14	* Full / partial drain flush selection	1	1	1
	15	Additional icemaking water supply time, partial drain flush	22	22	22
		* Additional icemaking water supply time, full drain flush	44	44	44
Other	21	Double stack bin control	1	1	1
	22	Refrigeration unit operation in bin control cycle	0	0	0
Model	30	Type	0	0	0
Defrost cycle low temp control	34	Operating temp	48	48	48
Water regulator	36	Water regulator error detecting temp	0	0	0
Compressor	37	Compressor output selection	1	1	1
Slush ice	50	Pump off time	0	0	0
	51	Water supply time	0	0	0
Hard water	60	Operating condition	10	10	10
	61	Water supply time	0	0	0
Ice left in water pan	70	Operating temp	45	49	49
	71	Hot gas valve on time	2	0	0
	72	Hot gas valve off time	28	0	0
Ice bridge	73	Hot gas valve off time	0	0	0
Low temp in defrost cycle	74	Operating temp	0	0	0

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

* SECOP (Danfoss) compressor: auxiliary code B2 and later					
	No	Item	240NE (50Hz)	240NE-23 (50Hz)	240NE-21 (50Hz)
Basic	1	Defrost completion temp	6	6	6
	2	Integrated constant 1 (temp)	-18.5	-23.0	-15.0
	3	Integrated constant 2 (time)	13	12	5
	4	Ambient temp correction operating temp for integrated value	37	45	45
	5	Ambient temp correction rate for integrated value	95	100	100
	6	Freeze backup timer	45	45	45
Water supply	10	Defrosting water supply time, water temp less than 13°C	95	95	95
	11	Defrosting water supply time, water temp 13°C or more	30	30	30
	12	Icemaking water supply time, partial drain flush	30	30	30
		* Icemaking water supply time, full drain flush	60	60	60
	13	Water temp measurement correction value	11	10	8
	14	* Full / partial drain flush selection	1	1	1
	15	Additional icemaking water supply time, partial drain flush	22	22	14
		* Additional icemaking water supply time, full drain flush	44	44	44
Other	21	Double stack bin control	1	1	1
	22	Refrigeration unit operation in bin control cycle	0	0	0
Model	30	Type	2	2	2
Defrost cycle low temp control	34	Operating temp	45	50	50
Water regulator	36	Water regulator error detecting temp	0	0	0
Compressor	37	Compressor output selection	1	1	1
Slush ice	50	Pump off time	0	0	0
	51	Water supply time	0	0	0
Hard water	60	Operating condition	10	43	45
	61	Water supply time	0	0	8
Ice left in water pan	70	Operating temp	37	43	43
	71	Hot gas valve on time	2	0	0
	72	Hot gas valve off time	28	0	0
Ice bridge	73	Hot gas valve off time	0	15	15
Low temp in defrost cycle	74	Operating temp	28	32	32

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

* SECOP (Danfoss) compressor: auxiliary code B2 and later					code B1
	No	Item	240WNE (50Hz)	240WNE-23 (50Hz)	240DNE (50Hz)
Basic	1	Defrost completion temp	5		5
	2	Integrated constant 1 (temp)	-17.5		-14.5
	3	Integrated constant 2 (time)	11		11
	4	Ambient temp correction operating temp for integrated value	30		10
	5	Ambient temp correction rate for integrated value	95		100
	6	Freeze backup timer	45		45
Water supply	10	Defrosting water supply time, water temp less than 13°C	95		95
	11	Defrosting water supply time, water temp 13°C or more	30		30
	12	Icemaking water supply time, partial drain flush	30		30
		* Icemaking water supply time, full drain flush	60		60
	13	Water temp measurement correction value	11		9
	14	* Full / partial drain flush selection	1		1
	15	Additional icemaking water supply time, partial drain flush	22		22
		* Additional icemaking water supply time, full drain flush	44		44
Other	21	Double stack bin control	1		1
	22	Refrigeration unit operation in bin control cycle	0		0
Model	30	Type	0		2
Defrost cycle low temp control	34	Operating temp	45		45
Water regulator	36	Water regulator error detecting temp	0		0
Compressor	37	Compressor output selection	1		1
Slush ice	50	Pump off time	0		0
	51	Water supply time	0		0
Hard water	60	Operating condition	10		10
	61	Water supply time	0		0
Ice left in water pan	70	Operating temp	50		50
	71	Hot gas valve on time	2		2
	72	Hot gas valve off time	28		28
Ice bridge	73	Hot gas valve off time	0		0
Low temp in defrost cycle	74	Operating temp	0		30

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

* SECOP (Danfoss) compressor: auxiliary code B1 and later					
	No	Item	240DNE-C (50Hz)	240DNE-32 (50Hz)	240DNE-23 (50Hz)
Basic	1	Defrost completion temp		4	5
	2	Integrated constant 1 (temp)		-21.0	-21.0
	3	Integrated constant 2 (time)		17	12
	4	Ambient temp correction operating temp for integrated value		10	44
	5	Ambient temp correction rate for integrated value		100	95
	6	Freeze backup timer		45	45
Water supply	10	Defrosting water supply time, water temp less than 13°C		95	95
	11	Defrosting water supply time, water temp 13°C or more		30	30
	12	Icemaking water supply time, partial drain flush		30	30
		* Icemaking water supply time, full drain flush		9	60
	13	Water temp measurement correction value		1	9
	14	* Full / partial drain flush selection		22	1
	15	Additional icemaking water supply time, partial drain flush		1	22
		* Additional icemaking water supply time, full drain flush		44	44
Other	21	Double stack bin control		1	1
	22	Refrigeration unit operation in bin control cycle		0	0
Model	30	Type		2	2
Defrost cycle low temp control	34	Operating temp		48	45
Water regulator	36	Water regulator error detecting temp		0	0
Compressor	37	Compressor output selection		1	1
Slush ice	50	Pump off time		0	0
	51	Water supply time		0	0
Hard water	60	Operating condition		10	10
	61	Water supply time		0	0
Ice left in water pan	70	Operating temp		44	44
	71	Hot gas valve on time		0	2
	72	Hot gas valve off time		0	28
Ice bridge	73	Hot gas valve off time		0	0
Low temp in defrost cycle	74	Operating temp		27	30

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

* SECOP (Danfoss) compressor: auxiliary code B1 and later					
	No	Item	240DNE-21 (50Hz)	240DWNE (50Hz)	240DWNE-C (50Hz)
Basic	1	Defrost completion temp	7	5	9
	2	Integrated constant 1 (temp)	-10.5	-17.5	-26.5
	3	Integrated constant 2 (time)	7	11	18
	4	Ambient temp correction operating temp for integrated value	10	30	44
	5	Ambient temp correction rate for integrated value	100	95	95
	6	Freeze backup timer	45	45	45
Water supply	10	Defrosting water supply time, water temp less than 13°C	95	95	95
	11	Defrosting water supply time, water temp 13°C or more	30	30	30
	12	Icemaking water supply time, partial drain flush	30	30	30
		* Icemaking water supply time, full drain flush	60	60	60
	13	Water temp measurement correction value	8	11	9
	14	* Full / partial drain flush selection	1	1	1
	15	Additional icemaking water supply time, partial drain flush	22	22	22
		* Additional icemaking water supply time, full drain flush	44	44	44
Other	21	Double stack bin control	1	1	1
	22	Refrigeration unit operation in bin control cycle	0	0	0
Model	30	Type	2	0	0
Defrost cycle low temp control	34	Operating temp	45	45	48
Water regulator	36	Water regulator error detecting temp	0	0	0
Compressor	37	Compressor output selection	1	1	1
Slush ice	50	Pump off time	0	0	10
	51	Water supply time	0	0	0
Hard water	60	Operating condition	10	10	10
	61	Water supply time	0	0	0
Ice left in water pan	70	Operating temp	30	50	44
	71	Hot gas valve on time	0	2	10
	72	Hot gas valve off time	0	28	20
Ice bridge	73	Hot gas valve off time	20	0	0
Low temp in defrost cycle	74	Operating temp	30	0	0

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

* SECOP (Danfoss) compressor: auxiliary code B1 and later					
	No	Item	240DWNE-32 (50Hz)	240DWNE-23 (50Hz)	240DWNE-21 (50Hz)
Basic	1	Defrost completion temp	4	4	4
	2	Integrated constant 1 (temp)	-23.0	-23.0	-18.0
	3	Integrated constant 2 (time)	18	13	5
	4	Ambient temp correction operating temp for integrated value	30	30	30
	5	Ambient temp correction rate for integrated value	90	90	95
	6	Freeze backup timer	45	45	45
Water supply	10	Defrosting water supply time, water temp less than 13°C	95	95	99
	11	Defrosting water supply time, water temp 13°C or more	30	30	30
	12	Icemaking water supply time, partial drain flush	30	30	30
		* Icemaking water supply time, full drain flush	60	60	60
	13	Water temp measurement correction value	10	10	11
	14	* Full / partial drain flush selection	1	1	1
	15	Additional icemaking water supply time, partial drain flush	22	22	22
		* Additional icemaking water supply time, full drain flush	44	44	44
Other	21	Double stack bin control	1	1	1
	22	Refrigeration unit operation in bin control cycle	0	0	0
Model	30	Type	0	0	0
Defrost cycle low temp control	34	Operating temp	48	48	48
Water regulator	36	Water regulator error detecting temp	0	0	0
Compressor	37	Compressor output selection	1	1	1
Slush ice	50	Pump off time	0	0	0
	51	Water supply time	0	0	0
Hard water	60	Operating condition	10	10	10
	61	Water supply time	0	0	0
Ice left in water pan	70	Operating temp	47	47	47
	71	Hot gas valve on time	0	0	0
	72	Hot gas valve off time	0	0	0
Ice bridge	73	Hot gas valve off time	0	0	25
Low temp in defrost cycle	74	Operating temp	0	0	0

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

* SECOP (Danfoss) compressor: auxiliary code B2 and later					
	No	Item	240DNE (60Hz)	240DNE-23 (60Hz)	240DNE-21 (60Hz)
Basic	1	Defrost completion temp	5		6
	2	Integrated constant 1 (temp)	-19.0		-21.0
	3	Integrated constant 2 (time)	11		5
	4	Ambient temp correction operating temp for integrated value	10		30
	5	Ambient temp correction rate for integrated value	100		90
	6	Freeze backup timer	45		45
Water supply	10	Defrosting water supply time, water temp less than 13°C	95		95
	11	Defrosting water supply time, water temp 13°C or more	30		30
	12	Icemaking water supply time, partial drain flush	30		30
		* Icemaking water supply time, full drain flush	60		60
	13	Water temp measurement correction value	9		9
	14	* Full / partial drain flush selection	1		1
	15	Additional icemaking water supply time, partial drain flush	22		22
		* Additional icemaking water supply time, full drain flush	44		44
Other	21	Double stack bin control	1		1
	22	Refrigeration unit operation in bin control cycle	0		0
Model	30	Type	2		2
Defrost cycle low temp control	34	Operating temp	45		48
Water regulator	36	Water regulator error detecting temp	0		0
Compressor	37	Compressor output selection	1		1
Slush ice	50	Pump off time	0		0
	51	Water supply time	0		0
Hard water	60	Operating condition	10		10
	61	Water supply time	0		0
Ice left in water pan	70	Operating temp	48		49
	71	Hot gas valve on time	2		0
	72	Hot gas valve off time	28		0
Ice bridge	73	Hot gas valve off time	0		0
Low temp in defrost cycle	74	Operating temp	30		0

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

* SECOP (Danfoss) compressor: auxiliary code B2 and later					
	No	Item	240DWNE (60Hz)	240DWNE-23 (60Hz)	240DWNE-21 (60Hz)
Basic	1	Defrost completion temp	5		6
	2	Integrated constant 1 (temp)	-17.5		-21
	3	Integrated constant 2 (time)	11		5
	4	Ambient temp correction operating temp for integrated value	10		30
	5	Ambient temp correction rate for integrated value	100		90
	6	Freeze backup timer	45		45
Water supply	10	Defrosting water supply time, water temp less than 13°C	95		95
	11	Defrosting water supply time, water temp 13°C or more	30		30
	12	Icemaking water supply time, partial drain flush	30		30
		* Icemaking water supply time, full drain flush	60		60
	13	Water temp measurement correction value	8		8
	14	* Full / partial drain flush selection	1		1
	15	Additional icemaking water supply time, partial drain flush	22		22
		* Additional icemaking water supply time, full drain flush	44		44
Other	21	Double stack bin control	1		1
	22	Refrigeration unit operation in bin control cycle	0		0
Model	30	Type	0		0
Defrost cycle low temp control	34	Operating temp	45		48
Water regulator	36	Water regulator error detecting temp	0		0
Compressor	37	Compressor output selection	1		1
Slush ice	50	Pump off time	0		0
	51	Water supply time	0		0
Hard water	60	Operating condition	10		10
	61	Water supply time	0		0
Ice left in water pan	70	Operating temp	49		49
	71	Hot gas valve on time	2		0
	72	Hot gas valve off time	28		0
Ice bridge	73	Hot gas valve off time	0		0
Low temp in defrost cycle	74	Operating temp	0		0

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

* SECOP (Danfoss) compressor: auxiliary code B1 and later					
	No	Item	240ANE (50Hz)	240ANE-23 (50Hz)	240ANE-21 (50Hz)
Basic	1	Defrost completion temp	7	4	5
	2	Integrated constant 1 (temp)	-20.0	-20.0	-12.0
	3	Integrated constant 2 (time)	11	11	8
	4	Ambient temp correction operating temp for integrated value	10	10	10
	5	Ambient temp correction rate for integrated value	100	100	100
	6	Freeze backup timer	45	45	45
Water supply	10	Defrosting water supply time, water temp less than 13°C	95	95	95
	11	Defrosting water supply time, water temp 13°C or more	30	30	30
	12	Icemaking water supply time, partial drain flush	30	23	30
		* Icemaking water supply time, full drain flush	60	60	60
	13	Water temp measurement correction value	8	8	10
	14	* Full / partial drain flush selection	1	1	1
	15	Additional icemaking water supply time, partial drain flush	22	22	22
		* Additional icemaking water supply time, full drain flush	44	44	44
Other	21	Double stack bin control	1	1	1
	22	Refrigeration unit operation in bin control cycle	0	0	0
Model	30	Type	2	2	2
Defrost cycle low temp control	34	Operating temp	45	48	45
Water regulator	36	Water regulator error detecting temp	0	0	0
Compressor	37	Compressor output selection	1	1	1
Slush ice	50	Pump off time	0	0	0
	51	Water supply time	0	0	0
Hard water	60	Operating condition	10	10	10
	61	Water supply time	0	0	0
Ice left in water pan	70	Operating temp	50	45	30
	71	Hot gas valve on time	2	0	0
	72	Hot gas valve off time	28	0	0
Ice bridge	73	Hot gas valve off time	0	15	10
Low temp in defrost cycle	74	Operating temp	28	30	25

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

* SECOP (Danfoss) compressor: auxiliary code B1 and later					
	No	Item	240AWNE (50Hz)	240AWNE-23 (50Hz)	240ANE (60Hz)
Basic	1	Defrost completion temp	5		
	2	Integrated constant 1 (temp)	-17.5		
	3	Integrated constant 2 (time)	11		
	4	Ambient temp correction operating temp for integrated value	30		
	5	Ambient temp correction rate for integrated value	95		
	6	Freeze backup timer	45		
Water supply	10	Defrosting water supply time, water temp less than 13°C	95		
	11	Defrosting water supply time, water temp 13°C or more	30		
	12	Icemaking water supply time, partial drain flush	30		
		* Icemaking water supply time, full drain flush	60		
	13	Water temp measurement correction value	10		
	14	* Full / partial drain flush selection	1		
	15	Additional icemaking water supply time, partial drain flush	22		
		* Additional icemaking water supply time, full drain flush	44		
Other	21	Double stack bin control	1		
	22	Refrigeration unit operation in bin control cycle	0		
Model	30	Type	0		
Defrost cycle low temp control	34	Operating temp	45		
Water regulator	36	Water regulator error detecting temp	0		
Compressor	37	Compressor output selection	1		
Slush ice	50	Pump off time	0		
	51	Water supply time	0		
Hard water	60	Operating condition	10		
	61	Water supply time	0		
Ice left in water pan	70	Operating temp	50		
	71	Hot gas valve on time	2		
	72	Hot gas valve off time	28		
Ice bridge	73	Hot gas valve off time	0		
Low temp in defrost cycle	74	Operating temp	0		

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

* SECOP (Danfoss) compressor: auxiliary code B2 and later					
	No	Item	240AWNE (60Hz)	240AWNE-23 (60Hz)	240AWNE-21 (60Hz)
Basic	1	Defrost completion temp	5		7
	2	Integrated constant 1 (temp)	-16.0		-16.0
	3	Integrated constant 2 (time)	11		5
	4	Ambient temp correction operating temp for integrated value	47		32
	5	Ambient temp correction rate for integrated value	95		85
	6	Freeze backup timer	45		45
Water supply	10	Defrosting water supply time, water temp less than 13°C	95		95
	11	Defrosting water supply time, water temp 13°C or more	30		30
	12	Icemaking water supply time, partial drain flush	30		30
		* Icemaking water supply time, full drain flush	60		60
	13	Water temp measurement correction value	9		8
	14	* Full / partial drain flush selection	1		1
	15	Additional icemaking water supply time, partial drain flush	22		22
		* Additional icemaking water supply time, full drain flush	44		44
Other	21	Double stack bin control	1		1
	22	Refrigeration unit operation in bin control cycle	0		0
Model	30	Type	0		0
Defrost cycle low temp control	34	Operating temp	48		48
Water regulator	36	Water regulator error detecting temp	0		0
Compressor	37	Compressor output selection	1		1
Slush ice	50	Pump off time	0		0
	51	Water supply time	0		0
Hard water	60	Operating condition	10		10
	61	Water supply time	0		0
Ice left in water pan	70	Operating temp	47		49
	71	Hot gas valve on time	2		0
	72	Hot gas valve off time	28		0
Ice bridge	73	Hot gas valve off time	0		0
Low temp in defrost cycle	74	Operating temp	0		0

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

* SECOP (Danfoss) compressor: auxiliary code C1 and later				
	No	Item	240DSNE (50Hz)	240DSNE-23 (50Hz)
Basic	1	Defrost completion temp	5	5
	2	Integrated constant 1 (temp)	-22.0	-22.0
	3	Integrated constant 2 (time)	11	10
	4	Ambient temp correction operating temp for integrated value	10	10
	5	Ambient temp correction rate for integrated value	100	100
	6	Freeze backup timer	45	45
Water supply	10	Defrosting water supply time, water temp less than 13°C	95	95
	11	Defrosting water supply time, water temp 13°C or more	30	30
	12	Icemaking water supply time, partial drain flush	30	30
		* Icemaking water supply time, full drain flush	60	60
	13	Water temp measurement correction value	13	13
	14	* Full / partial drain flush selection	1	1
	15	Additional icemaking water supply time, partial drain flush	22	22
		* Additional icemaking water supply time, full drain flush	44	44
Other	21	Double stack bin control	1	1
	22	Refrigeration unit operation in bin control cycle	0	0
Model	30	Type	3	3
Defrost cycle low temp control	34	Operating temp	0	0
Water regulator	36	Water regulator error detecting temp	0	0
Compressor	37	Compressor output selection	1	1
Slush ice	50	Pump off time	0	0
	51	Water supply time	10	10
Hard water	60	Operating condition	0	0
	61	Water supply time	0	0
Ice left in water pan	70	Operating temp	49	49
	71	Hot gas valve on time	0	0
	72	Hot gas valve off time	0	0
Ice bridge	73	Hot gas valve off time	0	0
Low temp in defrost cycle	74	Operating temp	22	22

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

	No	Item	240ANE-HC (50Hz) (**)	240ANE-HC-23 (50Hz) (**)
Basic	1	Defrost completion temp	3	3
	2	Integrated constant 1 (temp)	-21.0	-20.5
	3	Integrated constant 2 (time)	10	19
	4	Ambient temp correction operating temp for integrated value	38	38
	5	Ambient temp correction rate for integrated value	95	74
	6	Freeze backup timer	45	45
Water supply	10	Defrosting water supply time, water temp less than 13°C	95	95
	11	Defrosting water supply time, water temp 13°C or more	30	30
	12	Icemaking water supply time, partial drain flush	30	30
		* Icemaking water supply time, full drain flush	60	60
	13	Water temp measurement correction value	10	10
	14	* Full / partial drain flush selection	1	1
	15	Additional icemaking water supply time, partial drain flush	22	22
		* Additional icemaking water supply time, full drain flush	44	44
Other	21	Double stack bin control	1	1
	22	Refrigeration unit operation in bin control cycle	0	0
Model	30	Type	2	2
Defrost cycle low temp control	34	Operating temp	61	61
Water regulator	36	Water regulator error detecting temp	0	0
Compressor	37	Compressor output selection	1	1
Slush ice	50	Pump off time	0	0
	51	Water supply time	0	0
Hard water	60	Operating condition	10	10
	61	Water supply time	0	0
Ice left in water pan	70	Operating temp	38	38
	71	Hot gas valve on time	10	10
	72	Hot gas valve off time	20	20
Ice bridge	73	Hot gas valve off time	0	0
Low temp in defrost cycle	74	Operating temp	20	20
High Pressure	80	Sensed temp	63	63
Gas sensor	90	Gas sensor type	1	1
	91	Gas sensor sensitization detecting time	12	12

* Copeland compressor: auxiliary code B1 and earlier					
	No	Item	240DNE (60Hz)	240DNE-23 (60Hz)	240DNE-21 (60Hz)
Basic	1	Defrost completion temp	6	6	6
	2	Integrated constant 1 (temp)	-19.0	-19.0	-14.0
	3	Integrated constant 2 (time)	9	12	5
	4	Ambient temp correction operating temp for integrated value	10	10	10
	5	Ambient temp correction rate for integrated value	100	100	100
	6	Freeze backup timer	45	45	45
Water supply	10	Defrosting water supply time, water temp less than 13°C	95	95	95
	11	Defrosting water supply time, water temp 13°C or more	30	30	30
	12	Icemaking water supply time, partial drain flush	30	30	30
		* Icemaking water supply time, full drain flush	60	60	60
	13	Water temp measurement correction value	9	9	9
	14	* Full / partial drain flush selection	1	1	1
	15	Additional icemaking water supply time, partial drain flush	22	12	12
		* Additional icemaking water supply time, full drain flush	44	24	24
Other	21	Double stack bin control	1	1	1
	22	Refrigeration unit operation in bin control cycle	0	0	0
Model	30	Type	2	2	2
Defrost cycle low temp control	34	Operating temp	48	48	48
Water regulator	36	Water regulator error detecting temp	0	0	0
Compressor	37	Compressor output selection	1	1	1
Slush ice	50	Pump off time	0	0	0
	51	Water supply time	0	0	0
Hard water	60	Operating condition	10	10	10
	61	Water supply time	0	0	0
Ice left in water pan	70	Operating temp	44	44	44
	71	Hot gas valve on time	5	50	5
	72	Hot gas valve off time	25	0	0
Ice bridge	73	Hot gas valve off time	0	0	0
Low temp in defrost cycle	74	Operating temp	27	27	27

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

* Copeland compressor: auxiliary code B1 and earlier				
	No	Item	240DWNE (60Hz)	240DWNE-21 (60Hz)
Basic	1	Defrost completion temp	5	6
	2	Integrated constant 1 (temp)	-19.5	-15.0
	3	Integrated constant 2 (time)	11	5
	4	Ambient temp correction operating temp for integrated value	30	30
	5	Ambient temp correction rate for integrated value	90	90
	6	Freeze backup timer	45	45
Water supply	10	Defrosting water supply time, water temp less than 13°C	95	95
	11	Defrosting water supply time, water temp 13°C or more	30	30
	12	Icemaking water supply time, partial drain flush	30	30
		* Icemaking water supply time, full drain flush	60	60
	13	Water temp measurement correction value	9	9
	14	* Full / partial drain flush selection	1	1
	15	Additional icemaking water supply time, partial drain flush	22	22
		* Additional icemaking water supply time, full drain flush	44	44
Other	21	Double stack bin control	1	1
	22	Refrigeration unit operation in bin control cycle	0	0
Model	30	Type	0	0
Defrost cycle low temp control	34	Operating temp	48	48
Water regulator	36	Water regulator error detecting temp	0	0
Compressor	37	Compressor output selection	1	1
Slush ice	50	Pump off time	0	0
	51	Water supply time	0	0
Hard water	60	Operating condition	10	10
	61	Water supply time	0	0
Ice left in water pan	70	Operating temp	49	49
	71	Hot gas valve on time	5	0
	72	Hot gas valve off time	25	0
Ice bridge	73	Hot gas valve off time	0	0
Low temp in defrost cycle	74	Operating temp	0	0

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

* Copeland compressor: auxiliary code B1 and earlier					
	No	Item	240AWNE (60Hz)	240AWNE-23 (60Hz)	240AWNE-21 (60Hz)
Basic	1	Defrost completion temp	4	6	6
	2	Integrated constant 1 (temp)	-19.0	-20.0	-14.0
	3	Integrated constant 2 (time)	12	14	5
	4	Ambient temp correction operating temp for integrated value	45	32	32
	5	Ambient temp correction rate for integrated value	90	85	85
	6	Freeze backup timer	45	45	45
Water supply	10	Defrosting water supply time, water temp less than 13°C	95	95	95
	11	Defrosting water supply time, water temp 13°C or more	30	30	30
	12	Icemaking water supply time, partial drain flush	30	30	30
		* Icemaking water supply time, full drain flush	60	60	60
	13	Water temp measurement correction value	10	10	10
	14	* Full / partial drain flush selection	1	1	1
	15	Additional icemaking water supply time, partial drain flush	22	22	22
		* Additional icemaking water supply time, full drain flush	44	44	44
Other	21	Double stack bin control	1	1	1
	22	Refrigeration unit operation in bin control cycle	0	0	0
Model	30	Type	0	0	0
Defrost cycle low temp control	34	Operating temp	48	48	48
Water regulator	36	Water regulator error detecting temp	0	0	0
Compressor	37	Compressor output selection	1	1	1
Slush ice	50	Pump off time	0	0	0
	51	Water supply time	0	0	0
Hard water	60	Operating condition	10	10	10
	61	Water supply time	0	0	0
Ice left in water pan	70	Operating temp	45	49	49
	71	Hot gas valve on time	2	0	0
	72	Hot gas valve off time	28	0	0
Ice bridge	73	Hot gas valve off time	0	0	0
Low temp in defrost cycle	74	Operating temp	0	0	0

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

* SECOP (Danfoss) compressor: auxiliary code B1 and later					
	No	Item	240NE (50Hz)	240NE-23 (50Hz)	240NE-21 (50Hz)
Basic	1	Defrost completion temp	6		
	2	Integrated constant 1 (temp)	-18.5		
	3	Integrated constant 2 (time)	13		
	4	Ambient temp correction operating temp for integrated value	37		
	5	Ambient temp correction rate for integrated value	95		
	6	Freeze backup timer	45		
Water supply	10	Defrosting water supply time, water temp less than 13°C	95		
	11	Defrosting water supply time, water temp 13°C or more	30		
	12	Icemaking water supply time, partial drain flush	30		
		* Icemaking water supply time, full drain flush	60		
	13	Water temp measurement correction value	11		
	14	* Full / partial drain flush selection	1		
	15	Additional icemaking water supply time, partial drain flush	22		
		* Additional icemaking water supply time, full drain flush	44		
Other	21	Double stack bin control	1		
	22	Refrigeration unit operation in bin control cycle	0		
Model	30	Type	2		
Defrost cycle low temp control	34	Operating temp	45		
Water regulator	36	Water regulator error detecting temp	0		
Compressor	37	Compressor output selection	1		
Slush ice	50	Pump off time	0		
	51	Water supply time	0		
Hard water	60	Operating condition	10		
	61	Water supply time	0		
Ice left in water pan	70	Operating temp	37		
	71	Hot gas valve on time	2		
	72	Hot gas valve off time	28		
Ice bridge	73	Hot gas valve off time	0		
Low temp in defrost cycle	74	Operating temp	28		

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

* SECOP (Danfoss) compressor: auxiliary code B1 and later					
	No	Item	240WNE (50Hz)	240WNE-23 (50Hz)	240WNE-21 (50Hz)
Basic	1	Defrost completion temp	5		
	2	Integrated constant 1 (temp)	-17.5		
	3	Integrated constant 2 (time)	11		
	4	Ambient temp correction operating temp for integrated value	30		
	5	Ambient temp correction rate for integrated value	95		
	6	Freeze backup timer	45		
Water supply	10	Defrosting water supply time, water temp less than 13°C	95		
	11	Defrosting water supply time, water temp 13°C or more	30		
	12	Icemaking water supply time, partial drain flush	30		
		* Icemaking water supply time, full drain flush	60		
	13	Water temp measurement correction value	11		
	14	* Full / partial drain flush selection	1		
	15	Additional icemaking water supply time, partial drain flush	22		
		* Additional icemaking water supply time, full drain flush	44		
Other	21	Double stack bin control	1		
	22	Refrigeration unit operation in bin control cycle	0		
Model	30	Type	0		
Defrost cycle low temp control	34	Operating temp	45		
Water regulator	36	Water regulator error detecting temp	0		
Compressor	37	Compressor output selection	1		
Slush ice	50	Pump off time	0		
	51	Water supply time	0		
Hard water	60	Operating condition	10		
	61	Water supply time	0		
Ice left in water pan	70	Operating temp	50		
	71	Hot gas valve on time	2		
	72	Hot gas valve off time	28		
Ice bridge	73	Hot gas valve off time	0		
Low temp in defrost cycle	74	Operating temp	0		

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

* SECOP (Danfoss) compressor: auxiliary code B1 and later					
	No	Item	240DNE (50Hz)	240DNE-23 (50Hz)	240DNE-21 (50Hz)
Basic	1	Defrost completion temp	5	5	
	2	Integrated constant 1 (temp)	-14.5	-21.0	
	3	Integrated constant 2 (time)	11	12	
	4	Ambient temp correction operating temp for integrated value	10	44	
	5	Ambient temp correction rate for integrated value	100	95	
	6	Freeze backup timer	45	45	
Water supply	10	Defrosting water supply time, water temp less than 13°C	95	95	
	11	Defrosting water supply time, water temp 13°C or more	30	30	
	12	Icemaking water supply time, partial drain flush	30	30	
		* Icemaking water supply time, full drain flush	60	60	
	13	Water temp measurement correction value	9	9	
	14	* Full / partial drain flush selection	1	1	
	15	Additional icemaking water supply time, partial drain flush	22	22	
		* Additional icemaking water supply time, full drain flush	44	44	
Other	21	Double stack bin control	1	1	
	22	Refrigeration unit operation in bin control cycle	0	0	
Model	30	Type	2	2	
Defrost cycle low temp control	34	Operating temp	45	45	
Water regulator	36	Water regulator error detecting temp	0	0	
Compressor	37	Compressor output selection	1	1	
Slush ice	50	Pump off time	0	0	
	51	Water supply time	0	0	
Hard water	60	Operating condition	10	10	
	61	Water supply time	0	0	
Ice left in water pan	70	Operating temp	50	44	
	71	Hot gas valve on time	2	2	
	72	Hot gas valve off time	28	28	
Ice bridge	73	Hot gas valve off time	0	0	
Low temp in defrost cycle	74	Operating temp	30	30	

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

* SECOP (Danfoss) compressor: auxiliary code B1 and later				
	No	Item	240DNE-32 (50Hz)	240DNE-C (50Hz)
Basic	1	Defrost completion temp		
	2	Integrated constant 1 (temp)		
	3	Integrated constant 2 (time)		
	4	Ambient temp correction operating temp for integrated value		
	5	Ambient temp correction rate for integrated value		
	6	Freeze backup timer		
Water supply	10	Defrosting water supply time, water temp less than 13°C		
	11	Defrosting water supply time, water temp 13°C or more		
	12	Icemaking water supply time, partial drain flush		
		* Icemaking water supply time, full drain flush		
	13	Water temp measurement correction value		
	14	* Full / partial drain flush selection		
	15	Additional icemaking water supply time, partial drain flush		
		* Additional icemaking water supply time, full drain flush		
Other	21	Double stack bin control		
	22	Refrigeration unit operation in bin control cycle		
Model	30	Type		
Defrost cycle low temp control	34	Operating temp		
Water regulator	36	Water regulator error detecting temp		
Compressor	37	Compressor output selection		
Slush ice	50	Pump off time		
	51	Water supply time		
Hard water	60	Operating condition		
	61	Water supply time		
Ice left in water pan	70	Operating temp		
	71	Hot gas valve on time		
	72	Hot gas valve off time		
Ice bridge	73	Hot gas valve off time		
Low temp in defrost cycle	74	Operating temp		

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

* SECOP (Danfoss) compressor: auxiliary code B1 and later					
	No	Item	240DWNE (50Hz)	240DWNE-23 (50Hz)	240DWNE-21 (50Hz)
Basic	1	Defrost completion temp	5		
	2	Integrated constant 1 (temp)	-17.5		
	3	Integrated constant 2 (time)	11		
	4	Ambient temp correction operating temp for integrated value	30		
	5	Ambient temp correction rate for integrated value	95		
	6	Freeze backup timer	45		
Water supply	10	Defrosting water supply time, water temp less than 13°C	95		
	11	Defrosting water supply time, water temp 13°C or more	30		
	12	Icemaking water supply time, partial drain flush	30		
		* Icemaking water supply time, full drain flush	60		
	13	Water temp measurement correction value	11		
	14	* Full / partial drain flush selection	1		
	15	Additional icemaking water supply time, partial drain flush	22		
		* Additional icemaking water supply time, full drain flush	44		
Other	21	Double stack bin control	1		
	22	Refrigeration unit operation in bin control cycle	0		
Model	30	Type	0		
Defrost cycle low temp control	34	Operating temp	45		
Water regulator	36	Water regulator error detecting temp	0		
Compressor	37	Compressor output selection	1		
Slush ice	50	Pump off time	0		
	51	Water supply time	0		
Hard water	60	Operating condition	10		
	61	Water supply time	0		
Ice left in water pan	70	Operating temp	50		
	71	Hot gas valve on time	2		
	72	Hot gas valve off time	28		
Ice bridge	73	Hot gas valve off time	0		
Low temp in defrost cycle	74	Operating temp	0		

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

* SECOP (Danfoss) compressor: auxiliary code B1 and later				
	No	Item	240DWNE-32 (50Hz)	240DWNE-C (50Hz)
Basic	1	Defrost completion temp		
	2	Integrated constant 1 (temp)		
	3	Integrated constant 2 (time)		
	4	Ambient temp correction operating temp for integrated value		
	5	Ambient temp correction rate for integrated value		
	6	Freeze backup timer		
Water supply	10	Defrosting water supply time, water temp less than 13°C		
	11	Defrosting water supply time, water temp 13°C or more		
	12	Icemaking water supply time, partial drain flush		
		* Icemaking water supply time, full drain flush		
	13	Water temp measurement correction value		
	14	* Full / partial drain flush selection		
	15	Additional icemaking water supply time, partial drain flush		
		* Additional icemaking water supply time, full drain flush		
Other	21	Double stack bin control		
	22	Refrigeration unit operation in bin control cycle		
Model	30	Type		
Defrost cycle low temp control	34	Operating temp		
Water regulator	36	Water regulator error detecting temp		
Compressor	37	Compressor output selection		
Slush ice	50	Pump off time		
	51	Water supply time		
Hard water	60	Operating condition		
	61	Water supply time		
Ice left in water pan	70	Operating temp		
	71	Hot gas valve on time		
	72	Hot gas valve off time		
Ice bridge	73	Hot gas valve off time		
Low temp in defrost cycle	74	Operating temp		

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

* SECOP (Danfoss) compressor: auxiliary code B1 and later					
	No	Item	240ANE (50Hz)	240ANE-23 (50Hz)	240ANE-21 (50Hz)
Basic	1	Defrost completion temp	7		
	2	Integrated constant 1 (temp)	-20.0		
	3	Integrated constant 2 (time)	11		
	4	Ambient temp correction operating temp for integrated value	10		
	5	Ambient temp correction rate for integrated value	100		
	6	Freeze backup timer	45		
Water supply	10	Defrosting water supply time, water temp less than 13°C	95		
	11	Defrosting water supply time, water temp 13°C or more	30		
	12	Icemaking water supply time, partial drain flush	30		
		* Icemaking water supply time, full drain flush	60		
	13	Water temp measurement correction value	8		
	14	* Full / partial drain flush selection	1		
	15	Additional icemaking water supply time, partial drain flush	22		
		* Additional icemaking water supply time, full drain flush	44		
Other	21	Double stack bin control	1		
	22	Refrigeration unit operation in bin control cycle	0		
Model	30	Type	2		
Defrost cycle low temp control	34	Operating temp	45		
Water regulator	36	Water regulator error detecting temp	0		
Compressor	37	Compressor output selection	1		
Slush ice	50	Pump off time	0		
	51	Water supply time	0		
Hard water	60	Operating condition	10		
	61	Water supply time	0		
Ice left in water pan	70	Operating temp	50		
	71	Hot gas valve on time	2		
	72	Hot gas valve off time	28		
Ice bridge	73	Hot gas valve off time	0		
Low temp in defrost cycle	74	Operating temp	28		

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

* SECOP (Danfoss) compressor: auxiliary code B1 and later					
	No	Item	240AWNE (50Hz)	240AWNE-23 (50Hz)	240AWNE-21 (50Hz)
Basic	1	Defrost completion temp	5		
	2	Integrated constant 1 (temp)	-17.5		
	3	Integrated constant 2 (time)	11		
	4	Ambient temp correction operating temp for integrated value	30		
	5	Ambient temp correction rate for integrated value	95		
	6	Freeze backup timer	45		
Water supply	10	Defrosting water supply time, water temp less than 13°C	95		
	11	Defrosting water supply time, water temp 13°C or more	30		
	12	Icemaking water supply time, partial drain flush	30		
		* Icemaking water supply time, full drain flush	60		
	13	Water temp measurement correction value	10		
	14	* Full / partial drain flush selection	1		
	15	Additional icemaking water supply time, partial drain flush	22		
		* Additional icemaking water supply time, full drain flush	44		
Other	21	Double stack bin control	1		
	22	Refrigeration unit operation in bin control cycle	0		
Model	30	Type	0		
Defrost cycle low temp control	34	Operating temp	45		
Water regulator	36	Water regulator error detecting temp	0		
Compressor	37	Compressor output selection	1		
Slush ice	50	Pump off time	0		
	51	Water supply time	0		
Hard water	60	Operating condition	10		
	61	Water supply time	0		
Ice left in water pan	70	Operating temp	50		
	71	Hot gas valve on time	2		
	72	Hot gas valve off time	28		
Ice bridge	73	Hot gas valve off time	0		
Low temp in defrost cycle	74	Operating temp	0		

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

* SECOP (Danfoss) compressor: auxiliary code B2 and later					
	No	Item	240DNE (60Hz)	240DNE-23 (60Hz)	240DNE-21 (60Hz)
Basic	1	Defrost completion temp	5		
	2	Integrated constant 1 (temp)	-19.0		
	3	Integrated constant 2 (time)	11		
	4	Ambient temp correction operating temp for integrated value	10		
	5	Ambient temp correction rate for integrated value	100		
	6	Freeze backup timer	45		
Water supply	10	Defrosting water supply time, water temp less than 13°C	95		
	11	Defrosting water supply time, water temp 13°C or more	30		
	12	Icemaking water supply time, partial drain flush	30		
		* Icemaking water supply time, full drain flush	60		
	13	Water temp measurement correction value	9		
	14	* Full / partial drain flush selection	1		
	15	Additional icemaking water supply time, partial drain flush	22		
		* Additional icemaking water supply time, full drain flush	44		
Other	21	Double stack bin control	1		
	22	Refrigeration unit operation in bin control cycle	0		
Model	30	Type	2		
Defrost cycle low temp control	34	Operating temp	45		
Water regulator	36	Water regulator error detecting temp	0		
Compressor	37	Compressor output selection	1		
Slush ice	50	Pump off time	0		
	51	Water supply time	0		
Hard water	60	Operating condition	10		
	61	Water supply time	0		
Ice left in water pan	70	Operating temp	48		
	71	Hot gas valve on time	2		
	72	Hot gas valve off time	28		
Ice bridge	73	Hot gas valve off time	0		
Low temp in defrost cycle	74	Operating temp	30		

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

* SECOP (Danfoss) compressor: auxiliary code B2 and later					
	No	Item	240DWNE (60Hz)	240DWNE-23 (60Hz)	240DWNE-21 (60Hz)
Basic	1	Defrost completion temp	5		
	2	Integrated constant 1 (temp)	-17.5		
	3	Integrated constant 2 (time)	11		
	4	Ambient temp correction operating temp for integrated value	10		
	5	Ambient temp correction rate for integrated value	100		
	6	Freeze backup timer	45		
Water supply	10	Defrosting water supply time, water temp less than 13°C	95		
	11	Defrosting water supply time, water temp 13°C or more	30		
	12	Icemaking water supply time, partial drain flush	30		
		* Icemaking water supply time, full drain flush	60		
	13	Water temp measurement correction value	8		
	14	* Full / partial drain flush selection	1		
	15	Additional icemaking water supply time, partial drain flush	22		
		* Additional icemaking water supply time, full drain flush	44		
Other	21	Double stack bin control	1		
	22	Refrigeration unit operation in bin control cycle	0		
Model	30	Type	0		
Defrost cycle low temp control	34	Operating temp	45		
Water regulator	36	Water regulator error detecting temp	0		
Compressor	37	Compressor output selection	1		
Slush ice	50	Pump off time	0		
	51	Water supply time	0		
Hard water	60	Operating condition	10		
	61	Water supply time	0		
Ice left in water pan	70	Operating temp	49		
	71	Hot gas valve on time	2		
	72	Hot gas valve off time	28		
Ice bridge	73	Hot gas valve off time	0		
Low temp in defrost cycle	74	Operating temp	0		

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

* SECOP (Danfoss) compressor: auxiliary code B2 and later					
	No	Item	240AWNE (60Hz)	240AWNE-23 (60Hz)	240AWNE-21 (60Hz)
Basic	1	Defrost completion temp	5		
	2	Integrated constant 1 (temp)	-16.0		
	3	Integrated constant 2 (time)	11		
	4	Ambient temp correction operating temp for integrated value	47		
	5	Ambient temp correction rate for integrated value	95		
	6	Freeze backup timer	45		
Water supply	10	Defrosting water supply time, water temp less than 13°C	95		
	11	Defrosting water supply time, water temp 13°C or more	30		
	12	Icemaking water supply time, partial drain flush	30		
		* Icemaking water supply time, full drain flush	60		
	13	Water temp measurement correction value	9		
	14	* Full / partial drain flush selection	1		
	15	Additional icemaking water supply time, partial drain flush	22		
		* Additional icemaking water supply time, full drain flush	44		
Other	21	Double stack bin control	1		
	22	Refrigeration unit operation in bin control cycle	0		
Model	30	Type	0		
Defrost cycle low temp control	34	Operating temp	48		
Water regulator	36	Water regulator error detecting temp	0		
Compressor	37	Compressor output selection	1		
Slush ice	50	Pump off time	0		
	51	Water supply time	0		
Hard water	60	Operating condition	10		
	61	Water supply time	0		
Ice left in water pan	70	Operating temp	47		
	71	Hot gas valve on time	2		
	72	Hot gas valve off time	28		
Ice bridge	73	Hot gas valve off time	0		
Low temp in defrost cycle	74	Operating temp	0		

* When No. 14 is set to “0” (full drain flush), change Nos. 12 and 15 also to full drain flush settings.

	No	Item	240ANE-HC (50Hz) (**)
Basic	1	Defrost completion temp	3
	2	Integrated constant 1 (temp)	-21.0
	3	Integrated constant 2 (time)	10
	4	Ambient temp correction operating temp for integrated value	28
	5	Ambient temp correction rate for integrated value	95
	6	Freeze backup timer	45
Water supply	10	Defrosting water supply time, water temp less than 13°C	95
	11	Defrosting water supply time, water temp 13°C or more	30
	12	Icemaking water supply time, partial drain flush	30
		* Icemaking water supply time, full drain flush	60
	13	Water temp measurement correction value	10
	14	* Full / partial drain flush selection	1
	15	Additional icemaking water supply time, partial drain flush	22
		* Additional icemaking water supply time, full drain flush	44
Other	21	Double stack bin control	1
	22	Refrigeration unit operation in bin control cycle	0
Model	30	Type	2
Defrost cycle low temp control	34	Operating temp	61
Water regulator	36	Water regulator error detecting temp	0
Compressor	37	Compressor output selection	1
Slush ice	50	Pump off time	0
	51	Water supply time	0
Hard water	60	Operating condition	10
	61	Water supply time	0
Ice left in water pan	70	Operating temp	28
	71	Hot gas valve on time	20
	72	Hot gas valve off time	10
Ice bridge	73	Hot gas valve off time	0
Low temp in defrost cycle	74	Operating temp	20
High Pressure	80	Sensed temp	63
Gas sensor	90	Gas sensor type	1
	91	Gas sensor sensitization detecting time	12

[c] DISPLAY MODE (LOG CLEARING)

When the up switch is pressed for more than 3 seconds, the display mode starts to allow various items and logs to be checked, displayed or cleared.

1) Press the up switch for more than 3 seconds while the unit is running. The display shows “n1”.
2) Press the up switch to increase the number and the down switch to decrease the number.
3) Press the reset switch to select the desired number. The current value appears in the display.
4) Press the reset switch while the value is displayed. The display shows the number again.

To reset, leave the switches untouched for 30 seconds.
To clear, press the up and down switches together for 5 seconds while the value is displayed.

Display Mode List

No	Item	Description	Clear
n1	Freeze cycle time count up (min)	0 to 99 min	No
n2	Freeze cycle completion rate (%)	0 to 100% (00 = 100%)	No
n3	Current cube control thermistor temp	Rounded to the nearest whole number	No
n4	Current ambient thermistor temp	Rounded to the nearest whole number	No
n5	Water temp (presumed)	“H” for 13°C or more “L” for less than 13°C	No
n6	Current condenser thermistor temp	Rounded to the nearest whole number	No
h1	Last freeze cycle time (min)	Same as current freeze cycle time. Freeze cycle is not considered complete if interrupted by bin control switch or reset switch.	Yes
h2	Number of freeze cycles	Number of cycles completed. 10 is added every 10 cycles. Freeze cycle is not considered complete or counted in if interrupted by bin control switch or reset switch. < Display > e.g. 655350 cycles (start) (end) 65→off→53→off→50→off→ - -	Yes
h3	Total number of freeze cycles		No

h4	Error log	Display up to 5 errors from latest to oldest for 1 sec ON, 0.5 sec OFF, “- -“ at the end, then back to latest error. In case of less than 5 errors, display oldest error, “- -“, then back to latest one. < Display > e.g. E5 (latest), E4, E3, E2, E1 (oldest) (latest) (oldest) E5→off→E4→off→E3→off→E2→off→E1→off→ - -	Yes
h5	Software version	For Ver 1.0A, display “01.”→”0A”→”01.”alternately for 1 sec ON, 0.5 sec OFF.	No
h6	Default model code	Display set model codes from “00” to “FF” (hexadecimal, 256 patterns)	No (*)

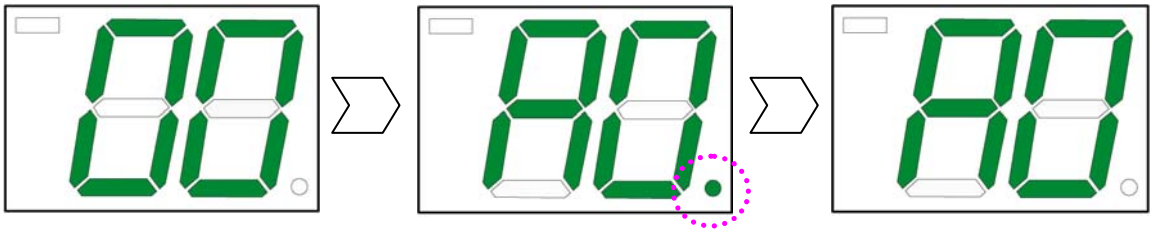
* To clear the model code, press the up and down switches together for 15 seconds (for controller board replacement and setting error correction only).

[d] MODEL CODE SETTING MODE

Note: Use this mode only when the controller board is replaced or the model code setting needs to be corrected.

1) When the up switch is pressed for more than 3 seconds, the display mode starts and the display shows “n1”.
2) Press the up or down switch to have “h6” in the display.
3) Press the reset switch. The current memorised model code appears in the display.
4) Press the up and down switches together for 15 seconds. The display shows “00”.
5) Press the up switch to increase the first digit in the 7-segment display, and the down switch to increase the second digit. The digit changes in the following order: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F, H. Set the proper model code according to the model code list below. When a preset model code is displayed, the dot on the bottom right lights up.
6) When the chosen preset model code is displayed, press the reset switch to store the board memory (the display shows “on” and the machine will then always start up with this memorized program as default).
   * To check the current memorised model code, view in the display mode (follow steps 1) to 3) above).

<Controller board replaced> <Chosen model code displayed> <Model code memorised>



Model Code List (**: HC MODEL ONLY)

1st Digit	2nd Digit	Model
1	0	IM-30CNE
	1	IM-30CNE-25
	2	IM-30CNE (60Hz)
	3	IM-30CNE-25 (60Hz)
	4	IM-21CNE
	5	IM-21CNE 115V (60Hz) [Navy]
	6	IM-21CNE WV
	7	IM-30WNE
	8	IM-30WNE-25
	9	
	A	
	B	
	C	
	D	
	E	
	F	
2	0	IM-45NE
	1	IM-45NE-25
	2	IM-45NE (60Hz)
	3	IM-45NE-25 (60Hz)
	4	IM-45WNE
	5	IM-45WNE-25
	6	IM-45WNE (60Hz)
	7	IM-45WNE-25 (60Hz)
	8	
	9	
	A	IM-45NE-C
	B	
	C	
	D	
	E	
	F	

3	0	IM-45CNE
	1	IM-45CNE-25
	2	IM-45CNE (60Hz)
	3	IM-45CNE-25 (60Hz)
	4	
	5	
	6	
	7	
	8	
	9	
	A	
	B	
	C	
	D	
	E	
	F	
4	0	IM-65NE
	1	IM-65NE-25
	2	IM-65NE (60Hz)
	3	IM-65NE-25 (60Hz)
	4	IM-65WNE
	5	IM-65WNE-25
	6	IM-65WNE (60Hz)
	7	IM-65WNE-25 (60Hz)
	8	IM-65NE-Q
	9	
	A	IM-65NE-C
	B	
	C	
	D	
	E	
	F	
5	0	IM-100NE
	1	IM-100NE-23
	2	IM-100NE-21
	3	IM-100NE (60Hz)
	4	IM-100NE-23 (60Hz)
	5	IM-100NE-21 (60Hz)
	6	IM-100CNE
	7	IM-100CNE-23
	8	IM-100CNE-21
	9	
	A	IM-100NE-C
	B	
	C	
	D	
	E	
	F	

6	0	IM-100WNE
	1	
	2	IM-100WNE-21
	3	IM-100WNE (60Hz)
	4	
	5	IM-100WNE-21 (60Hz)
	6	
	7	
	8	
	9	
	A	IM-100WNE-C
	B	
	C	
	D	
	E	
	F	
7	0	IM-130NE
	1	IM-130NE-23
	2	IM-130NE-21
	3	
	4	IM-130WNE
	5	
	6	
	7	
	8	
	9	
	A	
	B	
	C	
	D	
	E	
	F	
8	0	
	1	
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	
	A	
	B	
	C	
	D	
	E	
	F	

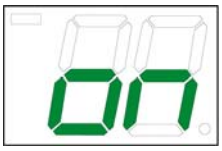
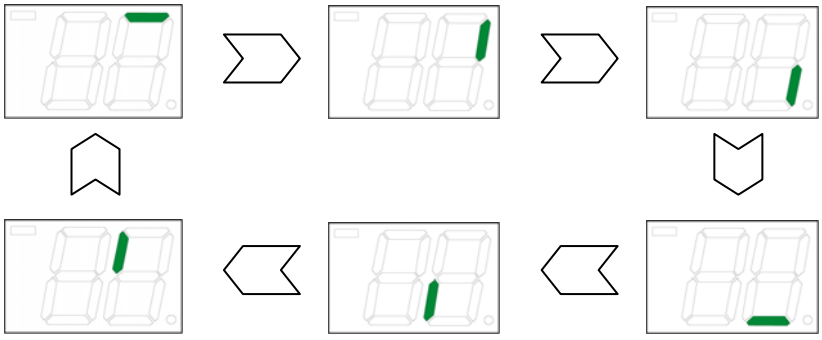
9	0	
	1	
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	
	A	
	B	
	C	
	D	
	E	
	F	
A	0	IM-240DNE, IM-240XNE [auxiliary code B0 & earlier]
	1	IM-240DNE-23, IM-240XNE-23 [auxiliary code B0 & earlier]
	2	IM-240DNE-21, IM-240XNE-21 [auxiliary code B0 & earlier]
	3	IM-240DNE-32, IM-240XNE-32 [auxiliary code B0 & earlier]
	4	IM-240DNE (60Hz), IM-240XNE (60Hz) [auxiliary code B1 & earlier]
	5	IM-240DNE-23 (60Hz), IM-240XNE-23 (60Hz) [auxiliary code B1 & earlier]
	6	IM-240DNE-21 (60Hz), IM-240XNE-21 (60Hz) [auxiliary code B1 & earlier]
	7	IM-240DNE-C [auxiliary code B1 & later]
	8	IM-240DNE, IM-240XNE [auxiliary code B1 & later]
	9	IM-240DNE-23, IM-240XNE-23 [auxiliary code B1 & later]
	A	IM-240DNE-C, IM-240XNE-C
	B	IM-240DNE-21, IM-240XNE-21 [auxiliary code B1 & later]
	C	IM-240DNE-32, IM-240XNE-32 [auxiliary code B1 & later]
	D	IM-240DNE (60Hz), IM-240XNE (60Hz) [auxiliary code B2 & later]
	E	
	F	
B	0	IM-240DWNE, IM-240XWNE [auxiliary code B0 & earlier]
	1	IM-240DWNE-23, IM-240XWNE-23 [auxiliary code B0 & earlier]
	2	IM-240DWNE-21, IM-240XWNE-21 [auxiliary code B0 & earlier]
	3	IM-240DWNE-32, IM-240XWNE-32 [auxiliary code B0 & earlier]
	4	IM-240DWNE (60Hz), IM-240XWNE (60Hz) [auxiliary code B1 & earlier]
	5	
	6	IM-240DWNE-21 (60Hz), IM-240XWNE-21 (60Hz) [auxiliary code B1 & earlier]
	7	IM-240DWNE, IM-240XWNE [auxiliary code B1 & later]
	8	IM-240DWNE-23, IM-240XWNE-23 [auxiliary code B1 & later]
	9	IM-240DWNE-21, IM-240XWNE-21 [auxiliary code B1 & later]
	A	IM-240DWNE-C [auxiliary code B0 & earlier]
	B	IM-240DWNE-32, IM-240XWNE-32 [auxiliary code B1 & later]
	C	IM-240DWNE (60Hz), IM-240XWNE (60Hz) [auxiliary code B2 & later]
	D	
	E	IM-240DWNE-21（60Hz）, IM-240XWNE-21（60Hz） [auxiliary code B2 & later]
	F	IM-240DWNE-C[auxiliary code B1 & later]

C	0	IM-240ANE [auxiliary code B0 & earlier]
	1	IM-240ANE-23 [auxiliary code B0 & earlier]
	2	
	3	
	4	IM-240ANE [auxiliary code B1 & later]
	5	IM-240ANE-23 [auxiliary code B1 & later]
	6	IM-240ANE-21 [auxiliary code B1 & later]
	7	
	8	
	9	
	A	
	B	
	C	
	D	
	E	
	F	
D	0	IM-240AWNE [auxiliary code B0 & earlier]
	1	
	2	
	3	IM-240AWNE (60Hz) [auxiliary code B1 & earlier]
	4	IM-240AWNE-23 (60Hz) [auxiliary code B1 & earlier]
	5	IM-240AWNE-21 (60Hz) [auxiliary code B1 & earlier]
	6	IM-240AWNE [auxiliary code B1 & later]
	7	
	8	IM-240AWNE-21 (60Hz) [auxiliary code B2 & later]
	9	IM-240AWNE (60Hz) [auxiliary code B2 & later]
	A	
	B	
	C	
	D	
	E	
	F	
E	0	IM-240NE [auxiliary code B1 & earlier]
	1	IM-240NE-23 [auxiliary code B1 & earlier]
	2	
	3	
	4	
	5	IM-240WNE [auxiliary code B1 & earlier]
	6	
	7	IM-240NE [auxiliary code B2 & later]
	8	IM-240NE-23 [auxiliary code B2 & later]
	9	
	A	
	B	
	C	IM-240WNE [auxiliary code B1 & later]
	D	
	E	
	F	

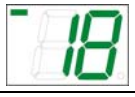
F	0	IM-240DSNE, IM-240XSNE [auxiliary code C1 & later]
	1	IM-240DSNE-23, IM-240XSNE -23 [auxiliary code C1 & later]
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	
	A	
	B	
	C	
	D	
	E	
	F	
H (**)	0	IM-240ANE-HC
	1	IM-240ANE-HC-23
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	
	A	
	B	
	C	
	D	
	E	
	F	

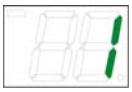
4. 7-SEGMENT DISPLAY

[a] NORMAL MODE

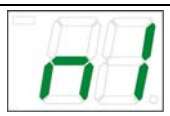
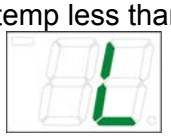
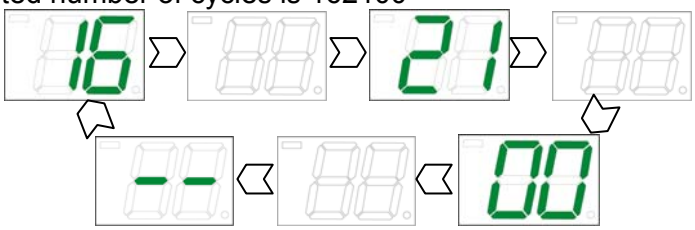
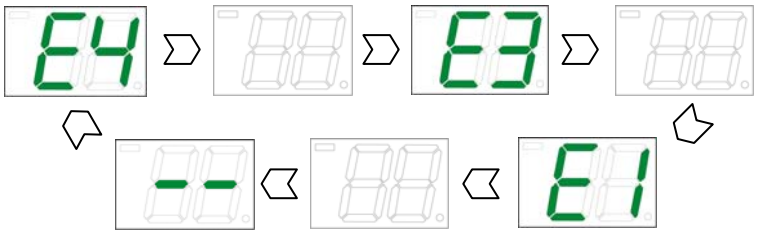
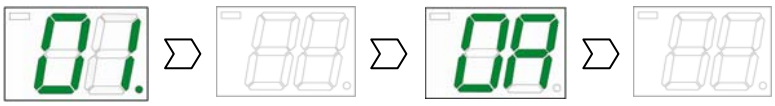
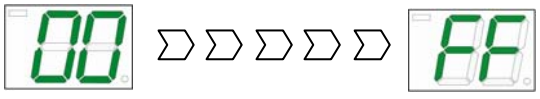
Item	Display
Power on Defrost cycle Freeze cycle Bin full	
Freeze temp setting	Display range from -5.0 to -40.0 
Error code	Flash  E1: Abnormal freeze cycle E2: Abnormal defrost cycle EE: Other (See “5. ERROR CODES”)
Water circuit flush	

[b] MAINTENANCE MODE

No.	Item	Display (example)
1	Defrost completion temp	 16°C
2	Integrated constant 1 (temp)	-18°C  -18.5°C  Dot appears for value with “.5” as in -18.5°C
3	Integrated constant 2 (time)	 21 min
4	Ambient temp correction operating temp for integrated value	Same as No. 1

5	Ambient temp correction rate for integrated value	 90%  100% (last 2 digits only)
6	Freeze backup timer	Same as No. 3
10	Defrosting water supply time, water temp less than 13°C	Same as No. 3 (unit: sec)
11	Defrosting water supply time, water temp 13°C or more	Same as No. 3 (unit: sec)
12	Icemaking water supply time, normal	Same as No. 3 (unit: sec)
13	Water temp measurement correction value	Same as No. 1
14	Full / partial drain flush selection	Same as Nos. 21 and 22
15	Additional icemaking water supply time	Same as No. 3 (unit: sec)
21	Double stack bin control	0  1 
22	Refrigeration unit operation in bin control cycle	
30	Model type	Same as Nos. 21 and 22 (Setting range from 0 to 3)
34	Defrost cycle low temp control, operating temp	Same as No. 1
36	Water regulator error detecting temp	Same as No. 1
37	Compressor output selection	Same as Nos. 21 and 22
50	Slush ice, pump off time	Same as No. 3 (unit: sec)
51	Slush ice, water supply time	Same as No. 3 (unit: sec)
60	Hard water, operating condition	Same as No. 5
61	Hard water, water supply time	Same as No. 3 (unit: sec)
70	Ice left in water pan, operating temp	Same as No. 1
71	Ice left in water pan, hot gas valve on time	Same as No. 3 (unit: sec)
72	Ice left in water pan, hot gas valve off time	Same as No. 3 (unit: sec)
73	Ice bridge, hot gas valve off time	Same as No. 3 (unit: sec)
74	Low temp in defrost cycle, operating temp	Same as No. 1

[c] DISPLAY MODE

No.	Item	Display (example)
–	n*, h*	 
n1	Freeze cycle time count up (min)	21 min or 21% 
n2	Freeze cycle completion rate (%)	100% (last 2 digits only) 
n3	Current cube control thermistor temp	-19°C 
n4	Current ambient thermistor temp	24°C 
n5	Water temp (presumed)	Water temp 13°C or more  Water temp less than 13°C 
n6	Current condenser thermistor temp	Same as n3 and n4
h1	Last freeze cycle time (min)	 21 min
h2	Number of freeze cycles	If counted number of cycles is 162100 
h3	Total number of freeze cycles	
h4	Error log	If 3 errors from latest to oldest are E4, E3, and E1 
h5	Software version	Ver 1.0A is displayed as follows alternately for 1 sec ON and 0.5 sec OFF 
h6	Default model code	Set model codes from “00” to “FF” (hexadecimal, 256 patterns) 

5. ERROR CODES

[a] ERROR CODES, CAUTION CODES (**: HC MODEL ONLY)

* When the controller board detects an error, the display shows one of the following error, caution and alarm codes in the display mode. Operation depends on the type of error.

* The error and caution codes other than E1 and E2 are indicated as “EE” or “EF” in the 7-segment display at the time of occurrence. The error log is indicated up to five errors from the latest entry.

Error	Item	Description	Operation	Reset
E1	Freeze error	Freeze backup timer (45/60 minutes after water pan starts to close) counts up before freeze cycle completes, and evaporator temperature is 0°C or higher.	Shut down	Press reset switch
E2	Defrost error	Defrost backup timer (30 minutes after water pan starts to open) counts up before defrost cycle completes.	Shut down	Press reset switch
E3	Water pan opening error	Water pan has not fully opened within 60 seconds, and 3 minutes have passed even with opening failure control.	Halt	Press reset switch
		Unit resumes operation after 60 minutes and repeats the above error.	Shut down	
E4	Water pan closing error	Water pan has not fully closed within 60 seconds, and 3 minutes have passed even with closing failure control.	Halt	Press reset switch
		Unit resumes operation after 60 minutes and repeats the above error.	Shut down	
E5	High temperature error	Evaporator temperature stays 60°C or higher for 5 seconds or more.	Shut down	Press reset switch
E9	Condenser thermistor error	Condenser thermistor circuit is open or shorted for 2 seconds.	Shut down	Replace thermistor
EA	Data error	Model setting data memory IC is defective.	Shut down	Replace controller board
EC	Cube control thermistor error	Cube control thermistor circuit is open or shorted for 2 seconds.	Shut down	Replace thermistor
Ed	Water regulator error	Cooling water cannot stop by water regulator error, and thermistor senses set point or lower temperature.	Continue	Press reset switch
EF (**)	Gas Leakage	Gas sensor detects gas leakage and error occurs in icemaking performance. (E1 or E2)	Fan motor runs continuously and unit shuts down	Press reset switch

Caution	Item	Description	Operation	Reset
C2	High pressure	[Air-cooled] Condenser thermistor (IM-130, 240 type only) senses 63°C or higher temperature. [Water-cooled] Pressure switch senses 2.65MPa or higher pressure.	Compress or stops	After 5 minutes, condensing temperature 50°C or lower, pressure 1.96MPa or lower

Alarm	Item	Description	Operation	Reset
A1 (**)	Sensor sensitivity abnormal	Sensor has abnormal sensitivity and sends false signal.	Compressor stops	Replace sensor
A2 (**)	Sensor circuit open	Sensor circuit is open and cannot detect gas leakage.	Fan motor runs continuously and icemaking operation continues.	Replace sensor

[b] SERVICE DIAGNOSIS (**: HC MODEL ONLY)

Error	Check	Possible Cause	Remedy
E1	Water valve	Closing failure	Clean or replace
	Refrigeration circuit	Gas leak	Repair
		Clogged capillary	Replace heat exchanger
		Clogged expansion valve	Replace
	Compressor	Defective	Replace
		Starting failure	Check supply voltage or replace electrical components
	Compressor relay	Coil circuit open	Replace
	Condenser	Clogged	Clean
	Fan motor	Locked	Replace
		Low RPM	Replace
		Broken fan	Replace fan
	Hot gas valve	Closing failure	Replace
	Cube control thermistor	Disconnected	Reconnect
E2	Hot gas valve	Opening failure	Replace
	Controller board	Defective	Replace
E3	Actuator motor	Defective	Replace
	Controller board	Relay contact failure	Replace
		Defective	Replace
E4	Actuator motor	Defective	Replace
	Controller board	Relay contact failure	Replace
		Defective	Replace
E5	Hot gas valve	Closing failure	Replace
	Controller board	Relay contact failure	Replace
E9	Condenser thermistor	Open or short circuit	Replace
	Controller board	Connector disconnected	Reconnect
EA	Controller board	Defective	Replace
EC	Cube control thermistor	Open or short circuit	Replace
	Controller board	Connector disconnected	Reconnect
Ed	Water regulator	Clogged with foreign matter	Unclog
		Corroded spring	Replace
EF (**)	Refrigeration circuit	Gas leakage	Repair

Caution	Check	Possible Cause	Remedy
C2	Air-cooled condenser	Dirty with oily smoke, low condensing capacity	Clean
		Clogged filter	Clean
	Water-cooled condenser	Dirty with scale, low condensing capacity	Clean
	Water circuit	Low water	Check shutoff valve
	Fan motor	Defective	Replace
	Ambient temperature	Too high	Ventilate and cool down

Alarm	Check	Possible Cause	Remedy
A1 (**)	Gas sensor	Gas sensor sensitization	Replace
A2 (**)	Gas sensor	Gas sensor open circuit	Replace

6. TROUBLESHOOTING

[a] INSTRUCTIONS FOR SERVICE ENGINEER

1) Check that the icemaker has been earthed properly. If not, the controller board will not work properly.
2) Do not change wiring and connections, or the controller board will not work properly.
3) Do not touch the electronic devices on the controller board or the back of the controller board.
4) Do not repair the electronic devices and parts on the controller board in the field except for the fuse (250V AC, 6.3A, 5mm DIA x 20mm).
5) To get static free, always touch the metal part of the icemaker before servicing.
6) Handle the controller board by the edges only.
7) Do not drop the controller board on the floor.

[b] CHECKING CONTROLLER BOARD

1) Before checking the controller board, check the cube control thermistor and bin control switch for proper operation. See “BEFORE CHECKING CONTROLLER BOARD” in the service manual for the applicable model.
2) If the above parts are operating properly, check each part according to “5. [b] SERVICE DIAGNOSIS”.

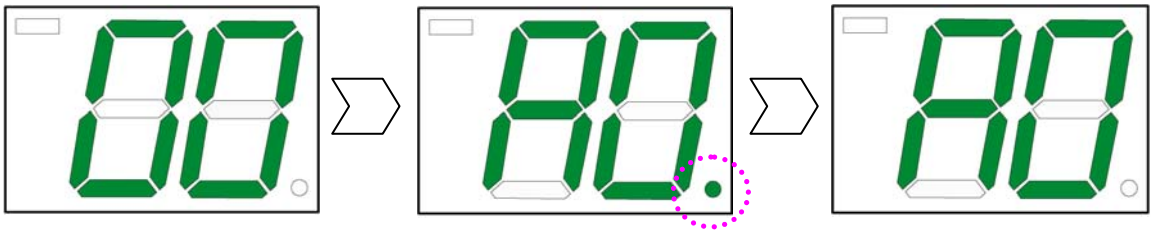
7. REMOVAL AND REPLACEMENT

The replacement controller board is in common use for the entire IM_N models (HE).

To replace:

1) Unplug the icemaker or disconnect the power source.
2) Remove the front cover and control box cover.
3) Disconnect all the connectors from the controller board. Remove the controller board from the control box.
4) Install the replacement controller board in the control box. Reconnect the connectors.
5) Replace the control box cover and front cover.
6) Plug in the icemaker or connect the power source. As the replacement controller board has not been set for the proper model code, the 7-segment display illuminates “00”.
   * The code “00” does not belong to any model.
7) Press the up switch to increase the first digit in the 7-segment display, and the down switch to increase the second digit. The digit changes in the following order: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F, H. Set the proper model code according to the model code list provided with the replacement controller board (see 3. [d] MODEL CODE SETTING MODE). When a preset model code is displayed, the dot on the bottom right lights up.
8) When the chosen preset model code is displayed, press the reset switch to store the board memory (the display shows “on” and the machine will then always start up with this memorized program as default).

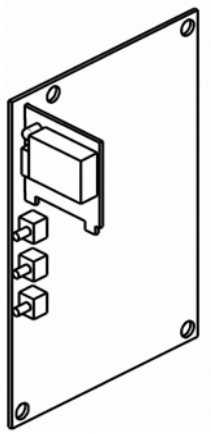
<Controller board replaced> <Chosen model code displayed> <Model code memorised>



* To check the current memorised model code, view in the display mode (press and hold the up switch for 3 seconds – the display changes to “n1”, then press the up switch several times to find “h6”, then press the reset switch and the memorised code appears in the display).
* If for any reason the machine needs to be reset back to the factory settings, hold the up and down switches for 15 seconds whilst the code is displayed (in display mode). The machine will stop working and the display will reset to “00” (cleared memory).

The controller board will then need to be reprogrammed (select and memorise the correct code for the machine) using steps 7) and 8) above.

Note:

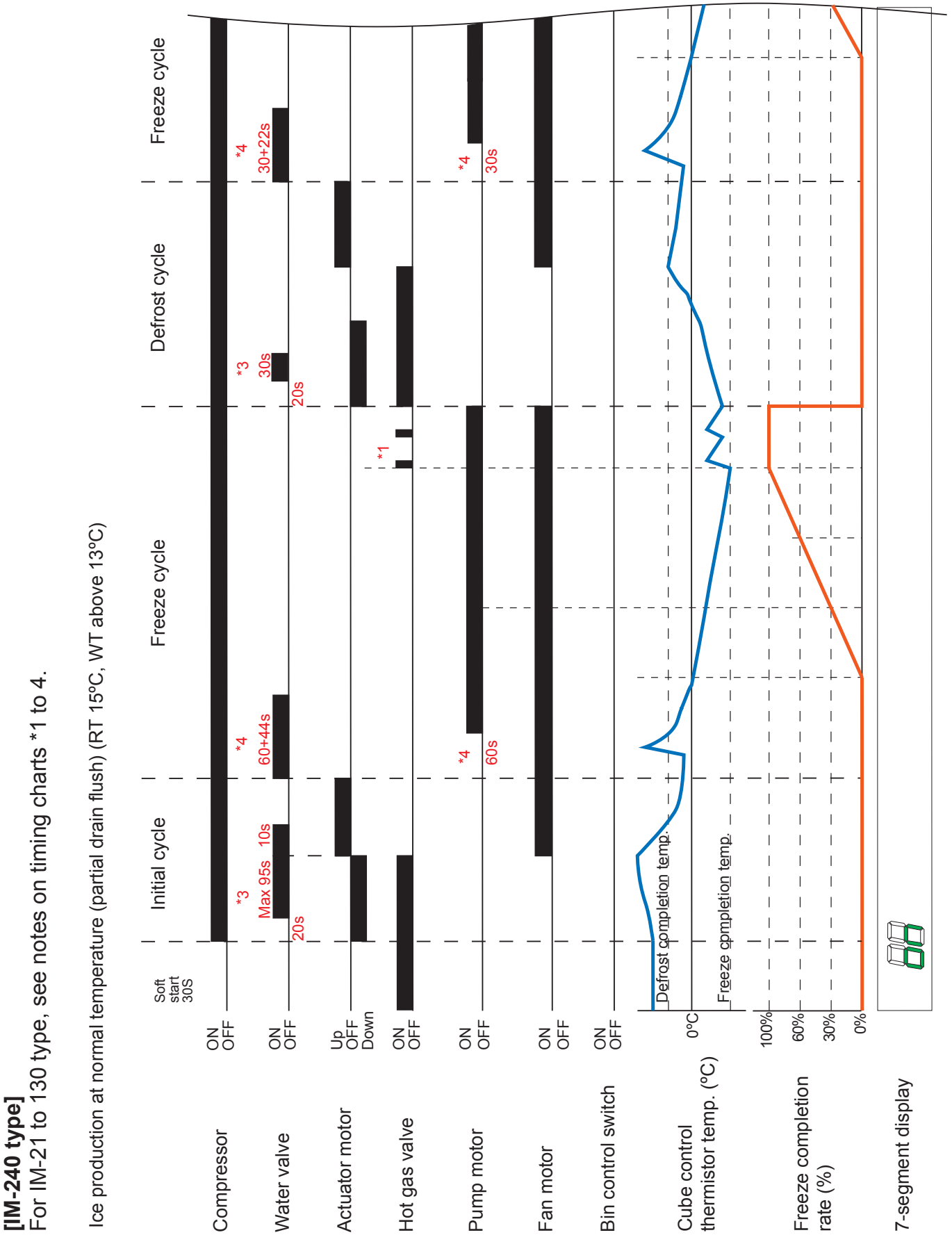


1. Be sure to get static free before servicing the controller board.
2. Do not touch the controller board with wet or dirty hands.
3. Do not impact the controller board. If it drops on the floor, do not use it.
4. Do not hold the leads when disconnecting the connectors.
   * Locking connectors must be unlocked before being disconnected.
   * Reconnect the connectors properly.
5. Install the new controller board in its correct position.
6. Bind the wiring inside the control box the way it was.
   * Do not push the wiring on the controller board.
   * Do not bind the thermistor leads and high voltage wires together.

8. TIMING CHART

[IM-240 type]
For IM-21 to 130 type, see notes on timing charts *1 to 4.

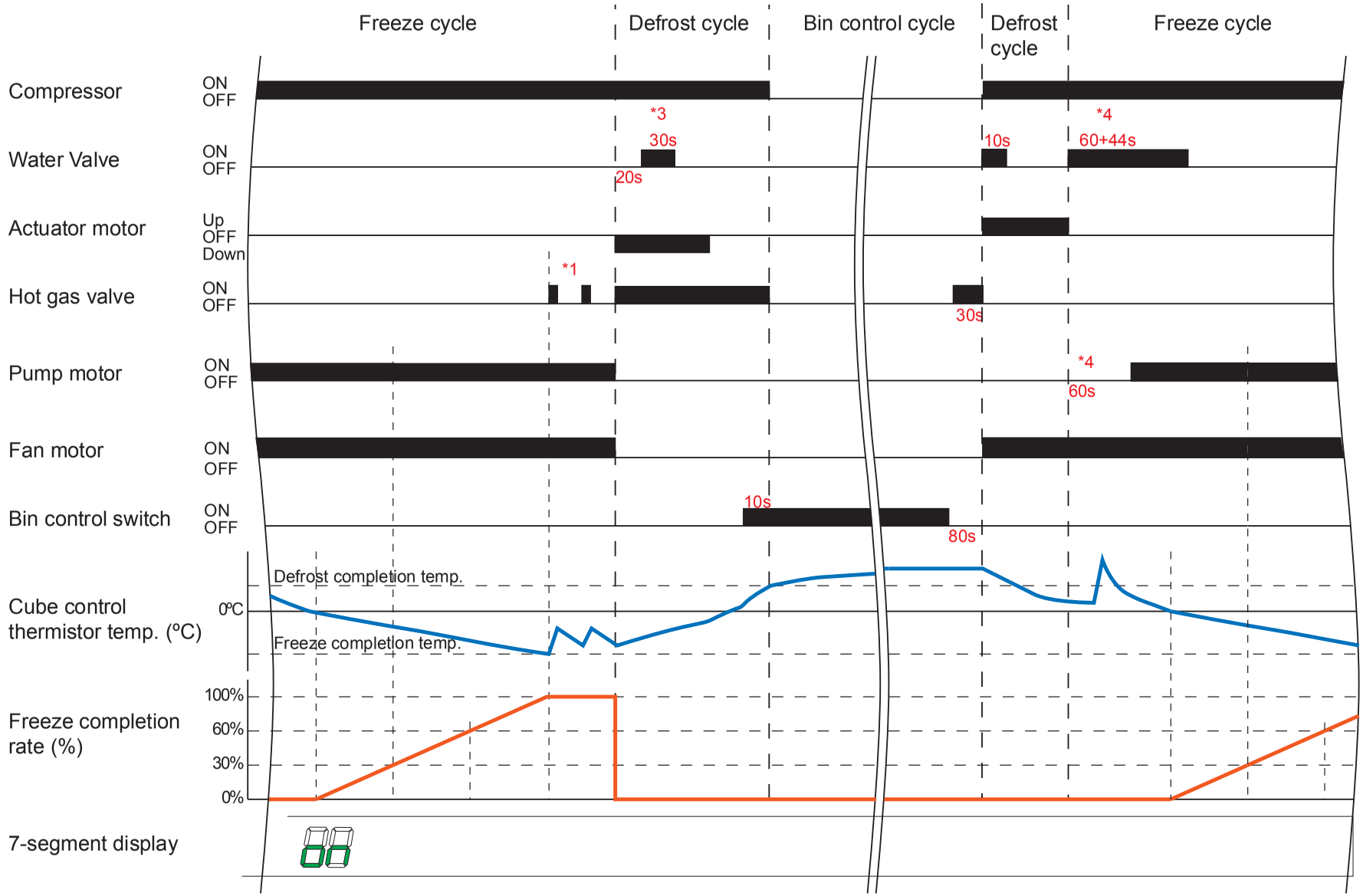
Ice production at normal temperature (partial drain flush) (RT 15°C, WT above 13°C)



[IM-240 type]

For IM-21 to 130 type, see notes on timing charts *1 to 4.

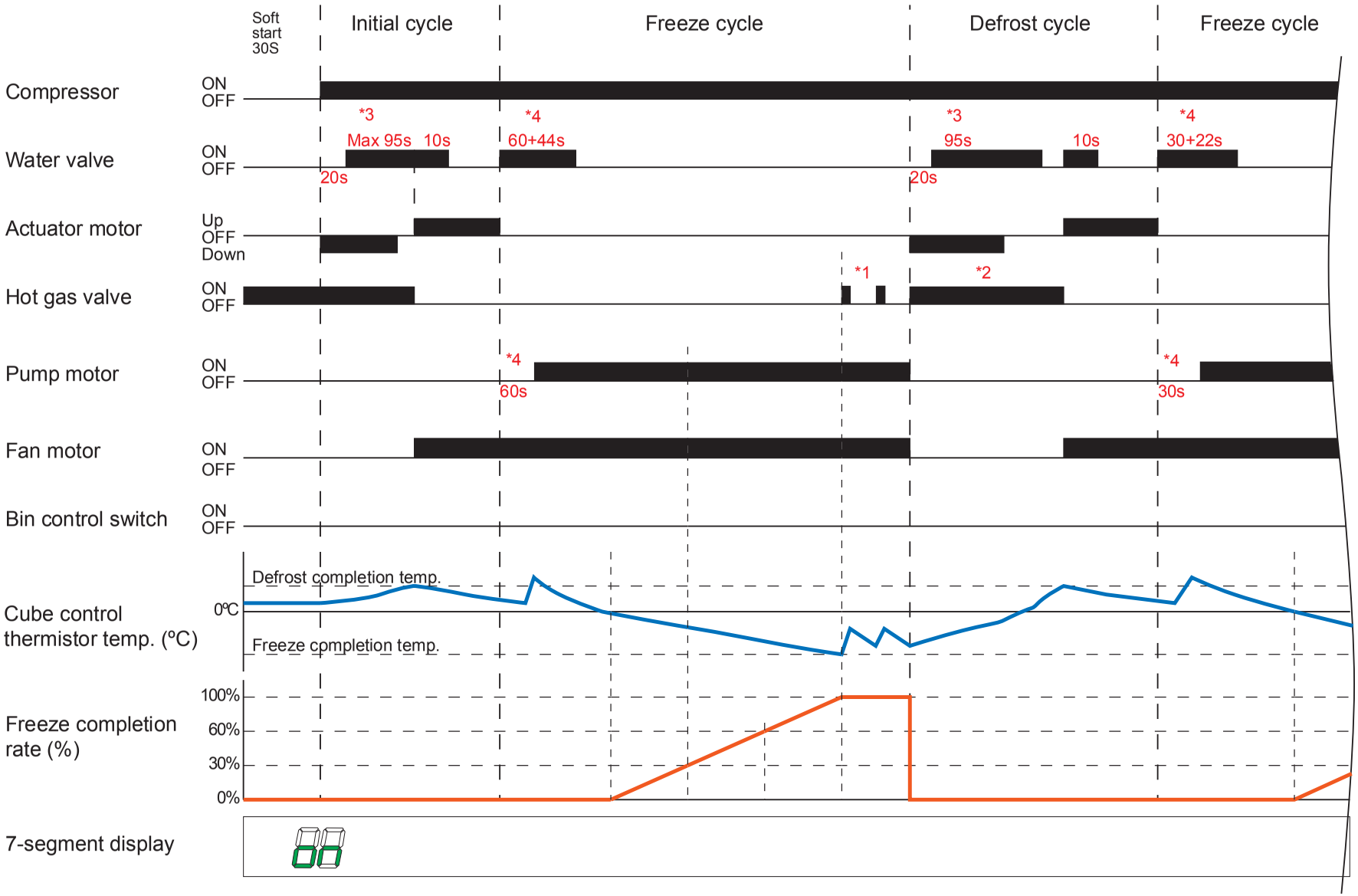
Ice storage at normal temperature (partial drain flush) (RT 15ºC, WT above 13ºC)



[IM-240 type]

For IM-21 to 130 type, see notes on timing charts *1 to 4.

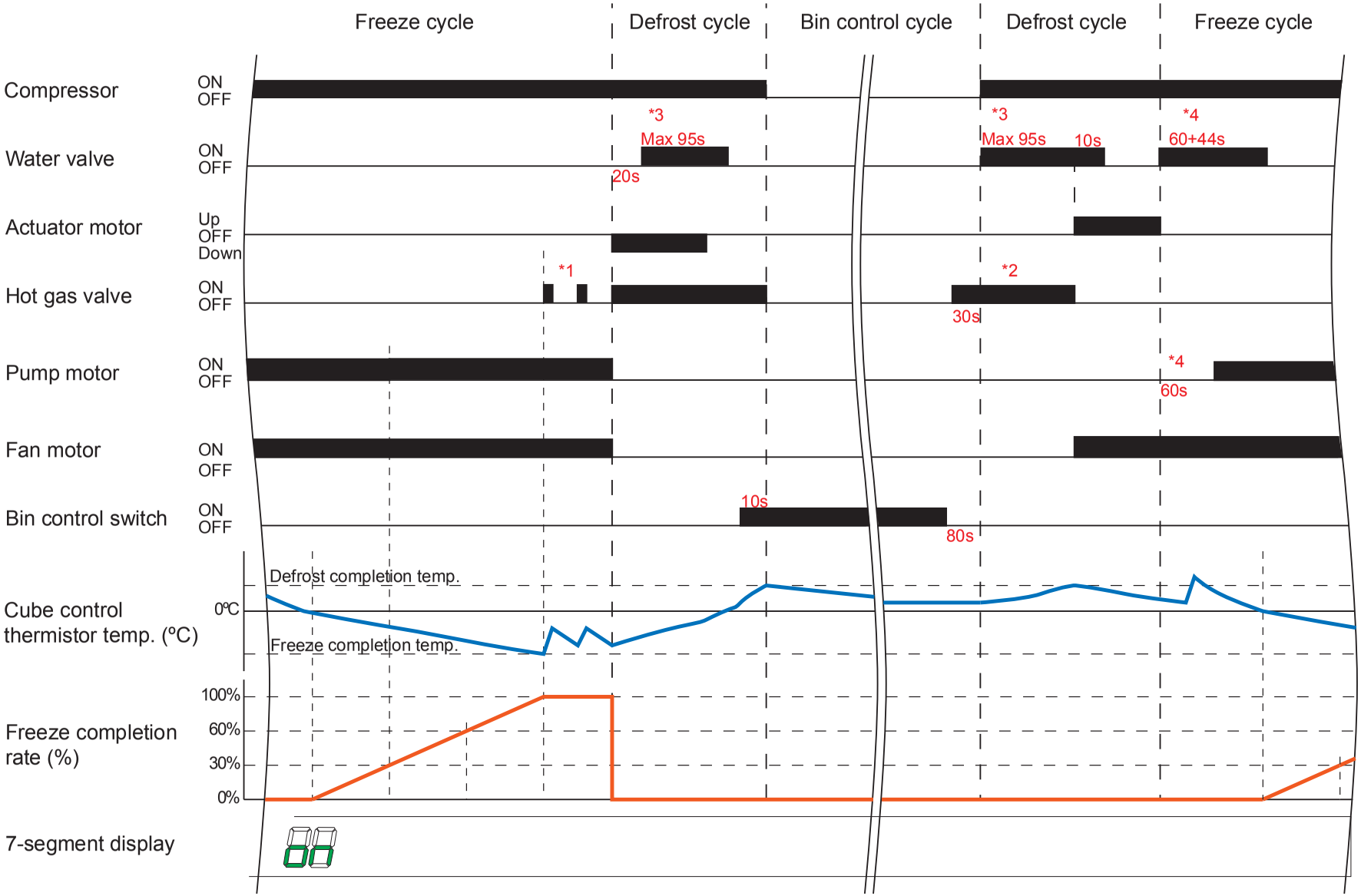
Ice production at low temperature (partial drain flush) (RT 15ºC, WT below 13ºC)



[IM-240 type]

For IM-21 to 130 type, see notes on timing charts *1 to 4.

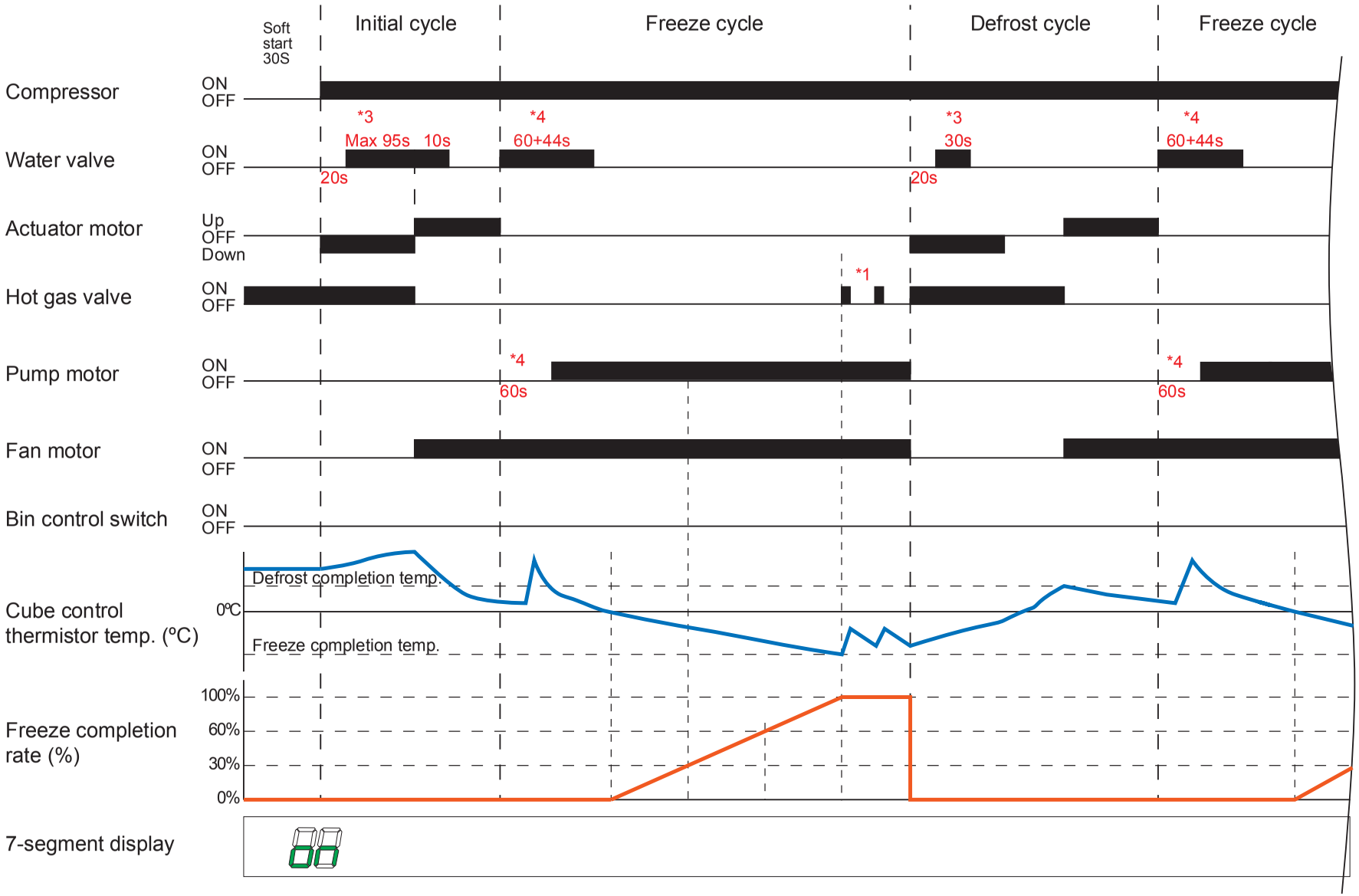
Ice storage at low temperature (partial drain flush) (RT 15ºC, WT below 13ºC)



[IM-240 type]

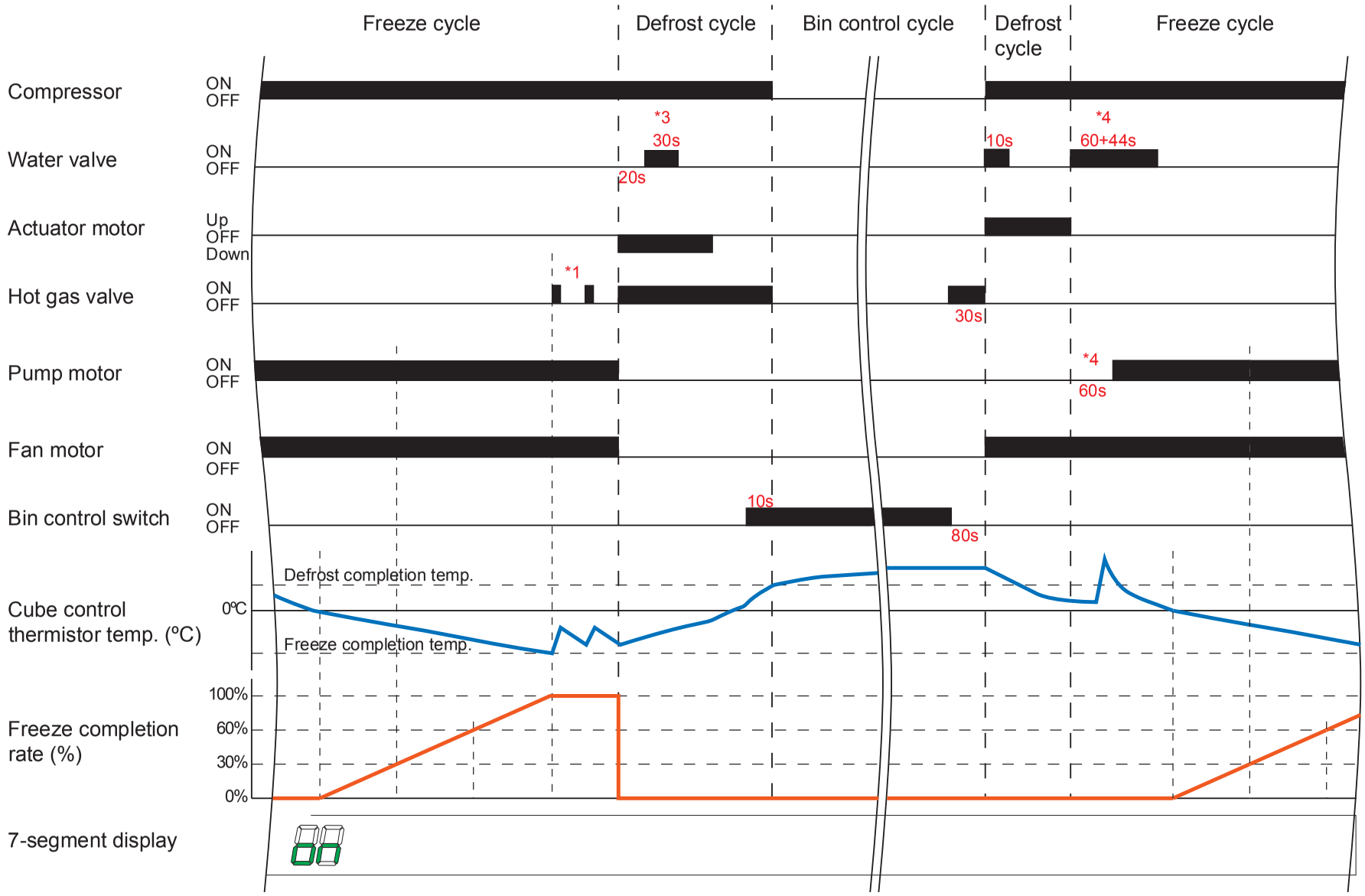
For IM-21 to 130 type, see notes on timing charts *1 to 4.

Ice production at normal temperature (full drain flush) (RT 15ºC, WT above 13ºC)



[IM-240 type]
For IM-21 to 130 type, see notes on timing charts *1 to 4.

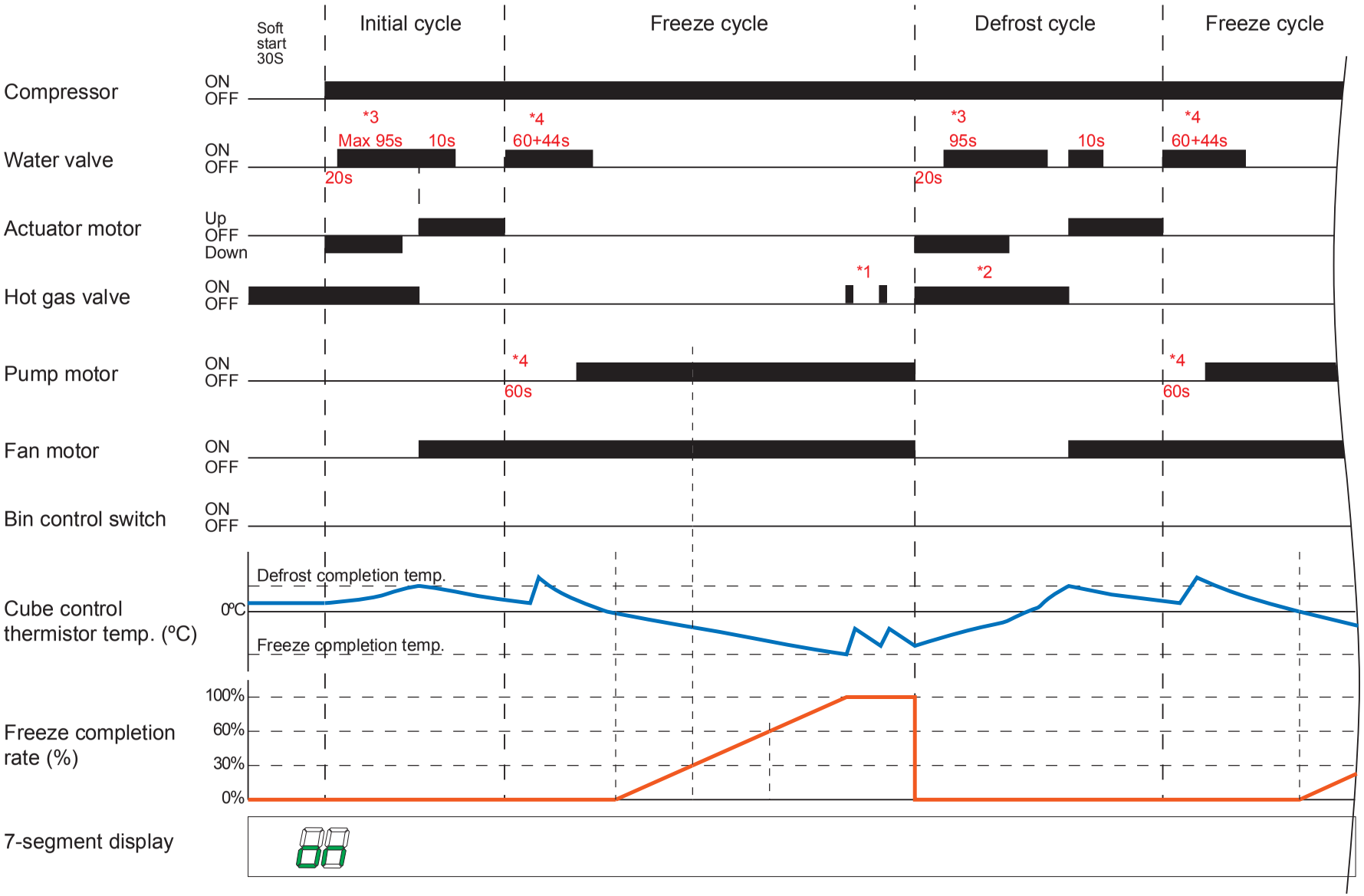
Ice storage at normal temperature (full drain flush) (RT 15ºC, WT above 13ºC)



[IM-240 type]

For IM-21 to 130 type, see notes on timing charts *1 to 4.

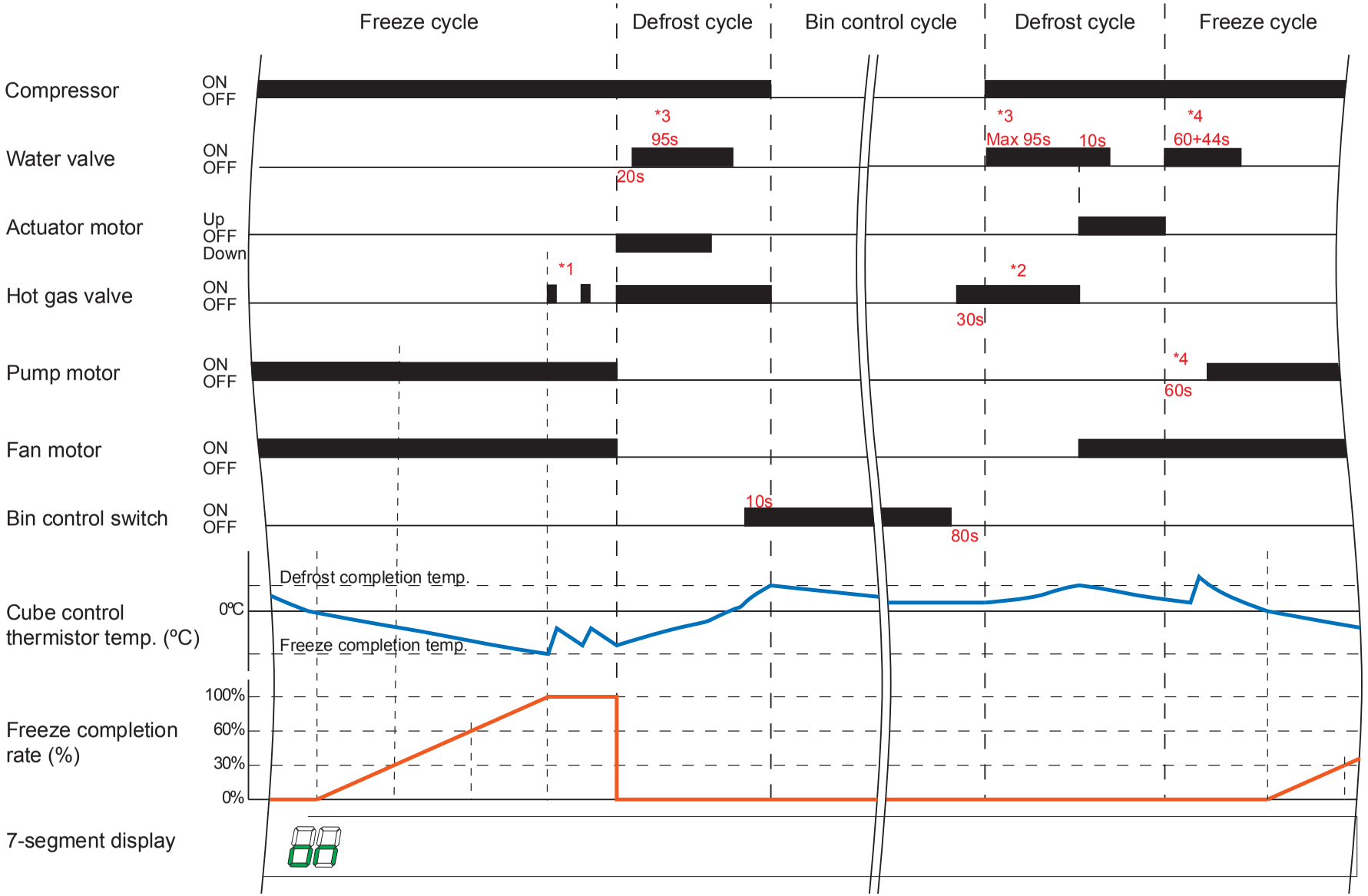
Ice production at low temperature (full drain flush) (RT 15ºC, WT below 13ºC)



[IM-240 type]

For IM-21 to 130 type, see notes on timing charts *1 to 4.

Ice storage at low temperature (full drain flush) (RT 15ºC, WT below 13ºC)



[IM-21 to 65 type]

Notes on timing charts (*1, *2, *3, *4)

<table>
<tr><th colspan="3">Item</th><th>21CNE
30CNE</th><th>30WNE</th><th>45NE
45CNE</th><th>45WNE</th><th>65NE</th><th>65WNE</th></tr>
<tr><td colspan="3">*3 Defrosting water supply time (water temp less than 13°C, or initial cycle)</td><td colspan="4">15s</td><td colspan="2">13s</td></tr>
<tr><td colspan="3">*3 Defrosting water supply time (water temp 13°C or more)</td><td colspan="2">6s</td><td colspan="2">7s</td><td colspan="2">10s</td></tr>
<tr><td colspan="3">*4 Icemaking water / additional water supply time (partial drain flush)</td><td colspan="6"></td></tr>
<tr><td colspan="3">*4 Icemaking water / additional water supply time (full drain flush)</td><td colspan="2">20/0s</td><td colspan="2">22/0s</td><td colspan="2">29/0s</td></tr>
<tr><td rowspan="4">*1 Water pan defrost control</td><td rowspan="2">Standard ice</td><td>Ambient temp in control</td><td>20°C or less</td><td></td><td>30°C or less</td><td></td><td colspan="2">30°C or less</td></tr>
<tr><td>Hot gas valve on/off time</td><td>10/20s</td><td>0/0s</td><td>2/28s</td><td>0/0s</td><td colspan="2">10/20s</td></tr>
<tr><td rowspan="2">Variant ice (-25)</td><td>Ambient temp in control</td><td colspan="2"></td><td colspan="2"></td><td colspan="2">20°C or less</td></tr>
<tr><td>Hot gas valve on/off time</td><td colspan="2">0/0s</td><td colspan="2">0/0s</td><td colspan="2">10/20s</td></tr>
<tr><td rowspan="2">*2 Defrost cycle low temp control</td><td colspan="2">Ambient temp in control</td><td>10°C or less</td><td></td><td>10°C or less</td><td></td><td>10°C or less</td><td></td></tr>
<tr><td colspan="2">Hot gas valve on/off time</td><td>40/40s</td><td></td><td>40/40s</td><td></td><td>40/40s</td><td></td></tr>
</table>

1) When the power is turned on or the unit resumes operation after a bin control cycle, the water temperature is considered less than 13°C and the water valve opens for 15 seconds (IM-21 to 45 type) or 13 seconds (IM-65 type) to supply defrosting water. If the water temperature is normal, the water pan opens and immediately starts to close again. In this case, defrosting water flows for 10 seconds and not for the above supply time.

2) The pump motor starts after the water pan closes and the icemaking water supply completes.

[IM-100 to 130 type]

Notes on timing charts (*1, *2, *3, *4)

<table>
<tr><th colspan="3">Item</th><th>100NE</th><th>130NE</th><th>100WNE</th><th>130WNE</th></tr>
<tr><td colspan="3">*3 Defrosting water supply time (water temp less than 13°C, or initial cycle)</td><td colspan="4">90s</td></tr>
<tr><td colspan="3">*3 Defrosting water supply time (water temp 13°C or more)</td><td colspan="4">30s</td></tr>
<tr><td colspan="3">*4 Icemaking water / additional water supply time (partial drain flush)</td><td colspan="4">35/0s</td></tr>
<tr><td colspan="3">*4 Icemaking water / additional water supply time (full drain flush)</td><td colspan="4">70/0s</td></tr>
<tr><td rowspan="4">*1 Water pan defrost control</td><td rowspan="2">Standard ice</td><td>Ambient temp in control</td><td colspan="2">20°C or less</td><td></td></tr>
<tr><td>Hot gas valve on/off time</td><td colspan="2">10/20s</td><td>0/0s</td></tr>
<tr><td rowspan="2">Variant ice</td><td>Ambient temp in control</td><td colspan="2">20°C or less</td><td></td></tr>
<tr><td>Hot gas valve on/off time</td><td colspan="2">10/20s</td><td>0/0s</td></tr>
<tr><td rowspan="2">*2 Defrost cycle low temp control</td><td colspan="2">Ambient temp in control</td><td colspan="2">10°C or less</td><td></td></tr>
<tr><td colspan="2">Hot gas valve on/off time</td><td colspan="2">40/40s</td><td></td></tr>
</table>

1) When the power is turned on or the unit resumes operation after a bin control cycle, the water temperature is considered less than 13°C and the water valve opens for 90 seconds to supply defrosting water. If the water temperature is normal, the water pan opens and immediately starts to close again. In this case, defrosting water flows for 10 seconds and not for the above supply time.

2) In the partial drain flush setting, when the power is turned on or the unit resumes operation after a bin control cycle, the water valve opens for 70 seconds (35s x 2) to supply icemaking water to supply additional icemaking water.

3) In the full drain flush setting, the icemaking water supply time is 70 seconds. The water supply time will not be doubled when the power is turned on or the unit resumes operation after a bin control cycle.

4) The pump motor starts after the water pan closes and the icemaking water supply completes.
   Partial drain flush - after 35 seconds, or after 70 seconds (35s x 2) when the power is turned on or the unit resumes operation after a bin control cycle
   Full drain flush - after 70 seconds

[IM-240 type with Copeland compressor]

Notes on timing charts (*1, *2)

Item			240DNE	240DNE-C	240DWNE	240DWNE-C
Defrosting water supply time (water temp less than 13°C, or initial cycle)			95s			
Defrosting water supply time (water temp 13°C or more)			30s			
Icemaking water / additional water supply time (partial drain flush)			30/22s			
Icemaking water / additional water supply time (full drain flush)			60/44s			
*1 Water pan defrost control	Standard ice Cylinder ice	Ambient temp in control	30°C or less	20°C or less	30°C or less	20°C or less
		Hot gas valve on/off time	5/25s	10/20s	5/25s	10/20s
	Variant ice (-23, -21, -32)	Ambient temp in control	any temp		any temp	
		Hot gas valve on/off time	0/0s		0/0s	
*2 Defrost cycle low temp control	Ambient temp in control		10°C or less			
	Hot gas valve on/off time		40/40s			

Item			240NE	240ANE	240WNE	240AWNE
Defrosting water supply time (water temp less than 13°C, or initial cycle)			95s			
Defrosting water supply time (water temp 13°C or more)			30s			
Icemaking water / additional water supply time (partial drain flush)			30/22s			
Icemaking water / additional water supply time (full drain flush)			60/44s			
*1 Water pan defrost control	Standard ice Cylinder ice	Ambient temp in control	20°C or less		30°C or less	
		Hot gas valve on/off time	2/28s			
	Variant ice (-23, -21, -32)	Ambient temp in control	any temp			
		Hot gas valve on/off time	0/0s			
*2 Defrost cycle low temp control	Ambient temp in control		10°C or less			
	Hot gas valve on/off time		40/40s			

1) When the power is turned on or the unit resumes operation after a bin control cycle, the water temperature is considered less than 13°C and the water valve opens for a maximum of 95 seconds to supply defrosting water. If the water temperature is normal, the water pan opens and immediately starts to close again. In this case, defrosting water flows for 10 seconds and the above supply time may be shorter than 95 seconds.

2) In the partial drain flush setting, when the power is turned on or the unit resumes operation after a bin control cycle, the water valve opens for 60 seconds (30s x 2) to supply icemaking water and for 44 seconds (22s x 2) to supply additional icemaking water.

3) In the full drain flush setting, the icemaking water supply time is 60 seconds and the additional water supply time is 44 seconds. The water supply time will not be doubled when the power is turned on or the unit resumes operation after a bin control cycle.

4) The pump motor starts after the water pan closes and the icemaking water supply completes.
   Partial drain flush - after 30 seconds, or after 60 seconds (30s x 2) when the power is turned on or the unit resumes operation after a bin control cycle
   Full drain flush - after 60 seconds

[IM-240 type with SECOP (Danfoss) compressor]

Notes on timing charts (*1, *2)

<table>
<tr><th colspan="3">Item</th><th>240DNE</th><th>240DNE-C</th><th>240DWNE</th><th>240DWNE-C</th></tr>
<tr><td colspan="3">*3 Defrosting water supply time (water temp less than 13°C, or initial cycle)</td><td colspan="4">95s</td></tr>
<tr><td colspan="3">*3 Defrosting water supply time (water temp 13°C or more)</td><td colspan="4">30s</td></tr>
<tr><td colspan="3">*4 Icemaking water / additional water supply time (partial drain flush)</td><td colspan="4">30/22s</td></tr>
<tr><td colspan="3">*4 Icemaking water / additional water supply time (full drain flush)</td><td colspan="4">60/44s</td></tr>
<tr><td rowspan="9">*1 Water pan defrost control</td><td rowspan="2">Standard ice Cylinder ice</td><td>Ambient temp in control</td><td colspan="4">30°C or less</td></tr>
<tr><td>Hot gas valve on/off time</td><td>2/28s</td><td>10/20s</td><td>2/28s</td><td>10/20s</td></tr>
<tr><td rowspan="2">Variant ice (32mm)</td><td>Ambient temp in control</td><td>any temp</td><td></td><td>any temp</td><td></td></tr>
<tr><td>Hot gas valve on/off time</td><td>0/0s</td><td></td><td>0/0s</td><td></td></tr>
<tr><td rowspan="2">Variant ice (23mm)</td><td>Ambient temp in control</td><td>20°C or less</td><td></td><td>any temp</td><td></td></tr>
<tr><td>Hot gas valve on/off time</td><td>2/28s</td><td></td><td>0/0s</td><td></td></tr>
<tr><td rowspan="2">Variant ice (21mm)</td><td>Ambient temp in control</td><td>20°C or less</td><td></td><td>any temp</td><td></td></tr>
<tr><td>Hot gas valve on/off time</td><td>2/28s</td><td></td><td>0/0s</td><td></td></tr>
<tr><td rowspan="2">*2 Defrost cycle low temp control</td><td colspan="2">Ambient temp in control</td><td colspan="2">10°C or less</td><td colspan="2"></td></tr>
<tr><td colspan="2">Hot gas valve on/off time</td><td colspan="2">40/40s</td><td colspan="2"></td></tr>
</table>

Item			240NE	240ANE	240WNE
*3 Defrosting water supply time (water temp less than 13°C, or initial cycle)			95s		
*3 Defrosting water supply time (water temp 13°C or more)			30s		
*4 Icemaking water / additional water supply time (partial drain flush)			30/22s		
*4 Icemaking water / additional water supply time (full drain flush)			60/44s		
*1 Water pan defrost control	Standard ice Cylinder ice	Ambient temp in control	20°C or less	30°C or less	
		Hot gas valve on/off time	2/28s		
	Variant ice (-23, -21, -32)	Ambient temp in control	any temp		
		Hot gas valve on/off time	0/0s		
*2 Defrost cycle low temp control	Ambient temp in control		10°C or less		
	Hot gas valve on/off time		40/40s		

(**: HC MODEL ONLY)

Item			240AWNE	240ANE-HC (**)	240ANE-HC-23 (**)
*3 Defrosting water supply time (water temp less than 13°C, or initial cycle)			95s		
*3 Defrosting water supply time (water temp 13°C or more)			30s		
*4 Icemaking water / additional water supply time (partial drain flush)			30/22s		
*4 Icemaking water / additional water supply time (full drain flush)			60/44s		
*1 Water pan defrost control	Standard ice Cylinder ice	Ambient temp in control	30°C or less		
		Hot gas valve on/off time	2/28s	10/20s	
	Variant ice (-23, -21, -32)	Ambient temp in control			
		Hot gas valve on/off time			
*2 Defrost cycle low temp control	Ambient temp in control			7°C or less	
	Hot gas valve on/off time			40/40s	

1) When the power is turned on or the unit resumes operation after a bin control cycle, the water temperature is considered less than 13°C and the water valve opens for a maximum of 95 seconds to supply defrosting water. If the water temperature is normal, the water pan opens and immediately starts to close again. In this case, defrosting water flows for 10 seconds and the above supply time may be shorter than 95 seconds.

2) In the partial drain flush setting, when the power is turned on or the unit resumes operation after a bin control cycle, the water valve opens for 60 seconds (30s x 2) to supply icemaking water and for 44 seconds (22s x 2) to supply additional icemaking water.

3) In the full drain flush setting, the icemaking water supply time is 60 seconds and the additional water supply time is 44 seconds. The water supply time will not be doubled when the power is turned on or the unit resumes operation after a bin control cycle.

4) The pump motor starts after the water pan closes and the icemaking water supply completes.
   Partial drain flush - after 30 seconds, or after 60 seconds (30s x 2) when the power is turned on or the unit resumes operation after a bin control cycle
   Full drain flush - after 60 seconds

5) For IM-240ANE-HC, in the defrost cycle low temperature control mode, the icemaker continuously supplies defrosting water during defrost cycle.