Quick-Guide for Software Ver. 3.0

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Gram Commercial A/S
Aage Grams Vej
6500 Vojens, Danmark
Tel: +45 73 20 13 00
Fax: +45 73 20 12 01
www.gram-bioline.com

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Cabinet On/OFF

Press the Q-key to switch on the cabinet. Press and hold it for 6 sec. the cabinet will switch off (Stand-by). During the start-up the program variant and SW version will be presented shortly. Revision number can be presented under ”Display test”.

Other short cuts

Using the key-pad functions is accessed or activated.

Key combination:	Time:	Function:
P+Q	> 3 sec.	Start or stop a defrosting cycle manually.
Q+1	> 6 sec.	Key pad lock on/off. With a lock key it’s not possible to access any menu or make any changes.
(+)	-	Showing highest recorded temperature peak since the last reset of alarm history.
(-)	-	Showing lowest recorded temperature peak since the last reset of alarm history.
(+) + (-)	> 6 sec.	Re-setting alarm history.
P+1+3	> 6 sec.	Re-setting all changes in the parameters and brings the settings back to default.
P+1	> 6 sec.	Access to **User menu and alarm settings**. See more in the tables below.
P+2	> 6 sec.	Access to **System monitoring and presentations**. See more in the tables below.
P+3	> 6 sec.	Access to **Cooling system setup**. See more in the tables below.
P+4	> 6 sec.	Access to the **Test Program**. See more in the tables below.
P+5	> 6 sec.	Access to the **Control of the Sensors**. See more in the tables below.

Changes in product setup

If changes are needed in the controllers settings, then enter the menus as according to above. The values is changed using the + and - keys. The new setting is saved by pressing the P-key. Leave the menus with Q-key.

User menu and alarm settings

The alarm system is separated into two. One alarm system triggers alarms only locally, which means the error only is displayed. The second alarm system triggers locally and external. Error codes in the display, but also alarm activates also the potential-free alarm output. Each alarm system is working independently.

Menu access P+1 ↠	↴	↠		
Dry cooling	dC		Activation of dry cooling program. [H1=off / H0=active]	
Local alarm setting	LAL	LhL	[° C]	Setting the upper alarm limit. At alarm the display is showing: [**A2**].
		LLL	[° C]	Setting the lower alarm limit. At alarm the display is showing: [**A3**].
		Lhd	[min.]	Time delay for upper alarm limit.
		LLd	[min.]	Time delay for lower alarm limit.
		dA	On/off	Activation of door alarm [1=on / 0=off]. At alarm the display is showing: [**A1**].
		dAd	[min.]	Time delay for door alarm.
		BU	On/off	Activation of buzzer [1=on / 0=off]. The buzzer sounds at alarms [**A1**], [**A2**], [**A3**].
External alarm setting	EAL	EhL	[° C]	Setting the upper alarm limit. At alarms the display is showing: [**A4**].
		ELL	[° C]	Setting the lower alarm limit. At alarms the display is showing: [**A5**].
		Ehd	[min.]	Time delay for upper alarm limit.
		ELd	[min.]	Time delay for lower alarm limit.
		dA	On/off	Activation of door alarm [1=on / 0=off]. At alarms the display is showing: [**A1**].
		dAd	[min.]	Time delay for door alarm.
		BU	On/off	Activation of buzzer [1=on / 0=off]. The buzzer sounds at alarms [**A1**], [**A4**], [**A5**].
Sensor calibration	cAL	cA	[° K]	Offset adjustment on A-sensor. Cabinet sensor.
		cE	[° K]	Offset adjustment on E-sensor. Extra sensor (placed in air or in bottle).
		cF	[° K]	Offset adjustment on F-sensor. Sensor for frost protection.
Frost protection	FP	Act	On/off	Activation on frost protection.
		tES	On	Test the frost protection. Switch off compressor after time = C4.
		SEt	[° C]	Adjustment of cut-out for compressor.
		PrE	[…]	Presentation of F-sensor.
	ALL		Activation of escorting alarm limits. [FAS] = locked borders / [ESC] = following set point.	
	dEF		Numbers of defrosting pr. day.	
	dPS		Selection of sensor displaying in the display. Choose between: A, E or F.	

The alarms:	Text in display and description:	
Alarm messages from above.	A1	Door alarm is triggered either by the LAL or EAL alarm systems.
	A2	Alarm code triggered by a too hot temperature associated with the local alarm system.
	A3	Alarm code triggered by a too cold temperature associated with the local alarm system.
	A4	Alarm code triggered by a too hot temperature associated with the external alarm system.
	A5	Alarm code triggered by a too cold temperature associated with the external alarm system.
	A6	Frost protection has stopped compressor and ensured that the room temperature is not too cold.

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Temperature monitor and presentations

Menu for setting the monitoring, alarm history, sensor choice for alarm systems and temperature read-out.

Menu access P+2 ⇥	↴	⇥		
Alarm setting	A	A1	[° C]	By overheated condenser this starts the compressor protection program
		A2	[° C]	Temperature in condenser to de-activate the compressor protection program.
		A4	On/off	Activation of alarm history [1=on / 0=off]. The program only works with alarm system: **LAL.**
		A5		Choose between A, E or F sensor for the alarm systems **LAL** and **EAL**.
Presentation in display	P	P1	[min.]	Freezing the temperature in minutes in display after a defrosting cycle.
		P2	[° K]	Freezing the temperature in display under normal run. Temperature fluctuation filter.
		P3	[sec.]	Display refresh rate.
		P4		Selection between Celsius or Fahrenheit temperature scale.

Settings for cooling system

Menu for setting the evaporator fan, compressor and defrosting cycles.

Menu access P+3 ⇥	↴	⇥	RX-model V1+	BioUltra E3+		
Compressor setting	C	C1		C1	[° K]	Differential for compressor cut-in and cut-out.
		C2		C2	[° C]	Maximum allowable temperature limit.
		C3		C3	[° C]	Lowest allowable temperature limit.
		C4		C4	[min]	Forced break time for the compressor between cut-out and cut-in
		C5				Number of condenser sensor connected to controller
		C6			[min]	Permitted time the door can be open before the compressor stops.
			C7		[° K]	(RX-model / Soft differential for cool/heat cut-out).
				C8	[° C]	(BioUltra / Set point for condenser fan.)
				C9	[° K]	(BioUltra / Cut-out differential for condenser fan).
Evaporator fan setting	F	F1		L1	[° C]	Temperature for fan start after the defrosting cycle. Start of LT compressor in E3+
		F2			[min.]	Time evaporator is paused while the compressor is stopped.
		F3			[sec.]	Time evaporator fan is in operation while the compressor is stopped
				L4	[° C]	Stop temperature in cascade heat exchanger for LT compressor – At normal run.
				L5	[° C]	Stop temperature in cascade heat exchanger for LT compressor – By abnormal run.
				L6	[° K]	Temperature deviation for choosing between "normal or abnormal" run.
				L7		Running mode for LT compressor [1=slave / 0=independent].
Defrosting cycle setting	d	d1				Numbers of defrosting pr. day.
		d2			[° C]	Defrosting stop temperature measured in the evaporator
		d3			On/off	Activating the defrosting cycle on first power-up start [0=on / 1=off]
		d4			[min.]	Maximum defrosting time.
		d5				Choose between automatic [1], air [2] or electrical defrosting method [3]
		d6			[min.]	Dripping time after defrosting cycle ends.
		d7			[° C]	The maximum level that determines the defrosting method when d5 = [1]
		d8			[° C]	Temperature in evaporator to start an extra defrosting cycle automatically.
				d10	[min.]	Defrosting window.
				d11	[h]	Time delay at 100 % compressor running before forced defrosting cycle.

Test program

Individually control of relay outputs and connected external components. Select the menu item and press the P-key. The relay switches and power is connected to external component. The display shows [on]. Stop the test with Q-key.

Menu access P+4 ⇥	↴	↴ BioUltra E3+	P-key ⇥ [on] / Q-key [off]
Compressor	tC	tHt	Control of compressor and condenser fan / (**BioUltra**: Control of HT compressor).
Evaporator fan	tF	tLt	Control of evaporator fan / (**BioUltra**: Control of LT compressor).
Defr. heating element	td	td	Control of defrosting heating element. Warning: The heating element becomes very hot. **Danger**!
Light	tL	tCF	Control of light / (**BioUltra**: Control of condenser fan speed change – 900 rpm to 1200 rpm).
Alarm output	tA	tA	Control of the potential free relay out-put.
Display test	tdP	tdP	All LED's in the display will lights up for 1 sec. followed by the software revision number.

Control of sensor and display

With this menu it's possible to have instantaneous sensor read-outs.

Menu access P+5 ⇥	↴	P-key ⇥ [° C]	Message in display and cause	
Cabinet sensor	P-A	The current cabinet/room sensor measuring is displayed.	F1	Error on cabinet sensor
Evaporator sensor	P-b	The current evaporator sensor measuring is displayed.	F2	Error on evaporator sensor
Condenser sensor 1	P-C	The current condenser 1 sensor measuring is displayed.	F3	Error on condenser sensor 1
Condenser sensor 2	P-d	The current condenser 2 sensor measuring is displayed.	F4	Error on condenser sensor 2
Extra/Reference sensor	P-E	The current reference / E-sensor measuring is displayed.	F5	Error on Extra/Reference sensor
Sensor for frost protect.	P-F	The current measuring with frost protection is displayed.	F6	Error on sensor for frost protection
Overheated condenser caused by a clogged grease filter. Triggered by both C and d sensor			F7	Overheated condenser 1 or 2.
BioUltra: High pressure switch has triggered by excessive pressure in the LT cooling system.			F8	
When the door opens the symbol lights up. A too long open door this will trigger the alarm **[A1]**.			-0-	Symbol for open door

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Default factory settings

Below are all BioLine program variants shown. In the columns under each program variant, the factory settings is presented. Should any questions occur, then please take contact to BioLine Tech Support.

			Refrigeration							Extended		Freezer					Heat	Extreme low temp. range		
			K2+	K4+	K5+	K6+	K8+	K9+	K70	M4+	M5+	F5+	F6+	F51	F61	F70	V1+	E1+	E3+	E4+
Systemvars revision number			94.102	94.102	94.102	94.102	94.102	94.102	94.98	94.80	94.102	94.80	94.80	94.80	94.80	94.98	94.80	94.80	94.80	94.80
Setpoint (celsius)			5	5	5	5	5	5	5	4	5	-20	-20	-20	-20	-20	5	-35	-80	-40
Temperature range (celcius)			+20/+2	+20/+2	+20/+2	+20/+2	+20/+2	+20/+2	+15/+2	+6/+2	+20/-2	-5/-25	-5/-25	-5/-25	-5/-25	-5/-25	+45/0	-5/-38	-60/-95	-5/-45
User menu: P+1		↴													0					
Dry refrigeration on=H0/off=HI	dC		-	-	-	-	-	-	-	HI	HI	-	-	-	-		-	-	-	-
Thawing on/off	UF		-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-
Local Alarm Limits	LAL	↴																		
Upper local alarm limit (celcius)		LHL	25	-	-	25	25	25	25	6	25	25	-	25	-	0	50	25	25	25
Lower local alarm limit (celcius)		LLL	0	-	-	0	0	0	0	2	-5	-35	-	-35	-	-35	-5	-45	-99	-60
Time delay for upper alarm limit (min.)		LHd	0	-	-	0	0	0	0	0	0	0	-	0	-	0	0	0	60	0
Tiem delay for lower alarm limit (min.)		LLd	0	-	-	0	0	0	0	0	0	0	-	0	-	0	0	0	60	0
Door alarm on=1/off=0		dA	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Time delay for open door (min.)		dAd	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Buzzer for local alarm on=1/off=0		bU	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
External Alarm Limits	EAL	↴																		
Upper external alarm limit (celcius)		EHL	25	-	-	25	25	25	-	25	25	25	-	25	-	-	50	25	25	25
Lower external alarm limit (celcius)		ELL	0	-	-	0	0	0	-	0	-5	-35	-	-35	-	-	-5	-45	-99	-60
Time delay for upper alarm limit (min.)		EHd	0	-	-	0	0	0	-	60	0	60	-	60	-	-	60	60	60	60
Time delay for lower alarm limit (min.)		ELd	0	-	-	0	0	0	-	60	0	60	-	60	-	-	60	60	60	60
Door alarm on=1/off=0		dA	0	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	0	0
Time delay for open door (min.)		dAd	5	5	5	5	5	5	-	5	5	5	5	5	5	-	5	5	5	5
Buzzer for local alarm on=1/off=0		bU	0	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	0	0
Calibration of sensor	CAL	↴																		
Offset adjustment sensor A (kelvin)		CA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Offset adjustment sensor E (kelvin)		CE	0	-	-	0	0	0	-	0	0	0	-	0	-	-	0	0	0	0
Offset adjustment sensor F (kelvin)		CF	0	0	0	0	0	0	-	0	0	-	-	-	-	-	0	-	-	-
Frost Protection	FP	↴																		
Activation of frost protection On=1/Off=0		Act	0	0	0	0	0	0	-	0	0	-	-	-	-	-	0	-	-	-
Test of frost protection		tES	0	0	0	0	0	0	-	0	0	-	-	-	-	-	0	-	-	-
Setpoint of frost protection (celcius)		SEt	2	2	2	2	2	2	-	2	2	-	-	-	-	-	2	-	-	-
Display of current sensor temperaturer (celcius)		PrE	...	...	...	...	...	...	-	...	...	-	-	-	-	-	...	...	-	-
Fixed or escorting alarm limits (FAS - ESC)	ALL		FAS	FAS	FAS	FAS	FAS	FAS	-	FAS	FAS	FAS	FAS	FAS	FAS	-	FAS	FAS	FAS	FAS
Soft chilling (soft-chill)	SCL		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hard chilling (hard-chill)	HCL		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Time controlled chilling (timed-chill)	PCL		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Number of defrosts / 24h	dEF		4	4	4	4	4	4	-	4	4	4	4	4	4	-	4	4	1	4
Selected sensor display	dPS		E	A	A	E	E	E	-	E	E	E	-	E	-	-	E	E	E	E
Possible choice for sensor displaying in display			A,E,F	A,F	A,F	A,E,F	A,E,F	A,E,F	-	A,E,F	A,E,F	A,E	-	A,E	-	-	A,E,F	A,E	A,E	A,E
Alarm & presentation: P+2		↴																		
Alarm settings	A	↴																		
Condenser monitoring alarm on (celcius)		A1	65	65	65	65	65	65	-	65	65	65	65	65	65	-	65	65	65	65
Condenser monitoring alarm off (celcius)		A2	40	40	40	40	40	40	-	40	40	40	40	40	40	-	40	40	40	40
Genindtrædelses tiden for akustisk alarm (min.)		A3	5	5	5	5	5	5	-	5	5	5	5	5	5	-	5	5	5	5
Alarm history on=1/off=0		A4	1	-	-	1	1	1	-	1	1	1	-	1	-	-	1	1	1	1
Selection of sensor for alarm system		A5	E	A	A	E	E	E	-	E	E	E	-	E	-	-	E	E	E	E
Possible choice for sensor displaying in display			A,E,F	A,F	A,F	A,E,F	A,E,F	A,E,F	-	A,E,F	A,E,F	A,E	-	A,E	-	-	A,E,F	A,E	A,E	A,E
Presentation of temperature	P	↴																		
Temperature display hold after defrost		P1	0	30	30	0	0	0	-	0	0	0	30	0	30	-	0	0	0	0
Temperature display hold during normal operation		P2	0	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	0	0
Display updating frequency (sec)		P3	10	10	10	10	10	10	-	10	10	10	10	10	10	-	10	10	10	10
Temperature display, Celsius or Fahrenheit		P4	C	C	C	C	C	C	-	C	C	C	C	C	C	-	C	C	C	C
System setup: P+3		↴																		
Compressor settings	C	↴																		
Differential for compressor start and stop (kelvin)		C1	1	2	2	1	2	2	-	1	1	4	4	4	4	-	2	4	3*	4
Max. allowed setpoint (celcius)		C2	20	20	20	20	20	20	-	6	20	-5	-5	-5	-5	-	45	-5	-60	-5
Min. allowed setpoint (celcius)		C3	2	2	2	2	2	2	-	2	-2	-25	-25	-25	-25	-	0	-38	-90	-45
Compulsory compressor pause time (min.)		C4	1	1	1	1	1	1	-	1	1	3	3	3	3	-	1	3	3	3
No. of sensors for condenser monitoring		C5	1	1	1	1	1	1	-	1	1	1	1	1	1	-	1	1	1	1
Door open time before compressor stops (min.)		C6	1	1	1	1	1	1	-	1	1	1	1	1	1	-	1	1	-	1
Soft differential for cool/heat cut-out (kelvin)		C7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	-
Setpoint for condenser fan		C8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35	-
Cut-out differential for condenser fan (kelvin)		C9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-
Evaporator fan settings	F	↴																		
Evap.fan start after defrost, and during dry reftig. (celcius)		F1 (L1)	-	-	-	-	-	-	-	-1	-1	-1	-1	-1	-1	-	-1	-35	-35	-35
Evap.fan pause time at compressor stop (min.)		F2	0	0	0	0	0	0	-	0	0	0	0	5	5	-	3	0	-	0
Ford. vent. køretid ved kompressor stop (sek.)		F3	60	60	60	60	60	60	-	60	60	60	60	60	60	-	60	60	-	60
Stop temp. of LT kompressor in cascade evaporator at normal deviation (celcius)		F4 (L4)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-20	-
Stop temp. of LT kompressor in cascade evaporator at large deviation (celcius)		F5 (L5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-5	-
Temp. deviation for determing between "normal" or "abnormal" run		F6 (L6)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-
Operation mode for LT compressor (slave or independent)		(L7)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-
Defrost settings	d	↴																		
Number of defrosts / 24h		d1	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	1	4
Stop temperature in evaporator during defrost (celcius)		d2	4	4	4	4	4	4	4	2	2	2	2	2	2	6	4	2	2	2
Defrosting on/off = (0/1) at power up first time		d3	0	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	0	0
Max allowed defrosting time (min.)		d4	30	30	30	30	30	30	-	30	30	30	30	30	30	-	30	30	10	30
Defrosting mode (1=automatic, 2=air, 3=electrical)		d5	2	2	2	2	2	2	-	1	1	3	3	3	3	-	1	3	-	3
Drip time after defrost stop (min.)		d6	0	0	0	0	0	0	-	0	0	1	1	1	1	-	0	1	-	1
Limit for automatic defrosting mode (celcius)		d7	2	2	2	2	2	2	-	4	4	4	4	4	4	-	4	4	-	4
Evaporator monitoring (celcius)		d8	-35	-35	-35	-35	-35	-35	-	-35	-35	-35	-35	-35	-35	-	-35	-50	-	-52
Defrost after chilling stop		d9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Defrosting window after compressor cut-out (min.)		d10	-	-	-	-	-	-	-	-	-	2	2	2	2		-	2	-	2
Time for overruled defrosting cycle at 100 % compressor running (hours)		d11	-	-	-	-	-	-	-	-	-	3	3	3	3		-	3	-	3
Sensor configuration																				
St. = +25 °C / 1505 = -40 °C / 1513 = -80 °C			St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	1513	1505
St. = +25 °C / 1505 = -40 °C / 1513 = -80 °C			St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	1505	St.
St. = +25 °C / 1505 = -40 °C / 1513 = -80 °C			St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.
St. = +25 °C / 1505 = -40 °C / 1513 = -80 °C			St.	St.	St.	St.	St.	St.	-	St.	St.	St.	St.	St.	St.	-	St.	St.	St.	St.
St. = +25 °C / 1505 = -40 °C / 1513 = -80 °C			St.	-	-	St.	St.	St.	-	St.	St.	St.	St.	St.	St.	-	St.	St.	1513	1505
St. = +25 °C / 1505 = -40 °C / 1513 = -80 °C			St.	St.	St.	St.	St.	St.	-	St.	St.	-	-	-	-	-	St.	-	-	-
Other Software Features		↴																		
Dry Cooling	dC		-	-	-	-	-	-	-	x	x	-	-	-	-	-	-	-	-	-
Thaw-out	UF		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Blastchiller			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compressor protection program			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Demand controlled condenser fan controlled			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	x	-
Emergency program at defective room sensor			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Evaporator surveillance program			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Alarm system designed for Commercial use			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alarm system designed for BIOBASIC			-	-	-	-	-	-	x	-	-	-	-	-	-	x	-	-	-	-
Simple alarm system designed BioCompact			-	x	x	-	-	-	-	-	-	-	x	-	x	-	-	-	-	-
Advanced alarm system designed for BioLine & Biocompact II			x	-	-	x	x	x	-	x	x	x	-	x	-	-	x	x	x	x
Alarm history feature			x	-	-	x	x	x	x	x	x	x	-	x	-	x	x	x	x	x
Low temperature protection connectivity	FP		x	x	x	x	x	x	-	x	x	-	-	-	-	-	x	-	-	-
Presenting sensor A and E in display	dPS		-	-	-	-	-	-	-	-	-	x	-	x	-	-	-	x	x	x
Presenting sensor A and F in display	dPS		-	x	x	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Presenting sensor A, E and F in display	dPS		x	-	-	x	x	x	-	x	x	-	-	-	-	-	x	-	-	-
Current display of temperature			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
No evaporator sensor valble			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Defrosting dot in display at defrosting cycle			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manual On/Off operation for light in glass door			-	-	x	x	-	x	-	-	-	-	-	-	-	-	x	-	-	-
Automatically cut-out for traditional light after 30 minutes			x	-	-	-	-	-	-	x	x	x	x	x	x	-	-	x	x	x
Indicator activated at low temperature protection alarm			x	x	x	x	x	x	x	x	x	-	-	-	-	x	x	-	x	-
ASDD - Delayed defrosting cycle depending on running compressor			-	-	-	-	-	-	-	-	-	x	x	x	x	x	-	x	-	x
Automatically Start-up at power-On			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

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Unit 3, Swan Close
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