Operating- and servicemanual
Gram Eco / Superior

GRAM

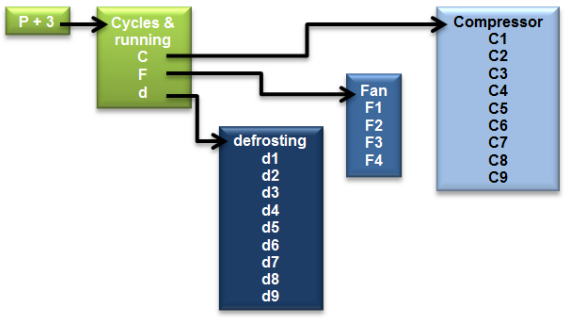
Content

MPC 46 and the menus.

The menus are divided up in two main menus.

A menu for presentations of values in the display and settings for alarms parameters, and another menu for technical, practical or physical settings to a normal refrigerator or freezer.

In each main menu there exist smaller submenus. These submenus are divided up in specific menu for kind of cycles as defrosting or the settings for running the evaporator fan.

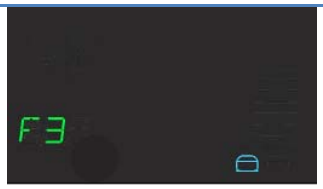


When servicing the product.

Make sure the appliance is switched off at the socket before service is performed on electrical parts. It is not sufficient to switch off the cabinet by the START/STOP key as there will still be voltage to some electrical parts of the cabinet.

Start-up sequence

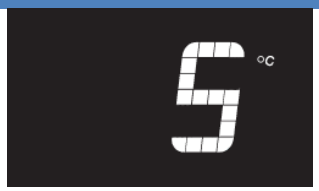
When the product switches ON, the software is loaded into the MPC-46.
The display shows multiple informations, see below:

Text	Display
Second 0-3: Software is loaded into MPC-46 on start-up	 All segments light up white. Control, is everything ok? The display has recognized version 3.0 and awaits more information….
Approx. 3rd second and 3-4 seconds forward:	 Now the Maxi display recognizes programme variant **F3+** version 3.0. The display recognizes that the product is equipped with one compressor.
Approx. 7th second and 3-4 seconds forward:	 The display recognizes which control lamps are needed according to the programme variant F3+, and the appropriate lamps are lit. The version number is displayed.
Approx. 10th second and 3-4 seconds forward:	 All control lamps are turned off, except the compressor lamp. The large display is displayed ready for use.

Start up after power on – hot product.

On hot products or if the product has just been unpacked and connected to mains power, the temperature is so high that the defrosting cycle is cancelled, and refigeration starts immediately.

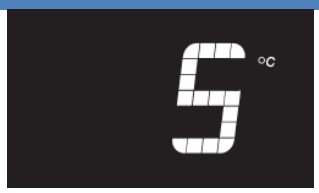
Because the product has not been running before, the setpoint is displayed and not the current temperature.

Text	Display
Normal operation after start-up phase has ended	 Only +5 °C is displayed, which is the standard setpoint for a refrigerator.
Situation 1: **Refrigerator** Less than a second later compressor starts.	 The compressor starts. The color is cyan, and lights constantly.
Situation 2: **Extended refigerator** Less than a second later compressor starts.	 The compressor starts. The color is cyan, and lights constantly.
Situation 3: **Freezer** Less than a second later compressor starts.	 Standard setpoint for a freezer is -18 °C. The compressor starts. The color is cyan, and lights constantly.

Start up after power on – cold product.

On cold products, or if the product has been turned off for a short while, and the evaporator temperature is still below the freezing point, a defrosting cycle will be activated, and refrigeration starts later.

Because the product has not been running before, the setpoint is displayed and not the current temperature.

Tekst	Maxi Display
Normal operation after start-up phase has ended	 Only +5 °C is displayed, which is the standard setpoint for a refrigerator.
Situation 1: **Refrigerator** Less than a second later, defrosting starts, and uses the evaporator fan for the defrosting process.	 Because defrosting is running, but with evaorator fan, both control lamps are lit. Defrost mode: Air (Evaporator fan running 100 %)
Situation 2: **Extended refrigerator** Less than a second later, defrosting starts, and uses the evaporator fan for the defrosting process.	 Because defrosting is running, but with evaorator fan, both control lamps are lit. Defrost mode: Automatic (Controller selects acc. to setpoint whether fan or electrical heater is to be used.) If electrical defrosting is selected, the control lamp for fan will not light up
Situation 3: **Freezer** Less than a second later, defrosting starts, and uses the electrical heater.	 Defrost mode: Electrical (Heater below evaporator)

Defrosting

The defrosting cycle runs 4 times each day. If the cabinet is operating under severe load (frequent door opening and frequent replenishment) manual defrosting can become necessary.

To start manual defrosting: Push (P) + (⏻) for more than 3 seconds.

Refrigerator: Control lamps for fan and defrosting light up.

Extended refrigerator: Control lamp for defrosting light up, and lamp for fan light up depending on setpoint.

Freezer: Control lamp for defrosting light up.

Shortly after defrosting has ended, the compressor starts, and the compressor symbol lights blue.

The number defrosts can be changed. See chapter ”User menu”.

Temperature control and regulation:

- Keep (P) pressed. When doing this, the setpoint temperature is displayed. While (P) is kept pressed, the setpoint can be changed by pressing (+) or (-).
- Each time (+) or (-) is pressed the temperature will change one degree. The new value flashes in the display
- When the required setpoint has been set, let go of the keys, a short beep sounds, and the settings are saved.

Keylock

The keypad can be locked by simultaneously pushing ⏻ + 1 for more than 5 seconds.
🔒 lights to indicate that the keys are locked, and a short beep sounds. Now it is not possible to use the keys for temperature setting etc.
The same code is to be used for unlocking the keypad again.

Error codes

OP The door is open. The alarm system is activated, if the door is not closed within a certain time. The user is reminded that the door is not properly closed.

F1 ⚠ Cabinet sensor error. In the meantime the cabinet itself will maintain the set temperature by the memory of the controller. Service assistance is required.

F2 ⚠ Evaporator sensor error.
The cabinet will keep running until the error has been mended. Service assistance is required.

F3/F4 ⚠ Condenser sensor error. The cabinet will keep running, until the error has been mended. Service assistance is required.
Applies only to cabinets with built-in compressor.

F7 ⚠ Indicates that the condenser temperature is too high. The cause might be a clogged condenser, or too high ambient temperature.
If the condenser or air filter needs cleaning, the cabinet must be disconnected at the mains power.
Cleaning of the condenser is done with a brush or a vacuum cleaner.
The air filter can be removed and cleaned in a dishwasher at max. 50°C.
If the ambient temperature is too high, the placement of the cabinet might be wrong, and an alternative place should be found. Ventilation might help.
If this does not help, request service assistance.
Applies only to cabinets with built-in compressor.

Reminder of cleaning the condenser air filter

After 600 compressor running hours the filter must be cleaned and it is indicated by warning lights: FILTER 🔧 ⚠.
If the cleaning is not completed within 650 hours, the warnings continue, and an acoustic alarm sounds.

Resetting the FILTER alarm

After cleaning the air filter, the controller must be reset to remove the alarms.
It can only be reset by using a certain key combination.

- Push ⏻ three times followed by pushing P three times. FILTER alarm will disappear after 1 minute.

Compressor counter time setting

The default time value for the compressor counter is 600 hours.

The value can be changed i intervals of 50 hours.

Minimum value = 200 hours
Maximum value = 2000 hours

To change the value, proceed as follows:

- Keep keys 4 and 5 pressed for 3 seconds.
- The FILTER indicator flashes, and the value 600 is displayed.
- Press the + key, until the right value is displayed.
- Press P to confirm the setting.
- The FILTER indicator is turned off.

Reset to factory setting

To reset the controller to factory setting:

- Press P + 1 + 3 for at least 5 seconds.
- **RES** flashes in the display.
- Press P to confirm, **RES** lights up for 2-3 seconds, and the buzzer gives a short signal.
- The controller then returns to normal display.

User menu

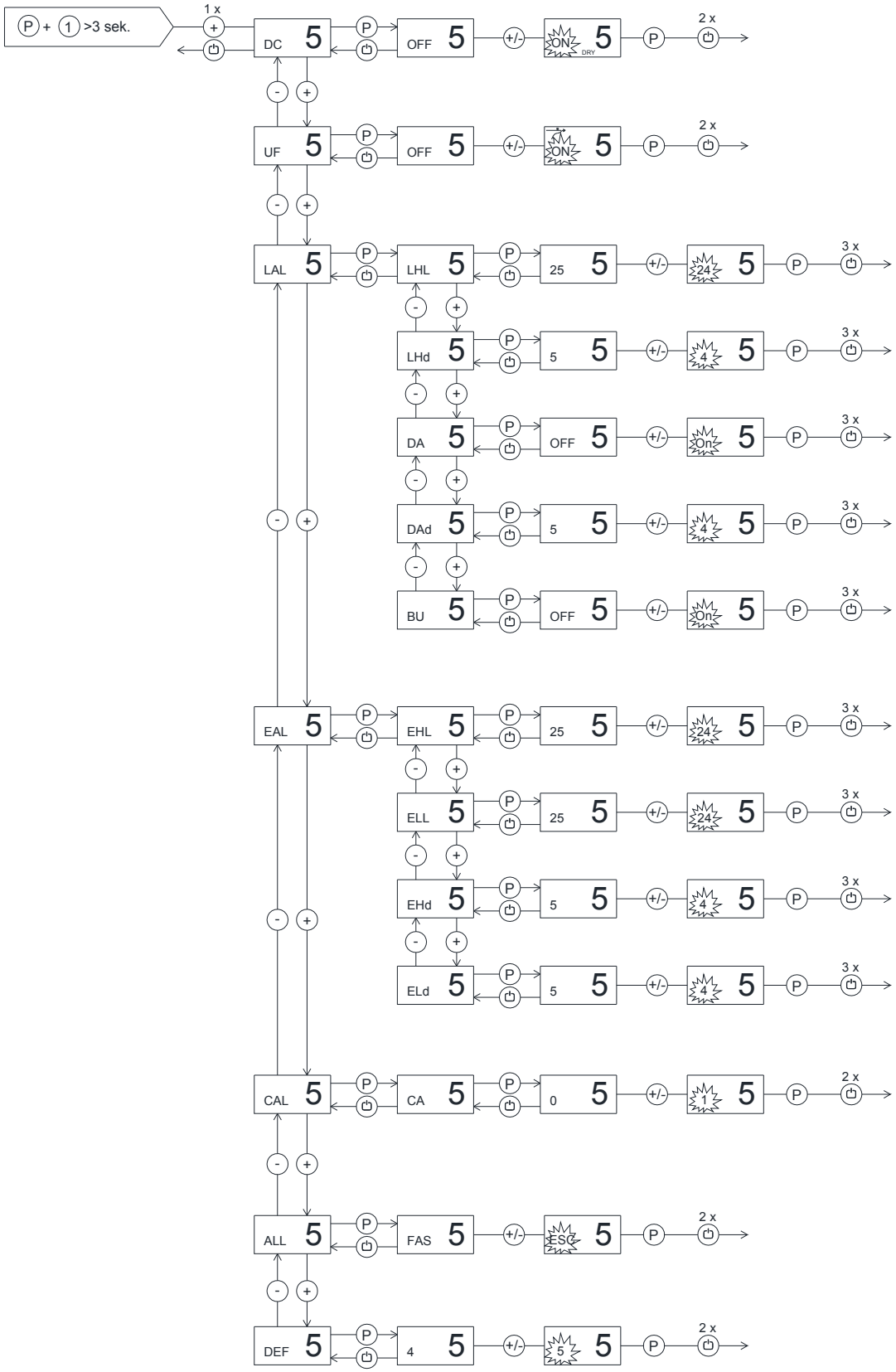
Push on Ⓟ and ① buttons at the same time in more than 3 sec. and the first Setup menu appears in the display.

With ⊕ and ⊖ buttons its possible to look through each menu items in the “User menu”. Push on Ⓟ button to activate the desired item and adjust the setting with ⊕ and ⊖ buttons.

To confirm the new setting, push Ⓟ button. Leave the menu item and user menu with the ⏻ button.

Menu access P+1 →ı	↴	→ı			
Dry refrigeration	DC		Activation of dry refrigeration. [ON/OFF]		
Rapid thaw	UF		Activation of rapid thaw. [ON/OFF]		
Local alarm setting	LAL	LHL	[° C]	Setting the upper alarm limit. At alarm, the display shows: [**A2**].	
		LLL	[° C]	Setting the lower alarm limit. At alarm, the display shows: [**A3**].	
		Lhd	[min.]	Time delay for the upper alarm limit.	
		LLd	[min.]	Time delay for the lower alarm limit.	
		DA	On/off	Activation of local door alarm. At alarm, the display shows: [**A1**]. [on/off]	
		DAd	[min.]	Time delay for the door alarm.	
		BU	On/off	Activation of buzzer. The buzzer sounds at alarms [**A1**], [**A2**], [**A3**]. [1=on / 0=off]	
External alarm setting	EAL	EhL	[° C]	Setting the upper alarm limit At alarm, the display shows: [**A4**].	
		ELL	[° C]	Setting the lower alarm limit . At alarm, the display shows: [**A5**].	
		Ehd	[min.]	Time delay for upper alarm.	
		ELd	[min.]	Time delay for lower alarm.	
		DA	On/off	Activation of local door alarm. At alarm, the display shows: [**A1**]. [on/off]	
		DAd	[min.]	Time delay for the door alarm.	
		BU	On/off	Activation of buzzer. The buzzer sounds at alarms [**A1**], [**A4**], [**A5**]. [1=on / 0=off]	
	ALL		Activation of escorting alarm limits. [FAS]= fixed limits / [ESC] = limits following the setpoint.		
	DEF		Number of defrosts in 24 hours.		

User menu overview:



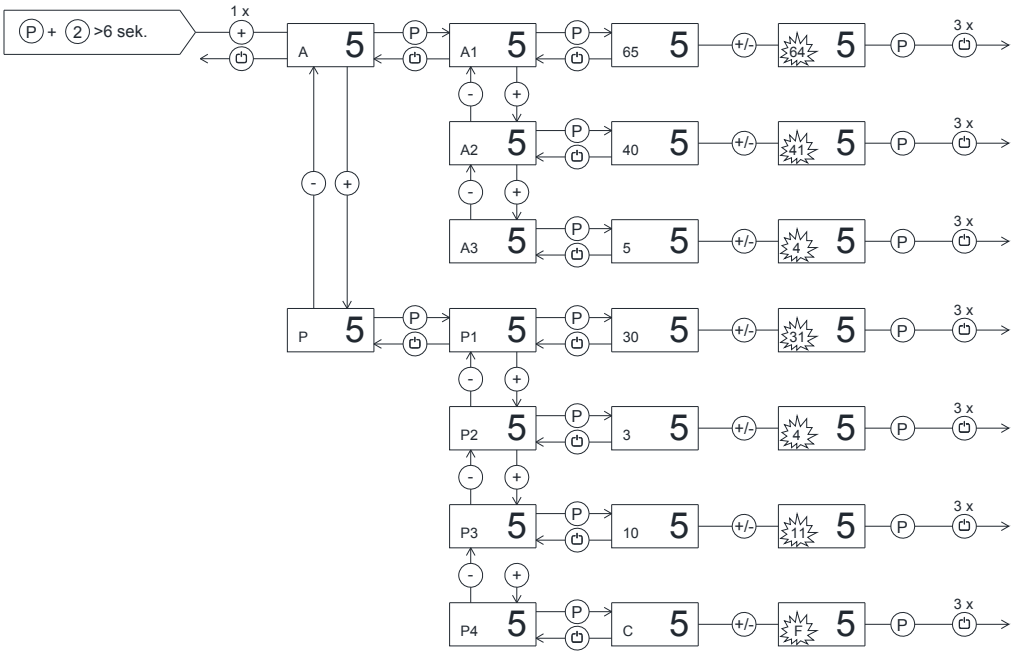
Visual and acoustic settings

Push on (P) and (2) buttons at the same time in more than 6 sec. and the menu item [**A**] appears in the display.

With (+) and (-) buttons it's possible to look through the main menu item [**A**] and [**P**]. Push on (P) button to enter the submenu from the main menu items.
With (+) and (-) buttons it's possible to look through the submenus menu items. Push on (P) button to enter the desired menu item and adjust the setting with (+) and (-) buttons.

To confirm the new setting, push (P) button. Leave the menu item and submenu with the (⏻) button.

Menu access P+2 →ı	↴	→ı			
Alarm setup	A	A1	[° C]	In case of condenser overheat, compressor protection cycle is started.	
		A2	[° C]	Condenser temperature, which disconnects the compressor protection cycle.	
		A3	[min].	Re-enter time for acoustic alarm (min.)	
Display presentation	P	P1	[min.]	Temperature freeze after defrosting end.	
		P2	[° K]	Temperature freeze around setpoint. Temperature fluctuation filter.	
		P3	[sec.]	Display updating frequency.	
		P4		Selection of Celsius or Fahrenheit temperature scale.	



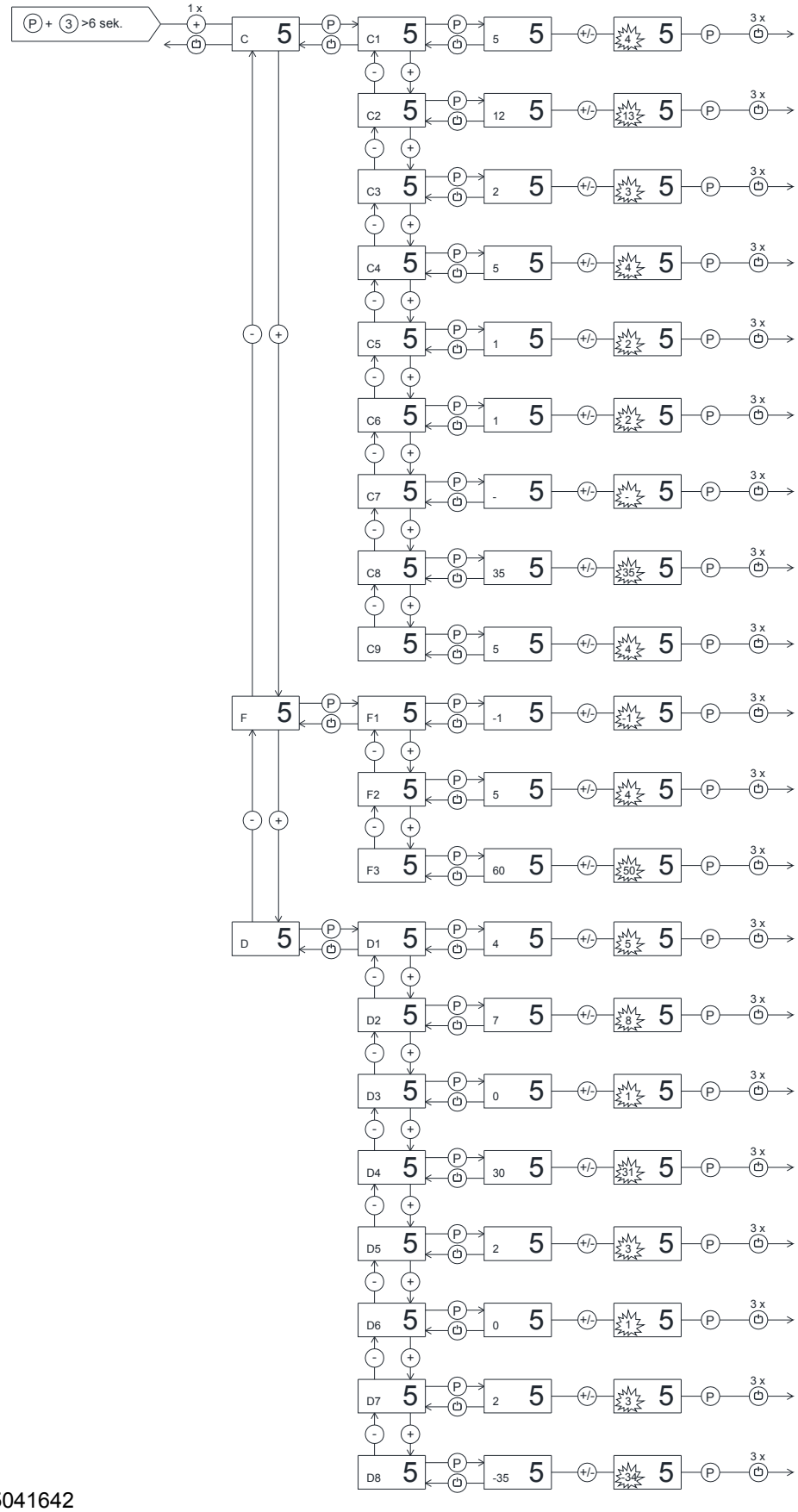
Settings for running cycle

Push on (P) and (3) buttons at the same time in more than 6 sec. and the menu item [**C**] appears in the display.

With (+) and (-) buttons it's possible to look through the main menu item [**C**], [**F**] and [**d**]. Push on (P) button to enter the submenu from the main menu items.
With (+) and (-) buttons it's possible to look through the submenus menu items. Push on (P) button to enter the desired menu item and adjust the setting with (+) and (-) buttons.

To confirm the new setting, push (P) button. Leave the submenu and main menu item with the (⏻) button..

Menu access P+3 →ı	↴	→ı			
Compressor setup	C	C1	[° K]	Differential for compressor cut-in and cut-out.	
		C2	[° C]	Highest allowed temperature limit for the cabinet.	
		C3	[° C]	Lowest allowed temperature limit for the cabinet.	
		C4	[min]	Forced pause time for compressor between cut-out and cut-in.	
		C5		Number of condenser sensors connected.	
		C6	[min]	Compressor stop by open door.	
		C7	[° K]	Soft differential for cool/heat cut-out (kelvin)	
		C8	[° C]	Setpoint for condenser fan	
		C9	[° K]	Cut-out differential for condenser fan (kelvin)	
Evaporator fan	F	F1	[° C]	Temperature allowing the evaporator fan to start after defrosting.	
		F2	[min.]	Pause time of evaporator fan, while the compressor is stopped.	
		F3	[sek.]	Running time of evaporator fan, while the compressor is stopped.	
		F4	[° K]	Stop temp. of LT compressor i cascade evaporator (celcius)	
Display presentation	D	D1		Number of defrosts / 24h	
		D2	[° C]	Defrost stop temperature measured at the evaporator.	
		D3	On/off	Activation of defrost by start-up sequence [1=on / 0=off].	
		D4	[min.]	Maximum defrosting time.	
		D5		Selection between automatic- [1], air- [2] or electric defrosting [3].	
		D6	[min.]	Dripping time after defrosting	
		D7	[° C]	Temperature limit deciding the defrosting method, when d5 = [1]	
		D8	[° C]	Evaporator temperature starting an extra defrosting cycle.	


P + 3 >6 sek.
1 x
C
C1
C2
C3
C4
C5
C6
C7
C8
C9
F
F1
F2
F3
D
D1
D2
D3
D4
D5
D6
D7
D8
+/-
3 x

Test program for relays and electrical components

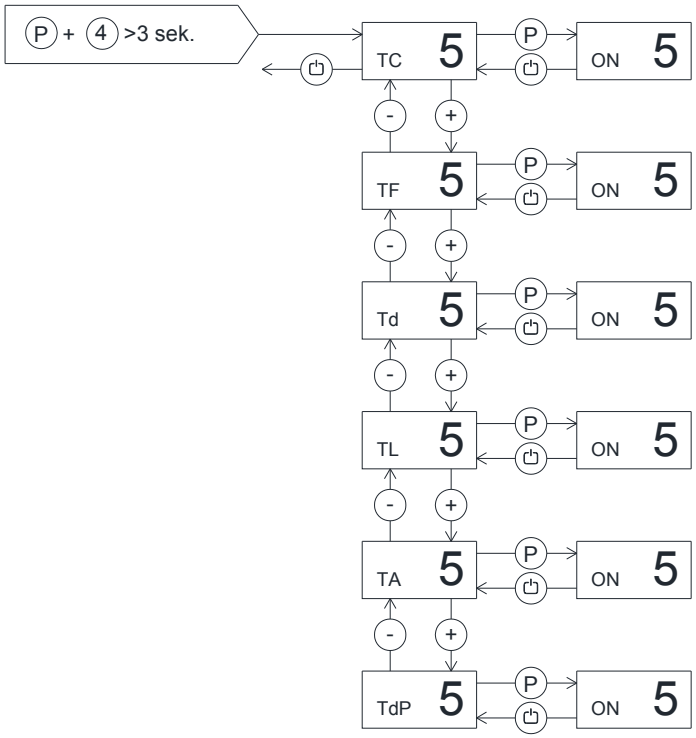
Push on (P) and (4) buttons at the same time for more than 6 sec. and the menu item [**tC**] appears in the display.

Note: When this test program is started, all outputs are de-activated, which means the cabinet is turned off. It might be experienced that the compressor does not start again after leaving the program, because the compressor protection “forced pause” takes effect.

With (+) and (-) buttons its possible to look through each menu items in the “Service program”. Push on (P) button to activate the desired relay and the display glows with [**on**]. The desired relay conducts now power to the electrical component.

Push the (⏻) button to switch off the power from the electrical component. Leave the service program with the (⏻) button.

Menu access P+4 →ı	↴	P-key →ı [on]
Compressor	TC	Comressor is running, and if a condenser fan is present, it runs too.
Evaporator fan	TF	Evaporator fan is running
Defrost heater	Td	Defrost heater is turned on. Warning: the heater might be very hot. Danger of burn!
Light	Tl	Light is switched on.
Alarm output	TA	Activation of voltage free contact. Alarm output.
Display test	TdP	All LED’s light up for 1 sec. and the buzzer sounds. Then the software revision number is displayed.

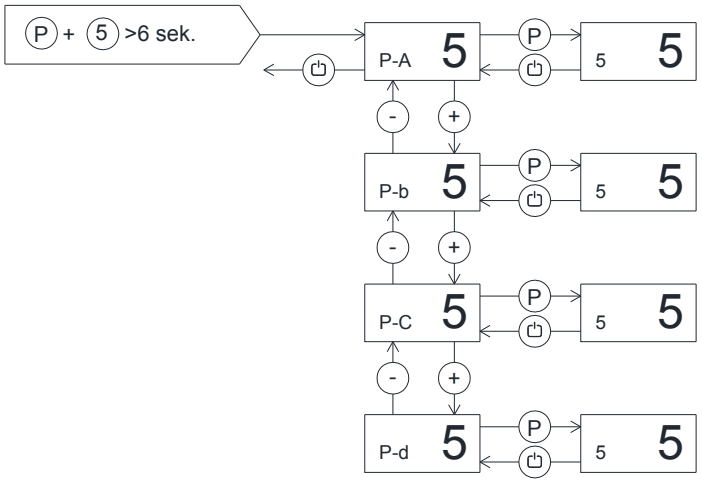


Display of current sensor inputs

Push on (P) and (5) buttons at the same time in more than 6 sec. and the menu item [**P-A**] appears in the display.

With (+) and (-) buttons its possible to look through each menu items to check each sensor in the cabinet.
Push on (P) button to activate the actual sensor and the display shows the actual temperature.
Leave the program with the (⏻) button.

Menu access P+5 →ı	↴	P-key →ı [° C]	Display message and cause	
Room sensor	P-A	Room sensor measurement is displayed	F1	Room sensor error
Evaporator sensor	P-b	Evaporator sensor measurement is displayed	F2	Evap.sensor error
Condenser sensor 1	P-C	Condenser sensor 1 measurement is displayed	F3	Condenser sensor 1 error
Condenser sensor 2	P-d	Condenser sensor 1 measurement is displayed	F4	Condenser sensor 2 error
*				
An overheated condenser could be caused by a clogged air filter. Can be triggered by both C and d sensor.			F7	Overheated condenser 1 and 2
By open door this symbol is displayed. In event of a too long door opening, an alarm is triggered [**A1**].			-0-	Open door symbol



Reset the controller to factory setting

To reset the controller to factory settings:

Push (P) + (1) + (3) for more than 6 seconds. The display shows [**RES**].
Push (P), and a beep sounds for confirmation".

Parameter settings in commercial program variants

Ny programvariant Det gamle navn Systemvars Versions nummer			000 K1+ 100.00 FS K01	300 B1+ 100.00 Cou K01	002 K7+ 100.00 FS K03	100 M1+ 100.00 FS M01	102 M3+ 100.00 FS M03	104 Ny (M1+ 100.00 FS M05	302 B2+ 100.00 Cou M0	200 F1+ 100.00 FS F01	202 F2+ 100.00 FS F03	205 Ny (F4+ 100.00 FS F06	206 Ny (F1+ 100.00 FS F07	350 P1+ 100.00 Pr P01	203 F4+ 100.00 FS F04	304 B3+ 100.00 Cou F0
Set punkt (celsius)			5	5	5	5	5	5	5	-18	-18	-18	-18	-18	-18	-18
Temperatur område (celsius)			+12/+2	+12/+2	+12/+2	+12/-5	+12/-5	+12/-5	+12/-5	-5/-25	-5/-25	+10/-25	-5/-25	+10/-30	+10/-25	-5/-25
Menu indgang: P+1		┐						0				0	0			
Tørkelan-H0/off-HI	dC		-	-	-	-	HI	HI	-	-	-	HI	-	HI	HI	-
Optøning on/off	UF		-	-	-	-	oFF	oFF	-	-	-	oFF	-	oFF	oFF	-
Local Alarm Limits	LAL	┐						0				0	0			
Øvre lokale alarm grænse (celsius)		LHL	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Nedre lokale alarm grænse (celsius)		LLL	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tidsforsinkelse for øvre lokale alarm (min.)		LHd	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Tidsforsinkelse for nedre lokale alarm (min.)		LLd	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dør alarm on-1/off-0		dA	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Tidsforsinkelse for åben dør (min.)		dAd	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Buzzer for lokal alarm on-1/off-0		bU	1	1	1	1	1	1	1	1	1	1	1	1	1	1
External Alarm Limits	EAL	┐														
Øvre eksterne alarm grænse (celsius)		EHL	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Nedre eksterne alarm grænse (celsius)		ELL	-35	-35	-35	-35	-35	-35	-35	-35	-35	-35	-35	-35	-35	-35
Tidsforsinkelse for øvre ekstern alarm (min.)		EHd	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Tidsforsinkelse for nedre ekstern alarm (min.)		ELd	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Dør alarm on-1/off-0		dA	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tidsforsinkelse for åben dør (min.)		dAd	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Buzzer for lokal alarm on-1/off-0		bU	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calibration of sensor	cAL	┐														
Offset justering på føler A (kelvin)		CA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Offset justering på føler E (kelvin)		CE	-	-	-	-	-	-	-	-	-	-	-	0	-	-
Offset justering på føler F (kelvin)		CF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Frost Protection	FP	┐														
Aktivering af frostsikring. On-1/Off-0		Act	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tort af frostsikring		tES	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indstilling af setpunkt for frostsikring (celsius)		SEt	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aktuel virkning af følerens temperatur (celsius)		PrE	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Farle- eller erkarteron do alarmgrænser (FAS - ESC)	ALL		FAS	FAS	FAS	FAS	FAS	FAS	FAS	FAS	FAS	FAS	FAS	FAS	FAS	FAS
Skånsom nedkøling (raft-chill)	SCL		-	-	-	-	-	-	-	-	-	-	-	-8	-	-
Hård nedkøling (hard-chill)	HCL		-	-	-	-	-	-	-	-	-	-	-	3.00	-	-
Tidsstyret nedkøling (time d-chill)	PCL		-	-	-	-	-	-	-	-	-	-	-	-18	-	-
Antal afrimninger pr. døgn	dEF		4	4	4	4	4	4	4	4	4	4	4	4	4	4
Valgt føler vist i display	dPS		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mulige valg af følere til visning i display			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alarm & præsentation		┐														
Alarm indstillinger	A	┐														
Kondensator overvågning alarm tænd (celsius)		A1	65	65	65	65	65	65	65	65	65	65	65	65	65	65
Kondensator overvågning alarm sluk (celsius)		A2	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Gennemtrængelses tiden før akustisk alarm (min.)		A3	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Alarm hjertarik on-1/off-0		A4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Valg af føler til alarmsystemet		A5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mulige valg af følere til alarmsystem			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Præsentation af temperatur	P	┐														
Frysning af temperatur visning efter afrimning		P1	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Frysning af temperatur visning under normal drift		P2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Opdatering af frekvens i displayet (sek.)		P3	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Temperatur angivelse i Celsius eller Fahrenheit		P4	C	C	C	C	C	C	C	C	C	C	C	C	C	C
System opsætning		┐														
Kompressor indstillinger	C	┐														
Differentiale for kompressorstart og stop (kelvin)		C1	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Maks tilladte indstillelige setpunkt (celsius)		C2	12	12	12	12	12	12	12	-5	-5	10	10	10	10	-5
Minimum tilladte indstillelige setpunkt (celsius)		C3	2	2	2	-5	-5	-5	-5	-25	-25	-25	-25	-30	-25	-25
Tvungen kompressor pause tid (min.)		C4	5	5	5	5	5	2	5	5	5	2	2	5	5	5
Antal følere til kondensator overvågning		C5	1	1	1	1	1	1	1	1	2	1	1	1	1	1
Tid døren står åben før kompressoren stopper (min.)		C6	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Saft differentiale for cooll/heat cut-out (kelvin)		C7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Setpunkt for kondensatorventilator		C8	-	35	-	-	-	-	35	-	-	-	-	-	-	35
Cut-out differentiale for kondensatorventilator (kelvin)		C9	-	5	-	-	-	-	5	-	-	-	-	-	-	5
Fordamper ventilator indstillinger	F	┐														
Start af ford. vent. efter afrimning og ved tørkøl. (celsius)		F1 (L	-	-1	-	-1	-3	-3	-1	-1	-1	-1	-1	-1	-1	-1
Ford. vent. pause tid ved kompressorstop (min.)		F2	5	0	5	5	5	5	0	5	5	5	5	5	5	0
Ford. vent. køretid ved kompressorstop (sek.)		F3	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Stop temp. af LT kamp. ikarkade ford. - Normal (celsius)		F4 (L	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indstillinger for afrimning	d	┐														
Antal afrimninger pr. døgn		d1	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Stop temperatur i fordamper under afrimning (celsius)		d2	7	4	7	4	4	4	4	4	4	4	4	12	4	4
Afrimning on/off - (0/1) ved pauser op 1. gang.		d3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maks tilladte afrimningstid (min.)		d4	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Afrimningsmetode (0-hotgas, 1-automatisk, 2-luft, 3-elektrisk)		d5	2	3	2	1	1	0	3	3	3	0	0	3	3	3
Dryptid efter endt afrimning (min.)		d6	0	4	0	4	4	4	4	4	4	4	4	2	4	4
Grænseværdi for automatisk afrimningsmetode (celsius)		d7	2	2	2	4	4	4	2	4	4	4	4	4	4	4
Fordamper overvågning (celsius)		d8	-35	-35	-35	-35	-35	-35	-35	-35	-35	-35	-35	-40	-35	-35
Afrimning efter endt nedkøling		d9	-	-	-	-	-	-	-	-	-	-	-	1	-	-

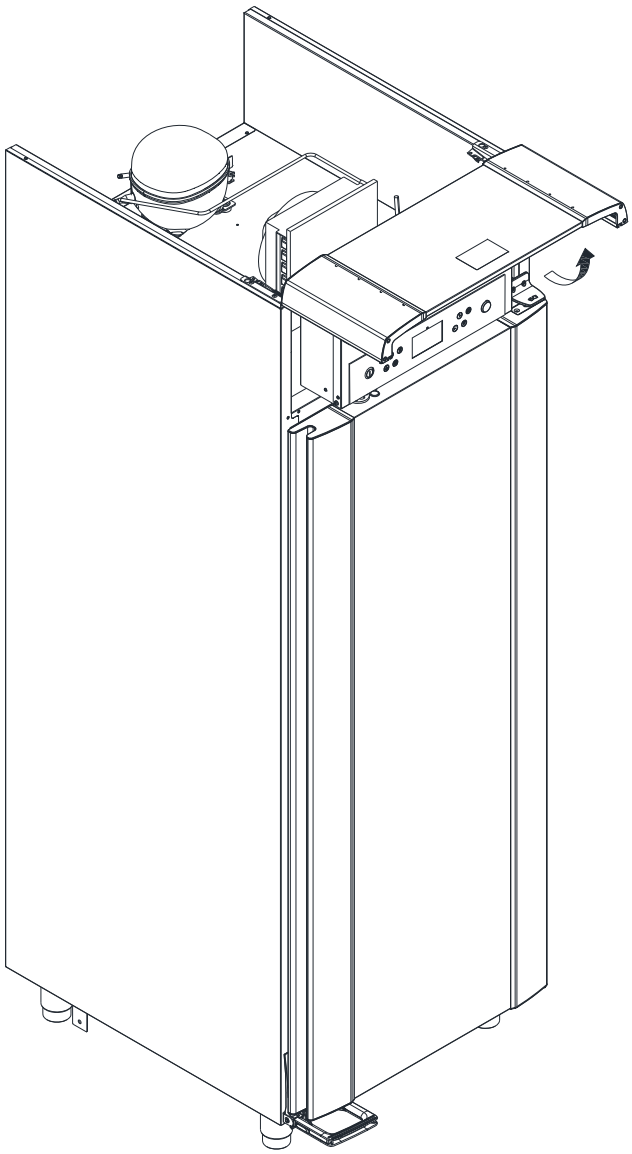
Changing door hinge side.

The door can be changed from left hand-hinged to right hand hinged or vice versa.

Example: Changing from right hand to left hand hinged door.

⚠ Disconnect the cabinet from mains power !

1



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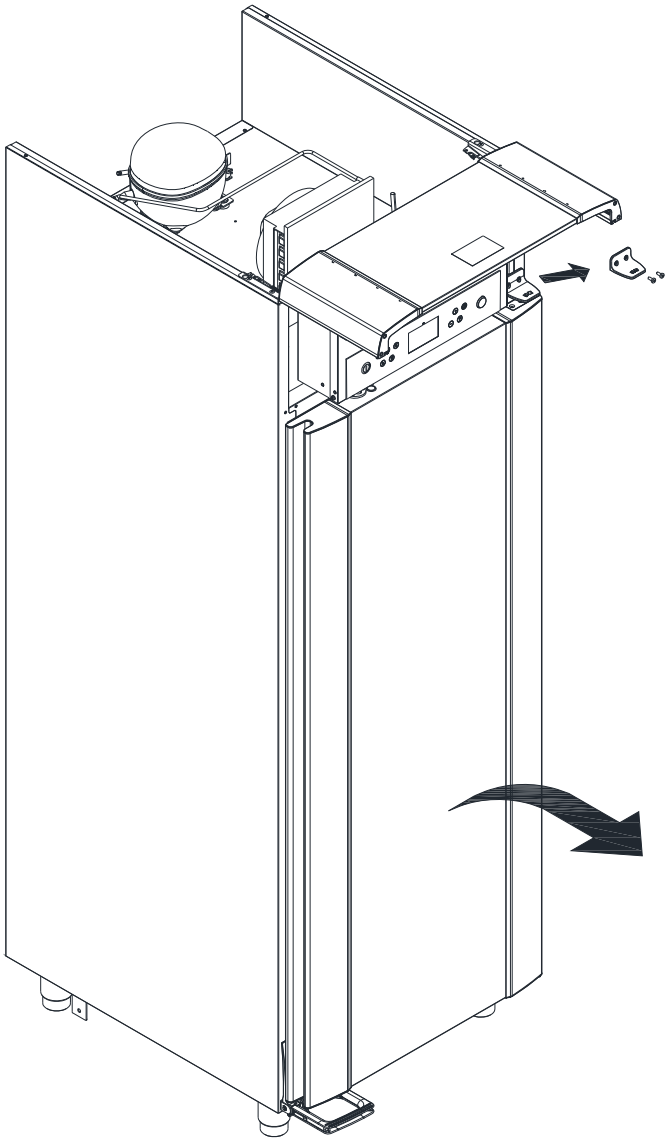

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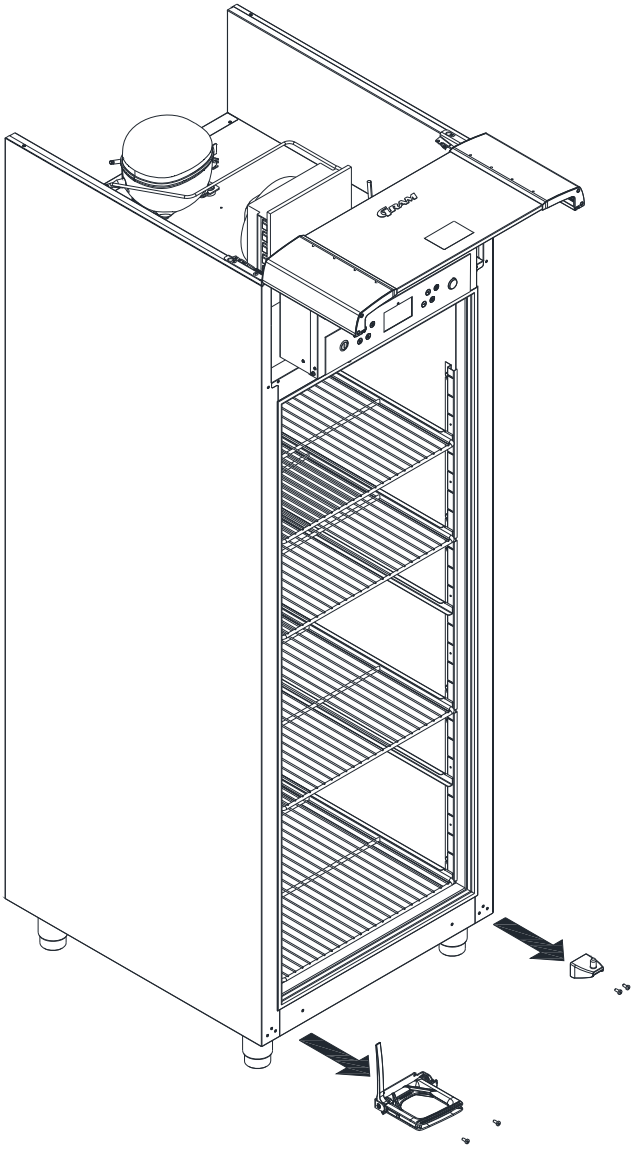

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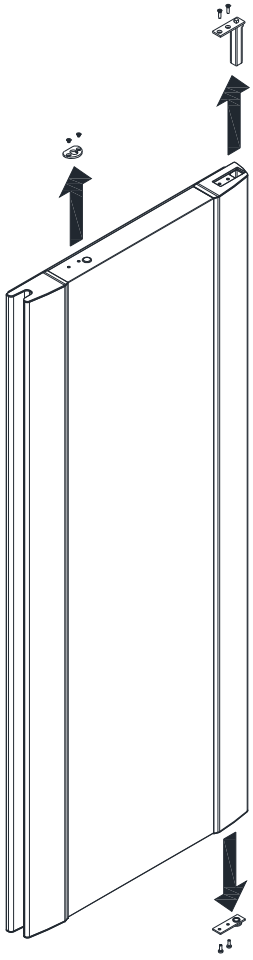

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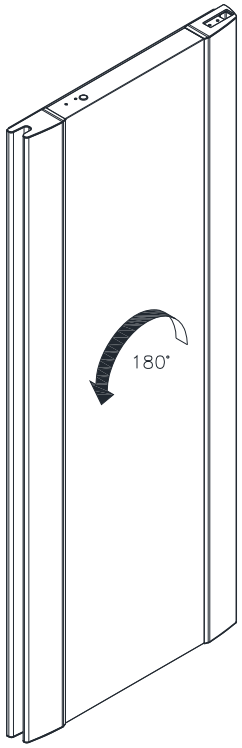

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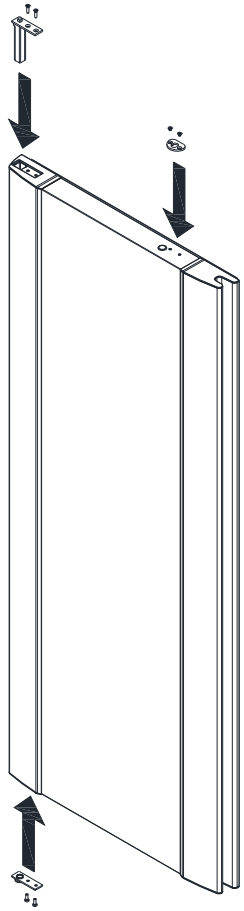

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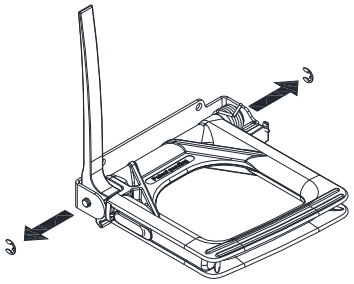

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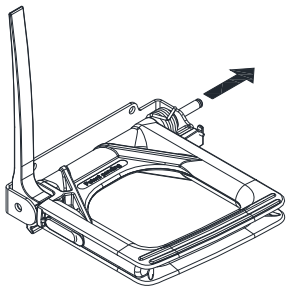

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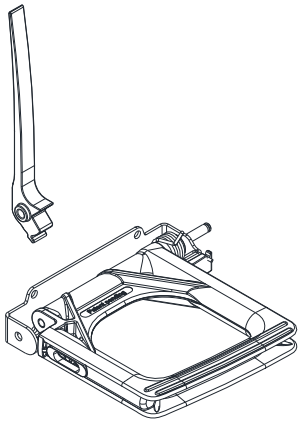

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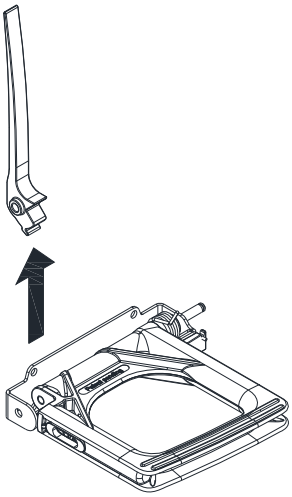

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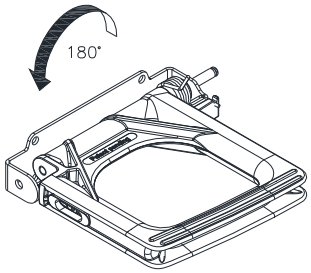

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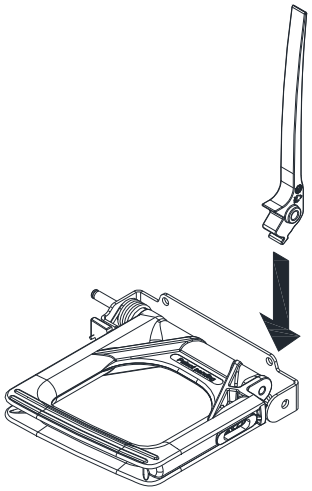

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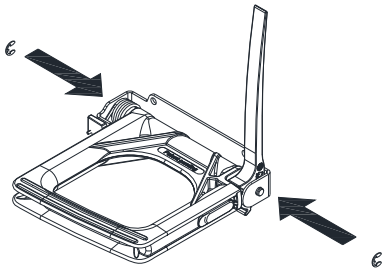

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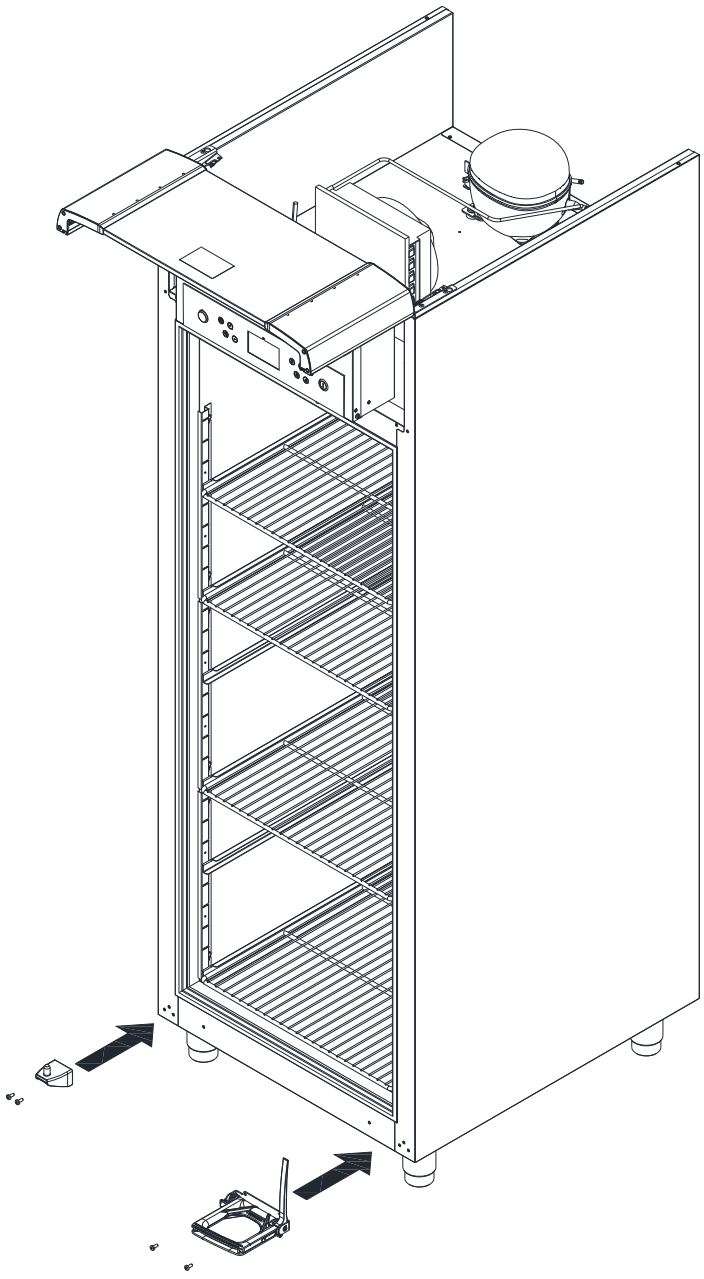

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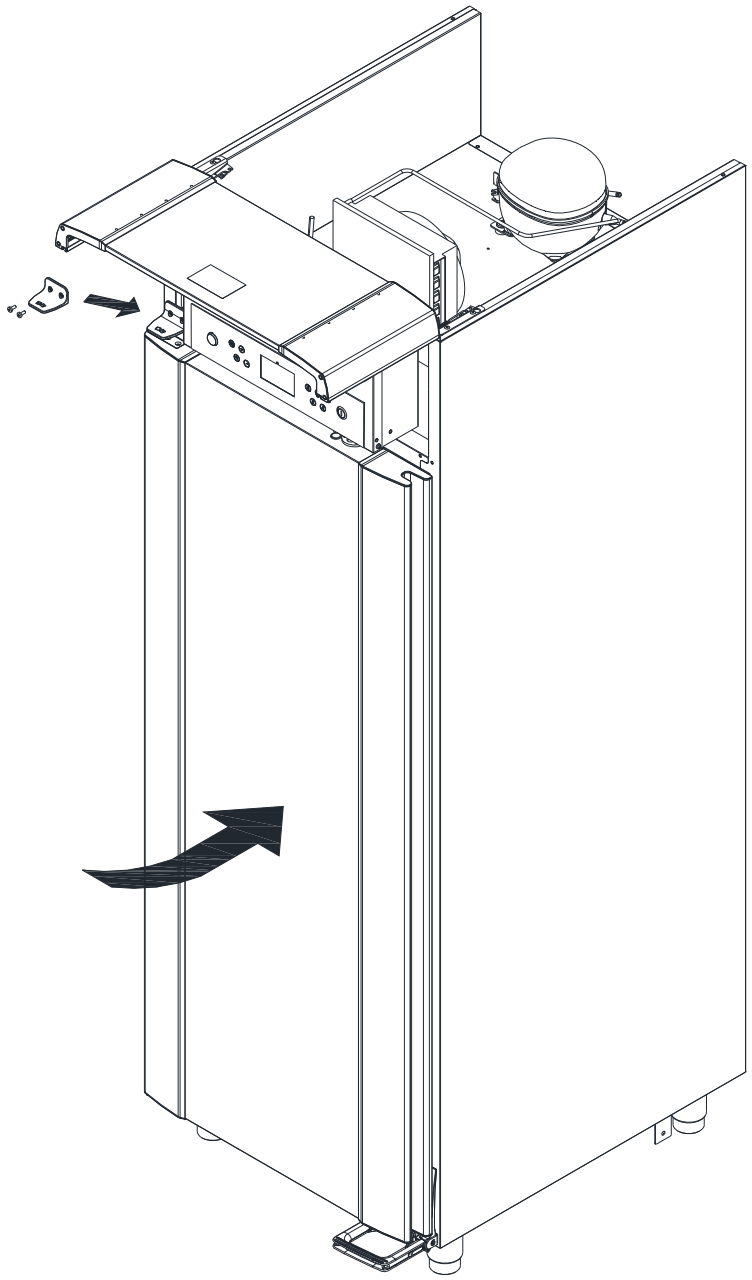

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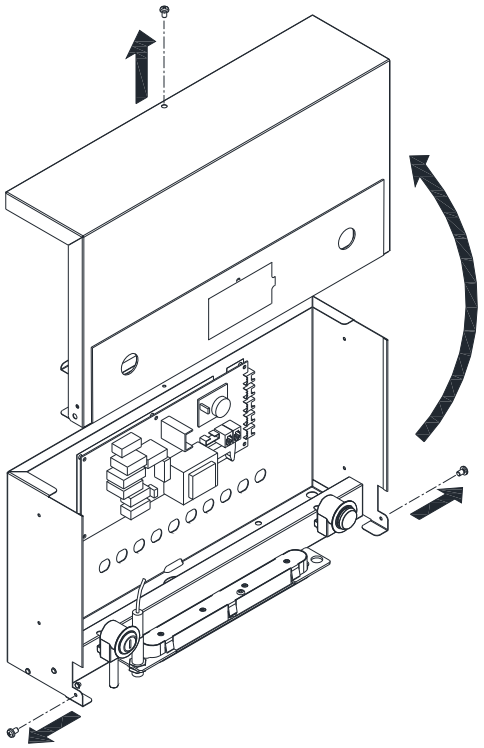

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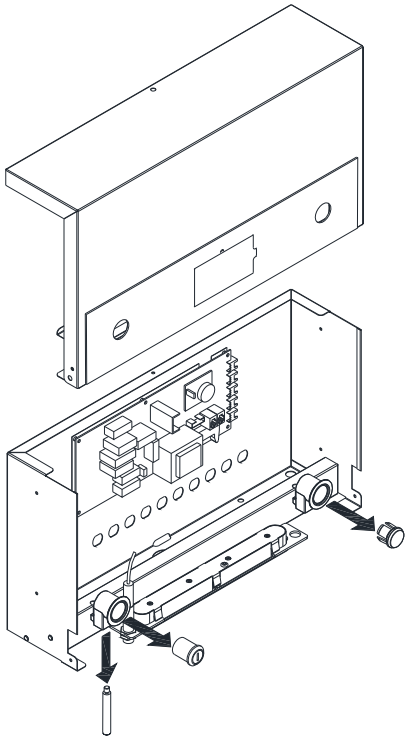

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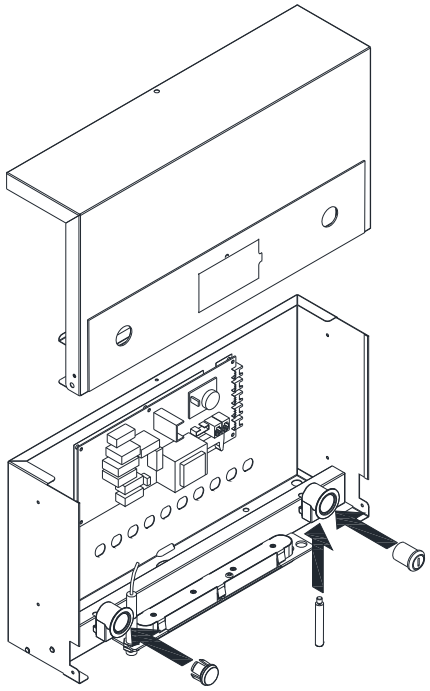

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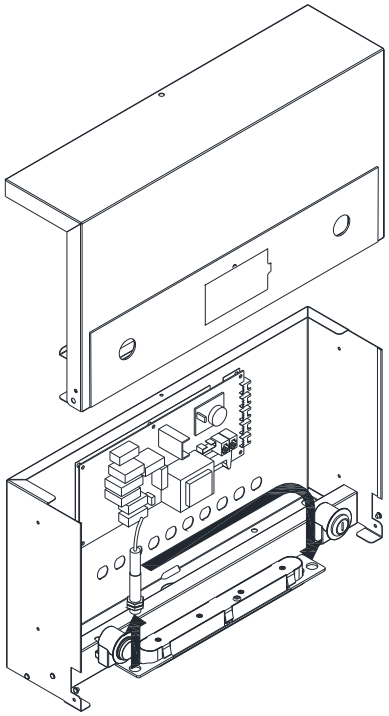

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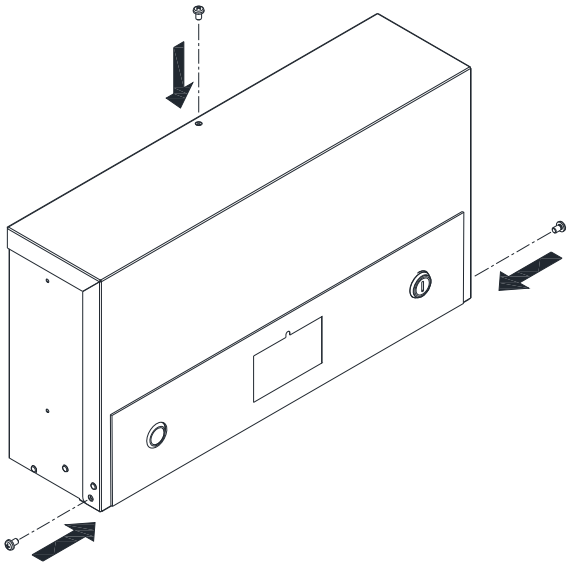

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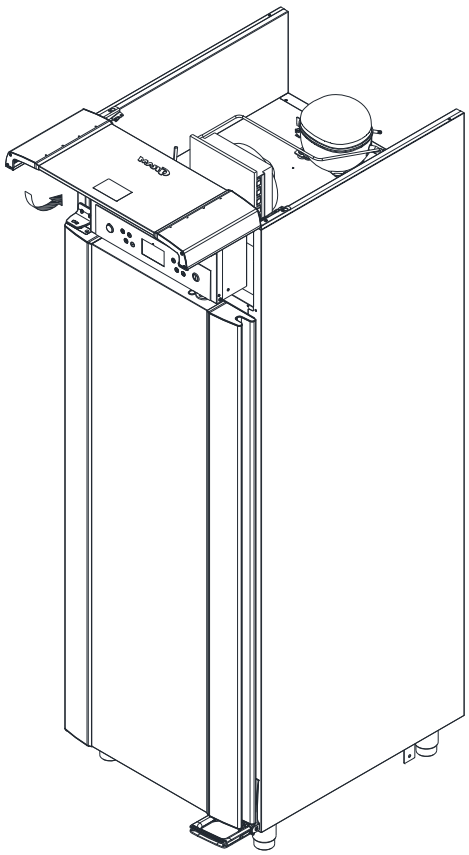
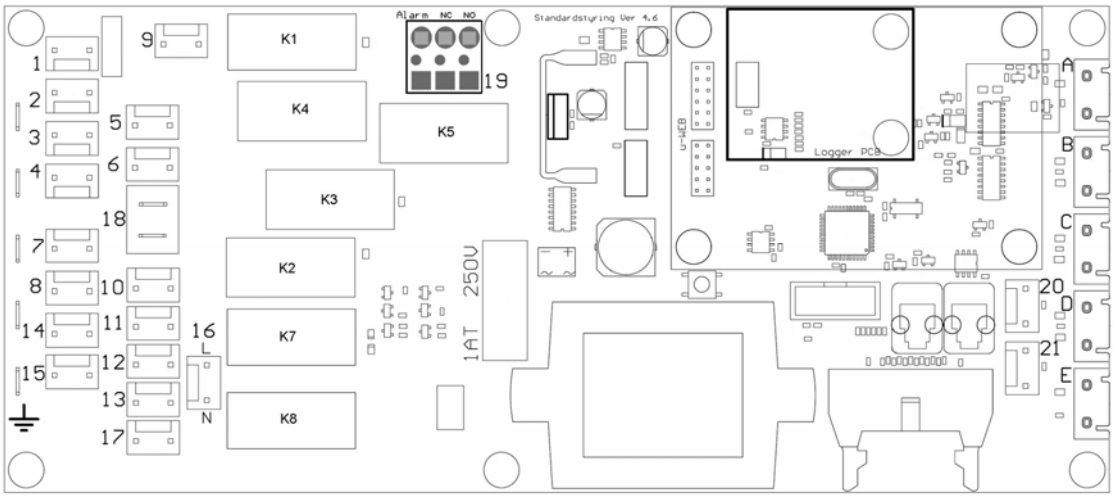


Plug connections onboard the controller

The description here below explains the plugs or terminals to each special function and relay.



Plug	Electrical component	Description
1	230 Volt relay – K1	The relay supplies the compressor and the condenser fan with power.
2		
3		
4		
5	230 Volt relay – K3	The relay supplies the evaporator fan with power.
6		
7	230 Volt relay – K2	The relay supplies the defrosting heating element and the drip water heating element with power
8		
14		
15		
9	230 Volt relay – K4	The relay supplies the halogen light transformer with power (230V/12V).
10	230 Volt relay – K7 and K8	The relay supplies the front frame heater, re-evaporating heating element, and the condensing pump with power. When the cabinet is switched on, the power is constantly viable.
11		
12		
13		
17		
18	Plug connection for the safety thermostat	The plug is connected in series with the defrosting heating element.
19	230 Volt relay – K5	The potential free alarm relay. The relay changes position when the cabinet switches the power on. By alarms and by power failure the relay switches back to normal position.
16	230 Volt input	These terminals are the power input connection with 230 V to the controller.

20 21	Digital input from the door contact	When these terminals are not in use, the controller lets the evaporator fans keep running. By shortcutting the terminals, the fan stops.
A	Room sensor input	NTC sensor
B	Evaporator sensor input	NTC sensor
C	Condenser sensor input 1	NTC sensor
D	Condenser sensor input 2	NTC sensor
E	Sensor input for a extra sensor	NTC sensor