SERVICE OPERATING MANUAL FOR CONTROL BLOCK

GC203

VERSION FOR COOLING APPLIANCES

For software version 01

We kindly request that you study this manual carefully PRIOR to connecting and starting up any of our equipment. Should you have any queries or doubts, please contact us between 8 a.m. and 4 p.m. Any comments e-mailed will be appreciated.

Note !!! The date of the last update is given at the bottom of the consecutive pages, while information regarding the consecutive changes in the programme version and operation method are given at the end of page XV.

Please, use always the newest version of operating manual which can be received free of charge by mail after submission of an order.

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I. GENERAL CHARACTERISTICS

The **Self-contained Control Block**, called further GC203 is a modern device, comfortable and easy to use. The controller has been made using microprocessor techniques with the application of automatic surface assembly process.

Owing to the twin part case and revolutionary technical design, the G-203-P00 can be applied to any refrigerated counters or refrigeration chambers. The **safe voltage operated control panel (5 V)** may be installed in any place, without the necessity of cutting any additional openings or running a number of power supply cables far away from the equipment being controlled.

The GC203 has possibility to work with two temperature sensors and depend on parameter configuration it can be equipped with a door open sensor (magnetic of optic) or third temperature sensor. All sensors work under a safe **voltage operated (5 V)**. Controller's module has also four outputs allowing direct connecting of the 230 V operated equipment, with loading ability as summarized in **table 1.**

The Controller is equipped with a sound signal (as a standard) which is activated while pressing buttons on keyboard and in the event of the alarm.

In order to provide comfort of using the controller, capacitive (touch) buttons were used in the keyboard.

GC203 stabilizes temperature and controls automatic defrosting mode. Defrosting mode period can be adjusted to specific surrounding parameters. GC203 has also a button user for manual defrosting of an evaporator. The GC203 has also been equipped with lighting system switch (depends on keyboards version) which is operated independently of the main switch.

No special maintenance measures are required for these thermostats; the keyboard has been made from high temperatures resistant plexi as well as resistant to most chemicals. However, cleaning plexi with sharp objects is not allowed. Instead, use the damp cloth and clean the front panel with it from time to time.

II. METHOD OF MARKING AND TECHNICAL DATA

Model: **GC203.0X**

0X – number indicating the version of the controller

01 – three-relay controller controlling following devices:
compressor/fan/heater or valve.
Keyboard of the controller's panel without light button.
The standard input 1-2 enables the connection of an additional sensor whose selection depends on the parameter r6. Depending on the setting of this parameter, we can connect the door opening sensor (mechanical or magnetic) or an additional temperature sensor that performs the function of a thermometer (for r6 = 3).

02 - four-r relay controller controlling following devices:
compressor/light/fan/heater or valve.
Keyboard of the controller's panel with light button.
The standard input 1-2 enables the connection of an additional sensor whose selection depends on the parameter r6. Depending on the setting of this parameter, we can connect the door opening sensor (mechanical or magnetic) or an additional temperature sensor that performs the function of a thermometer (for r6 = 3).

03 - single-relay controller controlling the work of a larger power compressor. The controller's keypad is made without a light button.

04 – four-r relay controller controlling following devices:
compressor/light/fan/heater or valve.
Keyboard of the controller's panel with light button.
The standard input 1-2-3 enables the connection of an additional sensor whose selection depends on the parameter r6. Depending on the setting of this parameter, we can connect the door opening sensor (mechanical or magnetic) or an additional temperature sensor that performs the function of a thermometer (for r6 = 3).

Operating Voltage	230V +10% -15%
Environment temperature	from +5°C to +40°C
Humidity	from 20% to 80% RH
Protection degree	IP65 front side of the panel
Temperature sensor type	NTC 2,2kΩ - range: from -40°C to +60°C

Table 1 – Marking of relays and Outputs Loads

Output	Relays	Load		
P1 – compressor	30A	8A	2HP	1500W
P2 – lighting system	16A	4A	-	750W
P3 – fan	16A	4A	1HP	750W
P4 – heater/valve	16A	8A	-	1500W

Note !!!

- **Currents as specified in the Table are currents consumed by particular equipment during normal operation and include starting currents of this equipment !!!**
- **The aggregate current consumed simultaneously may not exceed 10A !!!**

III. ORDERING METHOD

The following parameters need to be given in the order, namely:

1. Full controller name, e.g. GC203.02
2. The length of tape connecting the executive module and keyboard panel (standard length is 1m).
3. Temperature sensors lengths(standard length: 3m or 2.5m).

4. Length of the cable leading to the door opening sensor (Standard: magnetic 2m; optical 2.5m).
5. Type of door opening sensors, operating fully without contact:
   - magnetic sensor with the range 1-2 cm.
   - optical sensor with the range 1-2 cm.

IV. DELIVERY, INSTALLATION AND HOOKUP

1. In the appropriate place within the unit cut a hole of 20x30mm in size, however if masking frame of the panel is not used the size of the hole should be 58x109mm.

2. Executive module should be mounted on the rail and locked by the latch.
   For store equipment the SCCB executive module MUST be mounted on the rail set to down towards the floor!!!

3. Any metal elements, through which the GC203 or its cables are run should be ground or protected otherwise. Fitting GC203 to enable direct action of water on it (e.g. water condensation on the bottom cover of the shop window), touching the outlet pipe from the evaporator etc. and changing considerably its temperature in relation to the ambient temperature (e.g. fitting in the immediate proximity of the compressor and its accessories, cooled and heated elements) is not allowed.

4. Cut the ribbon connecting the panel with the actuator into the desired length plus 2-3cm. Then, after running it through all penetrations, cut it once more by cutting its ends at right-angle and clip the plugs on it so that the end of the ribbon be hidden to approx. 0.5mm. The ribbon must be introduced perpendicular to the plug and clipped so as to make its twisting or non-parallel layout impossible. Connecting the ribbon to the connectors *(see point XII, drawing 3).*

5. After fastening the GC203, connect the power cables according to the description provided on the module's nameplate. Depending on the GC203 version some outputs may be not used - on the label with the description they will not be described and the type symbol in the corresponding places will contain **X** mark- ***do not connect any conductors to these outputs!!!***

6. The applied connectors are certified for continuous load of 16A!!! They incorporate fine thread and special lamellae, which prevent the wires from being cut, therefore only light tightening ensures maximum good contact and the use of greater force may lead to stripping out of the thread. ***In the result this may lead to the socket melting and short-circuit !!!***

7. Any cable surplus should be cut down or winded up and clamped using special plastic bands. The cables must be firmly secured on its entire length and must not get in contact with the compressor and its equipment

8. ***After connecting the unit to the power source there can be voltage across the lighting cable regardless of switching on or off the unit with the button , therefore the starter or the fluorescent lamp should be replaced only with the power cord disconnected from the plug!!!***

   THE SAME APPLIES WHEN CARRYING OUT ANY OTHER REPAIRS !!!

9. If heaters are used, their power must be fitted correctly, which means that during failure of the GC203 or of the external contactor and switching them on for good, there were no possibility of fire or the device damage.

If great power heaters are used then the safety thermostat must be absolutely applied on the evaporator. This thermostat must operate on the different principle, for instance: mechanical thermostat.

V. THE PRINCIPLE FOR INSTALLATION OF SENSORS, TYPES OF PROTECTIVE CASES

1. For **each** type of the manufactured equipment a place for securing the sensors and the SCCB settings should be **determined experimentally**. Absolutely do not change the fastening location nor the way the sensors are secured nor modify SCCB settings without prior carrying out new tests relating to temperature stabilization and equipment defrosting cycle !!!

2. Fastening of the chamber sensor must be done in such a way so that it does not get in contact with food products and is not exposed to damage when cleaning the equipment. The sensor can be fixed using a special plastic bracket. This solution causes fast (on/off time delays see VI p. and **Błąd! Nie można odnaleźć źródła odwołania.** and 7) response of the sensor and the entire thermostat to the change in the air temperature in the unit. When desired or necessary to slow down and "smooth" the time of sensor response to the temperature changes we recommend to fix it to the metal part of the unit.

3. Fasten the evaporator sensor in the way to ensure maximum and good contact with the evaporator lamella and in place where ice remains for the longest time during defrosting. Its fastening should prevent it from being pushed out by the growing ice. The sensors, wherever possible, should be fixed vertically so that the cable exits from the bottom of the sensor.

4. **Sensor cables can be shortened or extended in any way, however with respect to the following rules:**

   - do not cut the sensor cable at a section smaller than 0.5 m. From the case
   - it is not recommended to extend the sensor cable to more than 20 m.
   - THE SENSOR CABLES CAN BE CONNECTED TO THE TERMINALS OF THE ACTUATOR SENSORS IN ANY WAY!!!

     (in the same way as you connect the plug to the ~230V outlet)
   - for cable extension we recommend using OMY 2x0.5 mm type conductor
   - connect the extended cables with great care, by soldering each pair of cores and put thermally shrinkable jackets on them. Then apply water-proof silicone on the joint and clamp one more thermally shrinkable jacket on it.
   - whiten the ends of the conductors connected to SCCB with tin.

VI. OPERATION METHOD

A - General Information

1. Start after connecting to mains

Having turned the equipment on, the three-second starting procedure is activated, during which the display will show two dashes, for the period of two seconds, and then for the period of one second, the version of the controller program will be displayed, as well as two to dashes. No activation of the equipment under control takes place then.

If the device was turned on before power failure, then after finishing the start-up procedure it is turned on and the temperature value appears on the display. If an additional temperature sensor is connected, its measurement will appear on the display. It does not affect the operation of the device, but only serves as an electronic thermometer. In the case of absence of this third sensor, the temperature value from the chamber sensor is displayed.

If the devise was switched off it stays off and If two horizontal lines will appear on the display. You can turn it on by pressing and holding it for 5s.

2. Function of buttons

– When pressed and holded for 5 sec., thermostat is switched on/ off. When you hold down the button, a rising sound signal is generated. When device is off, two horizontal lines appear on the display.

- When pressed, light is switched on/ off. This is signaled by a green diode at the button.

Button works independently from thermostat switch - .

– It is used for manual activation of defrosting.

- used to program settings and to end programming.

– It is used to increase the set temperature during programming and to switch on the evaporator temperature display. To activate the preview, hold the button longer (display will start to blink and evaporator temperature will be displayed). After 5 seconds, the GC203 will automatically return to the reading of the chamber temperature or additional temperature sensor. **Warning!!!** The preview also works during defrosting, when **'dF'** is displayed.

- It is used to reduce the set temperature during programming and to switch on the chamber temperature during work with additional temperature sensor and also during defrosting process when **'dF'** is displayed. . To activate the preview(without blinking) of chamber temperature, hold the button. After 5 seconds, the GC203 will automatically return to **'dF'** display.

3. Temperature programming

After pressing programming mode is turned on, the value of a parameter appears on the display and a diode at the button switches on.

When or are pressed, the value of a parameter changes within the range ‘d0’ – ‘d1’.

When is pressed, settings are memorized and normal operation of the controller follows.

If GC203 is switched off during programming, it will not memorize the new value of temperature.

4. Signalling of compressor operation

When the compressor is on, small red diode (dot) in the right bottom corner of temperature display is on. This facilitates checking of possible defects of the system.
If the compressor should be switched on and it is not because one of protections has been switched on (see item 5), the dot which signals operation of the compressor will flash. When the set time of protection ends, the dot will be lit permanently and the compressor will be switched on.

5. Compressor protection

A delay in switching on of the compressor when the temperature at which it should be on is reached (temperature set by the user minus the lower value of hysteresis) is 30 seconds. If during that time temperature falls, condition of excess of 30 seconds is checked again. This is to protect the compressor against unneeded switching on caused by e.g. placement of goods, drafts, etc.

After the set temperature has been reached (temperature set by the user plus the upper hysteresis value) and each interruption in the power supply (or its fall below 175V) GC203 will prevent the compressor from switching on for the time specified by the parameter 'c2'. However, if 'c2' = 0min, the compressor starts after 30 seconds.

When the unit is connected by the button there is a 5-seconds delay before the compressor is switched on. It should be emphasized that in this way all other protections are cancelled. Thanks to that, operation of the compressor can be checked quicker. It should be noted that all other protections will be canceled including the time specified by parameter 'c2' after the compressor has been switched off. Thanks to this, it is possible to check the operation of the compressor more quickly.

6. Alarms of sensors – A1, A2 and A3

The controller has been equipped with alarm features, providing information regarding sensor’s damage. Depending on the sensor(s)’ status, the controller performance will be different. A defect of a sensor is signalled by appearance of a corresponding symbol on the display together with a sound signal. After pressing any button, the alarm signal is muted.

If an **A1** alarm occurs, it is displayed instead of the chamber temperature. In the event of an **A2** alarm, the message is displayed alternately with the chamber temperature or with additional sensor temperature. If an **A3** alarm occurs , the message is displayed alternately with the chamber temperature. The same

happens when two alarms occur in the configuration: A1 and A3 and A1 and A2. At the moment of failure from the evaporator sensor and the additional temperature sensor, A2 and A3 alarms alternately with the chamber temperature are displayed alternately.

A1 – damage of chamber temperature sensor. GC20C will connect the compressor in a time cycle (so called: clock control) according to time defined in parameters 'c8' and 'c9'. Defrosting will function normally.

A2 – damage of evaporator sensor. **The manual and automatic defrosting is blocked then!!!** The only possibility of defrosting the unit is to press the pushbutton in order to turn off the unit, and then wait for the ice to thaw.

A3 – damage additional temperature sensor. When the parameter **r6 = 3**, alarm of the failure will be signaled. If we change **r6 = 0**, Function of the third will be turned off and the controller will not report an alarm.

7. Fan control based on evaporator temperature

If the parameter 'd6' is set to a value lower than 40 ºC, the controller switches off the fan when the temperature on the evaporator is higher than the value of parameter 'd6'. This function does not work in defrost.

B – Defrosting

1. When additional defrosting is needed, due to difficult operating conditions, press the pushbutton. This will *make the green LED light constantly on the button* and the *„dF"* symbol will appear on the display instead of temperature measurement, and this is when the unit will enter the defrosting cycle.

2. If the time 'c0' has elapsed since the last defrost was turned on and the compressor is in operation then the automatic activation of the defrost will be delayed until the compressor turns off due to reaching the set temperature or exceeding the maximum working time specified by parameter 'c5'.

3. If the defrosting occurs, and the temperature on the evaporator is **higher** than set in the 'd2' parameter, the unit (after about 10 seconds) will enter the defrosting exiting mode. After defrosting phase is over, device start to work again.

4. If the defrosting occurs, and the temperature on the evaporator is **lower** than set in the 'd2' parameter, the GC203 will activate the defrosting process, and after reaching the temperature as specified in the 'd2' parameter, **the unit will enter the defrosting exiting mode** (this status is signalled by the green LED, which blinks on the button). In a version with heaters the defrosting exiting mode has two consecutive Phases:
   - **Thawing Phase** – where the compressor and fans are turned off for the period as specified by the'c3' parameter.
   - **Evaporator Freezing Phase** – where only the compressor is operated, in order to lower the temperature of the evaporator to the temperature as specified by the 'd5' parameter, prior to reactivating the fans.

The maximal freezing time can not be exceeded, regardless of whether the evaporator has achieved the temperature of 'd5', specified by the 'c4' parameter.

5. The procedure of exiting the defrosting mode is terminated with the activation of fans, turning off the *„dF"* symbol on the display and turning off the green LED blinking on the pushbutton .
6. Should the fans be absent or not connected to the S.C.C.B. system, the unit will act as if they are installed.
7. The defrosting process will be terminated *following the achieving of the evaporator temperature as preset in the 'd2' parameters, or if the time preset by the 'c1' parameter has been exceeded.*
8. Having turned off the *„dF"* symbol and terminated the defrosting process, the display will show the temperature as stored right before the defrosting commencement, for the period of time as specified by the 'c7' parameter – this is intended for preventing claims with respect to "violent temperature fluctuations in the unit".
9. The unit performance is the same as in the case of **manual and automatic** defrosting.
10. The 'r0' parameter enables an override to turn the fan on during defrosting.
11. During defrosting there is no fan control based on the 'd6' parameter.

C – The Door Opening Sensor Operation Principle

1. If the door has been opened, the fan will be stopped immediately. In addition to the above, depending on the 'r7' parameter setting, the light may be turned on in the GC203. The display shows the temperature. If the reason of turning light on is door opening the diode on button is not turned on.
2. The door opening sensor can also turn on the light when the controller is turned off (two horizontal lines on the display). The word "dr" will be displayed without an audible signal.
3. If the door has not been closed, after 30 seconds, the "dr" symbol will be constantly lit on the display and the short lasting sound signal will be repeated every 30 seconds.
4. If the door continues to be open after the time as specified in the 'r8' parameter, the alarm will be activated, which will be signalled by the **display blinking** with "dr" symbol, and with the sound signal if the buzzer is installed. This is when the compressor will be turned off.
5. If the R8 = 0 the alarm will be activated immediately after opening the door.
6. The alarm may be silenced through pressing any button. Closing the door deactivates the alarm and normal operation is resumed.
7. The controller allows to connect mechanical, magnetic of optical door open sensor (depends on version of the controller). If parameter **r6=01** sensor is connected in the course of door opening, if parameter **r6=02** sensor is disconnected in the course of door opening.

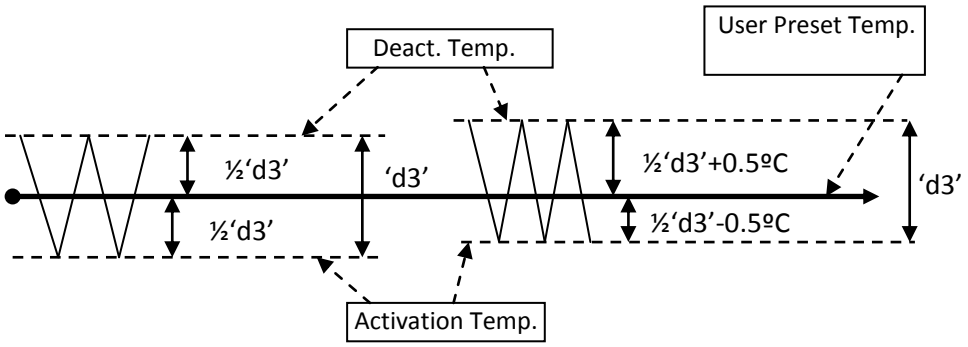
D – Hysteresis

When programming the‘d0’ i ‘d1’ parameters (the minimal and maximal user preset temperature) attention should be paid to the fact that the ‘d3’ hysteresis value causes additional shifting of the temperature to higher or lower values with relation to the user preset temperature level.

This is particularly significant with regard to the so-called “plus” equipment which should always be operated at the temperatures above 0°C.

EXAMPLE:
As the Manufacturer of the refrigeration unit (refrigerated counter) (temperatures above 0°C), we require the unit to allow the operation within the temperature range that does not exceed the values specified below: Deactivation min: 2ºC. Activation max: 10ºC

Symmetric hysteresis for ‘d3’ **even values**	Symmetric hysteresis for ‘d3’ **odd values**
Example No. 1. The ‘d3’ hysteresis it set at, for example 2ºC For this hysteresis value, the parameters should be set as follows: ‘**d0**’ at 3ºC and‘**d1**’ at 9ºC	Example No. 3. The ‘d3’ hysteresis it set at, for example 3ºC For this hysteresis value, the parameters should be set as follows: ‘**d0**’ at 3ºC and‘**d1**’ at 8ºC
Example No. 2. The ‘d3’ hysteresis it set at, for example 4ºC For this hysteresis value, the parameters should be set as follows: ‘**d0**’ at 4ºC and ‘**d1**’ at 8ºC	Example No. 4. The ‘d3’ hysteresis it set at, for example 5ºC For this hysteresis value, the parameters should be set as follows: ‘**d0**’ at 4ºC and ‘**d1**’ at 7ºC



VII. UNIT PARTICULAR COMPONENTS ACTIVATION GRAPHS

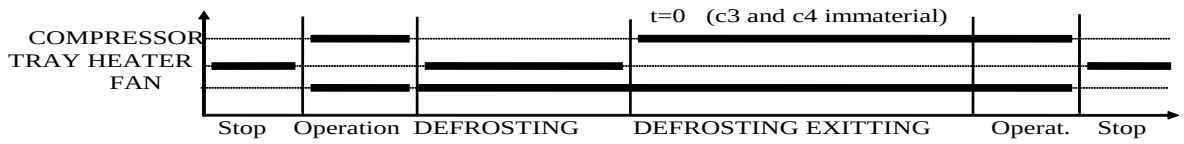
A thick line denotes **activation,** while the dashed one means **deactivation** of the particular equipment. The defrosting exiting mode comprises two Phases – see Chapter **VI** B-Defrosting.

The "**Stop**" field denotes **deactivation**, while the "**Operation**" field denotes the compressor's **activation** due to exceeding the preset temperature, taking account of the "d3' preset hysteresis value. The heater on the figure '1' is intended for heating the tray and/or the water discharge hose from the evaporator. The heater on figure '5' is intended only for heating the water discharge hose from the evaporator.

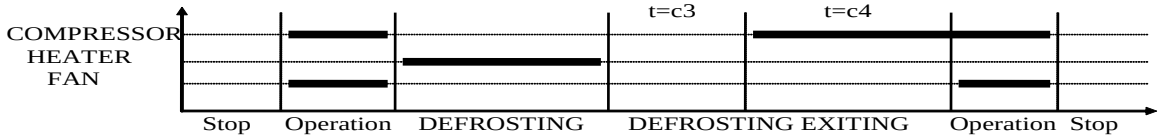
IF ERRONEOUS PARAMETERS ARE SET, THE UNIT WILL FAIL TO OPERATE PROPERLY !!!

The first 6 charts apply to the setting of **'r0' = 00** – the fan is on during defrosting, like in the 01 program version.

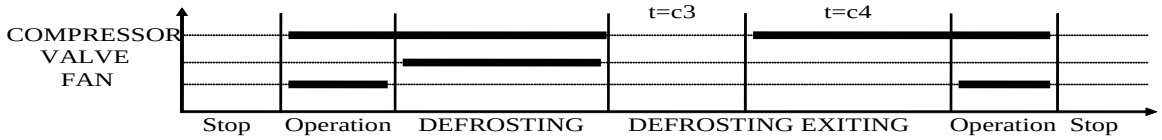
1. Defrosting through the compressor stop, '**r1'=01,** fans operate only together with the compressor, **'r2'=00**



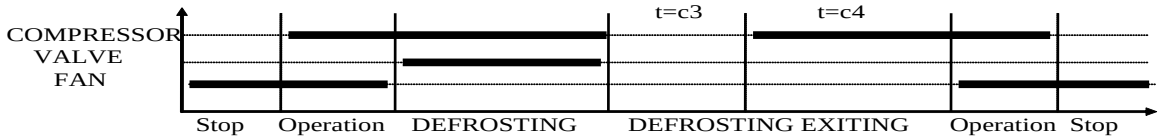
2. Defrosting through the heater, '**r1'=02,** fans operate only together with the compressor **'r2'=00**



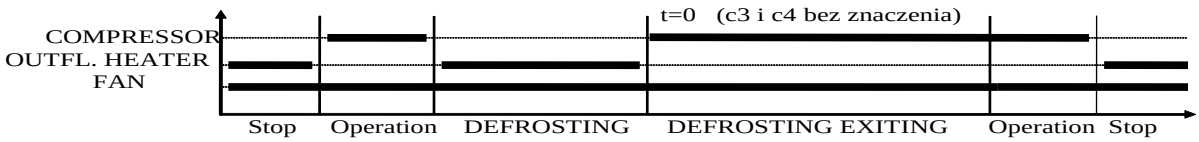
3. Warm vapour defrosting '**r1'=03,** fans operate only together with the compressor **'r2'=00**



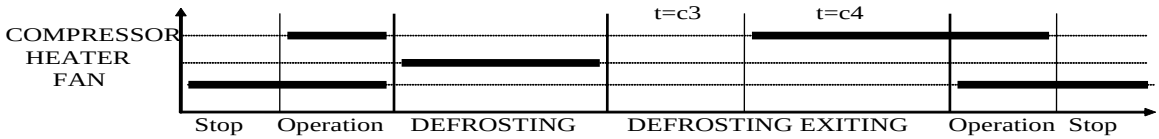
4. Warm vapour defrosting **'r1'=03,** fans operate permanently after turning on the unit, **'r2'=01**



5. Defrosting through the compressor stop **'r1'=01,** fans operate permanently after turning on the unit **'r2'=01**

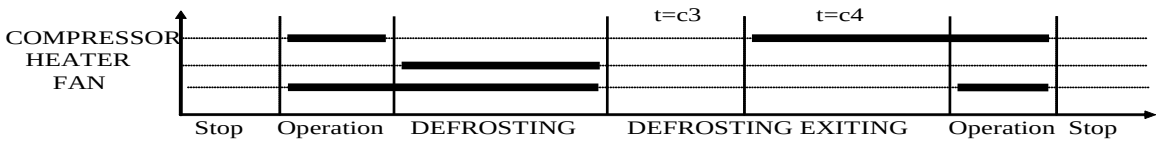


6. Defrosting through the heater, **'r1'=02,** fans operate permanently after turning on the unit **'r2'=01**

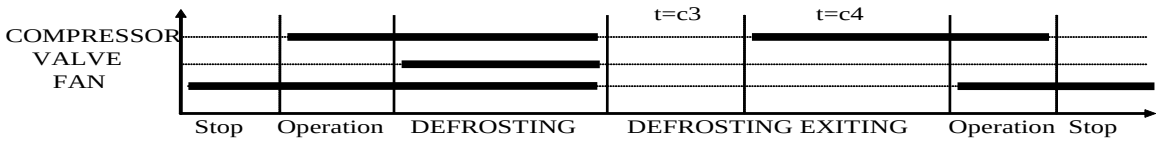


The following charts apply to the **'r0'=01** parameter.

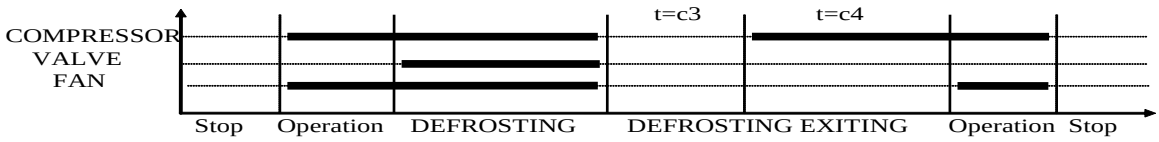
7. Defrosting with heater '**r1'=02,** fans run only together with compensator **'r2'=00,** fan on during defrosting **'r0'=01**



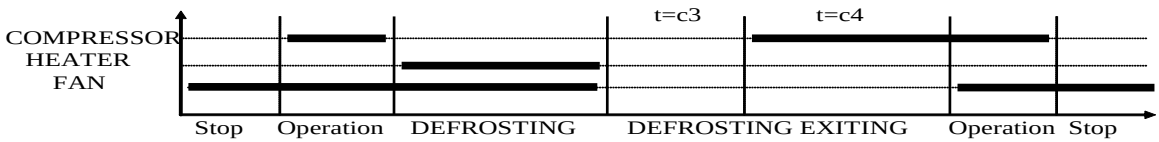
8. Defrosting with warm steam **'r1'=03,** fans run all the time after equipment powers on **'r2'=01,** fan on during defrosting **'r0'=01**



9. Defrosting with warm steam '**r1'=03,** fans run only together with compensator **'r2'=00,** fan on during defrosting **'r0'=01**



10. Defrosting with heater **'r1'=02,** fans run all the time after equipment powers on **'r2'=01,** fan on during defrosting **'r0'=01**



VIII. SYSTEM PARAMETERS PROGRAMMING

Having activated and checked the unit operation (standard settings are factory set), start entering system parameters to the GC203 unit.

For this purpose, turn off the unit by pressing the button. ***Then press the buttons and , having them pressed and hold, at the same time press the button.*** All the three buttons need to be pressed and held for at least the period of 5 seconds. If any of these buttons has been released during the said time, the unit will abandon the programming mode. When the unit has assumed the programming mode, the LEDs on the and buttons will start to blink, while the display will show the 'c0' per one second. Then, the value of this parameter most recently programmed will be shown. Enter the required settings, using the pushbuttons, any longer pushbutton holding time causing the data "fast rewinding/forwarding". Then press , in order to approve the data entered and start entering the next parameter.
Partial entering of the settings is also possible. If any alteration of the particular setting is not required, simply press the pushbutton and the GC203 unit will assume the next parameter setting mode.

After entering the last parameter setting and accepting it with the button, it will take place automatic exit from programming mode and return to STANDBY mode (two horizontal dashes on display).

If no button is pressed within 20 seconds, the device will exit the parameter programming mode.

Note !!!

Incorrect change of parameter settings may result in faulty operation of the device !!!

Table 2: Parameters Denotation

Para-meter	Description	Min	Max	Step	Factory setting
c0	The defrosting frequency. Note***!!!*** *If this parameter is set to "0"only manual defrosting will be available, while* ***any*** *automatic defrosting will be unavailable!!! If this parameter is set to"-01",* ***neither manual nor automatic defrosting will be available****!!!*	0 -01	24	1h	6h
c1	Maximal defrosting time if the evaporator has net reached the preset temperature (d2 parameter) ***Note!!!*** *If this parameter is set to „-01"* ***no time limit will be available***	10 -01	99	1min	30min
c2	Minimal compressor stopping time	0	15	1min	3min
c3	Evaporator thawing time	0	15	1min	2min
c4	Evaporator freezing time, after which the fans will start to operate regardless of whether the evaporator has reached the temperature as set in 'd5' setting	1	25	1min	10min
c5	Maximal compressor operation time 0 –the absence of test	0	99	1min	40min
c6	Compressor stopping time following the activation of the protection system as set by the 'c5' parameter	0	99	1min	10min
c7	Time for which the temperature measured directly prior to the defrosting commencement will be shown after the defrosting completion ('c4' parameter).	0	60	1min	5min
c8	Compressor operation time if controlling sensor has been damaged	1	99	1min	25min
c9	Compressor stopping time if controlling sensor has been damaged	1	60	1min	5min
d0	User set minimal temperature	-40	20	1°C	1°C
d1	User set maximal temperature	d0+1	40	1°C	10°C
d2	Evaporator temperature at which the defrosting terminates	0	40	1°C	5°C
d3	Hysteresis value	1	10	1°C	2°C
d4	Chamber sensor rescaling with relation to actually measured temperature	-10	10	1°C	0°C
d5	Evaporator temperature at which fans will start their operation after the defrosting process completion.	-30	10	1°C	-5°C
d6	Evaporator temperature, above which the fan is always on Setting the parameter to +40°C disables this control.	-40	40	1°C	5°C
r0	Mode of fan operation during defrosting 00- 'classic' mode according to the Geco algorithm 01- always on during defrosting 02 - always off during defrosting	00	02	1	00
r1	Evaporator defrosting method, the parameter set as follows: 01 – defrosting through the compressor stop 02 – heater assisted defrosting 03 – warm vapour defrosting (reversed cycle)	01	03	1	02
r2	Evaporator fans operation method, the parameter set as follows: 00 – fans operate only together with the compressor 01 – fans operate permanently after activating the power supply ***NOTE!!!*** *This parameter does not affect the cycle and method of evaporator defrosting*	00	01	1	01
r3	Determination of the temperature regulation method, parameter set to:	00	01	1	00

	00 - normal regulation 01 - the temperature is adjusted according to the measurement from the evaporator sensor, the programmed temperature and the parameters **d0, d1, d2 and d3** refer to the evaporator sensor, the measurement from the chamber sensor is displayed.				
r5	Conditions of switching on of defrosting when the unit is switched on: 00 – beginning of operation without defrosting 01 – if during defrosting power supply is disconnected, defrosting will be switched on 02 – defrosting after every switching on of unit power supply	00	02	1	00
r6	Option of door opening sensor or additional temperature sensor 00 - no door open sensor 01 - there is a door open sensor closed with the door open 02 - there is a door open sensor open when the door is open 03 – there is a temperature sensor (thermometer)	00	02	1	01
r7	The method of switching on the lighting 01 - light control only via the door sensor 02 - light control only with the button 03 - light control via door sensor and button	01	03	1	03
r8	Time from the moment the door is opened to the alarm switching on. After 30 seconds from the door opening, the word "dr" is displayed and a short beep is heard, which is repeated every 30 seconds. After the time **r8** has elapsed, the alarm will be activated by flashing the display with the word "dr" and an audible signal, and the compressor is switched off. 0 - means immediate activation of the alarm	0	20	1min	1min

IX. PROBLEMS AND THEIR REMOVAL

Failure symptoms	Check
1. The display is off even if GC203 is connected to the power supply	Check: - if 220V voltage is present on the power supply terminals L and N - correct connection of the actuator to the control panel - remove and reinsert the ribbon sockets - connect another ribbon
2. The compressor will not start despite its power-on signaling -red LED	Check: - 230V voltage presence on terminals K and N - If present, then check the compressor - if not, then check correct connection of the actuator with the control panel - connect another ribbon
3. Defrosting heater does not switch on	Check: - if there is voltage 230V on clamps as described on the casing of the controller - if there is, check the heater - if not then check the connection of the executive module with a control panel - connect another ribbon
4. The light tube does not go on	- presence of the 230V voltage at the terminals marked in the description provided on the upper panel of the actuator module - if it is present, then check a/ starter b/ light tube c/ choke - if not, then check for correct connections between the actuator module and the control panel - replace the ribbon cable
5. Wrong temperature indications	Check: - connections of the sensors to the connectors - value of the parameter ‘d4’ - correct fastening of the sensor - condition of the sensor cable – the cable can not show **<u>any</u>** damages - carefully the appearance of the external surface of the sensor case for any signs of mechanical damages.
6. The desired temperature cannot be set	Check: value of the parameter ‘d0’ and ‘d1’ (d0<d1)
7. Blinking of dots on the display, cannot be turned off	Check : - power supply voltage value - condition of the power supply connectors - tightening of the power supply connectors - correct connection of the actuator to the control panel - connect another ribbon

8. 'Abnormal', 'strange' behavior of the unit.	Check: - if 230V voltage is present on the power supply terminals L and N - condition of the power supply connectors - grounding of the refrigerating unit - condition of the electrical installation and number of the units connected to one phase - if you have the type of thermostat (label with output scheme) designed for your unit - if the control panel, actuator or the ribbon plugs have been exposed to water or any other liquid - if the control panel, actuator or ribbon plugs are exposed to moisture or rapid temperature fluctuations - correct connection of the actuator to the control panel - connect another ribbon
9. Problems with defrosting the unit	Check: - value of the parameter 'd2' and 'c0', 'c1' - value of the parameter 'c1'. This is the maximum unit defrosting time, whether the evaporator has reached the programmed temperature of the end of defrosting, or not (parameter 'd2'). If this time is too short complete defrosting of the unit will not be possible - correct fastening of the sensor to the evaporator lamella. IT MUST BE FIXED SECURELY AND ADHERE CLOSELY TO THE LAMELLA!!! - if the evaporator sensor is fixed in place, where the ice remains for the longest time, if not, check the temperature on the sensor at the moment, when the last ice lumps fall off the evaporator. THIS IS THE TEMPERATURE WHICH SHOULD BE ENTERED AS PARAMETER 'd2'
10. The unit does not reach the preset temperature and does not 'refrigerate'	Check: - the temperature programmed by the user - value of the individual parameters, and in particular 'c2', 'c5', 'd0', 'd1' - section 9 - *Problems with defrosting the unit*. If unit defrosting is not complete, the unit will not be able to reach the programmed temperature !!! - the way and place of securing the chamber sensor - if any side panes have been fitted in the rack or sliding panes in the glass case - IF THE UNIT IS LEFT IN THE DRAFT OR IN THE SUN !!! - if there are no fans or air conditioning units installed on the ceiling or nearby - if condenser is clean - temperature in the store (each manufacturer specifies max. working temperature of the unit) - gas volume, fans, evaporator heater, hose draining water from the evaporator
11. Wrong operation of the door open sensor	Check: - 'r6' and 'r7', 'r9' parameter value - sensor connection correctness - if the sensor is connected to the actuator then check the connection between executive module with the control panel - connect another tape

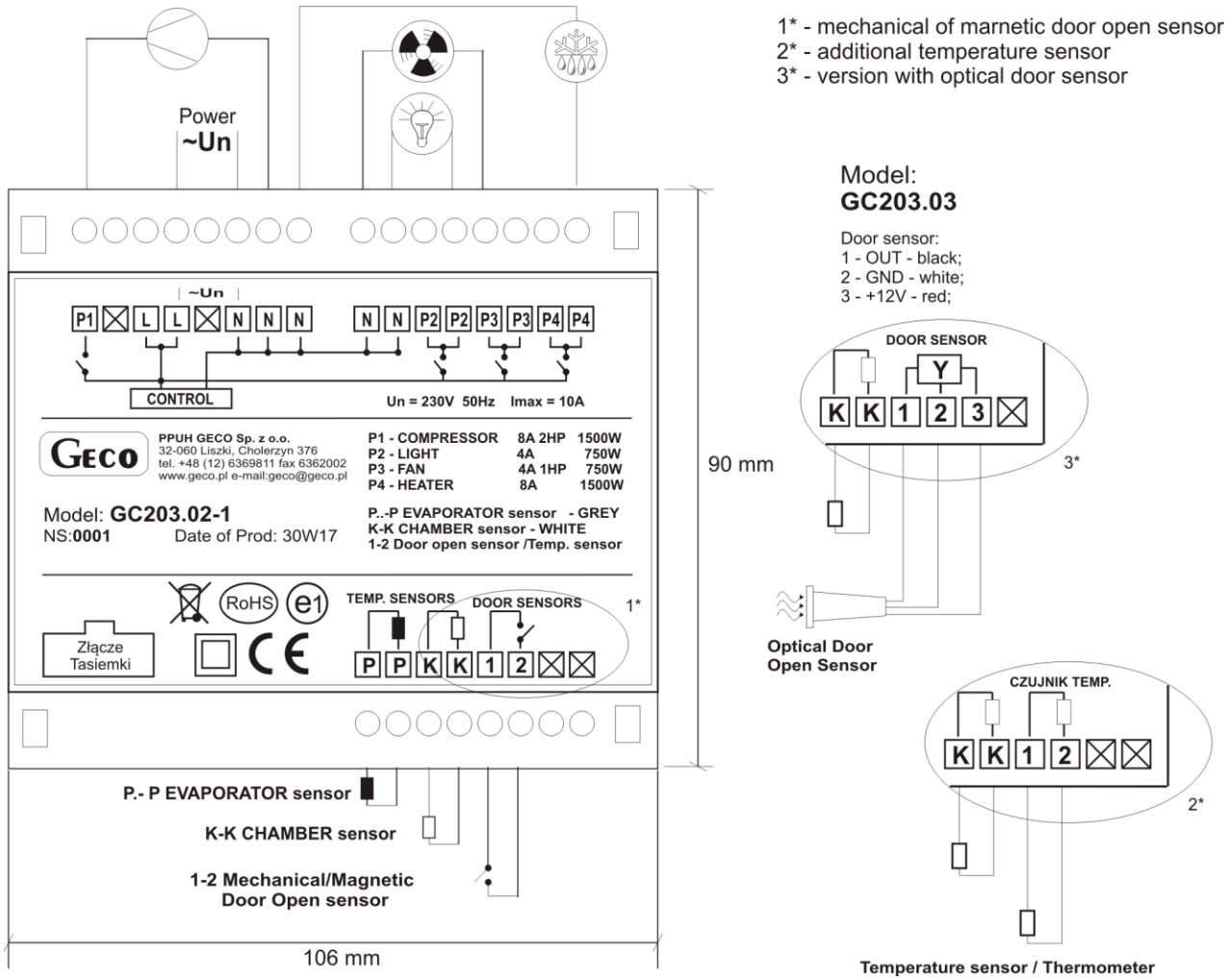
X. RETURNS FOR REPAIR

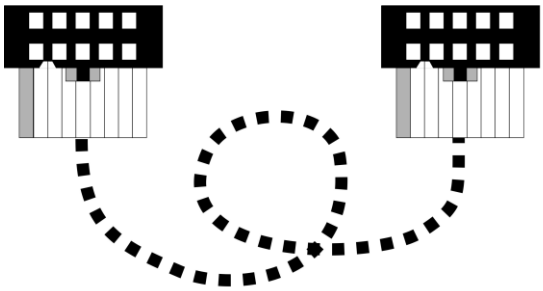
In case of failure and returning SCCB for repair, it is absolutely required to completely fill in the replacement application form enclosed at the end of this instructions. We suggest making a Xerox copy of the form rather than cutting it.

PPUH 'GECO' reserves the right to refuse a free repair of the unit, if there is no form, the form is not filled in completely or the seals are broken !!!

P.P.U.H. 'Geco' Sp. z o. o. is not responsible for loses and damages resulting from provision of information on the method of making changes in the system data of G-203-P00 by the producer or its service to the final client, incorrect or non-professional assembly and for loses caused by defective operation of the appliance.

XI. METHOD OF CONNECTING DEVICES TO THE CONTROLLER





THE DIAGRAM SHOWS TAPE CONNECTIONS FROM THE INPUT HOLES VIEW. DIAGRAM SHOWS ALSO THEIR PLACEMENT BETWEEN EACH OTHER AND ALSO AFTER CORRECT REALIZATION OF THE CONNECTION !!!

XII. INFORMATION ABOUT MARKING AND COLLECTION OF USED ELECTRICAL AND ELECTRONIC EQUIPMENT

WARNING!

The crossed-out wheelie bin symbol on your product or packaging reminds you that all electrical and electronic products be taken to separate collection at the end of their working life. Do not dispose of these products as unsorted municipal waste take them for recycling. The user is responsible for taking used device to recycling point.

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