Electrolux Service
Refrigeration Platform

CAREL ir33

Quick reference Handbook

MAIN FEATURES OF THE INSTRUMENT

USER INTERFACE

1. **ON/OFF** switch button – **UP** button to increase temperature values

2. **DOWN** button to decrease values - Activates/deactivates the manual defrost

3. **SET** temperature button

4. **Prg/mute** button

5. Malfunctioning or failure warning icon

6. High/Low temperature alarm icon

7. icon is ON when defrost process starts

8. icon is ON when compressor starts

9. icon is ON when evaporator fans starts

AUX

10. icon is ON when an auxiliary output is active

POWER OFF

When the instruments is switched off the display shows the label OFF and all internal relays are disabled (not energized)

POWER ON

When the controller is switched on a special procedure tests the display and the keypad. The display is completely ON for 2 seconds

Three segments "---" on the display are visualized for 2 seconds and then the controller becomes operative

Compressor icons flashes and the compressor activation is delayed by safety times

SET CAVITY TEMPERATURE

To display or to set the temperature, proceeds as follows:

Set

Keep **SET** button pressed for more than 1 second. The instruments displays the temperature value

▲

Increase or decrease the set point using UP/DOWN buttons, until reaching the desired value

Set

Press **SET** button again to confirm the new value

FREQUENT USE PARAMETER (TYPE F)

Prg
mute

Press **Prg/mute** button more than 5 seconds the instruments shows the code of the first adjustable parameter (type "F") – if an alarm is active, pressing this button, the buzzer is muted first.

FREQUENTLY USE PARAMETER LIST: St, rd, rt, rH, rL, dI, dt1, dt2, dP1, dP2, dd, d8, d/1, d/2, AL, AH, Ad, F1, Fd

CONFIGURATION PARAMETER (TYPE C)

Prg / *mute* *Set* 

▲ *def* ▼

Set

Access to the configuration parameters is protected by password that avoid unwanted modifications or access by unauthorized personel. Proceeds as follows:

1. Press **Prg/Mute** and **Set** buttons together for more than 3 seconds; display shows a flashing numerical code "**0**" that indicates the password prompt
2. Press **UP** button to set the password – CAREL thermoregulators are provided with password set to **11** (the code of the password allows access to the configuration parameters)
3. Confirm by pressing the **Set** button to enter in the programming mode and scroll up/down the operating parameters list
4. Display shows the code of the first adjustable type "C" parameter **/2**

MANUAL DEFROST

Manual defrost is activated or deactivated if **DEF/DOWN** button is keep pressed more than 5 seconds.

When defrost starts display shows **dFb** (defrost begining)

Defrost's warning icon is **ON** when defrost is active

Defrost can be interrupted simply by pressing again the **DEF/DOWN** button more than 5 seconds. Display shows the message **dFE** (defrost End)

MODIFYING THE PARAMETERS

After having displayed the first operating parameter, either type C or type F, it is necessary to procedes as follows:

1. Press **UP/DOWN** button until reaching the parameter to be modified. When scrolling the list, an icon appears on the display that indicates the category the parameter belongs to

2. Press **SET** button to display the parameter's value

3. Increase or decrease its value using **UP/DOWN** button

4. Press again **SET** button to temporarily save the new value, closing the parameter adjustment and return to the display of the parameter code

Repeat the operations from point 1 to 4

STORING THE NEW ASSIGNED VALUES

To definitively store the new values of the modified parameters, procede as follows:

1. Press the **Prg/mute** button more than 5 seconds

2. Display shows the label **Pro**

The controller step out the parameter setting procedure and the display shows current temperature value.

RESET ANY MODIFICATIONS

All modifications made to the parameters, temporarily stored into the internally memory of the controller, can be cancelled and normal operation resumed by not pressing any button for 60 second, thus allowing the parameter setting session to expire due to timeout

HOW TO CHECK CAVITY PROBE TEMPERATURE

Set

Set

To check current temperature measured by a single installed probe, proceeds as follow:

1. refers to the previous step how to get in the configuration parameter session - **type C parameter**
2. scroll the configuration parameter list, by using **UP/DOWN** buttons, until display shows the parameter **/C1** (calibration or offset for cavity probe)
3. press **SET** button
4. display shows the probe calibration value, used to correct the temperature measured by the probe by means of an offset

   ⚠ **BE CAREFUL ⇒ DO NOT ADJUST THE CALIBRATION VALUE**
5. Press again **SET** button
6. display shows the current temperature value measured by the probe
7. press **SET** button to return to display of the parameter code **/C1**

HOW TO CHECK EVAPORATOR TEMPERATURE

Current evaporator probe temperature is available by means of the parameter **/C2** (calibration or offset for evaporator probe)

To check temperature value proceeds as previously indicated from step 1 to step 2, considering the configuration parameter **/C2**

HOW TO CHECK CONDENSER TEMPERATURE

If the condenser probe is installed it is possible to check condenser temperature by means of the parameter **/C3** (calibration or offset for condenser probe)

To check temperature value proceeds as previously indicated from step 1 to step 2, considering the configuration parameter **/C3**

TABLE OF OPERATING PARAMETERS

N°	Code	Range	U.M.	Description
TEMPERATURE PROBE MANAGEMENT PARAMETERS				
1	**/2**	0...15	--	Measurement stability
2	**/3**	0...15	--	Probe display response
3	**/4**	0...100	--	Virtual probe
4	**/5**	0/1	Flag	Selection °C or °F
5	**/6**	0/1	Flag	Decimal point
6	**/tI**	1...6	--	Display on terminal
7	**/tE**	0...6	--	Display on external terminal
8	**/P**	0...2	--	Type of probe
9	**/A2**	0...3	--	Configuration probe 2
10	**/A3**	0...3	--	Configuration probe 3
11	**/c1**	-20...20	°C/°F (/10)	Calibration probe 1
12	**/c2**	-20...20	°C/°F (/10)	Calibration probe 2
13	**/c3**	-20...20	°C/°F (/10)	Calibration probe 3
TEMPERATURE CONTROL PARAMETERS				
14	**St**	r1...r2	°C/°F	set point temperature
15	**rd**	0.1...20	°C/°F	Control delta
16	**rn**	0...60	°C/°F	Dead band
17	**rr**	0.1...20	°C/°F	Reverse differential for control with dead band
18	**r1**	-50...r2	°C/°F	Minimum set point allowed
19	**r2**	r1...200	°C/°F	Maximum set point allowed
20	**r3**	0...2	Flag	Operating mode
21	**r4**	-20...20	°C/°F	Automatic night-time set point variation
22	**r5**	0...1	°C/°F	Enable temperature monitoring
23	**rt**	0...999	°C/°F	Temperature monitoring interval
24	**rH**	-	°C/°F	Maximum temperature read
25	**rL**	-	°C/°F	Minimum temperature read
COMPRESSOR SAFETY TIME AND ACTIVATION PARAMETERS				
26	**c0**	0...15	Minutes	Compressor and fan delay on start-up
27	**c1**	0...15	Minutes	Minimum time between two sequent compressor starts
28	**c2**	0...15	Minutes	Minimum compressor OFF time
29	**c3**	0...15	Minutes	Minimum compressor ON time
30	**c4**	0...100	Minutes	Duty setting
31	**cc**	0...15	Hours	Continuous cycle duration
32	**c6**	0...15	Hours	Alarm bypass after continuous cycle
33	**c7**	0...900	Seconds	Maximum pump down time
34	**c8**	0...60	Seconds	Compressor start delay after open PD valve

N°	Code	Range	U.M.	Description
35	**c9**	0...1	Flag	Enable autostart function in PD
36	**c10**	0...1	Flag	Select Pump down by time or pressure
37	**c11**	0...250	Seconds	Second compressor delay
DEFROST MANAGEMENT PARAMETERS				
38	**d0**	0...4	Flag	Type of defrost
40	**dI**	0...250	Hours	Interval between defrosts
41	**dt1**	-50...200	°C/°F	End defrost temperature, evaporator
42	**dt2**	-50...200	°C/°F	End defrost temperature, aux evap.
43	**dtP**	0...200	°C/°F	Defrost end temperature when defrost has done with compressor OFF and fans ON
44	**dP1**	1...250	Minutes	Maximum defrost duration, evaporator
45	**dP2**	1...250	Minutes	Maximum defrost duration, aux evap.
46	**d3**	0...250	Minutes	Defrost start delay
47	**d4**	0/1	Flag	Enable defrost on start-up
48	**d5**	0...250	Minutes	Defrost delay on start-up
49	**d6**	0...2	--	Display on hold during defrost
50	**dd**	0...15	Minutes	Dripping time after defrost
51	**d8**	0...15	Hours	Alarm bypass after defrost
52	**d8d**	0...250	Hours	Alarm bypass after door open
53	**d9**	0/1	Flag	Defrost priority over compressor protectors
54	**d/1**	-	°C/°F	Defrost probe 1 read
55	**d/2**	-	°C/°F	Defrost probe 1 read
56	**dC**	0/1	Flag	Time base (0=h/m;1=m/s)
57	**d10**	0...250	Hours	Compressor running time for defrost
58	**d11**	-20...20	°C/°F	Running time temperature for defrost
59	**d12**	0...3	--	Advanced defrost
60	**dn**	1...100	%	Nominal defrost duration
61	**dH**	0...100	--	Proportional factor, variation in dI
ALARM MANAGEMENT PARAMETERS				
62	**A0**	0.1...20.0	°C/°F	Alarm (fan) differential
63	**A1**	0/1	Flag	Relative or Absolute Alarm
64	**AL**	-50...200	°C/°F	Low temperature alarm threshold
65	**AH**	-50...200	°C/°F	High temperature alarm threshold
66	**Ad**	0...250	Minutes	Low and high temperature signal delay
67	**A4**	0...15	Flag	Digital input 1 configuration
68	**A5**	0...15	Flag	Digital input 1 configuration
69	**A6**	0...100	Minutes	Stop compressor from external alarm
70	**A7**	0...250	Minutes	External alarm detection delay
71	**A8**	0/1	Flag	Enable alarms ‘Ed1’ and ‘Ed2’

N°	Code	Range	U.M.	Description
72	**Ac**	0...200	°C/°F	High condenser temperature alarm
73	**AE**	0.1...20	°C/°F	High condenser temperature alarm differential
74	**Acd**	0...250	Minutes	High condenser temperature alarm delay
75	**AF**	0...250	Seconds	Light sensor OFF time
76	**ALF**	-50...200	°C/°F	Antifreeze alarm threshold
77	**AdF**	0...15	Minutes	Antifreeze alarm delay
78	**ACS**	-50...200	°C/°F	Alarm Clean Setpoint
79	**ACd**	0.1...50	Minutes	Alarm Clean differential
EVAPORATOR FAN MANAGEMENT PARAMETERS				
81	**F0**	0...2	Flag	Fan management
82	**F1**	-50...200	°C/°F	Fan stop temperature
83	**F2**	0/1	Flag	Fan OFF with compressor OFF
84	**F3**	0/1	Flag	Fans in defrost
85	**Fd**	0...15	Minutes	Fan OFF after dripping
86	**F4**	-50...200	°C/°F	Condenser fan stop temperature
87	**F5**	0.1...20	°C/°F	Condenser fan start differential
GENERAL CONFIGURATION PARAMETERS				
88	**H0**	0...207	--	Serial address
89	**H1**	0...10	Flag	Function of relay 4
90	**H2**	0...6	Flag	Disable keypad/IR
91	**H4**	0/1	Flag	Disable buzzer
92	**H6**	0...255	--	Lock keypad
93	**H8**	0/1	Flag	Select activation of output with time band
94	**H9**	0/1	Flag	Enable set point variation with time band
95	**Hdh**	-50...200	°C/°F	Anti-sweat heater offset
96	**CCd**	0...999	--	Clean Counter Days
97	**Cd**	0...999	--	Clean days
98	**SAn**	0...255	--	Service Alarms number
99	**SAr**	0...1	Flag	Service Alarms counter reset San
100	**CAn**	0...255	--	Clean Alarm counter
101	**CAr**	0...1	Flag	Clean Alarm counter reset

NOTE 1:
Above operating parameters are available for all range of CAREL thermoregulators. Particularly all green highlighted parameters are available on new CAREL controller ir33 IRELF0HN245, currently installed on HD cabinets and counters

NOTE 2:
Blu highlighted operating parameters listed above are not influential for the functioning of the appliance.

SERVICE ALLARMS AND SIGNALS

SERVICE ALARMS	SERVICE ALARMS DUE TO MALFUNCTIONING OR FAILURE PRODUCE A WARNING SIGNALS ON THE DISPLAY BY MEAN OF THE SERVICE ICON
CAVITY PROBE FAULT 	In case of cavity probe faulty or malfunctioning display shows the error signal **rE** and **E0** (cavity probe S1 fault) alternately The appliance works however and compressor starts are controlled by time (15 mins is ON and 15 mins is OFF) until the fault is resolved. This alarm signal is automatically restored when the faulty erased and the probe replaced During this time interval the service alarm icon flashes on display and an acoustic signal is ENABLED
EVAPORATOR PROBE FAULTY 	In case of evaporator probe faulty or malfunctioning display shows an error signal **E1** (evaporator probe S2 fault). This alarm signal is automatically restored when the faulty erased and the probe replaced During this time interval the service alarm icon flashes on display. Acoustic signal is DISABLED
CONDENSER PROBE FAULTY (WHEN INSTALLED ON BOARD) 	In case of condenser probe faulty or malfunctioning display shows the error signal **SEr** and **E2** (condenser probe S3 fault) alternately This alarm signal is automatically restored when the faulty erased and the probe replaced During this time interval the service alarm icon flashes on display. Acoustic signal is DISABLED
CLEAN ALARM 	If a probe is set as the condenser probe, the condenser temperature can be monitored to signal the high temperature alarm, due to obstruction or fouling In this case a warning signal is visualized and display shows the error signal **CLn** and the temperature measured by the condenser probe alternately Service alarm icon is flashing and the acoustic signal DISABLED The clean alarm is reset to zero by pressing the **Prg/mute** button and the service alarm icon cancelled on display

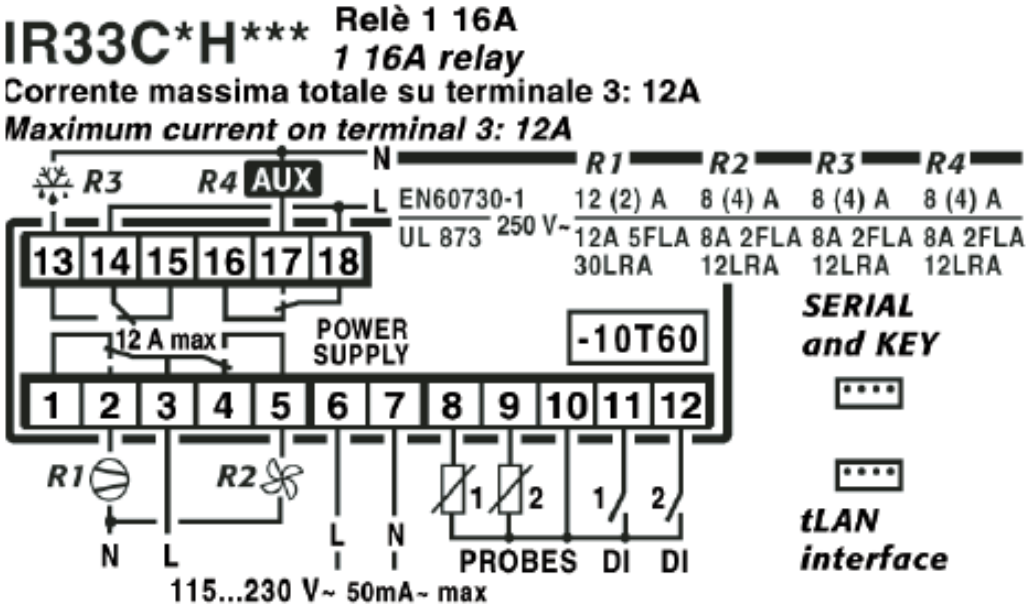
TEMPERATURE ALARMS AND SIGNALS

TEMPERATURE ALARMS 	HIGH OR LOW TEMPERATURE ALARMS DUE TO MALFUNCTIONING OR COMPONENTS FAILURE PRODUCE A WARNING SIGNALS ON THE DISPLAY BY MEAN OF THE ALARM ICON.
LOW TEMPERATURE ALARM 	In case of low cavity temperature, referred to the cavity probe, the display shows a flashing error code **LO**. Temperature alarm icon is flashing and the acoustic signal ACTIVE. This alarm is automatically reset when cavity temperature increase over the minimum temperature threshold, depending from the parameter **AL**
HIGH TEMPERATURE ALARM 	In case of high cavity temperature, referred to the cavity probe, the display shows a flashing error code **HI**. Temperature alarm icon is flashing and the acoustic signal ACTIVE. This alarm is automatically reset when cavity temperature decrease under the maximum temperature threshold, depending from the parameter **AH**
CONDENSER FAN ALARM  	In case of condenser fan faulty or malfunctioning display shows a flashing error code **SEr** Temperature alarm icon is flashing and the acoustic signal ACTIVE Pressing **Prg/mute** button the buzzer is DISABLED but the alarm signal is still active and shown on the display

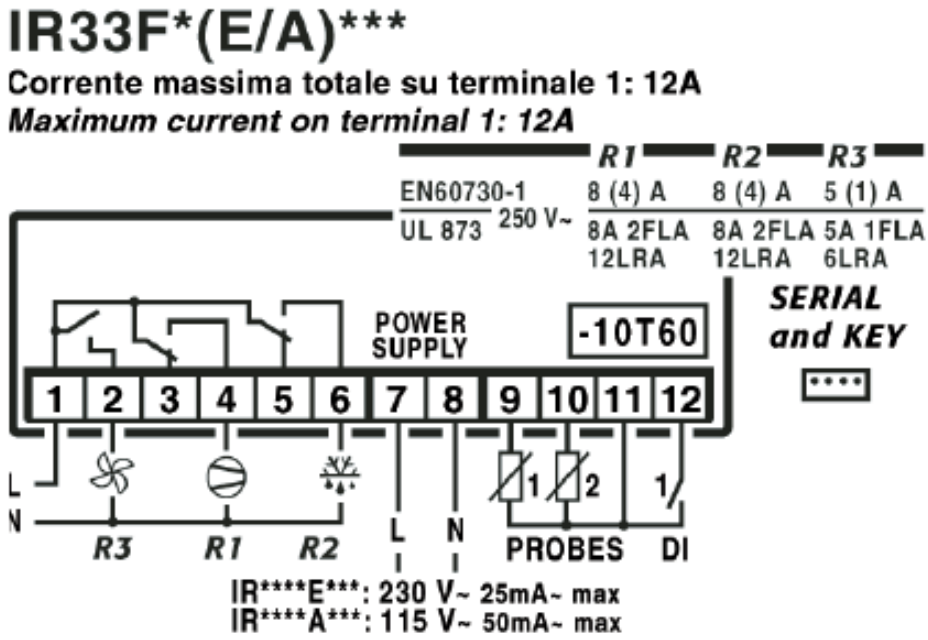
CONNECTIONS

Follows all electrical connections available on ir33 CAREL controller , currently used in production

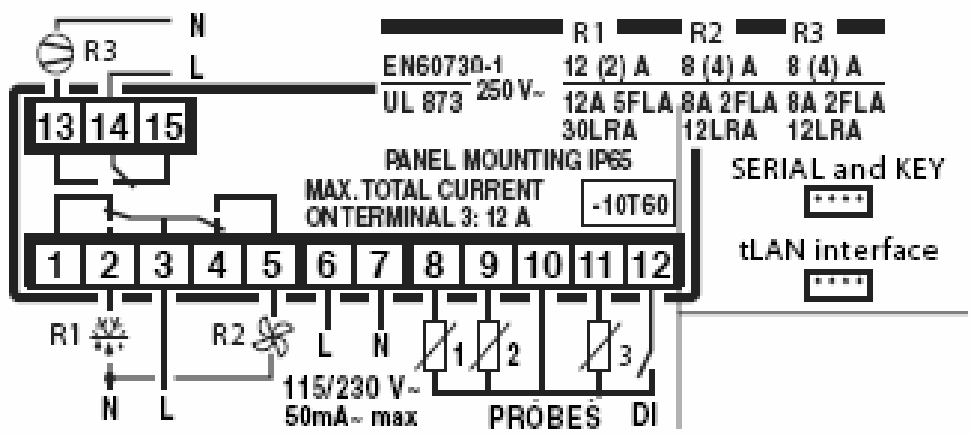
IRELC0HN215 (646R05100) → installed on STD BEN and CL freezer counter and STD BEN cabinet provided with internal light



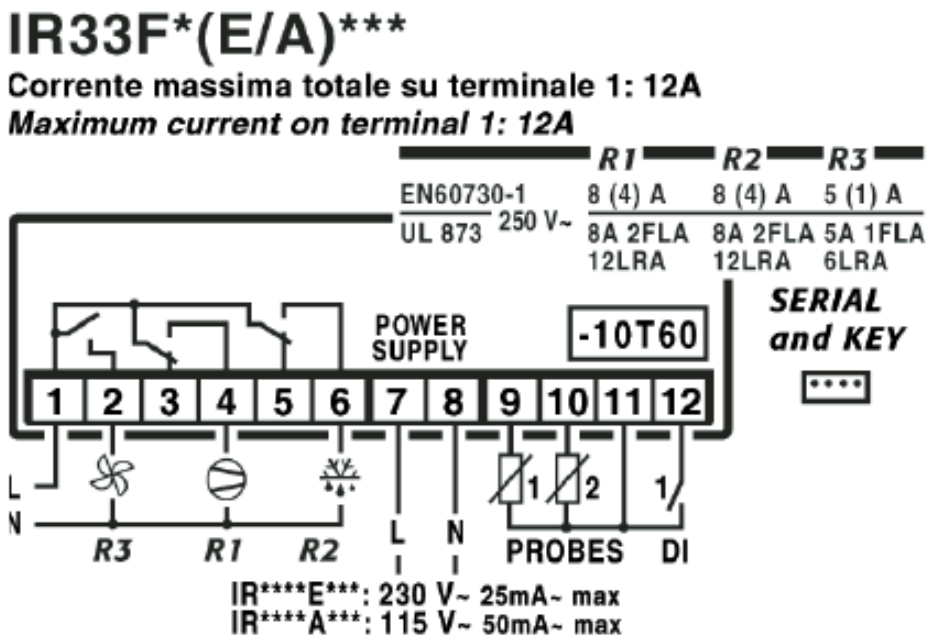
IRELF0EN215 (646R04700) → installed on all STD BEN refrigerated counters, 400Lt refrigerated cabinets and all STD BEN cabinets without light



IRELF0HN245 (646R09300) → installed on HD counters and cabinets



IRELF0EN225 → installed on digital ROLL–IN



IRELF0EHD15 → installed on 400Lt FREEZER cabinet