

PARAMETRI DI PRIMA CONFIGURAZIONE							
Par.	Menu	Descrizione	Def.	Min	Max	U.M.	Vis. (*)
St	Ctl	Setpoint di regolazione temperatura	50/122	r1	r2	°C/°F	U
/5	Pro	Unità di misura: 0 = °C; 1 = °F.	0	0	1	-	U
/6	Pro	Visualizzazione punto decimale (solo maschera principale): 0 = visibile; 1 = non visibile.	0	0	1	-	S
/t1	Pro	Visualizzazione su terminale utente: 0 = non configurato; 1 = valore S1; 2 = valore S2; 3 = valore S3; 4 = valore S4; 5 = valore S1H; 6...8 = non disponibile; 9 = sonda regolazione; 10 = sonda virtuale; 11...14 = non disponibile; 15 = setpoint effettivo di regolazione.	9	0	15	-	S
d6	dEF	Visualizzazione display durante defrost: 0 = temperatura alternata a dEF; 1 = blocco visualizzazione; 2 = dEF.	1	0	2	-	S
dl	dEF	Intervallo massimo tra sbrinatori consecutivi	8	0	240	h	S
dp1	dEF	Durata massima sbrinatorio	45	1	240	min	S
AlH	ALM	Soglia di allarme relativa alta temperatura	0	0	555/999	Δ °C/°F	S
AlL	ALM	Soglia di allarme relativa bassa temperatura	0	0	200/360	Δ °C/°F	S
Hb	CnF	Abilitazione buzzer: 0 = disabilitato; 1 = abilitato.	1	0	1	-	U

(*): U/S = User/Service

ALLARMI		
	Descrizione	Descrizione
Afr	Antigelo	GHI Allarme generico soglia superiore
AtR	Ripartenza in pump down	GLO Allarme generico soglia inferiore
bAt	Batteria guasta o non connessa	HA Allarme HACCP di tipo HA (alta temp. in funzionamento)
bLC	Blackout in corso	HF Allarme HACCP di tipo HF (alta temp. dopo blackout)
btS	Test batteria in corso	HI Alta temperatura
CE	Errore scrittura configurazione	IA Allarme immediato da contatto esterno
CHt	Allarme alta temperatura condensatore	LO Bassa temperatura
CHt	Preallarme alta temperatura condensatore	LP Bassa pressione
COM	Errore comunicazione VCC	LTC Mancata accensione compressore L2
dA	Allarme ritardato da contatto esterno	MAAn Stato uscite forzato in modalità manuale
dor	Porta aperta	Pd Massimo tempo di pump down
E*	Sonda * guasta o scollegata	rE Sonda di regolazione guasta o scollegata
Ed1	Defrost terminato per tempo massimo	rSF Allarme perdita refrigerante
Ed2	Defrost su secondo evaporatore terminato per tempo massimo	SF Configuraz. non terminata correttamente
EHI	Allarme alta tensione di alimentazione	SrC Richiesta manutenzione
ELO	Allarme bassa tensione di alimentazione	UCF Errore funzionamento VCC
Etc	Errore orologio	

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DANGER

- This leaflet is part of the product and should be kept near the control for quick reference.
- The control shall not be used for purposes other than those for which it was designed, in particular it can't be used as a safety device.
- In case of failure contact an authorized service center.
- The control must not be opened.
- Check the power supply voltage before installing.
- Use the control inside the operating conditions limits. Do not expose to liquids or steam and avoid sudden temperature changes that might cause condensation.
- Disconnect the power supply before any kind of maintenance.
- Observe the max. current output value for each relay (see "Technical specifications" section). Do not apply dangerous voltage to the SELV connection terminals (see "Technical specifications" section).
- Only use cables with a suitable cross-section (see "Technical specifications" section).
- Separate the probe and digital input cables from output and power cables. Never run power cable and signal cables in the same conduct.
- Some models are equipped with the High and Low Voltage Protection function (HLVP). Power supply voltage reading accuracy: $\pm 5\%$ fs. In any condition of use, HLVP function cannot be considered a compressor safety function. The use of the controller outside the nominal power supply voltage declared on technical specifications is under responsibility of the final client. For serial communication line do not connect GND to PE (Protective Earth); opto-isolated converter is mandatory.

ATTENTION: electrical equipment must be installed, used and repaired only by qualified technicians

IMPORTANT WARNINGS

 The CAREL product is a state-of-the-art product, whose operation is specified in the technical documentation supplied with the product or can be downloaded, even prior to purchase, from the website www.carel.com. The customer (manufacturer, developer or installer of the final equipment) accepts all liability and risk relating to the configuration of the product in order to reach the expected results in relation to the specific final installation and/or equipment. Failure to complete such operations, which are required/indicated in the user manual, may cause the final product to malfunction; CAREL accepts no liability in such cases. The customer must only use the product in the manner described in the documentation relating to the product. The liability of CAREL in relation to its products is specified in the CAREL general contract conditions, available on the website www.CAREL.com and/or by specific agreements with customers.

TECHNICAL SPECIFICATIONS				
Physical specifications	Case	Self-extinguish polycarbonate		
	Ball pressure test temperat.	125 °C		
	Ingress protection	IEC	UL: Type 1	
		• Rear: IP20; • Front: IP65		
	Front cleaning	Use soft, non-abrasive cloth and neutral detergent or water		
Environm. conditions	Operating temperature	-20T60 °C, <90% RH non-condensing -20T60 °C, <90% U.R. condensing only for mod. BCU*****02 and BCU*****03		
	Storage temperature	-40T80 °C, <90% RH non-condensing; -20T80 °C, <90% RH non-condensing for models with battery clock		
Electrical specifications	Nom. power supply voltage	100-240 Vac		
	Oper. power supply voltage	90-264 Vac		
	Input frequency	50/60 Hz		
	Maximum current draw	100 mA rms		
	Min power consumption	700 mW		
	Clock	Precision: 20 ppm at 25 °C; 100 ppm in the range -20T60 °C; date/time retention with unpowered control: up to 2 years for models with battery clock (-20T60 °C).		
	Software class and structure	A		
	Environmental pollution class	2		
	Class of protection against electric shock	To be incorporated in class I or II appliances		
	Type of action and disconn.	1.C		
	Rated impulse voltage	100-240 Vac input and relay outputs: 2,5 kV		
	Surge immunity category	100-240 Vac input and relay outputs: II		
	Control device construction	Device to be incorporated		
	Terminal block	NO1, C1, NO2, NO3, NO4, L, N: • Plug-in male-female 30-12 AWG/ 0,05÷3,3 mm² • Screw terminals 30-14 AWG / 0,05÷2 mm² • Spade connectors S1, S2, S3, DI1, DI2, GND: • Plug-in male-female 30-17 AWG / 0,05÷1 mm² • Screw terminals 30-17 AWG / 0,05÷1 mm² Battery: • Plug-in male-female 22÷17 AWG/ 0,34÷1 mm² BMS, 0-5 Vrat: • Plug-in male-female 30-17 AWG / 0,05÷1 mm² FieldBus, 0-10V/PWMI: • JST ZH connector 32÷26 AWG / 0,03÷0,13 mm²		
	User interface	Purpose of the controller	Electrical operating control	
Buzzer		Built-in		
Display		3 digits, decimal point and multi-function icons		
Connectivity	Keyboard	Max 6 keys		
	NFC	Max distance 10 mm, variable according to the mobile device used		
	Bluetooth Low Energy (opt.)	Max distance 10 m, variable according to the mobile device used		
	BMS serial interface (opt.)	RS485, not opto-isolated		
	FieldBUS serial interface (opt.)	RS485, not opto-isolated, maximum number of devices that can be connected: 20		
	TTL serial interface (opt.)	Not opto-isolated, power supply 3,3 V, maximum number of devices that can be connected: 1		
Analogue inputs (Lmax=10m)	S1, S2, S3: NTC/ NTC-HT/ NTC-LT/ PT1000/ PTC	NTC: resolution 0.1 °C; 10 kΩ@25 °C; beta 3435; error: ±1 °C in the range -50T50 °C, ±3 °C in the range 50T90 °C NTC-HT: resolution 0.1 °C; 10 kΩ@25 °C; beta 3977; error: ±1,5 °C in the range -15T115 °C; ±4 °C in the ranges -40T-1,5 °C and 115T150 °C NTC-LT: resolution 0.1 °C; 750 Ω@25 °C; beta 3969; error: ±1,5 °C in the range -20T10 °C; ±4 °C in the ranges -80T-20 °C and 10T55 °C PT1000: resolution 0.1 °C; 1 kΩ@0 °C; error: ±1,5 °C in the range -100T120 °C PTC: resolution 0.1 °C; 985 Ω@25 °C; error: ±2 °C in the range -50T50 °C; ±4 °C in the range 50T150 °C		
	SS: 0-5 Vrat (opt.)	0-5 Vrat: error 2% fs, typical 1%		
	DI1, DI2 configurable as fast digital inputs	Voltage-free contact, not optically-isolated, typical closing current 5mA, voltage with contact open 12V, max contact resistance 50Ω Fast digital inputs: 0-10 V: error 2% fs, typical 1%		
	Analogue outputs	Y1, Y2, independently configurable as DC or PWM outputs (opt.)	0-10 V: 1kΩ, 10 mA max PWM: 100 Hz, max amplitude 10 V, 10 mA max	
	Digital outputs	NO1, NO2, NO3, NO4	"2hp" Relay (NO1): EN60730: 10(6) A, 250 Vac; UL60730: 16A, 250 Vac; 10FLA, 60LRA, 250 Vac; 12FLA, 72LRA, 125 Vac; Pilot duty B300, 250 Vac	
Note: With screw or plug-in terminals: • NO1: max 12 A; • NO2: max 6 A; • NO2+NO3+NO4: max 12 A		"8A" Relay (NO2): EN60730: 8(3) A, 240 Vac; UL60730: 8A, 240 Vac; 2FLA, 12LRA, 240 Vac; Pilot duty C300, 240 Vac		
With spade terminals: • NO1: max 14 A; • NO2: max 6 A; • NO2+NO3+NO4: max 14 A		"5A" Relay (NO3, NO4): EN60730: 5(1) A, 240 Vac; UL60730: 5A, 240 Vac; 1.9FLA, 11.4LRA, 240 Vac; Pilot duty C300, 240 Vac		
Supported battery specifications (not included)	Type	Lead-acid VRLA, 6V		
	Charge current	30 mA typical (50 mA max)		
	Maximum discharge current	200 mA		
	Protection	500 mAAT delayed fuse		

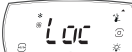
Probes power supply	5V	5 Vdc $\pm$ 2 % to power the 0 to 5 V ratiometric probes. Maximum current delivered: 10 mA protected against short-circuits
Cable lengths	Analogue inputs/outputs, digital inputs/outputs, probe power	< 10 m
	BMS (RS485) serial cable	< 500 m with shielded cable
	BMS (TTL) serial cable	< 2 m
	Bacup battery	< 2 m
Conformity	Electrical safety compliance - LVD directive and UL certif.	IEC/EN/UL 60730-1, CSA E60730-1, IEC 60335-1 (sections 29 & 30)
	Electromagnetic compatibility - EMC directive	IEC/EN 61000-6-1, IEC/EN 61000-6-2, IEC/EN 61000-6-3, IEC/EN 61000-6-4
	For use with flammable refrigerant gases, the controllers described in this document have been evaluated and judged compliant with the following requirements of IEC 60335 series standards:	
	- Annex CC of IEC 60335-2-24:2010 referenced by clause 22.109 and Annex BB of IEC 60335-2-89:2010 referenced by clause 22.108; components that produce arcs or sparks during normal operation have been tested and found to comply with the requirements in UL/IEC 60079-15; - IEC/EN/UL 60335-2-24 (clauses 22.109, 22.110) for household refrigerators and freezers; - IEC/EN/UL 60335-2-40 (clauses 22.116, 22.117) for electrical heat pumps, air-conditioners and dehumidifiers; - IEC/EN/UL 60335-2-89 (clauses 22.108, 22.109) for commercial refrigerated appliances.	
	The controllers have been verified for the maximum temperatures of all components, which during the tests required by IEC 60335 cl. 11 and 19 do not exceed 272 ° C. Acceptability of these controllers in end use application where flammable refrigerant gases are used shall be reviewed and judged in the end use application.	
	Wireless compliance	RED directive (EN 301489-1), FCC (section 15, subsection B), IC
	Environmental compliance	EN60068-2-52 sev. 3, for products with technical code BCU*****003 EN60068-2-38, for products with technical code BCU*****02 and BCU*****03 (internal tests)

USER TERMINAL

Key:

- 1 display
- 2 icons/backlit buttons
- 3 icons

Masks

Terminal	Status	Description
	Standby	The display shows the main value alternated with alarms and signalling
	Active loads visualization	The terminal shows active loads and the keyboard is disabled
	Direct activation of loads and functions from keyboard	It is possible to activate/ deactivate loads and to enter direct functionalities from keyboard
	Programming menu	Menu scrolling by arrow keys
	Parameters programming / visualization	Parameters modification by arrow keys or read only values visualization
	Bluetooth connection	The display is disabled since the control is connected to an APP by Bluetooth Low Energy

Backlit buttons/Icons

Button Icon	Description	On	Flashing
	Set point/Up arrow	• Increase value • Scroll menu • <u>Direct access to change set point</u>	-
	Program	Pressed briefly: • enter menu branch • Save value and return to the parameter code Pressed and held (3 s): • enter programming mode • return to the previous level	-
	On-Off/Down arrow	• Decrease value • Scroll menu • <u>Light active/ Can be activated from the keypad</u>	-
	Minimum temperature	Direct access to minimum temperature recorded	-
	Reset minimum and maximum temperature	Reset minimum and maximum temperatures recorded (after confirmation)	-
	Maximum temperature	Direct access to maximum temperature recorded	-
	Compressor	Active	Waiting

Button Icon	Description	On	Flashing
	Battery status	In charge	To be replaced
	High temperature	Active high temperature alarms	-
	°C	Unit of measure °C	-
	°F	Unit of measure °F	-
	Service Maintenance	Active alarms	-

Standard product configuration.

Navigazione/Navigation

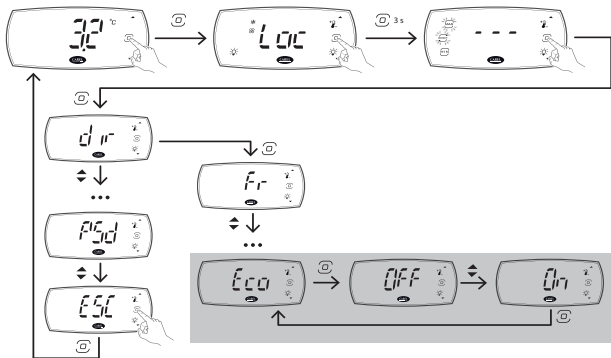


Fig. 1

INITIAL CONFIGURATION PARAMETERS							
Par	Menu	Description	Def.	Min	Max	U.M.	Vis. (*)
St	Ctl	Temperature control set point	50/122	r1	r2	°C/°F	U
/5	Pro	Unit of measure: 0 = °C; 1 = °F.	0	0	1	-	U
/6	Pro	Display decimal point (main screen only) 0 = visible; 1 = not visible.	0	0	1	-	S
/t1	Pro	Value shown on the LED display : 0 = not config. (decimal point); 1 = S1 value; 2 = S2 value; 3 = S3 value; 4 = S4 value; 5 = S1H value; 6..8 = reserved; 9 = control probe; 10 = virtual probe (Sv); 11..14 = reserved; 15 = current set point.	9	0	15	-	S
d6	dEF	Display during defrost 0 = temperature alternating with 'dEF' 1 = display locked; 2 = 'dEF'	1	0	2	-	S
dl	dEF	Maximum interval between defrosts	8	0	240	h	S
dP1	dEF	Maximum defrost duration	45	1	240	min	S
AH	ALM	High temperature relative alarm threshold	0	0	555/999	Δ °C/°F	S
AL	ALM	Low temperature relative alarm threshold	0	0	200/360	Δ °C/°F	S
Hb	CnF	Enable buzzer: 0 = disabled; 1 = enabled.	1	0	1	-	U

(*): U/S = User/Service

ALARMS			
	Description		Description
Afr	Frost protection	GHI	Generic alarm high threshold
ATs	Restart in pump down	GLO	Generic alarm low threshold
bAt	Battery broken or disconnected	HA	Type HA HACCP alarm (high temp. during normal working)
bLC	Blackout on going	HF	Type HF HACCP alarm (high temp. after blackout)
bTs	Battery test in progress	HI	High temperature
CE	Configuration write error	IA	Immediate alarm from external contact
CHt	High condenser temperature alarm	LO	Low temperature
cht	High condenser temperature warning	LP	Low pressure
COM	VCC communication error	LTC	L2 compressor starting failure
dA	Delayed alarm from external contact	MAn	Outputs status forced in manual mode
dor	Door open	Pd	Maximum pump down time
E*	Probe * broken or disconnected	rE	Control probe broken or disconnected
Ed1	Defrost terminated after maximum time	rSF	Refrigerant system failure alarm
Ed2	Defrost on second evaporator terminated after maximum time	SF	Configuration not completed correctly
EHI	High supply voltage alarm	SrC	Maintenance request
ELO	Low supply voltage alarm	UCF	VCC operation error
Etc	Clock error		

Modello per certificazione/ Certification model	BCU1	Small Panel	BCU4	Large Panel
	BCU2	Small HMI	BCU5	Large HMI
	BCU3	Small Split	BCU6	Large Split

  **Smaltimento del prodotto:** Il prodotto deve essere oggetto di raccolta differenziata in conformità alle normative locali vigenti in materia di smaltimento. / **Disposal of the product:** the appliance (or the product) must be disposed of separately in accordance with the local waste disposal legislation in force.