

Valve output		
J14	available only on DIN version	CAREL E*V unipolar valve power supply: 13 Vdc, min. winding resistance 40 Ω

Analogue outputs				
		0...10V: 10mA max	PWM: 100 Hz, 10 V max, 10 mA max	VCC-FREQ(**): 10...160 Hz, 10V max, 10mA max
J2	Y1, Y2	x	x	x
J12	Y3, Y4 (*)	x	x	N/A

(*) the same configuration for both

(**) available from product review 1.6xx

Digital outputs (*)		
J6	NO1, NO2, NO3, NO4	16A: Panel: EN60730: 15A resistive, 250V, 100k cycles; UL60730: 15A resistive, 240Vac, 100k cycles; Pilot duty B300, 6k cycles
J7	NOS	DIN: EN60730: 10A resistive, 250 V, 100k cycles; UL60730: 10A resistive, 240Vac, 100k cycles; Pilot duty B300, 6k cycles
J11	NO6 available only on DIN version	8A: EN60730: 5A resistive, 250Vac, 100k cycles; 5(4), 250Vac, 100k cycles; 4(2), 250Vac, 100k cycles
		UL60730: 10A resistive, 250Vac, 100k cycles; 2FLA, 12LRA, 250Vac, 30k cycles
		5A: EN60730: 5A resistive, 250Vac, 50k cycles; 4(1), 230Vac, 100k cycles; 3(1), 230Vac, 100k cycles
		UL60730: 5A resistive, 250Vac, 30k cycles; 1FLA, 6LRA, 250Vac, 30k cycles; Pilot Duty C300, 30k cycles
		SSR: J11 solid state relay, 0.4A 100-240Vac 50/60Hz

(*):

- 3-relay version connector J6, PANEL and DIN: R1+R2+R3 cannot excee 15 A max.
- 4-relay version connector J6, PANEL and DIN: R1+R2+R3+R4 cannot exceed 10 A max.

Note: in compliance with IEC/EN60079-15, in the 4-relay DIN version (connector J6), R1+R2+R3+R4 cannot exceed 8 A max.

Emergency power supply

J10	Ultracap module (opt., only available on the DIN versions)	13 Vdc +/-10%
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Probe and terminal power supply

5V	5 Vdc ± 2% to power the 0 to 5 V ratiometric probes. Maximum current delivered: 35 mA protected against short-circuits
+V	8-11 V to power the 4-20 mA current probes. Max current delivered: 80 mA protected against short-circuits
VL	not used

Cable lengths

Analogue inputs/outputs, digital inputs/ outputs, probe power	<10m
Valve	< 2 m, < 9m with shielded cable
BMS and Fieldbus serial cables	<500m with shielded cable

Conformity

Safety	UL/IEC	EN/UL60730-1, EN/UL60335-1
EMC	CE	EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4
	Red	EN301489-1/EN301489-17, EN300328
	FCC	Contains FCC ID: WAP2001
	IC	Contains IC: 7922A-2001
		ID: 03780-21-05684
Radio	ANATEL	<i>Este equipamento não tem direito à proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados.</i>

APPLICATIONS WITH FLAMMABLE REFRIGERANT GAS (*)

About the use of this product (except SSR versions) with A3, A2 or A2L flammable refrigerants, it has been evaluated and judged compliant with the following requirements:

- Annex CC of IEC 60335-2-24:2010 referenced by clause 22.109 and Annex BB of IEC 60335-2-89:2019 referenced by clause 22.113; 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 60335-2-24:2010 (clauses 22.110)
- IEC 60335-2-40:2018 (clauses 22.116, 22.117)
- IEC 60335-2-89:2019 (clauses 22.114)

Surface temperatures of all components and parts have been measured and verified during the tests required by IEC 60335 cl. 11 and 19, and found not exceeding 268 °C.

Models with SSR comply with standard IEC 60335-2-40:2018 in case of using A2L refrigerants (e.g. R32); in detail, electrical components that could be a source of ignition under normal operation are in compliance with Annex JJ, and the maximum surface temperature of all components does not exceed 268°C, during normal operation.

Acceptability of these controllers in end use application where flammable refrigerant is used shall be reviewed and judged in the end use application.

(*) *Applicable to the products with revision above 1.5xx.*

MOBILE DEVICE

The “Applica” app can be used to configure the controller from a mobile device (smartphone, tablet), via NFC (Near Field Communication) or BLE (Bluetooth Low Energy). Procedure (modify parameters):

- download the CAREL “Applica” app for Android devices from Google Play Store;
- (on the mobile device) activate NFC/Bluetooth communication and data connection;
- open Applica;

Using NFC

- move the mobile device near to the user terminal, maximum distance 10 mm, so as to recognise the configuration (Fig. 2 - **ref. A**);
- enter the password (*);
- set the parameters as needed;
- move the mobile device near to the user terminal again to upload the configuration parameters (Fig. 2 - **ref. B**);

Using BLE

- move the mobile device near to the user terminal, maximum distance 10 m, to recognise the configuration (Fig. 2 - **ref. C**);

- enter the password (*);

- set the parameters as needed.

(*) pre-assigned by the chiller manufacturer to allow maintenance only by authorised service technicians.

⚠ Important: during the first connection, Applica aligns itself with the software version on the controller via a cloud connection; this means a mobile data connection is needed at least for this first connection.

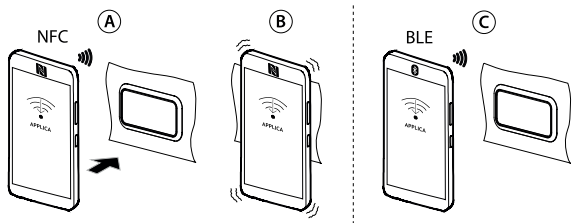


Fig. 2

CODING STRUCTURE FOR APPLICATION CONTROL UNIT (ACU)						
ACU Family prefix	**	**	**	**	**	**
Pos.	Meaning	Option	Description			
6-7	Housing (Mechanics)	P0	Panel housing 71x29mm white (RAL 9003)			
		P1	Panel housing 71x29mm grey (RAL 7035)			
		P2	Panel housing 71x29mm white (RAL 9003) w/o crystal frame			
		P3	Panel housing 71x29mm grey (RAL 7035) w/o crystal frame			
		D0	DIN 4m housing white (RAL 9003)			
		D1	DIN 4m housing grey (RAL 7035)			
		L0	24 Vac/Vdc + 1x SPST relay 5A			
		L1	24 Vac/Vdc + 1x SPST relay 8A			
		L2	24 Vac/Vdc + 1x SSR			
		L3	24 Vac/Vdc + 1x SPST relay 5A +EVD			
8-9	Power board	L4	24 Vac/Vdc + 1x SPST relay 8A +EVD			
		L5	24 Vac/Vdc + 1x SSR + EVD			
		U0	115/230 Vac			
		U1	115/230 Vac + 1NTC x 1x0-5Vr/NTC			
		U2	115/230 Vac + 1NTC x 1x0-5Vr/NTC+EVD			
12-13	Distinctive board	X0	Full 24V 4x SPST relays 16/8/5A +5A			
		X3	Full 24V w/o 1x SPST relay 5A			
		C0	Full 24V 5x SPST relays 5A			
		Y0	2x 0-10V/PWM, 5x relè SPST 5 A, only DIN			
14-15	User interface board.	00	No User interface board			
		01	Single line RED			
		02	Single line WHITE			
		03	Single line WHITE +BLE			
		04	Double line WHITE-AMBER			
		05	Double line WHITE-AMBER +BLE			

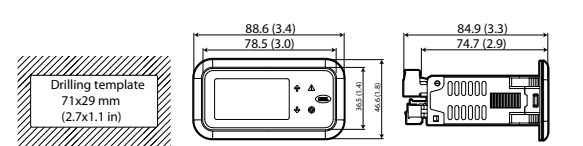
FUNCTION/TERMINAL CONNECTION FOR POWER AND DISTINCTIVE BOARD

Board	Opt.	Description	Relay conn.	Probe D. I. A. O. Conn.	Serial Conn.	EVD conn. (Din vers.)	SSR conn. Power
Power (only Din vers.)	L0	24 Vac/Vdc + 1x SPST relay 5A	J11	J9	-	-	-
	L1	24 Vac/Vdc + 1x SPST relay 8A	J11	J9	-	-	-
	L2	24 Vac/Vdc + 1x SSR	-	J9	-	-	J11
	L3	24 Vac/Vdc + 1x SPST relay 5A +EVD	J11	J9	-	J14	-
	L4	24 Vac/Vdc + 1x SPST relay 8A +EVD	J11	J9	-	J14	-
	L5	24 Vac/Vdc + 1x SSR + EVD	-	J9	-	J14	J11
	U0	115/230 Vac	-	J9	-	-	-
	U1	115/230 Vac + 1NTC x 1x0-5Vr/NTC	-	J9	-	-	-
	U2	115/230 Vac + 1NTC x 1x0-5Vr/NTC+EVD	-	J9	-	J14	-
	X0	Full 24V 4x SPST relays 16/8/5A +5A	J6/J7	-	-	-	-
Distinctive	X3	Full 24V w/o 1x SPST relay 5A	J6/J7	-	-	-	-
	C0	Full 24V 5x SPST relays 5A	J6/J7	-	-	-	-
	Y0	2x 0-10V/PWM 5x SPST relays 5A	J6/J7	J12	-	-	-
Core	All		-	J2/J3	J4/J5	-	

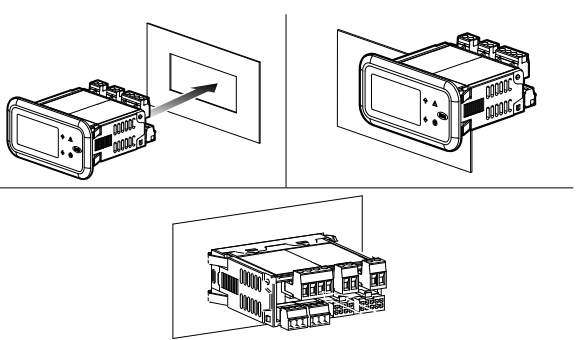
MODELLI E OPZIONI / MODELS AND OPTIONS		ITA	ENG
TIPO MODELLO / MODEL TYPE			
Model type	Description		
ACU4	PANEL 4 relays + NFC		
ACU4B	PANEL 4 relays + NFC/BLE		
ACU5	PANEL 5 relays + NFC		
ACU5B	PANEL 5 relays + NFC/BLE		
ACUD4L	DIN 4 relays 24V		
ACUD4LN	DIN 4 relays 24V + NFC		
ACUD4LB	DIN 4 relays 24V + NFC/BLE		
ACUD5L	DIN 5 relays 24V		
ACUD5LN	DIN 5 relays 24V + NFC		
ACUD5LB	DIN 5 relays 24V + NFC/BLE		
ACUD5YL	DIN 5 relays + 2xAO 24V		
ACUD5YLN	DIN 5 relays + 2xAO 24V + NFC		
ACUD5YLB	DIN 5 relays + 2xAO 24V + NFC/BLE		
ACUD4H	DIN 4 relays 230V		
ACUD4HN	DIN 4 relays 230V + NFC		
ACUD4HB	DIN 4 relays 230V + NFC/BLE		
ACUD5H	DIN 5 relays 230V		
ACUD5HN	DIN 5 relays 230V + NFC		
ACUD5HB	DIN 5 relays 230V + NFC/BLE		
ACUD5YH	DIN 5 relays + 2xAO 230V		
ACUD5YHN	DIN 5 relays + 2xAO 230V + NFC		
ACUD5YHB	DIN 5 relays + 2xAO 230V + NFC/BLE		

MODELLO A PANNELLO / PANEL MOUNTING MODEL

Dimensioni / Dimensions - mm (in)



Montaggio / Mounting



Inserire il controllo nell'apertura, premere leggermente sulle alette di ancoraggio laterali e quindi sul frontalino fino a fine corsa (le alette di ancoraggio laterali si piegano, i dentini aderiscono e agganciano il controllo al pannello).

⚠ Attenzione: il grado di protezione frontale IP65 è garantito solo se sono soddisfatte le condizioni:

- deviazione massima del rettangolo di foratura dalla superficie piana: ≤ 0,5 mm;
- spessore della lamiera del quadro elettrico: 0.8 ...2 mm;
- rugosità max della superficie dove è applicata la guarnizione: ≤ 120 µm.

⚙ Nota: lo spessore della lamiera (o del materiale) del quadro elettrico deve essere adeguato per garantire un montaggio sicuro e stabile del prodotto.

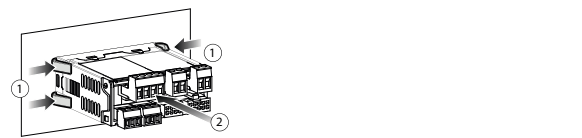
Place the controller in the opening, press lightly on the side tabs and then on the front until fully inserted (the side tabs will bend, and the catches will attach the controller to the panel).

⚠ Important: IP65 front protection is guaranteed only if the following conditions are met:

- maximum deviation of the rectangular opening from flat surface: ≤ 0.5 mm;
- thickness of the electrical panel sheet metal: 0.8-2 mm;
- maximum roughness of the surface where the gasket is applied: ≤ 120 µm.

⚙ Note: the thickness of the sheet metal (or material) used to make the electrical panel must be adequate to ensure safe and stable mounting of the product.

Smontaggio /Disassembly



Aprire il quadro elettrico e dal retro premere sulle alette di ancoraggio e quindi sul controllo per estrarlo.

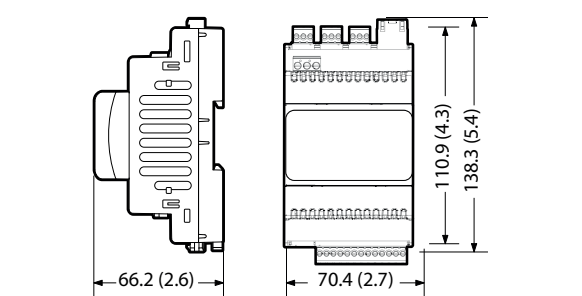
⚠ Attenzione: L'operazione non richiede l'utilizzo di cacciavite o altri utensili.

Open the electrical panel from the rear and press the anchoring tabs and then the controller to remove it.

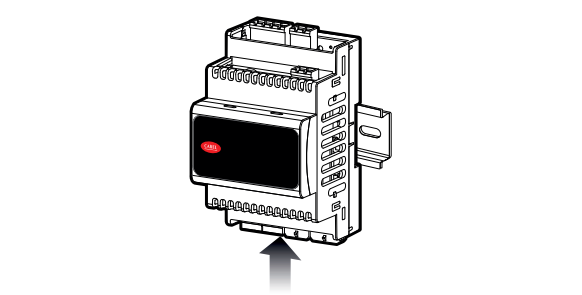
⚠ Important: The operation does not require the use of a screwdriver or other tools.

MODELLO SU GUIDA DIN / DIN RAIL MOUNTING

Dimensioni / Dimensions-mm(in)

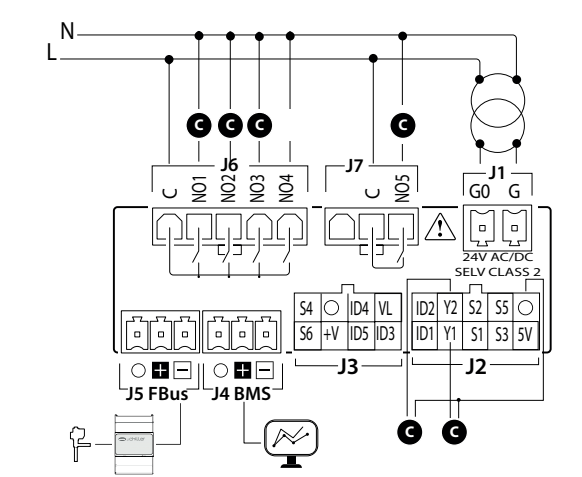


Montaggio / Mounting

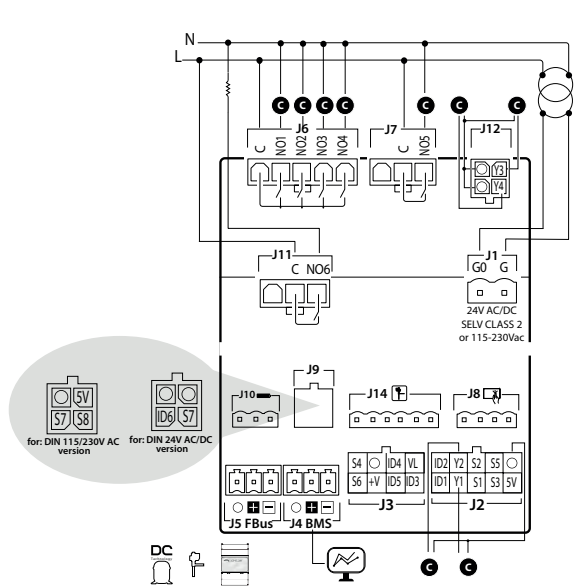


SCHEMI DI COLLEGAMENTO / WIRING CONNECTION

Collegamento: mod. a pannello / Connection: panel mounting

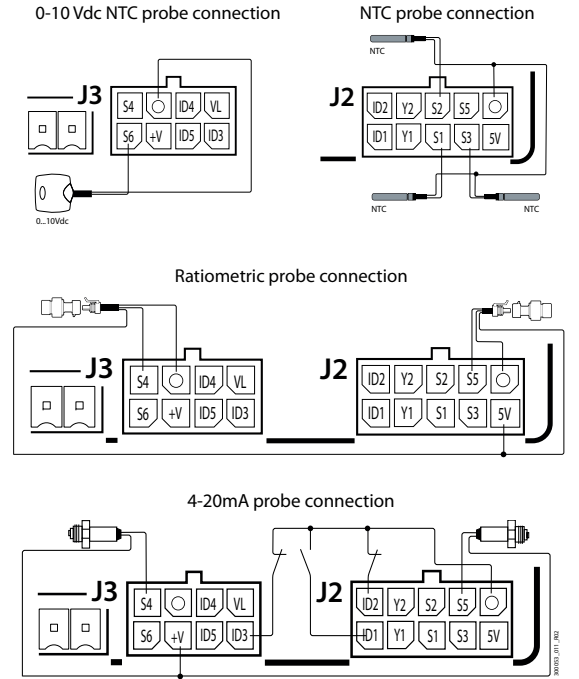


Collegamento: mod. a guida DIN / Connection: DIN rail mounting



Configurabile / Configurable

Collegamento sonde (per tutti i mod.) / Probe connection (all mod.)



Note: ○ = GND

AVVERTENZA CABLAGGI / WIRINGS CAUTION

Montaggio a GUIDA DIN / DIN RAIL mounting

Separare i cavi delle uscite digitali da quelli delle uscte analogiche. / Separate the digital outputs wirings from the analog outputs wirings.

