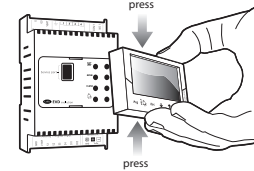


# EVD\*, EVDIS\* - EVD evolution - Driver per valvola di espansione elettronica e display grafico/ Electronic expansion valve driver and graphic display



## Montaggio scheda display Display board mounting



## Compatibilità refrigeranti Refrigerant compatibility

R22; R134a; R404A; R407C; R410A; R507A; R290; R600; R600a; R717; R744; R728; R1270; R417A; R422D; R413A; R422A; R423A; R407A; R427A; R245Fa; R407F; R32; HTR01; HTR02; R23; R1234yf; R1234ze; R455A; R170; R442A; R447A; R448A; R449A; R450A; R452A; R508B; R452B; R513A; R454B; R458A

## Tabella codici / Table of product codes

| EVD evolution                                                                                                               |                                                              | display (accessorio/accessory)           |                                              |
|-----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|------------------------------------------|----------------------------------------------|
| code                                                                                                                        | description                                                  | code                                     | description                                  |
| EVD0000E00                                                                                                                  | EVD Evolution universal (tLAN)                               | EVDIS00CN0                               | Display (Chinese)                            |
| EVD0000E01                                                                                                                  | EVD Evolution universal (tLAN), 10 pz* (pcs)                 | EVDIS00CZ0                               | Display (Czech)                              |
| EVD0000E10                                                                                                                  | EVD Evolution universal (pLAN)                               | EVDIS00DE0                               | Display (German)                             |
| EVD0000E11                                                                                                                  | EVD Evolution universal (pLAN), 10 pz* (pcs)                 | EVDIS00EN0                               | Display (English)                            |
| EVD0000E20                                                                                                                  | EVD Evolution universal (RS485/Modbus*)                      | EVDIS00ES0                               | Display (Spanish)                            |
| EVD0000E21                                                                                                                  | EVD Evolution universal (RS485/Modbus*), 10 pz* (pcs)        | EVDIS00FR0                               | Display (French)                             |
| EVD0000E30                                                                                                                  | EVD Evolution for CAREL valves (tLAN)                        | EVDIS00IT0                               | Display (Italian)                            |
| EVD0000E31                                                                                                                  | EVD Evolution for CAREL valves (tLAN), 10 pz* (pcs)          | EVDIS00JP0                               | Display (Japanese)                           |
| EVD0000E40                                                                                                                  | EVD Evolution for CAREL valves (pLAN)                        | EVDIS00PL0                               | Display (Polish)                             |
| EVD0000E41                                                                                                                  | EVD Evolution for CAREL valves (pLAN), 10 pz* (pcs)          | EVDIS00PT0                               | Display (Portuguese)                         |
| EVD0000E50                                                                                                                  | EVD Evolution for CAREL valves (RS485/Modbus*)               | EVDIS00RU0                               | Display (Russian)                            |
| EVD0000E51                                                                                                                  | EVD Evolution for CAREL valves (RS485/Modbus*), 10 pz* (pcs) | EVDIS00SE0                               | Display (Swedish)                            |
| EVD0002E10                                                                                                                  | EVD Evolution universal optoisolated (pLAN)                  | <b>altri accessori/other accessories</b> |                                              |
| EVD0002E20                                                                                                                  | EVD Evolution universal optoisolated (RS485/Modbus*)         |                                          |                                              |
| (*) La confezione con imballo multiplo non è fornita di connettori / The multiple packages are not supplied with connectors |                                                              | EVDCON0021                               | Kit connettori 10 pz* (connector kit 10 pcs) |
|                                                                                                                             |                                                              | EVCN00E0                                 | Convertitore USB/tLAN (USB/tLAN converter)   |
|                                                                                                                             |                                                              | TRADRFE240                               | trasformatore 35VA (35VA transformer)        |
|                                                                                                                             |                                                              | EVD0000UC0                               | Modulo Ultracap (Ultracap module)            |

(\*) La confezione con imballo multiplo non è fornita di connettori / The multiple packages are not supplied with connectors

## Tabella compatibilità valvole / Table of valve compatibility

|         | Model                                                                                                                              |
|---------|------------------------------------------------------------------------------------------------------------------------------------|
| CAREL   | E*V****                                                                                                                            |
| ALCO    | EX4; EX5; EX6; EX7; EX8 330 Hz (consigliato da CAREL/supported by CAREL); EX8 500 Hz (da specifiche ALCO/from ALCO specifications) |
| SPORLAN | SEI 0.5-11; SER 1.5-20; SEI 30; SEI 50; SEH 100; SEH175                                                                            |
| Danfoss | ETS 12.5-25B; ETS 50B; ETS 100B; ETS 250; ETS 400; CCM 10-20-30-40; CCMT 2-4-8-16-24-30-42; Colibri                                |
| CAREL   | Due EXV CAREL collegate insieme / Two CAREL ExV connected together                                                                 |
| SPORLAN | SER(I) G, J, K                                                                                                                     |
| CAREL   | Eielettori / Ejectors E2J17AS1N0; E2J23AT1N0; E3J26AT2N0; E3J33AU2N0; E3J39AV3N0; E6J50AV3N0                                       |

**ITA** Per ulteriori informazioni, consultare la "Guida al sistema EEV" (codice +030220810) e il manuale d'uso (codice +03000005IT) disponibili sul sito [www.carel.com](http://www.carel.com), alla sezione "Documentazione".

| LED    | accesso               | spento                | lampeggiante            |
|--------|-----------------------|-----------------------|-------------------------|
| net    | collegamento presente | collegamento assente  | errore di comunicazione |
| open   | apertura valvola      | -                     | prima configurazione    |
| close  | chiusura valvola      | -                     | prima configurazione    |
| alarm  | allarme attivo        | -                     | -                       |
| driver | driver alimentato     | driver non alimentato | alimentazione errata    |

**Nota:** se i LED open e close lampeggiano contemporaneamente, deve essere eseguita la procedura di prima messa in servizio.

## Tastiera scheda display

| tasto | funzione                                                                                                                                                                                    |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Prg   | presenta direttamente la maschera per l'immissione della password per l'accesso al modo di programmazione                                                                                   |
| Esc   | • esce dalla modalità di programmazione (assistenza, costruttore) e visualizzazione; • dopo la modifica di un parametro esce senza salvare la modifica.                                     |
| HELP  | • se in stato di allarme permette di visualizzare la coda allarmi; • nel livello "costruttore", durante lo scorrimento dei parametri, fa apparire le maschere di spiegazioni relative/help. |

**(ENG)** For further information, see the "EEV system guide" (code +030220810) and the user manual (code +03000005EN) available at [www.carel.com](http://www.carel.com), under the "Literature" section.

| LED    | on              | off                | flashing            |
|--------|-----------------|--------------------|---------------------|
| net    | connection made | no connection      | communication error |
| open   | valve opening   | -                  | first configuration |
| close  | valve closing   | -                  | first configuration |
| alarm  | alarm active    | -                  | -                   |
| driver | driver powered  | driver not powered | wrong power supply  |

**Note:** if open and close LEDs blink at the same time, the commissioning procedure has to be executed.

## Display keypad

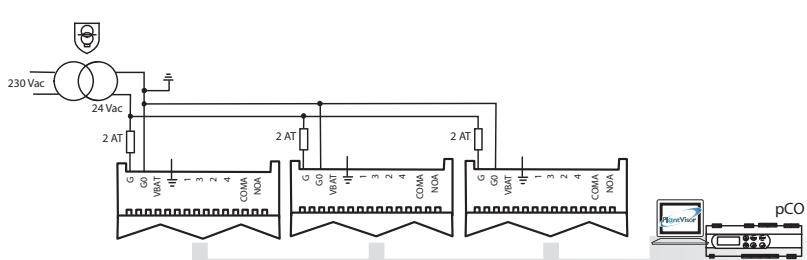
| key  | function                                                                                                                        |
|------|---------------------------------------------------------------------------------------------------------------------------------|
| Prg  | goes directly to the screen for entering the password to access programming mode                                                |
| Esc  | • exits programming mode (service, manufacturer) and display; • after setting a parameter, exits without saving the change.     |
| HELP | • in alarm mode displays the alarm queue; • in the "manufacturer" level, when scrolling the parameters, shows the help screens. |

## Modalità di connessioni e alimentazione tLAN, pLAN e RS485

### tLAN, pLAN and RS485 connections and power supply

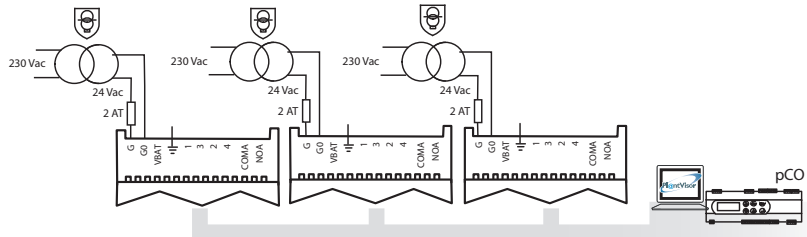
Caso 1: applicazione di più driver collegati in rete, all'interno dello stesso quadro elettrico, alimentati dallo stesso trasformatore

Case 1: a series of drivers is connected in a network, installed in the same electrical panel, powered by the same transformer



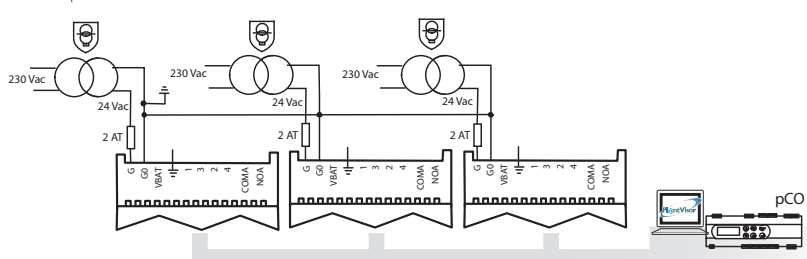
Caso 2: applicazione di più driver collegati in rete, all'interno di quadri elettrici diversi, alimentati da trasformatori diversi (G0 non connesso a terra).

Case 2: a series of drivers is connected in a network, installed in electrical different panels, powered by different transformers (G0 not connected to earth).



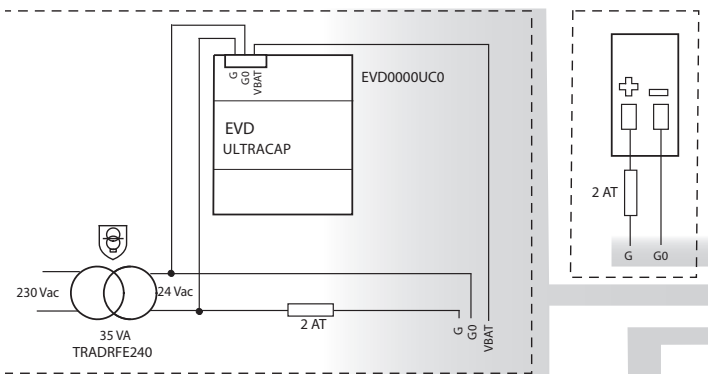
Caso 3: applicazione di più driver collegati in rete, all'interno di quadri elettrici diversi, alimentati da trasformatori diversi con un unico punto di messa a terra.

Case 3: a series of drivers is connected in a network, installed in electrical different panels, powered by different transformers with just one earth point.



## CASO 1/ CASE 1:

alimentazione 230 Vac con modulo di emergenza/  
230 Vac power supply with emergency module

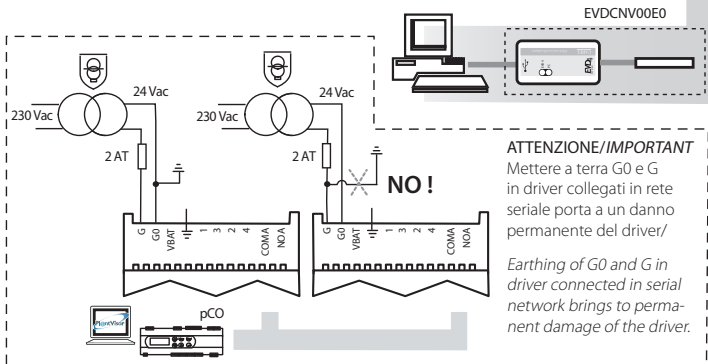


## CASO 2 / CASE 2

alimentazione 230 Vac senza modulo di emergenza/ 230 Vac power supply without emergency module



(\*) In abbinamento con valvole ALCO EX7 o EX8 utilizzare un trasformatore da 35 VA TRADRFE240 / For ALCO EX7 or EX8 use a 35 VA TRADRFE240 transformer



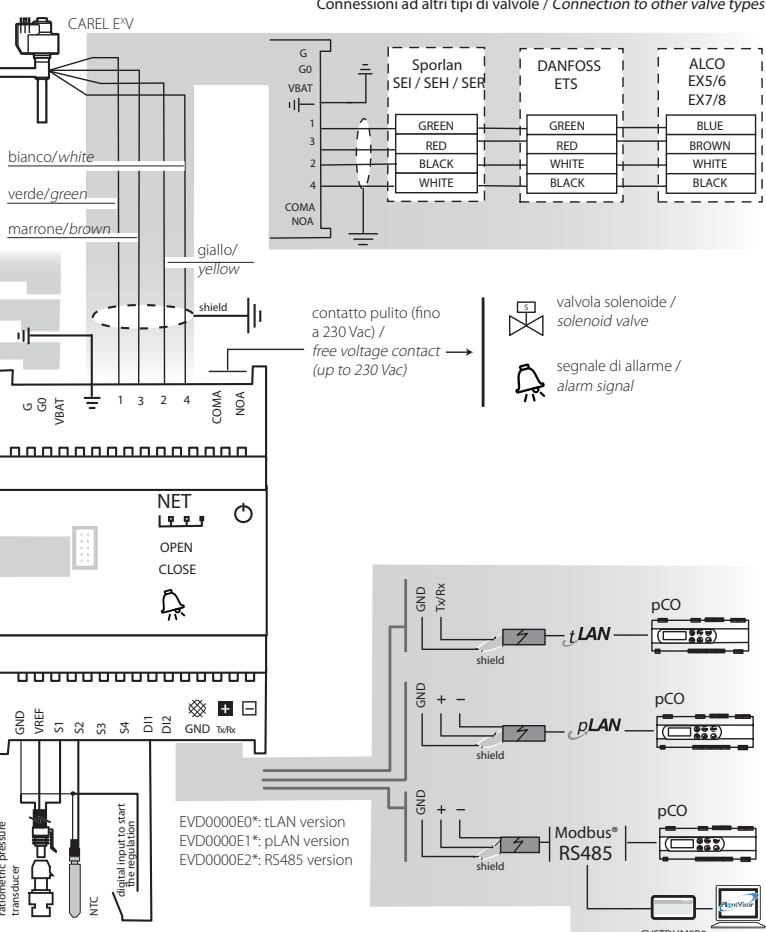
**ATTENZIONE/IMPORTANT**  
Mettere a terra G0 e G in driver collegati in rete porta a un danno permanente del driver/  
Earthing of G0 and G in driver connected in serial network brings to permanent damage of the driver.

## CASO 3/ CASE 3:

alimentazione 24 Vdc/  
24 Vdc power supply

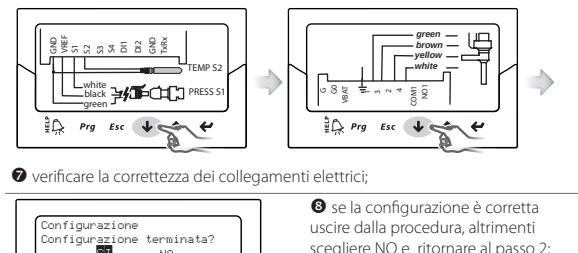
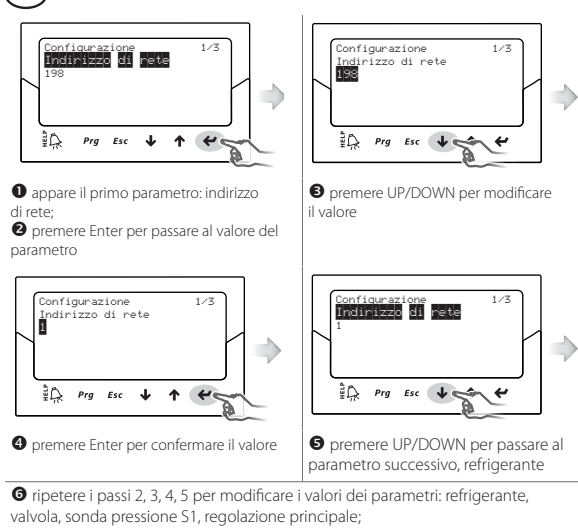
## Schema elettrico per il controllo del surriscaldamento / Wiring diagram for superheat control

Conessioni ad altri tipi di valvole / Connection to other valve types

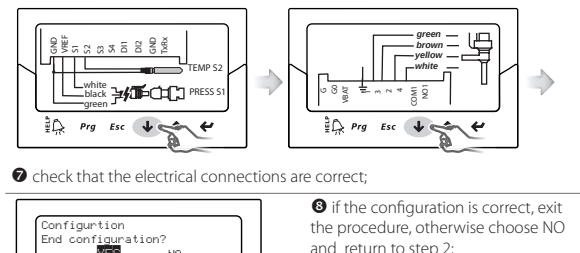
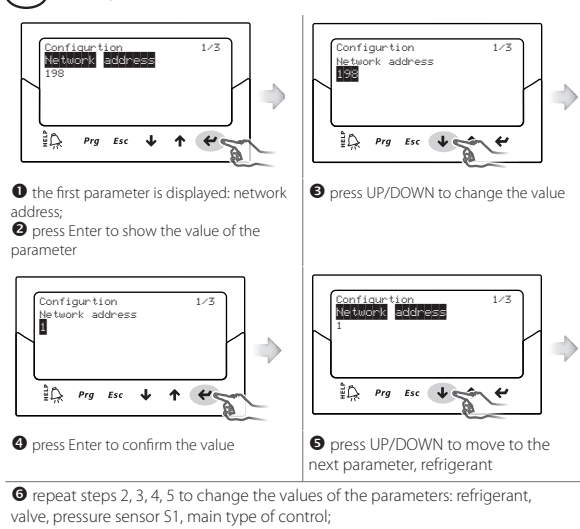


**NOTA 1:** utilizzare un trasformatore di sicurezza in classe 2, adeguatamente protetto da cortocircuito e sovraccarico / Use a class 2 safety transformer, suitably protected against short-circuits and voltage surges

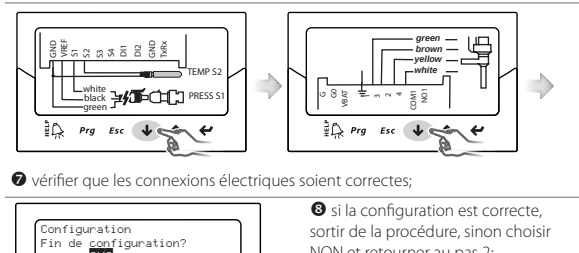
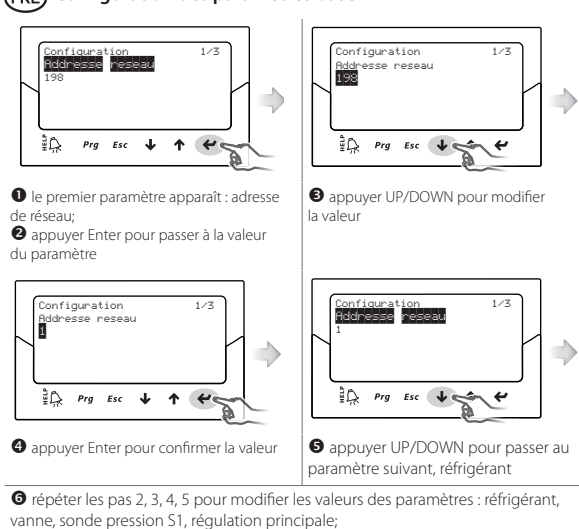
## ITA Impostazione dei parametri base



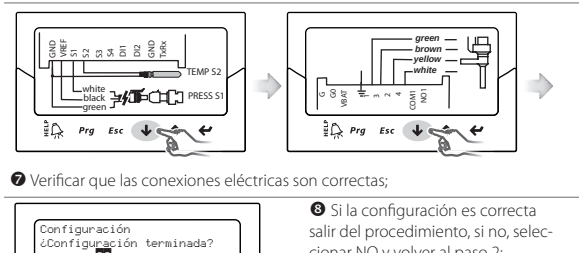
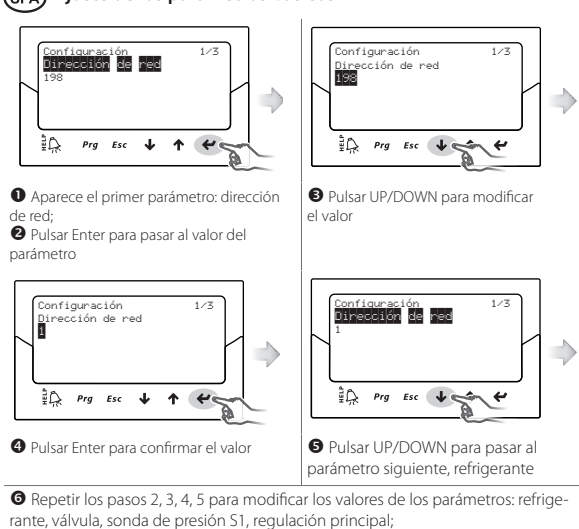
## ENG Setting the basic parameters



## FRE Configuration des paramètres base



## SPA Ajuste de los parámetros básicos



**(ITA)** Il driver EVD evolution per valvola di espansione elettronica a motore passo-passo bipolare è un controllore PID per la regolazione del surriscaldamento del refrigerante in un circuito frigorifero. Tramite il display (accessorio) è possibile eseguire la messa in servizio del driver, ma non è necessario per il funzionamento dello stesso. La configurazione del driver può essere effettuata anche tramite computer, utilizzando il software CAREL VPM (Visual Parameter Manager), disponibile sul sito <http://ksa.carel.com>. Il driver può essere collegato ad un controllore CAREL della serie pCO via seriale, oppure può essere connesso ad un supervisore CAREL PlantVisorPRO.

**⚠Avvertenze per l'installazione:** 1. effettuare tutte le operazioni di installazione e manutenzione con driver non alimentato; 2. evitare cortocircuiti tra i pin G, G0 e Vbat.

- \* EVD EVO è un controllo da incorporare nell'apparecchiatura finale, non usare per montaggio a muro.
- \* DIN VDE 0100: Deve essere garantita la separazione protettiva tra i circuiti SELV e gli altri circuiti. Per prevenire la violazione della separazione di protezione (tra i circuiti SELV e gli altri circuiti) è necessario provvedere ad un fissaggio aggiuntivo vicino alle terminazioni. Questo fissaggio aggiuntivo deve serrare l'isolante e non i conduttori.

**Ingressi e uscite:** Si raccomanda di tenere separati i cavi degli ingressi/uscite e del relè dal cavo di alimentazione della valvola. Tutti gli ingressi analogici, gli I/O digitali e le seriali (non optoisolate) sono riferiti alla massa GND, quindi l'applicazione, anche temporanea, di tensioni superiori a ±5 V a questi collegamenti può causare un danno irreversibile al driver. Essendo GND la massa comune per tutti gli ingressi è preferibile replicarla in morsetteria.

**Prima messa in servizio:** Alimentare il driver, il display si illuminerà e in caso di prima messa in servizio, il display guida l'installatore nell'immissione dei 4 parametri necessari all'avvio: tipo refrigerante, tipo valvola, tipo sonda di pressione tipo di regolazione principale (indiriziarlo di rete se necessario). Nel caso in cui EVD evolution e display abbiano versioni firmware diverse, apparirà un messaggio di avvertimento. Per la procedura di aggiornamento firmware riferirsi al manuale d'uso. Finchè la procedura di configurazione non è terminata il driver non può funzionare.

**Procedure di UPLOAD, DOWNLOAD e RESET parametri (display)**

**⚠**Le procedure devono essere eseguite con il/i driver alimentati. NON rimuovere il display dal driver durante le procedure di UPLOAD, DOWNLOAD, RESET.

- premere contemporaneamente i tasti Help e Enter per 5 s;
- si entra in un menu a scelta multipla, selezionare con UP/DOWN la procedura desiderata;
- confermare con ENTER.

**UPLOAD:** il display memorizza tutti i valori dei parametri del driver 1 (origine).

**DOWNLOAD:** il display copia tutti i valori dei parametri nel driver 2 (destinazione); è inibito il download dei parametri se il driver di origine e il driver di destinazione hanno firmware incompatibili.

**RESET:** tutti i parametri del driver sono riportati ai valori di fabbrica. Vedere la tabella parametri sul manuale d'uso del driver.

|                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Caratteristiche tecniche</b>                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Alimentazione (Lmax=5 m)                                                                                      | 24 Vdc (+10/-15%) da proteggere con fusibile esterno di tipo T da 2 A <p>24 Vac (+10/-15%) 50/60 Hz da proteggere con fusibile esterno di tipo T da 2 A. Utilizzare un trasformatore dedicato (max 100 VA) in classe II.</p> 16,2 W con valvole ALCO EX7/EX8; 9,2 W con tutte le altre valvole 35 VA con EVD0000UCO; 35 VA con valvole ALCO EX7/EX8; 20 VA senza EVD0000UCO e con tutte le altre valvole                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Potenza di assorbimento                                                                                       | 22Vdc+/-5%. (Se installato il modulo opzionale EVD0000UCO), Lmax= 5 m <p>rinforzato; 6 mm in aria, 8 superficiali; 3750 V isolamento</p> cavo schermato a 4 poli CAREL codice E2VCAB5*00, oppure cavo schermato a 4 poli AWG22 Lmax =10 m, oppure cavo schermato a 4 poli AWG14 Lmax= 50 m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Alimentazione di emergenza Isolam. tra uscita relè e altre uscite Collegamento motore                         | Ingresso digitale da azionare con contatto pulito o transistor verso GND. Corrente di chiusura 5mA; Lmax< 30 m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Collegamento ingressi digitali                                                                                | Ingresso digitale da azionare con contatto pulito o transistor verso GND.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Sonde (Lmax=10 m; inferiore a 30 m con cavo schermato)                                                        | S1 sonda pressione razimetrica (0...5 V); • risoluzione 0,1 <span> </span> % fs; • errore di misura: 2% fs massimo; 1% tipico <p>sonda pressione elettronica (4...20 mA): • risoluzione 0,5<span> </span>% fs; • errore di misura: 8% fs massimo; 7% tipico</p> <p>sonda pressione razimetrica combinata (0...5V): • risoluzione 0,1<span> </span>% fs; • errore di misura: 2<span> </span>% fs massimo; 1% tipico</p> <p>Ingresso 4...20 mA (max. 24 mA): • risoluzione 0,5<span> </span>% fs; • errore di misura: 8<span> </span>% fs massimo; 7% tipico</p> <p>S2 NTC bassa temperatura<span> </span>: • 10 kΩ a 25<span> </span>°C, -50T90<span> </span>°C; • errore di misura: 1°C nel range -50T50<span> </span>°C; 3° C nel range +50T90<span> </span>°C</p> <p>NTC alta temperatura: • 50 kΩ a 25<span> </span>°C, -40T150<span> </span>°C; • errore di misura: 1,5<span> </span>°C nel range -20T115<span> </span>°C, 4° C nel range esterno a -20T115<span> </span>°C</p> <p>NTC combinata: • 10 kΩ a 25<span> </span>°C, -40T120<span> </span>°C; • errore di misura: 1°C nel range -40T50<span> </span>°C; 3° C nel range +50T90<span> </span>°C</p> <p>Ingresso 0...10 V (max 12 V): • risoluzione 0,1% fs; • errore di misura: 9% fs massimo; 8% tipico</p> <p>S3 sonda pressione razimetrica (0...5 V): • risoluzione 0,1% fs; • errore di misura: 2% fs massimo; 1% tipico</p> <p>sonda pressione elettronica (4...20 mA): • risoluzione 0,5% fs; • errore di misura: 8% fs massimo; 7% tipico</p> <p>sonda pressione elettronica (4...20 mA) remota. Numero massimo di controlli connettilibili=5</p> <p>sonda pressione razimetrica combinata (0...5V): • risoluzione 0,1<span> </span>% fs, • errore di misura: 2<span> </span>% fs massimo; 1% tipico</p> <p>S4 NTC bassa temperatura<span> </span>: • 10 kΩ a 25<span> </span>°C, -50T105<span> </span>°C; • errore di misura: 1<span> </span>°C nel range -50T50<span> </span>°C; 3°C nel range 50T90<span> </span>°C</p> <p>NTC alta temperatura: • 50 kΩ a 25<span> </span>°C, -40T150<span> </span>°C; • errore di misura: 1,5<span> </span>°C nel range -20T115<span> </span>°C; 4° C nel range esterno a -20T115<span> </span>°C</p> <p>NTC combinata: • 10 kΩ a 25<span> </span>°C, -40T120<span> </span>°C; • errore di misura 1<span> </span>°C nel range -40T50<span> </span>°C; 3° C nel range +50T90<span> </span>°C</p> |
| Uscita relè                                                                                                   | contatto normalmente aperto; 5 A, 250 Vac carico resistivo; 2 A, 250 Vac carico induttivo (PF=0,4); Lmax=50 m; UL: 250 Vac, 5 A res., 1A FLA, 6 A LRA, D300 pilot duty, 30.000 cicli; VDE: 1(1)A PF=0,6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Alimentazione sonde attive (V <sub>acc</sub> ) Collegamento seriale RS485 Collegamento tLAN Collegamento pLAN | uscita programmabile <span> </span> : +5 Vdc+/-2% o 12 Vdc+/-10% <p>Lmax= 1000 m, cavo schermato</p> <p>Lmax= 30 m, cavo schermato</p> <p>Lmax= 500 m, cavo schermato</p> <p>Assembly</p> <p>su guida DIN</p> <p>Connettori</p> <p>estrailibi, sezione cavi 0,5...2,5 mm² (12...20 AWG)</p> <p>Dimensioni</p> <p>LxHxW= 70x110x60 mm</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Condizioni di funzionamento                                                                                   | -25T60°C (non usare EVDIS* sotto -20°C), 0T60°C con codici EVD9*; <90% U.R. non condensante                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Condizioni di immagazzinamento                                                                                | -35T60°C (non stoccare EVDIS* sotto -30°C), umidità 90% U.R. non cond.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Grado di protezione                                                                                           | IP20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Inquinamento ambientale                                                                                       | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Resistenza al calore e al fuoco                                                                               | Categoria D                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Immunità contro le sovratensioni                                                                              | Classe II                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Tensione impulsiva nominale                                                                                   | 2500V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Tipo di azione relè                                                                                           | 1C micro interruzione del funzionamento                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Classe di isolamento                                                                                          | II                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Classe e struttura del software                                                                               | A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Conformità                                                                                                    | Sicurezza elettrica: EN 60730-1, EN 61010-1; UL873, VDE 0631-1 <p>Compatibilità elettromagnetica: EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4; EN61000-3-2, EN55014-1, EN55014-2, EN61000-3-3.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

**(ENG)** The EVD evolution driver for electronic expansion valves with two-pole stepper motor is a PID controller that manages the superheat of the refrigerant in a refrigerant circuit. The display (accessory) can be used for setting up the driver, but is not required for operation. The driver can also be configured from a computer, using the CAREL VPM software (Visual Parameter Manager), available at <http://ksa.carel.com>. The driver can be connected to a CAREL pCO series controller via serial link, or can be connected to a CAREL PlantVisorPRO supervisor.

**⚠Installation warnings:** 1. all installation and maintenance operations must be performed with the driver powered down; 2. avoid short-circuits between pins G, G0 & Vbat.

- \* EVD EVO is a control to be incorporated in the end equipment, do not use for flush mount.
- \* DIN VDE 0100: Protective separation between SELV circuit and other circuits must be guaranteed. To prevent infringement of the protective separation (between SELV circuit to other circuits) an additional fixing has to be provided near to the terminals. This additional fixing shall clamp the insulation and not the conductor"

**Inputs and outputs:** It is recommended to keep the input/output and relay cables separate from the valve power cable. All the analogue inputs, the digital I/Os and the serial ports (not optically isolated) refer to GND, and consequently applying, even temporarily, voltages greater than ±5 V to these connections may cause a irreversible damage to the driver. As GND is the common earth for all the inputs, this should be replicated on the terminal block.

**Commissioning:** Power up the driver, the display will come on and when starting for the first time, will guide the installer through the entry of the 4 parameters required to start operation: type of refrigerant, type of valve, type of pressure sensor, type of main control (and network address if necessary). If the EVD evolution and display have different firmware versions, a warning message will be displayed. To update the firmware see the user manual. The driver cannot operate until the configuration procedure has been completed.

**UPLOAD, DOWNLOAD and RESET parameters procedure (display)**

**⚠**The procedure must be carried out with the driver/drivers connected to the power supply. DO NOT unplug the display from the driver during UPLOAD, DOWNLOAD or RESET procedures.

- press the Help and Enter buttons together for 5 seconds;
- This accesses a multiple choice menu, use UP/DOWN to select the required procedure;
- confirm by pressing ENTER.

**UPLOAD:** the display saves all the values of the parameters from driver 1 (source).

**DOWNLOAD:** the display copies all the values of the parameters to driver 2 (destination); the parameters cannot be downloaded if the firmware on the source and destination drivers is incompatible.

**RESET:** all the driver parameters are returned to the default values. See the table of parameters in the driver user manual.

|                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Technical specifications</b>                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Power supply (Lmax=5 m)                                                                   | 24 Vdc (+10/-15%) to be protected by 2 A external type T fuse. <p>24 Vac (+10/-15%) 50/60 Hz to be protected by 2 A external type T fuse. Use a dedicated class 2 transformer (max 100 VA).</p> 16.2 W with ALCO EX7/EX8 valves; 9.2 W with all other valves 35 VA with EVD0000UCO; 35 VA with ALCO EX7/EX8 valves; 20 VA without EVD0000UCO and with all other valves                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Emergency power supply Insulation between relay output and other outputs Motor connection | 22Vdc+/-5%. (If optional module EVD0000UCO/500 is installed), Lmax= 5 m <p>reinforced; 6 mm in air, 8 mm on surface; 3750 V insulation</p> <p>CAREL 4-wire shielded cable code E2VCAB5*00, or 4-wire shielded cable AWG22 Lmax 10 m, or 4-wire shielded cable AWG14 Lmax 50 m</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Digital input connection                                                                  | Digital input to be activated from free contact or transistor to GND. Closing current 5mA; Lmax< 30 m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Sensors (Lmax=10 m; less than 30 m with shielded cable)                                   | S1 ratiometric pressure sensor (0 to 5 V): • resolution 0.1 <span> </span> % FS; • measur. error: 2% FS max; 1% typical <p>electronic pressure sensor (4 to 20 mA): • resolution 0.5<span> </span>% FS; • measur. error: 8% FS max; 7% typical</p> <p>combined ratiometric pressure sensor (0 to 5 V): • resolution 0.1<span> </span>% FS; • measur. error: 2<span> </span>% FS maximum; 1<span> </span>% typical</p> <p>4 to 20 mA input (max 24 mA): • resol. 0.5<span> </span>% FS; • measur. error: 8% FS max; 7% typical</p> <p>S2 low temperature NTC: • 10kΩ at 25°C, -50T90°C; • measur. error: 1°C in range -50T50°C; 3°C in range +50T90°C</p> <p>high temperature NTC: • 50kΩ at 25°C, -40T150°C; • measur. error: 1.5°C in the range -20T115°C, 4°C in range outside of -20T115°C</p> <p>combined NTC: • 10kΩ at 25°C, -40T120°C; • measur. error: 1°C in range -40T50°C; 3°C in range +50T90°C</p> <p>S3 ratiometric pressure sensor (0 to 5 V): • resol. 0.1<span> </span>% FS; • measur. error: 2% FS max; 1% typical</p> <p>electronic pressure sensor (4 to 20 mA): • resolution 0.5<span> </span>% FS; • measur. error: 8% FS max; 7% typical</p> <p>remote electronic pressure sensor (4 to 20 mA). Max number of controllers connected=5</p> <p>ratiometric pressure sensor combined (0 to 5 V): • resolution 0.1<span> </span>% FS; • measurement error: 2<span> </span>% FS maximum; 1<span> </span>% typical</p> <p>S4 low temperature NTC: • 10kΩ at 25°C, -50T105°C • measur. error: 1°C in range -50T50 °C; 3°C in range 50T90°C</p> <p>high temperature NTC: • 50kΩ at 25°C, -40T150°C; • measur. error: 1.5°C in range -20T115°C 4°C in range outside of -20T115°C</p> <p>combined NTC: • 10kΩ at 25°C, -40T120°C; • measur. error 1°C in range -40T50°C; 3°C in range +50T90°C</p> |
| Relay output                                                                              | normally open contact; 5 A, 250 Vac resistive load; 2 A, 250 Vac inductive load (PF=0,4); Lmax=50 m; UL: 250 Vac, 5 A res., 1A FLA, 6 A LRA, D300 pilot duty, 30,000 cycles; VDE: 1(1) A PF=0,6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Power to active sensors (V <sub>acc</sub> )                                               | programmable output: +5Vdc+/-2% or 12Vdc+/-10%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| RS485 serial connection tLAN connection pLAN connection Assembly                          | Lmax=1000 m, shielded cable <p>Lmax=30 m, shielded cable</p> <p>Lmax=500 m, shielded cable</p> <p>DIN rail</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Connectors Dimensions                                                                     | plug-in, cable size 0.5 to 2.5 mm2 (12 to 20 AWG) <p>LxHxW= 70x110x60 mm</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Operating conditions                                                                      | -25T60°C (don't use EVDIS* under -20°C), 0T60°C with codes EVD9*; <90% U.R. non-condensing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Storage conditions                                                                        | -35T60°C (don't store EVDIS* under -30°C), humidity 90% rH non-condensing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Index of protection                                                                       | IP20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Environmental pollution                                                                   | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Resistance to heat and fire                                                               | Category D                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Immunity against voltage surges                                                           | Class 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Rated impulse voltage                                                                     | 2500V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Type of relay action                                                                      | 1C microswitching                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Class of insulation                                                                       | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Software class and structure                                                              | A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Conformity                                                                                | Electrical safety: EN 60730-1, EN 61010-1, UL873, VDE 0631-1 <p>Electromagnetic compatibility: EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4; EN61000-3-2, EN55014-1, EN55014-2, EN61000-3-3.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

**(FRE)** Le driver EVD evolution pour détendeur électronique à moteur pas-pas bipolaire est un contrôleur PID pour la régulation de la surchauffe du réfrigérant dans un circuit frigorifique. L'afficheur (accessoire) permet d'effectuer la mise en service du driver, mais il n'est pas nécessaire pour le fonctionnement de celui-ci. Le driver peut également être configuré par ordinateur, en utilisant le logiciel CAREL VPM (Visual Parameter Manager), disponible sur le site <http://ksa.carel.com>. Le driver peut être connecté à un contrôleur CAREL de la série pCO via série, ou il peut être connecté à un superviseur CAREL PlantVisorPRO.

**⚠Mises en garde pour l'installation :** 1. effectuer toutes les opérations d'installation et de maintenance avec le driver non alimenté; 2. éviter des courts-circuits entre les pins G, G0 et Vbat.

- \* EVD EVO est un contrôle à intégrer dans l'appareil final, ne pas utiliser pour un montage au mur.
- \* DIN VDE 0100: La séparation de protection entre les circuits SELV et les autres circuits doit être garantie. Pour éviter toute violation de la séparation de protection (entre les circuits SELV et les autres circuits) il est nécessaire d'ajouter une fixation supplémentaire près des embouts. Cette fixation supplémentaire doit serrer l'isolant et non pas les conducteurs.

**Entrées et sorties:** Nous recommandons de séparer les câbles des entrées/sorties et du relais du câble d'alimentation du détendeur. Toutes les entrées analogiques, les I/O digitales et celles sérielles (non optoi-solées) se réfèrent à la masse GND, donc l'application, même temporaire, de tensions supérieures à ±5 V sur ces connexions peut causer un dommage irréversible au driver. Comme GND est la masse commune pour toutes les entrées, il est préférable de la répéter sur la barrette de raccordement.

**Première mise en service:** Alimenter le drive, l'afficheur s'allumera et en cas de première mise en service, l'afficheur guide l'installateur au cours de l'introduction des 4 paramètres nécessaires au démarrage: type de réfrigérant, type de détendeur, type de sonde de pression, type de régulation principale (adresse de réseau si nécessaire). Si le EVD evolution et l'afficheur ont des versions firmware différentes, un message d'avertissement apparaîtra. Au sujet de la procédure de mise à jour firmware, consulter le manuel d'utilisa-tion. Tant que la procédure de configuration n'est pas terminée, le driver ne peut pas fonctionner.

**Procédures d'UPLOAD, DOWNLOAD et RESET paramètres (affichage)**

**⚠**Les procédures doivent être effectuées avec le/s driver/s alimenté/s. NE PAS retirer l'affichage du driver pendant les procédures d'UPLOAD, DOWNLOAD, RESET.

- appuyer simultanément les touches Help et Enter pendant 5 s;
- on entre ainsi dans un menu à choix multiple, sélectionner avec UP/DOWN la procédure souhaitée;
- confirmer avec ENTER.

**UPLOAD:** l'afficheur mémorise toutes les valeurs des paramètres du driver 1 (origine).

**DOWNLOAD:** l'afficheur copie toutes les valeurs des paramètres dans le driver 2 (destination); il est impos-sible d'effectuer le download des paramètres si le driver d'origine et le driver de destination ont des firm-ware incompatibles.

**RESET:** tous les paramètres du driver sont repris aux valeurs d'usine. Voir le tableau paramètres sur le manuel d'utilisation du driver.

|                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
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| <b>Caractéristiques techniques</b>                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Alimentation (Lmax=5 m)                                                                   | 24 Vdc (+10/-15%) à protéger avec fusible externe de type T de 2 A. <p>24 Vac (+10/-15%) 50/60 Hz à protéger avec fusible externe de type T de 2 A. Utiliser un transformateur réservé (max 100 VA) en classe II.</p> 16,2 W avec détendeur ALCO EX7/EX8 <span> </span> ; 9,2 W avec tous les autres détendeurs 35 VA avec EVD0000UCO; 34 VA avec détendeur ALCO EX7/EX8 <span> </span> ; 20 VA sans EVD0000UCO et avec tous les autres détendeurs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Puissance d'absorption                                                                    | 22Vdc+/-5%. (Si le module en option EVD0000UCO/500 est installé), Lmax= 5 m <p>renforcée; 6 mm dans l'air, 8 superficiels; 3750 V isolation</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Alimentation d'urgence Isolation entre sortie relais et d'autres sorties Connexion moteur | 22 Vdc+/-5%. (Si se instale el módulo opcional EVD0000UCO/500 est instalado), Lmax= 5 m <p>renforcée; 6 mm dans l'air, 8 superficiels; 3750 V isolation</p> <p>câble blindé à 4 pôles CAREL E2VCAB5*00, ou câble blindé à 4 pôles type AWG22 Lmax =10 m, ou câble blindé à 4 pôles type AWG14 Lmax= 50 m</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Connexion entrées digitales                                                               | Entrée digitale à actionner par contact libre de tension ou transistor vers GND. Courant de fermeture 5mA; Lmax< 30 m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Sondes (Lmax=10 m; < 30 m avec câble blindé)                                              | S1 sonde de pression ratiométrique (0...5 V): • résolution 0,1 <span> </span> % fs; • erreur de mesure <span> </span> : 2% fs maximum; 1% type <p>sonde de pression électronique (4...20 mA): • résolution 0,5<span> </span>% fs; • erreur de mesure<span> </span>: 8% fs maximum; 7% type</p> <p>sonde de pression ratiométrique combinée (0...5 V): • résolution 0,1<span> </span>% fs; • erreur de mesure<span> </span>: 2<span> </span>% fs maximum; 1<span> </span>% type</p> <p>entrée 4...20 mA (max 24 mA): • résolution 0,5<span> </span>% fs; • erreur de mesure: 8% fs maximum; 7% type</p> <p>S2 NTC basse température<span> </span>: • 10 kΩ à 25°C, -50 à 90°C; • erreur de mesure: 1°C dans la plage -50 à 50°C; 3°C dans la plage +50 à 90°C</p> <p>NTC haute température: • 50 kΩ à 25°C, -40 à 150°C; • erreur de mesure: 1,5°C dans la plage -20 à 115°C, 4°C dans la plage en dehors de -20 à 115°C</p> <p>NTC combinée<span> </span>: • 10 kΩ à 25°C, -40 à 120°C; • erreur de mesure: 1°C dans la plage -40 à 50°C; 3°C dans la plage +50 à 90°C</p> <p>S3 sonde de pression ratiométrique (0...5 V): • résolution 0,1<span> </span>% fs; • erreur de mesure: 9% fs max; 8% type</p> <p>sonde de pression ratiométrique (0...5 V): • résolution 0,1<span> </span>% fs; • erreur de mesure: 2% fs maximum; 1% type</p> <p>sonde de pression électronique (4...20 mA): • résolution 0,5<span> </span>% fs; • erreur de mesure: 8% fs maximum; 7% type</p> <p>sonde de pression électronique (4...20 mA) à distance. Nombre maximum de contrôles connectables=5</p> <p>sonde de pression ratiométrique combinée (0...5 V): • résolution 0,1<span> </span>% fs; • erreur de mesure: 2<span> </span>% fs maximum; 1<span> </span>% type</p> <p>S4 NTC basse température<span> </span>: • 10kΩ à 25°C, -50 à 105°C; • erreur de mesure: 1°C dans la plage -50 à 50<span> </span>°C; 3° C dans la plage 50 à 90°C</p> <p>NTC haute température: • 50kΩ à 25°C, -40 à 150°C; • erreur de mesure: 1,5°C dans la plage -20 à 115°C 4°C dans la plage en dehors de -20 à 115°C</p> <p>NTC combinée<span> </span>: • 10kΩ à 25°C, -40 à 120°C; • erreur de mesure 1°C dans la plage -40 à 50°C; 3°C dans la plage +50 à 90°C</p> |
| Sortie relais                                                                             | contact normalement ouvert; 5 A, 250 Vac charge résistive; 2 A, 250 Vac charge inductive (PF= 0,4); Lmax=50 m - UL: 250 Vac, 5 A res., 1A FLA, 6 A LRA, D300 pilot duty, 30.000 cycles - VDE: 1(1)A PF=0,6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Alimentation sondes actives (V <sub>acc</sub> )                                           | sortie programmable <span> </span> : +5 Vdc+/-2% ou 12 Vdc+/-10%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Connexion série RS485 Connexion tLAN Connexion pLAN Montage                               | Lmax= 1000 m, câble blindé <p>Lmax= 30 m, câble blindé</p> <p>Lmax= 500 m, câble blindé</p> <p>sur guide DIN</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Connecteurs Dimensions                                                                    | amovibles, section câbles 0,5...2,5 mm² (12...20 AWG) <p>LxHxW= 70x110x60 mm</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Conditions de fonctionnement                                                              | -25T60°C (ne pas utiliser EVDIS* en dessous de -20°C), 0T60°C avec codes EVD9*; <90% U.R. sans condens.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Conditions de stockage                                                                    | -35T60°C (ne pas stocker EVDIS* en dessous de -30°C), humidité 90% H.R. sans cond.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Degré de protection                                                                       | IP20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Pollution environnementale                                                                | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Résistance à la chaleur et au feu                                                         | Catégorie D                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Immunité contre les surtensions                                                           | Classe II                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Tension nominale d'impulsion                                                              | 2500V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Type d'action relais                                                                      | 1C micro interruption du fonctionnement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Classe d'isolation                                                                        | II                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Classe et structure du logiciel                                                           | A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Conformité                                                                                | Sécurité électrique <span> </span> : EN 60730-1, EN 61010-1, UL873, VDE 0631-1 <p>Compatibilité électromagnétique<span> </span>: EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4; EN61000-3-2, EN55014-1, EN55014-2, EN61000-3-3.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

**(SPA)** El driver EVD evolution para válvula de expansión electrónica con motor paso a paso bipolar es un controlador PID para la regulación del recalentamiento del refrigerante en un circuito frigorífico. Por medio del display (accessorio) es posible realizar la puesta en servicio del driver, pero no es necesario para el funcionamiento del mismo. La configuración del driver podría ser realizada también por medio de un ordenador, utilizando el software CAREL VPM (Visual Parameter Manager), disponible en el sitio <http://ksa.carel.com>. El driver puede ser conectado a un controlador CAREL de la serie pCO por medio de una conexión serie, o puede ser conectado a un supervisor CAREL PlantVisorPRO.

**⚠Advertencia para la instalación:** 1. efectuar todas las operaciones de instalación y mantenimiento con driver no alimentado; 2. evitar cortocircuitos entre los pines G, G0 y Vbat.

- \* EVD EVO es un controlador para incorporar en el aparato final, no usar para montaje en pared.
- \* DIN VDE 0100: Se debe garantizar la separación protectora entre los circuitos SELV y los otros circuiti-tos. Para prevenir la violación de la separación de protección (entre los circuitos SELV y los otros circuiti-tos) es necesario proceder a una fijación adicional cerca de las terminaciones. Esta fijación adicional debe apretar el aislante, no los conductores.

**Entradas y salidas:** Se recomienda mantener separados los cables de las entradas/salidas y del relé del cable de alimentación de la válvula. Todas las entradas analógicas, las E/S digitales y las serie (no optoisladas) están referidas a la masa GND, por lo tanto la aplicación, incluso temporal, de tensiones superiores a ±5 V a estas conexiones pueden causar un daño irreversible al driver. Siendo GND la masa común para todas las entradas es preferible replicarla en la regleta de terminales.

**Antes de la puesta en servicio:** Alimentar el drive, el display se iluminará y en el caso de la primera puesta en servicio, el display guía al instalador en la introducción de los 4 parámetros necesarios en la puesta en marcha: tipo de refrigerante, tipo de válvula, tipo de sonda de presión y tipo de regulación principal (dirección de red, si es necesario). En el caso en el que el EVD evolution y el display tengan versiones de firmware distintas, aparecerá un mensaje de advertencia. Para el procedimiento de actualización del firmware, consulte el manual del usuario. Hasta que el procedimiento de configuración no esté terminado el driver no puede funcionar.

**Procedimiento de CARGA, DESCARGA y RESETEO de los parámetros (display)**

**⚠** Los procedimientos deben ser realizados con el/los driver alimentados.

NO quitar el display del driver durante los procedimientos de CARGA, DESCARGA, RESETEO.

- Pulsar simultáneamente las teclas Ayuda y Enter durante 5 s;
- Se accede a un menú con selecciones múltiples, seleccionar UP/DOWN el procedimiento deseado;
- Confirmar con ENTER.

**CARGA:** El display memoriza todos los valores de los parámetros del driver 1 (origen).

**DESCARGA:** El display copia todos los valores de los parámetros en el driver 2 (destino); la descarga de los parámetros se inhibe si el driver de origen y el driver de destino tienen firmwares incompatibles.

**RESETEO:** Todos los parámetros del driver vuelven a los valores de fábrica. Ver la tabla de parámetros en el manual del usuario del driver.

|                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Características técnicas</b>                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Alimentación (Lmax=5 m)                                                                       | 24 Vcd (+10/-15%) a proteger con fusible externo de tipo T de 2 A. <p>24 Vca (+10/-15%) 50/60 Hz a proteger con fusible externo de tipo T de 2 A. Utilizar un transformador dedicado (máx 100 VA) de clase II.</p> 16,2 W con las valvulas ALCO EX7/EX8; 9,2 W con todas otras valvulas 35 VA con el EVD0000UCO; 35 VA con las valvulas ALCO EX7/EX8; 20 VA sin EVD0000UCO y con todas otras valvulas                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Potencia absorbida                                                                            | 22 Vcc+/-5%. (Si se instala el módulo opcional EVD0000UCO/500), Lmax= 5 m <p>Reforzado; 6 mm en aire, 8 superficiales; 3.750 V aislamiento</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Alimentación de emergencia Aislamiento entre la salida de relé y otras salidas Conexión motor | 22 Vcc+/-5%. (Si se instala el módulo opcional EVD0000UCO/500), Lmax= 5 m <p>Reforzado; 6 mm en aire, 8 superficiales; 3.750 V aislamiento</p> <p>Cable apantallado de 4 polos tipo CAREL E2VCAB5*00, o cable apantallado de 4 polos tipoAWG22 Lmax =10 m, o cable apantall. de 4 polos tipo AWG14 Lmax= 50 m</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Conexión entradas digitales                                                                   | Entrada digital a accionar con contacto seco o transistor hacia GND. Corriente de cierre 5mA; Lmax< 30 m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Sondas (Lmax=10 m; <30 m cable apantallado)                                                   | S1 Sonda de presión proporcional (0...5 V): • resolución 0,1 <span> </span> % fs; • error de medida: 2% fs máximo; 1% típico <p>Sonda de presión electrónica (4...20 mA): • resolución 0,5<span> </span>% fs; • error de medida: 8% fs máximo; 7% típico</p> <p>Sonda de presión proporcional combinada (0...5 V): • resolución 0,1<span> </span>% fs; • error de medida: 2<span> </span>% fs máximo; 1% típico</p> <p>Entrada 4...20 mA (máx 24 mA): • resolución 0,5<span> </span>% fs; • error de medida: 8% fs máximo; 7% típico</p> <p>S2 NTC baja temperatura<span> </span>: • 10 kΩ a 25°C, -50T90°C; • error de medida: 1°C en el rango -50T50°C; 3° C en el rango +50T90°C</p> <p>NTC alta temperatura: • 50 kΩ a 25°C, -40T150°C; • error de medida: 1,5°C en el rango -20T115°C, 4°C en el rango externo a -20T115°C</p> <p>NTC combinada: • 10 kΩ a 25°C, -40T120°C; • error de medida: 1°C en el rango -40T50°C; 3°C en el rango +50T90°C</p> <p>Entrada 0...10V (máx 12 V): • resolución 0,1<span> </span>% fs; • error de medida: 9% fs máximo; 8% típico</p> <p>S3 Sonda de presión proporcional (0...5V): • resolución 0,1<span> </span>% fs; • error de medida: 2% fs máximo; 1% típico</p> <p>Sonda de presión electrónica (4...20mA): • resolución 0,5<span> </span>% fs; • error de medida: 8% fs máximo; 7% típico</p> <p>Sonda de presión electrónica (4...20mA) remota. Número máximo de controles conectables=5</p> <p>Sonda de presión proporcional combinada (0...5V): • resolución 0,1<span> </span>% fs, • error de medida: 2<span> </span>% fs máximo; 1% típico</p> <p>S4 NTC baja temperatura: • 10kΩ a 25°C, -50T105°C; • error de medida: 1°C en el rango -50T50<span> </span>°C; 3° C en el rango 50T90°C</p> <p>NTC alta temperatura: • 50kΩ a 25°C, -40T150°C; • error de medida: 1,5°C en el rango -20T</p> |