EVBOX1 500

Temperature/humidity control panels for single-phase cold rooms



2 ELECTRICAL CONNECTION



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N.B

use cables of an adequate section for the current running through them to reduce any electromagnetic interference, locate the power cables as far away as possible from the signal cables



temperature regulation, temperature regulation + humidity reading/regulation, temperature regulation + pressure reading

power supply 115... 230 Vac

- 5 analogue inputs: 3 for PTC, NTC or Pt 1000 probes (of which 1 is configurable), 1 for PTC, NTC or Pt 1000 probes or the EVHTP520 humidity and temperature proprietary probe; 1 configurable input for 4...20 mA humidity or pressure transducers door switch digital input
- 2 multi-purpose digital inputs 6 digital outputs (sealed electro-mechanical relays in compliance with the EN 60079-15
- standard), 2 of which are configurable and 2 of which are 30 A res. @ 250 Vac alarm buzzer
- magnetothermal switch (models 1 and 2)
- built-in Wi-Fi module for the EPoCA cloud system (models 2 and 3)
- TTL MODBUS slave port for one of the following optional modules (model 1):
- Wi-Fi EVIF25TWX for the EPoCA cloud system
 - EVIF25TBX Bluetooth module for the EVconnect app
 - EVIF23TSX clock for real-time functions
- RS-485 port for MODBUS RTU serial communication, in model 1 also for Ethernet connectivity using the EV3 Web or the EVD Web gateway for the EPoCA cloud system

Models available

No.	Purchasing	Magnetothermal	Connectivity
	code	switch	
1	EVB1506N9MFX	yes	Ethernet or Wi-Fi or optional BLE
2	EVB1506N9MWX	yes	Built-in Wi-Fi
3	EVB1506N9XWX	no	Built-in Wi-Fi

MEASUREMENTS AND INSTALLATION

Measurements are expressed in mm (inches). Wall or on-board installation with fixing screws and plugs (not provided)

CAUTION

make sure an o-ring seal (provided) is fitted onto each fixing screw

make sure the product used to clean the control panel is not rated as aggressive



INSTALLATION PRECAUTIONS

- ensure that the working conditions are within the limits stated in the TECHNICAL SPECIFICATIONS section
- do not install the device close to heat sources, equipment with a strong magnetic field, in places subject to direct sunlight, rain, damp, excessive dust, mechanical vibrations or shocks
- in compliance with safety regulations, the device must be installed properly to ensure adequate protection from contact with electrical parts. All protective parts must be fixed in such a way as to need the aid of a tool to remove them.

FIRST-TIME USE

- Carry out the installation as shown in the section MEASUREMENTS AND INSTALLATION. 1. 2. Power up the device.
- 3. Configure the device as shown in the section Setting configuration parameters. Recommended configuration parameters for first-time use:



Next check that the remaining settings are appropriate; see the section CONFIGURA-TION PARAMETERS.

Disconnect the device from the mains. Make the electrical connection as shown in the section ELECTRICAL CONNECTION, LED ON

6.



PRECAUTIONS FOR ELECTRICAL CONNECTION

- if using an electrical or pneumatic screwdriver, adjust the tightening torque
- if the device is moved from a cold to a warm place, humidity may cause condensation to form inside. Wait for about an hour before switching on the power
- make sure that the supply voltage, electrical frequency and power are within the set limits. See the section TECHNICAL SPECIFICATIONS
- disconnect the power supply before carrying out any type of maintenance
- do not use the device as a safety device
- for repairs and further information, contact the EVCO sales network
 - if the optional EVlinking modules are used for Wi-Fi (EVIF25TWX) or Bluetooth Low Energy (EVIF25TBX) connectivity, the 1256800371 adapter cable must also be ordered

4.1

1.

USER INTERFACE AND FUNCTIONS



Switching the device on/off

 (\mathbf{l}) Hold down the ON/STAND-BY key for 1 s.

During normal operation, the display shows the temperature set by parameter P5. If the humidity input is enabled with Pb4=4 or Pb5=1, the display will alternate the humidity reading with the temperature reading every 10", displaying first 'rH' and then the value.



During defrost, the display shows the temperature set by parameter d6 only if P5=0. If the display shows an alarm code, see the section ALARMS.

¢¢		N.B. to activate a function or view a value, make sure the device is switched on, the keypad is not locked and that no other procedures are running (see precautions given for each function) when the keypad is locked, functions other than silencing the buzzer, switching the cabinet light on/off, viewing the setpoint and unlocking the keypad are not availa- ble. When any other key is pressed, the Loc label will appear and no action can be taken. The Loc label also appears when an attempt is made to make changes to the setpoint with the settings block activated (r3 = 1) if a function or data are requested which are not available, the label will appear if d6=2, the dEF label will be displayed during defrost
	-	if a switch on/off time (Hon and HoF \neq h) has been set, the clock icon ${\mathfrak S}$ will be displayed when the device is in stand-by

- without powering up the device
- Connect one of the following optional accessories as required (for model 1 only): To activate real-time functions, connect the EVlinking RS-485 EVIF23TSX clock module To control the device using the EVconnect app, connect the EVlinking BLE EVIF25TBX module to the TTL port (for model 1 only) then synchronise it with the app. To control the device using the EPoCA monitoring system or a third-party MODBUS TCP system:
 - connect the EVlinking Wi-Fi EVIF25TWX module to the TTL port and then to a local Wi-Fi network
 - connect an IoT EV3 Web or EVD Web gateway to the RS-485 port, then connect the gateway to an Ethernet port of a router or to an Ethernet port of an Ether net hub connected to a local network.
- Power up the device again. 7.

€/°F	temperature displayed	-	overcooling active	4.2	Lockin
bar/psi	pressure displayed	-	-	1.	
*	compressor on	compressor off	compressor protection active or setpoint being set	4.3	Switch
0	evaporator fans on	evaporator fans off	evaporator fans off active	1.	
() []	cabinet light on	cabinet light off	cabinet light on from digital input	44 5	loncin
AUX1	load connected with u1 on	load connected with u1 off	compressor 2 protection active (if u1=7), evaporator fans off active (if u1=9), auxiliary load active (if u1=2)	Press a If u4 =	ny key. 1 (defa
AUX2	load connected with u11 on	load connected with u11 off	compressor 2 protection active (if u11=7), evaporator fans off ac- tive (if u11=9), auxiliary load ac- tive (if u11=2)	1.	
泰	defrost or pre-drip ac- tive	defrost or pre-drip not active	hot gas defrost delay active, drip- ping or heating of refrigerant ac- tive	2.	LABI Pb1
Ô	energy saving active	energy saving not ac- tive	-		Pb2 Pb3
\odot	-	-	date, time and day of week set- ting in progress, in stand-by with		Pb4
			programmed switch on/off (flash- es normally); access via EPoCA or		Pb5
			EVconnect in progress (flashes 1 s on, 9 s off)	3.	5
НАССР	saved HACCP alarms not yet displayed	no saved HACCP alarms or alarms al-	new HACCP alarm saved	4.	9
	alarm active	ready displayed alarm not active	compressor maintenance request	5.	

/unlocking the keypad



₩ EUX

Hold down both the DOWN and ON/STAND-BY keys for 1 s: the Loc (keypad locked) or UnL (keypad unlocked) label will appear.

hing the cabinet light on/off (if u2 = 1)

Press the AUX key: the $\widehat{\mathbb{T}}$ LED will come on/go off.

g the buzzer (if u9 = 1, default)

ault), silencing the buzzer will also deactivate the alarm output.

ng values detected by the analogue inputs

Hold down the DOWN key for 1 s to view the first available label. Press the UP or DOWN key until the desired label among those

iven below appear

LABEL	COR	ORRESPONDING VALUE				
Pb1	cabir	net temperature; if Pb3 = 4: incoming air temperature				
Pb2	evap	orator temperature				
Pb3	auxil	iary temperature				
Pb4 auxiliary temperature; if Pb4=4: humidity detected by EVHTP520 probe						
Pb5	if Pb5=1: humidity; if Pb5=2: pressure (both from 4 20 mA t ducer)					
SE	Т	Press the SET key to view the value of the label displayed.				
SET		Press the SET key (or take no action for 60 s) to go back to the labels.				
ل ا)	Press the ON/STAND-BY key to exit the procedure.				

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4.6	Setting the setpoin	it (if r3 = 0, default)	5.2	Restori
		ATA		

1.	SET	Press the SET key: the 🛠 LED will start flashing.	
2.		Press the UP or DOWN key within 15 s to set the value within the limits r1 and r2 (default -50, 50)	1.
3.	, SET	Press the SET key (or take no action for 15s): the W LED will go	2.
		off.	3.
4.7	Activating defrost		
Make s thresho	sure overcooling is n old.	ot activated and that the evaporator temperature is below the d2	
1.	半	Hold down the DEFROST key for 4 s: the $rac{4}{80}$ LED will come on.	5.
4.8	Activating/deactiv	vating overcooling	6.
Make s	ure defrosting, drippi	ing or the evaporator fan stop are not in progress.	7a
1.		Hold down the UP key for 4 s: the 🖗 LED will start flashing. Re-	
	6*	peat to deactivate the function.	7b
4.9	Switching the den auxiliary load on/	nisting function on (if u1 and/or u11 = 1) and switching the off (if u1 and/or u11 = 2)	8.
		Hold down the AUX key for 2 s: the AUX1 LED (referred to the	9.
		load associated with u1) and/or the AUX2 LED (referred to the	6
1.	AUX	for the time set by parameter u6 and/or the auxiliary load will be	
		activated (and deactivated when the AUX key is held down	ſ
		again).	U
4.10	Viewing and activ	ating the low or high relative humidity function (if F0 = 5)	
		Hold down both the SET and UP keys for 4 s: the rhL (low rela-	
1.	SET + į	label will appear. Repeat the operation within 10 s of the label being displayed to select the desired mode.	
4.11	Displaying and de	leting the compressor operating hours	
To viev	v the operating hours		
1.		Hold down the DOWN key for 1 s: the display will show the first available label.	
_	<u> </u>	Press the UP or DOWN key until the desired label is displayed	
2.		operating hours).	
3	SET	Press the SET key to view the hours of the selected compressor.	
4	SET	Press the SET key again to return to the labels.	
5	U U	Press the ON/STAND-BY key (or take no action for 60 s) to exit the procedure.	
To dele	te the operating hou	rs (of both the compressors if compressor 2 is present):	
1.		available label.	
2.	Ⅰ / ∨	Press the UP or DOWN key until the RCH label appears.	
3.	SET	Press the SET key: the value 0 will be displayed.	С
4	 ₽×	Press the UP key within 15 s to increase the value up to 149 (access password).	
5	SET	Press the SET KEY (or take no action for 15 s): the symbol will flash for 4 s, after which the device will exit the procedure.	
4.12	Setting the date,	time and day of the week available in models with built-in	

Wi-Fi (or in model 1 through optional Evlinking modules or EV3/EVD Web

	gateways)					
°,	N.B. - do not d date, tim - if the dev ing syste week wit	 N.B. do not disconnect the device from the mains in the two minutes after setting the date, time and day of the week if the device communicates with the EVconnect app or the EPoCA remote monitor-ing system, it is possible to force synchronisation of the date, time and day of the week with those of the smartchone/tablet/PC used 				
1.			Hold down the DOWN key for 1 s: the display will show the first available label.			
2.	/	\mathbb{I}	Press the UP or DOWN key until the rtc label appears.			
3.	SE.	г	Press the SET key: the 🔁 LED will start flashing and the display will show the first available label. By pressing the SET key again, others will be displayed in the order given below.			
	LAB.	DESCF	RIPTION			
	y+2 fig- ures	year (00 99)			
	n+2 fig- ures	month	(01 12)			
	d+2 fig- ures	day (0	31)			
	h+2 fig- ures	hour (00 23) es (00 59)			
	n+2 fig- ures	minute				
	Mon	Monda				
	tuE	Tuesda	ау			
	UEd	Wedne	esday			
	thu	Thurso	lay			
	Fri Friday					
	Sat Saturday					
	Sun Sunday					
4.	Î /	\mathbb{I}	Press the UP or DOWN key within 15 s of the desired label being displayed to set the value.			
5.	SE.	Г	Press the SET key to confirm any changes and to view the next label; press the SET key after viewing/changing the last label (day of the week) to exit the procedure.			
6.	U)	Press the ON/STAND-BY key to exit the procedure beforehand.			

5.2	Restoring factory	Restoring factory settings				
1.	Å + ∨	Hold down both the UP and DOWN keys for 4 s: the display will show the ${f PA}$ label.				
2.	SET	Press the SET key: the value 0 will be displayed.				
3.	l.	Press the UP key within 15 s to increase the value to 149 (access password).				
4.	SET	Press the SET key (or take no action for 15 s).				
5.		Hold down both the UP and DOWN keys for 4 s: the display will show the \textbf{dEF} label.				
6.	SET	Press the SET key: the value 0 will be displayed.				
7a.		Hold down both the UP and DOWN keys to exit the procedure without restoring the settings.				
7b.	l A	Press the UP key to increase the value to ${\bf 1}$ and restore the settings.				
8.	SET	Press the SET key (or take no action for 15 s): the dEF label will flash for 4 s, after which the device will exit the procedure.				
9.	Disconnect the dev	ice from the power supply.				
6	6 CONFIGURATION PARAMETERS					

∩≡	NO.	PAR.	DEF.	SETPOINT	MIN MAX.
	1	SP SrH	3.0	temperature setpoint	r1 r2 °C/°F rh2 rh3 %
	NO.	PAR.	DEF.	ANALOGUE INPUTS	MIN MAX.
	3	CA1	0.0	cabinet probe offset	-25.0 25.0 °C/°F
	4	CA2	0.0	evaporator probe offset	-25.0 25.0 °C/°F
	5	CA3	0.0	sensor 3 offset	-25.0 25.0 °C/°F
	7	CA5	0.0	sensor 5 offset	-25.0 25.0 %/Bar
	8	P0	1	type of temperature probe	0 = PTC $1 = NTC$
		D1			2 = Pt 1000
	9	P1 P2	1	enable decimal point °C	0 = no $1 = yes0 = °C$ $1 = °F$
	11	Pb2	1	evaporator probe configuration	0 = disabled
					1 = defrost regulation +
					fans
	12	Pb3	0	sensor 3 configuration	2 = fan regulation 0 = disabled
			-		1 = condenser temperature
					2 = auxiliary temperature
					3 = evaporator 2 tempera-
					4 = outgoing air tempera-
					ture
	13	Pb4	0	sensor 4 configuration	0 = disabled
					 1 = condenser temperature 2 = auxiliary temperature
\mathbf{O}					3 = evaporator 2 tempera-
\sim					ture
					4 = EVHTP520 humidity
	14	Pb5	1	sensor 5 configuration	0 = disabled
					1 = 4-20 mA humidity
					transducer
					z = 4-z0 mA pressure
	15	P5	0	value displayed	0 = cabinet temperature (if
					Pb3 = 4, product tem-
					perature CPT)
					2 = evaporator temperature
					3 = sensor 3 temperature
					4 = incoming air tempera-
	16	D7	50	incoming air effect to calculate	ture
	10	17		product temperature (CPT)	$CPT = \{[(P7 x (incoming))]$
					air)] + [(100 - P7) x
	17		-	diantes a facela time.	(outgoing air)] : 100}
	17	P8 P9	0.0	display refresh time	-99.9 99.9 bar/% RH
	10		0.0	Pb5	
	19	P10	99.9	maximum calibration value of in-	-99.9 99.9 bar/% RH
	NO	DAD	DEE	put Pb5	ΜΙΝ ΜΑΥ
	20	r0	2.0	setpoint SP differential in cold	0.1 15.0 °C/°F
				mode	see also r12
	21	r1	-50.0	minimum setpoint SP	-99.0 °C/°F r2
	22	r2 r3	50.0	maximum setpoint SP	r199.0 °C/°F
4	24	r4	0.0	setpoint SP offset in energy saving	0.0 99.0 °C/°F
T	25	r5	0.0	setpoint offset SP in overcooling	0.0 99.0 °C/°F
	26	r6	30	overcooling duration	0 240 min
	2/	17	-2.0	mode (if u1 and/or u11=5 neutral	-99.00.1 °C/ °F
				zone)	
	28	r12	0	differential position r0	0 = asymmetrical
	NO.	PAR.	DEF.	HUMIDITY REGULATION	MIN MAX.
	29	rh0	0	enable humidity management	0 = no
					1 = read humidity
					2 = dehumidification with
					3 = dehumidification with
					compressor + neutral
RH					zone heaters (if u1 or
	30	rh1	5	setpoint SrH differential during	1 25%
	31		20	dehumidification	0.% rh3
	32	rti2 rh3	_∠U 100	maximum setpoint SrH maximum setpoint SrH	rh2 100%
	33	rh4	5	setpoint SrH differential during	1 25%
				humidification	0 1005
	34 Hum	rh5 idity	100 regula	humidification percentage in 60 s tion is activated by configuring P	0 100% b4 = 4 (EVHTP520 humidity
	prob	e) or P	b5=2 (4 20 mA transducer). By setting	the differentials rh4 and rh1
	relat hum	ive to i idificati	the hur	monty setpoint SrH, a neutral zon pectively is created. To manage	e for numidification and de- dehumidification, the com-
	pres	sor (rH	10=2) 0	or the compressor + heaters (rH	0=3) can be activated. Hu-
	can	be set	in 60-9	second cycles, setting the % with	n rh5 (e.g. 10%=6" ON and
	54″ (DFF).	IF6	ority over humidity if the term	nerature drifts from its high
	neut	ral zon	e value	of SP+r0 or its low neutral zone	value of Sp-r7 during humid-
	ity r	egulati	on, the	e controller halts humidity regul nt.	ation until the temperature
			scipol		+
				Heat Cool	
				+ , +	→
				SET-r7 SET_T S)ET+r0
	T	Dorot	· ا		ligh [Threshold
	NO.	PAR.	e and i DEF.	PRESSURE	MIN MAX.
	35	h12	0	enable compressor lock due to Lpt	0 = no
_			-	and HPt pressure alarms	1 = yes
Bar	36	h13	0.5	low pressure Lpt alarm threshold	-0.5 45.0 barg
	38	h15	5 0	type of refrigerant	0 200 s 0 = R-22
					1 = R-404A
					2 = R-507A

					3 = R - 744 4 = R - 290					
					5 = R-1270					
					6 = R-407F					
					7 = R-717 8 = R-449A					
					9 = R-448A					
					10= R-452A					
					11= R-134A					
					13= R-407C					
					14= R-410°					
					15= R-513A					
					10= R-12347F 17= R-1234ZE					
					18= R-407A					
					19= R-454C					
	39	h23	30.0	high pressure Hpt alarm thresh-	20= R-455A					
				old						
	40	h24	5	high pressure Hpt alarm delay	0 250 s					
	NO.	PAR.	DEF.	COMPRESSOR	MIN MAX.					
	41	CU	U	on	0 240 min					
	42	C1	5	delay between two compressor	0 240 min					
				switch-ons						
	43	C2	3	minimum compressor-off time	0 240 min					
	44	C4	10	compressor-off time during cabi-	0 240 s					
				net probe alarm						
	46	C5	10	compressor-on time during cabi-	0 240 min					
	47	6	80.0	net probe alarm Pr1	0.0 199.0 °C/°F					
	77	0	00.0	threshold	0.0 155.0 C/ 1					
	48	C7	90.0	compressor locked CSd alarm	0.0 199.0 °C/°F					
				threshold						
	49	C8	1	compressor locked CSd alarm de-	0 15 min					
	50	C10	0	lay	0999 h x 10					
		010	-	maintenance (flashing LED \triangle)	0 = disabled					
	51	C11	3	delay between 2 compressor	0 240 s					
	50	C12	2	switch-ons	If u1 or u11=7					
	52	CIZ	2	compressor hour value for com-	010 algorithm = {[C12 x (com-					
					pressor hours)] + [C13 x					
					(compressor switch-ons)]}					
C.	52	C12	1	comprossor switch-on value for	if C15= 2 0 10					
	55	CIS	-	compressor rotation algorithm	algorithm = {[C12 x (com-					
				-	pressor hours)] + [C13 x					
					(compressor switch-ons)]} if C15 = 2					
	54	C14	2	type of pump-down	0 = time-controlled					
					1 = digital input					
	55	C15	0	constraint between compressor	2 = evaporator pressure					
		C15	Ū	and compressor 2	lay)					
					1 = function of r0 (propor-					
					tional band)					
					2 = runction or C12 and C13 (rotation)					
	To manage 2 compressors in steps, set C15=1 and determine the band w r12 (asymmetrical or symmetrical). The controller divides the interval r0 intr									
	r12 (steps	12 (asymmetrical or symmetrical). The controller divides the interval r0 into 2 steps and for each step controls the compressor as follows:								
	-	delay between compressors C11								
	-	presso	r 1 and	compressor 2	phied independently to com-					
	-	rotatio	n is de	termined by the incidence of the	e parameters C12 (hours) /					
		C13 (start-ups)								
			•		Î					
				Step1 Step 2						
	Ton	anade	- 2 cor	npressors or 2 refrigeration ur	its alternately set C15=2					
	the c	compre	ssor ou	itputs will work one at a time, ro	tating according to parame-					
	ters If i5	C12-C1 or i15	13. = 7 (c	ompressor 1 thermal switch alarm	C1t) and/or = 8 (compressor					
	2 the	rmal sv	vitch ala	arm C2t), when a compressor alarm	is activated by its digital input,					
	the contract of the contract o	ompres: sed.	sor in a	arm mode is replaced by the other o	ne, once protection time has					
	NO.	PAR.	DEF.	DEFROST	MIN MAX.					
	56	d0	8	automatic defrost interval	0 99 h					
					0 = manual only if d8 = 3 maximum interval					
	57	d1	0	type of defrost	0 = electric					
					1 = hot gas					
					2 = compressor off					
					set by d2 threshold					
	58	d2	2.0	evaporator temperature threshold	-99.0 99.0 °C/°F					
	_			to end defrosting (if Pb2=1)						
	59	d2b	2.0	evaporator 2 temperature thresh-	-99.0 99.0 °C/°F					
				and/or Pb3 = 3)						
	60	d3	30	defrost duration	0 99 min					
					if Pb2 = 1, maximum dura-					
	61	d4	0	enable defrost at nower-on	$1 - y_{0}$					
	62	d5	o	defrost delay from power-on	0 99 min					
			1							

5 SETTINGS 5.1 Setting the configuration parameters

Ö _o	N.B. Check the settings <i>TERS.</i>	made are appropriate; see the section CONFIGURATION PARAME-
1.	∧	Hold down both the UP and DOWN keys for 4 s: the display will show the PA label.
2.	SET	Press the SET key: the value 0 will be displayed.
3.		Press the DOWN key within 15 s to decrease the value to -19 (access password).
4.	SET	Press the SET key (or take no action for 15 s).
5.	↓ + ∨	Hold down both the UP and DOWN keys for 4 s: the display will show the first parameters label (SP).
6.	∧ I • / ∨	Press the UP or DOWN key to find the label of the parameter to be changed.
7.	SET	Press the SET key to access the value of this parameter.
8.	.∧ .↓ ↓ ↓	Press the UP or DOWN key to increase/decrease the value.
9.	SET	Press the SET key (or take no action for 15 s) to confirm the set value.
10.	↓ + ∨	Hold down both the UP and DOWN keys for 4 s to exit the procedure.
11.	Ċ	Or press the ON/STAND-BY key to exit the procedure.

					or ry
					1 = limited to SP+r0
					2 = dEF label
	64	d7	2	drip duration	0 15 min
	65	d8	0	type of defrost interval	0 = hours (d0) device on
					1 = hours compressor on
0,					2 = hours evaporator tem-
•					perature < d9
					3 = adaptive
					4 = timed (if real-time
					functions are active)
	66	d9	0.0	evaporator temperature threshold	-99.0 99.0 °C/°F
				for defrost interval count (if d8 =	
				2)	
	67	d11	0	enable defrost timeout alarm	0 = no 1 = yes
	68	d15	0	compressor-on consecutive time	0 99 min
				for hot gas defrost (if d1 = 1)	
	69	d16	0	pre-drip duration	0 99 min
				for hot gas defrost with defrost re-	
				lay active (if d1 = 1)	
	70	d18	40	interval for adaptive defrost (if	0 999 min
				d8=3)	if compressor-on with evap-
					orator T < optimal evapora-
					tor T + d22
					0 = manual only
	71	d19	3.0	threshold relative to optimal evap-	0.0 40.0 °C/°F
				orator temperature for adaptive	optimal evaporator tempera-
				defrost (if d8=3)	ture - d19
	72	d20	180	compressor-on consecutive time	0 500 min
				to force defrost	0 = disabled
	73	d21	200	compressor-on consecutive time	0 500 min
				and from overcooling	0 = disabled
	74	d22	2.0	threshold relative to optimal evap-	0.0 10.0 °C/°F
				orator temperature for adaptive	optimal evaporator $T + d22$

0 = cabinet temperature (or product temperature CPT)

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	NO	PAR	DEE	defrost interval count	MIN MAX
	75	A0	0	select value for low temperature	0 = cabinet temperature (or
				alarm	product temperature
					1 = evaporator temperature
	76	A1	-10.0	low temperature alarm threshold	-99.0 99.0 °C/°F
	77	A2	1	type of low temperature alarm	0 = disabled 1 = relative to setpoint (i.e.
					SP + A1)
	70		10.0	http://www.com/actions.com/actions.com/action/	2 = absolute (i.e. A1)
	78 79	A4 A5	10.0	high temperature alarm threshold type of high temperature alarm	-99.0 99.0 °C/°F 0 = disabled
				·//····	1 = relative to setpoint (i.e.
X3					SP + A4) 2 = absolute (i.e. A4)
	80	A6	120	high temperature alarm delay	0 240 min
				from power-on	
	81 82	A/ A8	15	high/low temperature alarm delay	0 240 min 0 240 min
				ter defrost	
	83	A9	15	high temperature alarm delay	0 240 min
	84	A10	1	duration of power failure for sav-	0 240 min
				ing alarm	0 = disabled
	85	A11	2.0	high/low temperature alarm threshold differential (A1 and A4)	0.1 15.0 °C/°F
	NO.	PAR.	DEF.	FANS	MIN MAX.
	86	F0	1	evaporator fan mode in normal	0 = off 1 = on
				operation	3 = thermostat controlled
					(with cabinet or product
					temperature + F1) 4 = thermostat controlled
					(with cabinet or product
					temperature + F1) if
					5 = function of F6 (low or
	07	F1	1.0	augustan fan ursulation thursh	high humidity)
	87	FI	-1.0	old (if Pb2= 1 or 2)	-99.0 99.0 °C/°F
	88	F2	0	evaporator fan mode during de-	0 = off 1 = on
	89	F3	0	frost and dripping maximum time evaporator fans off	2 = function of F0
	90	F4	60	time evaporator fans off in low	0 240 s
-	01			humidity	
S	51	F5	10	time evaporator rans on in low humidity	0 240 s
	92	F6	0	high or low humidity function (if	0 = for low humidity (with
				F0 = 5)	fan time F4 and F5 if
					compressor is on)
					1 = for high humidity
	93	F7	5.0	threshold relative to setpoint (SP)	-99.0 99.0 °C/°F
				for end of fan stop time	
	94	F8	2.0	evaporator fan regulation thresh- old differential (F1)	0.1 15.0 °C/°F
	95	F9	0	evaporator fans off delay from	0 240 s
	06	E11	15.0	compressor off	if F0 = 2 or 5
	96	FII	15.0	condenser rans on threshold	with differential = 2 °C/4 °F
	97	F12	30	condenser fans off delay from	0 240 s
	98	F13	30	compressor off time evaporator fans off in energy	if Pb3 and Pb4 \neq 1 0 240 s x 10
				saving	if F0 ≠ 5
	99	F14	30	time evaporator fans on in energy	0 240 s x 10
	NO.	PAR.	DEF.	DIGITAL INPUTS	MIN MAX.
	100	i0	3	door switch input function	0 = disabled
					i = compressor + evapora- tor fans off
					2 = evaporator fans off
					3 = cabinet light on 4 = compressor + evapora-
					tor fans off, cabinet
					light on
					cabinet light on
	101	i1	0	door switch input activation	0 = with contact closed
	102	i2	30	door open alarm delay	1 = with contact open
				·····	-1 = disabled
	103	i3	15	maximum compressor and evapo-	-1 120 min
	104	i5	7	multi-purpose input 1 function	0 = disabled
					1 = energy saving
					2 = multi-purpose input alarm (dI2)
					3 = high pressure alarm
					(iSd and HP)
					= auxiliary load off 5 = switch device on/off
					6 = low pressure alarm (LP)
					 compressor 1 thermal switch alarm (C1t)
\					8 = compressor 2 thermal
					switch alarm (C2t) 9 = man in cold room alarm
					(MiC)
	105	i6	0	multi-purpose input 1 activation	0 = with contact closed

Image: Second						E
Image: Second						5 = neutral zone heaters
Image: Second						6 = condenser fans
						7 = compressor 2
Image: Second						
Image: Second						o = aerrost 2
Image: Second						9 = evaporator fans 2
Image: Second						10= reserved
Image: Second						11 = on/stand-by
1 1						12 mon in sold as a sta
(MC) (MC) 13 (MC) 13 (MC) 13 (MC) 13 (MC) 13 116 (U 0 (MC) 0 (MC) 118 (U 0 (MC) 0 (MC) 118 (U 0 (MC) 0 (MC) 118 (U 0 (MC) 0 (MC) 119 (U) 14 0 (MC) 0 (MC) 120 (U) 15 (MC) (MC) (MC) (MC) (MC) 121 (U) 15 (MC) (12= man in cold room alarm
13- humidification 13- humidification 14- defundification 14- defundification 14- 1 enable cabinet light and auxiliary load (fu or u.22 = 2) using 0 = no 1 = yes 111 0 0 pumbor delay 0.240.5 118 ut/ 1 enable cabinet light and auxiliary load for the stand-by key 0.240.5 120 1.0 0.000 modelay 0.240.5 0.1 = yes 121 1.0 1.0 0.0000 modelay 0.1 = no 1 = yes 121 1.0 0.00000 modelay 0.1 = no 1 = yes 121 1.0 0.00000000000000000000000000000000000						(MiC)
Inf U						13= humidification
116 u2 0 enable cabinet light and auximple of the light and auximple and auximple of the light and						14= dehumidification
1.10 U2 0 ensolution 0 no 1 = yes 111 U3 0 Pump-down delay 0240 s 1 113 U4 1 enable deactivation alarn output 0 = no 1 = yes 111 U3 0 5 duration demisting on 1120 min 120 0 5 duration demisting on 1120 min 1		115			anakia ashiart Krist I - 11	
Ided (ff ul or u22 = 2) using istand-by key 118 u u email-devalues 110 u 121 u 122 u11 121 u 122 u11 123 the relates on threadout 123 the relates on threadout 124 the relates confurnment 125 the relates confurnment 124 the relates confurnment 125 the relates confurnment		116	u2	0	enable cabinet light and auxiliary	u = no 1 = yes
117 10 9 0 0 0 0 0 0 0 1 99.0 1 99.0 1 99.0 1 99.0 99.0 99.0 99.0 99.0 99.0 99.0 99.0 99.0 1 99.0 1 99.0 1 99.0 1 99.0 1 99.0 1					load (if u1 or u22 = 2) using	
112 112 12 12 12 12 13 14 1 enable dearbits of method and upper dearbits of method of the set of t					stand-by key	
118 U-4 1 enable descination alarm output 0 n 1 yes 110 U.5 -1.0 door heaters on threshold -9.090.9C/PF 121 U.9 1 enable dearm buzzer 0 n n 1 yes 121 U.9 1 enable clock MM		117	u3	0	pump-down delav	0 240 s
10 0 •		118	11/4	1	enable deactivation alarm output	$0 = n_0$ $1 = ves$
Init Use Hole Output 119 Use 1-10 door hears on threshold -9-09-0. °C/°F 121 111 3 1 enable alarm buzzer 0 no 1 = yes 121 111 3 1 enable alarm buzzer 0 no 1 = yes 121 110 0 enable Cock NIN		110	u4	-		0 = 110 I = yes
11 u.5 -1.0 door heaters on threshold -99.099.0 C/C/F 12 10 1 enable alarm buzzer 0 = no 1 = yes 12 13 k for elay configuration as u1 = wes = wes 12 14 k6 = wes = wes = wes = wes 12 14 b2 control = wes = wes = wes 12 H0 control = wes = wes = wes 12 H01 ostatum duration energy saving Monday 0 23 h 0 = wes 125 H01 ostatum energy saving Tuesday 0 23 h 0 = wes = wes 128 H04 maximum duration energy saving 0 22 h > 0 > 0 = wes > 0 inction active > 0 = wes > 0 = wes > 0 inction active > 0 = wes > 0					with silencing buzzer	
121 ubit 9 1		119	u5	-1.0	door heaters on threshold	-99.0 99.0 °C/°F
121 U 1 anable alarm buzzer 0 = no 1 = yes MO PAR DEF. CLOCK MIN		120	u6	5	duration demisting on	1 120 min
L2 L1 Late the mean output L1 L1 <thl1< th=""> L1 L1<td></td><td>121</td><td></td><td>1</td><td>enable alarm buzzor</td><td>$0 = n_0$ $1 - y_{00}$</td></thl1<>		121		1	enable alarm buzzor	$0 = n_0$ $1 - y_{00}$
12 11 0 Fact Part Part Part Part Part Part Part Par			u9	1		0 = 110 I = yes
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4 = cabinet and evaporator 4 = cabinet and evaporator 5 = all 151 LA 247 152 Lb 2 MODBUS address 1 247 152 Lb 2 MODBUS baud rate the parameter is relevant only if bLE = 0 0 = 2,400 baud 1 = 4,800 baud 2 = 9,600 baud 3 = 19,200 baud 153 LP 2 MODBUS parity the parameter is relevant only if bLE = 0 0 = none 1 = odd 154 bLE 1 configuration MODBUS serial port bLE = 0 0 = free for real-time func- tions (in model 1 only through the EVIF23TSX clock) or for MODBUS RTU communication via the RS-485 port 1 99 = device address for connectivity N.B.: - for the EVconnect app (only in model 1 via the		150	rE1	-		2 = evaporator
NO. PAR. DEF. SERIAL COMMUNICATION MIN MAX. 151 LA 247 MODBUS address 1 247 152 Lb 2 MODBUS baud rate the parameter is relevant only if bLE = 0 0 = 2,400 baud 1 = 4,800 baud 2 = 9,600 baud 3 = 19,200 baud 153 LP 2 MODBUS parity the parameter is relevant only if bLE = 0 0 = none 1 = odd 2 = even 154 bLE 1 configuration MODBUS serial port the parameter is relevant only if bLE = 0 0 = free for real-time func- tions (in model 1 only through the EVIF23TSX clock) or for MODBUS RTU communication via the RS-485 port 1 99 = device address for connectivity NBE: - for the EVconnect app (only in model 1 via the		150	rE1	-		2 = evaporator 3 = auxiliary
NO. PAR. DEF. SERIAL COMMUNICATION MIN MAX. 151 LA 247 MODBUS address 1 247 152 Lb 2 MODBUS baud rate the parameter is relevant only if bLE = 0 0 = 2,400 baud 1 = 4,800 baud 2 = 9,600 baud 3 = 19,200 baud 153 LP 2 MODBUS parity the parameter is relevant only if bLE = 0 0 = none 1 = odd 154 bLE 1 configuration MODBUS serial port bLE = 0 0 = free for real-time func- tions (in model 1 only through the EVIF23TSX clock) or for MODBUS RTU communication via the RS-485 port 1 99 = device address for connectivity NB.:: - for the EVconnect app (only in model 1 via the		150	rE1	-		 2 = evaporator 3 = auxiliary 4 = cabinet and evaporator
NO. PAR. DEF. SERIAL COMMUNICATION MIN MAX. 151 LA 247 MODBUS address 1 247 152 Lb 2 MODBUS baud rate 0 = 2,400 baud 151 LA 247 MODBUS baud rate 0 = 2,400 baud 152 Lb 2 MODBUS paraty the parameter is relevant only if bLE = 0 1 = 4,800 baud 153 LP 2 MODBUS parity the parameter is relevant only if bLE = 0 0 = none 1 = odd 154 bLE 1 configuration MODBUS serial port bLE = 0 0 = free for real-time functions (in model 1 only through the EVIF23TSX clock) or for MODBUS RTU communication via the RS-485 port 1 99 = device address for connectivity M.B.: 154 bLE 1 configuration MODBUS serial port 0 = free for real-time functions (in model 1 only through the EVIF23TSX clock) or for MODBUS RTU communication via the RS-485 port 1 99 = device address for connectivity M.B.: - for the EVconnect app (only in model 1 via the		150	rE1	4		2 = evaporator 3 = auxiliary 4 = cabinet and evaporator 5 = all
151 LA 247 MODBUS address 1 247 152 Lb 2 MODBUS baud rate the parameter is relevant only if bLE = 0 0 = 2,400 baud 1 = 4,800 baud 2 = 9,600 baud 3 = 19,200 baud 153 LP 2 MODBUS parity the parameter is relevant only if bLE = 0 0 = none 1 = odd 154 bLE 1 configuration MODBUS serial port bLE = 0 0 = free for real-time func- tions (in model 1 only through the EVIF23TSX clock) or for MODBUS RTU communication via the RS-485 port 1 99 = device address for connectivity N.B.: - for the EVconnect app (only in model 1 via the		150	rE1	4		2 = evaporator 3 = auxiliary 4 = cabinet and evaporator 5 = all
152 Lb 2 MODBUS baud rate the parameter is relevant only if bLE = 0 0 = 2,400 baud 1 = 4,800 baud 2 = 9,600 baud 3 = 19,200 baud 153 LP 2 MODBUS parity the parameter is relevant only if bLE = 0 0 = none 1 = odd 154 bLE 1 configuration MODBUS serial port the parameter is relevant only if bLE = 0 0 = free for real-time func- tions (in model 1 only through the EVIF23TSX clock) or for MODBUS RTU communication via the RS-485 port 1 99 = device address for connectivity N.B.: - for the EVconnect app (only in model 1 via the		NO.	rE1 PAR.	DEF.	SERIAL COMMUNICATION	2 = evaporator 3 = auxiliary 4 = cabinet and evaporator 5 = all MIN MAX.
153 LP 2 MODBUS parity the parameter is relevant only if bLE = 0 0 = none 1 = odd 2 = even 153 LP 2 MODBUS parity the parameter is relevant only if bLE = 0 0 = none 1 = odd 2 = even 154 bLE 1 configuration MODBUS serial port through the EVIF23TSX clock) or for MODBUS RTU communication via the RS-485 port 199 = device address for connectivity 0 = free for real-time func- tions (in model 1 only through the EVIF23TSX clock) or for MODBUS RTU communication via the RS-485 port N.B.: - for the EVconnect app (only in model 1 via the		NO. 151	rE1 PAR. LA	4 DEF. 247	SERIAL COMMUNICATION MODBUS address	2 = evaporator 3 = auxiliary 4 = cabinet and evaporator 5 = all MIN MAX. 1 247
153 LP 2 MODBUS parity the parameter is relevant only if bLE = 0 0 = none 1 = 0400 baud 153 LP 2 MODBUS parity the parameter is relevant only if bLE = 0 0 = none 1 = odd 154 bLE 1 configuration MODBUS serial port bLE 0 = free for real-time func- tions (in model 1 only through the EVIF23TSX clock) or for MODBUS RTU communication via the RS-485 port 1 99 = device address for connectivity N.B.: - for the EVconnect app (only in model 1 via the		NO. 151	rE1 PAR. LA Lb	4 DEF. 247 2	SERIAL COMMUNICATION MODBUS address MODBUS baud rate	2 = evaporator 3 = auxiliary 4 = cabinet and evaporator 5 = all MIN MAX. 1 247 0 = 2,400 baud
DLE = U 2 = 9,600 baud 3 = 19,200 baud 153 LP 153 LP 154 DLE = 0 155 Configuration MODBUS serial port 0 = free for real-time functions (in model 1 only through the EVIF23TSX clock) or for MODBUS (clock) or for MODBUS RTU communication via the RS-485 port 1 99 = device address for connectivity N.B.: - for the EVconnect app (only in model 1 via the		NO. 151 152	PAR. LA Lb	4 DEF. 247 2	SERIAL COMMUNICATION MODBUS address MODBUS baud rate the parameter is relevant when the	2 = evaporator 3 = auxiliary 4 = cabinet and evaporator 5 = all MIN MAX. 1 247 0 = 2,400 baud 1 = 4.800 baud
153 LP 2 MODBUS parity the parameter is relevant only if bLE = 0 0 = none 1 = odd 154 bLE 1 configuration MODBUS serial port LCC 0 = free for real-time func- tions (in model 1 only through the EVIF23TSX clock) or for MODBUS RTU communication via the RS-485 port 199 = device address for connectivity 09 N.B.: - for the EVconnect app (only in model 1 via the		NO. 151 152	PAR. LA Lb	• DEF. 247 2	SERIAL COMMUNICATION MODBUS address MODBUS baud rate the parameter is relevant only if	2 = evaporator 3 = auxiliary 4 = cabinet and evaporator 5 = all MIN MAX. 1 247 0 = 2,400 baud 1 = 4,800 baud
153 LP 2 MODBUS parity the parameter is relevant only if bLE = 0 0 = none 1 = odd 2 = even 154 bLE 1 configuration MODBUS serial port through the EVIF23TSX clock) or for MODBUS RTU communication via the RS-485 port 1 99 = device address for connectivity 0 = none 1 = odd 2 = even MODEUS 1 configuration MODBUS serial port through the EVIF23TSX clock) or for MODBUS RTU communication via the RS-485 port 1 99 = device address for connectivity N.B.: - for the EVconnect app (only in model 1 via the		NO. 151 152	PAR. LA Lb	4 DEF. 247 2	SERIAL COMMUNICATION MODBUS address MODBUS baud rate the parameter is relevant only if bLE = 0	2 = evaporator 3 = auxiliary 4 = cabinet and evaporator 5 = all MIN MAX. 1 247 0 = 2,400 baud 1 = 4,800 baud 2 = 9,600 baud
154 bLE 1 configuration MODBUS serial port bLE = 0 0 = free for real-time func- tions (in model 1 only through the EVIF23TSX clock) or for MODBUS RTU communication via the RS-485 port 1 99 = device address for connectivity N.B.: - for the EVconnect app (only in model 1 via the		NO. 151 152	rE1 PAR. LA Lb	4 DEF. 247 2	SERIAL COMMUNICATION MODBUS address MODBUS baud rate the parameter is relevant only if bLE = 0	2 = evaporator 3 = auxiliary 4 = cabinet and evaporator 5 = all MIN MAX. 1 247 0 = 2,400 baud 1 = 4,800 baud 2 = 9,600 baud 3 = 19,200 baud
154 bLE 1 configuration MODBUS serial port 0 = free for real-time functions (in model 1 only through the EVIF23TSX clock) or for MODBUS RTU communication via the RS-485 port 199 configuration MODBUS serial port 0.1 154 bLE 1 154 bLE 1 154 bLE 1 155 1 configuration MODBUS serial port 0 156 1 configuration MODBUS serial port 0 156 1 configuration model 1 only through the EVIF23TSX clock) or for MODBUS RTU communication via the RS-485 port 199 connectivity N.B.: - for the EVconnect app (only in model 1 via the		NO. 151 152	rE1 PAR. LA Lb	4 DEF. 247 2	SERIAL COMMUNICATION MODBUS address MODBUS baud rate the parameter is relevant only if bLE = 0 MODBUS parity	2 = evaporator 3 = auxiliary 4 = cabinet and evaporator 5 = all MIN MAX. 1 247 0 = 2,400 baud 1 = 4,800 baud 2 = 9,600 baud 3 = 19,200 baud 0 = pope 1 = odd
DLE = 0 Output 154 bLE 1 configuration MODBUS serial port tions (in model 1 only through the EVIF23TSX clock) or for MODBUS RTU communication via the RS-485 port 1 99 = device address for connectivity N.B.: - for the EVconnect app (only in model 1 via the		NO. 151 152	rE1 PAR. LA Lb	4 DEF. 247 2 2	SERIAL COMMUNICATION MODBUS address MODBUS baud rate the parameter is relevant only if bLE = 0 MODBUS parity the parameter is relevant only if	2 = evaporator 3 = auxiliary 4 = cabinet and evaporator 5 = all MIN MAX. 1 247 0 = 2,400 baud 1 = 4,800 baud 2 = 9,600 baud 3 = 19,200 baud 0 = none 1 = odd 2 = odd
154 bLE 1 configuration MODBUS serial port 0 = free for real-time functions (in model 1 only through the EVIF23TSX clock) or for MODBUS RTU communication via the RS-485 port 199 = device address for connectivity N.B.: - for the EVconnect app (only in model 1 via the		NO. 151 152	rE1 PAR. LA Lb	247 2 2	SERIAL COMMUNICATION MODBUS address MODBUS baud rate the parameter is relevant only if bLE = 0 MODBUS parity the parameter is relevant only if	2 = evaporator 3 = auxiliary 4 = cabinet and evaporator 5 = all MIN MAX. 1 247 0 = 2,400 baud 1 = 4,800 baud 2 = 9,600 baud 3 = 19,200 baud 0 = none 1 = odd 2 = even
tions (in model 1 only through the EVIF23TSX clock) or for MODBUS RTU communication via the RS-485 port 199 edvice address for connectivity <u>N.B.:</u> - for the EVconnect app (only in model 1 via the		NO. 151 152	PAR. LA Lb	247 2	SERIAL COMMUNICATION MODBUS address MODBUS baud rate the parameter is relevant only if bLE = 0 MODBUS parity the parameter is relevant only if bLE = 0	2 = evaporator 3 = auxiliary 4 = cabinet and evaporator 5 = all MIN MAX. 1 247 0 = 2,400 baud 1 = 4,800 baud 2 = 9,600 baud 3 = 19,200 baud 0 = none 1 = odd 2 = even
through the EVIF23TSX clock) or for MODBUS RTU communication via the RS-485 port 1 99 = device address for connectivity <u>N.B.:</u> - for the EVconnect app (only in model 1 via the		NO. 151 152 153	PAR. LA Lb LP	4 DEF. 247 2 2	SERIAL COMMUNICATION MODBUS address MODBUS baud rate the parameter is relevant only if bLE = 0 MODBUS parity the parameter is relevant only if bLE = 0 configuration MODBUS serial port	2 = evaporator 3 = auxiliary 4 = cabinet and evaporator 5 = all MIN MAX. 1 247 0 = 2,400 baud 1 = 4,800 baud 2 = 9,600 baud 3 = 19,200 baud 0 = none 1 = odd 2 = even 0 = free for real-time func-
through the EVIF23TSX clock) or for MODBUS RTU communication via the RS-485 port 1 99 = device address for connectivity <u>N.B.:</u> - for the EVconnect app (only in model 1 via the		NO. 151 152 153	PAR. LA Lb LP	4 DEF. 247 2 2	SERIAL COMMUNICATION MODBUS address MODBUS baud rate the parameter is relevant only if bLE = 0 MODBUS parity the parameter is relevant only if bLE = 0 configuration MODBUS serial port	2 = evaporator 3 = auxiliary 4 = cabinet and evaporator 5 = all MIN MAX. 1 247 0 = 2,400 baud 1 = 4,800 baud 2 = 9,600 baud 3 = 19,200 baud 0 = none 1 = odd 2 = even 0 = free for real-time func- tions (in model 1 act)
clock) or for MODBUS RTU communication via the RS-485 port 199 = device address for connectivity <u>N.B.:</u> - for the EVconnect app (only in model 1 via the		NO. 151 152 153 154	PAR. LA Lb LP bLE	4 DEF. 247 2 2	SERIAL COMMUNICATION MODBUS address MODBUS baud rate the parameter is relevant only if bLE = 0 MODBUS parity the parameter is relevant only if bLE = 0 configuration MODBUS serial port	2 = evaporator 3 = auxiliary 4 = cabinet and evaporator 5 = all MIN MAX. 1 247 0 = 2,400 baud 1 = 4,800 baud 2 = 9,600 baud 3 = 19,200 baud 0 = none 1 = odd 2 = even 0 = free for real-time func- tions (in model 1 only the second secon
RTU communication via the RS-485 port 1 99 = device address for connectivity <u>N.B.:</u> - for the EVconnect app (only in model 1 via the		NO. 151 152 153	PAR. LA Lb LP	4 DEF. 247 2 2	SERIAL COMMUNICATION MODBUS address MODBUS baud rate the parameter is relevant only if bLE = 0 MODBUS parity the parameter is relevant only if bLE = 0 configuration MODBUS serial port	2 = evaporator 3 = auxiliary 4 = cabinet and evaporator 5 = all MIN MAX. 1 247 0 = 2,400 baud 1 = 4,800 baud 2 = 9,600 baud 3 = 19,200 baud 0 = none 1 = odd 2 = even 0 = free for real-time func- tions (in model 1 only through the EVIF23TSX
the RS-485 port 1 99 = device address for connectivity N.B.: - for the EVconnect app (only in model 1 via the		NO. 151 152 153	rE1 PAR. LA Lb	247 2 2	SERIAL COMMUNICATION MODBUS address MODBUS baud rate the parameter is relevant only if bLE = 0 MODBUS parity the parameter is relevant only if bLE = 0 configuration MODBUS serial port	2 = evaporator 3 = auxiliary 4 = cabinet and evaporator 5 = all MIN MAX. 1 247 0 = 2,400 baud 1 = 4,800 baud 2 = 9,600 baud 3 = 19,200 baud 0 = none 1 = odd 2 = even 0 = free for real-time func- tions (in model 1 only through the EVIF23TSX clock) or for MODBUS
Ine R5-463 point I 99 edvice address for connectivity <u>N.B.:</u> - for the EVconnect app (only in model 1 via the		NO. 151 152 153	PAR. LA Lb LP bLE	2 2 2 1	SERIAL COMMUNICATION MODBUS address MODBUS baud rate the parameter is relevant only if bLE = 0 MODBUS parity the parameter is relevant only if bLE = 0 configuration MODBUS serial port	2 = evaporator 3 = auxiliary 4 = cabinet and evaporator 5 = all MIN MAX. 1 247 0 = 2,400 baud 1 = 4,800 baud 2 = 9,600 baud 3 = 19,200 baud 0 = none 1 = odd 2 = even 0 = free for real-time func- tions (in model 1 only through the EVIF23TSX clock) or for MODBUS RTU communication via
1 99 = device address for connectivity <u>N.B.:</u> - for the EVconnect app (only in model 1 via the		NO. 151 152 153	rE1 PAR. LA Lb	4 DEF. 247 2 2	SERIAL COMMUNICATION MODBUS address MODBUS baud rate the parameter is relevant only if bLE = 0 MODBUS parity the parameter is relevant only if bLE = 0 configuration MODBUS serial port	2 = evaporator 3 = auxiliary 4 = cabinet and evaporator 5 = all MIN MAX. 1 247 0 = 2,400 baud 1 = 4,800 baud 2 = 9,600 baud 3 = 19,200 baud 0 = none 1 = odd 2 = even 0 = free for real-time func- tions (in model 1 only through the EVIF23TSX clock) or for MODBUS RTU communication via the RS-425 port
connectivity N.B.: - for the EVconnect app (only in model 1 via the		NO. 151 152 153	PAR. LA Lb	4 DEF. 247 2 2	SERIAL COMMUNICATION MODBUS address MODBUS baud rate the parameter is relevant only if bLE = 0 MODBUS parity the parameter is relevant only if bLE = 0 configuration MODBUS serial port	2 = evaporator 3 = auxiliary 4 = cabinet and evaporator 5 = all MIN MAX. 1 247 0 = 2,400 baud 1 = 4,800 baud 2 = 9,600 baud 3 = 19,200 baud 0 = none 1 = odd 2 = even 0 = free for real-time func- tions (in model 1 only through the EVIF23TSX clock) or for MODBUS RTU communication via the RS-485 port
N.B.: - for the EVconnect app (only in model 1 via the		NO. 151 152 153	rE1 PAR. LA Lb LP	4 DEF. 247 2 2	SERIAL COMMUNICATION MODBUS address MODBUS baud rate the parameter is relevant only if bLE = 0 MODBUS parity the parameter is relevant only if bLE = 0 configuration MODBUS serial port	2 = evaporator 3 = auxiliary 4 = cabinet and evaporator 5 = all MIN MAX. 1 247 0 = 2,400 baud 1 = 4,800 baud 2 = 9,600 baud 3 = 19,200 baud 0 = none 1 = odd 2 = even 0 = free for real-time func- tions (in model 1 only through the EVIF23TSX clock) or for MODBUS RTU communication via the RS-485 port 1 99 = device address for
- for the EVconnect app (only in model 1 via the		NO. 151 152 153	rE1 PAR. LA Lb	247 2 2 1	SERIAL COMMUNICATION MODBUS address MODBUS baud rate the parameter is relevant only if bLE = 0 MODBUS parity the parameter is relevant only if bLE = 0 configuration MODBUS serial port	2 = evaporator 3 = auxiliary 4 = cabinet and evaporator 5 = all MIN MAX. 0 = 2,400 baud 1 = 4,800 baud 2 = 9,600 baud 3 = 19,200 baud 0 = none 1 = odd 2 = even 0 = free for real-time func- tions (in model 1 only through the EVIF23TSX clock) or for MODBUS RTU communication via the RS-485 port 1 99 = device address for connectivity
(only in model 1 via the		NO. 151 152 153	rE1 PAR. LA Lb bLE	247 247 2	SERIAL COMMUNICATION MODBUS address MODBUS baud rate the parameter is relevant only if bLE = 0 MODBUS parity the parameter is relevant only if bLE = 0 configuration MODBUS serial port	2 = evaporator 3 = auxiliary 4 = cabinet and evaporator 5 = all MIN MAX. 1 247 0 = 2,400 baud 1 = 4,800 baud 2 = 9,600 baud 3 = 19,200 baud 0 = none 1 = odd 2 = even 0 = free for real-time func- tions (in model 1 only through the EVIF23TSX clock) or for MODBUS RTU communication via the RS-485 port 1 99 = device address for connectivity N.B.:
(only in model 1 via the		NO. 151 152 153	rE1 PAR. LA Lb DLE	247 22 2	SERIAL COMMUNICATION MODBUS address MODBUS baud rate the parameter is relevant only if bLE = 0 MODBUS parity the parameter is relevant only if bLE = 0 configuration MODBUS serial port	2 = evaporator 3 = auxiliary 4 = cabinet and evaporator 5 = all MIN MAX. 1 247 0 = 2,400 baud 1 = 4,800 baud 2 = 9,600 baud 3 = 19,200 baud 0 = none 1 = odd 2 = even 0 = free for real-time func- tions (in model 1 only through the EVIF23TSX clock) or for MODBUS RTU communication via the RS-485 port 1 99 = device address for connectivity N.B.: - for the EV/connect app
		NO. 151 152 153	rE1 PAR. LA Lb	247 22 2	SERIAL COMMUNICATION MODBUS address MODBUS baud rate the parameter is relevant only if bLE = 0 MODBUS parity the parameter is relevant only if bLE = 0 configuration MODBUS serial port	2 = evaporator 3 = auxiliary 4 = cabinet and evaporator 5 = all MIN MAX. 1 247 0 = 2,400 baud 1 = 4,800 baud 2 = 9,600 baud 3 = 19,200 baud 0 = none 1 = odd 2 = even 0 = free for real-time func- tions (in model 1 only through the EVIF23TSX clock) or for MODBUS RTU communication via the RS-485 port 1 99 = device address for connectivity N.B.: - for the EVconnect app (only in model 1 via the

	error		
Pr4	temperature or humidity	automatic	
	sensor error Pb4		
Pr5	humidity or pressure sensor error Pb5	automatic	
rtc	clock error	manual	- set date, time and day of the week
AL	low temperature alarm	automatic	- check A0, A1 and A2
AH	high temperature alarm	automatic	- check A0, A4 and A5
id	door open alarm	automatic	- check i0 and i1
PF	power failure alarm	manual	- press a key
			 check electrical connection
dI2	multi-purpose 1 and 2 input alarm	automatic	- check i5, i6, i15, i16
C1t	compressor thermal switch alarm	automatic	- check i5, i6, i15, i16
C2t	compressor 2 thermal switch alarm	automatic	- check i5, i6, i15, i16
сон	condenser overheat alarm	automatic	- check C6, C7, C8
CSd	compressor locked alarm	manual	- switch the device off and on
			- check C6, C7, C8
MiC	man in cold room alarm	automatic	signal only
dFd	defrost timeout alarm	manual	 press a key check d2, d2b, d3, d3b and d11
Pd	pump-down alarm from dig- ital input timed out	automatic	signal only
iSd	high pressure switch alarm (regulation locked for no. HP events x i8)	manual	 switch the device off and on check i5, i6, i8, i9, i15, i16
НР	high pressure switch alarm (regulation locked for single event)	automatic	- check i5, i6, i15, i16
LP	low pressure switch alarm	automatic	- check i5, i6, i15, i16
LPt*	low pressure alarm (if Pb5 = 2; with compressor locked if h12=1)	automatic	- check threshold h13
HPt*	high pressure alarm (if Pb5 = 2; with compressor locked if h12=1)	automatic	 check threshold h23 compressor locked if h12=1
*When	Pb5 = 2, the pressure can be	read from the 4.	20 mA signal: in this case the LPt (!

 pressure) alarm can be triggered if the pressure goes below the threshold his area a decay
 h14. The HPt (high pressure) alarm can be triggered if the pressure goes above the threshold
 h23 after a delay h24. The value in bar or barg of the minimum and maximum pressure
 thresholds is obtained by converting the degrees (°C/F). This is done by setting the gas with trigge h15.

•	92	F6	0	high or low humidity function (if	0 = for low humidity (with					start time energy saving Saturday	0 = midnight	8 TECHN	IICAL SPECIFI	CATIONS	
				F0 = 5)	fan time F4 and F5 if		136	H12	0	maximum duration energy saving	0 24 h	Dumpers of the	annen daular.		
					compressor is off, on if		127	LI12	0	Saturday	>0 function active	Construction of	f the control device:	vice:	built-in electronic device
					compressor is on) 1 = for high humidity		137	п13		start time energy saving Sunday	023 h 0 = midnight	Housing:			grey, self-extinguishing
					(fans on)		138	H14	0	maximum duration energy saving	0 24 h	Category of he	at and fire resis	tance:	D
	93	F7	5.0	threshold relative to setpoint (SP)	-99.0 99.0 °C/°F					Sunday	>0 function active	Measurements	:		262.0 x 179.0 x 95.6 mm (10.314 x 7.047 x
	94	F8	2.0	for end of fan stop time evaporator fan regulation thresh-	0.115.0 °C/°E		NO.	PAR.	DEF.	SWITCH ON/OFF WITH RTC	MIN MAX.	Mounting meth	nod for the contr	ol device:	wall or on-board with fixing screws and plugs
				old differential (F1)	0.1	闘	139	TION		device switch-on time	h = disabled	Dogroo of prot	oction provided	by the cacine.	(not provided)
	95	F9	0	evaporator fans off delay from	0 240 s	\sim	140	HoF	h	device switch-off time	0 23 h	Connection me	ethod:	by the casing.	165
	96	F11	15.0	compressor off	1FFU = 2 or 5		NO	DAD	DEE	DEEPOST WITH PTC	h= disabled	- fixed screw t	erminal blocks	pitch 6.35 mm (0.25 in) for wires up to 4 mm ² (0.0062 in ²):
					with differential = $2 \text{ °C}/4 \text{ °F}$		141	Hd1	h	1 st daily defrost time	0 23 h	- fixed screw t	erminal blocks	pitch 5.0 mm (0.	196 in) for wires up to 2.5 mm ² (0.0038 in ²):
	97	F12	30	condenser fans off delay from	0 240 s						h = disabled	Maximum perm	uts, digital input nitted length for	connection cable	ations ports
	98	F13	30	compressor off	if Pb3 and Pb4 \neq 1 0 240 s x 10	٥O	142	Hd2	h	2 nd daily defrost time	like Hd1	power supply:	100 m (328 ft)		power supply 4 20 mA transducers: 100 m
		. 15		saving	if F0 ≠ 5	•	143	Hd4	h	4 th daily defrost time	like Hd1	analogue input	s: 100 m (328 i	ft)	(328 ft) digital inputs: 100 m (328 ft)
	99	F14	30	time evaporator fans on in energy	0 240 s x 10		145	Hd5	h	5 th daily defrost time	like Hd1	digital outputs	: 100 m (328 ft))	communications ports: 1,000 m (3,280 ft);
	NO	DAD	DEE	saving	if F0 ≠ 5 MIN MAX		146	Hd6	h	6 th daily defrost time	like Hd1				see also the MODBUS specifications and im-
	100	i0	3	door switch input function	0 = disabled		NO.	PAR.	DEF.	DATA-LOGGING	MIN MAX.				plementation guides available at
					1 = compressor + evapora-		14/	FAI	420	tings from EVconnect and EPoCA	-55 555	Use cables of	f an adequate	section for the	current running through them. When the
					tor fans off		148	PA2	824	level 2 password to access set-	-99 999	device is used	d at its maximu	m operating te	mperature and at full load, use cables with
					3 = cabinet light on		1/10	rEO	60	tings from EVconnect and EPoCA	0 240 min	Operating tem	perature:		models with a magnetothermal switch:
					4 = compressor + evapora-	LOG	149	TLU	00	data logger sampling interval	0 240 mm				from 0 to 45 °C (from 32 to 113 °F).
					tor fans off, cabinet		150	rE1	4	select temperature for sampling	0 = none 1 = cabinet				models without a magnetothermal switch: from 0 to 50 °C (from 32 to 122 °E)
					5 = evaporator fans off,						2 = evaporator	Storage tempe	erature:		from -25 to 70 °C (from -13 to 158 °F)
					cabinet light on						4 = cabinet and evaporator	Operating hum	idity:		relative humidity without condensate from
	101	11	0	door switch input activation	0 = with contact closed 1 = with contact open						5 = all	Pollution status	s of the control	device:	10 to 90 %
	102	i2	30	door open alarm delay	-1 120 min		NO.	PAR.	DEF.	SERIAL COMMUNICATION	MIN MAX.			acvice.	-
					-1 = disabled		151	Lb	247	MODBUS baud rate	0 = 2,400 baud	Compliance:			
	103	13	15	rator fan off time with door open	-1 120 mm -1 = until closed					the parameter is relevant only if	1 = 4,800 baud	RoHS 2011/65	/EC	07/2006	WEEE 2012/19/EU
	104	i5	7	multi-purpose input 1 function	0 = disabled					bLE = 0	2 = 9,600 baud 3 = 19,200 baud	EMC compliance	ce	0772000	
					1 = energy saving		153	LP	2	MODBUS parity	0 = none $1 = odd$	EN 60730-1			60730-1
					alarm (dI2)					the parameter is relevant only if	2 = even	Power supply:			115 230 Vac (+10 % -15 %), 50 60 Hz
					3 = high pressure alarm		154	bl F	1	DLE = 0 configuration MODBUS serial port	0 = free for real-time func-				class 2 circuit. The maximum current permit-
					(iSd and HP)		10.	DEL	-		tions (in model 1 only				ted for the phase is 16 A
					5 = switch device on/off						through the EVIF23TSX	Magnetotherm	al switch		+ neutral, for wires up to 2.5 mm ²
					6 = low pressure alarm (LP)						Clock) or for MODBUS RTU communication via				(0.0387 in ²); upon request
					7 = compressor 1 thermal switch alarm (C1t)						the RS-485 port	Earthing metho	ods for the conti	rol device:	with earth terminal
N.					8 = compressor 2 thermal						1 99 = device address for	Rated impulse	withstand volta	ge:	4 kV
					switch alarm (C2t)						N.B.:	Overvoltage ca	tegory:		III
					9 = man in cold room alarm (MiC)						- for the EVconnect app	Software class	and structure:		A 3 for PTC_NTC or Pt 1000 probes (of which 1
	105	i6	0	multi-purpose input 1 activation	0 = with contact closed	•					(only in model 1 via the EVlinking BLE module)	, malogae mpa			configurable by parameter Pb3); 1 for PTC,
	106	17	0	alarm dolay dI2 (multi-purposo	1 = with contact open	\oplus					and the EPoCA system				NTC, Pt 1000 probes or proprietary humidity
	100	17		input) if i5 and/or i15 = 2	0 = disabled						and/or MODBUS TCP				can be configured by parameter Pb4; 1 for
				compressor on delay from alarm reset, if i5 and/or i15 = 3 or 6							(in model 1 via the				420 mA humidity or pressure transducers,
	107	i8	0	number of HP alarms required	0 15						EVlinking Wi-Fi	PTC probas:	Type of concor		which can be configured by parameter Pb5
				(multi-purpose input activation if $\frac{15}{10}$ and (or if $\frac{15}{10}$ = 3) to black are 1	0 = disabled						EVIF25TWX module), set to 1	ric probes.	Measurement	field:	from -50 to 150 °C (from -58 to 302 °F)
				tion after high pressure alarm							- for the EPoCA system		Resolution:		0.1 °C (1 °F)
				(iSd)							and/or for MODBUS TCP	NTC probes:	Type of sensor		B3435 (10 kΩ @ 25 °C, 77 °F)
	108	i9	240	consecutive time if there are no	1 999 min						communication via Ether- net (only in model 1 via		Resolution	rieid:	rrom -40 to 105 °C (from -40 to 221 °F)
				activation if i5 and/or i15 = 3) to							the IoT EV3 Web or EVD	Probes	Type of sensor	:	1 kΩ @ 0 °C, 32 °F
				reset counter for blocking regula-							Web gateway), follow the	Pt 1000:	Measurement	field:	from -99 to 199 °C (from -146 to 390 °F)
				tion after high pressure alarm							dress in the relative man-	Ттрн	Resolution:	field T	0.1 °C (1 °F)
	109	i10	0	door closed consecutive time for	0 999 min						uals	EVHTP520	Measurement	field RH	5 95 % RH
		-		energy saving	0 = disabled						- communication works with	probe	Protection		none
	110	i13	180	number of door openings for de-	0 240 0. – disabled						19,200 and even MODBUS	4 20 mA transducers	Power supply	<u> </u>	8 28 Vdc (±10%)
	111	i14	32	door open consecutive time for	0 240 min						parity, irrespective of the		Protection	nela:	against polarity inversion
				defrost	0 = disabled						value set with parameters	Digital inputs:			3 voltage-free (door switch, multi-purpose 1
	112	i15	9	multi-purpose input 2 function	like i5		I	l	I	I				-	and multi-purpose 2)
	114	i16 i17	30	Inuiti-purpose input 2 activation low pressure LP alarm delay	0 240 s	7	ERR	ORS A		ARMS		Voltage-free:		Power supply:	:: 5 Vdc, 2 mA
						CODF	DES	CRIPTI	ON	RESET TO COR	RECT			Protection:	none
	NO.	PAR.	DEF.	DIGITAL OUTPUTS	MIN MAX.	Pr1	cabi	net p	robe	error (if automatic		Digital outputs	:	6 with sealed	electro-mechanical relays in compliance with
30	112	uı		KJ TEIAY CONTIGUEACION	1 = demisting heaters		PB3	=4, inc	oming	air probe - check	< PO	K1 relay:		the EN 60079-1	SPST 30 A res @ 250 Vac
$\mathbf{\lambda}$					2 = auxiliary load	Pr2	eva	porator	probe e	error automatic - check	c sensor integrity c electrical connection	K2 relay:			SPST, 16 A res. @ 250 Vac
					3 = alarm	Pr3	aux	iliary te	mperat	ure probe automatic		K3 relay:			SPST, 30 A res. @ 250 Vac
			1									K4 relay:			SPST 16 A res @ 250 Vac

SPST, 8 A res. @ 250 Vac SPST, 8 A res. @ 250 Vac tween the digital outputs (electro-mechanical e) circuits, as well as between the digital out- type 1 C custom display with 3 digits, decimal point and function icons
SPST, 8 A res. @ 250 Vac tween the digital outputs (electro-mechanica e) circuits, as well as between the digital out- type 1 C custom display with 3 digits, decimal point and function icons
tween the digital outputs (electro-mechanica a) circuits, as well as between the digital out- type 1 C custom display with 3 digits, decimal point and function icons
e) circuits, as well as between the digital out- type 1 C custom display with 3 digits, decimal point and function icons
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type 1 C custom display with 3 digits, decimal point and function icons
C custom display with 3 digits, decimal point and function icons
custom display with 3 digits, decimal point and function icons
custom display with 3 digits, decimal point and function icons
and function icons
headle to
Duilt-In
1 RS-485 MODBUS slave port
11b: 67.5 mW and 11g: 71.1 mW, 11r
(HT20) 56.5 mW
.412 2,472 MHz
open, WEP, WPA/WPA2 Personal or PSK
TKIP, CCMP
mixed WPA/WPA2 PSK using TKIP + CCMP WPA/WPA2 Enterprise or EAP

 \mathbf{X}

N.B. The device must be disposed of according to local regulations governing the collection of electrical and electronic equipment.

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