# ir33+ Electronic controller for stand-alone refrigerating units



NO POWER SIGNAL CARLES TOGETHER READ CAREFULLY IN THE TEXT

D AND SAVE

**Description:** ir33+\* represent a range of electronic microprocessor controllers with LED display developed for the management of stand-alone refrigerating units.

Part number list: IREVMOLNOU, IREVMOENOU

IREVSOLNOU, IREVSOEAOU,

IREVCOLNOU, IREVCOLCOU

IREVCOHNOU, IREVCOHCOU, IREVFOENOU

#### Panel mounting



Rear (with 2 quick-fit side brackets)

# Dimensions (mm)



## Buttons on the keypad

Button	Normal function		Start-up	Autom.address assignment
	Pressing the button alone	Pressing together w	ith other butto	ons
PRG / MUTE PRG	- if pressed for more than 3 s accesses the menu for setting the password to access the type "F" (frequent) parameters or "C" (Configuration) - in the event of alarm: silences the audible alarm (buzzer) and disables the alarm relay	PRG+ON-OFF/UP: if pressed together for more than 3 s reset any alarm with manual reset	if pressed for more than 5 s at start-up, starts the default parameter setting	if pressed for 1 s enters the au- tomatic serial ad- dress assigning procedure
ON-OFF/ UP	<ul> <li>- if pressed for more than 3s disables the regulation / if pressed for more than 1s, enables the regulation</li> <li>- during the parameters modification increase the value displayed move to- wards the next parameter</li> </ul>	ON-OFF/UP+AUX/D more than 3 s enab operation ON- OFF/UP+ SET/D more than 3 s displa defrost probe no 1 ON-OFF/UP+ PRG/N more than 3 s reset a	OWN: if presse le/disable the PEF: if pressed t y the tempera 1UTE: if pressed any alarm with	ed together for continuous cycle rogether for ture read by the d together for manual reset
AUX/ DOWN	<ul> <li>- if pressed for more than</li> <li>1 s, enables/disables the auxiliary output</li> <li>- during the parameters modification decrease the value displayed or move towards the previous param.</li> </ul>	AUX/DOWN + ON-C more than 3 s enab operation AUX/DOWN + SET/C than 1 s display a su parameters (HA, HA)	DFF/UP: if press le/disable the DEF: if pressed bmenu with th n, HF, HFn)	ed together for continuous cycle together for more ne HACCP alarm
SET/DEF	- if pressed for more than 1s, enables/displays and/or set the set point - if pressed for more than 5 s, enables a manual defrost	SET/DEF+ AUX/DOV than 1 s display a su parameters (HA, HAr SET/DEF+ ON-OFF/L more than 3 s displa defrort prohe po 1	VN: if pressed t bmenu with th h, HF, HFn) JP: if pressed to y the tempera	ogether for more ne HACCP alarm ogether for ture read by the

#### Table of alarms and signals: display, buzzer and relay

Code	Display icon	Alarm	Buzzer	Reset	Description
'rE'	S+ flashing	ON	ON	automatic	virtual control probe fault
'EO'	+ flashing	OFF	OFF	automatic	room probe S1 fault
'E1'	+ flashing	OFF	OFF	automatic	defrost probe S2 fault
'E2'-3-4	+ flashing	OFF	OFF	automatic	probe S3-4-5 fault
1 1	no	OFF	OFF	automatic	probe not enabled
'LO'	<b>f</b> lashing	ON	ON	automatic	low temperature alarm
'HI'	<b>A</b> flashing	ON	ON	automatic	high temperature alarm
'AFr'	flashing	ON	ON	manual	antifreeze alarm
ʻlA'	flashing	ON	ON	automatic	immediate alarm from external contact
'dA'	flashing	ON	ON	automatic	delayed alarm from external contact
'dEF'	N ON	OFF	OFF	automatic	defrost running
'Ed1'-2	no	OFF	OFF	automatic/	defrost on evaporator 1-2 ended by
				manual	timeout
'Pd'	&+♣ flashing	ON	ON	automatic/ manual	maximum time pump-down alarm
'LP'	&+♣ flashing	ON	ON	automatic/ manual	low pressure alarm
'AtS'	&+♣ flashing	ON	ON	automatic/	autostart in pump-down
'cht'	no	OFF	OFF	automatic/	high condenser temperature pre-
'CHT'	At flashing	ON	ON	manual	high condenser temperature alarm
'dor'		ON	ON	automatic	door open for too long alarm
'Etc'	✓ flashing	OFF	OFF		real time claock fault
'EE'	S+ flashing	OFF	OFF	automatic	EEPROM error, unit parameters
'EF'	+ flashing	OFF	OFF	automatic	EEPROM error, operating parameters
'HA'	(1) flashing	OFF	OFF	manual	HACCP alarm, type 'HA'
'HF'	(1) flashing	OFF	OFF	manual	HACCP alarm, type 'HF'
'rCt'	signal				Instrument enabled for program-
					ming from the remote control (not
					available on ir33+)
'Add'	signal				Automatic address assignment
'cch'	signal				Request to start continuous cycle
'ccF'	signal				Request to end continuous cycle
'dFb'	signal				Request to start defrost
'dFE'	signal				Request to end defrost
'On'	signal				Switch ON
'OFF'	signal				Switch OFF
'rES'	signal				Reset alarms with manual reset;
					Reset HACCP alarms; Reset tempera-
		-	-		ture monitoring
'n1''n6'	💂 flashing	ON	ION	automatic	Indicates an alarm on unit 1 to 6
(al.a.1./	-				Ipresent in the network
<u>unt</u>	Isignal				Download in progress
u id6	💻 flashing	UFF	UFF		pownioad with errors on unit 1 to 6

# Technical characteristics

power supply:	1	
Model	Voltage	Power
IREVxxExxxx	230 V~, 50/60 Hz	3 VA, 25 mA~ max.
IREVxxHxxxx	115230 V~, 50/60 Hz	6 VA, 50 mA~ max.
IREVxxLxxxx	1224 V~, 50/60 Hz, 1230 Vdc	3 VA, 300 mA~ /mAdc max.
Insulation gua	ranteed by the power supply:	
IREVxxExxxx IREVxxHxxxx	insulation in reference to very low	reinforced, 6 mm clearance, 8 mm creepage, 3750 V insulation

 
 insulation from relay outputs
 basic, 3 mm clearance, 4 mm creepage, 1250 V insulation

 IREVxxLxxxx
 insulation in reference to very low voltage parts
 externally guaranteed by safety transformer (SELV power supply)

 insulation from relay outputs
 reinforced, 6 mm clearance, 8 mm creepage, 3750 V insulation

input	S	
S1 (p	robe 1)	NTC

 S2 (probe 2)
 NTC

 DI1
 free contact, contact resistance < 10 Ω, closing current 6 mA</td>

 S3 (probe 3)
 NTC

 DI2
 free contact, contact resistance < 10 Ω, closing current 6 mA</td>

 S4 (probe 4)
 NTC

 Maximum distance of probes and digital inputs less than 10 m. Note: During installation

keep the power and loads connection separate from probe cables, digital inputs, repeater display and supervisory system

#### Probe type

Fig. 1

NTC std.	10 kΩ a 25 °C, range –50T90 °C					
CAREL	measurement error			1 °C range –50T50 °C		
			3 °C ran	ge 50T90 °C		
Relay output	s (depending on t	the mo	del)			
			EN60730-1		UL873	
model		relay	250 V~	operat. cvcles	250 V~	operat.cycles
IRxxxx(E,A)(P,C	Q,S,U,V,X,Y,Z)xxx	R2 (*)	5(1) A	100000	5 A res. 1 FLA 6 LRA C300	30000
IRxxxx(E,A)(N,	R,C,B,A,M,L,T)xxx	R3 (*)	5(1) A	100000	5 A res. 1 FLA 6 LRA C300	30000
IRxxxx(E,A)(N,	R,C,B,A,M,L,T)xxx	R1, R2	8(4)A N.O.	100000	8 A res. 2 FLA	30000
IRxxxx(0,L,H)(1	N,R,C,B,A,M,L,T)xxx	R2, R3,	6(4)A N.C.		12 LRA C300	
		R4 (*)	2(2)A N.O./N.C.			
IRxxxx(E,A)(P,	Q,S,U,V,X,Y,Z)xxx	R1	12(2)A	100000	12 A res. 5 FLA	30000
IRxxxx(0,L,H)(1	N,R,C,B,A,M,L,T)xxx		N.O./N.C.		30 LRA C300	
insulation in	reference to very	low	reinforced, 6 m	m clearar	nce, 8 mm creep	age, 3750 V
voltage parts	5		insulation			
insulation be	etween the relay of	outputs	basic, 3 mm cle	earance, 4	4 mm creepage	, 1250 V
indipendent			insulation			
Connections	wire section 0	.5 - 2.5 ı	mq max current	12A		
(*): Relay not suitable for fluorescent loads (neon lights,) that use starters (ballasts) with phase-shift capacitors. Fluorescent lamps with electronic control devices or without phase-shift capacitors can be used, within the operating limits specified for each type of relay.						
The installer	has to provide th	ne corre	ct dimensioning	g of the p	ower supply a	nd cable con-
nection betw	ween the instrum	ents an	d the loads. De	bending	on the model, 1	the maximum
current in the common terminals 1, 3 or 5 is 12 A. When using the controller at maximum						
operating te	mperature and fu	ıll load,	use cables featu	uring a m	naximum opera	ting tempera-
ture of 105 °	C at least.					

Clock	error at 25 °C ±10 ppm (±5.3 min/year)
	error in the temperature range -10T60 °C
	-50 ppm (-27 min/year)
Operating temperature	-10T60 °C for all versions
Operating humidity	<90% r.H. non-condensing
Storage temperature	-20T70 °C
Storage humidity	<90% r.H. non-condensing
Front panel degree of protection	smooth and stiff panel installation with
	gasket IP65
Control pollution status	2 (normal situation)
PTI of the insulating material	printed circuit board 250, insulation 175
Period of electric stress across insulating parts	long
Heat and fire resistance category	category D and category B (UL 94-V0)
Class of protection against voltage surges	category II
Type of disconnection or interruption	1.B relay contacts (micro-disconnection)
Construction of control	incorporated control, electronically
Classification according to protection against	Class II, by appropriate incorporation
electric shock	
Max. distance between interface and display	10 m
Programming key	available on all models
Safety standards: compliant with the European	
reference standards.	

### Signals on the display

con	Function	Normal operation			Startup
		ON	OFF	blink	
3	COMPRESSOR	compressor ON	compressor OFF	compressor required	
38	FAN	fan ON	fan OFF	fan required	
***	DEFROST	defrost in progress	defrost not required	defrost required	
	AUX	auxiliary output AUX active	auxiliary output AUX not active	anti-sweat heater function active	
	ALARM	delayed external alarm (before the expiry of the time 'A7')	no alarm present	alarms and malfunctions	
$\mathcal{T}$	CLOCK	at least one timed defrost has been set	no timed defrost is present	clock alarm	ON if RTO present
<u>, </u>	LIGHT	auxiliary output LIGHT active	auxiliary output LIGHT not active	anti-sweat heater function active	
<u>N</u>	SERVICE		no malfunctions	malfunction (es.	

# How to set the set point (desired temperature value)

Step	Action	Effect	Meaning
1	(E)	After 1 second the display will	This the currently active
	Press DEF for 1 second	show the current set point	control set point
2		The value on the display will	Cat the desired value
2	Press 🕛 or 🗣	increase or decrease	Set the desired value
2	SET	The controller will show the tem-	The set point is modi-
3	Press DEF	perat. read by the probes again	fied and saved

Another way of changing the set point is to set parameter "St" (see the tables below)

#### How to access and set parameters

type "F" (FREQUENT, not protected by password) type "C" (CONFIGURATION, password protected)

Step	Action	Effect	Meaning
1	Press k for 3 seconds	After 3s the display will show the 1st parameter, "0" (password)	Access to type "F" param. is direct without password
2	Press or •••	The value on the display will increase or decrease.	Enter the password "22" to access the type "C" param. or whatever different value for the type "F" parameters.
3	Press DEF	The display will show "St" (Setpoint)	This is the current value of the Setpoint
4	Press or the or the other states and the other stat	If the password set is 22 the display will scroll the list of type "C" parameters (CONFIGURA- TION) otherwise the list of type "F" parameters (FREQUENT)	Set the desired value
5	Press DEF	The display will show the parameter name	This is the current value of the parameter
6	Press or v	The value on the display will increase or decrease	Set the desired value
7	Press DEF	The display will show the parameter name again	Important: parameters not yet saved
8	Repeat steps 2, 3, 4 & 5 for all parameters required		
9	Press for 5 seconds	The controller will display the temperature read by the probes again	Important: only now have all the parameters been updated

For both types of access (type "F" and type "C") there is a timeout (no button on the keypad pressed for 1 min), the procedure is ended without saving the parameter.

# Accessing the parameters divided by functional blocks (allows the user to scroll the list of parameters in blocks)

Once having accessed the type "F" or "C" parameters (see tables above)

Step	Action	Effect	Meaning
	PRG	The display will show the name	Example 'CMP' for the com-
1		of the functional block that the	pressor parameters, 'dEF' for
	Press 🖚	parameter belongs to	the defrost parameters
2		The display will show the name	Example 'Fan' for the fan
2 P	Press 🕛 or 🛶	of the other functional blocks	parameters
	_	The display will show the name	
3	5 <u>5</u>	of the first parameter in the	Example "F0" for 'Fan'
	Press def	functional block selected	

#### Alarms with manual reset:

the alarms with manual reset can be reset by pressing the arrow and bar for more than 3 s.

#### Manual defrost:

as well as the automatic defrost function, a manual defrost can be enabled, if the temperature  $\widehat{\{ E^{T} \}}$ 

ture conditions allow, by pressing the  $\overline{DEF}$  button for more than 5 s.

#### HACCP function:

ir33+ is compliant with the HACCP standards in force since it allows the monitoring of the temperature of the stored food.

"HA" alarm = exceeded maximum threshold: up to three HA events are saved (HA, HA1, HA2) respectively from the more recent (HA) to the oldest (HA2) and a HAn signal that displays the number of occurred HA events.

#### "HF" alarm = power failure lasting over a minute and exceeded AH maximum threshold: up to three HF events are saved (HF, HF1, HF2) respectively from the more recent (HF) to the oldest (HF2) and a HFn signal that displays the number of occurred HF events.

oldest (HF2) and a HFn signal that displays the number of occurred HF events. HA/HF alarm setting: AH parameter (high temp. threshold); Ad and Htd (Ad+Htd = HACCP alarm activation delay).

#### Display of the details:

access to HA or HF parameters pressing the  $e_{\text{PEF}}$  button and use  $\bigcup^{\bullet}$  or  $\overbrace{\bullet}^{\bullet}$  buttons to glance over.

#### HACCP alarm erasing:

press the v and press that the v and v and

alarm have been deleted. To cancel the saved alarms press the  $\frac{dux}{v} + \frac{dux}{ber} + \frac{dux}{b}$  buttons for more than 5 seconds.

#### Continuous cycle:

				EET HOIL CHOLOI	
				probe fault)	
Ē	HACCP	function not enabled	function enabled	HACCP alarm	
U			(HA and/or HF)	enabled	
÷¥÷)	CONTINUOUS	function enabled	function not	function required	
Ð	CYCLE		enabled		

#### **Optional connections**



### Option codes

Code	Description
IROPZDSP00	remote display interface
IREVXGD000	remote repeater dispaly
IROPZ485S0	RS485 serial board interface with automatic recognition of the polarity +/-
PSOPZPRG00	programming key kit
PSOPZKEY00	parameter programmin key with 12 V batteries
PSOPZKEYA0	parameter programming key external 230 Vac power supply
IROPZKEY00	parameter programming key, extended memory with 12 V batteries
PSTCON0*B0	repeater display connection cables (*: 1= 1,5 m; 3= 3 m; 5= 5m)

Pressing the buttons  $\bigcup_{i=1}^{\infty}$  and  $\overset{(u)}{=}$  simultaneously for more than 3 s enables the continuous cycle function. During operation in continuous cycle, the compressor continues to operate for the time 'cc' and it stops when reaches the 'cc' time out or the minimum temperature envisaged (AL = minimum temperature alarm threshold).

**Continuous cycle setting:** "cc" parameter (continuous cycle duration): "cc" = 0 never active; "c6" parameter (bypassing the alarm after the continuous cycle): "cc" = 0 never active; it avoids or delays the low temperature alarm after the continuous cycle.

#### Procedure for setting the default parameter values

To set the default parameter values on the controller, proceed as follows: 1: switch the instrument off;

2: switch the instrument back on, holding the k button until the message "Std" is shown on the display.

Note: the default values are only set for the visible parameters (C and F). For further details see table "Summary of operating parameters".

Note: the buzzer is disabled if parameter 'H4 =1

#### Parameters

### Default settings table

Deraaltisettings table												
Part number	Def. settings	Part number	Def. settings	Part number	Def. settings							
IREVMOLNOU	-	IREVCOLNOU	Def. 2	IREVF0EN0U	Def. 2							
IREVMOENOU	-	IREVCOLCOU	Def. 2									
IREVSOLNOU	Def. 1	<b>IREVCOHNOU</b>	Def. 2									
<b>IREVSOEAOU</b>	Def. 1	IREVC0HC0U	Def. 2									

Summary of operating parameters (UOM = Unit of measure; Def. = Default value)

Symbol	Code	Parameter	Mod.	UOM	Type	Min.	Max.	Def.
	Pw	Password	MSYF	-	С	0	200	22
	/2	Measurement stability	MSYF	-	C	1	15	4
	/3	Virtual probe	MSYF	-		0	100	0
	/5	Selection °C o °F (0: °C ,1: °F)	MSYF	flag	C	0	1	0
	/6	Display decimal point 0= YES, 1=NO	MSYF	flag	С	0	1	0
	/tl	Display on internal terminal	MSYF	-	C	1	7	1
		1: virtual probe; 5: probe 4 2: probe 1 6: probe 5						
		3: probe 2 7: set point						
		4: probe 3						
	/tE	Display on external terminal remote terminal not present	MSYF	-	С	0	6	0
		1: virtual probe 4: probe 3						
		2: probe 1 5: probe 4						
	/P	Select type of probe	MSYE	-	C	0	2	0
	/ .	0: NTC standard with range -50T90°C	141311			Ŭ	-	0
		1: NTC enhanced with range -40T150°C						
	/A2	Configuration of probe 2 (S2)	MS	-	С	0	4	0
_		0: probe absent 3: condenser probe	Y⊦	-	C	0	4	2
S		1: product probe (display only) 4: antifreeze probe						
Ś	/A3	Configuration of probe 3 (S3/DI1) As for /A2	MSYF	-	C	0	4	0
	/A4	Configuration of probe 4 (S4/DI2) As for /A2	MSYF	-	C	0	4	0
	/c1	Calibration of probe 1	MSYF	°C/°F	C	-20	20	0.0
	/c2 /c3	Calibration of probe 3	MSYE	°C/°F		-20	20	0.0
	/c4	Calibration of probe 4	MSYF	°C/°F	C	-20	20	0.0
	St	Temperature Set Point	MSYF	°C/°F	F	r1	r2	Def 1 Def 2
			CV/F	0.0.00		0.1	20	2 -18
	ra r	Dead band	SYF	°C/°F	F C	0,1	<u> </u>	2,0
	rr	Reverse differential for control with dead band	SYF	°C/°F	C	0,0	20	2,0
	r1	Minimum set point allowed	MSYF	°C/°F	C	-50	r2	-50
	r2	Maximum set point allowed	MSYF	°C/°F	C	r1	200	60
<b>.</b>	5	0: Direct (cooling) with defrost control		nay		U	<u> </u>	U
₩		1: Direct (cooling)						
Ľ	r 4	2: Reverse-cycle (heating)	MOUT	00 105	+	20	20	20
	r4 r5	Automatic hight-time set point variation	MSVE	flag		-20	20	3,U N
	rt	Temperature monitoring interval	MSYF	hr	F	0	999	-
	rH	Maximum temperature read	MSYF	°C/°F	F	-	-	-
	rL	Minimum temperature read	MSYF	°C/°F	F	-	-	-
	c0 c1	Minimum time between successive starts	SYF	min		0	15	0
	c2	Min. compressor OFF time	SYF	min	C	0	15	2
	c3	Minimum compressor ON time	SYF	min	С	0	15	0
	<u>c4</u>	Duty setting	SYF	min		0	100	0
	CC C6	Alarm bypass after continuous cycle	SYF	hr		0	250	2
$\frown$	с7	Maximum pump down time	SYF	S	С	0	900	0
	c9	Enable autostart function in PD	SYF	flag	C	0	1	0
$\bigcirc$	CIU	O: Pump down by time or pressure	SIF	Tiag	C	0		0
	c11	Second compressor delay	SYF	S	С	0	250	4
	d0	Type of defrost	SYF	flag	C	0	4	0
		0: Electric heater defrost by temperature						
		1: Hot gas defrost by temperature						
		3: Hot gas defrost by time						
		4: Electric heater defrost thermostat by time						
	dl dt1	Interval between defrosts	SYF	hr	F	0	250	8
	dt2	End defrost temperature, evaporator	SYF	°C/°F	F	-50	200	4,0
	dP1	Maximum defrost duration, evaporator	SYF	min	F	1	250	30
	dP2	Maximum defrost duration, aux evaporator	SYF	min	F	1	250	30
.*.*.	d3	Defrost start delay	SYF	min flag	C	0	250	0
	U4	0: No defrost when the instrument is switched on	511	nay	C	0		0
		1: A defrost is performed when the instrument is						
		switched on					4	
	dE	Structured Str						
	us Ic	Defrost delay on start-up	SYF	min	С	0	250	0
	d6	Defrost delay on start-up Display on hold during defrost	SYF SYF	min -	C	0	250 2	0
	d6	Defrost delay on start-up Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp, shown	SYF SYF	min -	C	0	250	0
	d6	Defrost delay on start-up Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp. shown 2: Display of dEF steady	SYF SYF	min -	C	0	250 2	0
	d6 dd	Defrost delay on start-up Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp. shown 2: Display of dEF steady Dripping time after defrost	SYF SYF SYF	min - min	C C F	0	250 2 15	0 1
	d6 d6 dd d8	Defrost delay on start-up Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp. shown 2: Display of dEF steady Dripping time after defrost Alarm bypass after defrost Alarm bypass after defrost	SYF SYF SYF SYF	min - min hr	C C F F	0	250 2 15 250	0 1 2 1
	d6 d6 d8 d8 d8d d9	Defrost delay on start-up Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp. shown 2: Display of dEF steady Dripping time after defrost Alarm bypass after defrost Alarm bypass after door open Defrost priority over compressor protectors	SYF SYF SYF SYF SYF SYF	min - min hr min flag	C C F F C C	0 0 0 0 0 0	250 2 15 250 250 1	0 1 2 1 0 0
	d6 d6 d8 d8d d9	Defrost delay on start-up Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp. shown 2: Display of dEF steady Dripping time after defrost Alarm bypass after defrost Alarm bypass after defoot Defrost priority over compressor protectors 0: The protection times c1, c2 and c3 are observed	SYF SYF SYF SYF SYF SYF	min - min hr min flag	C C F C C C	0 0 0 0 0 0	250 2 15 250 250 1	0 1 2 1 0 0
	d6 d6 d8 d8d d9	Defrost delay on start-up Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp. shown 2: Display of dEF steady Dripping time after defrost Alarm bypass after defrost Alarm bypass after door open Defrost priority over compressor protectors 0: The protection times c1, c2 and c3 are observed 1: The protection times c1, c2 and c3 are not observed	SYF SYF SYF SYF SYF SYF	min - hr min flag	C C F C C	0 0 0 0 0 0	250 2 15 250 250 1	0 1 2 1 0 0
	d3 d6 d8 d8 d9 d/1	Defrost delay on start-up Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp. shown 2: Display of dEF steady Dripping time after defrost Alarm bypass after defrost Alarm bypass after door open Defrost priority over compressor protectors 0: The protection times c1, c2 and c3 are observed 1: The protection times c1, c2 and c3 are not observed Display of defrost probe 1	SYF SYF SYF SYF SYF SYF	min - hr flag	C C F C C		250 2 15 250 250 1 -	0 1 2 1 0 0 0
	d6 d6 d8 d8d d9 d/1 d/2 dC	Defrost delay on start-up Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp. shown 2: Display of dEF steady Dripping time after defrost Alarm bypass after defrost Alarm bypass after door open Defrost priority over compressor protectors 0: The protection times c1, c2 and c3 are observed 1: The protection times c1, c2 and c3 are not observed Display of defrost probe 1 Display of defrost probe 2 Time base for defrost	SYF SYF SYF SYF SYF SYF MSYF MSYF SYF	min - hr flag °C/°F °C/°F	C C F C C F F		250 2 15 250 250 1 -	0 1 2 1 0 0 0
	d6 d6 d8 d8d d9 d/1 d/2 dC	Defrost delay on start-up Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp. shown 2: Display of dEF steady Dripping time after defrost Alarm bypass after defrost Alarm bypass after door open Defrost priority over compressor protectors 0: The protection times c1, c2 and c3 are observed 1: The protection times c1, c2 and c3 are not observed Display of defrost probe 1 Display of defrost probe 2 Time base for defrost 0: dl in hours, dP1 and dP2 in minutes	SYF SYF SYF SYF SYF SYF MSYF MSYF SYF	min - hr flag °C/°F °C/°F flag	C C F C C F C C		250 2 15 250 250 1 - -	0 1 2 1 0 0 0 - - 0
	d6 d6 d8 d8d d9 d/1 d/2 dC	Defrost delay on start-up Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp. shown 2: Display of dEF steady Dripping time after defrost Alarm bypass after defrost Alarm bypass after door open Defrost priority over compressor protectors 0: The protection times c1, c2 and c3 are observed 1: The protection times c1, c2 and c3 are not observed Display of defrost probe 1 Display of defrost probe 2 Time base for defrost 0: dl in hours, dP1 and dP2 in minutes 1: dl in minutes, dP1 and dP2 in seconds	SYF SYF SYF SYF SYF SYF MSYF MSYF SYF	min - hr min flag °C/°F flag	C C F C C C		250 2 15 250 250 1 - 1	0 1 2 1 0 0 0 - - 0
	d6 d6 d8 d8d d9 d/1 d/2 dC d10 d12	Defrost delay on start-up Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp. shown 2: Display of dEF steady Dripping time after defrost Alarm bypass after defrost Alarm bypass after door open Defrost priority over compressor protectors 0: The protection times c1, c2 and c3 are observed 1: The protection times c1, c2 and c3 are not observed Display of defrost probe 1 Display of defrost probe 2 Time base for defrost 0: dl in hours, dP1 and dP2 in minutes 1: dl in minutes, dP1 and dP2 in seconds Compressor running time	SYF SYF SYF SYF SYF SYF MSYF SYF SYF	min - min hr min flag °C/°F flag hr °C/°F	C C F F C C C		250 2 15 250 250 1 - 1 1 250 250 2250	0 1 2 1 0 0 0 - - 0
	d3 d6 d8 d8 d9 d/1 d/2 dC d10 d11 d12	Defrost delay on start-up Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp. shown 2: Display of dEF steady Dripping time after defrost Alarm bypass after defrost Alarm bypass after door open Defrost priority over compressor protectors 0: The protection times c1, c2 and c3 are observed 1: The protection times c1, c2 and c3 are not observed Display of defrost probe 1 Display of defrost probe 2 Time base for defrost 0: dl in hours, dP1 and dP2 in minutes 1: dl in minutes, dP1 and dP2 in seconds Compressor running time Running time temperature threshold Advanced defrost	SYF SYF SYF SYF SYF SYF SYF SYF SYF SYF	min - min hr flag °C/°F flag hr - °C/°F	C C F C C C C C C C	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	250 2 15 250 250 1 - - 1 250 250 20 3	0 1 2 1 0 0 0 - - 0 0 1,0 0
	dd d6 d8 d8d d9 d/1 d/2 dC d10 d11 d12 dn	Defrost delay on start-up Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp. shown 2: Display of dEF steady Dripping time after defrost Alarm bypass after defrost Alarm bypass after door open Defrost priority over compressor protectors 0: The protection times c1, c2 and c3 are observed 1: The protection times c1, c2 and c3 are not observed Display of defrost probe 1 Display of defrost probe 2 Time base for defrost 0: dl in hours, dP1 and dP2 in minutes 1: dl in minutes, dP1 and dP2 in seconds Compressor running time Running time temperature threshold Advanced defrost Nominal defrost duration	SYF SYF SYF SYF SYF SYF SYF SYF SYF SYF	min - min hr flag °C/°F flag hr - °C/°F - -	C C F C C C C C C C C	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	250 2 250 250 250 1 - - 1 250 20 3 100	0 1 2 1 0 0 0 - - 0 0 0 1,0 0 0 65
	dd d6 d8 d8d d9 d/1 d/2 dC d10 d11 d12 dn dH	Defrost delay on start-up Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp. shown 2: Display of dEF steady Dripping time after defrost Alarm bypass after defrost Alarm bypass after door open Defrost priority over compressor protectors 0: The protection times c1, c2 and c3 are observed 1: The protection times c1, c2 and c3 are not observed Display of defrost probe 1 Display of defrost probe 2 Time base for defrost 0: dl in hours, dP1 and dP2 in minutes 1: dl in minutes, dP1 and dP2 in seconds Compressor running time Running time temperature threshold Advanced defrost Nominal defrost duration Proportional factor, variation in dl	SYF SYF SYF SYF SYF SYF SYF SYF SYF SYF	min - min hr min flag °C/°F flag hr °C/°F - - - - - - -		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	250 2 2 15 250 250 1 - - 1 250 20 3 100 100	0 1 2 1 0 0 0 - - 0 0 1,0 0 65 50 20
	dd d6 d8 d8 d9 d/1 d/2 d/2 d/2 d/2 d/2 d/1 d/2 d/2 d/1 d/2 d/1 d/2 d/2 d/1 d/2 d/2 d/1 d/2 d/2 d/1 d/2 d/2 d/2 d/2 d/2 d/2 d/2 d/2 d/2 d/2	Defrost delay on start-up Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp. shown 2: Display of dEF steady Dripping time after defrost Alarm bypass after defrost Alarm bypass after door open Defrost priority over compressor protectors 0: The protection times c1, c2 and c3 are observed 1: The protection times c1, c2 and c3 are not observed Display of defrost probe 1 Display of defrost probe 2 Time base for defrost 0: dl in hours, dP1 and dP2 in minutes 1: dl in minutes, dP1 and dP2 in seconds Compressor running time Running time temperature threshold Advanced defrost Nominal defrost duration Proportional factor, variation in dl Alarm and fan differential Tyne of threshold'Al'and'AH'	SYF SYF SYF SYF SYF SYF SYF SYF SYF SYF	min - min hr min flag °C/°F flag hr - - - - - - - - - - - - -	F F C C C C C C C C C C C C C C	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	250 2 2 15 250 250 1 - - 1 250 20 3 100 100 20 1	0 1 2 1 0 0 - - 0 - 0 0 - - 0 0 - - 0 - 0 - - 0 - - 0 0 - - - 0 0 0 0 - - - - 0 0 0 0 - - - - - - - - - - - - -
	dd dd da da da da da da da da da da da d	Defrost delay on start-up Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp. shown 2: Display of dEF steady Dripping time after defrost Alarm bypass after defrost Alarm bypass after door open Defrost priority over compressor protectors 0: The protection times c1, c2 and c3 are observed 1: The protection times c1, c2 and c3 are not observed Display of defrost probe 1 Display of defrost probe 1 Display of defrost probe 2 Time base for defrost 0: dl in hours, dP1 and dP2 in minutes 1: dl in minutes, dP1 and dP2 in seconds Compressor running time Running time temperature threshold Advanced defrost Nominal defrost duration Proportional factor, variation in dl Alarm and fan differential Type of threshold 'AL' and 'AH' 0: AL and AH are relative thresholds to the set point	SYF SYF SYF SYF SYF SYF SYF SYF SYF SYF	min - min hr flag °C/°F flag hr - - - - °C/°F flag		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	250 2 250 250 1 1 - - - 1 250 20 3 100 100 20 1	0 1 2 1 0 0 - - 0 - 0 0 1,0 0 65 50 2,0 0
	dd dd dd dd dd dd dd dd dd dd dd dd dd	Defrost delay on start-up Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp. shown 2: Display of dEF steady Dripping time after defrost Alarm bypass after defrost Alarm bypass after door open Defrost priority over compressor protectors 0: The protection times c1, c2 and c3 are observed 1: The protection times c1, c2 and c3 are not observed Display of defrost probe 1 Display of defrost probe 2 Time base for defrost 0: dl in hours, dP1 and dP2 in minutes 1: dl in minutes, dP1 and dP2 in seconds Compressor running time Running time temperature threshold Advanced defrost Nominal defrost duration Proportional factor, variation in dl Alarm and fan differential Type of threshold'AL' and 'AH' 0: AL and AH are relative thresholds to the set point 1: AL and AH are absolute thresholds	SYF SYF SYF SYF SYF SYF SYF SYF SYF SYF	min - min hr flag °C/°F flag hr - - - - °C/°F flag		0 0 0 0 0 0 0 0 0 	250 2 250 250 1 - - - 1 250 20 3 100 100 20 1	0 1 2 1 0 0 - - 0 1.0 0 65 50 2.0 0
	dd dd dd da da da dd da dd da dd dd dd d	Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp. shown 2: Display of dEF steady Diripping time after defrost Alarm bypass after defrost Alarm bypass after door open Defrost priority over compressor protectors 0: The protection times c1, c2 and c3 are observed 1: The protection times c1, c2 and c3 are not observed Display of defrost probe 1 Display of defrost probe 2 Time base for defrost 0: dl in hours, dP1 and dP2 in minutes 1: dl in minutes, dP1 and dP2 in seconds Compressor running time Running time temperature threshold Advanced defrost Nominal defrost duration Proportional factor, variation in dl Alarm and fan differential Type of threshold 'AL' and 'AH' 0: AL and AH are relative thresholds Low temperature alarm threshold	SYF SYF SYF SYF SYF SYF SYF SYF SYF SYF	min - min hr min flag °C/°F flag - · · · · · · · · · · · · · · · · ·	C C F F C C C C C C C C C C C C C C C	0 0 0 0 0 0 0 0 	250 2 250 250 1 1 - - 1 250 20 3 100 100 100 20 1 200	0 1 2 1 0 0 - - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 0 0 - 0 0 0 0 0 0 0 0 0 0 0 0 0
	d6 d6 d8 d8 d8 d9 d/1 d/2 dC d10 d11 d12 dn dH A0 A1 AL	Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp. shown 2: Display of dEF steady Diripping time after defrost Alarm bypass after defrost Alarm bypass after door open Defrost priority over compressor protectors 0: The protection times c1, c2 and c3 are observed 1: The protection times c1, c2 and c3 are not observed Display of defrost probe 1 Display of defrost probe 2 Time base for defrost 0: dl in hours, dP1 and dP2 in minutes 1: dl in minutes, dP1 and dP2 in seconds Compressor running time Running time temperature threshold Advanced defrost Nominal defrost duration Proportional factor, variation in dl Alarm and fan differential Type of threshold'AL' and 'AH' 0: AL and AH are relative thresholds Low temperature alarm threshold	SYF SYF SYF SYF SYF SYF SYF SYF SYF SYF	min - min hr flag °C/°F flag hr - - - - °C/°F flag °C/°F flag		0 0 0 0 0 0 	250 2 250 250 1 1 - - 1 250 20 3 100 100 20 1 200	0 1 2 1 0 0 - - 0 - 0 - 0 0 - - 0 0 - - 0 - 0 - - 0 0 - - 0 0 0 0 0 0 0 0 0 0 0 0 0
	dd dd dd da da da dd da dd da dd dd dd d	Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp. shown 2: Display of dEF steady Dirpiping time after defrost Alarm bypass after defrost Alarm bypass after door open Defrost priority over compressor protectors 0: The protection times c1, c2 and c3 are observed 1: The protection times c1, c2 and c3 are not observed Display of defrost probe 1 Display of defrost probe 2 Time base for defrost 0: dl in hours, dP1 and dP2 in minutes 1: dl in minutes, dP1 and dP2 in seconds Compressor running time Running time temperature threshold Advanced defrost Nominal defrost duration Proportional factor, variation in dl Alarm and fan differential Type of threshold'AL' and 'AH' 0: AL and AH are relative thresholds Low temperature alarm threshold	SYF SYF SYF SYF SYF SYF SYF SYF SYF SYF	min - min hr min flag °C/°F flag hr - - - - °C/°F flag °C/°F flag		0 0 0 0 0 0 0 	250 2 250 250 1 1 - - 1 250 20 3 100 100 100 20 1 200	0 1 2 1 0 0 - - 0 - 0 0 - - 0 0 - - 0 - 0 0 - - 0 0 0 0 0 0 0 0 0 0 0 0 0
	dd dd dd dd dd dd dd dd dd dd dd dd dd	Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp. shown 2: Display of dEF steady Diripping time after defrost Alarm bypass after defrost Alarm bypass after door open Defrost priority over compressor protectors 0: The protection times c1, c2 and c3 are observed 1: The protection times c1, c2 and c3 are observed Display of defrost probe 1 Display of defrost probe 2 Time base for defrost 0: d lin hours, dP1 and dP2 in minutes 1: d li n minutes, dP1 and dP2 in seconds Compressor running time Running time temperature threshold Advanced defrost Nominal defrost duration Proportional factor, variation in dl Alarm and fan differential Type of threshold'AL'and'AH' 0: AL and AH are relative thresholds Low temperature alarm threshold	SYF SYF SYF SYF SYF SYF SYF SYF SYF SYF	min - min hr min flag °C/°F flag hr °C/°F flag °C/°F	F F C C C C C C C C C C C C C	0 0 0 0 0 0 0 0 	250 2 2 50 250 1 1 - - 1 250 20 3 100 100 20 1 200	0 1 2 1 0 0 - - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 0 0 - 0 0 0 0 0 0 0 0 0 0 0 0 0
	dd dd dd dd dd dd dd dd dd dd dd dd dd	Defrost delay on start-up Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp. shown 2: Display of dEF steady Dripping time after defrost Alarm bypass after defrost Alarm bypass after door open Defrost priority over compressor protectors 0: The protection times c1, c2 and c3 are observed 1: The protection times c1, c2 and c3 are observed Display of defrost probe 1 Display of defrost probe 2 Time base for defrost 0: dl in hours, dP1 and dP2 in minutes 1: dl in minutes, dP1 and dP2 in seconds Compressor running time Running time temperature threshold Advanced defrost Nominal defrost duration Proportional factor, variation in dl Alarm and fan differential Type of threshold 'AL' and 'AH' 0: AL and AH are relative thresholds Low temperature alarm threshold High temperature alarm threshold	SYF SYF SYF SYF SYF SYF SYF SYF SYF SYF	min - min hr min flag °C/°F flag - °C/°F flag °C/°F	F F C C C C C C C C C C C C C C C C	0 0 0 0 0 0 0 0 	250 2 2 50 250 1 1 - - 1 250 20 3 100 100 200 1 200 A1=1→200	0 1 2 1 0 0 - - 0 - 0 - 0 0 - - 0 - 0 - 0 - 0 - 0 - 0 0 - - 0 0 0 0 0 0 0 0 0 0 0 0 0
	dd dd dd dd dd dd dd dd dd dd dd dd dd	Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp. shown 2: Display of dEF steady Dripping time after defrost Alarm bypass after defrost Alarm bypass after door open Defrost priority over compressor protectors 0: The protection times c1, c2 and c3 are observed 1: The protection times c1, c2 and c3 are not observed Display of defrost probe 1 Display of defrost 0: dl in hours, dP1 and dP2 in minutes 1: dl in minutes, dP1 and dP2 in seconds Compressor running time Running time temperature threshold Advanced defrost Nominal defrost duration Proportional factor, variation in dl Alarm and fan differential Type of threshold 'AL'and 'AH' 0: AL and AH are relative thresholds to the set point 1: AL and AH are absolute thresholds Low temperature alarm threshold High temperature alarm threshold	SYF SYF SYF SYF SYF SYF SYF SYF SYF SYF	min - min hr min flag °C/°F flag °C/°F flag °C/°F flag	C F F C C C C C C C C C C F F F F F F F	0 0 0 0 0 0 0 0 	250 2 250 250 1 1 - - 1 250 20 3 100 100 20 1 200 1 A1=1→200 (alarm 'HI'	0 1 2 1 0 0 - - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 0 - - 0 0 0 0 0 0 0 0 0 0 0 0 0
	dd dd dd dd dd dd dd dd dd dd dd dd dd	Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp. shown 2: Display of dEF steady Dripping time after defrost Alarm bypass after defrost Alarm bypass after door open Defrost priority over compressor protectors 0: The protection times c1, c2 and c3 are not observed 1: The protection times c1, c2 and c3 are not observed Display of defrost probe 1 Display of defrost probe 2 Time base for defrost 0: dl in hours, dP1 and dP2 in minutes 1: dl in minutes, dP1 and dP2 in seconds Compressor running time Running time temperature threshold Advanced defrost Nominal defrost duration Proportional factor, variation in dl Alarm and fan differential Type of threshold 'AL' and 'AH' 0: AL and AH are relative thresholds to the set point 1: AL and AH are absolute thresholds Low temperature alarm threshold High temperature alarm threshold	SYF SYF SYF SYF SYF SYF SYF SYF SYF SYF	min - min hr flag °C/°F flag hr °C/°F flag °C/°F flag	C F F C C C C C C C C C C C C C C C C C	0 0 0 0 0 0 0 0 	250 2 2 50 250 1 1 - - 1 250 20 3 100 100 20 1 1 200 20 1 A1=1→200 (alarm 'HI' disabled)	0 1 2 1 0 0 - - 0 - 0 0 - - 0 0 - - 0 0 - - 0 0 - - 0 0 0 0 0 0 0 0 0 0 0 0 0
	dd dd dd dd dd dd dd dd dd dd dd dd dd	Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp. shown 2: Display of dEF steady Dripping time after defrost Alarm bypass after defrost Alarm bypass after door open Defrost priority over compressor protectors 0: The protection times c1, c2 and c3 are not observed 1: The protection times c1, c2 and c3 are not observed Display of defrost probe 1 Display of defrost probe 2 Time base for defrost 0: dl in hours, dP1 and dP2 in minutes 1: dl in minutes, dP1 and dP2 in seconds Compressor running time Running time temperature threshold Advanced defrost Nominal defrost duration Proportional factor, variation in dl Alarm and fan differential Type of threshold 'AL' and 'AH' 0: AL and AH are relative thresholds to the set point 1: AL and AH are absolute thresholds Low temperature alarm threshold	SYF SYF SYF SYF SYF SYF SYF SYF SYF SYF	min - min hr flag °C/°F flag hr °C/°F flag °C/°F flag °C/°F	C C F C C C C C C C C C C C C C C C C C	0 0 0 0 0 0 0 0 0 	250 2 2 250 1 1 - - 1 250 250 1 1 - 1 250 20 3 100 100 100 20 1 1 200 41=0→200 (alarm 'HI' disabled) A1=0→200	0 1 2 1 0 0 - - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 0 - - 0 0 0 - 0 0 0 0 0 0 0 0 0 0 0 0 0
	dd dd dd dd dd dd dd dd dd dd dd dd dd	Defrost delay on start-up Defrost delay on start-up Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp. shown 2: Display of dEF steady Dripping time after defrost Alarm bypass after defrost Alarm bypass after door open Defrost priority over compressor protectors 0: The protection times c1, c2 and c3 are not observed 1: The protection times c1, c2 and c3 are not observed Display of defrost probe 1 Display of defrost probe 2 Time base for defrost 0: dl in hours, dP1 and dP2 in minutes 1: dl in minutes, dP1 and dP2 in seconds Compressor running time Running time temperature threshold Advanced defrost Nominal defrost duration Proportional factor, variation in dl Alarm and fan differential Type of threshold 'AL' and 'AH' 0: AL and AH are relative thresholds to the set point 1: AL and AH are relative thresholds Low temperature alarm threshold High temperature alarm threshold Low and high temperature alarm delay Dioital input 1 configuration (DI1)	SYF SYF SYF SYF SYF SYF SYF SYF SYF SYF	min - min hr min flag °C/°F flag °C/°F flag °C/°F flag °C/°F		0 0 0 0 0 0 0 0 	250 2 2 250 250 1 1 - - 1 250 20 3 100 100 100 20 1 1 200 41=1→200 (alarm 'HI' disabled) A1=0→200 250 14	0 1 2 1 0 0 - - 0 - 0 - 0 0 - - 0 0 - 0 0 0 0 0 0 0 0 0 0 0 0 0
	dd           A0           A1           A1           A4           A4	Defrost delay on start-up Defrost delay on start-up Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp. shown 2: Display of dEF steady Dripping time after defrost Alarm bypass after defrost Alarm bypass after door open Defrost priority over compressor protectors 0: The protection times c1, c2 and c3 are not observed 1: The protection times c1, c2 and c3 are not observed Display of defrost probe 1 Display of defrost probe 2 Time base for defrost 0: dl in hours, dP1 and dP2 in minutes 1: dl in minutes, dP1 and dP2 in seconds Compressor running time Running time temperature threshold Advanced defrost Nominal defrost duration Proportional factor, variation in dl Alarm and fan differential Type of threshold 'AL' and 'AH' 0: AL and AH are relative thresholds to the set point 1: AL and AH are relative thresholds Low temperature alarm threshold High temperature alarm threshold Low and high temperature alarm delay Digital input 1 configuration (DI1) 0: input not active	SYF SYF SYF SYF SYF SYF SYF SYF SYF SYF	min - min hr min flag °C/°F flag °C/°F flag °C/°F flag °C/°F flag	F F C C C C C C C C C C C C C C C C C C	0 0 0 0 0 0 0 - 0 0 - 0 0 - 0 0 - 0 0 0 - 0 0 0 0 0 0 0 0	250 2 2 250 250 1 1 - - 1 250 20 3 100 100 100 20 1 1 200 41=1→200 (alarm 'HI' disabled) A1=0→200 250 14 14	0 1 2 1 0 0 - - 0 - 0 0 - - 0 0 0 0 0 0 0 0 0 0 0 0 0
	dd           A0           A1           A1           A4           A4	Defrost delay on start-up Defrost delay on start-up Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp. shown 2: Display of dEF steady Dripping time after defrost Alarm bypass after defrost Alarm bypass after door open Defrost priority over compressor protectors 0: The protection times c1, c2 and c3 are not observed 1: The protection times c1, c2 and c3 are not observed Display of defrost probe 1 Display of defrost probe 2 Time base for defrost 0: dl in hours, dP1 and dP2 in minutes 1: dl in minutes, dP1 and dP2 in seconds Compressor running time Running time temperature threshold Advanced defrost Nominal defrost duration Proportional factor, variation in dl Alarm and fan differential Type of threshold 'AL'and 'AH' 0: AL and AH are relative thresholds to the set point 1: AL and AH are relative thresholds Low temperature alarm threshold High temperature alarm threshold Low and high temperature alarm delay Digital input 1 configuration (DI1) 0: Input not active 1: Mediate external alarm 2: Delaved external alarm 2: Delaved external alarm	SYF SYF SYF SYF SYF SYF SYF SYF SYF SYF	min - min hr min flag °C/°F flag °C/°F flag °C/°F flag °C/°F flag	C C F F C C C C C C C C C C C C C C C C	0 0 0 0 0 0 0 0	250 2 15 250 250 1 - - 1 250 250 1 1 250 20 3 100 100 20 1 1 200 A1=1→200 (alarm 'HI' disabled) A1=0→200 250 14 14	0 1 2 1 0 0 - - 0 - 0 0 - - 0 0 0 0 0 0 0 0 0 0 0 0 0
	dd dd dd da da da dd da dd da dd da dd dd	Defrost delay on start-up Defrost delay on start-up Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp. shown 2: Display of dEF steady Dripping time after defrost Alarm bypass after defrost Alarm bypass after door open Defrost priority over compressor protectors 0: The protection times c1, c2 and c3 are observed 1: The protection times c1, c2 and c3 are not observed Display of defrost probe 1 Display of defrost probe 2 Time base for defrost 0: dl in hours, dP1 and dP2 in minutes 1: dl in minutes, dP1 and dP2 in seconds Compressor running time Running time temperature threshold Advanced defrost Nominal defrost duration Proportional factor, variation in dl Alarm and fan differential Type of threshold'AL'and'AH' 0: AL and AH are relative thresholds to the set point 1: AL and AH are absolute thresholds Low temperature alarm threshold High temperature alarm threshold Low and high temperature alarm delay Digital input 1 configuration (DI1) 0: Input not active 1: Immediate external alarm 2: Delayed external alarm 3: If model M, probe selection	SYF SYF SYF SYF SYF SYF SYF SYF SYF SYF	min - min hr min flag °C/°F flag hr °C/°F flag °C/°F flag °C/°F flag		0 0 0 0 0 0 0 0 0 0 - - 0 0 - 0 0 0 0 0 0 0 0 0 0 0 0 0	$\begin{array}{c} 250\\ 2\\ \hline \\ 2\\ \hline \\ 250\\ 250\\ \hline \\ 1\\ \hline \\ \\ -\\ -\\ 1\\ \hline \\ 250\\ 20\\ \hline \\ 3\\ 100\\ 100\\ 20\\ \hline \\ 1\\ \hline \\ 200\\ \hline \\ 1\\ \hline \\ 1\\ 1\\ \hline \\ 14\\ \hline \\ 14\\ \hline \end{array}$	0 1 2 1 0 0 - - 0 - 0 0 - - 0 0 0 0 0 0 0 0 0 0 0 0 0
	dd           dd	Defrost delay on start-up Defrost delay on start-up Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp. shown 2: Display of dEF steady Dripping time after defrost Alarm bypass after defrost Alarm bypass after door open Defrost priority over compressor protectors 0: The protection times c1, c2 and c3 are observed 1: The protection times c1, c2 and c3 are not observed Display of defrost probe 1 Display of defrost probe 2 Time base for defrost 0: dl in hours, dP1 and dP2 in minutes 1: dl in minutes, dP1 and dP2 in seconds Compressor running time Running time temperature threshold Advanced defrost Nominal defrost duration Proportional factor, variation in dl Alarm and fan differential Type of threshold'AL'and 'AH' 0: AL and AH are relative thresholds Low temperature alarm threshold High temperature alarm threshold Low and high temperature alarm delay Digital input 1 configuration (DI1) 0: Input not active 1: Immediate external alarm 3: If model M, probe selection 3: Other models enable defrost	SYF SYF SYF SYF SYF SYF SYF SYF SYF SYF	min - min hr min flag °C/°F flag °C/°F flag °C/°F flag °C/°F flag		0 0 0 0 0 0 0 0 0 0 0 0 0 0	250 2 15 250 250 1 1 - - 1 250 20 3 100 100 100 200 1 200 A1=1→200 (alarm 'HI' disabled) A1=0→200 250 14 14	0 1 2 1 0 0 0 - - 0 0 - - 0 0 1,0 0 - - 0 0 1,0 0 0 - - 0 0 0 1,0 0 0 0 - - 0 0 0 0 - - 0 0 0 - - 0 0 0 - - 0 0 0 - - 0 0 0 - - 0 0 0 - - 0 0 0 - - - 0 0 - - - 0 0 - - - 0 0 - - - 0 0 - - - 0 0 - - - 0 0 - - - 0 - - - 0 0 - - - - 0 - - - - - - - - - - - - -
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	dd           dd	Defrost delay on start-up Defrost delay on start-up Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp. shown 2: Display of dEF steady Dripping time after defrost Alarm bypass after defrost Alarm bypass after door open Defrost priority over compressor protectors 0: The protection times c1, c2 and c3 are observed 1: The protection times c1, c2 and c3 are not observed Display of defrost probe 1 Display of defrost probe 2 Time base for defrost 0: dl in hours, dP1 and dP2 in minutes 1: dl in minutes, dP1 and dP2 in seconds Compressor running time Running time temperature threshold Advanced defrost Nominal defrost duration Proportional factor, variation in dl Alarm and fan differential Type of threshold 'AL'and 'AH' 0: AL and AH are relative thresholds to the set point 1: AL and AH are absolute thresholds Low temperature alarm threshold High temperature alarm threshold High temperature alarm threshold 2: Immediate external alarm 3: If model M, probe selection 3: Other models enable defrost 5: Door switch with compressor and fan stop - light managed 6: Remote ON/OFF 7: Curtain switch	SYF SYF SYF SYF SYF SYF SYF SYF SYF SYF	min - min hr min flag °C/°F flag °C/°F flag °C/°F flag °C/°F flag		0 0 0 0 0 0 0 0 0 0 - - 0 0 - 0 0 - 0 0 - 0 0 - 0 0 - - 0 0 - - 0 0 - - 0 0 - - 0 0 - - 0 0 - - 0 0 - - - 0 0 - - - 0 0 - - - 0 0 - - - - 0 0 - - - - - 0 0 - - - - - - - - - - - - -	250 2 15 250 250 1 - - 1 250 20 3 100 100 100 200 1 200 A1=1→200 (alarm 'HI' disabled) A1=0→200 250 14 14	0 1 2 1 0 0 0 - - 0 0 1.0 0 65 50 2.0 0 0 0 0 0 0 0 0 0 0 0 0 0
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	dd           Ad           Ad           Ad	Defrost delay on start-up Defrost delay on start-up Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp. shown 2: Display of dEF steady Dripping time after defrost Alarm bypass after defrost Alarm bypass after door open Defrost priority over compressor protectors 0: The protection times c1, c2 and c3 are observed 1: The protection times c1, c2 and c3 are not observed Display of defrost probe 1 Display of defrost probe 2 Time base for defrost 0: dl in hours, dP1 and dP2 in minutes 1: dl in minutes, dP1 and dP2 in seconds Compressor running time Running time temperature threshold Advanced defrost Nominal defrost duration Proportional factor, variation in dl Alarm and fan differential Type of threshold 'AL'and 'AH' 0: AL and AH are relative thresholds to the set point 1: AL and AH are absolute thresholds Low temperature alarm threshold High temperature alarm threshold High temperature alarm threshold 6: Remote defrost 3: Other models enable defrost 4: Start defrost 5: Door switch with compressor and fan stop - light managed 6: Remote ON/OFF 7: Curtain switch 8: Low terms witch 9: Door switch with fan stop only- light managed 10: Direct/reverse	SYF SYF SYF SYF SYF SYF SYF SYF SYF SYF	min - min hr min flag °C/°F flag °C/°F flag °C/°F flag °C/°F flag °C/°F flag		0 0 0 0 0 0 0 0 0 0 - 0 0 - 0 0 - 0 0 - 0 0 - 0 0 - 0 0 - 0 0 - 0 0 - 0 0 - 0 0 - 0 0 - 0 0 - 0 0 - - 0 0 - - 0 0 - - 0 0 - - 0 0 - - 0 0 - - 0 0 - - 0 0 - - 0 0 - - 0 0 - - 0 0 - - 0 0 - - 0 0 - - 0 0 - - 0 0 - - 0 0 - - 0 0 - - - 0 0 - - - 0 0 - - - 0 - - - 0 - - - 0 - - - 0 - - - 0 - - - 0 - - - 0 - - - 0 - - - 0 - - - - 0 - - - - - - - - - - - - -	250 2 15 250 250 1 - - 1 250 20 3 100 100 200 1 200 A1=1→200 (alarm 'HI' disabled) A1=0→200 250 14 14	0 1 2 1 0 0 - - 0 - 0 0 1.0 0 0 0 0 0 0 0 0 0 0 0 0 0
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	dd           dd	Defrost delay on start-up Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp. shown 2: Display of dEF steady Dripping time after defrost Alarm bypass after defrost Alarm bypass after door open Defrost priority over compressor protectors 0: The protection times c1, c2 and c3 are observed 1: The protection times c1, c2 and c3 are not observed Display of defrost probe 1 Display of defrost probe 2 Time base for defrost 0: dl in hours, dP1 and dP2 in minutes 1: dl in minutes, dP1 and dP2 in seconds Compressor running time Running time temperature threshold Advanced defrost Nominal defrost duration Proportional factor, variation in dl Alarm and fan differential Type of threshold 'AL' and 'AH' 0: AL and AH are relative thresholds to the set point 1: AL and AH are relative thresholds Low temperature alarm threshold High temperature alarm threshold High temperature alarm threshold 4: Start defrost 5: Door switch with compressor and fan stop - light managed 6: Remote ON/OFF 7: Curtain switch 8: Low pressure switch 9: Door switch with fan stop only- light managed 10: Direct/reverse 11: Light sensor 12: Activation of the AUX output 13: Door switch with compressor and fan stoff and light not managed	SYF SYF SYF SYF SYF SYF SYF SYF SYF SYF	min - min flag °C/°F flag °C/°F flag °C/°F flag °C/°F flag °C/°F	F F C C C C C C C C C C C C C C C C C C	$\begin{array}{c} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 $	250 2 15 250 250 1 - - 1 250 20 3 100 100 100 200 1 200 A1=1→200 (alarm 'HI' disabled) A1=0→200 250 14 14	0 1 2 1 0 0 - - 0 - 0 0 1,0 0 - - 0 0 1,0 0 0 0 0,0 0,0 0,0 0 3
	dd           dd	Defrost delay on start-up Display on hold during defrost 0: Alternating display of dEF and probe value 1: Display of the last temp. shown 2: Display of dEF steady Dripping time after defrost Alarm bypass after defrost Alarm bypass after door open Defrost priority over compressor protectors 0: The protection times c1, c2 and c3 are not observed 1: The protection times c1, c2 and c3 are not observed Display of defrost probe 1 Display of defrost probe 2 Time base for defrost 0: dl in hours, dP1 and dP2 in minutes 1: dl in minutes, dP1 and dP2 in seconds Compressor running time Running time temperature threshold Advanced defrost Nominal defrost duration Proportional factor, variation in dl Alarm and fan differential Type of threshold 'AL' and 'AH' 0: AL and AH are relative thresholds to the set point 1: AL and AH are relative thresholds Low temperature alarm threshold High temperature alarm threshold High temperature alarm threshold 4: Start defrost 5: Door switch with compressor and fan stop - light managed 6: Remote ON/OFF 7: Curtain switch 8: Low pressure switch 9: Door switch with fan stop only- light managed 10: Direct/reverse 11: Light sensor 12: Activation of the AUX output 13: Door switch with compressor and fan stoff and light not managed 14: Door switch with fans only off and light not managed 14: Door switch with fans only off and light not managed	SYF SYF SYF SYF SYF SYF SYF SYF SYF SYF	min - min flag °C/°F flag °C/°F flag °C/°F flag °C/°F flag °C/°F		0 0 0 0 0 0 0 0	250 2 15 250 250 1 - - 1 250 20 3 100 100 100 200 1 200 A1=1→200 (alarm 'HI' disabled) A1=0→200 250 14 14	0 1 2 1 0 0 0 - - 0 0 1,0 0 0 0 0 0 0 0 0 0 0 0 0 0

Symbol	Code	Param	iete	r									Mod.	UOM	Type	Min.	Max.	Def.
	A7	Extern	al al	larm	1 det	ectic	<u>in dela</u>	У					SYF	min flag	C	0	250	0
	AO	A8=0	: dia > -	n MS Alar	∍ ⊑⊄ l m sir	ario anale	Ed1 a	nd F	ih Ch	isahli	ed			liag		U		
		A8=0> Alarm signals Ed1 and Ed2 disabled A8=1> Alarm signals Ed1 and Ed2 enabled Light management mode with door switch																
	Ado									MSYF	flag	С	0	11	0			
	Ac	High	onc	dens	ser te	empe	arature	alar	m				SYF	°C/°F	С	0,0	200	70
	AE	High o	onc	dens	ser te	empe	erature	alar	rm dif	fferer	ntial		SYF	°C/°F	С	0,1	20	10
	Acd	High	onc	dens	ser te	empe	erature	alar	m de	lay			SYF	min	C	0	250	0
	AF	Aptifre	sens	<u>or c</u>	JFF t	<u>Ime</u> brock							MSVE	S C/PE		0	250	-5
	AdF	Antifre	eze	ala	rm d	lelav							MSYF	min	C	0	15	1
	FO	Fan m	ana	gen	nent								F	flag	C	0	2	0
		0: Fans always on																
		1: Fan	s coi	ntro	lled	acco	rding t	to th	ne ten	nper	ature o	differen-						
		ce bet	wee	en tl	ne vi	rtual	contro	ol pr	obe a	and t	he eva	porator						
		tempe	eratu	ure	مامما		بية بد ما أم											
	F1	Ean st	art t	emi	nerat	ture	ung to	) the	: evap	Jorau	ortem	perature	F	°C/°F	F	-50	200	5
	F2	Fan O	FFW	vith	com	pres	sor OF	F	-	-	-		F	flag	Ċ	0	1	0
$\sim$		Pan OFF with compressor OFF 0: Fans always on; 1: Fans off with compressor off Fans in defrost																
XX	F3												F	flag	С	0	1	1
00		0: Fans	; op	erat	e dui	ring (	defrost	s; 1:	Fans	do n	ot ope	rate						
		during	<u>ı def</u>	trost	čS na ala:												1.5	1
	F0 F4	Conde	anse	ar fa	<u>er ari</u> n sto	ppin pter	<u>y</u> mperat	ture						°C/⁰E	F	-50	200	40
	F5	Conde	ense	er far	n sta	rt dif	ferenti	ial					MSYF	°C/°F	C	0,1	200	5
	HO	Serial	add	ress									MSYF	-	C	0	207	195
	H1	Functi	on	of A	UX o	utpu	it	-			-		MSYF	flag	С	0	13	1
		0: Alar	m o	utp	ut no	orma	lly ene	rgis	ed									
		1: Alar	m o	utp	utno	orma	lly de-	enei	rgised	b								
		2: Aux	iliary	y ou	utput	-												
		3: Ligh	it ou	utpu	ut	rator	defrec	+	++									
		5. Pum	nidľ) na d	y ev	aµ0r n val	alor ve or	uerros utout	ιou	ιµut									
		6: Con	.p u ider	iser	fan r	outro	ut											
		7: Dela	ayec	d co	mpre	essor	outpu	Jt										
		8: Aux	iliar	y ou	, utput	with	י ו deact	tivat	ion w	vhen	OFF							
		9: Light output with deactivation when OFF																
		10: Nc	fun	ictic	on as	socia	ited wi	ith tl	he ou	utput	:							
		11: Re	vers	e ou	utput	t in c	ontrol	with	n dea	d ba	nd							
		12: Se	cond	d cc	mpr	esso	r step o	outp	out									
	H2	Disabl	<u>con</u>	<u>d cc</u>	ompr ad	esso	r step o	outp	out w	ith ro	otation		MSVE	flag	C	0	6	1
	112			:ypa I	I	1	L	1	1	I.			101311		C			
		er					₽		出		er F	t						
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		6		-		+				+								
		Keypad	functi	ion	"•"=[	Disable	d	L	-		1							
	H4	Disabl	e bı	uzze	er: 0:	Buzz	er enal	oled	: 1: Bi	uzzei	r disab	led	MSYF	flag	С	0	1	0
	H6	Lock keypad											MSYF	-	C	0	255	0
	H8	Select	acti	ivati	ion o	of out	put wi	ith ti	ime b	band			MSYF	flag	С	0	1	0
		0: Tim	e ba	ind	linke	d to	output	t cor	nfigui	red fo	or ligh	t						
	Ца	Enable	<u>5 Da</u>	ina t po	int v	<u>a to</u>	output	t cor	nngui me ba	rea to	or aux		MSVE	flag	- C	0	1	0
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		1. Set	poir	nt va	ariati	on w	ith tim	ie ba ie ba	and e	nabl	ied							
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	HAn	Numb	er o	of H/	Aeve	ents r	ecorde	ed					MSYF	-	C	0	15	0
	HA	Date/1	ime	e of l	last H	HA ev	/ent						MSYF	-	С		-	-
	У	Year												years		0	99	0
	M	Month	١											months		1	12	0
	d	Day												days		1		0
	n	Minut	P											min		0	23 50	
	'	Durati	on											hours		0	99	0
	HA1	Date/1	ime	of	penu	ultim	ate HA	eve	ent				MSYF	-	С		-	-
(H)	HA2	Date/1	ime	of t	third	-to-la	ast HA	ever	nt				MSYF	-	С	-	-	-
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у	Year		years	0	99	0
M	Month	n	nonths	1	12	1
d	Day of the month		days	1	31	1
u	Day of the week		days	1	7	6
h	Hour		hours	0	23	0
n	Minute		min	0	59	0

Important: for the set times to become immediately operational, the instrument must be turned off and on again.



WARNING: separate as much as possible the probe and digital input signal cables from the cables carrying inductive loads and power cables to avoid possible electromagnetic disturbance. Never run power cables (including the electrical panel wiring) and signal cables in the same conduits.

# Disposal of the product X

'he appliance (or the product) must be disposed of separately in compliance with the local standards in force on waste disposal.



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