



# ERC2 Control Instructions

## Programming

The ERC 2 control initially powers up displaying 12:00 AM otherwise it will show the last configured selection (time or temperature). If a power outage occurs during normal operation, the control will maintain the correct time-of-day using a capacitor (batteries not required). The time will be maintained for up to 100 hours when the capacitor is fully charged,

To initiate a **Manual Defrost**, press and hold the MAN DEF key for 3 seconds.

There are two levels of programming in the ERC 2. The first level of security will enable the user to set two parameters: Time-of-day (**CLoC**) and Setpoint temperature (**SEt**). The other level allows access to the other parameters.

Three buttons are used for the programming: SET, UP and DOWN

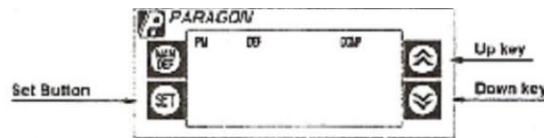


Fig. 2 – Display Lay-out








Follow these steps to change time-of-day and setpoint temperature (First Level):

Step 1		Press and hold set for 5 seconds. The display will show <b>CLoC</b>
Step 2		Press SET again to change time-of day
Step 3	or	Press UP or DOWN until the correct time-of-day is displayed
Step 4		Press SET to accept the new time
Step 5		Press DOWN to go to the next parameter – Setpoint temperature – <b>SEt</b> (cut out)
Step 6		Press SET to change the setpoint temperature
Step 7	or	Press UP or DOWN to go to the desired setpoint. The range is -40 to 60°F or -40 to 16°C
Step 8		Press SET to accept the change
Step 9		Press DOWN to exit the first level of programming.

**Note 1:** During programming, if no button is pushed during 30 seconds, the control will go back to the normal operating mode. This is valid for both programming levels.

**Note 2:** When changing the time, press and hold the MAN DEF button for 3 seconds to change the AM/PM mode.

To change the other parameters (Second Level) follow these steps:

<b>Step 1</b>	 and 	Press and hold SET and DOWN for 10 seconds. The display will show <b>dSPL</b>
<b>Step 2</b>		Press SET to change the parameter
<b>Step 3</b>	 or 	Press UP or DOWN to change the options, time or temperature for the current parameter
<b>Step 4</b>		Press SET to accept the new value
<b>Step 5</b>		Press DOWN to go to the next parameter. Then go back to Step 2. After the last parameter is displayed ( <b>ALHi</b> ), the display will go back to the normal operating condition

**Note:** to scroll down the parameters without changing them, press the **DOWN** button.

### List of Parameters

Here is a list of the parameters that can be changed in the Second Level of programming, as well as their options and ranges.

Parameter	Display Symbol	Description	Range/Options	Delfield Settings
Display Status	<b>dSPL</b>	Information shown on the display during operating conditions	<b>tDAy</b> – time-of-day <b>rSP°</b> - Zone temperature (refrigerated space) <b>CyCL</b> – cycle between time and zone temperature <b>Epr°</b> - evaporator coil temperature	<b>CyCL</b>
Clock Format	<b>CLHr</b>	Format of the time (12 or 24 hours mode)	<b>12Hr</b> – AM/PM format <b>24Hr</b> – 24 hour format	<b>12Hr</b>
Temperature Format	<b>°dSP</b>	Temperature degrees	<b>°F</b> – degrees Fahrenheit <b>°C</b> – degrees Celsius	<b>° F</b>
Defrost Type	<b>dFtP</b>	Type of defrost used in the application	<b>ELEC</b> – electric heater defrost/off cycle <b>HgAS</b> – hot gas	<b>ELEC</b>
Fan Status During Defrost	<b>EFAN</b>	Enable or not the evaporator fan during defrost	<b>no</b> – fan is turned off during defrost <b>yES</b> – fan remains on during defrost	<b>no</b>
	<b>CFAN</b>	Enable or not the condenser fan during defrost	<b>no</b> – fan is turned off during defrost <b>yES</b> – fan remains on during defrost	<b>no</b>

Defrost Interval	dFin	Type of defrost interval	TdAy – time-of-day setpoint CPrn – compressor run time tdEF – temperature initiated defrost	TdAy
Minimum Compressor Off Time	CoFF	Minimum time that the compressor will remain turned off	Range: from 0 to 15 min	0
Minimum Compressor On Time	Con	Minimum time that the compressor will remain turned on	Range: from 0 to 15 min	0
Alarm Delay	ALrd	Time delay before the alarm goes off after the temperature fall off the two alarm setpoints	Range: from 0 to 59 min	0
Compressor Run Time	CPrn	Time the compressor will run between defrosts		
Number of Defrosts	nodF	Number of defrosts per day	From 0 to 8 (0 means 1 defrost every 28 hours)	4
Defrost Start Time	dEF1-8	Start time of each defrost		
Defrost Duration	DEFd	Defrost duration time (back-up for defrost termination temperature)	Range: from 0 min to 4 hours	Frzr: 45 Refr: 30
Fan Delay	FAnd	Delay time for the fan after defrost(back-up for fan cut-in temperature)	Range: from 0 to 59 min	0
Pump Down	Pudn	Pump down duration	Range: from 0 to 59 min	0
Drip Time	driP	Drip time duration	Range: from 0 to 59 min	0
Setpoint Differential	diF°	Cut-in temperature differential Note: cut-in is cut-out plus differential	Range: from 1 to 25	6
Defrost Termination Temperature	dEF°	Temperature in the evaporator that will terminate the defrost cycle	Range: from 0 to 75°F or -18 to 25°C	Frzr: 55°F Refr: 45°F
Fan Cut-In Temperature	FAn°	Temperature in the evaporator that will turn the fan on after defrost	Range: from -40 to 60°F or -40 to 23°C	30°F
Low Temperature Alarm	ALLo	Low temperature setpoint that will make the alarm do off and the error message appear on the display	Range: from -40 to 60°F or -40 to 23°C	-40°F

High Temperature Alarm	<b>ALHi</b>	High temperature setpoint that will make the alarm do off and the error message appear on the display	Range: from -40 to 60°F or -40 to 23°C	<b>83°F</b>
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**Important note:** To change from degrees **C** to **F** or vice-versa, the user must reprogram all the parameters that are related to the temperature. The unit does not convert parameters automatically from degrees **F** to **C** or vice-versa.

**Example 1 – To adjust the time-of-day**

- Press and hold SET for 5 seconds
- Press SET again
- Press Up or DOWN until the correct time appears on the display
- Press SET to accept the new time
- Press DOWN twice to exit the programming mode

**Example 2 – To set one defrost a day, at 11:59 PM**

- Press and hold SET and DOWN for 10 seconds
- Press DOWN five times to get to the Defrost Interval (**dFin**)
- Press SET to change the parameter
- Press DOWN until **tdAy** appears on the display
- Press SET to accept the option
- Press DOWN seven times to go to the Number of Defrosts (**noDF**)
- Press SET to change it
- Press UP or DOWN until **1** appears on the display
- Press SET to accept the change
- Press DOWN to go to Defrost Start Time (**def1**)
- Press SET to change the time
- Press UP or DOWN until the **11:59 PM** appears on the display
- Press SET
- Press DOWN ten times to exit the programming level

## Error Codes

Display	Control Status
Er 1	ERC Fault – software or hardware failure
Er 2	ERC Communication Fault – indicates that there is a problem with the display module cable
Er 3	Zone Sensor Fault – indicates an open or shorted temperature sensor
Er 4	Evaporator Sensor Fault – indicates an open or shorted evaporator sensor
Er 5	ERC Fault – software or hardware failure
Er 6	Low Temperature Alarm – indicates that the temperature has dropped below the low alarm setpoint
Er 7	High Temperature Alarm – indicates that the temperature has gone above the high alarm setpoint

**For Error Codes 1, 2 and 5 cut the power to the unit and correct the problem to reset the display.**

**For Codes 3 and 4, press the UP or DOWN button on the display to reset the error message. If the display still shows the message, the sensor must be replaced.**

**The Error Codes 6 and 7 will be automatically reset once the temperature is back within the two setpoints.**

## Technical Specifications

**Input Power:** 120/208-240VAC 50/60Hz (+10, -15%)

**Power Consumption:** 5VA @ 120-240VAC

**Zone and Evaporator Coil Temperature Sensors:** NTC thermistor. Range -40 to 199°F

**Ambient Operating Conditions:** -40 to 122°F; 0 to 95% RH (non-condensing)

**Display Module Dimensions:** 2.75"W x 1.10"H x 1.38"D

**Case Dimensions:** 4.40"W x 7.28"H x 3.80"D

**Shipping Weight:** 3.0 lbs

**Agency Approvals:** c-UR-us Recognized Component – Models ERC2-1xxxxxx  
c-UL-us Listed Product – Models ERC2-2xxxxxx  
NSF International Certified

**Output Relay Ratings:**

**Compressor: SPST NO**

	120VAC	208VAC	240VAC
Horsepower Rating (hp)	1	1.5	2
FLA/LRA	16/96	12/72	12/72
Pilot Duty	470	470	470

**Defrost: SPST NC**

	120VAC	208VAC	240VAC
Resistive Amps	16	16	16
Horsepower Rating (hp)	½	¾	1
Pilot Duty (VA)	470	470	470

**Evaporator Fan: SPST NC**

	120VAC	208VAC	240VAC
Resistive Amps	16	16	16
Horsepower Rating (hp)	½	¾	1
FLA/LRA	10/59	8/48	8/48
Pilot Duty (VA)	470	470	470

**Alarm: SPST NO**

	120VAC	208VAC	240VAC
Resistive Amps	5	5	5
Pilot Duty (VA)	240	240	240

**Resistance vs. Temperature**

Temperature		Resistance
F	C	Ohms
-40	-40	1010000
-31	-35	728100
-22	-30	531000
-13	-25	391200
-4	-20	291200
5	-15	218900
14	-10	166000
23	-5	127000
32	0	97950
41	5	76170
50	10	59700
59	15	47130
68	20	37470
77	25	30000
86	30	24170