

# Coastal MK II Digital Thermostat/Thermometer

## (1) Description

The Coastal MK II Digital Thermostat/Thermometer comprises of a thermostat unit mounted in a plastic mounting plate measuring 3.5" x 2". The front panel incorporates a three-digit red LED display with five-button control panel. The display shows degrees and tenths of degrees, and can be set to work in either Fahrenheit or Celsius. The assembly is pre-wired with a fused 10' cable harness and push-on connectors to facilitate easy installation. A 10' temperature sensor probe is pre-wired, and the mounting plate is drilled for the black screws provided.



## (2) Location

The thermostat is designed to be mounted on a vertical surface, secured with the screws provided. Care must be taken to ensure that the location chosen will not subject the panel or its components to splashing or running water, steam, corrosive gasses, excessive vibration, or physical damage. Ideally the location will allow the 10' thermostat sensor to be installed without being extended. If it is necessary to extend the sensor cable, the electrical joints should be soldered. The thermostat requires a cut-out of 3.25" x 1.5", and a minimum depth of 2-1/2".

## (3) Temperature Sensor Probe Mounting

The temperature sensor probe is mounted in the refrigerator or freezer cabinet so that it senses the average air temperature. **It does not attach to the evaporator.** It is best mounted at mid-height, on a wall or divider that does not have any part of the evaporator mounted on it, and insulated from the wall to ensure that it senses air temperature only.

## (4) Operation

The Coastal MK II will display box temperature continuously. When the box warms up to a temperature of two degrees above the set point (default), the thermostat will start the compressor. This will be signified by the illumination of a yellow snowflake symbol on the display. When the system has lowered the temperature to the set point, the compressor is stopped and the snowflake symbol extinguished. NOTE: The raindrop and light bulb buttons are inoperable and have no function on this thermostat.

**(5) Turning on and off.** Press and hold SET and DOWN buttons for 8 seconds. "OFF" is displayed when turned off.

## (6) Adjusting Temperature Set Point

The Coastal MK II is supplied set as a refrigerator thermostat in degrees Fahrenheit, with 40F as the set point. If installed on a freezer system it is suggested to set the initial set point to 12F (-12C)

### To change temperature set-point:

- Press SET button. "SET" appears in display.
- Press SET button again. Set point value is displayed and flashes.
- Press UP or DOWN arrows to the desired set-point. Suggested starting set-points are 40F (4C) for a refrigerator, and 12F (-12C) for a freezer.
- Press SET button. "SET" is displayed
- Press SET and DOWN buttons together to quit and return to temperature display, or display will revert automatically in one minute.

NOTE: Allow sufficient time for the system to settle down between making adjustments. At least one day is recommended.

## (7) Fault Code Display

- "ooo" Temperature Sensor Probe or its cable is open circuit or disconnected.
- "---" Temperature Sensor Probe or its cable is short circuit
- "ALH" Buzzer will also sound. High temperature alarm has been activated. See (10)
- "ALL" Buzzer will also sound. Low temperature alarm has been activated. See (10)

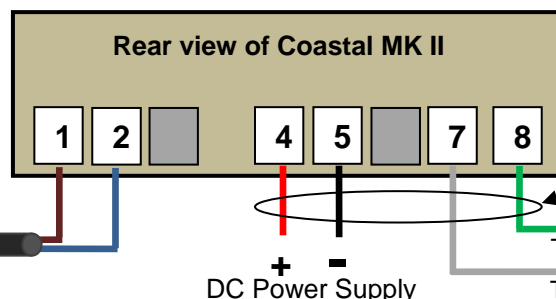
## (8) Emergency Operation if Temperature Sensor Probe Fails

If the Temperature Sensor Probe becomes either short circuit or open circuit, the Coastal MK IIa will show an alarm on the display, see (7). There is an option to run the compressor on an emergency on-off routine according to time settings entered by the operator. This feature is disabled, but can be activated by entering the desired "on" and "off" times in c2 and c3 of the Con menu. See (12)

## (9) Wiring

### If using to control a spillover fan:

Do not connect wires to controller.  
Bridge terminals 4 and 7.  
Connect black or blue fan wire to 5.  
Connect red fan wire to 8.



### NOTE:

A Power Terminal Multiplier is provided to be installed on the + and - terminals of the Danfoss controller. This provides a second set of terminals for the red and black power supply wires to connect to.

Wires in 10' harness

Terminal "C" on Danfoss controller or Merlin

Terminal "T" on Danfoss controller or Merlin

Temperature Sensor

DC Power Supply

## (10) Temperature Alarms

The Coastal MK II is equipped with a buzzer to sound an alarm if the temperature exceeds the set point by the maximum and minimum values as entered in A1 and A2 in the **ALA** menu. See(12). These have been pre-set to the maximum permissible values so that the alarm feature is effectively disarmed. The alarms can be activated by adjusting the values of A1 and/or A2 to the desired number of degrees above or below the Set Point at which the alarm will operate.

The alarm is set to become operational 3.0 hours after the system is started. This can be adjusted in A6.

The alarm is set to activate 0.5 hours after the threshold set in A1 or A2 is reached. This can be adjusted in A7.

An alarm can be silenced by pressing the **Set** and **DOWN** buttons together.

## (11) General Reset

A General Reset should **only** be used as an emergency measure if the programming becomes corrupted. This action will return all settings to the original factory defaults. It will then be required to reinstall the Coastal values as shown in (12).

1. Press **Set** for 8 seconds. "0" is shown on display. Press **Set** again, "CON" is displayed.
2. Press **DOWN** arrow. Display shows "Ini". Press **Set** "Ho" is displayed.. Press **UP** arrow until "HO" is displayed
3. Press **Set**; "O" is displayed and flashes. Press **Set** for 8 seconds and general reset is activated.

## (12) Programming

The Coastal MK II is a multi-purpose device with many features that are not appropriate for marine refrigeration use, and so only the relevant program parameters are shown below. Complete instructions are available on request.

There are five menus. Within each menu there are numerous parameters that can be adjusted. Menu names are as follows, in sequence:

1. "**CON**" (Compressor) – Sets parameters for compressor.
2. "**dEF**" (Defrost) – Not used. Deactivated by setting d2 to 0.
3. "**PrO**" (Probe) – Sets parameters for temperature probe (sensor).
4. "**ALA**" (Alarm) – Provides settings for alarms.
5. "**Ini**" (Initialization) – Advanced parameters.

**To select menus:** Press **Set** for 8 seconds – "0" flashes. Press and release **Set**, first menu name (CON) is shown. Press **UP** or **Down** button to scroll through the five menu names. To exit menu list - press **Set** and **Down** together or wait one minute.

**To select and adjust parameters:** When required menu name is shown on display (see above), press **Set**; first parameter code will be displayed. Press **UP** or **DOWN** buttons until required parameter code is shown then press **Set**; parameter value is displayed. Use **UP** or **DOWN** buttons to adjust parameter value, then press **Set** to enter. To exit parameters and return to menu list, press **Set** and **DOWN** together or wait one minute.

MENU	DESCRIPTION	UNITS	RANGE	DEFAULT	COASTAL
<b>CON</b>	<i>Ignore those parameters not shown below</i>				
Set	Set point – Desired box or cabinet temperature (See 6)	Degrees	r1 to r2	3.0	40
r0	Differential – Degrees above set point before compressor start.	Degrees	0.1 to 20	1.0	2.0
c2	On-time of emergency cycle when sensor probe is faulty (see 8)	Minutes	0 to 999	5	0
c3	Off-time of emergency cycle when sensor probe is faulty (see 8)	Minutes	0 to 999	5	0
<b>dEF</b>	<i>Ignore all dEF parameters except those shown below</i>				
d0	Sets thermostat as either a heating or cooling control		Re/in	Re (cool)	Re (cool)
d2	Maximum defrost time. Setting this to "0" ensures no defrost.	Minutes	0 to 240	30	0
<b>PrO</b>	<i>Ignore those parameters not shown below</i>				
P0	Temperature scale – Celsius or Fahrenheit		C or F	C	F
P1	Probe (sensor) calibration	Degrees	-20.0 to 20.0	0	0
<b>ALA</b>	<i>Ignore those parameters not shown below</i>				
A1	Max temp alarm – Degrees above set point (See 10)	Degrees	0.1 to 99.9	8.0	99.9
A2	Min temp alarm - Degrees below set point (See 10)	Degrees	0.1 to 99.9	8.0	99.9
A6	Time delay before alarm is active after starting system (See 10)	hrs/mins	0.0 to 18	1.1	3.0
A7	Time before alarm is activated after max or min temp is reached	hrs/mins	0.0 to 18	1.1	0.5
<b>Ini</b>	<i>Ignore all Ini parameters except H0 - General Reset. (11)</i>				



Coastal Climate Control, Inc.