Controller Overview: The CPC® ESC3 series is an electronic refrigeration controller that provides control of compressor, fan and defrost management. The ESC3 provides control of a compressor (or solenoid) valve in response to temperature variations.

Temperature Control: Temperature control in the ESC3 is accomplished by comparing the temperature reading of case temperature probe against temperature set point. Compressor output is used to control temperature. If temperature is above temperature set point (LI) + the hysteresis set point (rd), compressor output is turned on. If the temperature is below temperature set point (L1) - the hysteresis set point (rd), compressor output is turned off.

Compressor Control: Several setpoints are available to allow operation of compressor output to be tailored to match individual needs.

Min ON/Off Times and Minimum Cycle Time: Minimum ON/OFF compressor times can be specified, as well as a minimum time delay between compressor cycles. These parameters help prevent short cycling.

Compressor Power On Delay: Compressor power on delay setpoint (c0) allows user to specify a delay after power-up of the controller. The compressor output will not come on regardless of the temperature reading until this amount of time has expired.

Compressor Safety Cycle: The Compressor Safety Cycle setpoint (c4) specifies a cycle time that the compressor is to be cycled if the temperature sensor used for control fails. If this setpoint is 0, the compressor will be off. If this setpoint is 100, the compressor will be on. Any value between 1 and 99 will result in the compressor being on for that period of time. At the end of this time, the compressor will be shut off for approximately 15 minutes.

Interface: The ESC3 features a 3 digit LED displaying supply air temperature. Supply air temperature will always be cooler than actual case temperature. For actual case temperature, see internal case thermometer.   The temperature can be displayed in either ^{0}C or ^{0}F.

Alarm Key - The Alarm key illuminates when the controller has detected an alarm condition. This key is also used to reset an alarm condition and to enter the setup mode (allowing the set points to be changed).

Compressor Key - The Compressor key illuminates when compressor output is on. When ESC3 is in setup mode, this key is used to select a set point to be modified and to change set point value.

Defrost Key - The Defrost key illuminates when the ESC3 is in defrost mode. Press the defrost key for 5 seconds to go into manual defrost mode. The key is also used in setup mode to select a setpoint to be modified and to change the value of the set point.

Alarm Operation - The ESC3 has several alarm functions. In addition to alarms based on air temperatures, it will alarm if a probe failure is detected.

Indications on the Display: If the "defrost" or "compressor" key blinks, the corresponding function is delayed by a timing routine or is inhibited.

Code Chart: See next page.

Viewing and Changing the Temperature Set Point
The temperature set point is the comparison point for the
control temperature input. To change the set point value:

1. Press the Alarm key for 3 seconds, until the set point is
    displayed and blinking.
2. Press compressor key or defrost key to raise/lower
    value.
3. Press the Alarm key again to accept the new value.

Changing Other Parameter Settings
There are two levels of factory set point parameter settings in the ESC3.
1. The first level does not require a password to change (unless the buttons are locked out). It is
identified by CPC® as "User Level Set Points". *Note: These default settings can be obtained from
OEM upon request.*
2. The second level does require a password to change and is identified by CPC® as "OEM Level
Set Points". *Note: These default settings can be obtained from OEM upon request.*

To change USER parameters:
1. Press the alarm key and hold it until the letters PS are displayed.
2. Use the compressor and defrost keys to scroll through the different parameters.
3. When the code is displayed for the set point you wish to change, press the alarm key. The value
    for that set point will be displayed.
4. Press the compressor or defrost key to change the value.
5. Press the alarm key to go back to the code.

At this point you must press the alarm key (for approximately 6 seconds) to accept the change or
press the compressor or defrost key to scroll to the next USER set point. To accept the changes,
press and hold the alarm key until the display stops flashing.

Code	Meaning
E0	Air probe has failed.
E1	Defrost termination or product probe has failed.
L0	Low temperature alarm.
HI	High temperature alarm.
Ed	Defrost timeout has occurred (did not terminate correctly).
dF	Controller is in defrost mode (not and alarm).

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