

ACE

Ambient Cooling Energy Unit

Operations Manual



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2. Introduction

The ACE – Ambient Cooling Energy Control System is designed to control direct ambient free-cooling to remote plant, control and switch rooms. The unit is normally used in conjunction with a fan-based free-cooling system and a DX refrigerant based or other mechanical cooling system.

2.1 Features

The Unit consists of:

- Microprocessor control system pre-loaded with Software.
- Inbuilt or remote Display/Keypad
- Indoor and Outdoor Temperature Sensors.
- Customer-specified Alarms & Relays (Optional).
- Customer-specified Front Panel Controls (Optional).

2.2 Construction

The enclosure is of a rigid construction manufactured from Galvanized Steel. Units are normally powder-painted but may also be supplied un-painted – if required. The front panel of the unit is hinged giving complete internal access to the control system components.

The unit is complete with mounting holes in the top 2 corners to secure the unit to the cabin or wall

2.3 Handling the Controller

1. Inspect the unit immediately upon delivery
2. Check the packaging for signs of damage. Remove the packaging and check the unit thoroughly
3. Damage should be reported immediately to the transport company and to your Temspec representative
4. Ensure that the unit is kept upright and well secured during/after transport
5. Do not leave the unit outdoors for prolonged periods of time
6. Keep the unit dry at all times prior to the completion of installation
7. If security is deemed an issue, use tamper-proof fasteners on all fixings

2.4 Location of Unit

Determine the required installation location of the unit.

1. Locate the controller in a visible, accessible location, not directly exposed to any air stream. Ensure that all required cable routes are accessible.
2. A minimum service clearance of 800mm will be required at the front of the unit.
3. Confined locations should be avoided.
4. Ensure that the supporting structure is sufficient to take the weight of the unit.



WARNING! DO NOT RUN, OR USE THIS EQUIPMENT FOR REGULAR OPERATION, WITHOUT FIRST COMPLETING THE COMMISSIONING PROCEDURE. FAILURE TO COMPLY WITH THESE INSTRUCTIONS, OR FAILURE TO FOLLOW THE STEPS IN THIS MANUAL WILL VOID THE MANUFACTURER'S WARRANTY AND MAY DAMAGE THE LEADING TO EARLY EQUIPMENT FAILURE.

BEFORE SWITCHING ON THE UNIT, THE COMMISSIONING CHECKLIST SHOULD BE COMPLETED BY DAQS AUTHORIZED PERSONNEL ONLY. FAILURE TO DO SO MAY DAMAGE THE UNIT AND VOID WARRANTY. ALWAYS WEAR PROTECTIVE CLOTHING, GLOVES, AND SAFETY SHOES ETC. WHEN HANDLING THE UNIT. THE UNIT SHOULD ONLY BE INSTALLED, OPERATED AND MAINTAINED BY TRAINED, AUTHORIZED PERSONNEL.

2.5 Unit Installation

1. Locate the Controller in a visible, accessible location, not directly exposed to any air stream. Ensure that all required cable routes are available
2. A minimum service clearance of 800mm will be required at the front of the unit
3. Secure the unit to the wall using the mounting holes provided, using tek-screws or other as required
4. Fit a suitably rated MCB or Isolator to the Controller power supply
5. Locate the Isolator in a clearly visible location
6. Switch the Isolator OFF
7. Label the Isolator
8. Verify that you have a copy of the correct Electrical Schematic for the FC10-DCS System. Most systems are customer-specific and all systems are supplied with an Individual Electrical Schematic
9. Fit suitably rated site cables for the mains supply, and Low Voltage connections, observing correct polarity and in line with local electrical codes and regulations
10. Tighten all cable glands and replace all trunking covers
11. Ensure that any cable route through a wall or panel is sleeved and sealed
12. Secure all cabling
13. Verify that all cabling is correct and that all connections are tight

2.5.1 Sensor Wiring

Refer to the electrical schematic supplied with the unit. The unit can be wired in a number of different configurations. See also, Typical Wiring Schematics at the rear of this manual.

1. Locate the Room Air Temperature Sensor(s) (and Humidity Sensors, if used) such that it/they monitor(s) the “mid-point” temperature (humidity) of the controlled space.
2. Locate the Outdoor Air Temperature Sensor such that it is not exposed to the prevailing wind, direct sunlight or excessive dampness. Specifically avoid areas where other equipment (condensing units etc.) are exhausting warm air.
3. Locate the position of the temperature control sensor for the Air Conditioning unit intended to be controlled from the system.

Where possible, co-locate the A/C unit temperature sensor and the Room Air Temperature Sensor(s). It is important to ensure that both sensors respond in a similar manner to temperature changes within the room.

Verify the actual temperature readings from both sensors and calibrate the sensor if necessary. Refer to User Parameter Section of this Manual.

4. The setpoint of the A/C unit should be set to a lower value than normal to ensure that whenever the A/C unit is enabled by the controller, it is capable of lowering the room temperature to the controller Setpoint.
5. It is important to take time to review the interaction between the controller Setpoint and the A/C unit Setpoint, the location of the control sensor and the location of the A/C unit control sensor and to verify both sensors respond appropriately to cooling via the FC unit and the A/C unit.
6. Ensure that any cable route through a wall or panel is sleeved and sealed.
7. Secure all cabling.

2.6 Running the unit for the first time

1. Check that the unit is securely mounted and fixed to the wall of the building.
2. ENSURE THAT THE DC POWER SUPPLY TO THE CONTROLLER IS OFF.
3. Check that all electrical connections are safe/secure BEFORE STARTING THE UNIT.
4. Check that the site supply voltage/frequency are as specified and match those on the unit Serial Plate.

5. Check for continuity between the earth terminal and the main body of unit.
6. Check that all power connections and interconnecting control wires are installed and suitably sized to cope with the imposed load marked on the unit serial plate and wiring diagram.
7. Record the supply voltage at the Isolator. Check that the supply voltage is within $\pm 10\%$ of the value marked on the unit Serial Plate.
8. Switch ON the DC Power.
9. Measure and verify the Low Voltage Rail - 48VDC rail is powered at F1 & F2 and is in accordance with the Electrical Schematic supplied.
10. Verify the operation and measured readings of the Outdoor & Room Air Temperature (and Humidity, if fitted) sensors.
11. Verify that the controller display/keypad is functioning normally. Verify the Status of all control inputs and outputs from the controller Inputs/Outputs Menu.
12. Use Manual Mode Operation to test the operation of the FC Fan, A/C Unit and Alarm Outputs and any other Analogue or Digital outputs, as fitted. Refer to the User Menu section of this Manual, if necessary.
13. Verify that the settings of the control parameters are as required for this application.
14. Switch the control system to "Unit On" via the On/Off Menu.
15. The unit will now run automatically in response to Room Temperature and Setpoint.
16. Close the door of the room and allow the unit to control for 30 minute intervals.
17. Monitor the unit and ensure that it functions as required.
18. Where possible, simulate temperature conditions to verify correct unit operation.

2.8 Automatic Operation Mode

The Control System monitors Room Temperature and Humidity levels and compares these levels against user-determined Temperature and Humidity Setpoints and Limits to determine the appropriate control action.

In Normal Operation - when Cooling is required, the controller checks the Outdoor Temperature and other user-programmable conditions to determine if FC is deemed available.

If FC is available, DX/Mechanical Cooling is disabled (via the A/C relay) and FC is enabled. The FC Units will modulate (within user defined limits) to maintain the required Room Setpoint.

During periods when FC is not available, DX/Mechanical Cooling is enabled in response to room Setpoint requirements.

Room Humidity Control during FC operation is determined on a bandwidth basis – e.g. 30-70% R.H. If, during FC operation, the measured Room R.H levels exceed the user-set bandwidth, FC is disabled and DX cooling is enabled.

In the event of any serious alarm during FC operation, control reverts to the DX/Mechanical cooling system.

2.9 Controller Configuration

TYPE	Electronic Microprocessor Controller – DIN rail mounted
PROTECTION	IP20
POWER SUPPLY	24VAC +/- 15% 50/60Hz (or 48VDC)
CPU	16 Bit 14 MHz
PROGRAM MEMORY	1 MB (FLASH) at 16 Bit
DATA MEMORY	128 kB (Static RAM) at 8 Bit
ANALOGUE INPUTS	4
ANALOGUE OUTPUTS	3
DIGITAL INPUTS	6
DIGITAL OUTPUTS	5

The control system is modular in design – additional control modules can be added as required by the application. Each additional control module consists of:

ANALOGUE INPUTS	4
ANALOGUE OUTPUTS	1
DIGITAL INPUTS	4
DIGITAL OUTPUTS	4

2.9.1 Controller – BMS/Remote Comms. Options

As standard, the controller is configured for remote communication and operation via MODBUS over RS485 and TCP/IP over Ethernet. An optional communications card is required for each protocol.

In addition, the controller supports communication with the following BMS protocols.

1. Http
2. Linux
3. SNMP
4. XML
5. BACnet

6. LonWorks
7. Carel DLL
8. OPC

The controller supports the following Fieldbus connectivity.

1. Canbus
2. MPBus
3. RS485
4. tLAN

2.9.2 Controller Alarm Outputs

All alarms are displayed at the controller Display/Keypad.

In addition, the controller can be configured for two alarm contacts, a General Alarm o/p and a Critical Alarm o/p. These are intended for use with hard-wired alarm outputs.

Individual controller alarms, such as Sensor Failure, High/Low Room Temp, High/Low Room Hum, Filter Clog etc. are configurable to activate either, both or none of these alarm contacts. Additional alarm contacts are available to customer-order. All controller alarms are available over the BMS or Fieldbus connection, (if so connected).

2.10. Maintenance

Preventive maintenance must be performed by competent service personnel familiar with the servicing of air conditioning, electrical and electronic equipment. Our authorized service agents have been carefully chosen to provide efficient and quality service to our clients.

Failure to follow proper general service and preventative maintenance procedures could void the warranty of this product. Please refer to the warranty document for additional important information.



THE CONTROLLER SHOULD BE SWITCHED OFF AND ISOLATED FROM MAINS POWER (48VDC AND 230VAC) PRIOR TO ALL SERVICE/MAINTENANCE IN THE INTERIOR OF THE UNIT. FAILURE TO ISOLATE THE UNIT COULD RESULT IN SERIOUS INJURIES.

2.10.1 Regular Inspection

The unit should be inspected periodically to ensure that no unusual changes in operation occur. Any abnormalities should be investigated immediately by qualified personnel. Warranty conditions require regular maintenance comprising a minimum of one visit per annum to be undertaken by qualified, trained personnel.

2.10.2. Cabinet

1. Check the metalwork for any obvious damage, corrosion etc. - repair as necessary.
2. Ensure that all seals are in place and all panels are properly secured to the frame.

2.10.3 Electrical Components

1. Check for loose electrical connections on all components. Re-tighten any loose connections.
2. Check all system components for any signs of damage, corrosion and for security of mounting. Repair/replace as necessary.
3. Check that all components are in good condition and operate properly.

Note!



All DAQS Units are Pre-Set and Pre-Commissioned at the factory (in-line with customer specifications), prior to field installation. Consequently only a limited number of control parameters should require site adjustment.

Caution!



All other features, functions, operational modes and default settings are password protected. The alteration of default settings must only be conducted by trained personnel.

Note: Good Practice should be observed whilst handling/adjusting this equipment. The unit and its electrical compartment should only be accessed by authorized and trained personnel.
Note

3.0 Display/Keypad



Fig. 2a – Remote LCD Display/Keypad

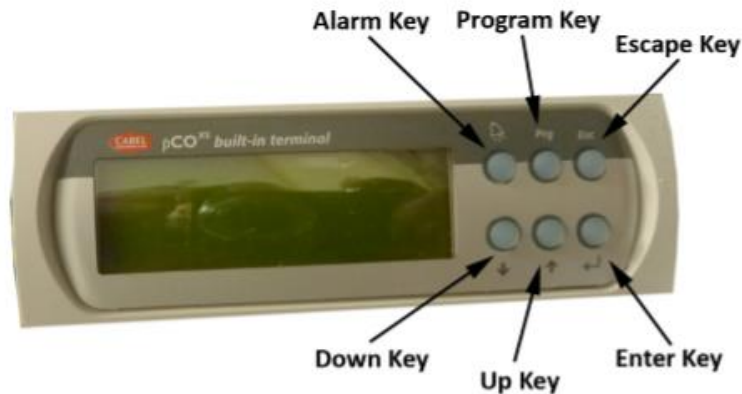


Fig. 2b – Remote LCD Display/Keypad "Built-In"

The following 6 keys are incorporated into the Display/Keypad:

ALARM KEY – When the **ALARM KEY** is illuminated in red, it indicates an active alarm.

PROGRAM KEY – The **PROGRAM KEY** is used to access the Menu Screens .

ESCAPE KEY – The **ESCAPE KEY** is used to return operation to the previous screen.

↑ KEY – The **↑ KEY** is used to move up through values/parameters in a Menu Screen and to change the value/ parameter once it is selected with the **ENTER KEY**

ENTER KEY – The **ENTER KEY** is used to select values/parameters in a Menu Screen and to set new values/parameters once changed.

↓ KEY – The **↓ KEY** is used to move down through values/parameters in a Menu Screen and to change the value/ parameter once it is selected with the **ENTER KEY**.

The Display/Keypad is used to monitor/adjust the unit operating parameters and settings. All unit operating parameters are password protected.

3.1 Home Screen

```
+-----+
|18 10 12 09 09  U:01|
|R.T 21.5°C O.T 16.5°C|
|Room Hum.      55.5%|
|Unit ON        |
+-----+
```

Fig. 3 – Home Screen

The “Home” or Default Screen M1 is shown in Fig. 3 above. The screen displays the current day/date and time, the Room Temperature (R.T), the Outdoor Temperature (O.T) and also the Room Humidity (if so configured).

The screen also shows unit status – in Fig. 2 above, it shows “Unit ON”.

The status line can also display:

- Off by Keypad (The unit is switched Off from the keypad)
- Off by Remote Input (The unit is switched Off by the Fire Panel etc.)
- Off by Alarms (The unit is switched Off by an Alarm(s))
- Off by BMS (The unit is switched Off by the remote Building Management System)

Note: When “Off by Remote Input”, “Off by Alarms” or “Off by BMS”, the unit can automatically re-start without warning.

- Press the ↓ KEY once to view the Status Screen M2:

```
+-----+
|   Unit Status   M2 |
|DC Fan          █ |
|AHU Fan         □ |
|ECON □ COMP □ HEAT □|
+-----+
```

The Status Screen M2 displays the current operation of the unit. A filled box denotes that a process is active, an empty box denotes that it is inactive. In the above example, the DC Fan is is Enabled and the Air Handling Unit (AHU) is Not Enabled.

- Press the ↓ KEY once to view the Free Cooling Enable (FC EN) Conditions Screen:

```

+-----+
|FC EN Conditions  M3|
|Cabin Temperature  █|
|O.A.T. █ Delta T.  █|
|FC Available       █|
+-----+

```

This screen provides an overview of the programmable conditions that determine Free Cooling (FC) availability:

Delta T: A filled box indicates that the FC Delta Temperature Condition is fulfilled. The FC Delta Temperature Condition is explained in User Menu Parameters.

O.A.T: A filled box indicates that the FC Outdoor Air Temperature Conditions are fulfilled. The FC Outdoor Air Temperature Conditions are explained in User Menu Parameters.

R.A.T: A filled box indicates that the FC Room Air Temperature Conditions are fulfilled. The FC Room Air Temperature Conditions are explained in User Menu Parameters.

FC OK: A filled box indicates that FC is available. The FC Delta T, the FC O.A.T, FC R.A.T and FC R.A.H.: conditions are fulfilled and there are no relevant Alarms present.

- Press the **↓ KEY** once to view the Software Info. Screen:

```

+-----+
|  Software Info  M4|
|CODE: DAQS FC10-CSR|
|Version      :   1.4|
|Date       :   01.01.15|
+-----+

```

The Software Info Screen **M4** displays the Software Code and Version Information. • Press the **↓ KEY** again and the Controller Info Screen **M5** is displayed.

```

+-----+
|Controller Info  M5|
|                |
|BOOT: 4.03  03/07/09|
|BIOS: 5.09  24/06/10|
+-----+

```

This Screen displays the version information of the BOOT and BIOS software loaded on the controller. • Press the **↓ KEY** again and the pLAN Jump Screen **M6** is displayed.

```

+-----+
|U:01                                     M6|
|      Press Enter                       |
|    To View Next Unit                   |
|                                         |
+-----+

```

This Screen is active if two or more control systems are connected via their controller pLAN networks, the network is enabled and all appropriate addresses have been set at the two controllers and Display/Keypads.

3.2 Menu Screens

All status information, sensor readings, control parameters etc. are accessed via the Main Menu. The Main Menu consists of 6 Menu Options shown below in figures 4 and 5.

```

+-----+
|Main Menu 1      U:01|
|1:UNIT ON/OFF   ~|
|2:SETPOINT      ~|
|3:INPUTS/OUTPUTS ~|
+-----+

```

Fig. 4 – Main Menu 1

```

+-----+
|Main Menu 2      U:01|
|4:MAINTENANCE   ~|
|5:USER PARAM.   ~|
|6:MANUFACT.PARAM. ~|
+-----+

```

Fig. 5 – Main Menu 2

To access Main Menu 1 & 2:

- Press the **PROGRAM KEY** – Main Menu 1 is displayed.
- Press the **↓ KEY 3** times, until Main Menu 2 is displayed.
- Press the **ESCAPE KEY** to return to the Home Screen.

3.3 Switching the Unit ON and OFF by the Keypad

To switch the unit ON when it is “Off by Keypad”:

- Press the **PROGRAM KEY**– Main Menu 1 (Fig. 3) is displayed and the cursor is positioned on Menu Option 1 - UNIT ON/OFF.
- Press the **ENTER KEY** to select Menu Option 1 - UNIT ON/OFF

The following screen is displayed:

```
+-----+
| Off by Keyboard |
| - Press Enter To |
| -   switch On   |
+-----+
```

Press the **ENTER KEY** again to switch the unit ON.

To switch the unit OFF when it is “Unit ON”.

- Press the **PROGRAM KEY**– Main Menu 1 (Fig. 4) is displayed and the cursor is positioned on Menu Option 1 - UNIT ON/OFF.
- Press the **ENTER KEY** to select Menu Option 1 - UNIT ON/OFF

The following screen is displayed:

```
+-----+
|                               |
|                               | U:01 |
| Unit ON                       |
| - Press Enter To -          |
| -   switch off   -          |
+-----+
```

Press the **ENTER KEY** again to switch the unit **OFF**.

3.4. Changing the Temperature Set-Point

The Temperature Setpoint is the Room Air Control Temperature – it should be set appropriately for the application and only be altered with the approval of the site manager.

To change the Setpoint:

- Press the **PROGRAM KEY**– Main Menu 1 (Fig. 4) is displayed and the cursor is positioned on Menu Option 1 - UNIT ON/OFF.
- Press the **↓ KEY** once to position the cursor over Menu Option 2 – SETPOINT.
- Press the **ENTER KEY** to select Menu Option 2 – SETPOINT.

The following screen is displayed:

```

+-----+
|      Setpoint °C   S1|
|Minimum  16.0      |
|          26.0 °C   |
|Maximum  28.0      |
+-----+

```

- Press the **ENTER KEY** once to position the cursor over the SETPOINT field.
- Use the **↑ KEY & ↓ KEY** to change the Setpoint to the required value.
- Note that the Minimum and Maximum values determine the range of adjustment of the Setpoint – the Minimum and Maximum values can be changed in the User Menu.
- Press the **ENTER KEY** to set the new Setpoint value.
- Press the **ESCAPE KEY** to return to the **HOME SCREEN**.

3.5 Identifying/Clearing Alarms

An alarm at the unit is indicated when the **ALARM KEY** is illuminated.

To view active alarms:

- Press the **ALARM KEY**.

If more than one active alarm is present:

- Use the **↑ KEY & ↓ KEY** to scroll through the list of active alarms.
- Press the **ESCAPE KEY** to return to the **HOME SCREEN**.

An alarm at the unit can only be reset, once the cause of the alarm has been remedied, i.e. if a High Temperature alarm is triggered, it cannot be reset at the Keypad until the Room Temperature has lowered below the alarm threshold.

To clear an inactive alarm:

- Press the **ALARM KEY**.

If more than one active alarm is present:

- Use the **↑ KEY & ↓ KEY** to scroll through the list of active alarms until you access the required screen.
- Press the **ENTER KEY** to re-set the alarm.

If the alarm does not clear, it is still active and the cause of the alarm must be investigated.

- Press the **ESCAPE KEY** to return to the **HOME SCREEN**.

Alarms can be categorised into General Alarms and Critical Alarms. General Alarms do not significantly effect unit operation and most can be cleared readily. Critical Alarms do significantly effect unit operation and may require the attendance of a Service Technician. A full list of all controller Alarms is provided at the rear of this Manual.

3.6 Viewing the Component Run Hour Log and the Event History Log

The Run Hours of all major components in the unit are stored in the Run Hours Log.

To view the Run Hours Log:

- Press the **PROGRAM KEY** – Main Menu 1 is displayed.
- Press the **↓ KEY** 3 times, until Main Menu 2 is displayed.
- Press the **ENTER KEY** to select Menu Option 4 – MAINTENANCE

The following screen is displayed:

```
+-----+
|                A0 |
|Insert Maintenance |
|Password          0000 |
|                |
+-----+
```

- Press the **ENTER KEY** once to position the cursor over the Maintenance Password field.
- Press the **↓ KEY** once to change the Password to 9999 (This is the Default Maintenance Password – if this has been changed, enter the new Password).
- Press the **ENTER KEY**.

The following screen is displayed:

```
+-----+
|Maintenance       A1 |
|Run Hours         |
|FC Fan           001714 |
|A/C Unit         000115 |
+-----+
```

- Press the **↓ KEY** to scroll to the next screen - the Event History Log


```

+-----+
|
|*  Event History  *|
|   Press Enter   |
|*   To Access   *|
+-----+

```

- Press the **ENTER KEY** to access the Event History Log.
- Use the **↑ KEY & ↓ KEY** to scroll through the list of events.
- Press the **ESCAPE KEY** to return to the **HOME SCREEN**.

```

+-----+
|Run Hours      A2|
|FC Fan        001714|
|Reset Hours   No  |
|Threshold     012X1000|
+-----+

```

```

+-----+
|Run Hours      A3|
|A/C Unit      000115|
|Reset Hours   No  |
|              |
+-----+

```

```

+-----+
|              A4|
|Clock Settings |
|HR09:09 Date18/10/12|
|Day   Thursday |
+-----+

```

```

+-----+
|   Unit On/Off  |
|Insert Staff   |
|Password  0000  |
|              |
+-----+

```

```

+-----+
|              U:01|
|Unit ON        |
|- Press Enter To -|
|-   switch off  -|
+-----+

```

4.0 Menu Option 1 – Unit ON/OFF

Description	Default
STAFF SETPOINT SCREEN	
Insert Staff Password – enter a value between 0000 and 9999	0000
UNIT ON/OFF SCREEN	
The Unit On/Off Screen switches the unit ON when it is “Off by Keyboard”, and switches the unit OFF when it is “Unit ON”	

5.0 Menu Option 2 - Setpoint Menu

```

+-----+
| Access Setpoint S0 |
|Insert Maintenance |
|Password      0000 |
|               |
+-----+

+-----+
|   Setpoint °C   S1 |
|Minimum  17.0    |
|           23.0°C |
|Maximum  28.0    |
+-----+

+-----+
|Enable Over      S2 |
|Freecooling? -  Yes |
|Setpoint        |
|Low Offset -   02.0 °C |
+-----+

+-----+
|Temperature Alarm S3 |
|Offset From Setpoint |
|High           10.0°C |
|Low            14.0°C |
+-----+

```

Description	Default
ACCESS SETPOINT SCREEN S0 Insert Maintenance Password – Enter a value between 0 - 9999	9999
SETPOINT SCREEN S1 This screen is used to set the Temperature Setpoint . The Temperature Setpoint is used in conjunction with the Room Air Temperature Sensor to determine when cooling is required. The Minimum and Maximum allowable setpoints are displayed above and below the Temperature Setpoint. If required, the Minimum and Maximum allowable setpoints can be changed in the User Menu. Temp. Setpoint – enter a value between the minimum and maximum setpoints	23
ROOM TEMPERATURE ALARM SCREEN S2 The screen is used to control the operation of the High and Low Temperature Alarms . The High Temperature Alarm is generated when the Room Air Temperature is greater than (Temperature Setpoint+High Temp Offset) oC. The Low Temperature Alarm is generated when the Room Air Temperature is less than (Temperature Setpoint-Low Temp Offset) oC. High Offset – Enter a value between 0 and 99.9oC Low Offset - Enter a value between 0 and 99.9oC	10 10

6.0 Menu 3 – Input / Output

```

+-----+
| View I/O Status I0|
|Insert Maintenance |
|Password      0000 |
|              |
+-----+

```

```

+-----+
|Analogue Inputs  I1|
|B1 Cabin T 1   23.7°C|
|B2 Not Used   00.0 |
|B3 O.A.T.     03.7°C|
+-----+

```

```

+-----+
|Analogue Inputs   I2|
|B4 Not Used      |
|                  |
|                  |
+-----+

```

```

+-----+
|Digital Inputs    I3|
|ID1 DC Fan Filt AL ■|
|ID2 Not Used     ■|
|ID3 Not Used     ■|
+-----+

```

```

+-----+
|Digital Inputs    I4|
|ID4 Not Used     ■|
|ID5 Not Used     ■|
|ID6 Fire/Smoke AL ■|
+-----+

```

```

+-----+
|Analogue Outputs  I5|
|Y1 DC Fan        07.1V|
|Y2 Not Used      00.0V|
|Y3 Not Used      00.0V|
+-----+

```

```

+-----+
|Digital Outputs   I6|
|NO1 AHU Compressor ■|
|NO2 AHU Heater    □|
|NO3 AHU Fan       ■|
+-----+

```

```

+-----+
|Digital Outputs   I7|
|NO4 Critical Alarm □|
|NO5 A/C Enable    □|
|                  |
+-----+

```

Description	Default
INPUTS & OUTPUTS SCREEN I0	
Insert Maintenance Password – Enter a value between 0 - 9999	9999
INPUTS & OUTPUTS SCREEN I1 to I0	
<p>The screens are READ ONLY and allow the user to view the current measured values/status of all inputs and outputs to the unit controller. They are categorized and displayed under 4 headings:</p> <ol style="list-style-type: none"> 1. Analogue Inputs 2. Digital Inputs 3. Analogue Outputs 4. Digital Outputs <p>Inputs to and Outputs from the controller are configurable via parameter settings. Refer to the Manufacturers Menu for setting/adjustment of inputs & outputs.</p>	Read Only

7.0 Menu 4 – Maintenance

```

+-----+
|                A0 |
|Insert Maintenance |
|Password          0000 |
|                |
+-----+

+-----+
|Maintenance        A1 |
|System On          001800|
|DC Fan             001717|
|AHU Fan            000015|
+-----+

+-----+
|Maintenance        A2 |
|AHU Econom.        000000|
|AHU COMP           000014|
|AHU Heater         000001|
+-----+

+-----+
|                |
|*  Event History  *|
|   Press Enter   |
|*    To Access   *|
+-----+

```

Description	Default
MAINTENANCE SCREEN A0 Insert Maintenance Password - Enter a value between 0 and 9999.	9999
MAINTENANCE SCREEN A1 This screen is READ ONLY screen showing the current Run Hours of the following devices. FC Fan Run Hours – A/C Unit Run Hours –	Read Only
ALARM/EVENT HISTORY SCREEN Press ENTER to access the Alarm/Event History Log. All alarms (current and past) are day/date stamped and stored in non-volatile memory. In addition, “Events” such as change of temperature or humidity setpoint and changes to Manufacturers Parameters are also stored. Use the ↑ KEY & ↓ KEY to scroll through the list of stored alarms/events.	Read Only

```

+-----+
|Run Hours      A3|
|System On      001717|
|Reset Hours    No  |
|Threshold      012X1000|
+-----+

```

Description	Default
MAINTENANCE SCREEN A2 This screen is used to generate a Maintenance Alarm when the FC Fan Run Hours exceed the Alarm Threshold Hours Value listed below. The device Run Hours can be reset if required. Temspec recommends that the device Run Hours are only reset if a new component is fitted to the unit. Increase the threshold after each alarm interval is reached. FC Fan Run Hours – READ ONLY Reset Hours – Enter YES or NO	12*1000

Threshold – Enter a Value between 0 and 999x1000 Hours	
<p>MAINTENANCE SCREEN A3</p> <p>This screen is used to view the A/C Unit Run Hours. The device Run Hours can be reset if required. DAQS recommend that the device Run Hours are only reset if a new component is fitted to the A/C unit.</p> <p>DX Unit. Run Hours – READ ONLY Reset Hours – Enter YES or NO</p>	READ ONLY

```

+-----+
|                      A9 |
|Clock Settings          |
|HR09:09 Date18/10/12 |
|Day Thursday           |
+-----+

```

Description	Default
<p>CLOCK SETTINGS SCREEN A4</p> <p>This screen is used to adjust and set the controller Real Time Clock, set as appropriate.</p>	Set as required

```

+-----+
|                      A5 |
|Change Maintenance     |
|Password      0000     |
|                      |
+-----+

```

```

+-----+
|                      A6 |
|Change Staff           |
|Password      0000     |
|                      |
+-----+

```

Description	Default
<p>MAINTENANCE PASSWORD SCREEN A5</p> <p>This screen is used to change the Maintenance Password. The Maintenance</p>	9999

<p>Password is used to access the Setpoint Menu, the Inputs/Outputs Menu and the Maintenance Menu.</p> <p>Change Maintenance Password – Enter a Value between 0 and 9999</p>	
<p>STAFF PASSWORD SCREEN A6</p> <p>This screen is used to change the Staff Password. The Staff Password is used to access the On/Off Menu.</p> <p>Change Staff Password – Enter a Value between 0 and 9999</p>	0000

8.0 Menu 5 – User Menu

```

+-----+
|                P0 |
|Insert User      |
|Password  0000   |
|                |
+-----+

```

```

+-----+
|Cabin Temp.     P1 |
|Setpoint Limits |
|Minimum        17.0°C|
|Maximum        28.0°C|
+-----+

```

```

+-----+
|Cabin Temp.     P2 |
|Cooling         |
|Deadzone       0.5°C|
|Differential    2.5°C|
+-----+

```

Description	Default
<p>USER PASSWORD SCREEN P0</p> <p>Enter the User Password to access the User Menu</p>	0732
<p>TEMPERATURE SETPOINT LIMIT SCREEN P1</p> <p>This screen determines the upper and lower limits of adjustment of the Temperature Setpoint.</p> <p>Minimum - Enter a value between 0 and 99.9 oC</p>	17

Maximum - Enter a value between 0 and 99.9 oC	28
ROOM TEMPERATURE CONTROL SCREEN P2	
The Temperature Deadzone (DZ) is the temperature range above Setpoint where no control operation occurs: Cooling is disabled at SET+DZ. The Temperature Differential (DIFF) is the temperature range above SET+DZ where all control operation occurs. Cooling is enabled at SET+DZ+DIFF.	
Deadzone - Enter a value between 0 and 9.9 oC	0.5
Diff. - Enter a value between 0 and 9.9 oC	2.0

```

+-----+
|Room temp.      P3|
|Heating        |
|Deadzone       8.0°C|
|Differential    04.0°C|
+-----+

+-----+
|Fan Speed Setting P4|
|DC Min         020.0%|
|DC Max         100.0%|
|AC Fail Speed 100.0%|
+-----+

```

Description	Default
ROOM TEMPERATURE CONTROL SCREEN P3	
The Heating Temperature Deadzone (DZ) is the temperature range BELOW Setpoint where no control operation occurs: Heating is disabled at SET-DZ. The Temperature Differential (DIFF) is the temperature range BELOW SET+DZ where all control operation occurs. Heating is enabled at SET-DZ-DIFF.	
Deadzone - Enter a value between 0 and 9.9 oC	8.0
Diff. - Enter a value between 0 and 9.9 oC	4.0
FC FAN SPEED SETTING SCREEN P4	
This screen determines the speed range (airflow/static) setting of the FC Fan during automatic FC Mode Operation.	
The Minimum FC Speed should be selected such as to ensure a sufficient airflow	

to maintain room air distribution and minimise potential hot-spots.	
The Fault Speed setting is used in systems with 2 or more FC Fans. It sets the run speed for the second and consequent fans, in the event of the failure of any one fan.	
FreeCooling Minimum Speed – Enter a value between 0 and 100 % of Fan Speed	20
FreeCooling Maximum Speed – Enter a value between 0 and 100 % of Fan Speed	100
AC Fail Speed - Enter a value between 0 and 100 % of Fan Speed	100

```

+-----+
|Fan O.A.T. Limit P5|
|From      :  10.0°C|
|To        :  50.0°C|
|Max Speed : 100.0%|
+-----+
+-----+
|Fan O.A.T. Limit P6|
|From      :   0.0°C|
|To        :  10.0°C|
|Max Speed :  80.0%|
+-----+

+-----+
|Fan O.A.T. Limit P7|
|From      : -10.0°C|
|To        :   0.0°C|
|Max Speed :  60.0%|
+-----+

+-----+
|Fan O.A.T. Limit P8|
|From      : -20.0°C|
|To        : -10.0°C|
|Max Speed :  45.0%|
+-----+

+-----+
|Fan O.A.T. Limit P9|
|From      : -30.0°C|
|To        : -20.0°C|
|Max Speed :  35.0%|
+-----+

```

```

+-----+
|Fan O.A.T. Limit  Pa|
|Low T. Limit Fan  |
|Disable   :  -30.0°C|
|                |
+-----+

```

Description	Default
<p>FAN O.A.T. LIMIT SCREENS P4 TO P9</p> <p>The Fan Outdoor Air Temperature Limit Screens are visible once enabled in the Manufacturers Menu. They are used in applications where the outdoor temperature used for FC is potentially very low.</p> <p>They are used to limit the available airflow (by setting max allowable fan speeds) incrementally at each outdoor temperature interval.</p> <p>Screen P9 is used to disable the FC fan at a user determined absolute minimum outdoor temperature.</p>	<p>As shown</p>

```

+-----+
|                Pb|
|EN Recirc Mode  :  N|
|                |
|                |
+-----+
+-----+
|Delta T. To En.  Pc|
|Freecooling    03.0°C|
|Priority Time Over  |
|A/C EN        10min|
+-----+

```

Description	Default
<p>ENABLE RECIRC MODE PB</p> <p>This screen allows the user to enable the AHU fan to re-circulate only when there is no call for cooling or heating.</p>	<p>N</p>

FC CONDITION: DELTA TEMPERATURE TO ENABLE FC SCREEN Pc

The **Delta Temp.** is the temperature differential between the Temperature Setpoint and the measured Outdoor Air Temperature. When the measured differential is greater than the **Delta Temp**, Free cooling is available, when less, Free cooling is not available.

For example, with a Setpoint of 22oC, and a **Delta Temp.** of 3oC, Free cooling is available at Outdoor Temperatures below 19oC - it is not available at Outdoor Temperatures above 19oC.

The **Priority Time Over A/C EN** parameter sets the Free cooling time period, during which Setpoint must be reached or temperature control will revert to the A/C unit. If the FC unit runs for longer than the **Priority Time Over A/C EN** and Setpoint has not yet been reached – FC is disabled and A/C is enabled.

Delta Temp – Enter a value between 0 and 99.9 oC

3.0

Priority Time Over A/C EN - Enter a value between 0 and 99 Minutes

10.0

```
+-----+
|O.A.T. FC Limits Pd|
|Minimum      -30.0°C|
|Maximum      50.0°C|
|Diff.        1.0°C|
+-----+
```

```
+-----+
|Low R.A.T.    Pe|
|FC Limit     |
|Setpoint     17.0°C|
|Diff.        1.0°C|
+-----+
```

```
+-----+
|Alarm Delay   Pf|
|Filter        180S|
|Temperature   120S|
|Cool Fail     010Min|
+-----+
```

Description	Default
<p>FC CONDITION: OUTDOOR AIR TEMP. LIMITS SCREEN Pd</p> <p>This screen determines the allowable range of Outdoor Temperatures, used during normal FC operation. The maximum value is determined in conjunction with the Temperature Setpoint, the minimum value by the manufacturers recommendations for the equipment to be cooled.</p> <p>Maximum – Enter a value between 0 and 99.9 oC Minimum – Enter a value between 0 and 99.9 oC Diff. – Enter a value between 0 and 99.9 oC</p> <p>FC CONDITION: ROOM AIR TEMP. LIMITS SCREEN Pe</p> <p>This screen determines the minimum allowable Room Temperature in the controlled space. The minimum allowable room air temperature parameter is used to maximise FC operations during cold outdoor periods, creating a cold thermal ballast in the room. Its value is determined by the manufacturers recommendations for the equipment to be cooled.</p> <p>Setpoint – Enter a value between 0 and 99.9 oC Diff. – Enter a value between 0 and 99.9 oC</p>	<p>-30 50 1</p> <p>17 1</p>
<p>ALARM DELAY SCREEN Pf</p> <p>The Alarm Delay parameters determine the time delays between detection of an alarm condition and the generation of the alarm screen (and related contact closure, if so configured). The alarm condition must exist for the full duration of the relevant alarm delay. The Cool Fail alarm occurs when a High Temperature Alarm exists for the Cool Fail Delay Time. Control Action for a Cool Fail Alarm is configurable in the Manufacturers parameters.</p> <p>Filter - Enter a value between 0 and 999 seconds Temperature - Enter a value between 0 and 999 seconds Cool Fail - Enter a value between 0 and 999 minutes</p>	<p>180 120 10</p>

```

+-----+
|                                     Pg|
|Enable Rem. On/Off N|
|                                     |
|                                     |
+-----+

```

```

+-----+
|BMS Communication Ph|
|Unit Address : 001|
|Protocol : Carel |
|Baud Rate: 19200 bps|
+-----+

```

Description	Default
<p>ENABLE SCREEN Pg</p> <p>This screen enables/disables the operation of the Remote ON/OFF digital input. The Remote ON/OFF digital input is used to start and stop the unit remotely.</p> <p>Enable Remote ON/OFF – Enter Yes (Y) or No (N)</p>	N
<p>BMS COMMUNICATION SCREEN Ph</p> <p>This screen is used to configure the unit for communication with a Building Management System.</p> <p>Unit Address - Enter an address between 0 and 999</p> <p>Protocol – Select between Carel and Modbus</p> <p>BAUD Rate – Select between 1200, 2400, 4800, 9600 or 19200 bps</p>	<p>001</p> <p>CAREL</p> <p>19200</p>

```

+-----+
|Calibration          Pi|
|B1 Cabin T 1       0.0°C|
|B2 Not Used        |
|B3 O.A.T. 1       0.0°C|
+-----+

```

```

+-----+
|Calibration          Pj|
|B4 Not Used       0.0°C|
|                  |
|                  |
+-----+

```

Description	Default
<p>CALIBRATION SCREENS Pi to Pj</p> <p>These screens are used to calibrate sensor inputs to the FC10-DCS unit. The value entered on this screen is added/subtracted to/from the measured value of the input.</p> <p>Enter a value between 0 and 9.9</p>	0.0

```

+-----+
|   Manual Op.   Pk |
| * Unit Must Be Off * |
|   To Proceed   |
| *Auto End In 5 Min * |
+-----+
+-----+
|Manual Operation Pl|
|DC Fan   N   100.0 |
|AHU Fan                N|
|AHU Econ.                N|
+-----+

+-----+
|Manual Operation Pm|
|AHU Comp.           N|
|AHU Heat.           N|
|                   |
+-----+

+-----+
|                   Pn|
|Change User         |
|Password   0000     |
|                   |
+-----+

```

Description	Default
<p>MANUAL MODE OPERATION SCREEN Pk</p> <p>The following screens (Pl, and Pm) are normally used in commissioning, maintenance, troubleshooting etc. They are used to manually operate each of the outputs from the unit.</p>	

<p>The unit must be “Off By Keyboard” for Manual Mode to operate. Manual Mode operation will automatically stop after 5 minutes.</p>	
<p>MANUAL MODE SCREEN P1</p> <p>DC Fan EN - Enter YES or NO and enter a value between 0 and 100% AHU Fan Enter YES or NO AHU Economizer (if applicable) Enter YES or NO</p>	<p>Reset after use</p>
<p>MANUAL MODE SCREEN Pm</p> <p>AHU Compressor - Enter YES or NO AHU Heater - Enter YES or NO</p>	<p>Reset after use</p>
<p>CHANGE USER PASSWORD SCREEN Pnu</p> <p>This screen is used to change the User Password</p> <p>Change User Password - Enter a value between 0 and 9999</p>	<p>0732</p>

```

+-----+
|                C0|
|Insert Manufacturers|
|Password          0000|
|                |
+-----+

```

```

+-----+
|Unit Config      C1|
|B2 - Not Used    |
|Control to - Highest|
|Y1 - Not Used    |
+-----+

```

```

+-----+
|Unit Config      C2|
|ID1 - DC Fan Filt AL|
|ID2 - Not Used    |
|ID3 - Not Used    |
+-----+

```



```

+-----+
|Unit Config      C3|
|ID4 - Not Used   |
|ID5 - Not Used   |
|ID6 - Fire/Smoke AL|
+-----+

```

```

+-----+
|Unit Config      C4|
|NO4 - General Alarm|
|NO5 - CriticalAlarm|
|                  |
+-----+

```

Description	Default
<p>MANUFACTURERS PASSWORD SCREEN C0</p> <p>The Manufacturers password is the highest level of password access; it should only be available to trained, qualified personnel. Changes to Manufacturers Parameters should only be made by trained, qualified personnel who have read and fully understood this manual.</p>	
<p>UNIT CONFIG: SENSORS SCREEN C1</p> <p>This screen allows the configuration of an additional temperature sensor In Sensor Only mode – humidity control is disabled.</p> <p>B2 – – Select between NOT USED or Cabin T 2 if fitted Control to – Select Highest (1 sensor) or Average (2 sensors). Y1 – Select between DC Fan (for modulating DC Fan) or NOT USED</p>	<p>NOT USED HIGHEST DC FAN</p>
<p>UNIT CONFIG: DIGITAL INPUT SCREEN C2</p> <p>The ID1, ID2 and ID3 Digital Inputs to the controller can be configured for the following use:</p> <p>ID1 – Not Used – The input is disabled. ID1 – DC Fan Filter Alarm .1 Fail – The input is used to monitor a Filter Clog Switch. When so configured, the input will generate a Filter Clog Alarm if the Filter Clog Switch is activated. ID2 – Not Used – The input is disabled.</p>	<p>SET AS REQUIRED</p>

<p>ID2 – AHU Unit AL – The input is used to monitor a dry contact alarm output from the AHU.</p> <p>ID3 – Not Used – The input is disabled.</p> <p>ID3 – DC Fan Alarm – The input is used to monitor a fan overload or an air-flow switch. When so configured, the input will stop the FC Fan and control will revert to the A/C Unit.</p>	
<p>UNIT CONFIG: DIGITAL INPUT SCREEN C3</p> <p>The ID4, ID5 and ID6 Digital Inputs to the controller can be configured for the following use:</p> <p>ID4 – Not Used – The input is disabled.</p> <p>ID4 – Service Timer – The input is used to activate a service timer which can shut the fan down for a fixed pre-set time.</p> <p>ID5 – Not Used – The input is disabled.</p> <p>ID5 – AC Power Alarm– The input is used to monitor AC Power failure via an AC relay contact if fitted.</p> <p>ID5 – Smoke Detector – The input is used to monitor a Smoke Detector Sensor. When so configured, the input can also stop the FC fan and control will revert to the A/C Unit.</p> <p>ID6 – Not Used – The input is disabled.</p> <p>ID6 – Remote On/Off – The input is used to switch the unit On and Off via a remote switch or contact. When so configured, the input will stop the FC fan and control reverts to the A/C Unit.</p> <p>ID6 – Fire/Smoke Alarm – The input is used to switch the unit On and Off via a remote Fire Panel contact. When so configured, the input will stop the FC fan and control reverts to the A/C Unit.</p>	<p>SET AS REQUIRED</p>

Description	Default
<p>UNIT CONFIG: DIGITAL OUTPUT SCREEN C7</p> <p>The NO4, and NO5 Digital Outputs from the controller can be configured for the following use:</p> <p>NO4 – DC Fan – The output is can be used is an ON/OFF DC fan is fitted.</p> <p>NO1 – General Alarm – The output is used to activate an external contact to indicate a general alarm on the unit.</p> <p>NO5 – Not Used – The output is disabled.</p> <p>NO5 – Critical Alarm – The output is used to activate an external contact to</p>	<p>SET AS REQUIRED</p>

indicate a critical alarm on the unit. NO2 – AHU Economiser– The output is used to activate the AHU economizer.	
---	--

```

+-----+
|Temperature      C5|
|Regulation Type  |
|Proportional     |
|Integral Time   0120S|
+-----+
+-----+
|Unit Config      C6|
|Cool Fail Al Action?|
|Run F.Cool & AHU DX |
|                |
+-----+
+-----+
AHU Compressor    C7|
|Min On Time : 003Min|
|Revert F.Cool : Time|
|                |
+-----+

```

Description	Default
<p>UNIT CONFIG: TEMPERATURE REGULATION SCREEN C5</p> <p>This screen determines the type of control algorithm to be used for temperature control. The options are Proportional or Proportional Integral. Proportional control defines a linear relationship between change in temperature and change in the FC Cooling outputs. Proportional Integral control utilizes an additional parameter, the Integral Time to enhance control accuracy.</p> <p>Integral Time – Enter a value between 0 and 9999 seconds.</p>	<p>P</p> <p>200</p>

Description	Default
<p>UNIT CONFIG: A/C UNIT CONTROL SCREEN C6</p> <p>This screen determines the action taken when a Cooling Failure Alarm Occurs</p> <p>None – Do Nothing Run F.Cool & AHU DX: - This turns on both the FC Fan and the AHU Compressor</p> <p>Run F. Cool – Run Free Cooling Fan only</p> <p>Run AHU DX – Run AHU Compressor Only</p>	SET AS REQUIRED
<p>AHU COMPRESSOR SCREEN C7</p> <p>This screen determines the minimum run time for the Air Conditioning Unit. The parameter is used to reduce stop/start operations of the A/C Unit and maximise compressor service life.</p>	3 MIN

```

+-----+
|Al Relay Config.  C9|
|AL:001 - Critical  |
|AL:002 - Critical  |
|AL:003 - Critical  |
+-----+

```

```

+-----+
|Al Relay Config.  Ca|
|AL:004 - Critical  |
|AL:005 - Critical  |
|AL:006 - Critical  |
+-----+

```

```

+-----+
|Al Relay Config.  Cb|
|AL:007 - Critical  |
|AL:008 - Critical  |
|AL:009 - Critical  |
+-----+

```

```

+-----+
|Al Relay Config.  Cc|
|AL:010 - Critical  |
|AL:011 - General   |
|AL:012 - General   |
+-----+

```

```

+-----+
|Al Relay Config. Cd|
|AL:013 - General  |
|AL:014 - General  |
|AL:015 - General  |
+-----+

```

```

+-----+
|Al Relay Config. Ce|
|AL:016 - Critical  |
|                   |
|                   |
+-----+

```

Description	Default
<p>ALARM RELAY CONFIGURATION SCREENS</p> <p>The Alarm Relay Configuration Screens (C9, Ca, Cb, Cc, Cd, and Ce) are used to determine which alarm relay should operate in the event of a specific alarm condition generated by the controller.</p> <p>The controller generates the following Alarms:</p> <p>Alarm Default Setting</p> <p>Alarm 001 – Cabin Temp. Sensor 1 Failure: Critical</p> <p>Alarm 002 – Cabin Temp. Sensor 2 Failure Critical</p> <p>Alarm 003 – Outdoor Temp. Sensor Failure. Critical</p> <p>Alarm 004 – DC Fan Filter Dirty Alarm. Critical</p> <p>Alarm 005 – AC Unit Common Fault. Critical</p> <p>Alarm 006 –DC Fan Common Fault. Critical</p> <p>Alarm 007 – A.C. Power Supply Failure Alarm. Critical</p> <p>Alarm 008 – High Cabin Temp. Alarm Critical</p> <p>Alarm 009 – Low Cabin Temp. Alarm. Critical</p> <p>Alarm 010 – Cooling Failure Alarm. Critical</p> <p>Alarm 011 – DC Fan Maintenance warning. General</p> <p>Alarm 012 – AC Fan Maintenance warning. General</p> <p>Alarm 013 – AC Economizer Maintenance warning. General</p> <p>Alarm 014 – AC Compressor Maintenance warning.. General</p> <p>Alarm 015 – AC Heater Maintenance warning. General</p> <p>Alarm 016 – Fire/Smoke Critical</p>	<p>Critical</p> <p>Critical</p> <p>Critical</p> <p>Critical</p> <p>Critical</p> <p>Critical</p> <p>Critical</p> <p>Critical</p> <p>Critical</p> <p>Critical</p> <p>Critical</p> <p>Critical</p> <p>Critical</p> <p>Critical</p> <p>Critical</p> <p>Critical</p> <p>Critical</p> <p>Critical</p> <p>Critical</p>

Description	Default
Two Alarm Relay outputs are provided, when so configured. The General Alarm Relay, NO3 and the Critical Alarm Relay, NO4. Each controller Alarm can be configured to activate either the Critical Alarm Relay, the General Alarm Relay, both Relays or none.	
Alarm 001 – Select between Critical, General, None or Both.	001:C
Alarm 002 – Select between Critical, General, None or Both.	002:C
Alarm 003 – Select between Critical, General, None or Both.	003: C
Alarm 004 – Select between Critical, General, None or Both.	004: C
Alarm 005 – Select between Critical, General, None or Both.	005: C
Alarm 006 – Select between Critical, General, None or Both.	006: C
Alarm 007 – Select between Critical, General, None or Both.	007: C
Alarm 008 – Select between Critical, General, None or Both.	008: C
Alarm 009 – Select between Critical, General, None or Both.	009: C
Alarm 010 – Select between Critical, General, None or Both.	010: C
Alarm 011 – Select between Critical, General, None or Both.	011: C
Alarm 012 – Select between Critical, General, None or Both.	012: C
Alarm 013 – Select between Critical, General, None or Both.	013: C
Alarm 014 – Select between Critical, General, None or Both.	014: C
Alarm 015 – Select between Critical, General, None or Both.	015: C
Alarm 016 – Select between Critical, General, None or Both.	016: C

```

+-----+
|Enable Auto      C1|
|Return To Home   |
|Screen           No|
|Delay Time      045Sec|
+-----+

```

```

+-----+
|Unit Manual Mode Cm|
|Reset Time       05Min|
|Clock Card - Present|
|Language :      EN|
+-----+

```

```

+-----+
|Reset Alarm      Cn|
|History         No |
|                |
|                |
+-----+

```

```

+-----+
|Reset Parameters  Co|
|To Default      No  |
|Specific Config.  |
|Low Ambient      |
+-----+

```

```

+-----+
|Change Passwords Cp|
|Maintenance      9999|
|User             0732|
|Manufacturer     ****|
+-----+

```

Description	Default
<p>UNIT CONFIG: AUTO RETURN TO HOME SCREEN CI</p> <p>This Screen determines the operation of and the delay time between the last key press on any screen and the automatic return of the display to the FC10-DCS Home Screen. It is intended as a safety device to secure controller access from unintended use.</p> <p>Enable Auto Return to Home Screen – Enter Yes on No. Delay Time – Enter a value between 0 and 999 seconds.</p>	<p>Yes 30</p>
<p>UNIT CONFIG: MANUAL MODE OPERATION SCREEN Cm</p> <p>This screen configures the required time duration of Manual Mode operation. It also configures the controller for use with a Real Time Clock Card and sets the Display Language.</p> <p>Manual Mode Reset Time: – Enter a value between 0 and 99 minutes. Clock Card: – Select Present or Absent Language: – Select EN (English) or FR (French)</p>	<p>5 Present EN</p>
<p>UNIT CONFIG: RESET ALARM HISTORY SCREEN Cn</p> <p>This screen resets clears all current Alarms stored in the Alarm History Log.</p> <p>Reset – Enter YES or NO</p>	<p>N</p>
<p>UNIT CONFIG: RESET PARAMETERS TO DEFAULT SCREEN Co</p> <p>This screen resets all unit parameters to their Factory Default Settings. Three sets of Defaults are available, for use in Low Ambient areas, High Ambient areas – and also a customer specific Default Set - select as appropriate.</p>	

<p>Reset to Default – Enter YES or NO Select Config: – Select Low Ambient or High Ambient</p>	<p>AS REQUIRED</p>
<p>CHANGE PASSWORDS SCREEN Cp</p> <p>This screen determines the Passwords used to access the Maintenance, User and Manufacturers Menus.</p> <p>Maintenance – Enter a value between 0 and 9999 User – Enter a value between 0 and 9999 Manufacturer - Enter a value between 0 and 9999</p> <p>Note: In response to a specific request from a Customer, all ex-factory passwords may, on occasion, be adjusted to their “non-use settings” – 0000</p>	<p>9999 0732 ****</p>

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