

**Electrical installation requirements**

Care should be taken to separate the power and signal cables to prevent electrical interference and possible damage due to inadvertent connection.

The power outputs are fitted with suppressors to protect against electrical interference when switching off solenoid valves or contactors. It is therefore essential to observe the output polarity. The line voltage should be connected to the terminals marked **LN** and the switched loads to **NO** or **NC**.

The 2 plant inputs are electrically isolated. A line voltage equal to the controller supply voltage should be connected for the logical conditions - **door closed** and **external alarm on**. The terminals marked **C** should be connected to the supply voltage neutral.

**CE Conformance**

This unit conforms with the relevant EU standards when installed according to the JTL Installation Requirements for this product.

**Use of Maintenance unit**

The controller can be checked and the operation adjusted using a JTL portable maintenance unit which plugs into the controller. Each item of information has an item number. The more important items are listed in the tables overleaf. Examples:

To read item 21 press: **ITEM** **2** **1** **ENTER**

To set item 30 to -20.0 press:

**ITEM** **3** **0** **ENTER** **SET** **-** **2** **0** **0** **ENTER**

To correct errors press: **CANCEL**

To select next or previous items press: **+** and **-**

**Initial commissioning and bitswitch settings**

The controller has 4 sets of data built in to its program for use during commissioning. These can be accessed by setting the bitswitches as shown in the table overleaf and then setting item 9 to 1. This will load into the controller a suitable set of data for the selected type of case. Adjustments should then be made as necessary. The range over which the settings can be adjusted is also defined by the bitswitch setting. If a JTL communications network is connected to the controller then the unit number should be set on item 1.

**Temperature display**

The temperature display shows the air on temperature. The LCCT drives an LED1 display.

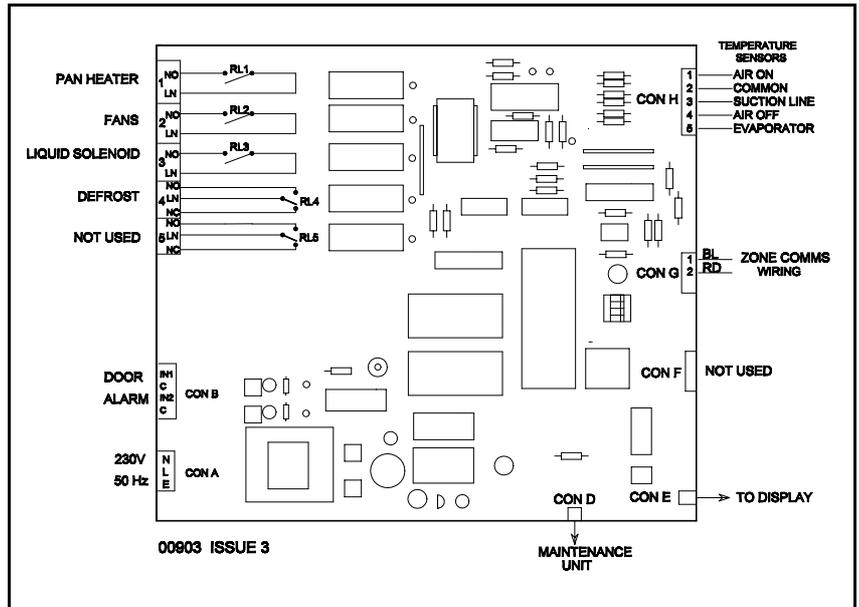
**Control strategy**

The air off temperature is controlled to a computed setpoint shown on item 28. If the temperature falls below this setpoint the liquid valve is closed. There is a deadband of ± 0.2 C.

The computed air off temperature setpoint is calculated by comparing the air on temperature with the air on temperature setpoint. The computed setpoint is raised or lowered depending on whether the temperature is below or above the setpoint. The computed air off setpoint cannot go more than 4 degrees Celsius below the air on setpoint.

**Defrost**

The defrost sequence is initiated by a built in real time clock and a defrost schedule of up to 4 defrosts a day stored in the controller memory. At the start of the defrost a pump down time, set on item 61, is applied. During pump down all output relays are de-energised. During defrost the defrost output and pan heater outputs are energised and the liquid solenoid and fan outputs are deenergised. The display shows "dEF".



**Defrost recovery**

When the termination temperature or time is reached the controller enters defrost recovery. The display shows "dEFr". A drain down period, set on item 59, is applied during which the liquid solenoid valve remains deenergised and the pan heater output remains on.

After the drain down period a further period can be applied, set on item 49, when the liquid valve remains deenergised.

The fans are controlled during defrost recovery depending on the evaporator temperature. When the evaporator temperature is low enough the fans start. There is a 5 degree deadband.

**Coldstore door functions**

When the coldstore door is opened refrigeration is stopped by shutting the liquid solenoid valve and stopping the evaporator fans. If the door remains open for a time longer than the value set on item 64 then refrigeration is restarted. If the door remains open for a time longer than set on item 33 then an alarm is given.

The time that the door has currently been open and that it has been open in the last 24 hours is also recorded.

**Alarms**

The air on temperature is monitored continually. The temperature is averaged over a fixed 2 hour period. If the average temperature exceeds the alarm level then an alarm is given which is shown on the display and available, for remote indication, on the JTL alarm system.

High temperature alarms are **NOT** cancelled during defrost or defrost recovery.

**Coldroom isolation**

The controller can be isolated for standby operation using item 67. When isolated, all output relays are deenergised and the alarms disabled.

**Network shutdown**

When this function is enabled (item 62), if a shutdown command is received from the JTL communications network the outputs are turned off and the alarms are cancelled.

ADJUSTABLE PARAMETERS				Bitswitch settings
Item	Function	Range	Units	
1	Unit number	0.1 to 899.9		4321
2	Time of day	00:00 to 23:59	hr:mn	xxCC Frozen food
30	Air on temperature setpoint	-30 to +25	°C	xxCO Ice cream
32	Overtemperature tolerance	0 to +20	°C	xxOC Chillers
33	Door open alarm delay	00:00 to 00:30	hr:mn	xxOO Produce
36-39	Probe selections	0=off 1=on		
48	Compressor starts/hour	unlimited/10/15/20		where
49	Refrigeration delay after defrost	00:00 to 00:10	hr:mn	C = closed
50	Defrost termination temp (evap)	0 to +30	°C	O = open
51-54	Defrost start times	00:01 to 23:59	hr:mn	x = don't care
57	Defrost termination time	10 to 59	mins	
59	Drain down time	0 to 15	mins	closed = dot visible
61	Pump down time	00:00 to 00:10	hr:mn	
62	Network shutdown selection	0=disabled 1=enabled		
64	Refrigeration delay after door open	00:00 to 00:30	hr:mn	
67	Isolate coldroom controller	0=run 1=isolate		
102	Probe selection	0=Tempkey 1=Elm		

OTHER USEFUL ITEMS			
Item	Function	Item	Function
21	Air on temperature	43	Next defrost time
22	Air off temperature	70	Operating mode
23	Evaporator temperature	71	Door input state
24	Suction line temperature	72	Pan heater output state
25	Superheat	73	Fans output state
28	Effective air off setpoint	74	Defrost output state
34	Time door has been open	75	Liquid valve output state
35	Time door open in last 24 hours	77	Forced defrost
40	Duration of last defrost	78	Forced refrigeration
41	Time since end of last defrost	79	External alarm input state
42	Duration of this defrost		

Full operating manuals and item number information can be obtained from your supplier or JTL Systems.



This unit conforms with the relevant EU standards when fitted in accordance with its installation instructions.

#### Applicable Documentation

Item Numbers	Doc No. 00808
Software Variations	Doc No. 00809
Wiring Diagrams	Doc No. 00661
Evaporator Manual	Doc No. 01923
Installation Requirements	Doc No. 01662
Outline Details	Doc No. n/a