

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 LD.

The door switch input requires a voltage free contact. A closed contact should be used for door closed.

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.

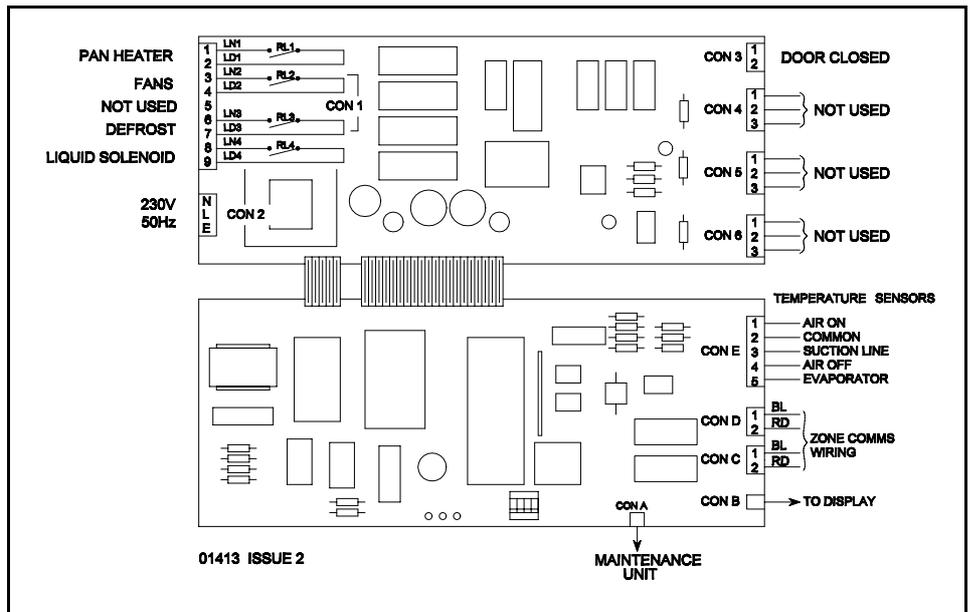
Temperature display

The temperature display shows the air on temperature.

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.

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.

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.

ADJUSTABLE PARAMETERS				RCCT, RCCK
Item	Function	Range	Units	Bitswitch settings
1	Unit number	0.1 to 899.9		4321
2	Time of day			xxCC Frozen food
30	Air on temperature setpoint	-30 to +10	°C	xxCO Ice cream
32	Over temperature 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
50	Defrost termination temp (evap)	0 to +30	°C	C = closed
51-54	Defrost start times	00:01 to 23:59	hr:mn	O = open
57	Defrost termination time	00:05 to 01:00	hr:mn	x = don't care
59	Drain down time	00:00 to 00:20	hr:mn	
64	Refrigeration delay after door open	00:00 to 00:30	hr:mn	closed = dot visible
102	Probe selection	0=Tempkey 1=Elm		

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

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