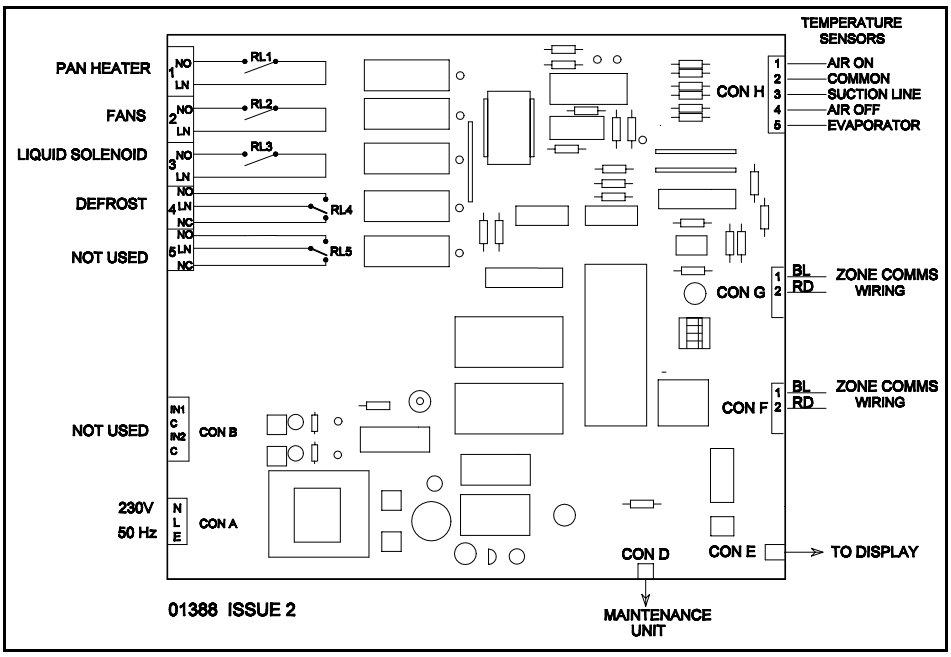

Electrical installation requirements
Care should be taken to separate the power and signal cables to prevent electrical interference and possible damage due to inadvertent connection.

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**.

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 2 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 loads 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 displayed is computed from the air on and air off temperatures. A factor is used to proportion the air off and air on temperatures.

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 displayed temperature with the cabinet temperature setpoint. The computed setpoint is raised or lowered depending on whether the cabinet temperature is below or above the cabinet temperature setpoint.

The computed air off setpoint cannot go below the value set on item 31.

Defrost
The defrost sequence can be initiated in 2 ways. These can be by deduction from the suction temperature, or by command on the JTL communications network.

There is a choice of 2 methods of defrost operation, termination or control, using item 76. In termination mode the defrost output relay is energised during defrost recovery period and at any time when the termination temperature is exceeded. In control mode the defrost output relay is energised during the defrost period.

The liquid solenoid is left open during suction initiated defrost and closed during network initiated defrost.

During defrost the fans are stopped and the auxiliary heater output relay is energised. The display shows "dEF ".

NOTE No defrost can be detected within 3 hours of the previous defrost.

Defrost recovery
When the termination temperature or time is reached the controller enters defrost recovery. The heater output relay is de-energised.

For network initiated defrost a time delay can be applied (item 49) after defrost before the liquid valve is reopened.

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.

The display shows "dEFr".

Alarms
The cabinet and air off temperatures are monitored continually. The temperatures are averaged over the period set on item 47. If either of the average temperatures 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 cancelled during defrost and defrost recovery.

ADJUSTABLE PARAMETERS				Bitswitch settings
Item	Function	Range	Units	
1	Unit number	0.1 to 899.9		4321
30	Cabinet temperature setpoint	-30 to -18	°C	xxxC Frozen food
31	Air off temperature setpoint	-39 to -20	°C	xxx0 Ice cream
32	Overtemperature tolerance	0 to 20	°C	
33	Cabinet temperature factor	20 to 100		
36-39	Probe selections	0=off 1=on		
45	Suction or comms initiated	0=comms 1=suction		where
47	Alarm averaging time	00:30 to 03:00	hr:mn	C = closed
49	Refrigeration delay after defrost	00:00 to 00:10	hr:mn	x = don't care
50	Defrost termination temp (air off)	0 to +20	°C	
57	Defrost termination timeDefrost	00:05 to 00:40	hr:mn	closed = dot visible
58	initiation temp (suction)	-5 to +20	°C	
69	Number of defrosts expected	0 to 6		
76	Defrost control mode	0=termination 1=control		
102	Probe selection (LCCN only)	0=Tempkey 1=Elm		

OTHER USEFUL ITEMS			
Item	Function	Item	Function
20	Cabinet temperature	46	Communications defrost command
21	Air on temperature	70	Operating mode
22	Air off temperature	72	Auxillary heater output state
23	Evaporator temperature	73	Fans output state
24	Suction line temperature	74	Defrost output state
25	Superheat	75	Liquid valve output state
28	Effective air off setpoint	77	Forced defrost
40	Duration of last defrost	78	Inhibit defrost
41	Time since end of last defrost	79	Forced refrigeration
42	Duration of this defrost		

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

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

Applicable Documentation

Item Numbers	Doc No. 00806
Software Variations	Doc No. 00807
Wiring Diagrams	Doc No. 00515, 01368
Evaporator Manual	Doc No. 01923
Installation Requirements	Doc No. 01662
Outline Details	Doc No. n/a

www.jtl.co.uk
JTL Systems Ltd . 41 Kingfisher Court . Hambridge Road . Newbury . Berks . RG14 5SJ Tel: (01635) 263646 Fax: (01635) 263647

JTL SERVICE CENTRE HELP DESK: 0870 321 HELP (4357)