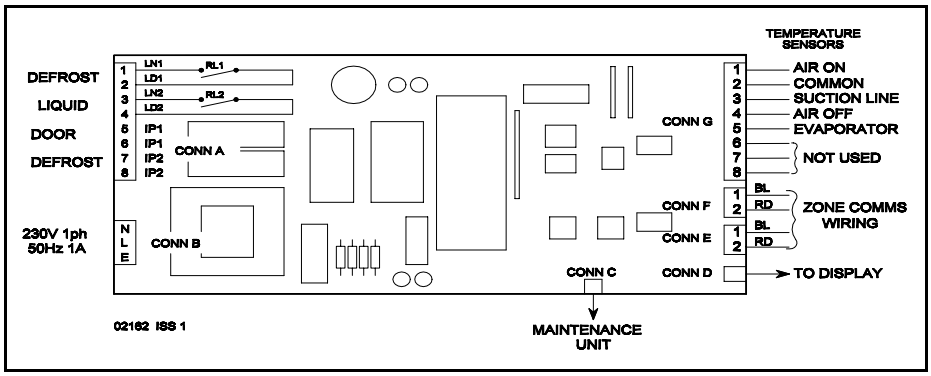
Electrical installation requirements

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 inputs IP1 and IP2 are for voltage free contacts only. They should **not** be connected to a voltage supply otherwise permanent damage may be done to the controller. The contacts should be closed for the logical conditions - **door closed** and **defrost on**.

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 display normally shows the temperature of the air onto the evaporator.

When defrost is detected the display will show "dEF ". When the termination temperature or time is reached the display will show "dEFr".

Control strategy

The temperature of the air off the evaporator 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 air on temperature is below or above the air on setpoint. The computed air off setpoint cannot go more than 4 degrees Celcius below the air on setpoint.

Defrost

The defrost sequence can be initiated in 3 ways. It can be deduced from the suction temperature, by the JTL communications network, or by contact input.

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

The liquid solenoid is left open during suction initiated defrost and closed during other types of defrost. For network and contact initiated defrost a time delay can be applied (item 49) after defrost before the liquid valve is reopened.

Coldstore door functions

The time that the door has currently been open and the time that it has been open in the last 24 hours is recorded. If the door remains open for a time longer than set on item 33 then an alarm is given.

Alarms

The air on temperature is monitored continually. The temperature is averaged over the period set on item 47. 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				ECCS, ECCR
Item	Function	Range	Units	Bitswitch settings
1	Unit number	0.1 to 899.9		4321
30	Air on temperature setpoint	-30 to +10	°C	xxCC Frozen food
32	Overtemperature tolerance	0 to +20	°C	xxCO Ice cream
33	Door open alarm delay	00:00 to 00:30		xx0C Chillers
36-39	Probe selections	0=off 1=on		xx00 Produce
45	Suction or comms initiated	0=comms 1=suction		
47	Alarm averaging time	00:30 to 03:00	hr:mn	where
49	Refrigeration delay after defrost	00:00 to 00:10	hr:mn	C = closed
50	Defrost termination temp (evap) Defrost	0 to +30	°C	O = open
57	termination time	00:10 to 01:00	hr:mn	x = don't care
58	Defrost initiation temp (suction)	-5 to +30	°C	
69	Number of defrosts expected	0 to 6		closed = dot visible
75	Defrost control mode	0=termination 1=control		
102	Probe selection (ECCS only)	0=Tempkey 1=Elm		
103	Probe selection (ECCR only)	0=Tempkey 1=CDK		

OTHER USEFUL ITEMS			
Item	Function	Item	Function
21	Air on temperature	42	Duration of this defrost
22	Air off temperature	46	Communications defrost command
23	Evaporator temperature	70	Operating mode
24	Suction line temperature	71	Door input state
25	Superheat	72	Defrost output state
28	Effective air off setpoint	73	Liquid valve output state
34	Time door has been open	74	Defrost input state
35	Time door open in last 24 hours	77	Forced defrost
40	Duration of last defrost	78	Inhibit defrost
41	Time since end of last defrost	79	Forced refrigeration

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

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)