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 supply otherwise permanent damage may be done to the controller. The contacts should be closed for the logical conditions - **door closed** and **alarm 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.
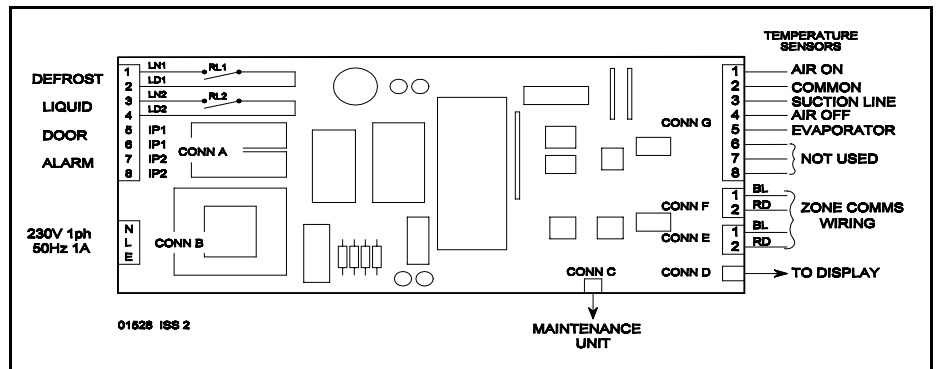
Temperature display

The 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 6 defrosts a day stored in the controller memory.

At the start of the defrost a pump down time, set on item 61, is applied for 2 minutes. During pump down both output relays are de-energised.

During defrost the defrost output is energised and the liquid solenoid output is 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, is applied for 2 minutes during which the liquid solenoid valve remains deenergised.

Coldstore door functions

If the door remains open for a time longer than set on item 34 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.

ADJUSTABLE PARAMETERS				ECCT, ECCK
Item	Function	Range	Units	Bitswitch settings
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 +10	°C	xxCO Ice cream
32	Overtemperature tolerance	0 to +20	°C	xxOC Chillers
34	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 + 20	°C	O = open
51-56	Defrost start times	00:01 to 23:59	hr:mn	x = don't care
57	Defrost termination time	00:00 to 01:00	hr:mn	
67	Isolate coldroom controller	0=run 1=isolate		closed = dot visible
102	Probe selection	0=Tempkey 1=Elm		

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

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