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 plant inputs are electrically isolated. A line voltage should be connected for thel logical condition **lighting override**. The terminals marked e should be connected to the supply voltage neutral.
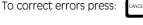
CE Conformance

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 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 air off 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 is initiated by time. The controller has a built in battery backed real time clock and a schedule of up to 12 defrosts a day. The defrost output is energised during the defrost period.

At the start of the defrost a pump down time, set on item 61, is applied. During pump down all output relays (except the lighting control) are deenergised.
The liquid solenoid is closed during defrost.

The display shows "dEF ".

Defrost recovery

The defrost can be terminated on time or temperature, either the air off or evaporator temperature may be selected. When the termination temperature or time is reached the controller enters defrost recovery. The display shows "dEFr".

At the start of the defrost recovery a drain down period, set on item 59, is applied during which time the liquid solenoid valve remains deenergised and the auxilliary heater output remains on.

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

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.

Alarms

The cabinet and air off temperatures are monitored continually. The temperatures are averaged over a 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		321
2	Time of day			xxCC Frozen food
30	Cabinet temperature setpoint	-30 to +10	°C	xxCO Ice cream
31	Air off 2 temperature setpoint	-39 to +5	°C	xxOC Chillers
32	Overtemperature tolerance	0 to +10	°C	xxOO Produce
33	Cabinet temperature factor	20 to 80		
35	Defrost termination selection	0=air off 1=evaporator		where
36-39	Probe selections	0=off 1=on		C = closed
47	Alarm averaging time	00:30 to 03:00	hr:mn	O = open
48	Compressor starts/hour	unlimited/10/15/20		x = don't care
49	Refrigeration delay after defrost	00:00 to 00:10	hr:mn	
50	Defrost termination temperature	0 to +20	°C	closed = dot visible
51-56	Defrost start times	00:01 to 23:59 (00:00 = off)	hr:mn	
57	Defrost termination time	00:05 to 00:40	hr:mn	
59	Drain down time	00:00 to 00:10	hr:mn	
60	Defrost schedule selection	0=24hr clock 1=12hr clock	hr:mn	
61	Pump down time	00:00 to 00:10	hr:mn	
102	Probe selection	0=Tempkey 1=Elm		
110	Lighting control selection	0=off 1=on		
118	Lighting contractor selection	0=n.o 1=n.c		

OTHER USEFUL ITEMS			
Item	Function	Item	Function
20	Cabinet temperature (air on & air off 1)	70	Operating mode
21	Air on temperature	72	Defrost output state
22	Air off temperature	73	Liquid valve output state
23	Evaporator temperature	74	Fans and heater output states
24	Suction line temperature	77	Forced defrost
25	Superheat	78	Forced refrigeration
28	Computed air off setpoint	111	Communications lighting command
40	Duration of last defrost	112	Lighting override input state
41	Time since end of last defrost	113	Lighting output state
42	Duration of this defrost	114	Force lights on
43	Time next defrost due	115	Force lights off

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. 01341
Software Variations	Doc No. 01342
Wiring Diagrams	Doc No. 01337, 01500
Evaporator Manual	Doc No. 01923
Installation Requirements	Doc No. 01662
Outline Details	Doc No. n/a

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