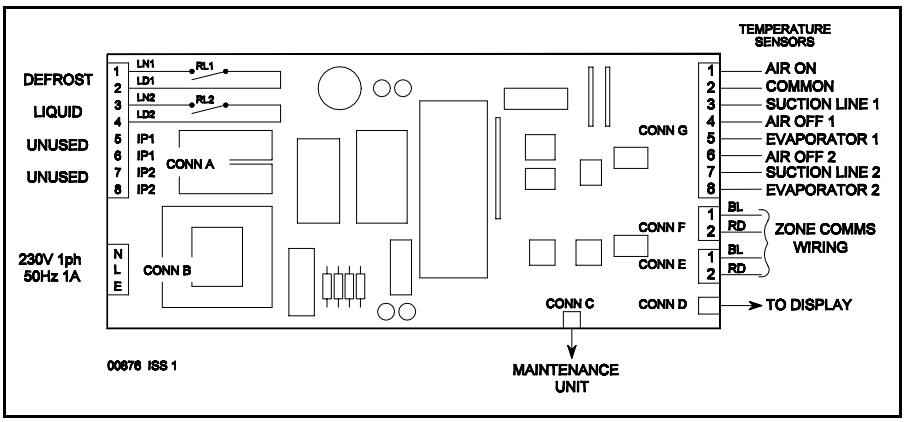
Electrical installation requirements

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 LN1 and LN2 and the switched loads to LD1 and LD2.



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

This controller is designed to operate a Hussmann "TK Meat" display cabinet with 2 evaporators. This lower evaporator delivers cold air to the shelves and also to the upper air curtain evaporator. The temperature displayed is computed from the air on and air off the lower evaporator (air off 1) temperatures. A factor is used to proportion the air off and air on temperatures.

Control strategy

The air off temperature from air curtain evaporator (air off 2) is controlled to a computed setpoint shown on item 36. If this temperature falls below the setpoint the liquid valve is closed. There is a deadband of +/- 0.2 C.

The computed air off 2 temperature setpoint (item 36) is calculated by comparing the air curtain temperature (item 35) with the air curtain setpoint (item 31). The computed setpoint is raised or lowered depending on whether the air curtain temperature is below or above the air curtain setpoint.

The lower evaporator (1) is controlled by an independent pressure regulator.

Defrost

The defrost sequence can be initiated in 2 ways. It can be deduced from the suction temperature on evaporator 2 or by the JTL communications network.

There is a choice of 2 methods of defrost operation, termination or control, using item 75. In termination mode the defrost output is energised during defrost recovery period and at any time when the termination temperature of evaporator 2 is exceeded. In control mode the defrost output is energised during the defrost period.

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

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

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

Alarms

The 2 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				ECDH
Item	Function	Range	Units	Bitswitch settings
1	Unit number	0.1 to 899.9		4321
30	Air off 1 temperature setpoint	-30 to +5	°C	xxCC Frozen food
31	Air off 2 temperature setpoint	-39 to +5	°C	xxCO Ice cream
32	Overtemperature tolerance	0 to +10	°C	xxOC Chillers
33	Cabinet temperature factor	20 to 80		xxOO Produce
34	Air curtain temperature factor	0 to 100		
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	O = open
50	Defrost termination temp (air off 2) Defrost	0 to +20	°C	x = don't care
57	termination time	00:05 to 00:40	hr:mn	
58	Defrost initiation temp (suction 2)	-5 to +20	°C	closed = dot visible
61-67	Probe selections	0=off 1=on		
69	Number of defrosts expected	0 to 6		
75	Defrost control mode	0=termination1=control		
102	Probe selection	0=Tempkey 1=Elm		

OTHER USEFUL ITEMS			
Item	Function	Item	Function
20	Cabinet temperature (air on & air off 1)	40	Duration of last defrost
21	Air on temperature	41	Time since end of last defrost
22	Air off 1 temperature	42	Duration of this defrost
23	Evaporator 1 temperature	46	Communications defrost command
24	Suction line 1 temperature	70	Operating mode
25	Superheat 1	72	Defrost output state
26	Air off 2 temperature	73	Liquid valve output state
27	Evaporator 2 temperature	77	Forced defrost
28	Suction line 2 temperature	78	Inhibit defrost
29	Superheat 2	79	Forced refrigeration
35	Air curtain temp. (air on & air off 2)		
36	Calculated air off 2 setpoint		

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

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