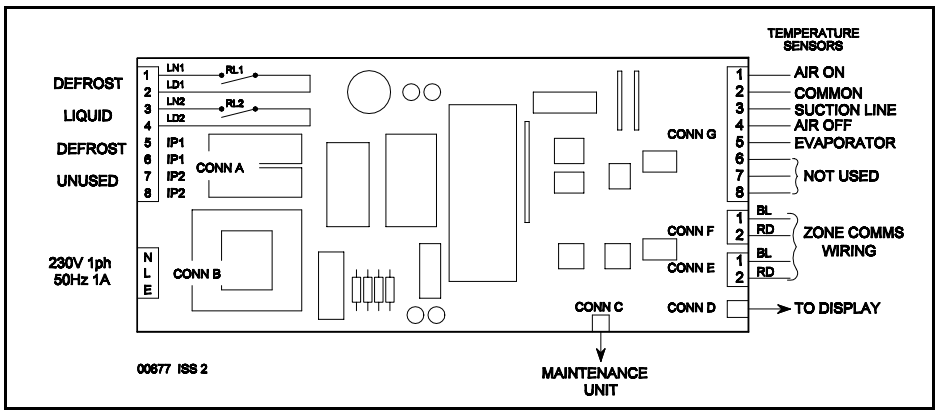
Electrical installation requirements

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 contractors. 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.



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.

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 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 3 ways. These can be by deduction from the suction temperature, by command from the JTL communications network or by contact input (ECAS-C only).

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

There is also a choice of defrost output state using item 68. The output can be selected for normally open or normally closed operation.

The liquid solenoid is left open during suction initiated defrost and closed during other types of defrost.

When defrost is detected 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.

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

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.

Network shutdown

When this feature is enabled (item 62), if a shutdown command is received from the JTL communications network the liquid output is turned off and all alarms cancelled. The defrost output state depends on the setting on item 68. For n.o choice the output is off while for n.c choice the output is on.

ADJUSTABLE PARAMETERS				ECAS
Item	Function	Range	Units	Bitswitch settings
1	Unit number	0.1 to 899.9		4321
30	Cabinet temperature setpoint	-30 to +10	°C	xxCC Frozen food
31	Air off temperature setpoint	-39 to +5	°C	xxCO Ice cream
32	Overtemperature tolerance	0 to +20	°C	xxOC Chillers
33	Cabinet temperature factor	20 to 80		xxOO Produce
35	Choice of termination probe	0=air off 1=evaporator		
36-39	Probe selections	0=off 1=on		where
45	Suction or comms initiated	0=comms 1=suction		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 temp (air off) Defrost	0 to +20	°C	closed = dot visible
57	termination time	00:05 to 00:40	hr:mn	
58	Defrost initiation temp (suction)	-5 to +20	°C	
62	Network shutdown selection	0=off 1=on		
68	Choice of defrost valve type	0=n.o 1=n.c		
69	Number of defrosts expected	0 to 6		
75	Defrost control mode	0=termination 1=control		
102	Probe selection	0=Tempkey 1=Elm 2=CDK		

OTHER USEFUL ITEMS			
Item	Function	Item	Function
20	Cabinet temperature	42	Duration of this defrost
21	Air on temperature	46	Communications defrost command
22	Air off temperature	70	Operating mode
23	Evaporator temperature	71	Defrost input state (ECAS-C only)
24	Suction line temperature	72	Defrost output state
25	Superheat	73	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

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

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