

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 plant inputs are electrically isolated. 230 V ac input should be connected to the terminals for the logical condition on defrost. The control supply neutral needs to be connected to terminal 14.

CE Conformance

This unit conforms with the relevant EU standards when installed according to the JTL Installation Requirements for this product

Inputs

Input		
12	INPUT	Liquid solenoid energised
13	INPUT 1	On defrost
14	COMMON	Supply neutral
Temperatures and Pressure (CON 4)		
17, 18	EVAPORATOR TEMP	
15, 16	SUCTION LINE TEMP	

Outputs

Outputs (CON 3)		
4	OUTPUT 1	WATCHDOG
3		
5	OUTPUT 2	DEFROST REQUIRED
6		

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 23 press:    

To set item 69 to 2:

To correct errors press: 

To select next or previous items press:  and 

Initial Commissioning

The controller has 1 sets of data built in to its program for use during commissioning. This can be accessed by setting the virtual bitswitches to 0 and then setting item 9 to 1234. This loads into the controller a suitable set of data. Adjustments should then be made as necessary. The range over which the settings can be adjusted is also defined by the virtual bitswitch setting.

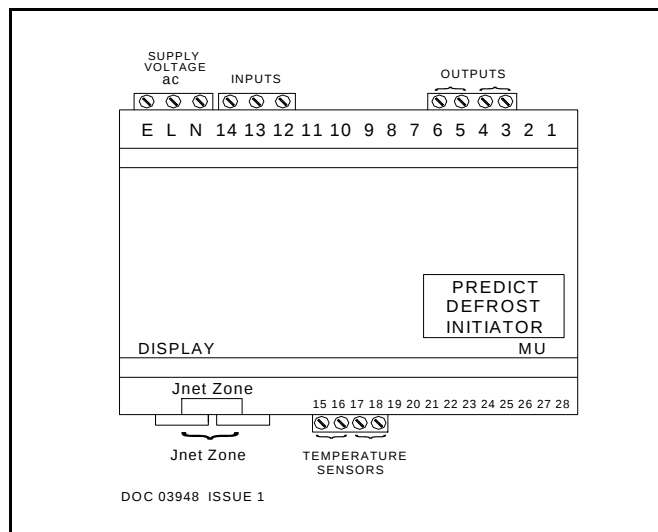
If a JTL communications network is connected to the controller then the unit number should be set on item 1.

Display

The PD110 controller drives the LCD8 display when used with the CAB55 extension cable
The CAB55 Various cable lengths are available.

Defrost Initiation Strategies

The defrost strategy can be initiated in 2 fundamental ways using item 107. Defrost initiation can be by real time clock, by command on the JTL communications network.



Network initiated defrost can be divided into 2 groups; PREDICT and coordinated.

This controller uses the PREDICT 3 method which monitors the evaporator superheat.

PREDICT defrost requires that a JTL PREDICT defrost coordinator unit is available on the network. This unit receives requests from the PREDICT controllers and coordinates these requests so that the defrosts are organised ensuring the electrical and refrigeration requirements are met. When the controller requests a defrost the PREDICT coordinator will send out a defrost command at a suitable time. If the backup strategy is invoked the controller reverts to real time schedule.

Coordinated timed defrost requires a defrost coordinator to be present in the network. When coordinated timed request is selected then the controller requests a defrost as defined by the number of defrosts a day as set on item 69. The defrost coordinator coordinates the defrost as required. The backup strategy can be chosen to fall to learned defrost schedule or real time backup.

Backup Defrost Initiation Strategies

For network initiated defrost, 2 defrost backup strategies are included. The strategy choice is made on item 107.

For learned backup the last 24 hours defrost operation is continuously monitored and the defrost schedule is learned. For real time backup the defrost schedule as set up for real time defrost on items 51-56 is used.

If network communication fails, the selected backup strategy is automatically used. The unit reverts to network control whenever the network communications is operational.

The backup strategy is also invoked if the network signals that communications has failed to the defrost scheduler or if there is a fault at the defrost scheduler.

Defrost

The defrost output relay is energised to run a defrost.

The display shows "dEF "

Defrost Termination

The controller stays in defrost at least until the minimum defrost time, During defrost the controller expect an input from the evaporator controller. The PD110 will terminate and enter defrost recovery when the input disappears.

The display shows "dEF".

Forced Refrigeration and Defrost

The maintenance unit can be used to force controller into a particular mode. This is done using items 77-79. While the maintenance unit is plugged in the controller will remain in the selected mode permanently. Once the maintenance unit is unplugged the controller will revert to normal control after 30 minutes.

When the network initiated defrost strategy is selected, forced defrost will send a command to the JTL defrost scheduler to initiate a defrost and does not act locally.

Network Shutdown Mode

This controller supports the JTL Network shutdown facility. When this facility is enabled by item 62. If a shutdown command is received over the JTL Network, the operation is stopped and alarms are disabled.

Daylight Saving

When connected to a JTL network this controller can operate by displaying daylight saving time for its time and defrost schedule. Daylight saving operation is selected by setting item 18. The connected network controller then adjusts the times automatically during the daylight saving period.

ADJUSTABLE PARAMETERS				PD110
	Item	Function	Range	Units
TEMPS	38-39	Sensor selections	0=off 1=on	
DEFROST INITIATION	107 69 51-56 60 210 213 214 223 225 226 242	Defrost strategy Number of defrosts expected or required Defrost schedule Defrost schedule 12/24 hour clock Electrical supply distribution panel no Electrical supply circuit Defrost method Defrost requirement priority PREDICT Minimum time between defrosts PREDICT Maximum time between defrosts PREDICT override initiation	0=none 3=Time 5=PREDICT 8=Coordinated (learned) 9=Coordinated (real time) 0 to 12 00:01 - 23:59 0=24hr 1=12hr 0 to 7= panel no 1-31=circuit 0=brown phase 1=black phase 2=grey phase 3=3 phase 1 to 8 2 to 8 6 to 72 0 - 100	hr:mn hours hours %
DEFROST TERMINATION	145 57	Minimum defrost time Maximum defrost time	00:00 - 00:30 00:05 to 00:59	hr:mn hr:mn
Jnet FUNCTIONS	1 62 18	Unit number Jnet network shutdown selection Daylight saving operation	0.1 - 899.8 0=disabled 1=enabled 0=standard time 1=daylight saving time	
DISPLAY	122	Temperature display choice	0=Celsius 1=Fahrenheit	

Bitswitch settings o Frozen food

OTHER USEFUL ITEMS					
Item	Function	Item	Function	Item	Function
23	TEMPERATURES Evaporator temperature	70	MODE INPUTS & OUTPUTS Operating mode	40	DEFROST Duration of last defrost
24	Suction line temperature	71	On defrost input state	41	Time since end of last defrost
25	Temperature difference (superheat)	72	Liquid solenoid input state	42	Duration of this defrost
		73	Defrost output state	46	Communications defrost command
		74	Watchdog output state	77	Forced defrost
				78	Inhibit defrost
63	Jnet NETWORK FUNCTIONS Network shutdown command state			79	Forced refrigeration
				261-272	Learned defrost schedule
				219	Defrost arrangement from network
				221	Forced defrost requirement
				222	Enable forced defrost requirement
				243	PREDICT override average (%)

OUTPUT STATE DIAGRAM FOR JTL CONTROLLER		PD110
MODE OF OPERATION		
		OP2
		DEFROST (C/O)
N O R M A L R E F R I G E R A T I O N C Y C L E	REFRIGERATION	OFF
	DEFROST	ON
	RECOVERY TIME	OFF
	REFRIGERATION	OFF
UNIT SHUTDOWN		OFF
FORCED DEFROST		ON
FORCED REFRIGERATION		OFF
INHIBIT DEFROST		OFF

Relay Output Rating

2A resistive.

Supply Requirements

230 V ac 48-62 Hz Supply 2 VA maximum inputs 2 mA maximum



This unit conforms with the relevant EU standards when fitted in accordance with its installation instructions.

PREDICT® is the patented JTL pattern recognition algorithm for providing defrost on demand for the cabinets on a system.

Note

The information contained in this document applies to the current version of the unit supplied with it. Full operating manuals, item number and software variation information can be obtained from your supplier or JTL Systems.

Applicable Documentation

Item Numbers
Doc No. 03938

Firmware Variations
Doc No. 03939

Connections Diagram
Doc No. 03923

Schematic Diagram
Doc No. 3924, 03925

Installation Information
Doc No. 03852

Evaporator Manual
Doc No. 01923