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.

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

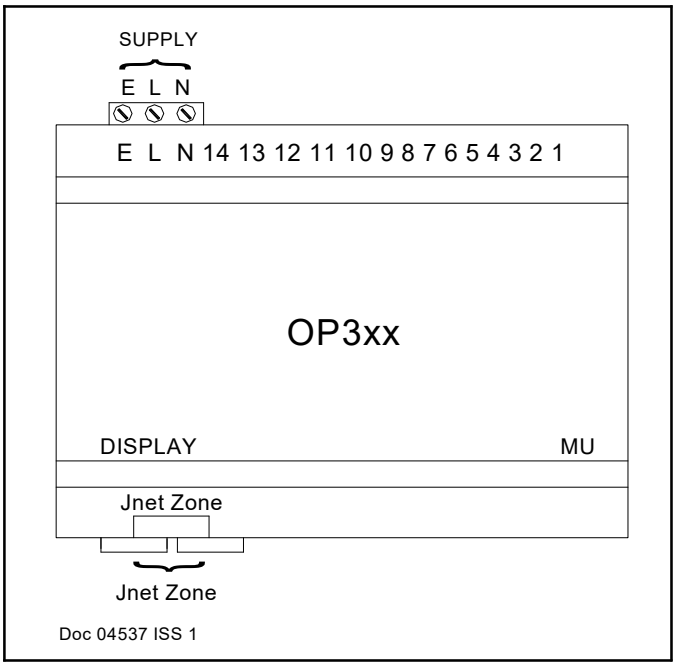
Use of Maintenance Unit
The controller can be checked and the operation adjusted using a JTL portable maintenance unit which plugs into the controller. Each item of information has an item number. The more important items are listed in the tables overleaf.

Examples:
To read item 20 press: [ITEM] [2] [0] [ENTER]

To set item 40 to – 4.0 press:
[ITEM] [4] [0] [ENTER] [SET] [-] [0] [4] [0] [ENTER]

To correct errors press: [CANCEL]

To select next or previous items press: [+] and [–]



Initial Commissioning and Bitswitch Settings
The controller has 1 set of data built in to its program for use during commissioning. Set item 9 to 1234. This loads into the controller a suitable set of data for initial commissioning. Adjustments should then be made as necessary.

For communications on the JTL network set the unit number on item1.

Pressure Display
The pressure can be displayed in psi, bar or kPa as selected by item 179.

The OP3 optimiser drives the JTL LCD14 display using a CAB75 cable. Various cable lengths are available.

Suction Pressure Control Strategy
The function of the optimiser is to raise the refrigerant suction pressure at the plant to the highest level commensurate with maintaining the fixtures at the required temperatures. This saves energy.

Each suction pressure controller has its own optimiser. The network controller delivers to the optimiser the temperature and setpoint of all the associated fixtures. The fixture identification numbers are used to determine which are the associated fixtures. The fixture numbering is in blocks of 480 starting at 101.0 to 148.9, 151.0 to 198.9 etc.

The fixtures are sorted into a list where the fixture with the largest temperature error (temperature-setpoint) is at the top. Fixtures that are on defrost, recovering from defrost, shutdown or explicitly excluded from optimisation are not included in the sorted list. A selected number of fixtures are discarded (ignored) from the top of the list and the next fixture in the list is then used as the target for the optimiser.

The target fixture temperature error is compared to the maximum error and the result is integrated to create optimised pressure setpoint.

The range over which the suction pressure is allowed is constrained within maximum and minimum setting in the optimiser.

The target fixture error allowed may be raised further by this additional error allowance, when operational, for energy saving (load reduction) purposes. The additional error allowance is applied either by a broadcast time at specific times during the week or a network command sent by energy demand management.

Enhanced Energy Saving
The optimiser is used to save energy. There are two enhanced strategies included in the optimiser which allow the suction pressure to be raised further than the standard operation.

In these strategies the suction pressure deadband is raised to a higher level by a set amount (item 42) which allows the suction pressure to float to a higher level by allowing the evaporators to run at a higher temperature, thus saving more energy.

a) Time of Day Strategy
The times that this occurs at are set on a JTL network timer. Up to 8 timers can be supported on the JTL network. The timer used for this function is selected on item 108 setting item 108 to 0 disables this function.

b) Load Shedding
When a JTL load shedding unit is available on the network this can be arranged to send a command to raise the deadband.
There 8 network inputs that can be assigned to this function. The appropriate input is on item 102. Load shedding is enabled using item 101.

Pressure Rise Logging
The average rise in suction pressure above the minimum setpoint is logged over the last hour, day, week, month and quarter.

Worst Fixture Logging
The worst fixture is the fixture that is at the top of the list of fixture temperature errors. The time each fixture is at the top of the list is logged on a daily basis. The worst fixture together with the total time that is at the top of the list is logged for the current and the previous days. This is a useful facility for targeting maintenance activity.

Low Pressure Alarm
The average daily rise and current rise is compared with the low optimisation pressure setpoint. If both are below the setpoint then a low optimisation pressure alarm activated.

ADJUSTABLE PARAMETERS				OP3XX
	Item	Function	Range	Units
Optimiser Setup	140	Disable optimiser	0=Disabled 1=Enabled	
	152	Maximum optimised pressure setpoint	5.0 to700.0	psi
	40	Minimum optimised pressure setpoint	-5.0 to 550.0	psi
	43	Error deadband temperature	0.0 - 2.0	°C
	42	Increase error deadband for energy	0.0 - 3.0	°C
	44	Optimising time constant	1 - 240	
	205	Number of worst evaporators to discard	0 - 20	
	150	Enable override from display	Set to 0 (Disabled)	
Pressure Alarm	41	Low optimising pressure	0.0 - 5.0	psi
Load Shedding	101	Enable load shedding	0=Disabled 1=Enabled	
	102	Raise error deadband input selection	0=Disabled 1 - 8 Global plant input	
Display	179	Display units - pressure	1 - psi, 2 - bar, 3- kPa	
	178	Display units - temperature	0=Celsius 1=Fahrenheit	
	177	Backlight control	0=Backlight off 1=Backlight on 2=Backlight off, flashes for alarm 3=Backlight on, flashes for alarm	
Jnet Functions	1	Unit number	0.1 - 899.7	
	18	Daylight saving operation	0= standard time, 1 daylight saving time	
	108	Raise error deadband timer selection	0=Disabled 1-8 Selected timer	

OTHER USEFUL ITEMS					
Item	Function	Item	Function	Item	Function
	OPTIMISING		WORST FIXTURES		PERFORMANCE & ALARMS
20	Operation Mode	112,114–138	Worst fixture list	45	Average hourly pressure rise (psi)
200	No of evaporators included in optimisation	182, 184–190	Worst fixture list	46	Average daily pressure rise (psi)
		111, 113–137	Worst Fixture error	47	Average weekly pressure rise (psi)
151	Current optimised pressure setpoint	181, 183-189	Worst Fixture error	48	Average monthly pressure rise (psi) (4 weeks)
			WORST FIXTURE LOGGING		
141	Current active optimising evaporator temperature error	50-57	Worst fixtures today & last 7 days	49	Average quarterly pressure rise (psi) (12 weeks)
142	Current active optimising evaporator unit number	60-67	Worst Fixture times today & last 7 days		
202	Current number of evaporators optimising				

Applicable Documentation

Item Numbers	Firmware Variations	Connections Diagram
Doc No. 03340	Doc No. 03336	Doc No. 03352

Supply Requirements

230 V ac 48-62 Hz Supply 6 VA maximum inputs
2 mA maximum

24 Vac (optional)

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

Installation Information
Doc No. 03371

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 the supplier JTL Systems.

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