

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 **DQ**.

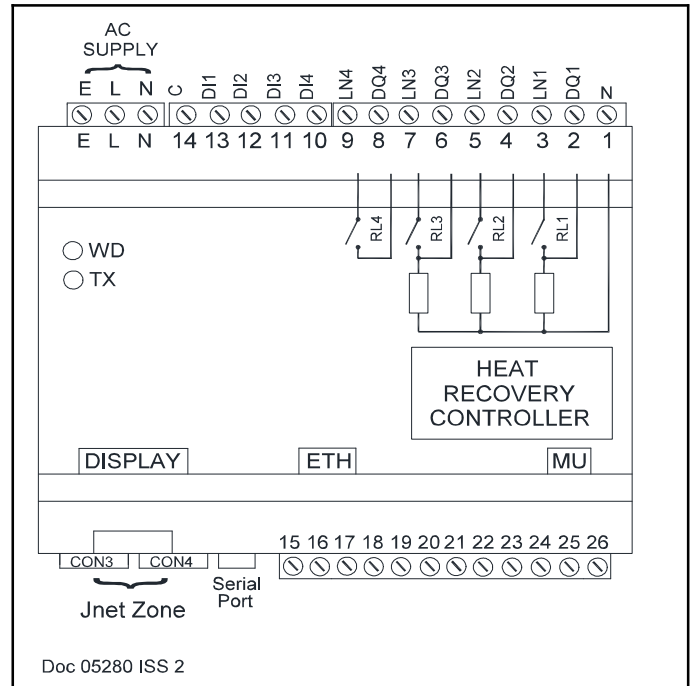
The plant inputs are electrically isolated. A volt free contact should be connected for the logical conditions stated below between the input and common **C** (14).

The control supply neutral must be connected to terminal 1 for EMC operation.

CE Conformance

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

Digital Outputs				
1	LN1 DQ1	3 2	Suppressed	Run pump
2	LN2 DQ2	5 4	Suppressed	Energise heat reclaim valve
3	LN3 DQ3	7 6	Suppressed	Watchdog
4	LN4 DQ4	9 8	Unsuppressed	Not used
Digital Inputs				
1	14 13		Volt Free	Auto
2	14 12		Volt Free	Pump healthy
3	14 11		Volt Free	Activate heat reclaim
4	14 10		Volt Free	Water flow pulse
Temperature Inputs				
1	22 21		5k Thermistor	Water out
2	23 21		5k Thermistor	Water in
3	24 21		5k Thermistor	Refrigerant gas in
4	25 21		5k Thermistor	Refrigerant gas out
5	26 21		5k Thermistor	Tank



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 22 press: **ITEM** **2** **2** **ENTER**

To set item 40 to 100.0 press:
ITEM **4** **0** **ENTER** **SET** **1** **0** **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. Initialize to this data by setting item 9 to 1234. This loads into the controller a suitable set of data, adjustments should then be made as necessary.

JTL Network Connection

This unit can be configured onto the JTL network. The JTL unit number is set on item 1.

Water Temperature Control

To enable water temperature control set item 41. When heat reclaim is required (input 3) then the temperature of the water is used to control the water pump and a water valve. Item 153 can be used to select water in or out for this purpose.

Below the water temperature setpoint the valve is opened and the pump is started. Above the setpoint (item 150) plus the differential (item 151) the valve is closed. The pump stops after 30 secs.

The water out/in differential is used to control the water pump speed when the differential exceeds the maximum setting the pump is run at minimum speed.

When the differential is 0 K then the pump is run at maximum speed. Between these two levels the pump speed is reduced linearly depending on the differential.

Water Flow Monitoring

The water flow using a water meter with a pulse output.

Heat Exchange Monitoring

The water is heated by a heat exchanger which heats water in the associated tank.

The temperatures of the gas input and return are measured and the water out and in temperatures are monitored.

Water Pump Monitoring

The water is pumped through the heat exchanger. The pump can either be fixed speed (on/off) or variable speed. The pump speed and flow are available for display and heat calculation use.

Heat Exchanger Heat Monitoring

The heat gain of the heat exchanger is calculated using the pump flow and water out and in temperature.

Tank Temperature Monitoring

The tank water temperature is also monitored. The target temperature setpoint is available for display on the JTL network terminals. The tank temperature is alarmed when the average temperature falls below the set level.

Display

The FL330 controller drives the JTL LCD14 display using a CAB75 cable. Various cable lengths are available

Temperature units

The temperature on the maintenance unit can be displayed in Celsius or Fahrenheit by setting item 9392.

Alarm Display

Various alarms are indicated on the display. Typical messages displayed are:

P.Flt Pump fault (highest priority)

The alarm conditions are flashed alternately with the heat delivered. In the event of there being more than one alarm the highest priority alarm is displayed.

Daylight Saving

When connected to a JTL network this controller can operate by displaying daylight saving time for its time. 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				FL330
	Item	Function	Range	Units
UNIT FUNCTION	41	Control function	0 - Monitoring 1 - Control	
FLOW SETTINGS	40	Volume measured pulse	1 - 250	l
PUMP SETTINGS	43 150 151 152 153	Water pump flow full speed Start pump temperature Stop pump differential temperature Pump speed filter Select water temperature for control	100 - 2500 50 - 65 2 - 10 0 - 5 0=water in 1=water out	l/hr °C k
ALARM SETTINGS	27 28	Tank water temperature alarm tolerance Alarm averaging period	0 to -20 15 to 240	k mins
SENSOR SELECTION	51 52 53 54 55	Water out Water in Refrigerant Gas in Refrigerant Gas Out Tank	0=Disabled 1=Enabled 0=Disabled 1=Enabled 0=Disabled 1=Enabled 0=Disabled 1=Enabled 0=Disabled 1=Enabled	
DISPLAY	9392 189	Temperature units Backlight control	0 - Celsius 1 - Fahrenheit 0-off, 1-on, 2-off flashes alarm, 3 on flashes alarm	
JNET FUNCTION	1 18	Unit number Daylight saving operation	0.1 - 899.7 0= standard time, 1 daylight saving time	

OTHER USEFUL ITEMS					
Item	Function	Item	Function	Item	Suction Valves
31	FLOW DATA (litres/hr) Average flow rate over the last 15 mins	21	TEMPERATURES Water out temperature	45	WATER HEATING Heat delivered by pack (kW) over the last 15 mins
32	Average flow rate over the last hour	22	Water in temperature	46	Average heat delivered to water (kW) over last 15 mins
33	Average flow rate over the last 24 hours	23	Hot water temperature difference	147	Pump flow (litres/hr)
34	Total flow over the last 24 hours	24	Refrigerant Gas in temperature	148	Average water pump flow (litres/hr)
35	Flow in last minute	25	Refrigerant Gas out temperature	140	Pump speed
		29	Tank temperature	73	Activate heat reclaim input.
			Average tank temperature over last 15mins		

Relay Output Rating

2A resistive

Supply Requirements230 V ac 48-62 Hz Supply 6 VA maximum inputs
2 mA maximum

24 Vac (optional)

Applicable DocumentationItem Numbers
Doc No.05277Firmware Variations
Doc No. 05278Connections Diagram
Doc No. 05247Installation Information
Doc No.**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.

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