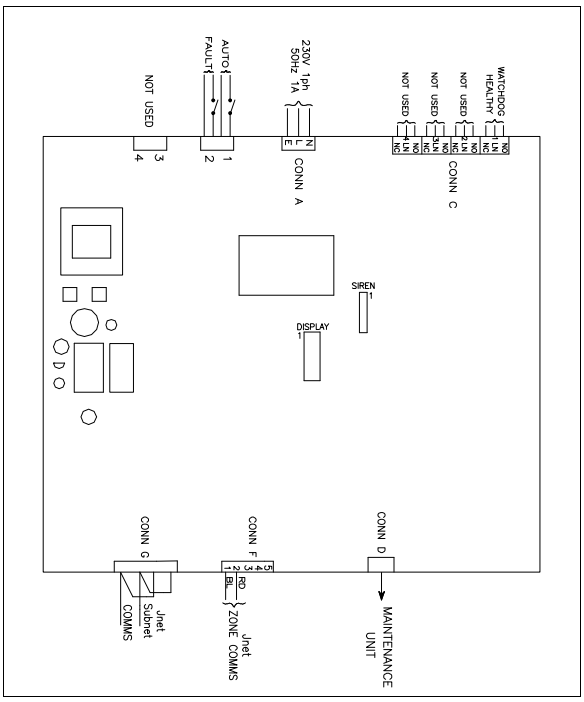


Electrical Installation Requirements
Care should be taken to separate the power and signal cables to prevent electrical interference and possible damage due to inadvertent connection.

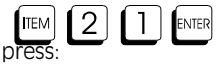
CE Conformance
This unit conforms with the relevant EU standards when installed according to the JTL Installation Requirements for this product.

Inputs
Input 1 = Control enable (Auto)
Input 2 = Plant fault

Outputs
Output 1 = Watchdog healthy

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

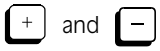
To read item 21 press:



To set item 40 to 30.0 press:

To correct errors press:

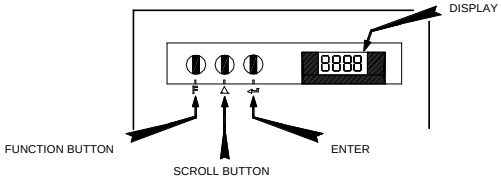
To select next or previous items press:



Initial Commissioning
The controller has a set of data built in to its program for use during commissioning. This can be accessed by setting item 9 to 1234. This loads into the controller a standard set of data. Adjustments should then be made as necessary.

The unit number for the JTL communications network should be set on item 1.

Panel Controls



Pushbuttons

F	Function	To select required function.
△	Scroll	Press this button to scroll through the list of "functions".
⏎	Enter	Press this button to set the selected function (if allowed)

Display
Displays the current coolant supply temperature and any alarm conditions.

P.FLd	Plant failed
Hi.Cr	High coolant return temperature
Lo.Cr	Low coolant return temperature
FAn	Cooling fan problem
FAIL	Jnet network communications failure
C.S.S.F	Coolant supply sensor fault
C.r.S.F	Coolant return sensor fault
C.L.iF	Cooler interface fault
t.S.iF	Temperature sensor fault

The display can also show the selected function.

Dry Air Cooler Fan Control
The dry air cooler fans are controlled independently of the compressor pack. Control is on the temperature of the coolant exit from the dry air cooler (supply temperature) to a programmable set temperature within the range 20 to 45°C. There are 2 choices either digital (on/off) or analogue. With digital control, upto 7 stages of fans can be controlled within an adjustable deadband (item 43). With analogue control an analogue current or voltage drive from the IF21 is used to vary the fan speed, the output is from 0 to 100% corresponding to minimum to maximum speed. The gain of the speed control is adjustable on item 42.

For both digital and analogue control, the overall strategy is PI control with an adjustable time constant on item 44.

Coolant Temperature Alarms
The temperature of the coolant into the cooler is monitored and alarmed, with an adjustable delay, range 40 to 50°C. The temperature of the air on to the cooler is monitored. Temperature sensor inputs are remote from the control equipment and sub-network comms is used instead of direct sensor connections.
Backup strategy, if required, will bring on fans on high temperature coolant overriding the JTL controls. No interlocks are required in this circumstance.

Dry Air Cooler Subnet
Up to 3 units are connected to the subnet of the DA110. These are two TA210 temperature monitors with an IF21 interface board.

These units are connected by a 2 wire network which runs the JTL Jnet protocol. The units then require unit numbers to be entered into them. These units are fixed in relation to the unit number of the DA110 and should not overlap with unit numbers on the main JTL zone. The DA110 unit number should have the format Pnn.0 e.g 190.0. The subnet units should have the numbers:

Pnn.1	Fan control interface
Pnn.2	Coolant temperature sensor interface
Pnn.3	Air temperature sensor interface

P should be the number of the associated pack eg 1 (range 1 - 8)
nn can be any number from 01 - 98 but it is strongly recommended that 01 - 48 are not used as these are generally reserved for evaporator numbers.

If the subnet unit numbers are incorrect then an interface communications error is given.

Note, where the Dry Air Cooler is not associated with a refrigeration pack the P would normally be set to 0.

ADJUSTABLE PARAMETERS				DA110
	item	Function	Range	Units
TEMPERATURES	36	Supply temperature sensor selection	0=off 1=on	
	37	Return temperature sensor selection	0=off 1=on	
	38	Air on temperature sensor selection	0=off 1=on	
	39	Air off temperature sensor selection	0=off 1=on	
	122	Temperature display unit choice	0=celsius 1=fahrenheit	
TEMPERATURE	31	High supply	30 - 50	°C
	32	Low supply	-20 to +20	°C
	33	High return	40 - 50	°C
	34	Low return	-20 to +20	°C
	35	Alarm delay	0 - 60	mins
TEMPERATURE CONTROL	40	Coolant supply setpoint	20 - 45	°C
	41	Analogue/stepped cooling control selection	0=ff 1=on	
	42	Analogue fan speed gain	1 - 25	
	43	Cooler temperature deadband	1 - 5	°K
	44	Cooler control time constant	1 - 250	
	46	Delay time between stages	15 - 120	secs
	50	Number of cooling steps (step control)	0 - 7	

OTHER USEFUL ITEMS			
Item	Function	Item	Function
21	Coolant supply temperature	53	Cooling input status
22	Coolant return temperature	54	Cooling output status
23	Cooler air on temperature	71	Auto/manual input
24	Cooler air off temperature	72	Plant failed input
45	Integrated temperature error	61	Watchdog status
51	Number of cooling steps running		

Supply and Input Requirements

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

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

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.
Information also available via our website www.jtl.co.uk

Applicable Documentation

Item Numbers	Doc No. 02933
Firmware Variations	Doc No. 02934
Connections Diagram	Doc No. 02911
Installation Requirements	Doc No. 02505
Schematic Diagram	Doc No. 02912
Application Drawings	Doc Nos. 02910, 02935, 02936

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