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

Analogue INPUT		
AI1	4-20 mA	Suction Line Pressure 1
AI2	4-20 mA	Suction Line Pressure 2
AI3	4-20 mA	Not used
AI4	TP501	Suction Line Temperature 2
AI5	TP501	Suction Line Temperature 1

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 41 to &4.0 press:

ITEM 4 1 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 a set of data built in to its program for use during commissioning. These can be accessed by setting item 9 to 1234. This loads into the unit a suitable set of data. Adjustments should then be made as necessary.

The unit number for Jnet should be set on item 1.

Jnet Repeater Operation
The NR11x acts as a repeater, connecting one Jnet subnet to another. All Jnet messages are passed from one subnet to the other in both directions.

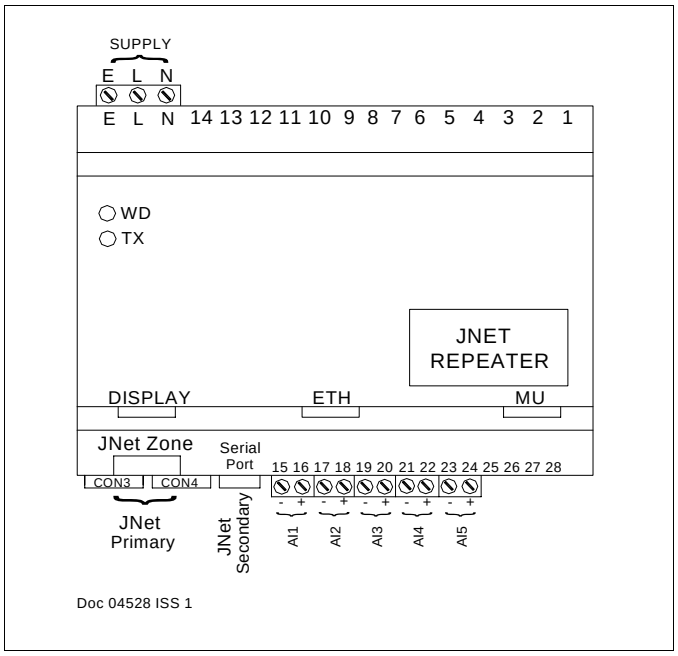
In addition, the NR11x allows suction line pressure data being broadcast by the JTL Network Controller to be replaced by suction line pressure measured by the NR11X itself. Thus, suction line pressure that is physically local to a group of JTL controllers can be used for refrigeration control by connecting to the NR11X's downstream subnet.

Jnet Over IP Operation
Jnet messages can be routed over IP using the NR11x when used in conjunction with a Jnet bridge unit NR121. This function is enabled by setting item 500 to 1 and the appropriate zone number on item 501.

Pressure Over IP Operation
Pressure can be distributed to NR11xs via an IP network allowing control using remote pressure sensors or as a backup mechanism in case of local pressure sensor failure.

In this mode the local pressure can be broadcast over IP to units capable of receiving these broadcasts. The broadcast is made with an associated pressure set number. The receiving units check if this number matches the pressure required by this unit. When it does the pressure is processed according to the programmed set of rules as follows:

a) Use local pressure only i.e. ignore pressure over IP broadcast data.
b) Use local pressure with remote pressure backup. i.e. pressure over IP broadcast data is only used when the local pressure is faulty.
c) Use pressure over IP broadcast data only.
d) Use local and broadcast data.



All pressures are put into a processing buffer and retained for an analysis period of programmable length. The data is processed to produce a pressure for use locally based on all these pressures.

Pressure Alarms
The NR11x provides for the setting of local pressure alarm levels using items 40-45.

Pressure Data
Local measured pressure 1 (item 21), Network Controller broadcast pressure 1 (item 29) and average pressure 1 (item 146) are available together with calculated Dewpoint 1 (item 142) when the refrigerant type is set (item 157).

Pressure 2 is available as pressure 1 using item 22, 28, 147 & 144.

Temperature
NR11x provides for optional temperature sensors to be fitted near the local pressure transducers.

Superheat 1 (item 141) and temperature 1 (item 31) can be measured at this location.

Temperature 2 data is available on items 143 & 32.

Fault Strategies
In the event that the Network Controller is not Communicating on the primary (Upstream) subnet, the NR11x automatically broadcasts the pressure to all units connected to its secondary (Downstream) Subnet until primary-side communications is restored.

In the event of a pressure transducer fault at the NR11x, the network repeater will optionally (item 605 or 705=1) transmit an error message to the downstream units, forcing them into their backup strategy (usually 2 temperature operation) or (item 603 or 703=0) pass on the pressure being broadcast by the Network Controller.

Alarms
Pressure sensor fault.
Low pressure.
High pressure.
Primary Subnet inactive.
Temperature sensor fault.

ADJUSTABLE PARAMETERS				NR11x
	Item	Function	Range LT(HFC), HT(HFC), LT(CO2, HT(CO2)	Units
Broadcast Pressure Data	600/700 601/701 602/702 603/703 604/704 605/705 61x/71x 62x/72x 63x/73x	Broadcast Output Pressure 1 & 2 Broadcast Pressure Set 1 & 2 Broadcast Analysis Period 1 & 2 Pressure analysis method Substitution Enabled 1 & 2 Pressure Fault Strategy 1 & 2 Pressure Source Unit no (x=1-9) Pressure source channel no (x=1-9) Pressure Offset (x=1-9)		
Pressure Sensor	121/122 421/422 426/427	Pressure sensor 1 & 2 Pressure sensor full scale (at 20mA) 1 & 2 Pressure sensor zero scale (at 4mA) 1 & 2	0=Disabled 1=Enabled 50 to 999.9 -15 to 0	 psi psi
Temp Sensor	131/132	Temperature sensor 1 & 2	0=Disabled 1=Enabled	
Pressure Alarms	40/43 41/44 42/45	Pressure alarms 1 & 2 High pressure alarm level 1 & 2 Low pressure alarm level 1 & 2	0=Disabled 1=Enabled -99.9 to 999.9 -99.9 to 999.9	 psi psi
Refrigerant	157	Refrigerant type	3=R404A 4=R407A 5=R407B 6=R507A 7=R408A 8=R717 9=R744 11=R407F 12=R290 13=R407C 14=448A 15=449A	
Units	178 179	Temperature units Pressure units	0=Celsius 1=Fahrenheit 2=Kelvin 0=psi 1=barg 2=kPa 3=bara	
JNET Functions	1 500 501	Unit number Jnet over IP operation Jnet zone	0.1 - 899.7 0=Disabled 1=enabled 0 to 99	

OTHER USEFUL ITEMS					
Item	Function	Item	Function	Item	Function
20	Operating mode	81	Critical Alarm		**Comms status items**
21	Pressure 1	82	New Critical Alarm		**xx=01 to 42**
22	Pressure 2	83	Pressure sensor 1 fault	1xx0	Unit number
146	Average pressure 1	84	Low pressure 1 alarm	1xx1	Subnet location
147	Average pressure 2	85	High pressure 1 alarm	1xx2	Comms status
29	Broadcast pressure 1	86	ADC reference tolerance	1xx3	Keep alive timer
28	Broadcast pressure 2	91	Temperature sensor 1 fault		
31	Temperature 1	92	Primary subnet inactive		
32	Temperature 2	93	Pressure sensor 2 fault		
141	Superheat 1	94	Low pressure 2 fault		
143	Superheat 2	95	High pressure 2 fault		
142	Dewpoint 1	96	Temperature sensor 2 fault		
144	Dewpoint 2				
70	Comms faults overall				
510	Comms faults, primary subnet				
520	Comms faults, Secondary subnet				

Supply Requirements
100 V-240Vac 50-60Hz supply 5VA

Applicable Documentation
Item Numbers Doc No. 04520
Firmware Variations Doc No. 04521
Connections Diagram Doc No. 04526

Installation Information
Doc: 04256

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 the supplier JTL Systems.

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