

CONTENTS

1. Jnet NETWORK IDENTIFICATION	2
2. PRESSURES	2
3. TEMPERATURES	3
4. SUCTION PRESSURE CONTROL	4
5. COMPRESSOR CONTROL	5
5.1 COMMON DATA	5
5.2 COMPRESSOR DATA	5
5.3 COMPRESSOR INPUT AND OUTPUT STATUS	6
6. INVERTER DATA (COMPRESSOR 1)	7
7. INPUTS AND OUTPUTS	8
8. DISPLAY FUNCTIONS	8
9. CLOCK CALENDAR	8
10. RESTORE FACTORY DEFAULTS	9
11. RESTORE PARAMETERS FROM NETWORK	9
12. SYSTEM ALARMS	9
13. DIAGNOSTIC & TEST FUNCTIONS	11
DISPLAY DATA	12

JTL COMPRESSOR PACK ITEM NUMBERS

LP210/220

ITEM	DESCRIPTION	CODE	CODE MEANING	DEFAULT SET	RANGE	ITEM 9 VALUE
1. Jnet NETWORK IDENTIFICATION						
0	Unit type	LP21	Unit type			
19	Software version number					
1	Unit number				0.1 - 899.8	
2. PRESSURE						
<p>Note: Pressures can be displayed on the maintenance unit in psi, bar or kPa. The choice is made on item 179. All setpoint ranges are shown in psi.</p> <p>Average pressures are averaged over last hour and are updated every 4 minutes.</p>						
179	Pressure display unit choice	1 2 3	PSI bAr PASC	p.s.i. bar kPa		1 - 3 PSI
21	Suction pressure					
146	Average suction pressure over 1 hour					
42	High suction pressure alarm level			0 1 2	10 - 50 25 - 80 200 - 300	20 60 250
41	Low suction pressure alarm level			0 1 2	-5 to +15 5 to +40 100 - 150	0 20 125
121	Pressure transducer selection	OFF S.t.En	Disabled Enabled		0 - 1	St.En
421	Full scale transducer value (at 20mA)			0, 1 2	50 - 200 300- 500	101.5 493.0
426	Zero scale transducer value (at 4mA)				-15 - 0	0.0

JTL COMPRESSOR PACK ITEM NUMBERS

LP210/220

ITEM	DESCRIPTION	CODE	CODE MEANING	DEFAULT SET	RANGE	ITEM 9 VALUE	
3. TEMPERATURES							
Note: Temperatures can be displayed on the maintenance unit in degrees Celsius or Fahrenheit. The choice is made on item 178. All setpoint ranges are shown in Celsius.							
178	Temperature display unit choice	CELS FAhr	Celsius Fahrenheit		0 - 1	CELS	
31	Suction gas temperature						
131	Suction temperature	OFF t1.En	Not selected Selected		0 - 1	t1.En	
32	Sensor 2 temperature						
132	Sensor 2 temperature	OFF t2.En	Not selected Selected		0 - 1	t2.En	
33	Sensor 3 temperature						
133	Sensor 3 temperature	OFF t3.En	Not selected Selected		0 - 1	t3.En	
34	Sensor 4 temperature						
134	Sensor 4 temperature	OFF t4.En	Not selected Selected		0 - 1	t4.En	
35	Plant room temperature						
135	Plant room temperature	OFF t5.En	Not selected Selected		0 - 1	t5.En	
144	Minimum superheat	0.0	Alarm disabled		0.0 - 20.0	0.0	
141	Suction superheat						
157	Refrigerant type	3	404	R404A	up to v0.00.1		R407A
		4	407A	R407A	0, 1	3 - 6	
		5	407B	R407B	from v0.00.2 to v0.00.7		
		6	507	R507	0, 1	3 - 7	
		7	408	R408A	from v0.00.8		
		9	744	R744 (CO2)	0	3 - 7	
		11	407F	R407F	1	3 - 11	
		12	290	R290 (Propane)	from v0.01.0		
		13	407C	R407C	0, 1	3 - 15	
14	448A	R448A					
15	449A	R449A					
						R744	

JTL COMPRESSOR PACK ITEM NUMBERS

LP210/220

ITEM	DESCRIPTION	CODE	CODE MEANING	DEFAULT SET	RANGE	ITEM 9 VALUE
4. SUCTION PRESSURE CONTROL						
If suction pressure optimisation is selected then the suction pressure setpoints as set in item 40 can be adjusted upwards to the maximum by a JTL optimisation unit connected to the network.						
If there is no JTL optimisation unit on the network then the setpoint remains at the original set value. In the event of network failure the setpoints revert to the original set value after a time delay of 15 minutes.						
150	Select network optimised suction pressure control	oFF Opt.E	Not added Selected		0 - 1	oFF
40	Suction pressure setpoint			0 1 2	0 to +20 5 to +60 100 to 200	8 35 175
151	Optimised suction setpoint					
153	Optimised suction setpoint (HT optimisers)					
152	Optimised suction setpoint upper limit			0 1 2	5 - 20 15 - 60 175 - 225	15 55 200
43	Suction pressure deadband			0 1 2	0 - 5 0 - 10 0 - 20	2 4 10
44	Suction pressure increase time constant				1 - 60	30
45	Suction pressure decrease time constant				1 - 60	15
48	Suction 1st stage hold on and fast unload setpoint			0 1 2	- 8 to +20 0 to +60 100 to 150	0 10 125
195	Enable low suction pressure safety	oFF LP.En	Disabled Enabled		0 - 1	oFF
196	Low suction pressure safety shutdown level			0 1 2	-5 to 10 10 to 40 50 to 150	0 20 100
197	Enable instant high discharge pressure shutdown (v0.00.6 on)	oFF HP.En	Disabled Enabled		0 - 1	oFF
191	Integrated pressure error					
181	Suction increase next step (kW)					
182	Suction decrease next step (kW)					

JTL COMPRESSOR PACK ITEM NUMBERS

LP210/220

ITEM	DESCRIPTION	CODE	CODE MEANING	DEFAULT SET	RANGE	ITEM 9 VALUE
------	-------------	------	--------------	-------------	-------	--------------

5. COMPRESSOR CONTROL

Forced functions remain forced if the Maintenance Unit remains plugged in. They are automatically cancelled 30 minutes after the Maintenance Unit is unplugged.

5.1 COMMON DATA

200	Number of compressors			up to v0.00.2		6
					0 - 6	
				from v0.00.3		
				0, 1	0 - 10	
				2	0 - 6	
205	Maximum number of compressors allowed			up to v0.00.2		6
					1 - 6	
				from v0.00.3		
				0, 1	1 - 10	
				2	1 - 6	
201	Number of steps on load					
202	Number of compressors running					
203	Total capacity loaded (in kW)					
204	Forced number of suction stages				0 - 40	
208	Minimum compressor stop time (seconds)				0 - 240	30
206	Compressor fault alarm delay (mins)				0 - 10	0
158	Compressor fault repeat alarm delay time	00:00	feature disabled		00:00 -24:00	00:00

5.2 COMPRESSOR DATA

A general form of item numbers for compressors is shown below. The "x" shown in each item number should be replaced by the compressor number. Up to v0.00.2 this sequence covers item numbers 210-269 for compressors 1 - 6. From v0.00.3 this sequence covers items 210-309 for compressors 1-10.

2x5	Compressor isolation	0 1	ISOL OPER	Not in use In use		0 - 1	OPER
2x3	Compressor status	rdy 0		Ready to run (no faults) Off or compressor interface fault			
2x6	Compressor capacity in <u>effective</u> kW					1 - 100	10
2x0	Compressor 1 can be set to run as the inverter controlled m/c and automatically revert to a 1 stage m/c on inverter failure.	Compressors 1 - 3					
		0 1 2 3 4	none 1.StP 2.StP 2.UnE 1.con	not step controlled 1 step 2 steps (50/100%) 2 steps (66/100%) Inverter controlled (compressor 1 only)	0, 1 2	0 - 3 0 - 1	2.StP 1.StP
		Compressors 4-6					
		0 1	none 1.StP	not controlled 1 step		0 - 1	1.StP

JTL COMPRESSOR PACK ITEM NUMBERS

LP210/220

ITEM	DESCRIPTION	CODE	CODE MEANING	DEFAULT SET	RANGE	ITEM 9 VALUE
2x1	Number of steps on load					
2x8	Force compressor off	CP.En C.OFF	Compressor enabled to run Forced off		0 - 1	
2x7	Forced number of compressor steps				0 - 4	
2x2	Total running hours (in 10s of hours)				0 - 9999	
37x	Compressor run time last 24 hours (371 for compressor 1 etc)					
2x4	Compressor restart inhibit timer (Seconds)					
2x9	Compressor number of starts per hour				4 - 20	10
35x	Average number of starts per hour last 24 hours (351 for compressor 1 etc)					

5.3 COMPRESSOR INPUT AND OUTPUT STATUS

Note 1. If combinations of input or output are present then the value displayed is added up from the individual input/output values as follows:

- 1 Input/Output 1
- 2 Input/Output 2
- 4 Input/Output 4
- 8 Input/Output 5
- 16 Input/Output 6
- 32 Input/Output 6
- 64 Input/Output 7
- 128 Input 8

167	Compressor output configuration (Note: When compressor 1 is set for 50% unloader then the inverter is disabled) When compressor 1 is <u>not</u> set for inverter control all compressors can be used for stage control.	0 1 2 3 4 5	CF-0 CF-1 CF-2 CF-3 CF-4 CF-5	All compressors 1 stage Compressor 2 50% unload Compressors 2 and 3 50% unload Compressor 1 50% unload Compressor 1 and 2 50% unload Compressor 1 to 3 50% unload		0 - 5	CF -1
111	Compressor input status interface 1						
112	Compressor input status interface 2						
113	Compressor output status interface 1						
114	Compressor output status interface 2						
909	Interface baud rate The IF settings should be set to match this speed	1 2 3 4 5	1.2 2.4 4.8 9.6 19.2	1200 baud 2400 baud 4800 baud 9600 baud 19200 baud		1 - 5	9.6

JTL COMPRESSOR PACK ITEM NUMBERS

LP210/220

ITEM	DESCRIPTION	CODE	CODE MEANING	DEFAULT SET	RANGE	ITEM 9 VALUE
6. INVERTER DATA						
The inverter is disabled when compressor 1 is set for 50% unloader (see item 167) When compressor 1 is not set for inverter control all compressors can be used for stage control.						
330	Select inverter control	OFF In.1S	Not selected Inverter selected		0 - 1	0
151	Optimised suction setpoint (operational)					
153	Optimised HT suction setpoint					
347	Suction pressure error					
344	Inverter capacity loaded in effective kW					
341	Minimum cut out pressure			0 1 2	- 8 to +20 10 to 40 100 - 150	0 10 125
64	Restart inverter pressure (from v0.01.1)			0 1 2	0 to +20 5 to +60 100 to 200	8 35 175
340	Time constant				1 - 240	30
339	Speed gain				1 - 250	100
345	Current proportional term					
346	Current Integral term					
331	Number of steps on load	0 127	Off Maximum			
332	Inverter run hours (in 10's of hours)				0 - 9999	
333	Inverter status	rdy c.hty i.hty 0	ready to run (Inverter & compressor healthy) Inverter compressor healthy Inverter healthy not ready to run			
343	Minimum steps allowed				1 - 63	1
342	Maximum steps allowed				64 - 127	127
335	Inverter capacity at minimum speed in effective kW				1 - 100	5
336	Inverter capacity at maximum speed in effective kW				1 - 100	10
337	Forced no. of steps				0 - 127	
338	Force inverter off	CP.En C.OFF	Enabled to run Inverter forced off		0 - 1	
909	Interface baud rate (See section 5.3)					

JTL COMPRESSOR PACK ITEM NUMBERS

LP210/220

ITEM	DESCRIPTION	CODE	CODE MEANING	DEFAULT SET	RANGE	ITEM 9 VALUE
7. INPUTS AND OUTPUTS						
20	Operating mode	oFF Auto	Manual Automatic			
171	Auto/manual (IP-1)	OFF Auto	Manual (pack controller dormant) Auto mode			
172	High discharge pressure (IP-2)	CLr Hi.dp	Normal High pressure			
173	Enable suction optimiser (IP-3)	CLr E.oPT	Disable optimiser Enable optimiser			
174	Low refrigerant (IP-4) (LP220 only)	CLr Lo.Li	Normal Low Level			
175	Low level refrigerant alarm delay minutes (LP220 only)				15 - 240	30
176	Low oil level (IP-5) (LP220 only)	CLr Lo.OL	Normal Low Level			
166	Relay 2 function (v0.00.8 on)	H.S.AL G.A.En	High suction pressure General alarm		0 - 1	H.S.AL
161	Watchdog output (LN/LD-1)	OFF On	Watchdog fail Watchdog healthy			
162	High suction pressure (LN/LD-2)	CLr Hi.SP	Normal High pressure			
163	Alarms healthy output (LN/LD2) (v0.00.8 on)	oFF no.AL	Alarm condition No alarms			
8. DISPLAY FUNCTIONS						
179	Pressure display unit choice	1 2 3	PSI bAr PASC	p.s.i. bar kPa	1 - 3	PSI
189	Backlight control (from v0.01.0)	0 1 2 3	B.oFF BL.on BL.F.F BL.n.F	Backlight off Backlight on Backlight off, flashes for alarm Backlight on, flashes for alarm		B.oFF
9. CLOCK CALENDAR						
Note, the time and date can be displayed as standard or daylight saving (summer) time. This choice is made on item 18. When daylight saving is chosen and the controller is connected to a JTL Network Controller supporting daylight saving operation, the change is made automatically to the current EU directive.						
2	Time of day				00:00 - 23:59	
3	Day of week	Sun - Sat	0 = Sunday 1 = Monday etc			
4	Date				01:01 - 31:12	
5	Year				2016 - 2038	
18	Daylight saving enable	Stnd dAY.S	Standard time Daylight saving time		0 - 1	Stnd

JTL COMPRESSOR PACK ITEM NUMBERS

LP210/220

ITEM	DESCRIPTION	CODE	CODE MEANING	DEFAULT SET	RANGE	ITEM 9 VALUE
10. RESTORE FACTORY DEFAULTS						
To set the factory defaults into the memory of the controller, first set the virtual bitswitch as shown, then set item 9 to the set default value of "1234". This should be done on initial commissioning of the unit or when the unit is being installed as a replacement part.						
966	Virtual bitswitch setting	0 1 2	LT (HFC) HT (HFC) LT (CO2)			
9	Set default values To set the factory defaults into the memory of the controller, set item 9 to the set default value of "1234". This should be done on initial commissioning of the unit or when the unit is being installed as a replacement part.	1234 1066	Load default settings Write to NVRAM immediately			
11. RESTORE PARAMETERS FROM NETWORK (from v0.00.1)						
To restore the data from the network first set the virtual bitswitch on item 966 and the appropriate unit number on item 1. Then check item 965 to see if this facility is available on the network. The information on item 965 is received from a network broadcast every few minutes. If the restore parameter facility is available and operational then item 965 will be set to a non zero number e.g. 2. To request restore parameters set item 964 to 1234. Item 963 displays parameters restore progress. When all parameters are downloaded item 964 is cleared to 0.						
965	Master database port	0 1 - 4	Not in use NC port no			
964	Set restore parameters from network	1234	Request restore			
963	Parameter restore progress	rdy dnl.r din.p dnl.c FAIL	Restore function possible Restore requested Restore in progress Restore complete Restore fault			
959	Requested template	0 1-9999	As commissioned Template number		0 - 9999	
12. SYSTEM ALARMS						
80	Group alarm 81 - 88	Graphic display	See display data			
81	Low suction pressure	CLr Lo.SP	No fault Fault			
82	High suction pressure	CLr Hi.SP	No fault Fault			
84	High discharge pressure	CLr Hi.dP	No fault Fault			
85	Low refrigerant level (LP220 only)	CLr Lo.Li	No fault fault			
90	Group alarm 91 - 98	Graphic display	See display data			
91	Pressure transducer fault	CLr Pt.Ft	No fault Fault			
92	Temperature sensor	CLr tS.Ft	No fault Fault			
94	Low superheat	CLr Lo.Sh	No fault Fault			
96	Compressor interface card fault	CLr CP.F	No fault Fault			
97	Compressor fault	CLr CPr.F	No fault Fault			

JTL COMPRESSOR PACK ITEM NUMBERS**LP210/220**

ITEM	DESCRIPTION	CODE	CODE MEANING	DEFAULT SET	RANGE	ITEM 9 VALUE
98	Compressor inverter fault	CLr InL.F	No fault Fault			
900	Group alarm 901 - 908	Graphical display	See display data			
901	Compressor 1 fault	CLr C1.F	No fault Fault			
902	Compressor 2 fault	CLr C2.F	No fault Fault			
903	Compressor 3 fault	CLr C3.F	No fault Fault			
904	Compressor 4 fault	CLr C4.F	No fault Fault			
905	Compressor 5 fault	CLr C5.F	No fault Fault			
906	Compressor 6 fault	CLr C6.F	No fault Fault			
907	Compressor 7 fault (v0.00.3 on)	CLr C7.F	No fault fault			
908	Compressor 8 fault (v0.00.3 on)	CLr C8.F	No fault fault			
910	Group alarm 910 - 918	Graphical display	See display data			
911	Compressor 9 fault (v0.00.3 on)	CLr C9.F	No fault fault			
912	Compressor 10 fault (v0.00.3 on)	CLr C10.F	No fault fault			
915	Auto input not present (PLANT FAULT)	CLr P.FLt	No fault Fault			
917	Low oil level (LP220 only)	CLr Lo.OL	No fault Fault			

JTL COMPRESSOR PACK ITEM NUMBERS

LP210/220


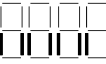






ITEM	DESCRIPTION	CODE	CODE MEANING	DEFAULT SET	RANGE	ITEM 9 VALUE
13. DIAGNOSTIC & TEST FUNCTIONS						
6	JTL Network communications speed	4.8	Kilo Baud			
7	Communications method	HALF	2 wire			
967	Latest unit no polled on zone					
973	Latest polling interval This time shows the polling interval between the last two successful network awake messages to this unit.	min:sec				
974	Time since last awake message	min:sec				
975	Network receive timer Each time a message is read correctly the timer is set to 10 it counts down. If the timer reaches 0 then the communications module is reset.	seconds	(counts down to 0)			
976	Network receive bad character counter. The counter counts down from a preset number. When the counter reaches 0 the communications module is reset.		(counts down to 0)			
977	Transmit control status for the operation of the Jnet network communications.	Lo or r Hi or t L	Receive Transmit Transmit last character			
8	Virtual bitswitch setting	Lt Ht Co2	Low temp (HFC) High temp (HFC) Low Temp (Co2)			
89	Sensor excitation value (Factory test) (v0.00.9 on)		Not used			
99	Test digital displays	CLr SEt	Not active Test active		0 - 1	
100	Test inputs (1 - 3)	i - - - i 1 - - i - 2 - i - - 3	No inputs Input 1 on Input 2 on Input 3 on			
101	Test inputs (4 & 5) (LP220 only)	i - - - i 4 - - i - 5 -	No inputs Input 4 on Input 5 on			
199	Test relay outputs	clr SEt	Not active Active		0 - 1	
431	Temperature sensor 1 reading (v0.00.3 on)					
432	Temperature sensor 2 reading (v0.00.3 on)					
433	Temperature sensor 3 reading (v0.00.3 on)					
434	Temperature sensor 4 reading (v0.00.3 on)					
435	Temperature sensor 5 reading (v0.00.3 on)					

JTL COMPRESSOR PACK ITEM NUMBERS					LP210/220	
ITEM	DESCRIPTION	CODE	CODE MEANING	DEFAULT SET	RANGE	ITEM 9 VALUE
438	Temperature open circuit indication (v0.00.3 on)	0 1 2	No fault Sensor 5 Sensor 4			
439	Temperature short circuit indication (v0.00.3 on)	4 8 16	Sensor 3 Sensor 2 Sensor 1			
411	Pressure 1 reading (v0.00.3 on)					
10	Processor alarms (11 - 17)	0 1 - 255	No alarms Check 11 - 17			
11	Static RAM fault	CLr rA.Ft	No fault Fault			
12	Program counter fault	CLr PC.Ft	No fault Fault			
13	Stack pointer fault	CLr SP.Ft	No fault Fault			
14	Background loop fault	CLr bL.Ft	No fault Fault			
15	PROM checksum fault	CLr Pr.Ft	No fault Fault			
16	NVRAM fault	CLr n.Ft	No fault Fault			
17	Instruction TRAP fault	CLr tP.Ft	No fault Fault			

DISPLAY DATA		LP210/LP220
NORMAL DISPLAY		
999.9	Pressure in psi	
--	Not selected	
ALARM TEXT (in descending priority order)		
P.FLd	Plant failed	
Hi.dP	High discharge pressure	
CPr	Compressor fault	
Hi.SP	High suction pressure	
OTHER TEXT		
JTL	Start-up text	

Graphical Display of Bit Data

Graphical display of bit data used on items where the data was shown previously as a decimal value.

Bit	Graphic
None	
1	
2	
3	
4	
5	
6	
7	
8	