CONTENTS

JTL COMPRESSOR PACK ITEM NUMBERS — LP32x

ITEM	DESCRIPTION	CODE	CODE MEANING	DEFAULT SET	RANGE	ITEM 9 VALUE
	1. Jnet NETWORK IDENTIFICATION					
0	Unit type	LP31	Unit type			
19	Software version number					
1	Unit number				0.1 - 899.8	
	2. PRESSURE 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. Average pressures are averaged over last hour and are updated every 4 minutes.					
179	Pressure display unit choice	1 PSI 2 bArg 3 PASC 4 bara	p.s.i. bar gauge kPa bar absolute		1 - 4	PSI
21	Suction pressure					
5065	Non - legacy pressure set broadcast enabled for items 690 & 691				0 -1	oFF
690	Suction pressure broadcast data set 1				up to v1 0 - 255 from v2 0 - 9999	0
691	Suction pressure broadcast data set 2				up to v1 0 - 255 from v2 0 - 9999	0
5066	Suction pressure broadcast data set 3 (from v2)				0 - 9999	
146	Average suction pressure over last hour					
42	High suction pressure alarm level			0 1 2 3	10 - 50 25 - 110 200 - 300 450 - 650	20 60 250 550
41	Low suction pressure alarm level			0 1 2 3	-5 to +15 5 to +60 100 - 150 200 - 450	0 20 125 300
121	Pressure transducer selection	OFF On	Disabled Enabled		0 - 1	On
421	Full scale transducer value (at 20mA)			0, 1 2 3	50 - 200 300- 900 500 - 950	101.5 493.0 870
426	Zero scale transducer value (at 4mA)			0, 1, 2 3	-15 - 0 -15.0 - 0	-14.5 0

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157	Refrigerant type	3 4 5 6 7 8 9 11	404A 407A 407B 507A 408A NH3 744 407F	R-404A R-407A R-407B R-507A R-408A R-717 Ammonia R-744 (CO2) R-407F	0,1 2, 3	3 - 11 9	4 9
3. 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 3	0 to +20 5 to +100 100 to 250 300 - 550	8 35 175 420
151	Optimised suction setpoint						
155	Control suction pressure setpoint						
5067	Current pressure setpoint broadcast data set (from v2)					0 - 9999	0
159	Associated optimiser fixture number						
152	Optimised suction setpoint upper limit				0 1 2 3	5 - 20 15 - 60 175 - 225 300 - 700	15 55 200 500
156	Optional setpoint broadcast data set					up to v3 0 - 255 from v4 0 - 9999	0
43	Suction pressure deadband					up to v4	
					0 1 2 3	0 - 5 0 - 15 0 - 20 0 - 100	2 4 10 50
						from v5	
					0 1 2 3	0 - 5 0 - 15 0 - 60 0 - 100	2 4 10 50
44	Suction pressure increase gain				0 1 2 3	0.01 - 99.99 0.01 - 99.99 0.01 - 99.99 0.01 - 99.99	1.50 0.75 0.20 0.12
45	Suction pressure decrease gain				0 1 2 3	0.01 - 99.99 0.01 - 99.99 0.01 - 99.99 0.01 - 99.99	2.00 1.00 0.25 0.12

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48	Suction 1st stage hold on and fast unload setpoint			0 1 2 3	- 5 to +20 0 to +60 100 to 150 250 - 450	0 25 125 350
195	Enable low suction pressure safety	OFF LP.En	Disabled Enabled		0 - 1	LP.En
196	Low suction pressure safety shutdown level			0 1 2 3	-8 to 10 10 to 40 50 to 150 100 - 400	-2 20 100 200
197	Enable instant high discharge pressure shutdown	Fast Inst	Fast Instant		0 - 1	Fast
191	Integrated pressure error					
181	Capacity increase next step (kW)					
182	Capacity decrease next step (kW)					
183	Last capacity change direction	None Inc Dec	Not occurred Increase Decrease			
184	Last change capacity (kW)					
4. 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.						
4.1 COMMON DATA						
200	Number of compressors				0 - 4	4
205	Maximum number of compressors allowed				1 - 4	4
201	Number of steps on load					
202	Number of compressors running					
203	Total capacity loaded (in kW)					
204	Forced number of suction stages				0 - 4	
207	Minimum time between steps				3 - 30	10
208	Minimum compressor stop time (seconds)				0 - 240	30
209	Minimum compressor run time (seconds)				15 - 60	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
440	Total heat rejected (KW)					
441	THR Ratio				0.1 - 10.0	1.2
470	Periodic start time (hours)	0 1+	Disabled Enabled		0 - 168	0

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4.2 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. This sequence covers item numbers 210-249 for compressors 1 - 4.							
2x5	Owner scope	0 1	Off Set.1	Not in use In use		0 - 1	Set.1
2x3	Compressor/Inverter status	0 Rdy		off/Fault Ready to run (no faults)			
2x6	Compressor capacity in effective kW					1 - 100	10
2x0	Compressor 1 can be set to run as the inverter controlled m/c (Item 330 must also be set for inverter control)	Compressor 1					
		0 1 2	none 1.StP 1.con	not step controlled 1 step Inverter controlled		0 - 2	1.StP
		Compressors 2 - 4					
		0 1	none 1.StP	not controlled 1 step		0 - 1	1.StP
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 - 1	
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)						
5x5	Compressor ok	No Yes					
5x6	Capacity loaded (kW)						
45x	Compressor availability	Na UL.Sn PL.Sn FL.Sn UL.Sy PL.Sy FL.Sy P1.Sn F1.Sn		Not available Unloaded can't start Part load can't start Full load can't start Unloaded can start Part load can start Full load can start Part load 1 step can't stop Full load 1 step can't stop			
47x	Compressor status	DIS CP.Ft F.Off Forc Rdy		Disabled Compressor Fault Forced Off Forced steps Ready			

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ITEM	**DESCRIPTION**	**CODE**	**CODE MEANING**	**DEFAULT SET**	**RANGE**	**ITEM 9 VALUE**
			4.3 STAGING DATA			
630 631 632	Increase compressor for capacity increase Increase step No for capacity increase Increase capacity for capacity increase					
633 634 635	Decrease compressor for capacity increase Decrease step No for capacity increase Decrease capacity for capacity Increase					
640 641 642	Decrease compressor for capacity decrease Decrease step No for capacity decrease Decrease capacity for capacity decrease					
643 644 645	Increase compressor for capacity Decrease Increase step No for capacity decrease Increase capacity for capacity decrease					
	4.4 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					
111	Compressor input status					
113	Compressor output status					
115	Compressor run status					
	5. VARIABLE CAPACITY COMPRESSOR DATA When compressor 1 is <u>not</u> set for inverter control all compressors can be used for stage control.					
330	Select variable capacity compressor control	OFF On	Not selected Inverter selected		0 - 1	Off
151	Optimised suction setpoint					
155	Control suction pressure setpoint					
347	Suction pressure error					
344	Variable capacity compressor capacity loaded in effective kW					
341	Minimum cut out pressure			0 1 2 3	- 8 to +20 10 to 60 50 - 150 100 - 400	-2 20 100 250
406	Variable capacity compressor start setpoint offset				0 - 100	5
340	Variable capacity compressor integral gain			0 1 2 3	0.01 - 99.99 0.01 - 99.99 0.01 - 99.99 0.01 - 99.99	8.00 4.00 1.00 0.50

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ITEM	**DESCRIPTION**	**CODE**	**CODE MEANING**	**DEFAULT SET**	**RANGE**	**ITEM 9 VALUE**
339	Variable capacity compressor proportional gain			0 1 2 3	0.01 - 99.99 0.01 - 99.99 0.01 - 99.99 0.01 - 99.99	4.00 2.00 0.50 0.25
404	Variable capacity compressor derivative gain				0 - 99.99	0
408	Variable capacity compressor staging integral gain				0.01 - 99.99	4
345	Current proportional term					
346	Current Integral term					
331	Inverter frequency (Hz)					
332	Variable capacity compressor run hours (in 10's of hours)				0 - 9999	
333	Variable capacity compressor status	DIS CP.Ft F.OFF Forc Rdy	Disabled Compressor fault Forced off Forced steps Ready			
335	Variable capacity compressor capacity at 50Hz in effective kW				1 - 100	10
342	Maximum frequency (Hz)				40 - 100	60
343	Minimum frequency (Hz)				0 - 50	25
337	Forced frequency (Hz)				0.0 - 100.0	0.0
338	Force variable capacity compressor off	CP.En C.OFF	Enabled to run Inverter forced off		0 - 1	
348	Compressor number of starts per hour				4 - 20	10
349	Compressor restart inhibit timer (secs)					
400	Average alerts/ hour in last 24 hours					
401	Run time last 24 hours					
402	I term error input limit			0 1 2 3	0 - 5 0 - 15 0 - 20 0 - 100	2 4 10 50
403	Step change adjustment (%)				0 - 100	50

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ITEM	**DESCRIPTION**	**CODE**	**CODE MEANING**	**DEFAULT SET**	**RANGE**	**ITEM 9 VALUE**
6. 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	Inverter input	Off On	Off or fault Healthy			
174	Low refrigerant (IP-8)	CLr Lo.Li	Normal Low Level			
175	Low level refrigerant alarm delay minutes				15 - 240	30
176	Compressor inputs	- - - - 1 - - - - 2 - - - - 3 - - - - 4	No inputs Compressor 1 ok Compressor 2 ok compressor 3 ok compressor 4 ok			
177	High Discharge Pressure Input Delay (secs)				up to V0.00.6 0 - 30 From V0.00.7 0 - 10	 3 1
180	Compressor OK Input Delay (secs)				up to V0.00.6 0 - 30 From V0.00.7 0 - 10	 3 3
978	Digital inputs					
161	Compressor 1 output	Off On	Off Run compressor 1			
162	Compressor 2 output	Off On	Off Run compressor 2			
163	Compressor 3 output	Off On	Off Run compressor 3			
164	Compressor 4 output	Off On	Off Run compressor 4			
165	Inverter output	Off On	Off Run inverter			
166	Watchdog output (LN/LD-1)	OFF On	Watchdog fail Watchdog healthy			
167	High suction pressure (LN/LD-2)	CLr Hi.SP	Normal High pressure			

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ITEM	**DESCRIPTION**	**CODE**		**CODE MEANING**	**DEFAULT SET**	**RANGE**	**ITEM 9 VALUE**
7. DISPLAY FUNCTIONS							
179	Pressure display unit choice	1 2 3 4	PSI bArg PASC bara	p.s.i. bar gauge kPa ba absolute		1 - 4	PSI
178	Temperature Display unit choice	0 1 2	Cels Fahr Kelv	Celsius Fahrenheit Kelvin			
8. 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					2013 - 2099	
9. 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 3	L.HFC H.HFC L.CO2 H.CO2	LT (HFC) HT (HFC) LT (CO2) HT (CO2)		0 - 3	
8	Current bitswitch settings	L.HFC H.HFC L.CO2 H.CO2		LT (HFC) HT (HFC) LT (CO2) HT (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		Load default settings			
10. RESTORE PARAMETERS FROM NETWORK 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	

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ITEM	**DESCRIPTION**	**CODE**	**CODE MEANING**	**DEFAULT SET**	**RANGE**	**ITEM 9 VALUE**
11. SYSTEM ALARMS						
80	Group alarm Represents items 88..81 A high segment =alarm present					
81	Low suction pressure	CLr Flt	No fault Fault			
82	High suction pressure	CLr Flt	No fault Fault			
84	High discharge pressure	CLr Flt	No fault Fault			
85	Low refrigerant level	CLr Flt	No fault fault			
90	Group alarm Represents items 98..91 A high segment =alarm present					
91	Pressure transducer fault	CLr Flt	No fault Fault			
93	ADC ref tolerance	CLr FLt	No fault Fault			
95	Compressor fault (Inverter)	CLr Flt	No fault Fault			
97	Compressor fault (common)	CLr Flt	No fault Fault			
98	Inverter fault	CLr InL.F	No fault Fault			
900	Group alarm 901 - 908	0 1 - 255	No alarms Check 901 - 908			
901	Compressor 1 fault	CLr Flt	No fault Fault			
902	Compressor 2 fault	CLr Flt	No fault Fault			
903	Compressor 3 fault	CLr Flt	No fault Fault			
904	Compressor 4 fault	CLr Flt	No fault Fault			

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ITEM	**DESCRIPTION**	**CODE**	**CODE MEANING**	**DEFAULT SET**	**RANGE**	**ITEM 9 VALUE**
12. DIAGNOSTIC & TEST FUNCTIONS						
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)			
977	Transmit control line status for the operation of the Jnet network communications.	Hi Lo	Transmit Receive			
89	ADC test value (factory test)		Not used			
100	Test inputs (1 - 8) Input states are shown in the order 87654321. A high segment indicates input present.					
101	Test relay outputs Energise outputs 1-8 in turn. Set to 1 to start test	0 1 - 8	Not active Output on		0 - 1	
411	Pressure 1 reading					
10	Processor alarms (11 - 17)	0 1 - 255	No alarms Check 11 - 17			
16	NVRAM fault	CLr Flt	No fault Fault			

DISPLAY DATA	LP32x
NORMAL DISPLAY	
999.9	Pressure in psi
--	Not selected
ALARM TEXT (in descending priority order)	
Hi.dP	High discharge pressure
CPr	Compressor fault
Hi.SP	High suction pressure
Pt.Ft	Pressure sensor fault
OTHER TEXT	
JTL	Start-up text