

JTL COMPRESSOR PACK ITEM NUMBERS					CP5H	
ITEM	DESCRIPTION	CODE	CODE MEANING	BIT	RANGE	ITEM 9 VALUE
				4321		
0	Unit type	CP5H	Unit type			
1	Unit number				0.1 - 899.9	
<b>CLOCK CALENDAR</b>						
Note, from version 0.00.4 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	up to v0.00.3	0 = Sunday 1 = Monday etc			
		0 - 6				
		v0.00.4 on				
		Sun - Sat				
4	Date				01:01 - 31:12	
5	Year				up to v0.00.1	
					00 - 99	
					v0.00.2 on	
					1992 - 2022	
<b>MISCELLANEOUS DATA</b>						
6	JTL Network communications speed	4.8 38.4	Kilo Baud Kilo Baud			
8	Bitswitch Setting					
9	Set default values selected by Bitswitch	1234	Load default settings Write to NVRAM immediately (v0.00.6 on)			
		1066				
<b>PROCESSOR ALARMS</b>						
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			
18	Daylight saving enable (from v0.00.4)	Stnd dAY.S	Standard time Daylight saving time		0 - 1	Stnd

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ITEM	DESCRIPTION	CODE	CODE MEANING	BIT	RANGE	ITEM 9 VALUE
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<b>MISCELLANEOUS DATA</b>						
19	Software Version number					
<b>PRESSURES</b>						
21	LT suction pressure					
22	HT suction pressure					
23	Discharge pressure					
24	Satellite suction pressure					
<b>TEMPERATURES</b>						
31	LT suction gas temperature					
32	HT suction gas temperature					
33	Discharge temperature					
34	Satellite suction gas temperature					
35	Subcooled liquid temperature					
36	Saturated gas temperature					
37	Plant room temperature					
<b>LT SUCTION PRESSURE CONTROL</b>						
40	LT suction pressure setpoint				- 5 to + 20	4
41	No of LT suction steps loaded					
42	High LT suction pressure alarm level				10 - 50	20
43	LT suction pressure deadband				0 - 5	2
44	LT suction pressure increase time constant				1 - 60	30
45	LT suction pressure decrease time constant				1 - 60	15
46	Suction pressure to hold off stage 2				50 - 100	80
47	Suction pressure to hold off stage 3				30 - 100	60
48	LT suction 1st stage hold on				- 8 to +20	0
49	LT suction total capacity loaded (in kW)					

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<b>HT SUCTION PRESSURE CONTROL</b>						
50	HT suction pressure setpoint				5 - 60	25
51	No of HT suction steps loaded					
52	High HT suction pressure alarm level				15 - 80	60
53	HT suction pressure deadband				0 - 10	5
54	HT suction pressure increase time constant				1 - 60	30
55	HT suction pressure decrease time constant				1 - 60	15
58	HT suction 1st stage hold on				2 - 60	10
59	HT suction total capacity loaded (in kW)					
<b>DISCHARGE PRESSURE CONTROL</b>						
60	Discharge pressure setpoint				100 - 250	200
61	Number of fans required					
62	High discharge pressure alarm level				140 - 300	250
63	Discharge pressure deadband				0 - 20	5
64	Condenser control time constant				1 - 250	30
65	Discharge pressure to reduce capacity				140 - 320	300
66	Gas temperature to open regulator valve				25 - 40	30
67	Discharge pressure setpoint offset during gas defrost				0 - 50	0
68	Discharge pressure setpoint offset during heat reclaim				0 - 50.0	0
<b>SATELLITE SUCTION PRESSURE CONTROL</b>						
70	Satellite suction pressure setpoint				-5 to + 50	2
71	No of Satellite suction steps loaded					
72	High Satellite suction pressure alarm level				20 - 80	50
73	Satellite suction pressure deadband				0 - 10	5
74	Satellite suction pressure increase time constant				1 - 60	30
75	Satellite suction pressure decrease time constant				1 - 60	30
78	Satellite suction 1st stage hold on				- 5 to + 50	0
79	Satellite suction total capacity loaded (in kW)					

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				4321		
<b>SYSTEM ALARMS</b>						
80	Group alarm 81 - 88	0 1 - 255	No alarms Check 81 - 88			
81	High LT suction pressure	CLr Hi.Lt	No fault Fault			
82	High HT suction pressure	CLr Hi.Ht	No fault Fault			
83	High discharge pressure	CLr Hi.dP	No fault Fault			
84	High Satellite suction pressure	CLr Hi.St	No fault Fault			
85	Refrigerant loss	CLr Lo.Li	No fault Fault			
86	Motor thermistor fault	CLr Th.Ft	No fault Fault			
87	Motor overload fault	CLr OL	No fault Fault			
88	Condenser fault	CLr Fn.Ft	No fault Fault			
<b>MISCELLANEOUS DATA</b>						
89	Thermistor excitation value (Factory test)		Not used			
<b>SYSTEM ALARMS</b>						
90	Group alarm 91 - 98	0 1 - 255	No alarms Check 91 - 98			
91	Pressure transducer fault	CLr Pt.Ft	No fault Fault			
92	Thermistor fault	CLr th.Ft	No fault Fault			
93	Thermistor excitation voltage	CLr PS.Ft	No fault Fault			
94	High or low pressure switch fault	CLr HP.LP	No fault Fault			
95	Defrost interface card fault	CLr Stub	No fault Fault			
96	Compressor interface card fault	CLr CP.F	No fault Fault			
97	Compressor fault OR Auto input not present	CLr CPr.F	No fault Fault			
98	Oil pressure fault	CLr OIL.F	No fault Fault			
<b>UTILITY</b>						
99	Test digital displays	CLr SET	Not active Test active		0 - 1	

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				4321		
<b>MAXIMUM NUMBER OF COMPRESSORS ALLOWED TO RUN (v0.00.6 on)</b>						
101	Maximum number of LT compressors allowed				1 - 10	10
102	Number of LT compressors running					
103	Maximum number of HT compressors allowed				1 - 10	10
104	Number of HT compressors running					
105	Maximum number of satellite compressors allowed				1 - 10	10
106	Number of satellite compressors running					
<b>PRESSURE TRANSDUCER SELECTIONS</b>						
121	LT pressure transducer selection	OFF Lt.En	Disabled Enabled		0 - 1	Lt.En
122	HT pressure transducer selection	OFF Ht.En	Disabled Enabled		0 - 1	Ht.En
123	Discharge pressure transducer selection	OFF DS.En	Disabled Enabled		0 - 1	DS.En
124	Satellite pressure transducer selection	OFF St.En	Disabled Enabled		0 - 1	St.En
126	Absolute LT suction pressure transducer selection	Lt.GA Lt.Ab	Gauge pressure Absolute pressure		0 - 1	Lt.GA
129	Absolute Satellite suction pressure transducer selection	St.GA St.Ab	Gauge pressure Absolute pressure		0 - 1	St.GA
<b>TEMPERATURE PROBE SELECTION</b>						
131	LT suction temperature	OFF t1.En	Not selected Selected		0 - 1	t1.En
132	HT suction temperature	OFF t2.En	Not selected Selected		0 - 1	t2.En
133	Discharge temperature	OFF t3.En	Not selected Selected		0 - 1	t3.En
134	Satellite suction temperature	OFF t4.En	Not selected Selected		0 - 1	t4.En
135	Subcooled liquid temperature	OFF t5.En	Not selected Selected		0 - 1	t5.En
136	Saturated gas temperature	OFF t6.En	Not selected Selected		0 - 1	t6.En
137	Plant room temperature	OFF t7.En	Not selected Selected		0 - 1	t7.En

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<b>MISCELLANEOUS SELECTIONS</b>							
138	Display configuration	v0.00.0 and v0.00.3 on					
		0	4 pressures displayed on LED display		0 - 3	v0.00.0	
		1	4 pressures, No of compressors running, No of condenser step systems on defrost shown on LED display			0	
		2	4 pressures & systems on defrost shown on LED display.			v0.00.3 on	
		3	Reserved			1	
139	Display type selection	v0.00.0 and v0.00.3 on					
		LEd.1 LEd.2	2 displays 4 displays		0 - 1	LEd.2	
145	Interstage interlock selection	OFF IL.En	Interlock disabled Interlock enabled		0 - 1	OFF	
<b>AVERAGE PRESSURES v0.00.4 on</b>							
Pressures are averaged over last hour (the average is updated every 4 minutes)							
146	Average LT suction pressure						
147	Average HT suction pressure						
148	Average discharge pressure						
149	Average satellite suction pressure						
<b>SUCTION PRESSURE OPTIMISATION v0.00.2 on</b>							
If suction pressure optimisation is selected then the suction pressure setpoints as set in item 40, 50 and 70 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	
151	Optimised LT suction setpoint						
152	Optimised LT suction setpoint upper limit				5 - 20	10	
153	Optimised HT suction setpoint						
154	Optimised HT suction setpoint upper limit				15 - 60	40	
155	Optimised Satellite suction setpoint						
156	Optimised Satellite suction setpoint upper limit				5 - 50	10	

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<b>OUTPUT STATES (Selectable from v0.00.2 on)</b>						
160	Watchdog status (LN/LD-2) (Item 169=CPnH)	OFF On	Watchdog fail Watchdog healthy			
161	Gas dump valve (LN/LD-1) (Item 169=CPnC)	OFF v.on	Off Dump valve on			
162	Gas regulator valve (LN/LD-2) (Item 169=CPnC or CPnA)	OFF Gr.on	Off Gas regulator on			
163	Differential pressure relief valve control (LN/LD-1) (Item 169=CPnH or CPnL)(up to v0.00.5) (item 169=CPnH)(v0.00.6 on)	Gd no.Gd	Gas defrost (Diff. pressure) No gas defrost (Diff. pressure relief)			
164	Cool gas valve (LN/LD-2) (item 169=CPnL)					
165	Interstage valve (LN/LD-2) (Item 169=CPnA)	OFF IS.on	Off Interstage valve on			
166	Liquid valve (see item 168) LN/LD-1 (item 169=CPnL) (v0.00.6 on)	OFF Li.on	Off Liquid valve energised			
168	Liquid line valve type (v0.00.6 on)	n.c n.o	Normally closed Normally open		0 - 1	n.c
169	Output function selection	0 or nonE CPnH	Disabled Differential valve & watchdog Dump valve & Gas regulator Interstage valve & Gas regulator Differential valve & Cool Gas valve		v0.00.2- v0.00.3	CPnH
		CPnC			0 - 3	
		CPnA			v0.00.4 on	
		CPnL			0 - 4	
<b>INPUT STATES</b>						
171	Auto/manual (IP-1)	OFF Auto	Manual (pack controller dormant) Auto mode			
172	Liquid level (IP-2)	CLr Lo.Li	Liquid o.k. Low liquid level			
175	Low level liquid alarm delay (minutes) (v0.00.6 on)				15 - 240	30
176	Defrost scheduling operation in manual (v0.00.5 on)	Auto MAN	Enabled in auto only Enabled always		0 - 1	Auto
177	JTL numbering on systems on defrost display (v0.00.5 on) Note: Depends on unit no setting on item 1.	oFF J.no	System no. range 1- 28 System no. range x01 - x28		0 - 1	oFF
178	Temperature display unit choice (v0.00.5 on)	CELS FAhr	Celsius Fahrenheit		0 - 1	CELS
179	Pressure display unit choice (v0.00.4 on)	PSI bAr PASC	p.s.i. bar kPa		1 - 3	PSI

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ITEM	DESCRIPTION	CODE	CODE MEANING	BIT	RANGE	ITEM 9 VALUE	
				4321			
<b>CAPACITIES OF THE NEXT AVAILABLE STEPS IN KW</b>							
181	LT suction increase						
182	LT suction decrease						
183	HT suction increase						
184	HT suction decrease						
187	Satellite suction increase						
188	Satellite suction decrease						
<b>INTEGRATED PRESSURE ERRORS V0.00.2 ON</b>							
191	LT suction						
192	HT suction						
193	Discharge						
194	Satellite suction						
<b>COMMON COMPRESSOR DATA</b>							
Forced functions remain forced if the Maintenance Unit remains plugged in. They are automatically cancelled 30 minutes after the Maintenance Unit is unplugged.							
200	Number of compressors				0 - 10	10	
201	Number of steps on load						
203	Total capacity loaded (in kW)						
204	Forced number of LT suction stages				0 - 40		
205	Forced number of HT suction stages				0 - 40		
206	Compressor fault alarm delay (mins)	v0.00.2 on					
						0 - 10	0
207	Forced number of satellite suction stages				0 - 40		
208	Minimum compressor stop time (seconds)				0 - 240	30	
209	Bias loading towards base machine selection	v0.00.2 on					
		OFF bASE	Disable Enable bias			0 - 1	OFF



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				4321		
<b>COMPRESSOR DATA</b> 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 210-299 for compressors 1 - 9 and 300 - 309 for compressor 10. Forced functions remain forced if the Maintenance Unit remains plugged in. They are automatically cancelled 30 minutes after the Maintenance Unit is unplugged.						
2x0	Number of steps				0 - 4	4
2x1	Number of steps on load					
2x2	Running hours (in 10s of hours)				0 - 9999	
2x3	Compressor status  <u>Note:-</u>  If more than one input is present, the numbers shown in brackets are added together and displayed instead.	run (128) rdy (64) O.L (32) Lo.Pr (16) Hi.Pr (8) Oil.F (4) th.Ft (2) 0	Running  Ready to run (no faults) Motor overload  Low pressure fault  High pressure fault  Oil pressure failure  Motor thermistor fault Off or compressor interface fault			
2x4	Compressor restart inhibit timer (Seconds)					
2x5	Compressor function	0 Lt.C Ht.C SAT.C	Not in use LT HT Satellite		0 - 3	Lt.C
2x6	Compressor capacity in <u>effective</u> kW				1 - 100	10
2x7	Forced number of compressor steps				0 - 4	
2x8	Force compressor off	CP.En  C.OFF	Compressor enabled to run Compressor forced off		0 - 1	
2x9	Compressor number of starts per hour				4 - 20	8
<b>ADDITIONAL COMPRESSOR DATA (v0.00.6 on)</b> 351, 371 for compressor 1. 352, 372 for compressor 2 etc						
351-360	Average number of starts per hour last 24 hours					
371-380	Compressor run time last 24 hours					

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ITEM	DESCRIPTION	CODE	CODE MEANING	BIT	RANGE	ITEM 9 VALUE
				4321		
<b>CONDENSER CONTROL</b>						
Forced functions remain forced if the Maintenance Unit remains plugged in. They are automatically cancelled 30 minutes after the Maintenance Unit is unplugged.						
390	Number of condenser steps (step control)				0 - 13	7
391	Number of condenser steps running					
392	Forced number of condenser steps		Step Analogue		0 -no. of steps (item 390) 0 - 99	
<b>MISCELLANEOUS DATA</b>						
393	Heat reclaim input	OFF Hr.On	Heat reclaim off Heat reclaim on			
394	Analogue/stepped condenser control selection	StEP A.LOG	Step control Analogue control		0 - 1	StEP
395	Analogue fan speed gain				1 - 125	10
396	<u>Note</u> :- If more than one input is present, the numbers shown in brackets are added together and displayed instead.	1 2 4 8 16 32 64 128	Condenser input 1 Condenser input 2 Condenser input 3 Condenser input 4 Condenser input 5 Condenser input 6 Condenser input 7 Heat reclaim input			

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ITEM	DESCRIPTION	CODE	CODE MEANING	BIT	RANGE	ITEM 9 VALUE
				4321		
<b>COMMON DEFROST CONTROL DATA</b>						
400	Number of defrost systems				0 - 28	28
401	Maximum gas defrost duration Note: Off cycle defrosts as assumed to be longer than this setting				15 - 40	25
402	Time before end of gas defrosts				0 - 5	0
403	Time before end of gas defrosts				0 - 5	0
404	Maximum number of gas/electric defrosts allowed at any time				1 - 28	3
405	Evaporator inhibit defrost function selection	v0.00.2 on				
		OFF En.El	Disable Inhibit enabled		0 - 1	OFF
406	Select defrost relay termination at beginning or end of drain down period	OFF  t.End.	Relay terminates at beginning of drain down Relay terminates at end of drain down		0 - 1	OFF
407	Group interface selection	OFF  CG.On	Group interface not used. Group interface used for differential pressure control.		0 - 1	OFF
408	Drain (bleed) down interface selection	OFF  dd.On	Drain down interfaces not used. Drain down interfaces used for drain down control.		0 - 1	OFF
409	Stub defrost interfaces selection	OFF  Sb.On	Stub interfaces not used. Stub interfaces used for defrost control.		0 - 1	On

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ITEM	DESCRIPTION	CODE	CODE MEANING	BIT	RANGE	ITEM 9 VALUE
				4321		
<b>DEFROST DATA</b>						
Daylight saving operation added from v0.00.4. Time and defrost schedule can be automatically displayed as standard time or daylight saving (summer) time if desired. When daylight saving is operational the displayed schedule is automatically adjusted so that defrost still occur at the same "standard time".						
410	Start time for first daily defrost	SYSTEM			00:00 - 23:59	TIME
420		1				08:00
430		2				08:30
440		3				09:00
450		4				09:30
460		5				10:00
470		6				10:30
480		7				11:00
490		8				11:30
500		9				12:00
510		10				12:30
520		11				13:00
530		12				13:30
540		13				08:15
550		14				08:45
560		15				09:15
570		16				09:45
580		17				10:15
590		18				10:45
600		19				11:15
610		20				11:45
620		21				12:15
630		22				12:45
640		23				13:15
650		24				13:45
660		25				08:00
670		26				09:00
680		27				10:00
	28			11:00		

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## CP5H

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				4321		
<p>A general form of item numbers for defrost systems is shown below.                      The "x" shown in each item number should be replaced by the system number up to system 9.                      Systems 10-19 use items 500-599 and systems 20-28 use items 600-689.                      Forced functions remain forced if the Maintenance Unit remains plugged in. They are automatically cancelled 30 minutes after the Maintenance Unit is unplugged.</p>						
4x1	Duration of defrost (mins)				5 - 60	20
4x2	Defrost pattern	0 1 - 6 7 8	No defrosts. Number of equally spaced daily defrosts. 3 defrosts per day, but the 3rd is missing. 4 defrosts per day, but the 4th is missing.		0 - 8	4
4x3	Forced defrost	OFF Fd.on	No forced defrost Forced defrost on		0 - 1	
4x4	Forced refrigeration	OFF Fr.on	No forced refrig. Forced refrig. on		0 - 1	
4x5	Defrost mode	0 deF dr.dn F.dEF F.rEF d.inH FAIL	Refrig. Defrost Drain down Forced defrost Forced refrig. Defrost inhibited Defrost interface fail			
4x6	Drain down time				0 - 15	5
4x7	Compressor group associated with this defrost system	0 Lt.C Ht.C Sat.C	No association Lt compressor group Ht compressor group Satellite compressor group		0 - 3	0
4x8	No of evaporators on this defrost system	0 1 - 10	Defrost terminated on time only. JTL units terminate defrost on temp. and inform pack.		0 - 10	0
4x9	No of JTL-controlled evaporators terminated					

## BITSWITCH SETTINGS

Bitswitches not used

Note: Use **ITEM 9** to set the default values.

<b>DISPLAY DATA</b>		<b>CP5H</b>
<b>NORMAL DISPLAY</b>		
999.9	Pressure in psi	
--	Not selected	
<b>ALARM TEXT (in descending priority order)</b>		
P.Fld	Plant failed	
Hi.dP	High discharge pressure	
Stub	Defrost interface fault	
rEF.L	Refrigerant loss	
CPr	Compressor fault	
FAn	Condenser fan problem	
Hi.Lt	High LT suction pressure	
Hi.Ht	High HT suction pressure	
Hi.St	High satellite suction pressure	
Hi.dt	High discharge temperature	
<b>OTHER TEXT</b>		
JTL	Start-up text	
Lt	LT suction pressure follows this text	
Ht	HT suction pressure follows this text	
SAt	Satellite suction pressure follows this text	