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JTL HUMIDITY & HEATING CONTROLLER ITEM NUMBERS					LCCH	
ITEM	DESCRIPTION	CODE	CODE MEANING	BIT	RANGE	ITEM 9 VALUE
				4321		
1. Jnet NETWORK IDENTIFICATION						
0	Unit type	Lcch	Unit type			
19	Software Version number					
1	Unit number				0.1 - 899.8	
2. TEMPERATURES & HUMIDITY						
Note from v0.00.2 on: Temperatures can be displayed on the maintenance unit in degrees Celsius or Fahrenheit. The choice is made on item 122. All setpoint ranges in this document are shown in celsius.						
21	Air on temperature					
22	Air off temperature					
23	Evaporator temperature					
24	Suction line temperature					
25	Superheat (Evaporator temp - suction line temp)					
36	Air on sensor selection	OFF AO.En	Disabled Enabled		0 - 1	AO.En
37	Air off sensor selection	OFF AF.En	Disabled Enabled		0 - 1	AF.En
38	Evaporator sensor selection	OFF EP.En	Disabled Enabled		0 - 1	EP.En
39	Suction line sensor selection	OFF SP.En	Disabled Enabled		0 - 1	SP.En
122	Temperature display unit choice (v0.00.2 on)	CELS FAhr	Celsius Fahrenheit		0 - 1	CELS
247	Site temperature (from broadcast) (v0.00.2 on)					
124	Relative humidity					
123	Relative humidity sensor selection	Off rh.En			0 - 1	Off
248	Site humidity (from broadcast) (v0.00.2 on)					
3. TEMPERATURE & HUMIDITY ALARMS						
26	Average cabinet temperature error					
32	Overtemperature alarm tolerance	0.0	Disable Ht alarm		0 - 20	5
47	Period over which averages are taken				00:30 - 03:00	02:00
127	High temperature alarm inhibited selection	OFF A.inh	Alarms enabled always Alarms inhibited during defrost		0 - 1	OFF

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4. TEMPERATURE CONTROL						
67	Isolate coldroom	run ISOL	Normal operation Coldroom isolated		0 - 1	run
65	Temperature control strategy	0 0 1 Cool 2 hEAt 3 both 4 rh	Off Cooling only Heating only Cooling & Heating Humidity control		0 - 4	both
4.1 COOLING						
30	Cooling air on temperature setpoint (target for item 21)				-5 to +25	0
31	Air off setpoint (starting point and lower limit for item 28) (v0.00.2 on)				-10 to +20	-5
48	Max starts/hour (Anti-shortcycling timer when using liquid valve relay to control a condensing unit)	0 unLm 1 10.PH 2 15.PH 3 20.PH	Unlimited 10 starts per hour 15 starts per hour 20 starts per hour		0 - 3	unLm
28	Current Air off temperature setpoint (calculated by controller)					
29	Current Evaporator temperature setpoint (calculated by controller)					
240	Liquid line valve open percentage for last sample period (v0.00.2 on)					
241	Average liquid line valve open percentage over data logging interval period (v0.00.2 on)					
4.2 HEATING						
100	Heating air on temperature setpoint				10.0 - 25.0	10.0
101	Heating air on temperature deadband				0.5 - 5.0	2.0
Heating Forcing Functions: Forced functions remain forced if the Maintenance Unit remains plugged in. They are automatically cancelled 30 minutes after the Maintenance Unit is unplugged.						
102	Forced heating	Off Fh.on	Off Forced heating		0 - 1	
103	Inhibit heating	Off In.ht	Off No heating		0 - 1	
4.3 HUMIDITY						
125	Relative humidity setpoint				20% - 80%	50%

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5. INPUTS AND OUTPUTS						
70	Operating mode	Cool hEAt rh	Cooling Heating Humidity control			
105	Defrost mode	cntl dEFr dF.rc dr.dn Li.Ho Pu.dn Sh.dn	Controlling Defrost Defrost recovery Drain down Start refrigerating Pump down Shutdown			
71	Inputs	IP-1 IP-2 Both	Door closed input on Defrost or alarm input on Both inputs on			
72	Defrost relay (RL4) (function depends on item 75)	0 dt.on dc.on	Relay deenergised Defrost termination on Defrost control on			
73	Liquid solenoid relay (RL3)	OFF LS.on	Off Demanding refrig.			
74	Auxiliary heater and fan relays (RL1 & RL2)	0 Fn.on Hr.on Both	Off Fans on Heater on Both on			
75	Defrost relay mode selection	d.tEr d.Con	Defrost termination Defrost control		0 - 1	d.tEr
76	Auxiliary heater OR Suction valve selection (RL1)	0 Off or Au.Ht 1 Su.En or Su.no 2 Su.nc 3 nonE	Auxillary heater Suction valve (n/o) Suction valve (n/c)		up to v0.00.1	
					0 - 1	Off
					from v0.00.2	
					0 - 3	Au.Ht

JTL HUMIDITY & HEATING CONTROLLER ITEM NUMBERS					LCCH	
ITEM	DESCRIPTION	CODE	CODE MEANING	BIT	RANGE	ITEM 9 VALUE
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6. DEFROST CONTROL						
6.1 DATA & STRATEGIES						
40	Duration of last defrost					
41	Time since end of last defrost					
42	Duration of current defrost					
107	Defrost strategy	0 1 2 3 4 5 6 7	nonE SL.in n.i.L.b rt.in iP.in n.i.F.b	None Suction initiated Network initiated (learned backup) Internal clock initiated External clock initiated Not used Not used Network initiated (fixed schedule backup)	up to v0.00.1 0 - 4 from v0.00.2 0 - 7	0
69	No of defrosts required per day	0 1 - 6	Function disabled No of defrosts		0 - 6	3
61	Pump down time				00:00 - 00:10	00:00
6.2 REAL TIME INITIATED DEFROST						
<p>When a 12 hour schedule is selected (item 60) the defrosts repeat on a 12 hour cycle ie., if 08:00 is selected then a 2nd defrost occurs at 20:00 (and vice versa)</p> <p>Daylight saving operation. 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".</p>						
51	Defrost time 1	00:00 00:01 - 23:59	Defrost disabled Defrost enabled		00:00 - 23:59	03:00
52	Defrost time 2	00:00 00:01 - 23:59	Defrost disabled Defrost enabled		00:00 - 23:59	09:00
53	Defrost time 3	00:00 00:01 - 23:59	Defrost disabled Defrost enabled		00:00 - 23:59	15:00
54	Defrost time 4	00:00 00:01 - 23:59	Defrost disabled Defrost enabled		00:00 - 23:59	21:00
55	Defrost time 5	00:00 00:01 - 23:59	Defrost disabled Defrost enabled		00:00 - 23:59	00:00
56	Defrost time 6	00:00 00:01 - 23:59	Defrost disabled Defrost enabled		00:00 - 23:59	00:00
60	Defrost schedule selection	24 hr 12 hr	24 hour schedule 12 hour schedule		0 - 1	24 hr
43	Time next defrost is due					
6.3 SUCTION INITIATED DEFROST						
58	Defrost initiation temperature (suction line sensor)				+5 to +30	+15

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6.4 Jnet NETWORK INITIATED DEFROST						
46	Jnet Network initiated defrost command status	P.dEF F.dEF nonE	Defrost Forced defrost No command			
261 to 272	Defrost schedule (12 times starting at item 261 through to 272) (v0.00.2 on)					
6.5 PLANT INFORMATION (V0.00.2 on)						
211	Evaporator suction group	0 nonE 1 Lt 2 Ht 3 SAT	Not selected Low temperature High temperature Satellite		0 - 3	nonE
213	Electric circuit choice (depends on item 214)	0 nonE 1 cct1 2 cct2 3 cct3 4 cct4 5 cct5 6 cct6 7 cct7	None Circuit 1 Circuit 2 Circuit 3 Circuit 4 Circuit 5 Circuit 6 Circuit 7		0 - 7	None
214	Defrost heater choice	0 rEd 1 YELL 2 bLuE 3 3 - Ph 4 GAS.2 5 GAS.3 6 OFF.C	Electric red phase Electric yellow phase Electric blue phase Electric 3 phase 2 pipe gas 3 pipe gas Off cycle		0 - 6	rEd
215 (46)	Jnet network initiated defrost command status	P.dEF F.dEF nonE	Defrost Forced defrost No command			
217	Evaporator data to plant					
219	Jnet network defrost arrangement	nonE cord dEF.S PrEd	None Defrost co-ordinator present on network Timed defrost scheduler present on network Predict co-ordinator present on network			

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6.6 DEFROST TERMINATION						
144	Termination method Selection	1 2 3 4	EuAP A.OFF tEr tot	Evaporator sensor Air off sensor Termination sensor Time only		1 - 4 EuAP
141	Termination sensor temperature					
147	Termination sensor selection	OFF tS.En				0 - 1 OFF
50	Defrost termination temperature (the sensor used is item 144)					0 - 30 15
145	Minimum defrost time (Defrost heater cycles on termination temperature (item 50) as required during this time)					00:00 - 00:30 00:10
57	Defrost termination time limit					00:05 - 00:59 00:20
59	Drain down time					00:00 - 00:20 00:05
49	Start refrigeration time (starts when drain down completed)					00:00 - 00:10 00:00
6.7 DEFROST FORCING FUNCTIONS						
Forced functions remain forced if the Maintenance Unit remains plugged in. They are automatically cancelled 30 minutes after the Maintenance Unit is unplugged.						
77	Forced defrost (When item 107 is set to Jnet network initiated defrost then forced defrost sends the command to the plant for action. It is NOT actioned locally)	OFF Fd.on		Off Forced defrost on		0 - 1
78	Inhibit defrost	OFF no.dF		Off No defrosts		0 - 1
79	Forced refrigeration	OFF Fr.on		Off Forced refrigeration		0 - 1

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7. FAN CONTROL						
108	Fan control	1 2	F.on F.oFF	Fan runs always Fan off during defrost		1 - 2 F.on
8. SUCTION PRESSURE OPTIMISATION (v0.00.2 on)						
200	Disable suction optimisation for this unit	En.SO di.SO	Enable Disable		0 - 1	En.SO
201	Jnet network data - evaporator excluded from suction optimisation	OFF in.SO	Off Inhibit from suction optimisation			
202	Jnet network data for optimiser from plant					
203	Jnet network data - evaporator suction group from plant	nonE Lt Ht SA	Not selected Low temperature High temperature Satellite			
211	Evaporator suction group - Plant data to network	0 1 2 3	nonE Lt Ht SA	Not selected Low temperature High temperature Satellite	0 - 3	nonE
213	Electric circuit choice - Plant data to Jnet network	0 1 - 7	Not electric Circuit choice		0 - 7	0
214	Electric defrost heater phase choice - Plant data to network	0 1 2 3	rEd YELL bLuE 3 - Ph	Red phase Yellow phase Blue phase 3 phase	0 - 3	rEd
217	Plant data to Jnet network (binary value)					
9. COLDROOM DOOR MONITORING						
128	Select door functions	OFF d.IP.E	Disabled Enabled		0 - 1	d.IPE
64	Door open refrigeration delay time				00:00 - 00:30	00:05
33	Time door presently open					
34	Door open alarm delay time				00:00 - 00:30	00:15
35	Total time door has been open in last 24 hours					
126	Coldstore door critical alarm selection	non.C Crit	Alarm non critical Alarm critical		0 - 1	non.C

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10. Jnet COMMAND FUNCTIONS						
62	Jnet network controlled Shutdown selection	oFF Sh.dn	Disabled Enabled		0 - 1	oFF
63	Jnet network command for shutdown	nonE Sh.dn FAn.S	No command Shutdown Fans only shutdown			
133	Enable plant to override temperature control and run refrigeration regardless of the temperature setpoint	Off nrc.E	Disabled Enabled		0 - 1	Off
134	Enable Jnet network command to cut off refrigeration in event of plant fault	Off	Disabled		0 - 1	Off
135	Display Jnet network commands	nonE O.S.df PL.Ft P.C.Ft	No command Other associated systems on defrost Plant fault Plant comms fault			
11. DISPLAY FUNCTIONS						
138	Enable shutdown from keyswitch (v0.00.2 on)	OFF E.d.Sd	disable Enable		0 - 1	Off
121	Display pushbutton 1 status (up to v0.00.1)	OFF P1.iP	Off Button pressed			
121	Display pushbutton status (v0.00.2 on)	Pb - - Pb1 - Pb- 2 Pb12	Off Pushbutton 1 Pushbutton 2 Both			
122	Display pushbutton 2 status (up to v0.00.1)	OFF P2.iP	Off Button pressed			
129	Display type selection	LEd5 LEd1			0 - 1	LEd5
12. CLOCK CALENDAR						
Note from v0.00.2: 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 (v0.00.2 on)	Sun - Sat	0 = Sunday 1 = Monday etc			
4	Date (v0.00.2 on)				01:01 - 31:12	
5	Year (v0.00.2 on)				1992 - 2022	
18	Daylight saving enable (v0.00.2 on)	Stnd dAY.S	Standard time Daylight saving time		0 - 1	Stnd
13. RESTORE FACTORY DEFAULTS						
9	Set default values selected by Bitswitch	1234	Set default values			
		1066	Write to NVRAM without delay (v0.00.2 on)			

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14. SYSTEM ALARMS						
80	Group alarm 81 - 88	0 1 - 255	No alarms Check 81 - 88			
81	Air on overtemperature	CLr C.Ht	No fault Fault			
83	Air on probe fault	CLr AO.Pr	No fault Fault			
84	Air off probe fault	CLr AF.Pr	No fault Fault			
85	Thermistor power supply fault	CLr PS.Ft	No fault Fault			
86	Non critical door open alarm	CLr dO.Ft	No fault Fault			
87	Shutdown alarm	CLr Sh.dn	No fault Fault			
88	External alarm	CLr AL.IP	No fault Fault			
90	Group alarm 91 - 98	0 1 - 255	No alarms Check 91 - 98			
91	Termination sensor fault	CLr dt.Pr	No fault Fault			
92	Evaporator sensor fault	CLr EP.Pr	No fault Fault			
93	Suction line sensor fault	CLr SL.Pr	No fault Fault			
94	Expected defrosts have not been detected	CLr dEF.F	No fault Fault			
96	Critical door open alarm	CLr dO.Ft	No fault Fault			
97	Relative humidity sensor fault	CLr H.Pr	No fault Fault			
98	All sensors faulty, deselected or disconnected	CLr t.SEn	No fault Fault			
250	Group alarms 251 - 258 (v0.00.2 on)	0 1 - 255	No alarms Check 251 - 258			
251	Forced defrost activated (v0.00.2 on)	CLr F.dEF	No fault Forced defrost			
252	Network communications failure (v0.00.2 on)	CLr FAIL	No fault Comms failure			
258	Backup defrost strategy in operation (v0.00.2 on)	CLr d.bAc	No fault Backup defrost			

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15. DIAGNOSTIC & TEST FUNCTIONS						
44	Power off duration					
6	Communications speed (in kilo baud)	4.8 38.4	Baud rate Baud rate			
7	Communications (Half duplex)	HALF	2 wire			
8	Bitswitch setting					
89	Sensor excitation value (Factory test)		Not used			
99	Test digital display	CLr SEt	Not active Test active		0 - 1	
421	Temperature sensor 1 reading (v0.00.2 on)					
422	Temperature sensor 2 reading (v0.00.2 on)					
423	Temperature sensor 3 reading (v0.00.2 on)					
424	Temperature sensor 4 reading (v0.00.2 on)					
425	Temperature sensor 5 reading (v0.00.2 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			

BITSWITCH SETTINGS

Setting the bitswitches has no effect.
Use **ITEM 9** to set the default values.

DISPLAY DATA	LCCH
NORMAL DISPLAY	
- 99 ^c	Cabinet temperature (item 20 rounded)
dEF	Defrost
dEFr	Defrost recovery
--	Display data error
ALARM TEXT (in descending priority order)	
t.SEn	All probes faulty, deselected or disconnected
Ht	High cabinet or air off temperature
AL.IP	External alarm input
door	Door open alarm
Off	Unit shutdown
OTHER TEXT	
JTL	Start-up text
A.on	Air on temperature follows this text
A.oFF	Air off temperature follows this text
EVAP	Evaporator temperature follows this text
Suct	Suction line temperature follows this text
T.diF	Superheat temperature follows this text
L.dEF	Time since last defrost follows this text
n.dEF	Time of next defrost follows this text
SEt.P	Coldstore temperature setpoint follows this text