CONTENTS

JTL CABINET CONTROLLER ITEM NUMBERS						LCNS
ITEM	**DESCRIPTION**	**CODE**	**CODE MEANING**	**BIT** **4321**	**RANGE**	**ITEM 9 VALUE**
1. Jnet NETWORK IDENTIFICATION						
0	Unit type	LcnS	Unit type			
19	Software Version number					
1	Unit number				0.1 - 899.8	
2. TEMPERATURES Note: From v0.00.3 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.						
20	Estimated cabinet temperature (calculated from Air on and Air off temperatures)					
33	Cabinet temperature ratio (Item 20 calculated as value between Air off and Air on using this ratio)			xxCC xxCO xxOC xxOO	20 - 80 20 - 80 20 - 80 20 - 80	50 50 40 60
21	Air on temperature					
36	Air on sensor selection	OFF AO.En	Disabled Enabled		0 - 1	AO.En
22	Air off temperature					
37	Air off sensor selection	OFF or nonE AF.En	Disabled Enabled		0 - 1	AF.En
23	Evaporator temperature					
38	Evaporator sensor selection	OFF EP.En	Disabled Enabled		0 - 1	EP.En
24	Suction line temperature					
39	Suction line sensor selection	OFF SP.En	Disabled Enabled		0 - 1	SP.En
141	Termination sensor temperature (v0.00.3 on)					
147	Termination sensor selection (v0.00.3 on)	OFF tS.En			0 - 1	OFF
131	Energy saving sensor temperature					
130	Energy saving sensor enabled	OFF E.S.En	OFF Enabled		0 - 1	OFF
25	Superheat (Evaporator temp - suction line temp)					
102	Temperature sensor type selection	5000 2000	JTL sensor (5K) Honeywell sensor (2K)		0 - 1	5000
247	Site temperature (from broadcast) (v0.00.3 on)					
248	Site humidity (from broadcast) (v0.00.3 on)					
122	Temperature display unit choice (v0.00.3 on)	CELS FAhr	Celsius Fahrenheit		0 - 1	CELS

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3. TEMPERATURE ALARMS						
26	Average cabinet temperature error					
27	Average Air off temperature error					
32	Cabinet overtemperature alarm tolerance	0.0	Disable Ht alarm	xxCC xxCO xxOC xxOO	0 - 20 0 - 20 0 - 20 0 - 20	10 10 5 10
34	Air off over temperature tolerance (v0.00.3 on)	0.0	Disable Ht alarm	xxCX xxOX	0 - 30 0 - 30	15 10
47	Period over which averages are taken			xxCx xxOx	00:30 - 03:00	01:30 01:00
4. TEMPERATURE CONTROL						
30	Current cabinet temperature setpoint (target for item 20)			xxCC xxCO xxOC xxOO	-30 to -15 -30 to -15 -5 to +10 -5 to +10	-20 -26 +1 +4
31	Air off setpoint (starting point and lower limit for item 28)			xxCC xxCO xxOC xxOO	- 39 to -20 - 39 to -20 - 10 to +5 - 10 to +5	- 27 - 33 - 6 - 4
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 (v0.00.3 on)					
241	Average liquid line valve open percentage over data logging interval period (v0.00.3 on)					

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		5. INPUTS & OUTPUTS				
70	Operating mode	rEFr dEFr dF.rc dr.dn Li.Ho Pu.dn Sh.dn	Refrigeration Defrost Defrost recovery Drain down Liquid hold off Pump down Shutdown			
71	Inputs	dF.IP or IP1 - IP - 2 IP1 2	Defrost input on Lighting override input on Both inputs on			
72	Defrost relay (function depends on item 75)	0 or oFF dt.on dc.on	Relay deenergised Defrost termination on Defrost control on			
73	Liquid solenoid relay	OFF LS.on	Off Demanding refrig.			
74	FANS/Heater relays	oFF Fn.on Hr.on both	Off Fans on Heater on Fans & heater on			
75	Defrost relay mode selection	d.tEr d.Con	Defrost termination Defrost control		up to v0.00.2 0 - 1 v0.00.3 on 0 - 1	 d.tEr d.Con
104	Auxiliary output selection (up to v0.00.2)	0 nonE 1 FAn.S 2 Htr.S 3 both	Not used Fan control Heater Fan & heater control		0 - 3	Not used

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6. SUCTION PRESSURE OPTIMISATION (v0.00.3 on)						
200	Disable suction pressure optimisation for this unit when both air sensors are faulty	En.SO di.SO	Enable Disable		0 - 1	En.SO
201	Exclude evaporator from suction pressure optimisation (Data to network)	OFF in.SO	Off Inhibit from suction optimisation			
203	Related suction line from plant controls (Data from network)	nonE Lt Ht SAt	Not selected Low temperature High temperature Satellite			
202	Raw network data for optimiser from plant (Binary data interpreted on item 203)					
211	Evaporator suction group - Required by Mark 2 optimisers (Data to network)	0 nonE 1 Lt 2 Ht 3 SAt	Not selected Low temperature High temperature Satellite		0 - 3	nonE
212 (70)	Operating mode	rEFr dEFr dF.rc dr.dn Li.Ho Pu.dn Sh.dn	Refrigeration Defrost Defrost recovery Drain down Liquid hold off Pump down Shutdown			
217	Plant data to network (binary value interpreted on item 211)					

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ITEM	DESCRIPTION	CODE	CODE MEANING	BIT 4321	RANGE	ITEM 9 VALUE
7. DEFROST CONTROL						
7.1 DATA & STRATEGIES						
40	Duration of last defrost					
41	Time since end of last defrost					
42	Duration of current defrost					
107 (411)	Defrost strategy (v0.00.3 on)	0 nonE 1 SL.in 2 n.i.L.b 3 rt.in 4 iP.in 5 6 7 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)		0 - 7	0
412	Current defrost initiation strategy in operation (v0.00.4 on)	nonE SL.in JnEt rt.in iP.in	None Suction initiated Jnet network initiated Internal clock initiated External clock initiated			
69	No of defrosts expected per day	0 1 - 6 (up to v0.00.2) 1 - 12 (from v0.00.3)	Function disabled No of defrosts No of defrosts		0 - 6 0 - 12	3 3
61	Pump down time (v0.00.3 on)				00:00 - 00:10	00:00

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7.2 REAL TIME INITIATED DEFROST TIMES (v0.00.3 on) 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) 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".						
51	Defrost time 1	00:00 00:01 - 23:59	Defrost disabled Defrost enabled	xxCC xxCO xxOC xxOO	00:00 - 23:59 00:00 - 23:59 00:00 - 23:59 00:00 - 23:59	01:00 02:00 03:00 04:00
52	Defrost time 2	00:00 00:01 - 23:59	Defrost disabled Defrost enabled	xxCC xxCO xxOC xxOO	00:00 - 23:59 00:00 - 23:59 00:00 - 23:59 00:00 - 23:59	07:00 08:00 09:00 10:00
53	Defrost time 3	00:00 00:01 - 23:59	Defrost disabled Defrost enabled	xxCC xxCO xxOC xxOO	00:00 - 23:59 00:00 - 23:59 00:00 - 23:59 00:00 - 23:59	13:00 14:00 15:00 16:00
54	Defrost time 4	00:00 00:01 - 23:59	Defrost disabled Defrost enabled	xxCC xxCO xxOC xxOO	00:00 - 23:59 00:00 - 23:59 00:00 - 23:59 00:00 - 23:59	19:00 20:00 21:00 22:00
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					
7.3 SUCTION INITIATED DEFROST						
58	Defrost initiation temperature (suction line sensor)			xxCC xxCO xxOC xxOO	-5 - +20 -5 - +20 0 - 20 0 - 20	0 0 +15 +10
7.4 CONTACT INITIATED DEFROST (v0.00.3 on)						
65	Invert defrost input	no YES	Input=defrost No input=defrost		0 - 1	no

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7.5 Jnet NETWORK INITIATED DEFROST						
46 (215)	Jnet Network initiated defrost command status	P.dEF F.dEF 0 or nonE	Defrost Forced defrost No command			
261 to 272	Defrost schedule (12 times starting at item 261 through to 272) (v0.00.3 on)					
7.6 DEFROST METHOD DATA (v0.00.3 on) This information is for use by defrost schedulers						
211	Evaporator suction group	0 nonE 1 Lt 2 Ht 3 SAt	Not selected Low temperature High temperature Satellite		0 - 3	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		v0.00.3 0 - 3 v0.00.4 on 0 - 6	 rEd rEd
213	Electric circuit choice (depends on item 214)	1 cct1 2 cct2 3 cct3 4 cct4 5 cct5 6 cct6 7 cct7	Circuit 1 Circuit 2 Circuit 3 Circuit 4 Circuit 5 Circuit 6 Circuit 7		1 - 7	1
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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ITEM	**DESCRIPTION**	**CODE**	**CODE MEANING**	**BIT** **4321**	**RANGE**	**ITEM 9 VALUE**
7.7 DEFROST TERMINATION						
144	Termination method Selection (v0.00.3 on)	EuAP A.OFF tEr tot	Evaporator sensor Air off sensor Termination sensor Time only	xxCX xxOC xxOO	1 - 4 1 - 4	EuAP tot
141	Termination sensor temperature (v0.00.3 on)					
147	Termination sensor selection (v0.00.3 on)	OFF tS.En			0 - 1	OFF
50	Defrost termination temperature (the sensor used is item 144)			xxCC xxCO xxOC xxOO	0 - 20 0 - 20 0 - 20 0 - 20	15 15 12 20
145	Minimum defrost duration (Defrost heater cycles on termination temperature (item 50) as required during this time)				00:00 - 00:30	00:10
57	Maximum defrost duration			xxCC xxCO xxOC xxOO	00:05 - 00:40 00:05 - 00:40 00:05 - 00:59 00:05 - 00:59	00:20 00:20 00:20 00:40
59	Drain down duration (v0.00.3 on)				00:00 - 00:10	00:05
49	Liquid hold off duration (starts when drain down completed)				00:00 - 00:10	00:00
7.8 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 indicating 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	
8. FAN CONTROL						
108	Fan control (106 must be set to FAn.S) (v0.00.3 on)	1 F.on 2 F.oFF	Fan runs always Fan off during defrost		1 - 2	F.on
109	Fan delay after defrost (v0.00.3 on)	00:00	Fans cycle on evap temperature		00:00 - 00:10	00:00
130	Fan control sensor enabled	OFF E.S.En	OFF enabled		0 - 1	OFF
131	Fan control sensor temperature					
132	Fan control setpoint			xxCC xxCO xxOC xxOO	-30 to -15 -30 to -15 -5 to +8 -5 to +8	-25.0 -30.0 0.0 2.0

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ITEM	**DESCRIPTION**	**CODE**	**CODE MEANING**	**BIT** **4321**	**RANGE**	**ITEM 9 VALUE**
9. Jnet NETWORK LIGHTING CONTROL Forced functions remain forced if the Maintenance Unit remains plugged in. They are automatically cancelled 30 minutes after the Maintenance Unit is unplugged.						
110	Select Jnet network lighting control	OFF LC.on	off Lighting control function selected		0 - 1	LC.on
113	Lights and blinds	on L.OFF	Lights on and blinds up Lights off and blinds down			
111	Jnet network lighting unit network command	LU.Co nonE	Lighting off command No command			
112	Over ride input	OFF L.O.IP	No input Over ride input on			
118	Lighting contactor type selection (shown for lights-on state)	n.o n.c	normally open normally closed		0 - 1	n.c
119	Lights off during shutdown selection (v0.00.3 on)	OFF En.L.S	Off Lights off during shutdown		0 - 1	Off
120	Lighting override timer (time delay before lighting off/blinds close on network control)				00:30 - 02:00	02:00
116	Manual lights on	OFF P.on	OFF Lights on			
117	Manual lights off	OFF P.off	OFF Lights off			
114	Force lights on	OFF L.on	Off Lights on		0 - 1	
115	Force lights off	OFF L.OFF	Off Lights off		0 - 1	
10. Jnet COMMAND FUNCTIONS (v0.00.3 on)						
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			

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ITEM	**DESCRIPTION**	**CODE**	**CODE MEANING**	**BIT** **4321**	**RANGE**	**ITEM 9 VALUE**
11. DISPLAY FUNCTIONS						
122	Temperature display unit choice (v0.00.3 on)	CELS FAhr	Celsius Fahrenheit		0 - 1	CELS
136	Enable fans only operation from display switches	Off E.d.Fo	Disable Enable		0 - 1	Off
138	Enable Shutdown from display switches	OFF E.d.Sd	disable Enable		0 - 1	Off
121	Display switch status	up to v0.00.2				
		OFF P1.IP	OFF Position 1			
		v0.00.3 on				
		Pb - - Pb1 - Pb - 2 Pb1 2	Off Button 1 Button 2 Both			
122	Display pushbutton 2 status (up to v0.00.2)	OFF P2.IP	OFF Position 2			
12. CLOCK CALENDAR Note, from version 0.00.3 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 (v0.00.3 on)	Sun - Sat	0 = Sunday 1 = Monday etc			
4	Date (v0.00.3 on)				01:01 - 31:12	
5	Year (v0.00.3 on)				1992 - 2022	
18	Daylight saving enable (v0.00.3 on)	Stnd dAY.S	Standard time Daylight saving time		0 - 1	Stnd
13. RESTORE FACTORY DEFAULTS To set the factory defaults into the memory of the controller, first set the bitswitches 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.						
9	Set default values selected by Bitswitch Note: Setting the bitswitches alone has no effect.	1	Set default values (up to v0.00.2)	xxCC xxCO xxOC xxOO	Frozen food Ice cream Chiller Produce (off cycle) where C = CLOSED or ON O = OPEN or OFF x = Don't care For unmarked switches C = dot visible O = dot not visible	
		1234	Set default values (v0.00.3 on)			
		1066	Write to NVRAM without delay (v0.00.3 on)			

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14. SYSTEM ALARMS						
80	Group alarm 81 - 88	0 1 - 255	No alarms Check 81 - 88			
81	Cabinet overtemperature	CLr C.Ht	No fault Fault			
82	Air off overtemperature	CLr A.Ht	No fault Fault			
83	Air on sensor fault	CLr AO.Pr	No fault Fault			
84	Air off sensor fault	CLr AF.Pr	No fault Fault			
85	Sensor power supply fault	CLr PS.Ft	No fault Fault			
87	Unit number corrupted/not set (up to v0.00.2)	CLr Un.CF	No fault Fault			
	Shutdown alarm (v0.00.3 on)	CLr Sh.dn	No fault Fault			
88	All sensors faulty, deselected or disconnected	CLr t.SEn	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	Energy saving sensor fault	CLr E.S.Pr	No fault Fault			
250	Group alarms 251 - 258 (v0.00.3 on)	0 1 - 255	No alarms Check 251 - 258			
251	Forced defrost activated (v0.00.3 on)	CLr F.dEF	No fault Forced defrost			
252	Network communications failure (v0.00.3 on)	CLr FAIL	No fault Comms failure			
258	Backup defrost strategy in operation (v0.00.3 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)	600 4800	Baud rate Baud rate			
7	Communications (Half duplex)	HALF	2 wire			
8	Bitswitch setting	0 1 2 3	Frozen food Ice cream Chiller Produce (off cycle)	xxCC xxC0 xx0C xx00		
89	Sensor excitation value (Factory test)		Not used			
99	Test digital display	CLr SEt	Not active Test active		0 - 1	
100	Test inputs (v0.00.3 on)	iP - - iP1 - iP - 2 iP12	No inputs Input 1 on Input 2 on Both inputs on			
101	Test output relays (v0.00.3 on)	Clr SEt	Not active Test active		0 - 1	
121	Display switch status (v0.00.3 on)	Pb - - Pb1 - Pb - 2 Pb1 2	Off Button 1 Button 2 Both			
421	Temp. sensor 1 reading (v0.00.3 on)					
422	Temp. sensor 2 reading (v0.00.3 on)					
423	Temp. sensor 3 reading (v0.00.3 on)					
424	Temp. sensor 4 reading (v0.00.3 on)					
425	Temperature sensor 5 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	LCNS
NORMAL DISPLAY	
- 99^{c}	Cabinet temperature (item 20 rounded)
dEF	Defrost
dEFr	Defrost recovery
oFF	Unit shutdown or fans only mode
FAnS	Fans only mode
--	Display data error
ALARM TEXT (in descending priority order)	
t.SEn	All probes faulty, deselected or disconnected
Ht	High cabinet or air off temperature
OTHER TEXT	
JTL	Start-up text
LitE	Lighting status follows this 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.dit	Superheat temperature follows this text
L.dEF	Time since last defrost follows this text
FAn.C	Energy saving temperature follows this text