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JTL COLDSTORE CONTROLLER ITEM NUMBERS					LCCU	
ITEM	DESCRIPTION	CODE	CODE MEANING	BIT	RANGE	ITEM 9 VALUE
				4321		
1. Jnet NETWORK IDENTIFICATION						
0	Unit type	Lccu	Unit type			
19	Software Version number					
1	Unit number				0.1 - 899.8	
2. TEMPERATURES						
Note: 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	Coldroom temperature (v0.00.5 on)					
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 AO.En	Disabled Enabled		0 - 1	AO.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
25	Superheat (Evaporator temp - suction line temp)					
141	Termination sensor temperature					
147	Termination sensor selection	OFF tS.En			0 - 1	OFF
247	Site temperature (from broadcast)					
248	Site humidity (from broadcast)					
122	Temperature display unit choice	CELS FAhr	Celsius Fahrenheit		0 - 1	CELS
3. TEMPERATURE ALARMS						
127	High temperature alarm inhibited selection	OFF A.inh	Alarms enabled always Alarms inhibited during defrost		0 - 1	OFF
26	Average coldstore temperature error					
32	Overtemperature alarm tolerance	0.0	Disable Ht alarm	xxCC xxCO xxOC xxOO	0 - 20 0 - 20 0 - 20 0 - 20	10 10 5 10
47	Period over which averages are taken			xxCX xxOX	00:30 - 03:00	02:00

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					4321		
4. TEMPERATURE CONTROL							
67	Isolate coldroom	run ISOL		Normal operation Coldroom isolated		0 - 1	run
275	Control temperature (from v0.00.6 on) Note: up to v0.00.5 control is on air off	0 1	A.oFF Cr.t	Air off temperature Coldroom temperature		0 - 1	A.oFF
30	Current coldstore temperature setpoint (target for item 21)				xxCC xxCO xxOC xxOO	- 30 to -12 - 30 to -12 - 5 to +25 - 5 to +25	- 20 - 26 0 +4
140	Temperature deadband (v0.00.6 on)					0.4 - 3.0	0.4
48	Max starts/hour (Anti-shortcycling timer when using liquid valve relay to control a condensing unit)	0 1 2 3	unLm 10.PH 15.PH 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						
241	Average liquid line valve open percentage over data logging interval period						

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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 (up to v0.00.3)	IP - - IP1 - IP - 2 IP12	No inputs Door closed input on Defrost or alarm or shutdown input on Both inputs on			
71	Input 1 state (v0.00.4 on)	oFF door	Input off Door open			
139	Input 2 state (v0.00.4 on)	oFF dF.iP AL.iP Sh.iP	No input Defrost input on Alarm input on Shutdown input on			
66	Invert plant alarm input	no YES	Input=alarm No input=alarm		0 - 1	no
138	Input 2 function selection	0 1 2	OFF or nonE E.S.Sd P.A.iP	Nothing selected Shutdown Plant alarm	up to v0.00.3	
					0 - 1	oFF
					v0.00.4 on	
					0 - 2	nonE
72	Defrost relay (RL4) (function depends on item 75)	oFF dt.on dc.on	Relay deenergised Defrost termination on Defrost control on			
73	Liquid solenoid relay (RL3)	OFF LS.on	Off Demanding refig.			
74	Auxiliary heater and fan relays (RL1 & RL2)	oFF 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.Con
76	Auxiliary heater OR Suction valve selection (RL1) (Only affect data transmitted to Jnet network)	Off Su.En	Auxiliary heater Suction valve		0 - 1	Off

JTL COLDSTORE CONTROLLER ITEM NUMBERS					LCCU		
ITEM	DESCRIPTION	CODE		CODE MEANING	RANGE	ITEM 9 VALUE	
							BIT
6. SUCTION PRESSURE OPTIMISATION							
200	up to v0.00.5 Disable suction pressure optimisation for this unit when both air sensors are faulty	En.SO	di.SO	Enable Disable		0 - 1	En.SO
	from V0.00.6 Disable suction pressure optimisation for this unit . Note: Suction pressure optimisation is disabled when both air sensors are faulty regardless of this setting.						
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 1 2 3	nonE Lt Ht 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)						

JTL COLDSTORE CONTROLLER ITEM NUMBERS					LCCU			
ITEM	DESCRIPTION	CODE	CODE MEANING	BIT	RANGE	ITEM 9 VALUE		
				4321				
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	0	nonE	None		up to v0.00.2		
		1	SL.in	Suction initiated		0 - 7	nonE	
		2	n.i.L.b	Network initiated (learned backup)				
		3	rt.in	Internal clock initiated		v0.00.3 on		
		4	iP.in	External clock initiated		0 - 9	nonE	
		5		Not used				
		6		Not used				
		7	n.i.F.b	Network initiated (fixed schedule backup)				
		8	c.d.L.b	Coordinated defrost (learned backup)				
9	c.d.F.b	Coordinated defrost (fixed schedule backup)						
412	Current defrost initiation strategy in operation (v0.00.3 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 required per day (Note, When the defrost strategy is set to coordinated defrost this item sets the number of defrosts a day that are required.)	0 1 - 6	Function disabled No of defrosts		0 - 6	3		
61	Pump down time				00:00 - 00:10	00:00		

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7.2 REAL TIME INITIATED DEFROST TIMES							
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)							
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".							
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
351	Defrost method for defrost time 1 (from v0.00.6)	0 1	E.dEF oFF.C	Electric defrost Off cycle defrost		0 - 1	E.dEF
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
352	Defrost method for defrost time 2 (from v0.00.6)	0 1	E.dEF oFF.C	Electric defrost Off cycle defrost		0 - 1	E.dEF
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
353	Defrost method for defrost time 3 (from v0.00.6)	0 1	E.dEF oFF.C	Electric defrost Off cycle defrost		0 - 1	E.dEF
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
354	Defrost method for defrost time 4 (from v0.00.6)	0 1	E.dEF oFF.C	Electric defrost Off cycle defrost		0 - 1	E.dEF
55	Defrost time 5	00:00 00:01 - 23:59		Defrost disabled Defrost enabled		00:00 - 23:59	00:00
355	Defrost method for defrost time 5 (from v0.00.6)	0 1	E.dEF oFF.C	Electric defrost Off cycle defrost		0 - 1	E.dEF
56	Defrost time 6	00:00 00:01 - 23:59		Defrost disabled Defrost enabled		00:00 - 23:59	00:00
356	Defrost method for defrost time 6 (from v0.00.6)	0 1	E.dEF oFF.C	Electric defrost Off cycle defrost		0 - 1	E.dEF
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	-10 - +20 -10 - +20 +5 - +30 +5 - +30	10 10 15 15
7.4 CONTACT INITIATED DEFROST							
65	Invert defrost input	no YES		Input=defrost No input=defrost		0 - 1	no

JTL COLDSTORE CONTROLLER ITEM NUMBERS					LCCU		
ITEM	DESCRIPTION	CODE		CODE MEANING	BIT	RANGE	ITEM 9 VALUE
7.5 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)						
7.6 COORDINATED DEFROST INITIATION (v0.00.3 on)							
69	No of defrosts expected per day (Note, When the defrost strategy is set to coordinated defrost this item sets the number of defrosts a day that are required.)	0 1 - 6		Function disabled No of defrosts		0 - 6	3
224	Time since start of last defrost (v0.00.6 on)						
216	Defrost requirement to defrost coordinator (v0.00.3 on)						
223	Defrost requirement priority (v0.00.3 on)					1 - 8	1
211	Evaporator suction group	0 1 2 3	nonE Lt Ht SAT	Not selected Low temperature High temperature Satellite		0 - 3	nonE
214 (414)	Defrost heater choice	0	rEd	Electric red phase		up to v0.00.2	
		1	YELL	Electric yellow phase		0 - 3	rEd
		2	bLuE	Electric blue phase		v0.00.3 on	
		3 - Ph	3 - Ph	Electric 3 phase		0 - 6	rEd
4	GAS.2	2 pipe gas					
5	GAS.3	3 pipe gas					
6	OFF.C	Off cycle					
213	Electric circuit choice (depends on item 214)	1 2 3 4 5 6 7	cct1 cct2 cct3 cct4 cct5 cct6 cct7	Circuit 1 Circuit 2 Circuit 3 Circuit 4 Circuit 5 Circuit 6 Circuit 7		1 - 7	1
215 (46)	Jnet network initiated defrost command status (repeats item 46)	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			
220	Defrost coordinator status (v0.00.3 on)	oFF cord		No defrost coordinator Defrost coordinator present on network			

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7.7 DEFROST TERMINATION							
144 (413)	Termination method Selection	1	EuAP	Evaporator sensor	xxCX	1 - 4	EuAP
		2	A.OFF	Air off sensor	xxOC		
		3	tEr	Termination sensor			
		4	tot	Time only	xxOO	1 - 4	tot
141	Termination sensor temperature						
147	Termination sensor selection	OFF				0 - 1	OFF
		ts.En					
50	Defrost termination temperature (the sensor used is item 144)				xxCC	0 - 20	15
					xxCO	0 - 20	15
					xxOC	0 - 20	12
					xxOO	0 - 20	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	00:05 - 00:59	00:20
					xxCO	00:05 - 00:59	00:20
					xxOC	00:05 - 00:59	00:20
					xxOO	00:05 - 00:59	00:40
59	Drain down duration				xxCC	00:00 - 00:20	00:10
					xxCO	00:00 - 00:20	00:10
					xxOC	00:00 - 00:05	00:05
					xxOO	00:00 - 00:05	00:02
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	
222	Enable forced defrost requirement to defrost coordinator (v0.00.3 on)	oFF	F.r.En	Disabled Enabled		0 - 1	0
221	Forced defrost requirement to defrost coordinator (requires item 222 set to 1) (v0.00.3 on)	0 - 63		Forced value			

JTL COLDSTORE CONTROLLER ITEM NUMBERS					LCCU	
ITEM	DESCRIPTION	CODE	CODE MEANING	BIT	RANGE	ITEM 9 VALUE
				4321		
8. FAN CONTROL						
108	Fan control	1 2	F.on F.off	Fan runs always Fan off during defrost		1 - 2 F.on
109	Fan delay after defrost	00:00		Fans cycle on evap temperature		00:00 - 00:10 00:00
9. DOOR FUNCTIONS						
128	Select door functions	OFF d.iP.E	Disabled Enabled		0 - 1	d.iP.E
34	Time door presently open					
35	Total time door has been open in last 24 hours					
64	Door open refrigeration delay time			xxCC xxCO xxOC xxOO	00:00 - 00:15 00:00 - 00:15 00:00 - 00:30 00:00 - 00:30	00:05 00:05 00:00 00:00
33	Door open alarm delay time				00:00 - 00:30	00:15
126	Coldstore door open critical alarm selection	non.C Crit	Alarm non critical Alarm critical		0 - 1	non.C
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			

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11. DISPLAY FUNCTIONS							
129	Display type selection	LED5 LED1				0 - 1	LED5
121	Display pushbutton status	OFF P1.IP P2.IP both	Pb - - Pb1 - Pb - 2 Pb12	OFF Button 1 pressed Button 2 pressed Both buttons pressed			
12. 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					up to v0.00.5	
						1992 - 2022	
						v0.00.6 on	
						2004 - 2034	
18	Daylight saving enable	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.	1234		Set default values	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	
		1066		Write to NVRAM without delay			

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ITEM	DESCRIPTION	CODE	CODE MEANING	BIT	RANGE	ITEM 9 VALUE
				4321		
14. SYSTEM ALARMS						
80	Group alarm 81 - 88	0 1 - 255	No alarms Check 81 - 88			
81	Coldstore overtemperature	CLr C.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			
86	Non critical door open alarm	CLr dO.Ft	No fault Fault			
87	Shutdown alarm	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 (Note, This alarm normally depends on the setting in item 69.	CLr dEF.F	No fault Fault			
95	Plant alarm	CLr AL.IP	No fault Fault			
96	Critical door open alarm	CLr dO.Ft	No fault Fault			
250	Group alarms 251 - 258	0 1 - 255	No alarms Check 251 - 258			
251	Forced defrost activated	CLr F.dEF	No fault Forced defrost			
252	Network communications failure	CLr FAIL	No fault Comms failure			
258	Backup defrost strategy in operation	CLr d.bAC	No fault Backup defrost			

JTL COLDSTORE CONTROLLER ITEM NUMBERS					LCCU	
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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			
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 line status for the operation of the Jnet network communications.	Hi Lo	Transmit Receive			
8	Bitswitch setting	0 1 2 3	Frozen food Ice cream Chiller Produce (off cycle)	xxCC xxCO xxOC xxOO		
89	Sensor excitation value (Factory test)		Not used			
99	Test digital display	Clr SEt	Not active Test active		0 - 1	
100	Test inputs	iP - - iP1 - iP - 2 iP12	No inputs Input 1 on Input 2 on Both inputs on			
101	Test output relays	Clr SEt	Not active Test active		0 - 1	
121	Display pushbutton status	OFF P1.IP P2.IP both	Pb - - Pb1 - Pb - 2 Pb12	OFF Button 1 pressed Button 2 pressed Both buttons pressed		
421	Temp. sensor 1 reading (v0.00.2 on)					
422	Temp. sensor 2 reading (v0.00.2 on)					
423	Temp. sensor 3 reading (v0.00.2 on)					
424	Temp. sensor 4 reading (v0.00.2 on)					
425	Temp. sensor 5 reading (v0.00.2 on)					
10	Processor alarms (11 - 17)	0 1 - 255	No alarms Check 11 - 17			

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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		LCCU
NORMAL DISPLAY		
- 99°	Cabinet temperature (item 20 rounded)	
dEF	Defrost	
dEFr	Defrost recovery	
OFF	Shutdown	
FAnS	Fans only	
--	Display data error	
ALARM TEXT (in descending priority order)		
t.SEn	All sensors faulty, deselected or disconnected	
Ht	High cabinet or air off temperature	
AL.IP	External alarm input	
door	Door open alarm	
ISOL	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	