

CONTENTS

1. Jnet NETWORK IDENTIFICATION	2
2. MODE	2
3. ENERGY	2
3.1 METER (kWh)	3
3.2 POWER USAGE (kW)	3
4. PHASE DATA	3
5. SINGLE PHASE DATA	3
6. COMMON STAGE CONTROL DATA	4
7. STAGE DATA	5
8. MODBUS COMMUNICATIONS	5
9. INPUTS & OUTPUTS	6
9.1 INTERFACE INPUTS & OUTPUTS	6
10. DISPLAY FUNCTIONS	7
11. CLOCK/CALENDAR FUNCTIONS	7
12. RESTORE FACTORY DEFAULTS	7
13. RESTORE PARAMETERS FROM NETWORK	7
14. SYSTEM ALARMS	8
15. DIAGNOSTIC & TEST FUNCTIONS	10
DISPLAY DATA	11
GRAPHICAL DISPLAY DATA	12

**JTL ENERGY MONITORING & CONTROL
ITEM NUMBERS**

**CL110
CL120**

ITEM	DESCRIPTION	CODE	CODE MEANING	FACTORY DEFAULTS	RANGE	ITEM 9 VALUE
1. Jnet NETWORK IDENTIFICATION						
0	Unit type	CL110/CL120	Unit type			
19	Software version Number					
1	Unit number (channel 1)				0.1 - 899.7	
2. MODE						
20	Mode	upto v0.00.1				
		OFF Auto	Manual Automatic			
		from v0.00.2				
		EnrG rdY t.d.r Ld.Sh	Energy Monitoring Read to load shed Time demand reduction Load shedding			
60	Enable load shedding (From v0.002) Note: requires licence on network to become operational	oFF L.S.En	Disabled Enabled	0 1	0 - 1	L.S.En oFF
61	Select timer for demand reduction (from v0.00.2) Note: requires licence on network to become operational	0 1 - 8	Disabled Timer number		0 - 8	0
62	Timed demand reduction status (From v0.00.2)	CLr t.d.r	No demand reduction Max current reduced			
63	Load control licence status (from v0.00.2)	oFF Ld.Sh t.L.C n.L.C t.n.L.C	No licences Load shedding enabled Timed load shedding enabled Network Load control enabled Timed load shedding & network load control enabled			

**JTL ENERGY MONITORING & CONTROL
ITEM NUMBERS**

**CL110
CL120**

ITEM	DESCRIPTION	CODE	CODE MEANING	FACTORY DEFAULTS	RANGE	ITEM 9 VALUE
3. ENERGY						
3.1 METER (kWh)						
25 (445)	kWh usage over last minute					
27 (402)	Total kWh (most significant 4 digits, 0000xxx.x - 9999xxx.x)		Modbus register 172			
26 (401)	Total kWh (least significant 4 digits, xxx000.0 - xxx999.9)		Modbus register 172			
24 (444)	Total kWh usage over the last 24 hours					
3.2 POWER USAGE (kW)						
21 (441)	Average kW over the last 15 minutes					
22 (442)	Average kW over the last hour					
23 (443)	Average kW over the last 24 hours					
4. THREE PHASE DATA						
51 (403)	Total system power (kW)		Modbus register 53			
52 (404)	Total system reactive power (kVAR)		Modbus register 61			
53 (405)	Total system apparent power (kVA)		Modbus register 57			
54 (406)	Total system power factor		Modbus register 63			
55 (407)	Total system phase angle (degrees)		Modbus register 67			
56 (408)	Supply frequency (Hz)		Modbus register 71			
5. SINGLE PHASE DATA						
Data are on item 4x1 to 4x6 where x is the phase no e.g. for phase 1 x =1						
4x1	Voltage (V)		Modbus register 1,3,5			
4x2 (4x)	Amps (A)		Modbus register 7,9,11			
4x3	Power (kW)		Modbus register 13,15,17			
4x4	Reactive power (kVAR)		Modbus register 25,27,29			
4x5	Apparent power (kVA)		Modbus register 19,21,23			
4x6	Power factor		Modbus register 31,33,35			
4x7	Phase angle (degrees)		Modbus register 37,39,41			

**JTL ENERGY MONITORING & CONTROL
ITEM NUMBERS**

**CL110
CL120**

ITEM	DESCRIPTION	CODE	CODE MEANING	FACTORY DEFAULTS	RANGE	ITEM 9 VALUE
6. COMMON STAGE CONTROL DATA						
40	Maximum phase current				50 - 500	100
41 (203) (412)	Phase 1 current		Modbus register 7			
42 (204) (422)	Phase 2 current		Modbus register 9			
43 (205) (432)	Phase 3 current		Modbus register 11			
44	Current when next load can occur (v0.00.1 on)					
45	Maximum phase current during demand reduction (from v0.00.2)				50 - 100	100
200	Total no of stages			0	0 - 16	8
				1		0
185	No of unload able stages (v0.00.1 on)					
201	Stages loaded					
202	Total capacity loaded (%)					
208	Minimum time between stage changes (secs)				5 - 60	10
209	Minimum off time stages (mins)				0 - 60	10
180	Load current for next stage to load					
181	Next stage to load					
182	Next stage to load purpose					
183	Next stage to unload					
184	Next stage to unload purpose					
206	Force maximum current for testing		0=Normal operation			
207	Stage loading operation	S.inc S.dec	Stage loading allowed Stage unloading required			

**JTL ENERGY MONITORING & CONTROL
ITEM NUMBERS**

**CL110
CL120**

ITEM	DESCRIPTION	CODE	CODE MEANING	FACTORY DEFAULTS	RANGE	ITEM 9 VALUE
7. STAGE DATA						
Stage data is on items 2x0 to 2x9 where x is the stage no from 1 to 9. Stages 10-16 are on items 3x0 to 3x9 where x = stage no-10						
2x0 3x0	Stage function	upto v0.00.1				
		ISOL OPEr	Isolated Operational		0 - 1	OPEr
		from v0.00.2				
		0 1 2 3	nonE Ld.Sh d.rEd both	None Load shedding Demand reduction Both		0 - 3
2x1 3x1	Stage status	hty Stop	Healthy Not unload able			
2x2 3x2	Normal stage current (amps)				1 - 100	20
2x3 3x3	Unload priority (lowest number off first)				1 - 16	Stage No
2x4 3x4	Purpose (for display on networks)				0 - 100	1
2x5 3x3	Interface number	1 - 2				
		Stages 1-8				
		1				
		Stages 9-16				
2x6 3x6	Interface input	2				
		Stages 1-8				
		Stage No				
		Stages 9-16				
2x7 3x7	Availability	Stage No-8				
		nA UL.Sn				
		UL.SO FL.SO t.d.r				
		Not available Unloaded not ready to load Unloaded ready toload Loaded Demand reduction				
2x8 3x8	Force stage loading Note forcing is retained while the MU is plugged in. After unplugging this function will time out in 30 mins.	0 1	St.En S.on	Stage control enabled Force stage loading		0 - 1
2x9 3x9	Force stage unloading	0 1	St.En S.off	Stage control enabled force stage unload		0 - 1

**JTL ENERGY MONITORING & CONTROL
ITEM NUMBERS**

**CL110
CL120**

ITEM	DESCRIPTION	CODE		CODE MEANING	FACTORY DEFAULTS	RANGE	ITEM 9 VALUE
8. MODBUS COMMUNICATIONS							
30	Modbus device number for energy meter					1 - 247	1
31	Modbus device number for interface 1			0 = disabled	0	0 - 247	11
					1		0
32	Modbus device number for interface 2			0 = disabled		0 - 247	0
33	Modbus device number for interface 3			0 = disabled		0 - 247	0
34	Modbus device number for interface 4			0 = disabled		0 - 247	0
37	Delay between modbus requests (secs) (from v0.00.6)					0 - 5	0
38	Delay before modbus retry requests (secs) (from v0.00.6)					2 - 5	2
39 (909)	Interface baud rate	0	0.6	600 baud		0 - 5	9600
		1	1.2	1200 baud			
		2	2.4	2400 baud			
		3	4.8	4800 baud			
		4	9.6	9600 baud			
		5	19.2	19200 baud			
9. INPUTS & OUTPUTS							
171	Auto/Manual (IP-1)	oFF Auto		Manual controller dormant Auto mode			
161	Watchdog output (LN/LD-1)	oFF On		Watchdog fail Watchdog healthy			
162	Alarms healthy output (LN/LD-2)	oFF On		Alarm condition No Alarms			
9.1 INTERFACE INPUTS & OUTPUTS							
Note: If more than one input is present, the numbers shown in the left hand column are added together and displayed instead.							
121 122 123 124	Interface 1 inputs Interface 2 inputs Interface 3 inputs Interface 4 inputs (see graphical display data)	0 1 2 4 8 16 32 64 128	none IP1 IP2 IP3 IP4 IP5 IP6 IP7 IP8	No inputs present Input 1 Input 2 Input 3 Input 4 Input 5 Input 6 Input 7 Input 8			
141 142 143 144	Interface 1 outputs Interface 2 outputs Interface 3 outputs Interface 4 outputs (see graphical display data)	0 1 2 4 8 16 32 64 128	none OP1 OP2 OP3 OP4 OP5 OP6 OP7 OP8	No outputs present output 1 output 2 output 3 output 4 output 5 output 6 output 7 output 8			

**JTL ENERGY MONITORING & CONTROL
ITEM NUMBERS**

**CL110
CL120**

ITEM	DESCRIPTION	CODE	CODE MEANING	FACTORY DEFAULTS	RANGE	ITEM 9 VALUE
10. DISPLAY FUNCTIONS						
189	Backlight control (v0.00.2 on)	0 1 2 3	B.off BL.on BL.F.F BL.n.F	Backlight off Backlight on Backlight off, flashes for alarm Backlight on, flashes for alarm		
11. CLOCK/CALENDAR FUNCTIONS						
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				2015 - 2042	
18	Daylight saving enable	Stnd dAY.S	Standard time Daylight saving time		0 - 1	Stnd
12. 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 Note: Energy monitoring added from v0.00.2	0 1	Load shedding Energy monitoring			
9	Set default values	1234 1066	Load default settings Write to Nvram immediately			
13. 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	

**JTL ENERGY MONITORING & CONTROL
ITEM NUMBERS**

**CL110
CL120**

ITEM	DESCRIPTION	CODE	CODE MEANING	FACTORY DEFAULTS	RANGE	ITEM 9 VALUE
14. SYSTEM ALARMS & EVENTS						
80	Group alarm 81-88 (see graphical display data)	0 1-255	No alarms Check 81-88			
81	Plant state	Clr P.Flt	Healthy Plant fault			
82	Interface fault	Clr dFFT	No fault Interface fault			
85	Meter fault (from v0.00.6)	Clr E.Flt	No Fault Fault			
90	Group alarm 91-98 (see graphical display data)	1-255	No alarms check 91-98			
91	Stage 1 load state	01.-- 01.uL	Ok Unloaded			
92	Stage 2 load state	02.-- 02.uL	Ok Unloaded			
93	Stage 3 load state	03.-- 03.uL	Ok Unloaded			
94	Stage 4 load state	04.-- 04.uL	Ok Unloaded			
95	Stage 5 load state	05.-- 05.uL	Ok Unloaded			
96	Stage 6 load state	06.-- 06.uL	Ok Unloaded			
97	Stage 7 load state	07.-- 07.uL	Ok Unloaded			
98	Stage 8 load state	08.-- 08.uL	Ok Unloaded			
Note: From v0.00.5 items 900 to 928 have been moved to items 800 to 828						
800 900	Group alarm 901-908 (see graphical display data)	0 1-255	No alarms check 901-908			
801 (901)	Stage 9 load state	09.-- 09.uL	Ok Unloaded			
802 (902)	Stage 10 load state	10.-- 10.uL	Ok Unloaded			
803 (903)	Stage 11 load state	11.-- 11.uL	Ok Unloaded			
804 (904)	Stage 12 load state	12.-- 12.uL	Ok Unloaded			
805 (905)	Stage 13 load state	13.-- 13.uL	Ok Unloaded			

**JTL ENERGY MONITORING & CONTROL
ITEM NUMBERS**

**CL110
CL120**

ITEM	DESCRIPTION	CODE	CODE MEANING	FACTORY DEFAULTS	RANGE	ITEM 9 VALUE
806 (906)	Stage 14 load state	14.-- 14.uL	Ok Unloaded			
807 (907)	Stage 15 load state	15.-- 15.uL	Ok Unloaded			
808 (908)	Stage 16 load state	16.-- 16.uL	Ok Unloaded			
810 910	Group alarm 811-818 (911-918) (see graphical display data)	0 1-255	No alarms check 911-918			
(811) 911	Stage 1 input state	01.nA 01.--	Not operational Ok to unload			
(812) 912	Stage 2 input state	02.nA 02.--	Not operational Ok to unload			
(813) 913	Stage 3 input state	03.nA 03.--	Not operational Ok to unload			
(814) 914	Stage 4 input state	04.nA 04.--	Not operational Ok to unload			
(815) 915	Stage 5 input state	05.nA 05.--	Not operational Ok to unload			
(816) 916	Stage 6 input state	06.nA 06.--	Not operational Ok to unload			
(817) 917	Stage 7 input state	07.nA 07.--	Not operational Ok to unload			
(818) 918	Stage 8 input state	08.nA 08.--	Not operational Ok to unload			
820 920	Group alarm 821-828 (921-928) (see graphical display data)	0 1-255	No alarms check 921-925			
(821) 921	Stage 9 input state	09.nA 09.--	Not operational Ok to unload			
(822) 922	Stage 10 input state	10.nA 10.--	Not operational Ok to unload			
(823) 923	Stage 11 input state	11.nA 11.--	Not operational Ok to unload			
(824) 924	Stage 12 input state	12.nA 12.--	Not operational Ok to unload			
(825) 925	Stage 13 input state	13.nA 13.--	Not operational Ok to unload			
(826) 926	Stage 14 input state	14.nA 14.--	Not operational Ok to unload			
(827) 927	Stage 15 input state	15.nA 15.--	Not operational Ok to unload			
(828) 928	Stage 16 input state	16.nA 16.--	Not operational Ok to unload			

**JTL ENERGY MONITORING & CONTROL
ITEM NUMBERS**

**CL110
CL120**








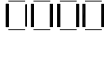
ITEM	DESCRIPTION	CODE	CODE MEANING	FACTORY DEFAULTS	RANGE	ITEM 9 VALUE
15. DIAGNOSTIC & TEST FUNCTIONS						
6	Communications speed	4.8	Kilo baud rate			
7	Communications	HALF	2 wire			
967	Latest unit no polled on zone					
973	Latest polling interval This time shows the polling interval between the 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)			
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 (from v0.00.2)	EnGY Ld.Sh	Energy monitoring Load shedding			
99	Test digital display	Clr SEt	Not active Active			
100	Input status	IP1- IP.2	Input 1 Input 2			
199	Test relay outputs	oP1- oP-2	Not active Test active		0 - 1	
875	Phoenix CPU supply voltage (mV)					
876	Phoenix battery voltage (mV)					
877	Phoenix CPU temperature					
878	PIC identification number					
879	PIC firmware variation					
10	Processor alarms (11-17) (see graphical display data)	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			

JTL ENERGY MONITORING & CONTROL ITEM NUMBERS					CL110	CL120
ITEM	DESCRIPTION	CODE	CODE MEANING	FACTORY DEFAULTS	RANGE	ITEM 9 VALUE
16	NVRAM fault	CLr n.Ft	No fault Fault			
17	Instruction TRAP fault	CLr tP.Ft	No fault Fault			

DISPLAY DATA		CL110/CL120
NORMAL DISPLAY		
999.9	Current highest phase current (amps)	
-	Not selected	
ALARM TEXT (in descending priority order)		
P.Fld	Plant fault	
OTHER TEXT		
JTL	Start-up text	

Graphical Display of Bit Data

Graphical display of bit data used on items where the data was shown previously as a decimal value.

Bit	Graphic
None	
1	
2	
3	
4	
5	
6	
7	
8	