

**Electrical Installation Requirements**

Care should be taken to separate the power and signal cables to prevent electrical interference and possible damage due to inadvertent connection.

**CE Conformance**

This unit conforms with the relevant EU standards when installed according to the JTL Installation Requirements for this product.

Input	CL110	CL120
Auto	12 - 13	13 - 14

Outputs	CL110	CL120
Alarm	4 - 5	5 - 6
Watchdog	2 - 3	3 - 4

**Use of Maintenance Unit**

The monitor can be checked and the operation adjusted using a JTL portable maintenance unit which plugs into the monitor. Each item of information has an item number. The more important items are listed in the tables overleaf.

Examples:

To read item 41 press:

To set item 40 to 100.0 press:

To correct errors press:

To select next or previous items press: and

**JTL Network Communications**

The JTL Jnet network is arranged for 2 wire (half duplex) communications. Jnet Network on this product use RJ8 connectors. JTL provide standard cables and junction boxes for the network connection.

Note all network products must be connected in parallel without cross connections. The Rx connections must be connected to the Tx connections at the network controller.

The communications rate is 4800 baud.

The unit number for the JTL communications network should be set on item 1.

**Function**

The CL110/120 has 2 modes of operation.

- a) Electrical monitoring
- b) Load control

The mode of operation is set to item 60.

**Initial Commissioning**

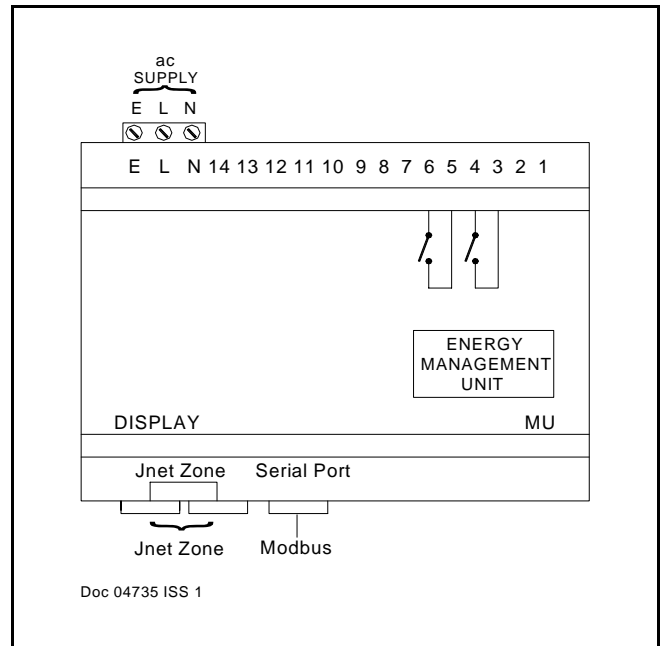
The unit has 2 sets of data built in to its program for use during commissioning. One set is when the unit is being used as a monitor only the other set when used for load control. This can be accessed setting item 9 to 1234. This loads into the monitor a standard set of data. Adjustments should then be made as necessary. The range over which the settings can be adjusted shown overleaf.

**Serial Data Input**

The CL110/120 requires an electrical meter input on a serial data link. The meter uses a modbus connection in a format that the CL110/120 has been programmed for.

**Electrical Data**

The following data is available from the CL110/120.



**Single Phase data**

- 1) Voltage
- 2) Current
- 3) Power
- 4) Reactive power (kVAR)
- 5) Apparent power (kVA)
- 6) Power Factor
- 7) Phase angle (degrees)

**Energy Data**

- 1) kWh over last minute
- 2) Total kWh since unit reset
- 3) Total kWh over last 24 hours

**Power Data**

- 1) Average kW over last 15 minutes
- 2) Average kW over last hour
- 3) Average kW over last 24 hours

**Three Phase Data**

- 1) Total system power
- 2) Total system reactive power (kVAR)
- 3) Total system apparent power (kVA)
- 4) Total system power factor
- 5) Total system phase angle (degrees)
- 6) Supply frequency (Hz)

**Load control operation**

It should be noted that load control operation requires licences to be activated on the JTL network.

Load control can operate in two different ways.

- a) load shedding
- b) demand reduction

Load Shedding uses the measured phase currents to reduce load below a set maximum level.

Demand reduction removes specific loads at specific times.

The load is controlled using relay outputs on interface modules (IF31) connected to the CL110/120 controller. The connection uses a serial Modbus data link.

Each IF31 has 8 outputs. The CL110/120 supports up to two IF31 giving a total number of relay outputs to 16. Thus up to 16 independent loads can be controlled.

The outputs energize to unload.

The IF31 also has 8 inputs. Each input is directly associated to one of the outputs. For load controlling to occur the relevant input must NOT be present.

Each output can individually be set as follows.

- a) Not used
- b) Load shedding
- c) Demand reduction
- d) Load shedding & demand reduction

**Network load control**

Where the load can be controlled by units on the JTL network the output relays on the IF31 units are connected to a JTL plant input module type PA621. The data on the relay is then collected by the JTL network controller which broadcasts the data regularly on to the JTL network for use by the relevant products. The products that use the broadcast data are programmed accordingly

**Product Licencing**

For load control operation up to three licences are required to be activated on the JTL network

- 1) Enable load control
- 2) Enable network load control function
- 3) Enable demand reduction

Licence 1 is required for all load control functions. Licences 2 & 3 are only required for the additional network and demand reduction operations where appropriate.

ADJUSTABLE PARAMETERS				
	Item	Function	Range	Units
LOAD CONTROL	60	Enable load shedding Note: requires licence on network to become operational	0=disabled 1=enabled	
	40	Maximum phase current	50-500	A
	45	Maximum phase current during demand reduction	50-500	A
	200	Total no of stages	0-16	
	208	Minimum time between stage changes	5-60	sec
	209	Minimum off time stages	0-60	min
STAGE DATA	61	Select timer for demand reduction Note: requires licence on network to become operational	0 - disable 1-8 timer number	
	2x0 3x0	Stage function	0=none, 1=load shedding 2=demand reduction 3=both	A
	2x2 3x2	Normal stage current	1-100	
	2x3 3x3	Unload priority (lowest number off first)	1-16	
	2x4 3x4	Purpose (for display on networks)	0-100	
MODBUS COMMUNICATIONS	2x5 3x5	Interface number	1-2	
	2x6 3x6	Interface input	1-8	
	30	Modbus device number for energy meter	1-247	
	31	Modbus device number for interface 1	0-247 (0=disabled)	sec
	32	Modbus device number for interface 2	0-247 (0=disabled)	sec
DISPLAY	37	Delay between modbus request	0-5	
	38	Delay before modbus retry requests	2-5	
	39	Interface baud rate	0=600, 1=200, 2=2400, 3=4800, 4=9600 5=19200	
	189	Backlight control	0=Backlight off 1=Backlight on 2=backlight off, flashes for alarm 3=backlight on, flashes for alarm	
Jnet FUNCTIONS	1	Unit number	0.1-899.7	
	18	Daylight saving operation	0=standard time 1 daylight saving time	

VIRTUAL BITSWITCH	966	Bitswitch Selection	0 Loading shedding 1 Energy monitoring	
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OTHER USEFUL ITEMS					
Item	Function	Item	Function	Item	Function
445	<b>ENERGY (kwh)</b> Usage over last minute		<b>SINGLE PHASE DATA where x=phase 1-3</b> Voltage (V)		<b>STAGE DATA</b> is on items 2x0 to 2x9 where x is the stage no from 1 to 9
402	Total (most significant 4 digits, 0000xxx.x - 9999xxx.x)	4x1	Amps (A)		Stages 10-16 are on items 3x0 to 3x9 where x = stage no from 0 to 6 where 0=stage 10
401	Total (least significant 4 digits xxx000.0 - xxx999.9)	4x2	Power (kW)		Load current for next stage to load
444	Total usage over the last 24 hours	4x3	Reactive power (kVAR)	180	Next stage to load
	<b>SYSTEM POWER (kW)</b>	4x4	Apparent power (kVA)	181	Next stage to load purpose
441	Average over the last 15 minutes	4x5	Power factor	182	Next stage to unload
442	Average over the last hour	4x6	Phase angle( degrees)	183	Next stage to unload purpose
443	Average over the last 24 hour	4x7	<b>LOAD CONTROL</b> Mode	184	Stage status
	<b>THREE PHASE DATA</b>	20	Timed demand reduction status	2x1 3x1	Availability
403	Total system power (kW)	62	Load control licence status	2x7 3x7	Force stage unloading
404	Total system reactive power (kVAR)	63	No of unload able stages	2x8 3x8	Note forcing is retained while the MU is plugged in. After unplugging this function will time out in 30 mins.
405	Total system apparent power (KVA)	185	Stages loaded		Force stage unloading
406	Total system power factor	201	Total capacity loaded (%)		Interface 1 inputs
407	Total system phase angle (degrees)	202	Stage loading operation		Interface 2 inputs
408	Supply Frequency (Hz)	207	Current when next load can occur	2x9 3x9	Interface 1 outputs
		44	Force maximum current for testing	121	Interface 2 outputs
		206		122	
				141	
				142	

Full operating manuals and item number information can be obtained from your supplier or JTL Systems.

**Supply and Input Requirements**

230 V ac 48-62 Hz  
Supply 6 VA maximum  
Outputs 230V ac max 100ma max

For 24V supply append -24V to part number.



This unit conforms with the relevant EU standards when fitted in accordance with its installation instructions.

**Applicable Documentation**

Item Numbers Doc No.04227  
Firmware Variations Doc No.04228  
Connection Diagram Doc No.04229  
Installation Requirements Doc No.