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.

Inputs

Input		NT310	NT320	NT330
Override	C	12	12	14
	IP1	13	13	13

Outputs

Output		NT310	NT320	NT330
Timer Output	LN	10	3	3
	NO	11	2	2
	NC	9	X	X

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

Examples:

To read item 22 press: ITEM 2 2 ENTER

To set item 197 to 20 press:
ITEM 1 9 7 ENTER SET 2 0 ENTER

To correct errors press: CANCEL

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.

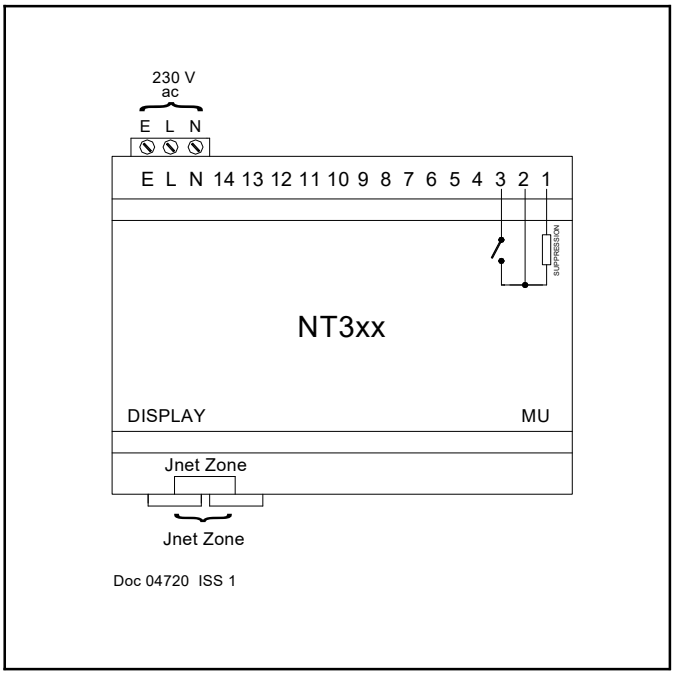
The communications rate is 4800 baud.

Initial Commissioning
The monitor has a set of data built in to its program for use during commissioning. This can be accessed setting item 9 to 1234. This loads into the timer a standard set of data. Adjustments should then be made as necessary. The range over which the settings can be adjusted shown overleaf.

The unit numbers 1 for the JTL communications network should be set on items 1.

Time Functions
The timer has a battery packed real time clock and supports sequencing over a 7 day cycle with "special" date operations. The unit drives a physical relay and sends time commands via the JTL network.

The data is best viewed using the JTL SiteSuite software but it can also be viewed using a JTL Maintenance Unit.



Master Time Schedules
The timer works in conjunction with master time schedules which can be programmed for the entire installation and all individual times are relative to the master. There can be 3 master time schedules which are 'virtual' units residing in the JTL Network Controller. The relative timer can be assigned to one of the master timer schedules.

The timer also supports a 4th (local) master time schedule that is located in the timer itself allowing the timer to be used as an absolute timer independent of the master time schedules in the network controller.

The time sequence is entered on a 7 day week basis. There can be up to 32 events each of which can be on/off or disabled. The 32 events can be on any day of the week in any sequence.

The master time schedule events are in 4 blocks of 100 items. 500 - 599 for master time 1 and 600 - 699 for master time 2 etc. There are 32 master time events each using 3 items starting at item 501. The 32 events end at item 596.

ITEM	DESCRIPTION	CODE	CODE MEANING
t01	Event 1 mode	nonE t.dis oFF on	Not used Event disabled Off event On event
t02	Event 1 day	Sun - Sat	
t03	Event 1 time	00:00 - 23:55	Time in 5 minute intervals only allowed

Note when network operation is selected, any settings entered on the master time schedule will be over written by the network controller.

There are a number of key items which select which master time schedule is used and the relative offsets.

ITEM	CODE	FUNCTION
199	1 2 3 4	Master schedule 1 Master schedule 2 Master schedule 3(day/night) Master schedule 4 (local)l
197		Event on offset
198		Event off offset

The timer takes the relevant master time schedule event data and adjusts the 7 day event sequence according to the relative on/off event time and the master extend time to create a new schedule. This is visible (but not adjustable) on the maintenance unit.

Master Schedule Data Source
The master schedule data source for each of the four master schedules can be changed using items as the following table.

MASTER SCHEDULE	ITEM	DEFAULT VALUE	SETTING
1	598	Network	0-Network
2	698	Network	1-Local
3	798	Day/Night	2-Day/Night
4	898	Local	
Note this facility is only for legacy use and should normally be left at default values.			

Active Event Data
The active event data are shown on Items 100 - 199.
There are 32 events 3 items starting at item 101. The 32nd event ends at item 196. The times are calculated using the selected master time schedule.

ITEM	DESCRIPTION	CODE	CODE MEANING
101	Event 1 mode	nonE t.dis oFF on	Not used Event disabled Off event On event
102	Event 1 day	0 - 6	Sun to Sat
103	Event 1 time	00:00 - 23:55	

Relative Time Sequence Output Control
The controller program scans the active event data to find the most recent on or off event, on a 7 day cycle, from the current time. The output is activated accordingly.

Special Data Operation
Up to 16 special dates can be entered. The absolute timers allow a special event sequence whilst the relative timers will set all outputs to off on the special dates.
No of special days (item 910)
Dates DD:MM (Items 911 - 926)

Daylight Saving Operation
When connected to the JTL Network these units can implement automatic correction for daylight saving (summer time) operation.

Once the timer has been selected for daylight saving operation (item 18) then it can be selected to work on standard time or daylight saving time.

The JTL Network Controller computes the correct algorithm for daylight saving according to the current EU directive (or the daylight saving function can be initiated manually at the Network Controller if desired).

If the timer is set for daylight saving then all the events are compared with daylight time which is displayed on the time items 2 - 5, otherwise control is against standard time.
Enable daylight saving (item18)
Daylight saving or Standard time for timer (item 28)

External Input Override
The controller can be set to allow the outputs to be overridden by an external switch.
External switch input status (item 26)
External input mode selection enable (item 77)

Forced Output Status
The timer can be forced or advanced to the next state by operating the forcing functions via the JTL network. JTL software mounted on a remote computer can implement this facility if it is enabled. The forcing stays set (unless manually cancelled) until the next normal state change.
Force on (item 20)
Force off (item 21)
Force of state by JTL network command enable (item 79)

Extend on Time
The relative timers support a facility to remote extend the master time schedules off time by a fixed length of time. The extension time is programmable. The JTL software mounted on a remote computer can be used to extend the master time schedules.

Master schedules	1	2	3	4
Extend on	500	600	700	800
Extend time	957			

Network Timer Operation
The timer can operate with other products on the JTL network (Jnet). To bind the timer to the appropriate products item 29 needs to be set to a matching number in the range 1 - 8.
Timers 1, 2 & 3 are reserved for the specific functions.

Timer	Function
1	Display cabinet lighting
2	Condenser fan night setback
3	Energy reduction
4-8	undefined

The Jnet state can be inverted using item 91.

ADJUSTABLE PARAMETERS ITEMS			
801, 804 → 894	Local event mode (32 items)	0=none 1=disabled, off, on	
802, 805 → 895	Local event day (32 items)	0=Sun 1=Mon 2=Tue 3=Wed 4=Thur 5=Fri 6=Sat	
803, 806 → 896	Local event time (32 items)	0:00 - 23:59	
199	Selected master schedule	1=master schedule 1, 2=master schedule 2, 3=day/night schedule, local schedule	
197	On event offset	-240 to 240	mins
198	Off even offset	-240 to 240	mins
910	Number of special days	0 - 16	
911-926	Special day dates	01:01 → 31:23	day:month
18	Daylight saving operation	0=standard 1=daylight saving	
28	Timer uses daylight saving	0=no 1=yes	
77	Input override operation	0=disabled 1=enable	
79	Force output operation	0=disabled 1=enable	
78	Output relay state	0=energised for on 1=energised for off	
29	Timer type selection	0=no network function 1=cabinet lights 2=Condenser fans setback 3=Energy reduction 4-8=undefined network function	
91	Jnet command on when channel on	0=disabled 1=enable	
189	Display backlight	0=off 1=on 2=off flashing alarm 3=on flashing for alarm	

OTHER USEFUL ITEMS		
501, 504 → 594	Trading hours 1	Event mode (32 items)
502, 505 → 595	Trading hours 1	Event day (32 items)
503, 506 → 596	Trading hours 1	Event time (32 items)
601-696	Trading hours 2	As trading hours 1
701-796	Trading hours 3	As trading hours 1
101, 104 →194	Operating event schedule	Event mode (32 items)
102, 105 →195	Operating event schedule	Event day (32 items)
103, 106 →196	Operating event schedule	Event time (32 items)
20	Force to next on state	
21	Force to next off state	
65	Command state	
26	External input state	
22	External output state	Note this is before item 78 is applied

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 2 VA maximum
Output 230V ac max 1A max

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

Applicable Documentation

Item Numbers	Doc No. 03374
Firmware Variations	Doc No. 03373
Connection Diagram	Doc No. 03673
Installation Requirements	Doc No. 03371

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