Eurotherm®

by Schneider Electric

Instrument Properties
User Guide

INSTRUMENT PROPERTIES USER GUIDE

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1. INTRODUCTION

This help system describes the Instrument Option and Network option tabs of the Instrument Properties display.

As is explained later, the way in which the Instrument properties page is launched, and the 'tabs' it contains depends on the LINtools software version being run and its appearance also depends on the Windows version being run, this document showing Windows XP examples.

2. SOME DEFINITIONS

2.1 TALKTHRU

TalkThru means that a pc, running suitable software and connected to an appropriate LIN instrument port of a Modbus or Profibus master, can communicate directly with the slave instruments attached to the master, without interfering with the Master/Slave communications.
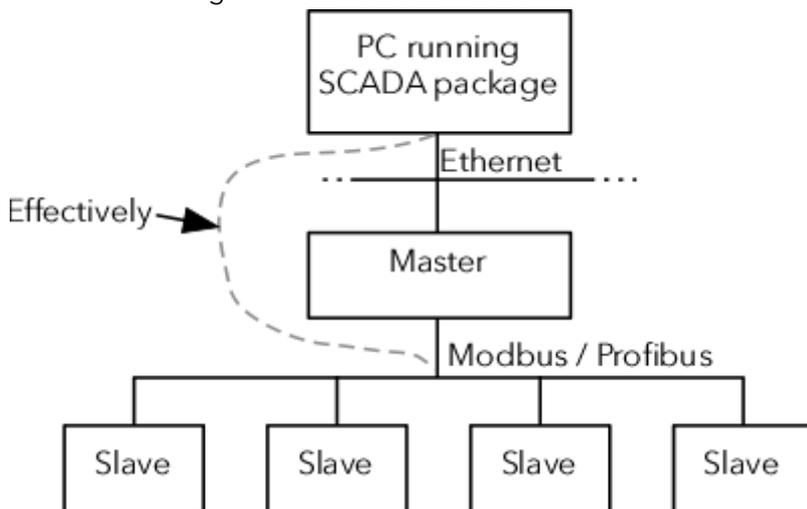
2.2 INDIRECTION TABLES

Indirection tables are used by some instruments to group parameter registers into a range of contiguous addresses. This allows a block read of the address range, saving the time that would otherwise be necessary to start and stop communications for each parameter in turn.

Parameters are arranged in two tables: the Read Only table and the Read/Write table, and the user must choose in the instrument options ENET configuration whether to enable either, neither or both of these tables.

2.2.1 Modbus/Profibus Serial

For serial communications, the default is 'All' and this should not be changed unless the tables are set up manually

2.2.2 Modbus/TCP

For Modbus/TCP, the setting should be 'None' because multiple masters are able to connect to a slave, and one master should not be able access indirection tables that have been configured by another. Either the tables must be set up manually, or it must be ensured that only one master can gain access.

2.3 PRINTER PROTOCOLS

Refer to the printer documentation to determine which protocol is relevant.

2.3.1 PCL3

Printer command language. This is the Hewlett Packard standard printer open protocol

2.3.2 ESCP

Epson™ Standard Code for Printers. This is the Epson standard printer open protocol

2.3.3 Text

Used for basic text printing from programs without printer driver information (e.g. carriage return, line feed)

2.4 PRINTER PALETTES

Refer to the printer documentation to determine which palette is relevant.

2.4.1 Monochrome

Uses a grey scale palette

2.4.2 CMY

Combinations of cyan, magenta and yellow produce all colours. 'Composite' black replaces true black.

2.4.3 CMYK and KCMY

Both these use combinations of black, cyan, magenta and yellow to produce the required colours. The difference between the two is related to the type of print cartridge used, and if an incorrect choice is made, then incorrect colours will result.

2.5 MODBUS

Modbus is a communications protocol supported by Serial and TCP communications interfaces. Instruments that communicate via the Modbus communications protocol require a 'Gateway' that maps data from the LIN Database to the Modbus registers and digitals.

The Modbus communication interface is built around messages, the format of which depends on the type of physical interface used. The same messages are used on both Serial and Modbus/TCP over Ethernet.

The same protocol can be used regardless of the connection type, allowing a Master device to communicate with multiple slaves, even if they are connected with different interface types, without the need for a different protocol for every connection.

When using more versatile network systems like TCP/IP over Ethernet, the Modbus messages are embedded in packets with the format necessary for the physical interface. In that case Modbus and other types of connections can co-exist at the same physical interface at the same time. Although the main Modbus message structure is peer-to-peer, Modbus is able to function on both point-to-point and multidrop networks.

2.5.1 Modbus Messages

Each Modbus message has the same structure consisting of four basic elements:

DEVICE ADDRESS

This is the address of the instrument receiving the data.

FUNCTION CODE

This is a code number defining message type. Different instruments support different sets of codes, so the user documentation supplied with the instrument must be referred to for details.

DATA

This is a block of data with additional information.

2.5.1 MODBUS MESSAGES (Cont.)

ERROR CHECK

This is a Numeric check value to test for communication errors.

The sequence of the above elements is the same for all messages, to make it easy to parse the content of the Modbus message. The instrument configured to operate as the master in the Modbus network always initiates communications. It sends a message and, depending of the contents of the message, a slave takes action and responds to it. The Device Address is used to specify which device should respond to a message.

Instruments use Modbus registers and bits to structure the instrument data. Generally, there is no pre-defined structuring of these points into blocks or loops, etc., and most implementations define the allocation of registers differently. See also the section on 'Indirection tables', above.

2.6   PROFIBUS

Profibus is a communications protocol that allows fast, cyclic transfer of time-critical data from intelligent devices such as temperature controllers, I/O units, drive, etc to a PLC or PC based controller, with a scan time of around 10mS.

Traditional PLC based control systems use a central processor unit, connected to process plant via I/O modules The PLC scans the input modules cyclically and places the scanned data into registers in the central processor, where they are operated on by ladder logic. Values from PLC registers are transmitted to the process via output modules.

The simplicity of the wiring scheme makes for easier maintenance, and provides flexibility to add new devices when and where needed. Furthermore, instead of being tied to a single vendor, 'best of breed', specialised devices may be used, reducing the processing load on the PLC.

2.7   SNTP

'Simple Network Time Protocol' is used to distribute Co-ordinated Universal Time (UTC) to simplify time synchronisation across networks.

SNTP servers are timing references for synchronising time on SNTP clients (e.g. instrumentation, workstations, routers, time clocks etc.).

2.8   NETWORK PARAMETERS

2.8.1   Subnet

This displays the subnet mask value of the instrument when uploaded (0.0.0.0) when unknown. An IP host uses the subnet mask, in conjunction with its own IP address, to determine if a remote IP address is on the same subnet (allowing direct communications) or on a different subnet (allowing communications via the Default Gateway)

Note: Invalid addresses (i.e. values that exceed the constraints of the DHCP and/or LinkLocal parameters),are ignored and an error message appears when a download is requested.

2.8.2   Default Gateway

This shows the IP Address of the Default Gateway when uploaded (0.0.0.0 if the IP Address is unknown). The default gateway address is used by this instrument to communicate with instruments on other subnets.

If undefined (0.0.0.0) then this instrument can talk to other IP hosts only if they are on the same subnet.

2.8.3   DHCP

When selected 'on', the Dynamic Host Configuration Protocol (DHCP) server provides the instrument with an IP Address. Typically, this occurs at start-up but can be repeated during operation. DHCP includes the concept of 'leases', i.e. the assigned IP Address value will 'expire'. When selected 'off' DHCP does not supply an address.

A DHCP server must be configured to respond correctly to the request. This server configuration depends on the local company network policy.

2.8.4   LinkLocal

If selected 'On', an IP Address from the LinkLocal range is used. LinkLocal is used as a fallback to either DHCP or BootP, or can be used on its own as the only IP Address configuration method. LinkLocal always assigns an IP Address in the range 169.254.X.Y. This range is reserved for use by LinkLocal and is explicitly defined as private and non-routable.

2.8.5   BootP

Bootstrap Protocol (BootP) is used by a network computer to obtain an IP address and other network information such as server address and default gateway. Upon startup, the client station sends out a BOOTP request to the BOOTP server, which returns the required information.

3. CONFIGURATION

3.1 LAUNCHING THE INSTRUMENT PROPERTIES PAGE

3.1.1 LINTools versions up to and including 4.9.

The preferred method of launching the Instrument properties page is, with a LINtools database running, to right click on the instrument folder and then to select 'Properties' from the context menu that appears. The Instrument properties display opens with a number of tabs including 'Instrument Options' and 'Network Settings'.
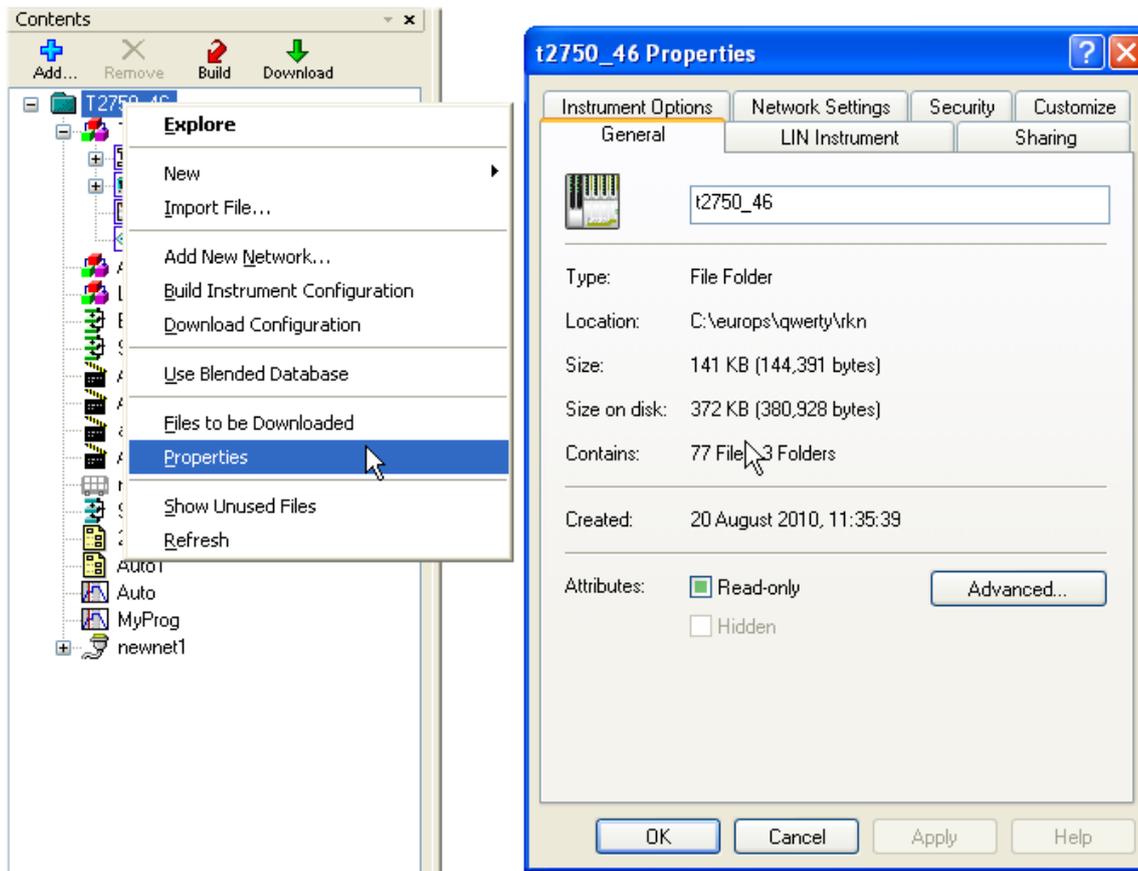
3.1.2   LINTools versions 5.0 or higher

The preferred launch procedure is similar to that described above, but when the context menu opens, select 'Instrument Options' instead of 'Properties'. The Instrument options display opens with just the two tabs 'Instrument Option' and 'Network Settings'.
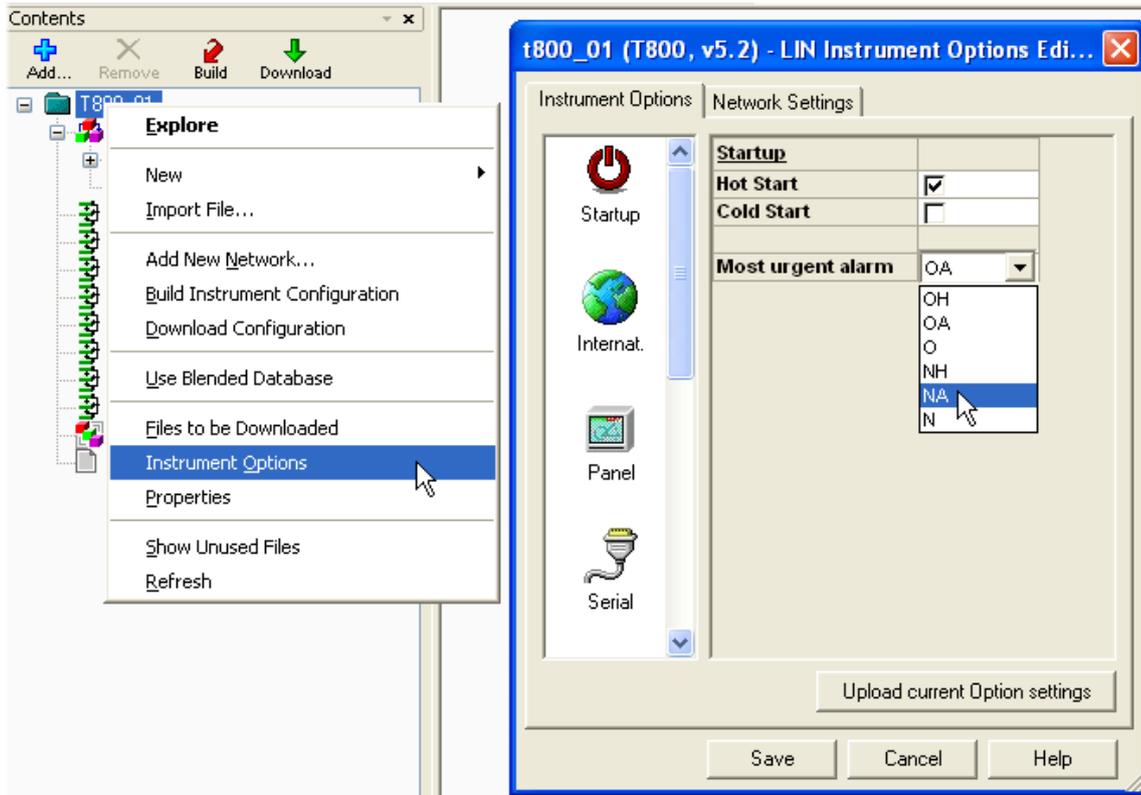
The figure above shows a typical example, but with the 'Most urgent alarm' pull down list open.

Clicking on 'Properties' instead produces the Instrument folder properties display, showing the instrument folder properties described elsewhere.
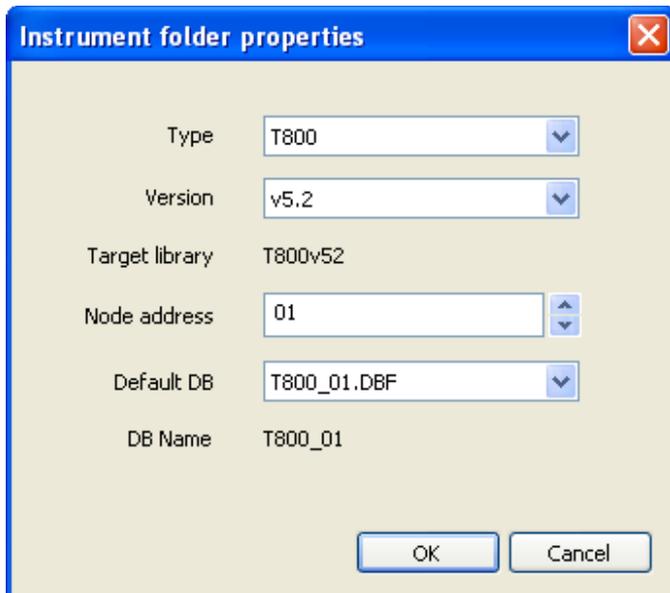
3.1.2 LINTOOLS VERSIONS 5.0 OR HIGHER (Cont.)

Alternatively:

Individual Options and Network settings displays can be opened by double clicking on _system.opt or network.unh in the Project file Instrument folder:

_system.opt or network.unh

or,

Right clicking in the instrument folder in the Project file, and selection 'Properties' opens the Instrument Properties display.

3.2 INSTRUMENT OPTIONS TAB

If the tab is not already open, click on the Instrument Options tab to display its contents:
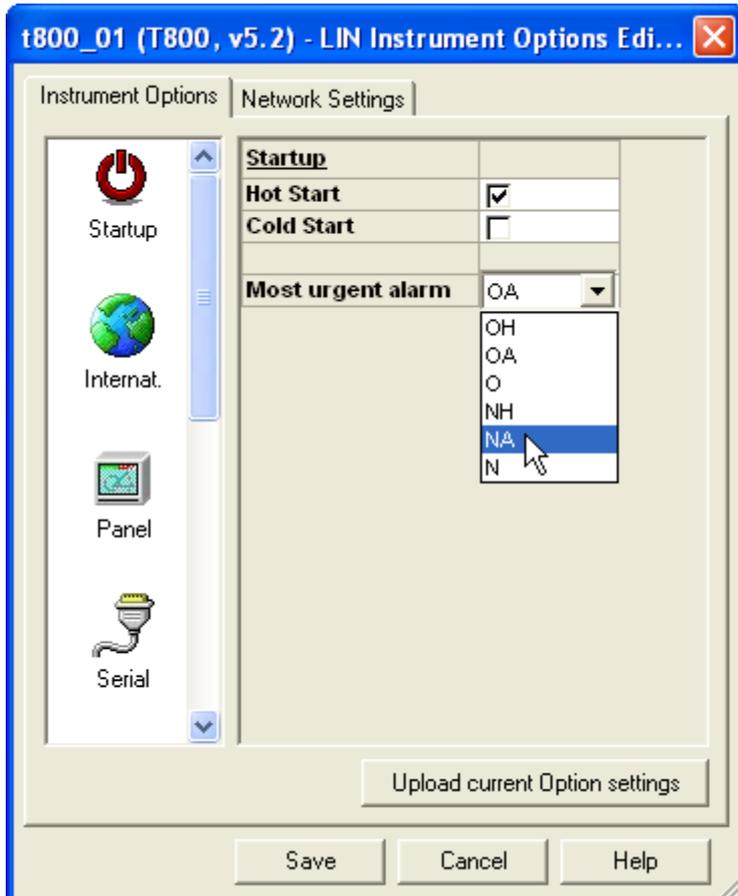
As can be seen, there are a number of configurable items, each having an icon in the left-hand pane. Which icons appear, and the configurable items they contain depends on the particular instrument and its version. Generally there will be more icons than can be displayed in the height available, and the scroll bar must be used to reveal hidden items. There are also a number of buttons near the bottom of the display. The illustration above shows Version 5 - see 'Pre-version 5 controls' for a description of the earlier pushbutton functions.

The following descriptions, arranged in alphabetical order, gives brief details of what each item covers. Click on the associated icon to jump to a full description.

3.2 INSTRUMENT OPTIONS TAB (Cont.)

3.2.1   Configuration categories

ALIN Allows the user to select ALIN properties and set the ALIN address for relevant instrument types.

Archiving Set up archive interval and define up to three host computers for ftp archive.

ENET Set up the Ethernet ports on the instrument.

Internat. Set up Language, and time and date formats.

Instrument Select instrument for properties configurlation.

KBD Keyboard icon. For instruments that support ASCII inputs, this allows the user to select barcode reader or keyboard as the input type.

LPT Printer port configuration. This allows the user to configure the port as a printer port. For the relevant instruments, printer parameters can be configured in the 'Printers' category.

Panel Allows configuration of parameters associated with display screens, such as timeouts, screen brightness etc.

Printers Allows printer type, plot colours etc. to be configured.

Profibus This allows the user to set up the Profibus 'Address', 'Baud rate', 'Timout' and 'Retries' parameters.

Serial Configures serial link parameters such as communications protocols, transmission standards etc.

Time Sync Sets up synchronisation among instruments.

Time Zone Allows the user to set up the local time for the instrument, including daylight savings time (DST) configuration

USB Sets up memory stick applications for relevant instruments

3.2.1 CONFIGURATION CATEGORIES (Cont.)

USB   Configures USB port details for relevant instruments.

PUSHBUTTON CONTROLS

Closes the Options display (without confirmation) and without saving any changes. (No separate topic.)

Opens this Help system. (No separate topic.)

Initiates (after confirmation) a download to the instrument.

Connects to the instrument, if possible, and loads the current configuration ready for viewing and/or editing.

3.2.2   ALIN

Allows the user to select ALIN properties and set the ALIN address for relevant instrument types.

	ALIN 1
Hardware	ARCNET
Protocol	ALIN ▼
Address	None
	ALIN
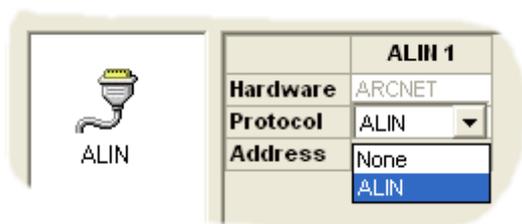
Hardware: ARCNET (non editable field).

Protocol: For ALIN instruments, allows 'None' or 'ALIN' to be configured as Protocol.

Address: The LIN node address for the defined instrument. Valid addresses 1 to 254 inclusive (0 and 255 are invalid)

3.2.3 Archiving

Archiving requires at least one host pc to be configured as an FTP server, with a directory structure set up to receive archive data.

INTERVAL [MINUTES]

Allows the archive interval to be set between 1 and 1 000 000 minutes. (0 = Off). 1 day = 1440 min; 7 days = 10 080 mins; 28days = 40 320 mins. The interval can be set by typing the value into the field, or by using the up/down scroll arrows that appear when the field is clicked-in.

USE FTP SERVER 1/2/3

Click in the field, and select 'True' or 'False' as required from the pull down menu

For each FTP server set 'TRUE':

Host IP

Enter the host pc IP address. Invalid entries are ignored and generate an error message on download.

Directory

Enter the name of the directory to which the archive data is to be sent.

User Name

Enter the 'User Name' of the operator who is to access the archive data on the host. Set up during FTP server configuration.

Password

Clicking on this item causes a pop-up display asking for the password associated with the above User Name (also set up during FTP server configuration):

3.2.4 ENET

Allows the user to set up all the available Ethernet ports. The number of Ethernet ports available varies form instrument type to instrument type, as do the selections available for each port.

	ENET1	ENET2	ENET3	ENET4	ENET5	ENET6
Hardware	ETHERNET	ETHERNET	ETHERNET	ETHERNET	ETHERNET	ETHERNET
Protocol	ELIN	FTP	None	Modbus-M	Termcfg	Printer
Address	0		0			
Timeout			1500	1500		
Talkthru			None			
Indirection				All		
Retries				0		

Hardware   Ethernet (non configurable field)

Protocol   For each port, click on the Protocol field and select either 'None' or the name of the protocol available for the port in question. The various configurable fields are automatically filled with default values which can then be edited as required. Protocols are available on the ports as follows:

Port	Protocol
ENET2	FTP
ENET3	Modbus-S
ENET4	Modbus-M
ENET5	Termcfg

To enable a protocol, click in the Protocol field for a port and select the protocol from the pull-down list.

Address   Enter the node address for this instrument if appropriate.

Timeout   Enter a comms timeout value to define a period of time, in seconds, within which the slave or master must respond before the attempt is aborted and an error message raised.

Talkthru   Depending on instrument type, this allows the user to specify either a protocol to be used by this port for talk-thru, or another port to be used (using the protocol assigned to that port).
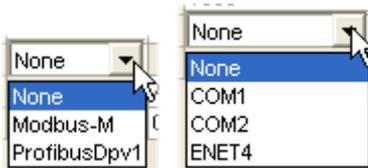
Indirection   For instruments that make use of indirection tables, select 'None', 'Read only' (RO), 'Read/write' (RW) or 'All' to define which indirection table may be used. 'All' is used with Modbus serial and Profibus serial communications; 'None' with Modbus TCP.

Retries   This defines the how many connection re-tries are to be permitted within the timeout period.

3or5wire   Not shown in the figure above. For relevant instruments, this parameter allows the user to select the communications standard as three or five wire.

3.2.5 Instrument

If the instrument options or network configuration files have been opened from outside an instrument or project folder, then the user must select an instrument and software version. once this has been done, the relevant Instrument Options or Network Settings display opens.
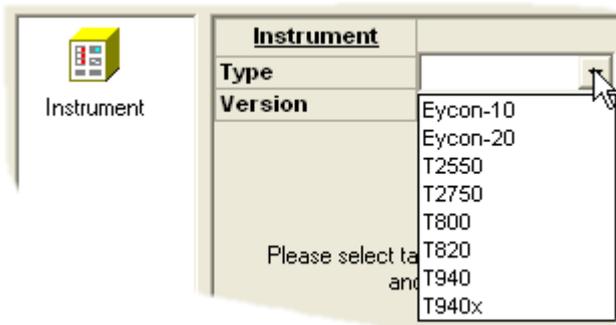
Type   Select an instrument model from the pull-down list.

Version   Select the required software version for the selected instrument from the pull-down list.

3.2.6   Internationalization

'Internat.' allows the user to configure the instrument operating language and the various date and time formats used. See 'Time Zone' for details of GMT offsets and daylight savings time configuration.

Language   Click in the field to produce a pull down menu containing the list of languages available for this instrument.

Date format

Click in the field to produce a pull down menu and select on of the available options.
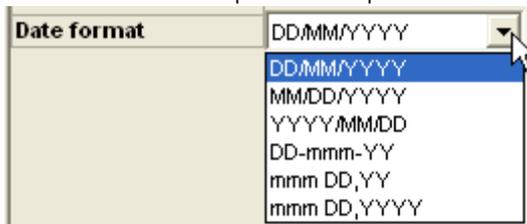
'DD' = day number;
'MM' = month number
'YY' or 'YYYY' is the year number
'mmm' is the month abbreviation.

Time format

As for date format above, but for time format:

'HH'or 'hh' = Hours
'MM' = Minutes
'SS' = seconds
XM = AM or PM
xm = am or pm

Duration format

As for date and time format above, but for interval or period timing.
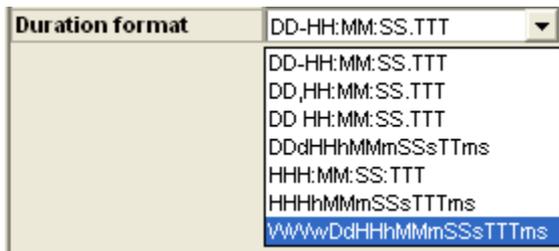
'DD' or 'D' = number of days
'HH' = number of hours
'MM' = number of minutes
'SS' = number of seconds
'TTT' = number of milliseconds.
'WW'= number of weeks

ms, s, m, h, d, w are abbreviations for milliseconds, seconds, minutes and so on
(E.G. 2w6d12h0m0s0ms = 2 weeks, 6days and 12 hours etc,)

3.2.7   KBD

For instruments that support ASCII inputs, this allows the user to select barcode reader or keyboard as the input type.

Hardware   Read only display showing the hardware configuration of the port.
Protocol   Allows the user to choose 'None', 'Barcode Reader' or 'Keyboard'.

3.2.8   LPT

This allows the user to configure the port as a printer port. For the relevant instruments, the printer parameters can be configured in the 'Printers' category.
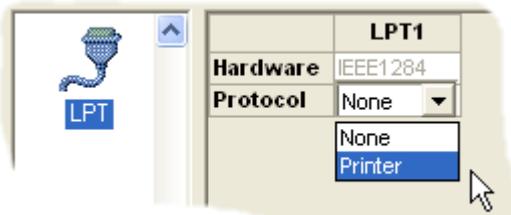
Hardware   Read only display showing the hardware configuration of the port.
Protocol   Allows the user to choose 'None' or 'Printer'.

3.2.9 Panel

This allows the configuration of instrument displays.

Panel		
Keypad size	Standard	
Home timeout	120	sec
Data entry timeout	20	sec
Popup timeout	20	sec
Saver timeout	240	sec
Access timeout	20	sec
Brightness	100	%
Saver brightness	20	%
Programmer Options:		
Long SP names	☐	
Seg. start displayed	☐	
Seg. duration displayed	☐	
Seg. finish displayed	☐	
Wide cells	☐	
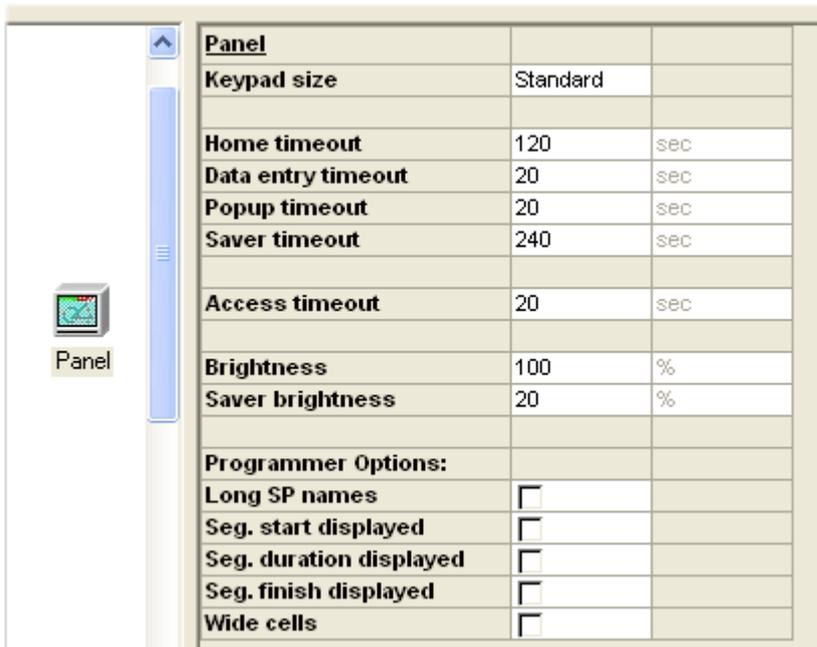
PANEL

Keypad size
> Select 'Standard' or 'Small'. 'Small' is the only choice for small frame instruments. 'Standard' is the default for large frame instruments, but 'Small' can be selected in order to reduce the screen area occupied by the keypad.

Home timeout
> The period of inactivity before the display reverts to the home page.

Data entry timeout
> The period of inactivity before a data entry field closes, ignoring any changes.

Popup timeout
> The period of inactivity before pop-up menus close.

Access timeout
> The period of inactivity during logging in before the login attempt is aborted.

Saver timeout
> The period of inactivity at the user interface, before the display brightness switches to the 'Saver Brightness' (see below).

Contrast (not shown)
> A value corresponding to the contrast setting of the screen.

Brightness   The standard screen brightness in % of full brightness.

Saver brightness
> The screen brightness in screen saver mode in % of full brightness.

Note: All timeouts can be set between 0 (no timeout) and 43200 seconds (equivalent to 12 hours).

PROGRAMMER OPTIONS

Long SP names
> If enabled, the instrument will support setpoint programmer filenames of up to 16 characters.

Seg. start displayed
> If enabled, the instrument will show the start time of the displayed segment.

Seg.duration dsplayed
> If enabled, the instrument will show the duration of the displayed segment.

Seg.finish displayed
> If enabled, the instrument shows the end time of the displayed segment.

Wide cells   If enabled, changes to the cell width within tables displayed on the screen may be changed.

3.2.10 Printers

For suitable instruments, this allows printer parameters to be configured. (The figure below has been manipulated to show all configurable fields.)
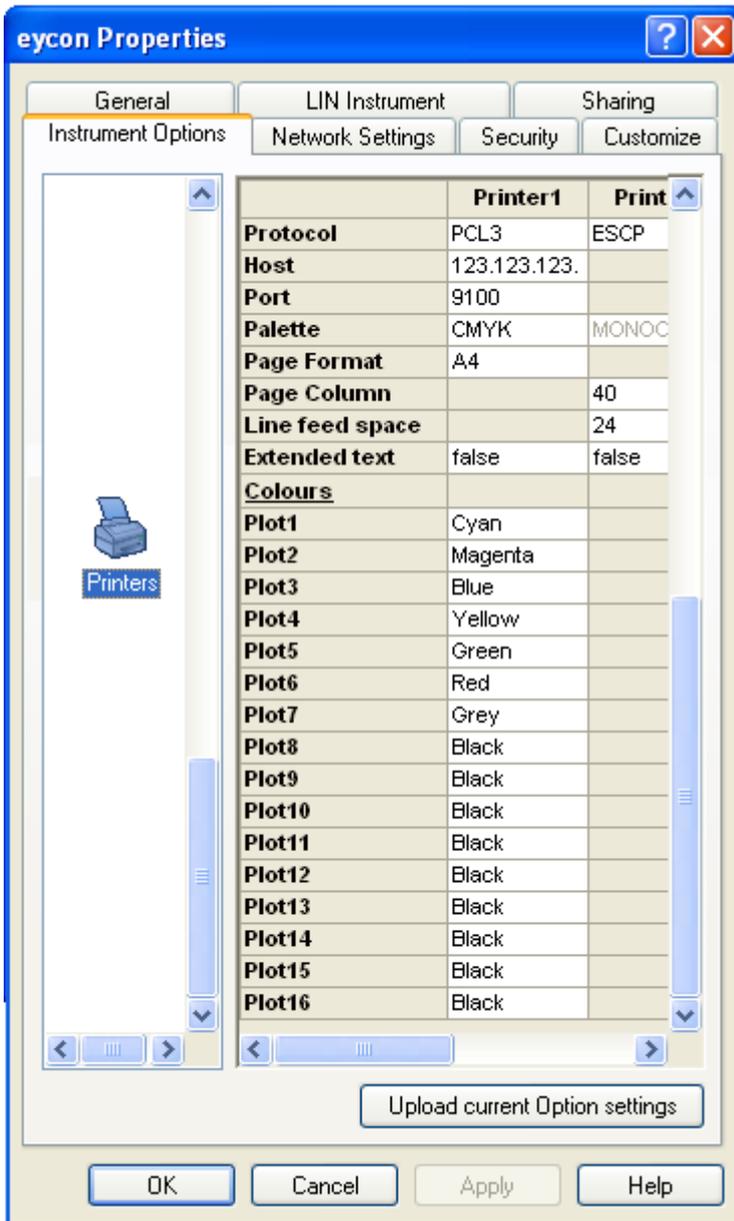
Protocol   Select the required printer protocol type. The subsequent fields are populated according to the type selected
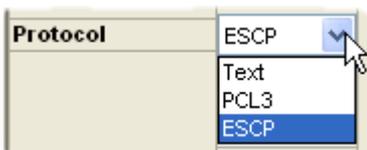
Host   Enter the name or IP address of the relevant printer. This field is editable only if ENET6 ports has been set to 'Printer' in ENET configuration.

Port   Displays the default port number (9100) for printers.

3.2.9 PRINTERS (Cont.)

Palette   Allows the user to choose the colour palette type (for PCL3 printers only). Refer to the printer documentation to ensure the correct selection is made..

Page Format
          Select the relevant paper size. A4 is 210 x 297mm; Letter is 8.5 x 11in.

Page Column
          Select the maximum line length from 0 to 99 characters.

Line Feed Space
          The distance in points between the bottom of one text line, and the top of the next. Valid entries: 0 to 99.

Extended text
          Shows whether the printer supports the use of non-latin characters (true) or not (false).

Colours

          For colour printers, this allows the user to select the trace colour for graphical displays from a pull down menu.

3.2.11 Profibus

This allows the user to set up the Profibus 'Address', 'Baud rate', 'Timout' and 'Retries' parameters.

PROF 1	
Hardware	RS485
Protocol	ProfibusDpv1
Address	0
Baud	1500000
Parity	
Data bits	
Stop bits	
Timeout	250
Talkthru	
Ind. Table	
Retries	2
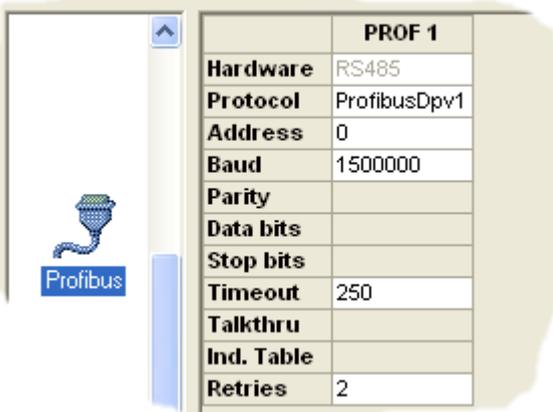
Hardware   Shows the communications standard being used for this Profibus' implementation. Not user editable.

Protocol   Initially 'None', 'ProfibusDPV' can be selected from the drop-down menu.

Protocol	None ▼
	None
	ProfibusDpv1

Address   Type in, or use the 'thumbwheel' controls to enter a valid address.

Baud rate   Select a Baud rate from the drop-down menu.

1500000 ▼
9600
19200
93750
187500
500000
1500000
3000000
6000000
12000000
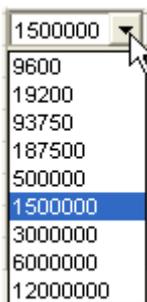
Timeout   Enter a timeout value as required. If a response has not been received within this time, it is assumed that the communication has failed.

Retries   Enter a maximum number of retries to be attempted within the timeout period.

3.2.12 Profibus (T2750)

Allows the user to configure the netHOST device identities and redundancy logic.

NetHOSTs are used to connect to the profibus network. Where the instrument can run in a duplex mode, one netHOST is assigned to each processor (left and right). If the instrument runs only in Simplex mode, a single netHOST is assigned to the processor.

A netHOST's identity consists of two parts:
1. The "ADR" setting. This is the value set on the netHOST's front panel decade rotary switches. This value must be unique on the local subnet. The user must set the netHOST's front panel switches to match the value expected by the T2750.
2. The IP address assigned to the netHOST (which must be unique and on the same local subnet as the T2750). Note that this is not the T2750's IP address, but a unique address assigned to the netHOST.

When the instrument first starts the database file (DBF), it scans for all netHOSTs on the local subnet. From the responses, it identifies the netHOST with the correct ADR setting and confirms the IP address is correct. If the IP address is unconfigured, the instrument will automatically configure the IP address as it starts up.
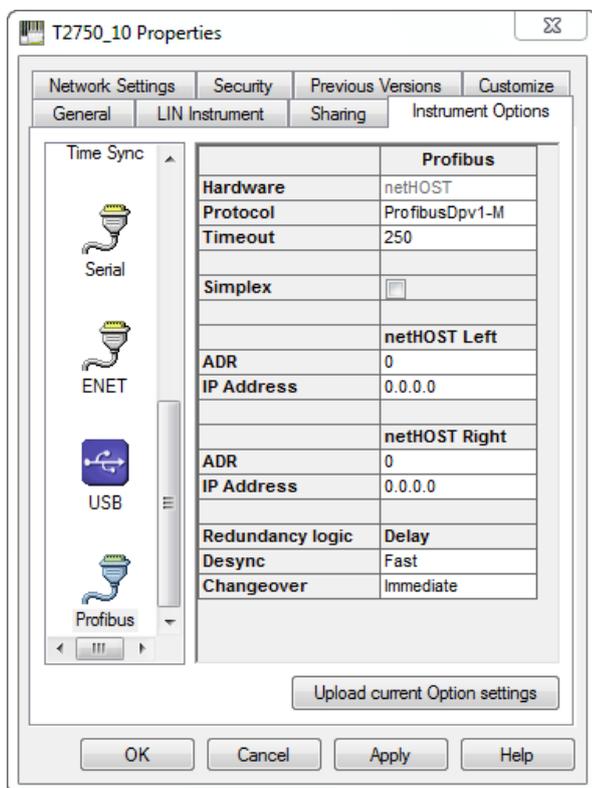
Hardware	Shows the standard being used for this Profibus implementation. Not user editable.
Protocol	Initially 'None', 'ProfibusDpv1-M' can be selected from the drop-down menu to select Profibus DP Master. Note that when 'None' is selected, all input for this panel is disabled.
Timeout	Enter a timeout value as required in milliseconds. If a response has not been received within this time , it is assumed that the communication has failed.
Simplex	Tick this box on simplex systems (only one IOC). This will disable configuration of the 'netHOST right' fields. Untick this box on duplex (redundant) systems where two IOCs are available.
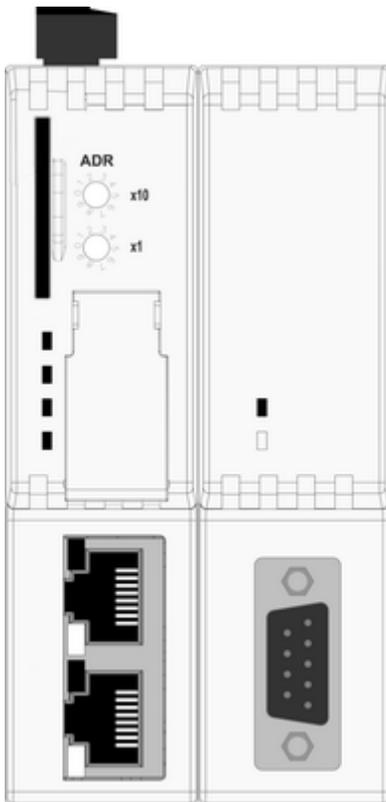
ADR

The netHOST instrument number. Set this to the same unique number as selected on the netHOST front-panel decade switches (00 - 99). Ensure this setting is unique across all instruments on the same IP subnet.

The figure to the left shows the location of the ADR decade switches on the top-left of the front of the netHOST.

Note that the setting of these decade switches can be counter-intuitive. The number selected by the switch is that indicated by the screwdriver slot at the flat end of the dial (not the curved side). Thus, the following figure shows the decade switches set to 74 (and not 29, as might be interpreted).
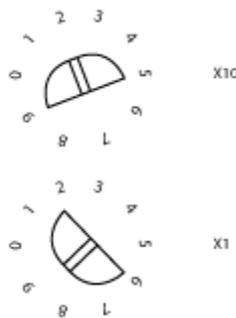
IP Address   Sets the IP address of the netHOST associated with the left or right instrument processor. The netHOST is automatically assigned this IP address, which must be on the same TCP/IP subnet as the instrument. Ensure this IP address is unique on the network.

Desync   Determines how the T2750 reacts if the secondary IOC has a worse view of the Profibus network than does the primary and when a desync will occur. This is only applicable in duplex IOC configurations (that is, if the Simplex field is ticked, this field will not be editable). The three options are:

- 'Disable'. The T2750 ignores the situation (the IOCs never desynchronise due to a Profibus health issue).
- 'Fast'. This is the default operation. The T2750 desynchronises if the situation persists for 1800mS. This allows the status of the secondary to be checked prior to desynchronising. Selecting 'Fast' prioritises Profibus health over ELIN health for desyncronising decisions.
- 'Slow'. The T2750 desynchronises if the situation persists for 8000mS. Selecting 'Slow' prioritises ELIN health over Profibus health for desynchronising decisions. Care should be taken when setting the Desync option to 'Slow' if Profibus I/O is an essential part of the strategy..

Changeover: Determines how the T2750 reacts if the Primary cannot see any of the configured nodes on the Profibus network and when an IOC changeover will occur. This is only applicable in duplex IOC configurations (that is, if the Simplex field is ticked, this field will not be editable). The four options are:

- Disable'. The T2750 ignores the situation (the IOCs never changeover due to a Profibus health issue)
- 'Immediate'. This is the default operation. The primary IOC effects a changeover as soon as it can no longer communicate to any of the configured Profibus slaves, without checking whether the secondary IOC has a better view of the Profibus network.

- 'Fast'. If the primary IOC is unable to communicate with any of the configured Profibus slaves and the secondary IOC cannot view the primary on the Profibus network, then the IOCs will changeover if this situation lasts for 250mS. This prioritises Profibus health over ELIN health for changeover decisions.
- 'Slow'. If the primary IOC is unable to communicate with any of the configured Profibus slaves and the secondary IOC cannot view the primary on the Profibus network, then the IOCs will changeover if this situation lasts for 8000mS. This prioritises ELIN health over Profibus health for changeover decisions. Care should be taken when setting the changeover option to 'Slow' if Profibus I/O is an essential part of the strategy.

HOW TO DETERMINE THE SETTINGS FOR DESYNC AND CHANGEOVER

The default behaviour of the Desync and Changeover settings make Profibus health very high priority. This matches the functionality of the T940 and T940X in that a changeover is immediate. If the Profibus I/O is an important element of your control strategy, then this default behaviour is probably the most suitable. It has the disadvantage, however, that if all Profibus slaves fail, the IOCs will changeover (because it does not wait to check the secondary's view of the Profibus network). This operation may not be desirable for control strategies where the Profibus health is not top priority.

Setting both the Desync and Changeover settings to 'fast' will defer the desync/changeover decision until the secondary's Profibus view can also be checked. This avoids a changeover if the Profibus slaves will still be unreachable after a changeover. Note that 'fast' prioritises Profibus health over ELIN health for desync/changeover decisions (if Profibus and ELIN health monitoring would result in opposite decisions, the Profibus will "win" and thus still treating Profibus as very important).

Selecting 'Slow' has the effect of making ELIN health a higher priority than Profibus health. This setting is only applicable where the Profibus I/O is not an essential part of the strategy. Note that 'Slow' introduces a delay in the detection of the primary Profibus Master failing, and there will be several seconds during which Profibus is not operating before the changeover occurs.

Finally, selecting 'Disable' stops all desync and changeover decisions based on the health of Profibus. This should only be used where the Profibus is used for I/O associated with very low priority monitoring, in cases where Profibus failures may be not that important.

CONFIGURING THE NETHOST

When configuring a new or replacement netHOST, the user will only need to set the ADR decade switches to match the ADR parameter configured in the Profibus Instrument Options Editor (see above).

FAILURES AND TROUBLESHOOTING

When the instrument first starts the database file (DBF), it scans for all netHOSTs on the local subnet. From the responses, it identifies the netHOST with the correct ADR setting and confirms the IP address is correct. If the IP address is unconfigured, the instrument will automatically configure the IP address as it starts up.

There are several potential failures:
- No netHOST with the correct ADR is found
- A netHOST with the correct ADR is found, but it is already assigned a different IP address to that expected (implying another T2750 may be using it).
- A netHOST with the correct ADR is found but no IP address assigned and netIdent fails to correctly set the IP address.

These failures can be diagnosed by any of the following:
- Alarm and status data in the GWProfM_CON block
- Status data in the NETHOST diagnosis block
- Error messages written to the UDZ file. This is a text file and can be copied from the instrument's drive using the Network Explorer tool
- Status LEDs on the front of the netHOST

NETHOST FRONT PANEL LEDS

The following figure shows the location of various status LEDs.

1. SYS LED
2. APL LED
3. Profibus DP Master LED
4. Ethernet link at channel 0 established (green)
5. Ethernet activity at channel 0 (yellow)
6. Ethernet link at channel 1 established (green)
7. Ethernet activity at channel 1 (yellow)
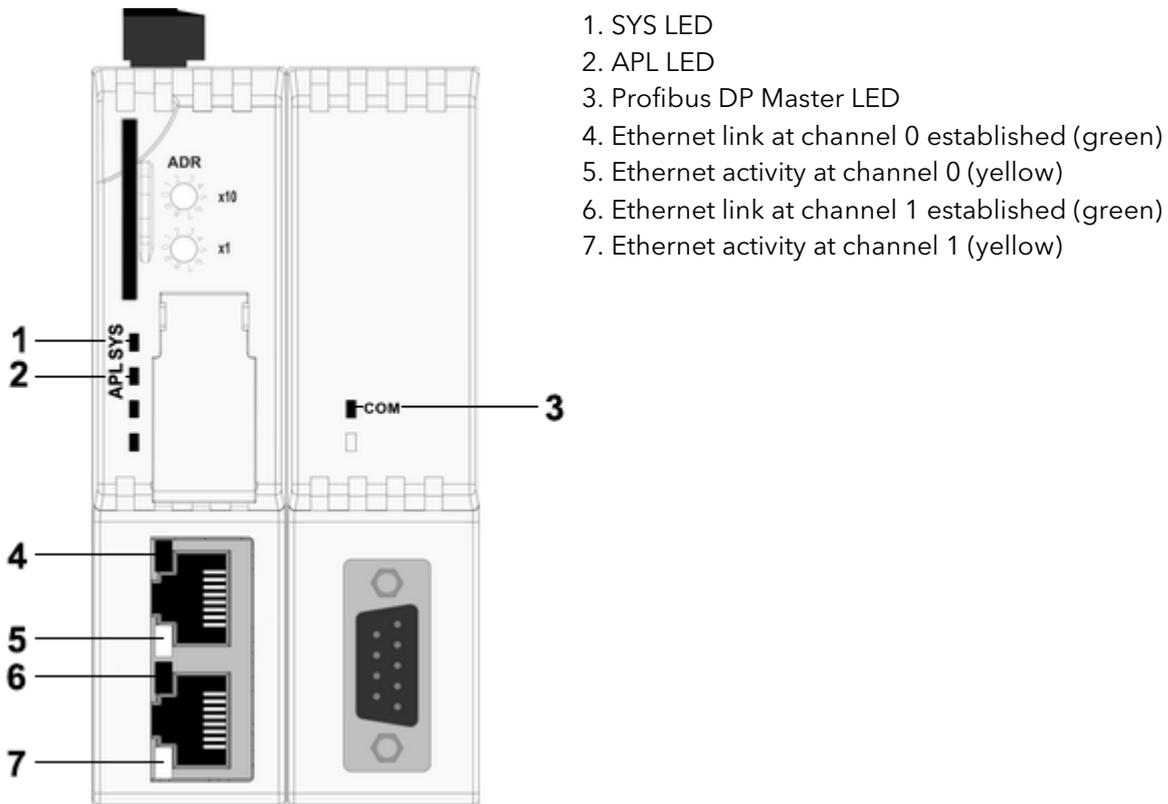
SYS LED (1)

The SYS LED (number 1 in the above figure) indicates the following status:

Colour	State	Meaning
Green	On	netHOST is running in a healthy state.
Yellow	Steady	The netHOST is starting up. This can take one minute or longer. If this LED remains yellow permanently, then a hardware failure is possible.
Yellow	Flashing	Hardware failure.
Yellow/Green	Flashing yellow/green	Hardware failure
Off	Off	Power supply for the device is missing or hardware failure.

APL LED (2)

The APL LED (number 2 in the above figure) indicates the following states:

Colour	State	Meaning
Green	Steady	Ethernet configured and Profibus communications running.
Green	Flashing	Ethernet configured but Profibus not running.
Red	Steady	Configuration files are missing.
Red	Flashing	Configuration files in error, or not loaded.

COM LED (3)

The Communications LED (number 3 in the above figure) indicate the following states:

Colour	State	Meaning
Green	Steady	Profibus communication established to all slaves.
Green	Flashing ir-regularly	Configuration error.
Green	Flashing reg-ularly	Profibus is configured, but communications not yet started (this should only be a transient condition as the T2750 starts up.
Red	Flashing	Profibus communication to at least one or more slaves is disconnected.
Red	On	Profibus Communication to all slaves is disconnected.

3.2.13 Serial

This allows serial communications parameters to be set up. The fields that appear vary from one instrument type to another.
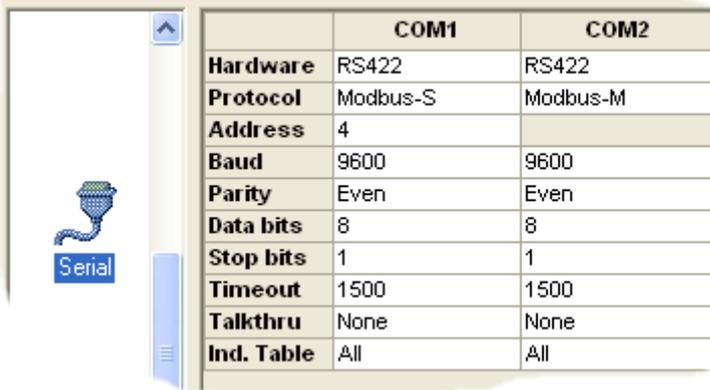
Hardware   Clicking in this field produces a pull down menu allowing the user to select the communications standard to be used. 'RS422' is commonly used to describe EIA485 five-wire communications; 'RS485', to describe EIA485 three-wire communications.

Protocol   Allows the user to select a protocol according to the serial link usage. The figures below show typical selections.
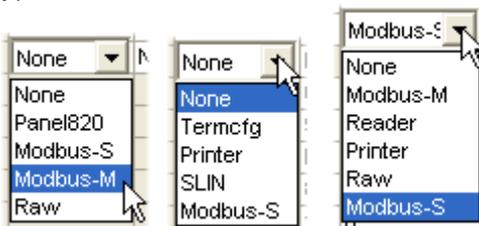
Address   The Modbus slave address for this instrument.

Baud   Select a Baud rate from the pull down menu. Available selections vary from one instrument type to another.
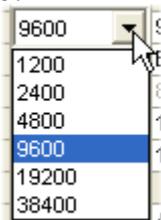
Parity   Select a Parity setting of 'None, 'Even' or 'Odd' from the available list. This selection must match the Parity settings for the rest of the network.

Data bits Select seven for the standard ASCII set or eight for the extended set. This selection must match the settings for the rest of the network.

Stop bits Select the number of bits indicating the end of a serial data byte. This selection must match the settings for the rest of the network.

Timeout   Enter a timeout value to define a period of time, in seconds, within which the slave or master must respond before the attempt is aborted and an error message raised.

Talkthru   Depending on instrument type, this allows the user to specify either a protocol to be used by this port for talk-thru, or another port to be used (using the protocol assigned to that port).

Retries   This defines the how many connection re-tries are to be permitted within the timeout period.

3.2.14 Startup
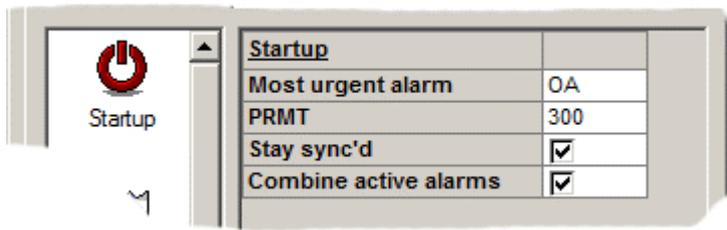
Hot Start	If Hot Start is ticked, then the instrument will attempt a hot start after the database restarts. If a hotstart is not possible, then if 'Cold start' is ticked a cold start is attempted, otherwise the database enters an idle state.
Warm Start	Alternative name for hot start for some instruments.
Cold Start	If a hot or warm start fails, and cold start is ticked, a cold start is attempted.
Most urgent alarm	This shows which alarm is the most urgent: OH = Oldest highest OA = Oldest active O = Oldest NH = Newest highest NA = Newest Active N = Newest
PRMT	For instruments which support duplex (redundant) working, this is the maximum time permitted for primary/secondary synchronisation (0 to 99 999 999 secs)
Stay sync'd	For instruments which support duplex (redundant) working with the ability to stay synchronised even if the subsystem health in the secondary processor is worse, this option toggles that functionality. With the option off, the processors desynchronise if the secondary subsystem health is worse than in the primary. With the option enabled, the processors remain synchronised in this scenario.
Combine active alarms	This option determines whether active alarms (option selected) or unacknowledged alarms (option unselected) are considered higher priority over the other for the Combined alarm field within a function block.

3.2.15 Time Sync
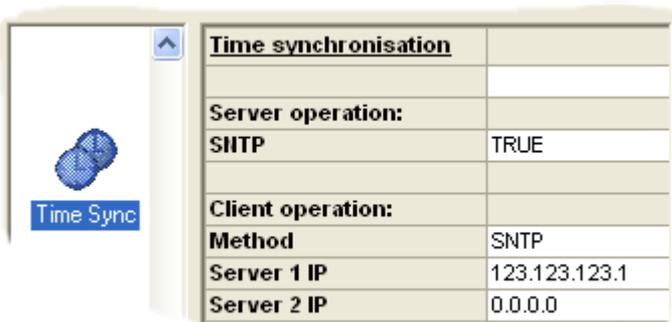
SERVER OPERATION

SNTP   Select SNTP as 'TRUE' or 'FALSE' to define this instrument as an SNTP server (TRUE) or not (FALSE).

CLIENT OPERATION

Method   Select 'SNTP' or 'None/TOD.
           SNTP means that this instrument is to receives time information from the SNTP server(s) the address(es) of which must be entered in the Server 1 IP and Server 2 IP fields below.
           None/TOD means that the time is derived internally, or it is synchronised via the TOD_DIAG block in the database.

Server 1 IP   This is the IP address for the primary SNTP server to be used for time synchronisation.

Server 2 IP   This is the IP address of the secondary SNTP server, to be used in the event of server 1 failure.

3.2.16 Time Zone

Allows the user to set up the local time offset for the instrument, including daylight savings time (DST) configuration.
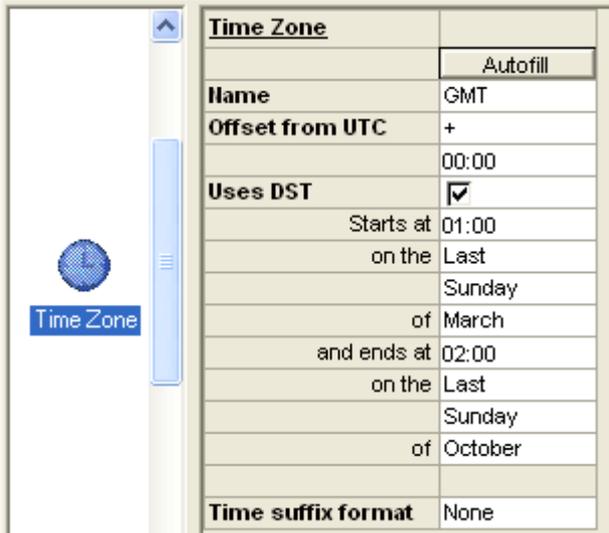
Autofill   This can be used to fill in some of the details automatically, according to the time zone configuration of the host pc.

Name   Click on the field, then type-in the three-letter mnemonic used to describe the required time zone.

Offset from UTC
                Select '+' or '-', then enter an appropriate offset either by typing in the values or using the hours 'Thumbwheel' that appears when the field is clicked. For those zones where it is necessary, the thumbwheel can be used to set the hours and the minutes then typed in.

Uses DST   Click in the tick box to enable Daylight savings time. The Start and end fields automatically fill with default values when selected.

Start/End parameters
                Type in, or use the thumbwheel controls to edit these fields as required.

Time suffix format

None   he time is displayed in the format selected in '[Internationalization](#)' configuration (e.g. 11:22:33) including DST if active.

Name   As 'None' above, but with 'Name' appended (e.g. 11:22:33 EST).

Name + DST
                As 'Name' above, but with 'DST' appended if DST is active (e.g. 11:22:33 EST DST).

GMT offset   As 'None' above but appends the offset from GMT (e.g. 11:2:33 GMT -08:00)

3.2.17 Upload current options Settings

Clicking on this button causes LINtools to connect to the relevant instrument (if possible) and then to load the current options settings ready to be viewed and / or edited. Use of this button overwrites any changes since the last 'Save' - in other words, it restores the previous configuration.

3.2.18 USB configuration

This allows the user to enable/disable certain instruments' functions (e.g. upgrade) associated with a USB memory stick.

Hardware	USB
Protocol	None
Media	☑
Upgrade	☑
Archive	☑
Support	☑

Hardware   Non configurable
Protocol   Non configurable
Media   Tick this box to enable the Memory stick. None of the following fields can be configured if this box is not ticked.
Upgrade   If enabled (ticked), the instrument performs an upgrade if the relevant files are found when the memory stick is inserted.
Archive   If enabled (ticked) all instrument history files are archived to the memory stick when it is inserted.
Support   If enabled (ticked) a support file is generated and sent to the memory stick when the memory stick is inserted. The support file contains diagnostic information useful to service engineers.

3.2.19 USB Port

For relevant instrument types, this allows the user to define a protocol for USB ports.

	USB1	USB2	USB3
Hardware	USB 2.0	USB 2.0	USB 2.0
Protocol	None	None	None
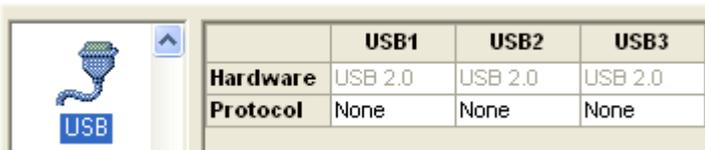
Hardware   Non configurable
Protocol   Choose the USB device to be connected to the relevant port.

None
None
Printer
Reader

3.3 THE NETWORK SETTINGS TAB
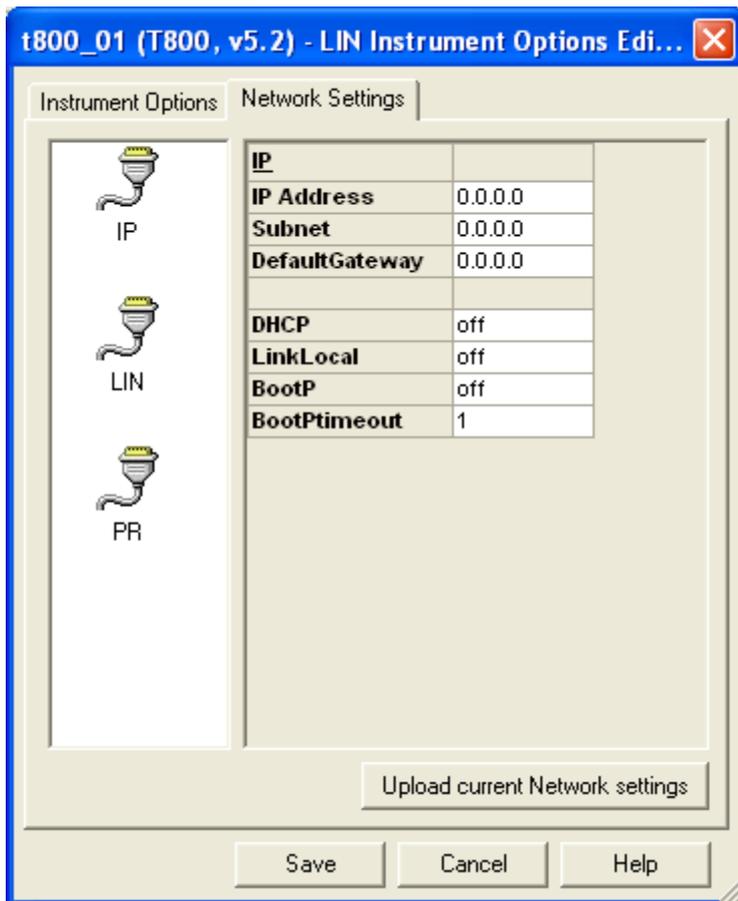
As can be seen from the figure above, there are three categories 'IP', 'LIN' and 'PR'. The following descriptions, arranged in alphabetical order, gives brief details of what each item covers. Click on the associated icon to jump to a full description.

There are also a number of buttons near the bottom of the display. The illustration above shows Version 5 - see 'Pre-version 5 controls' for a description of the earlier pushbutton functions.

3.3.1 Categories

IP   Configures the IP address for this instrument.

LIN   Sets up LIN network parameters for this instrument.

PR   Port Resolution. Shows the IP addresses of all the instruments connected to the same network as this instrument.

3.3.2   PUSHBUTTON CONTROLS

Upload current Network settings

If the instrument is connected to the network, then clicking on 'Upload current Network settings' causes a link to be established with the instrument, and the current settings are displayed.   If the instrument is of an unknown type, then the user is asked to 'Select Target Instrument'.

Cancel

Closes the Options display (without confirmation) and without saving any changes. (No separate topic.)

Help

Opens this Help system. (No separate topic.)

Save

Initiates (after confirmation) a download to the instrument (see 'Save' for more details).

3.3.3   IP
This category sets up the Internet Protocol (IP) details for this instrument.

IP	
IP Address	0.0.0.0
Subnet	0.0.0.0
DefaultGateway	0.0.0.0
DHCP	on
LinkLocal	on
BootP	off
BootPtimeout	1
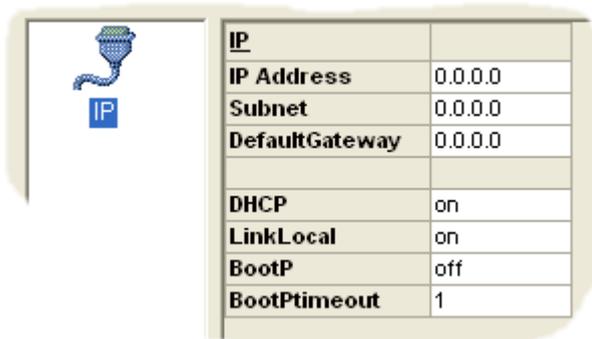
IP
If DHCP is set 'On', then these fields are always set to 0.0.0.0.

IP Address   If DHCP (below) is set 'Off', then a fixed IP address may be entered here.
Subnet   If DHCP (below) is set 'Off', then a suitable subnet address may be entered here.
Default Gateway
               If DHCP (below) is set 'Off', then a suitable 'Gateway' address may be entered here for use when the instrument is to communicate with other networks.

Note: It is normally necessary for the user to liaise with his or her IT department or Network administrator for assistance with identifying suitable entries for the above addresses. If the IP address is not unique it can cause communications problems throughout the network which can be very time-consuming to diagnose.

DHCP
Setting DHCP to 'on' means that the instrument will contact the network DHCP server in order to obtain a usable IP address.

DHCP   Select DHCP on or off. When set 'On', the above IP settings are all set to 0.0.0.0.
LinkLocal   If set 'On', the instrument will use an IP address from the LinkLocal range (169.254.X.Y). LinkLocal is used as a fallback to DHCP or BootP, or it can be used as the IP configuration method.
BootP   If set to 'On' then the 'Bootstrap Protocol' is used to obtain the network settings.
BootPtimout
               The period of inactivity (1 to 100 seconds) that must elapse before the IP address, the Subnet mas and the default Gateway address are indicated as undefined (i.e. 0.0.0.0).

3.3.4   LIN
This category includes the LIN communications parameters for the instrument.

Protocol Name
     Enter the name of the network to which the instrument is connected.

All subnet   If set 'On', then the instrument may communicate with other subnetworks. If set 'Off' then this instrument may communicate only within the specified network.
     The parameter can also be set using the 'Options.AllSubnt' bit in the instrument header block. If this bit is set 'false' from a cross-subnet connection, subnet communications are lost, and can be restored only by setting the 'Options.AllSubnt' 'True' again from within the header block.

Elin   If set 'On', ELIN is used as the communications protocol for the Network.

3.3.5   PR

Port Resolution. This display shows the IP addresses of all the instruments that are to communicate with this instrument across the subnet.

New entries can be made, or existing entries edited by clicking in the relevant field and typing the IP address.

4. INDEX

Scan for local contents

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