

4.4 Cross-Subnet Working

By default, a T940 will not communicate ELIN cross-subnet. This can be over-ridden in the network.unh file by setting "AllSubnet=on" in the [LIN] section. This defines the behaviour when the T940 first powers on.

The ability to communicate cross-subnet can be modified at runtime by using a new options bit in the T940 header block "Options.AllSubnt". Set this bit TRUE to allow cross-subnet working; FALSE to prohibit cross-subnet working.

Caution – it is possible to set this bit FALSE remotely from a cross-subnet connection; however, having done this you will lose communications & be unable to reset it TRUE!

4.5 Order codes

Two new ordering codes have been introduced to support the introduction of ELIN operation:

EXPMM = ELIN + Profibus + Modbus master + Modbus slave

EXXMM = ELIN + Modbus master + Modbus slave

Process Supervisor Handbook Addendum (Issue 2; July 2002)

1 PROFIBUS ENHANCEMENTS

1.1 Increased Profibus Node Count

Version 2/1 of the T940, described in this manual, supports a maximum of 16 Profibus nodes. This limitation reflected the maximum number of fully populated 16-way 2500 I/O units which could be supported.

Version 2/2 of the T940 supports a maximum of 123 Profibus nodes. However it must be noted that this feature is to allow support of simple third-party devices; the actual number of nodes that are supportable depends upon the complexity of the nodes in question. If using fully populated 16-way 2500 I/O units the limit will still be 16 such units (this is limited by the available configuration memory). If the capacity of the T940's Profibus configuration memory is exceeded, the affected database blocks in the T940 will activate their "Config" Alarm.

1.2 Improved Profibus Comms Efficiency for Digital I/O

Version 2/1 T940 is recommended for use with 2500 Version 2.27 & later. However, this combination imposes a restriction on the number of digital I/O modules which may be used on a 2500 base.

Version 2/2 T940 is recommended for use with 2500 Version 3.43 & later. This removes the above restriction allowing 16-way 2500 units to be fully populated with digital I/O modules.

For existing installations that wish to upgrade the T940 firmware to Version 2/2, but whose installed base of 2500s have not been (or cannot be) upgraded to Version 3.43: if the Version 2/1 file "ctrltmpl.lib" is copied to the T940's "E:" device, the T940 will behave the same as Version 2/1 when talking to 2500s, and hence can be used with 2500s Version 2.27 & later.

By default, T940 Version 2/2 will be shipped with the Version 2/1 ctrltmpl.lib installed on the "E:" device. i.e. by default T940 Version 2/2 will operate with 2500 V2.27 & later, but with the same restrictions as applied to T940 Version 2/1. To gain the advantages of T940 Version 2/2 (and only if all 2500s are Version 3.43 & later) delete the file "ctrltmpl.lib" from the T940's "E:" device.

From T940 Version 3/1 onwards, it is intended to ship without the "ctrltmpl.lib" file installed on the "E:" device.

For all T940 Version 2/2 and later, it will be possible to change the behaviour as described above by installing or removing "ctrltmpl.lib" to or from the T940's "E:" device as appropriate. The required "ctrltmpl.lib" file can be found on the CD "Eurotherm Suite Software (RI260925)" Issue 1.7 or later in directory: "\Non Installs\T940 SystemFiles"

Note: In a duplex pair, both T940 units must be configured identically, with respect to the ctrltmpl.lib file, or they will not synchronise.

1.3 Profibus demand data (version V3/1)

For software versions V3/1 onwards, the following Eurotherm specific keywords may be added to a slave GSD file.

Keyword	Value	Description
Eurotherm_Demand_Data	1, 2, 3	<p>If any Eurotherm product has been configured to support demand data, this line must be added to the GSD file that applies to that instrument.</p> <ol style="list-style-type: none"> 1 Eurotherm Drives products such as model 584SV, 590, 605, 690 etc. 2 Eurotherm Controls products, such as model 240x, T630, 2500 etc. 3 Eurotherm Recorders products, such as model 4103, 4100G etc.

1.4 Cabling

It is recommended that category 5 (CAT5) cable be used for Profibus installations. For this type of cable, the maximum line length per segment is 30 metres at 12000kbps or 70 metres at 1500 kbps.

2 PROFIBUS/MODBUS DATA TYPE CONVERSIONS

For software versions V3/1 onwards, the .uyp (profibus) and .uym (modbus) files support the following additional data types:

SREAL_p4	16 bit signed number in units of 0.0001
SUREAL_p1	16 bit unsigned number in units of 0.1
SUREAL_p2	16 bit unsigned number in units of 0.01
SUREAL_p3	16 bit unsigned number in units of 0.001
SUREAL_p4	16 bit unsigned number in units of 0.0001

3 MODBUS ENHANCEMENTS

For software versions V3/1 onwards, the modbus slave configuration space (GWF files) has been increased from 6kByte to 24kByte.

4 ELIN

Please also see the LIN Installation and User guide, HA082429U005

Versions 3/1 onwards will run ELIN (Ethernet LIN) as a default, unless an arcnet (ALIN) card is fitted internally. The instrument can still operate as an ELIN instrument, even if an Arcnet card is fitted, by setting 'ELIN = on' in the network .unh file.

4.3.2 ALIN / ELIN LEDs (Cont.)

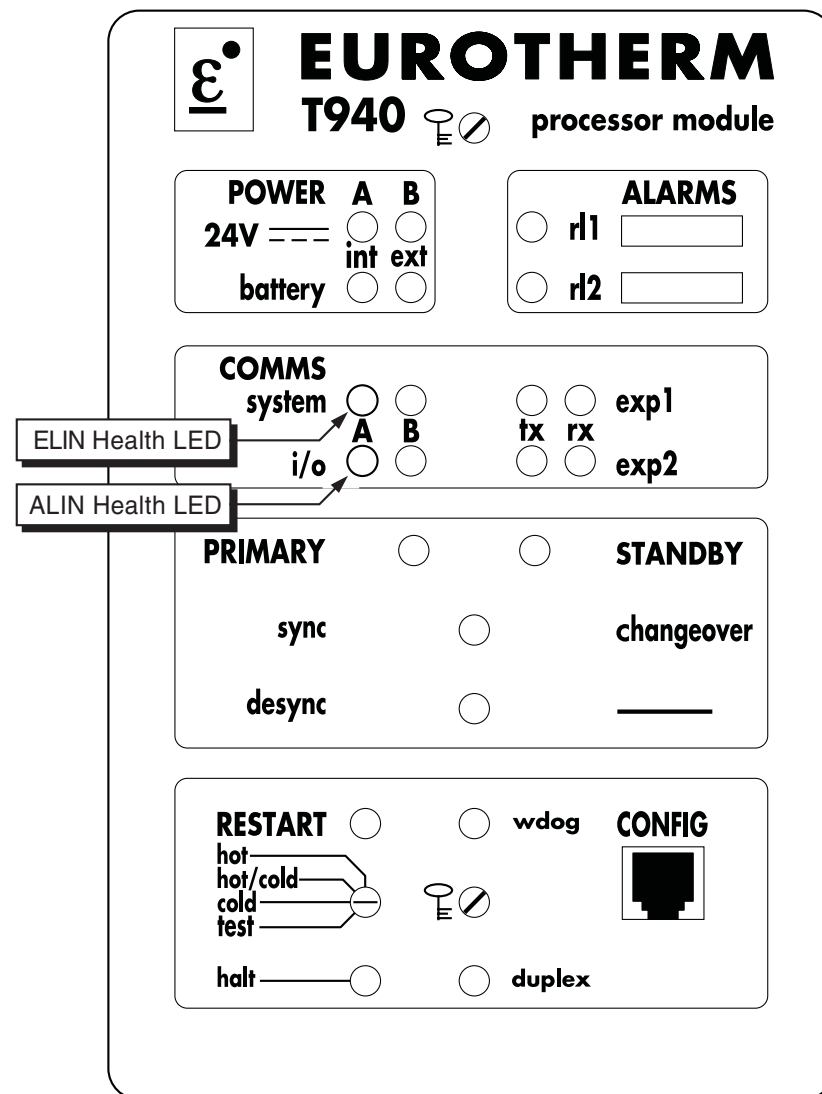


Figure 4.3.2 ALIN/ELIN LED locations

4.3.2 ALIN / ELIN LEDs

The health of the LIN interface is indicated via an LED on the T940 front panel (figure 4.3.2).

ALIN health is indicated via the “I/O A” LED

ELIN health is indicated via the “System A” LED

The T940 operating mode (ALIN or ELIN) can be determined by observing which of the above two LEDs is illuminated.

Either LED indicates the current LIN status as follows:

Green – LIN is OK

Red flash – external problem (e.g. cable break)

Red steady – internal problem (e.g. T940 hardware fault).

4.1 Terminal Configurator ELIN information

The terminal configurator provides a sign-on screen which provides some important information concerning the ELIN/IP/ethernet configuration. A typical sign-on screen might look like this...

```
EPA T940 Process Supervisor - V3/1 Beta version - 31H at 133 MHz
(Hardware Build: 00 - 1Mbyte SRAM fitted at 0xD00000)
Profibus card: PB-COMBIC104-PB Version: V01.058 29.05.01
Ethernet (MAC) address = 00:E0:4B:00:45:DA
IP address = 149.121.165.188
Subnet mask = 255.255.252.0
Default gateway = 149.121.164.253
POST result (0000) = SUCCESS
Hotstart failed because: Warmstart switch is disabled
Last shutdown because: Successful Power Down

1 ANSI-CRT
>>>
```

The following items refer to the ELIN/IP/ethernet interface:

Ethernet (MAC) address – this shows the address of the ethernet interface. This value is unique and is permanently fixed for an individual instrument.

IP address – this gives the IP address currently assigned to this instrument. It may be configured within the instrument or derived by BootP (T940 supports BootP, not DHCP) or Link-Local.

Subnet Mask – this gives the subnet mask currently assigned to this instrument. 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 (in which case it can talk directly to it), or a different subnet (in which case it must talk to it via the Default Gateway).

Default Gateway – this gives the IP address of the Default Gateway. It is the address via which this instrument must talk in order to communicate with IP addresses on other subnets. If undefined (0.0.0.0) then this instrument can only talk to other IP hosts on this same subnet.

4.2 ELIN Setup Page

The terminal configurator Utilities Menu now offers the additional ELIN Setup Page. This page allows the T940's network.unh file to be configured from a user-friendly interface, rather than having to edit the file directly.

```

Elin Setup (network.unh file)
-----
LIN PROTOCOL SETUP          | REMOTE SUBNET NODE LIST
-----|-----
Protocol Name      FRED          | 149.121.173.1
All Subnet Enable  ON
Elin Only Enable   ON

LOCAL IP SETUP

Get Address Method  BootP+LL
    
```

LIN PROTOCOL SETUP

This section allows specification of those items in the “[LIN]” section of the network.unh file.

LOCAL IP SETUP

This section allows specification of those items in the “[IP]” section of the network.unh file. If “Get Address Method” is specified as “Fixed”, then additional fields will be presented to allow the specification of IP address, Subnet Mask & Default Gateway.

REMOTE SUBNET NODE LIST

This section allows the specification of those items in the “[PR]” section of the network.unh file. Just enter a list of the IP addresses of remote nodes to which it is desired to communicate.

When the necessary configuration has been entered, press ESC. You will then be asked if you want to update the network.unh file. Press “Y” to update the file. You will then be instructed to power-cycle the instrument before the changes take effect.

4.3 CONTROL PANELS

4.3.1 Connectors

Figure 4.3.1 shows the locations of the (System A) connectors that are used for ELIN.

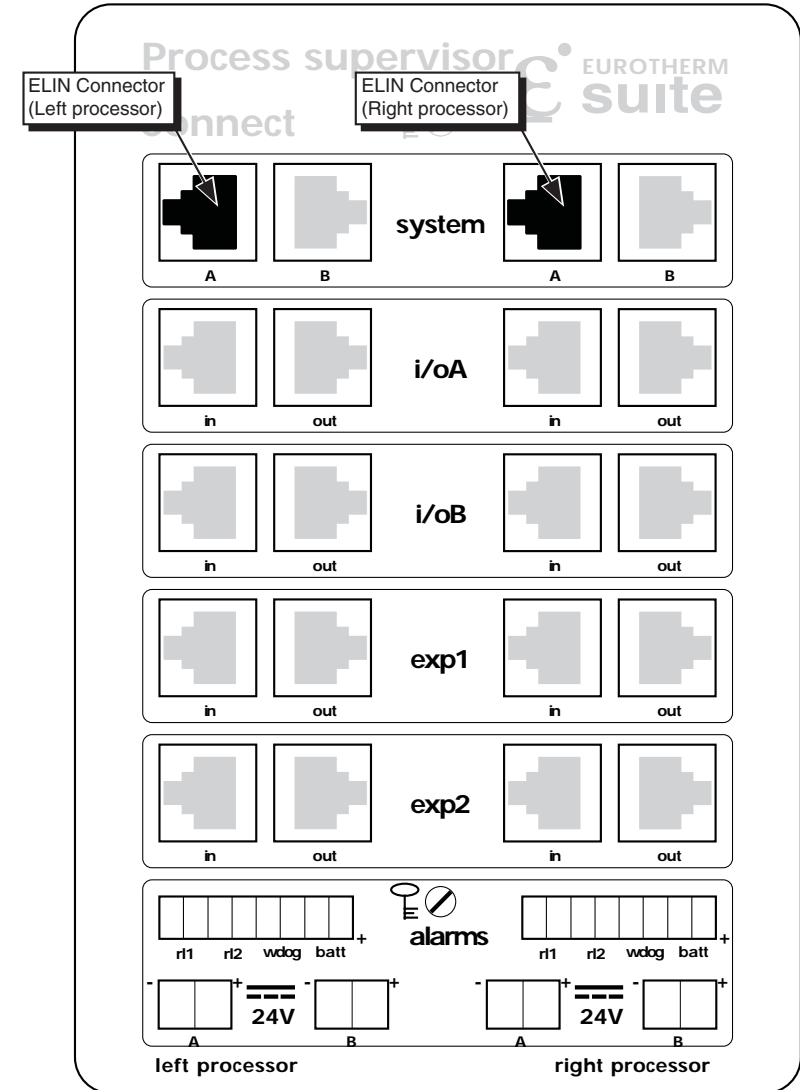


Figure 4.3.1 ELIN Connector locations