T940

MODEL

VISUALISE
CONTROL
RECORD
AUTOMATE
EUROTHERM suite

Process Supervisor

Product Data

- **Powerful controller with large application capacity**
- **Redundant processor option**
- **Open I/O network**

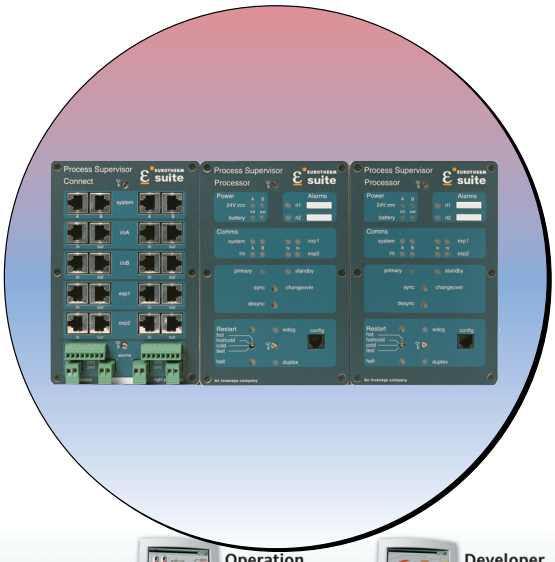
EUROTHERM

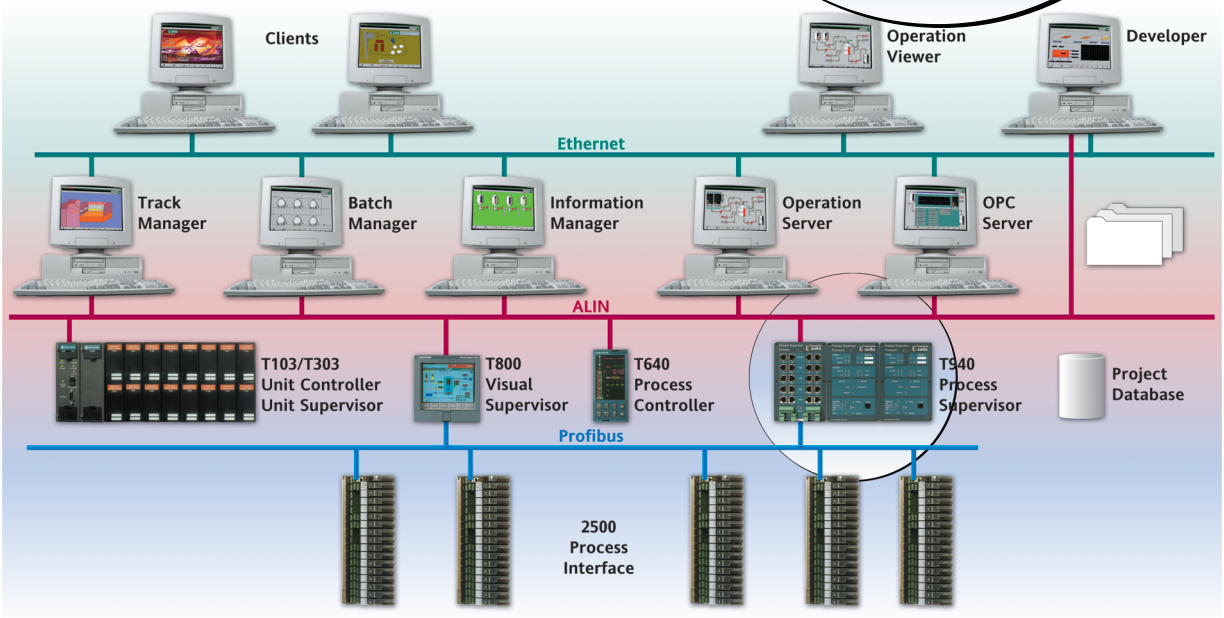
CONTROLS
DATA MANAGEMENT
PROCESS AUTOMATION

invensys
An Invensys company

PROCESS SUPERVISOR

- **Powerful Strategy Engine supporting continuous and sequential control**
- **Redundant processor option with automatic and seamless changeover**
- **Live replacement of processor and automatic initialisation**
- **Support for Ethernet, ARCnet and serial control network architecture**
- **Peer to peer control network for node and supervisory communications**
- **Open I/O network with simultaneous support for Profibus DP, Modbus RTU**
- **Redundant I/O communications support**
- **Reduced wiring cost with distributed I/O**
- **Flexible architecture**





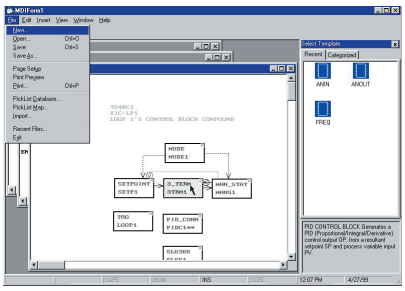
The Process Supervisor is a powerful and configurable strategy engine capable of performing both continuous and sequential control. It has evolved from the successful T103/T102/T100 Unit Controllers and is designed for large applications.

The optional redundancy of processor modules provides high availability solutions for process control and the live replacement of processor modules prevents any interruption of the process

The Process Supervisor provides an open I/O network with support for Profibus DP, DPV1 and Modbus RTU master and slave. The advanced peer-to-peer communications on ALIN, together with the open I/O network delivers a distributable system.

CONTROL ENVIRONMENT

The Visual Supervisor is capable of both continuous and sequential control. Its open network architecture allows connection to the Process Interface (2500) I/O modules and other third party devices. Separating the processing from the I/O allows physical distribution of the modules which saves on wiring costs.



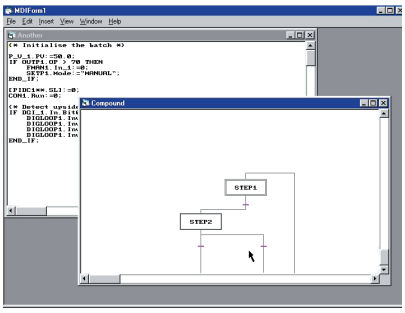
Continuous control

The continuous control strategy is built by interconnecting function blocks selected from an extensive library.

- Advance control
- Easy to use block structured programming
- Function blocks library includes control, timing, logic, math
- ISA-S88 based control modules representing physical plant equipment such as valves, pumps
- User configurable function blocks

Sequential control

Sequential strategies are built using the powerful and intuitive Sequential Flow Chart (SFC) configurator. The sequential control capability of the Process Supervisor allows the configuration of phases for batch process as defined by the ISA-S88 process model.

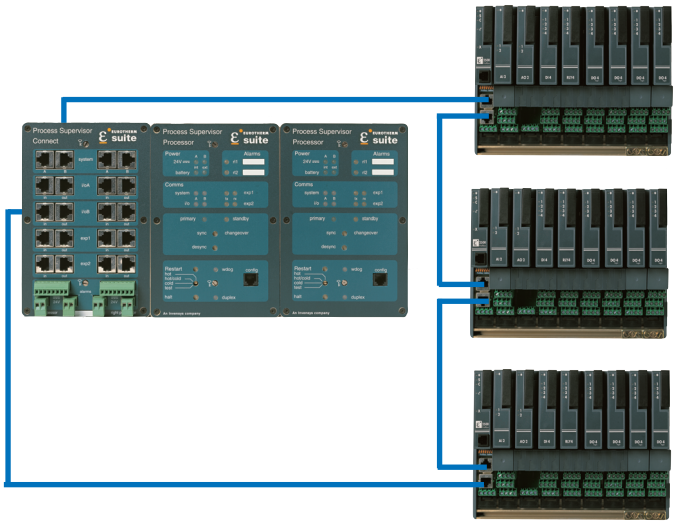


- Ideal for configuration of phases for a batch process
- Multiple sequences running simultaneously
- Sequences can be loaded and unloaded as required by process
- Easy to use Sequential Flow Chart programming

REDUNDANT CONFIGURATION

The Process Supervisor duplex redundant option provides

- Two separate processor units
- Separate power supply connections for each processor
- Dual control network connections (ARCnet and Ethernet)
- Dual I/O network connections (Profibus DP, DPV1 and Modbus serial)



In duplex operation, the two processor modules are designated one as primary and the other as secondary. On power-up the primary module runs the control strategy and communications while the secondary tracks the primary operation and status via a high-speed data link. Upon detection of a failure in the primary processor, the changeover form the primary to the secondary will be automatic and bumpless, initiated by watchdog circuits and software checks.

All control and I/O communications are also switched transparently from primary to secondary in the event of a failure.

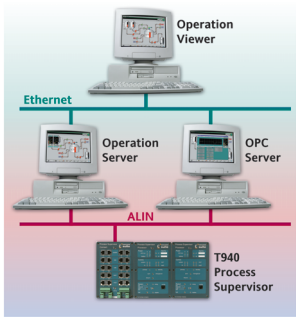
The fascia of each processor gives visualisation of its status via LED and also allows processor synchronisation and manual changeover.

FLEXIBLE COMMUNICATIONS

The Process Supervisor supports a number of different communication ports simultaneously. Connections via RJ45 connectors are provided via the Connect Module allowing the replacement of the Process Module without effecting the cabling LIN communications.

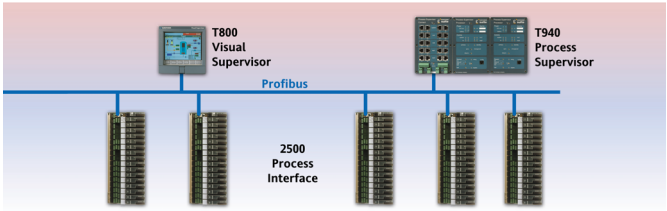
CONTROL NETWORK

Process Supervisor's control network provides peer-to-peer LIN communications with other control nodes such as Visual Supervisors and additional Process Supervisors. This communication is provided using Arcnet or Ethernet and is the method of connecting to Supervisory systems. Process Supervisor can also be used to communicate with any third party device that supports Profibus DP and Modbus RTU protocol.



- Peer-to-peer communication between nodes using LIN protocol
- Available on ARCnet or Ethernet cabling
- Profibus DP master
- Modbus RTU master and slave
- Simultaneous support for Profibus, Modbus and ARCnet or Ethernet

OPEN I/O NETWORK

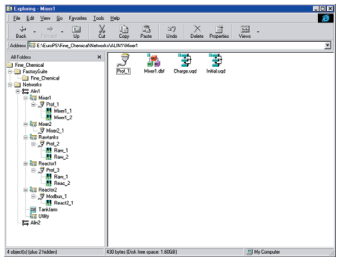


Process Supervisor is designed to use Eurotherm's 2500 for its distributed I/O system. It can also communicate with any third party device that supports Profibus DP or Modbus RTU protocol.

- Connectivity to 2500 distributed I/O via Profibus DPV1
- Available as Profibus DP master
- Supports Modbus RTU master and salve
- Simultaneous support for Profibus and Modbus

CONFIGURATION

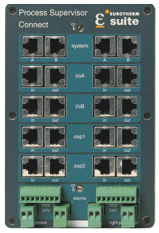
Eurotherm Project Studio 2000 contains the LINtools that is used to build both continuous and sequential control strategies. Eurotherm network explorer is also available to download files, and stop/start each individual Process Supervisor node.



MODULAR HARDWARE

The modular hardware of the Process Supervisor comprise a chassis, a Connect Module and up to two Processor Modules.

Connect Module



All external connections to the Processor Module are via the Connect Module, allowing the removal of a processor unit without any disturbance to the external cable interface. All the communication connectors and termination plug-ins are RJ45 format. The RJ45 connectors on the front panel can be wired for ALIN, Modbus RTU or Profibus DPV1 use, according to specification at the time of order. The pairs of RJ45 connectors on the left-hand side of the module are assigned to the left-hand processor and the right-hand connectors to the right-hand module. Each pair of connectors is wired in parallel to facilitate easy daisy chaining. Each processor has two 24V-supply connections. Additionally, a separate connector allows external battery, watchdog, and two software configurable alarm relays.

Processor Module

Up to two Processor Modules can be installed on a chassis and can operate either independently (simplex), or in redundant mode. In redundant mode, one of the processors acts as a primary which is backed-up by the secondary in case of failure.

All external interfaces to the Processor Modules are via the Connect Module.

Processor modules can be supplied by two external 24V-power supplies to ensure operation in the event of power failure. The LEDs on the front panel of the Processor Modules provide comprehensive status indication, allowing for rapid verification and diagnostics.

The start-up mode of the module is selected from the front panel switch.

Inside the processor, a plug-in memory module holds both control strategies and operating software, enabling their rapid transfer to a spare instrument.

REMOTE I/O

The Process Supervisor is designed to work with EurothermSuite Process Interface (2500) units. Up to 16 Process Interface units may be multi-dropped from the Process Supervisor and it can work with any third party I/O which supports Profibus DPV1 or Modbus RTU.

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