SYSCON
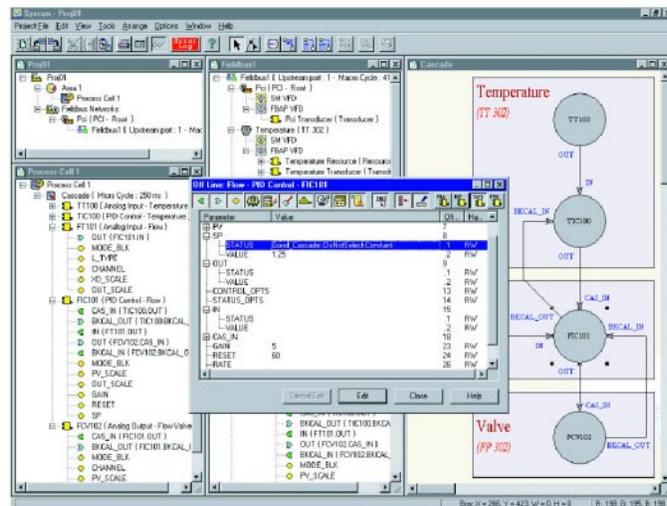## SYSTEM CONFIGURATOR

Features

- Integral part of SYSTEM302.
- Move to a proactive maintenance scheme.
- Shorten engineering and start-up time with off-line configuration.
- Significantly reduce maintenance costs and reduce downtime with Instrument Management.
- Fully utilize field instrument power with block instantiation and DD.
- Minimize field trips.
- Less effort and resource requirements, plus consistency improvements with templates.
- Easy integration.

SYSTEM302

The System Configurator (SYSCON) is a powerful software component integral to the modular SYSTEM302 software application suite which includes all the best-of-breed applications you need to configure and manage all aspects of your SYSTEM302 including hardware, control strategies, operator interface and communications.

A modern control system needs more than just configuration and monitoring software. More than inflexible "closed" applications and inaccessible data associated with DCS. SYSTEM302 runs on a standard commercial or industrial grade PC platform with the open Windows™ NT operating system, which is the powerful basis for the information architecture for today's enterprise. As Information technology (IT) is playing an increasingly important role in the process industry, SYSTEM302 is the platform to build upon.

System Configurator

For plants, engineering companies and system integrators that spend too much time, money and other resources on engineering SYSCON is the core of the plant "information networking", which provides the traditional configuration and monitoring functions, plus rich new functions for field device calibration, diagnostics, identification, materials of construction and setup. Manage your instruments better - see what you have and where it is. You can build your applications and integrate workstations and other applications with unparalleled ease, economy and performance. The main interface of the System Configurator application is the Windows Explorer like browser. Use is intuitive as you navigate your system in a familiar way. Instead of disks, folders and files you have networks, devices and blocks. With SYSCON you can graphically build and manage your plants control strategies. SYSCON is also the application with which you perform calibration and diagnostics, all with the same universal software tool. SYSCON makes extensive use of Microsoft Windows technologies such as OPC (OLE for Process Control), OLE, DCOM and ActiveX to provide tight integration with other applications in the SYSTEM302 suite, and with software from other manufacturers, including Microsoft's own Excel spreadsheets.

*Navigate your system in a familiar way.*
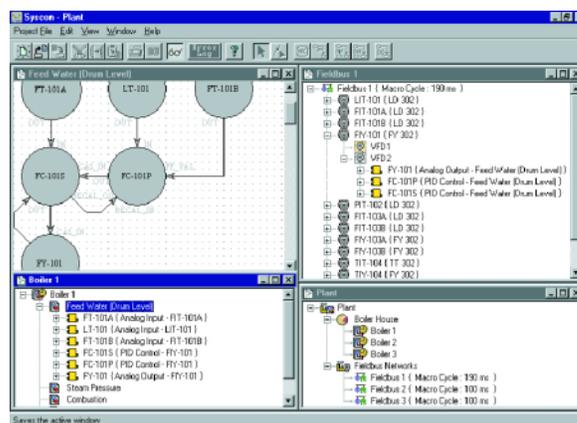
SYSCON results in savings throughout the plant life cycle. The easy and productive tools for control strategy building saves you time and cost at the initial engineering stage. Automatic detection and address assignment combined with tools for identification and trouble shooting makes your commissioning quicker. Online continuous diagnostics and operational statistics improve your maintenance bottom line. Access material of construction data to order identical devices or access its suitability for a certain application. Open, flexible and scalable software modules makes changes and expansions easier and less costly.

Plug-'n'-play ease of use

SYSCON has intuitive pull-down menus, drag-and-drop of objects between multiple windows, freely move and resize using the mouse, and modify attributes like colours, fonts and size etc. using the familiar Windows look and feel. Mouse wheel for scrolling is also supported. Established conventions of the Explorer and MS-Office are followed requiring a minimum of training. You can get started right away. Predefined and customer templates, and default values, combined with functions like copy, cut and paste makes building of control strategies a quick and simple task. In case of doubt and for first time users, the online help provides step-by-step instructions and important clues. SYSCON is the easiest to use Fieldbus configuration and diagnostics tool.

Link help shows block diagram, which inputs are already used, and description for each terminal.
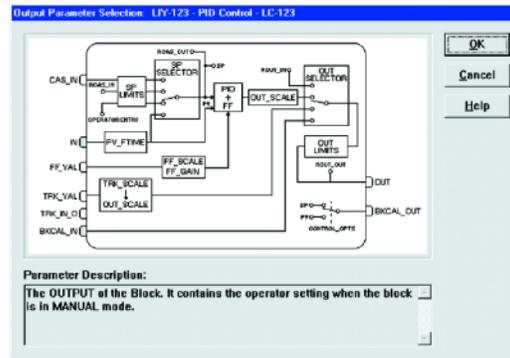
Configuration is simplified by wizards-like prompts that guide you through the configuration. Online help topics provide help, e.g., in the form of step-by-step instructions on how to make a configuration.

Drawing tools helps clarify the configuration.
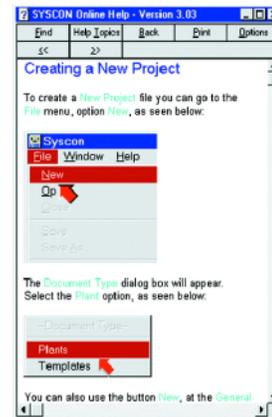
Because SYSCON has simple, easy to use tools and libraries, you can initially create your control strategy quickly, and constantly improve on it. SYSCON lets you be more creative, you can enjoy testing out new control strategies. SYSCON is the most convenient way to deal with your instruments, and the most to work with. You can finish your tasks faster.

SYSCON checks for configuration consistency, verifying the configuration against the device's resource file ensuring that more resources than the device supports is not allocated. SYSCON also prevents users from making other kinds of illegal configurations.

Wizard, e.g., for device firmware upgrade brings the user through the procedure step by step reducing the risk for error and eliminates time consuming referrals to the manual.

Configuration

Configuration entry is completely graphical and object oriented. Function blocks are depicted as circles just like an ISA S5.1 P&I diagram. Tag and description of the block is displayed along with block input and output names. Additional illustrating graphics and clarifying annotations and descriptions can be added to illustrate concept or grouping. Configuration includes selection of devices and function blocks, linking and parameterization of the blocks.

With SYSCON you can work offline or online. In offline mode you are not connected to any devices. You can prepare a configuration in advance, anywhere. Save the configuration as a file and download it later. You can e-mail the configuration to other sites or even for Smar engineers to check. In online mode you are connected to one or more devices via the interfaces or bridges, and you receive the data directly

from the field devices, and your modifications are immediately sent to the instruments. Offline mode is ideal for development of new control strategies without disturbing operators in their day-to-day work. You can work on several modifications off-line on a separate workstation without any devices connected, while the system is running concurrently, and download it when ready. This makes it very easy to try out new control strategies during a start up, or on a pilot plant.

You graphically build and edit your control strategies. View and troubleshoot executing control strategies online, all within a single application. No compilation of the configuration is required before download. Therefore separate entry and viewing applications are avoided. After configuration, you can download straight away and proceed with online viewing using the same application. Standard parameter names, and unique user defined tags are easy to remember, relate to, and reference to drawings. No pages, registers, memory or controller addresses are used. Control strategy configuration is totally transparent from the physical devices. Yet, the physical device associated with a particular function is easy to find. Device and block tags, as well as names of control modules, areas and process cells etc. can all be given 32 character names for easy referencing.

SYSCON lets you easily manage the increased information availability in the Fieldbus system. You can browse devices and blocks from a network point-of-view arranged logically in a spanning tree per bridges and Fieldbuses, or from a control strategy point-of-view hierarchically per the ISA S88 standard. Networking let you easily view and modify online information from the field devices, all from a single location
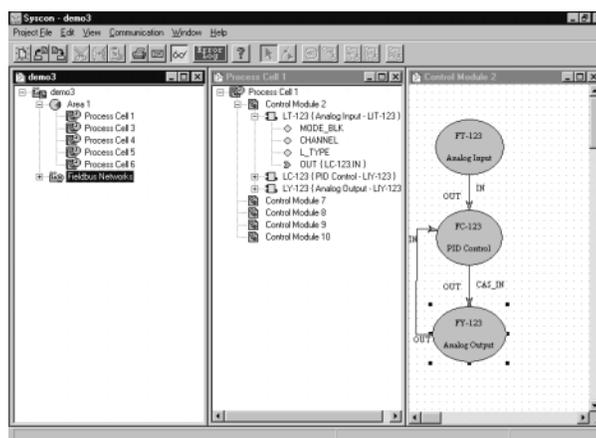
Navigate your system from a control strategy point-of-view.

Configure either starting from a network and device point of view with blocks later, of from a strategy point of view starting with the blocks first and then assigning them to the devices, whichever you feel more comfortable with. Block execution schedule building is completely automatic. The system keeps you informed of the current macro-cycle for the bus as you configure. Even in offline mode. In the control strategy browser you can see which blocks belong to a given control module, independent of the device they are being executed in. You can also tell which device a given block is allocated to, and which blocks that have not yet been assigned to a device. Parameters changed from their default value are listed.
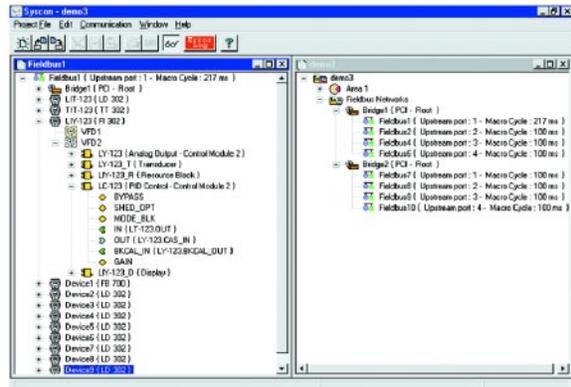
In the network browser you can explore the system organised in a hardware hierarchy to see e.g. in which control module a device's block is being used, see the macro-cycle and set network parameters such as background traffic slot etc. Other hardware related tasks such as tag assignment is also done from here.

A library of pre-configured reusable control strategy templates for common configurations is available. You can also build as many loadable reusable templates as required. Templates can be reused any number of times, and also be individually customised for individual applications. Templates let you build your strategy faster and at the same time ensure consistency throughout the plant. Using strategy templates configuration can be simplified, less tedious and less time consuming. A template is simply a collection of function blocks that not yet have been given a tag, but may be linked together and have their parameters pre-configured. Users can either create their own templates or use predefined templates for common control strategies such as single loop, cascade, ratio, over-ride, tracking, cross-limit combustion, three-element feed-water/level etc.

Identification

SYSCON automatically detects, identifies and assigns addresses to Fieldbus devices as they are connected, and can also tell if they are disconnected, have communication problems or fail. This considerably simplifies communication and troubleshooting as compared to traditional systems.

The live list gives an overview of network status.

With SYSCON it becomes extra easy to benefit from interoperability as you can easily manage devices from multiple manufacturers and of many different kinds. Easily check identification of devices such as manufacturer, device types and device and DD revisions. View overall device status and device operation for a general idea of instrument health.

*Check overall status, identification and revisions in resource blocks.*

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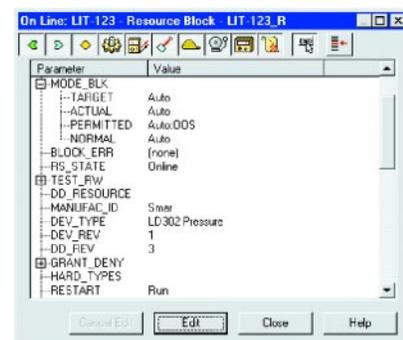
Maintenance and Diagnostics

Because SYSCON is a powerful application that incorporates all the essential instrument utilities, you only need learn and use one tool for diagnostics and configuration of all your Fieldbus devices, independent of manufacturer. You have a single environment for configuration and troubleshooting.

Learn and use one only tool for diagnostics and configuration of all your Fieldbus devices.
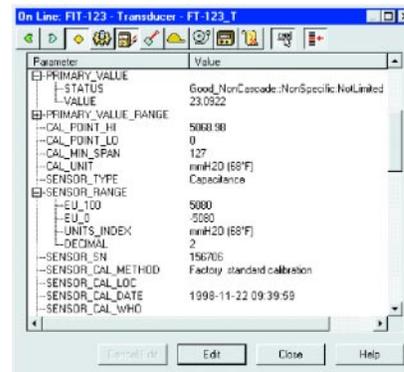
SYSTEM302 is easy to troubleshoot should you have to. You can tell from status and modes why your strategy is not working, letting you understand problems and correct them. Testing of a control strategy is simplified using the I/O simulation capability in Fieldbus devices, which allow you to safely test the system's response to normal and abnormal conditions. You may trace the inputs and outputs of blocks and devices in real-time to find problems.
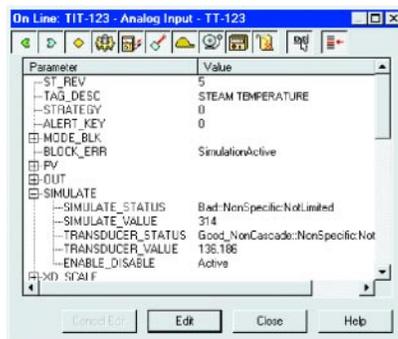

Simulate I/O values and status in the function blocks to safely test system response.

An error log makes tracking of communication problems and use automatic, and is very useful when troubleshooting.

Monitoring

SYSCON runs on the same workstation as the operator interface, at the same time. When a bad status or abnormal mode is indicated in the operation screen, check SYSCON to tell what is going on without having to leave your station. You can see blocks in the field devices, interfaces or bridges. Blocks look the same regardless of their physical location.

SYSCON is extremely powerful, with access to every little piece of information in the system, suitable for engineering work. The normal day to day operation of a plant typically requires access only to a subset of these parameters. Therefore, the operator display is typically limited to only alarm, tuning and scaling information with a basic diagnostic summary. This makes normal operating displays less cluttered, and helps you focus on the important information. Should the need arise, switch to the higher level of detail provided by SYSCON. I.e. many functions such as tuning can be performed from either SYSCON or the normal operation station's tuning screen, but since they have a single common database located in the field device, there is no risk for duplication or inconsistencies.
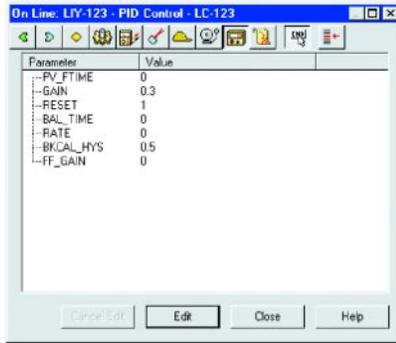
Within SYSCON you can filter the parameters to see only the information you are interested in, and make it easier to find the parameter you are looking for. Parameters are classified, and are filtered according to one or mode classification: Inputs, Outputs, Contained, Dynamic, Diagnostics, Service, Operation, Alarm, Tune, Local or all.

Calibration

SYSCON allows you to both perform calibration and review the calibration status of a device. You can see when calibration was last performed and at which values and other data regarding the calibration. You can see the sensor range limits, the calibrated range and the selected measuring range. Readout is in engineering units, which are selectable as SI or legacy imperial system

Perform calibration and review calibration status in transducer blocks.
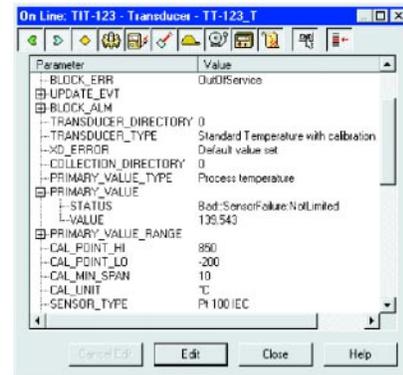
Scalable

SYSCON is the easiest and most convenient way to perform calibration and diagnostics as you can perform all functions from the same system, without having to leave the operator station. However, SYSCON may also be used portable in a notebook computer suitable for field use.

SYSCON has a simple and flexible licensing scheme based on the number of function block tags required. Moreover, no hardkey is used. System sizes start from a few blocks letting you start small with just a pilot plant, or a single independent unit, and range up to thousands so that you can grow large. Expansion is easy and low-cost. Existing parts are not undermined. You can increase size and improve without having to reconfigure the whole system. You don't outgrow such a system.

By virtue of the fact that SYSTEM302 is built around Windows NT on the PC workstation platform, which has built in Ethernet, SYSTEM302 automatically benefits from growing power in these technologies. Once improvements in speed and other performance are introduced, they are automatically part of SYSTEM302 as they are incorporated into Windows ensuring users the latest technologies. You don't have to get trapped with older technology. This compares very favourably against proprietary solutions, which takes aeons to implement new technologies. You can remain confident in a rapidly changing world.

Versatile and full featured

With SYSCON you get access to all the information in all Fieldbus devices. You can configure transducer and resource blocks, and all kinds of function blocks such as Analogue Input, PID Control, Analogue Output, Discrete Input, Discrete Output, Arithmetic, Integration (Totalization), Signal Selection and many more. Off-line configuration, which allows you to start your engineering work before you have received the field instruments, or at an off-site location, is a feature important not only for the initial start-up, but also for future expansions. Another important feature is the capability to instantiate function blocks in devices that supports this function, such as the Smar 302-series. This gives you the ability to select which blocks and how many that you require for your control strategy. This in turn ensures you the greatest possible flexibility, which enables you to completely benefit from field level control and as far as possible eliminate the need for stand alone controllers.

Standards based interoperability

SYSTEM302, and therefore SYSCON, is built on four key market leading standards: FOUNDATION™ Fieldbus, Ethernet, Windows™ NT and OPC. All of these enable powerful solutions by seamlessly networking hardware and software modules and components together. SYSCON is a true 32-bit application, and also supports long file and folder names etc. All Fieldbus devices from Smar's product portfolio, and devices from other manufacturers can be linked to SYSTEM302 to be configured and operated from SYSCON. The OPC standard is a client/sever technology, which allows you to monitor and configure devices from workstations (clients) connected to remotely located interfaces and bridges (servers) connected via an Ethernet network. Many workstations can access the data at the same time, allowing several persons to work simultaneously. SYSTEM302 interfaces and bridges such as the PCI and DFI302 (see separate data sheets) come with OLE servers which effectively integrate with the rest of the system. Once a function block is configured in SYSCON, all its parameters are automatically made available to the operator interface where they may be selected for display, trending and reporting etc. SYSTEM302 let you harness the combined power of these technologies. With SYSTEM302 you can use a variety of popular HMI and fully benefit from a rapidly growing number of OPC client-server applications. Many existing third party applications already in use can be fitted with OPC client interface allowing you to integrate SYSTEM302 with your installed base. The openness of SYSTEM302 gives it more hardware and software choices than any other high-end system. Many companion products are already available.

SYSCON supports Device Description (DD). You can therefore configure devices not only from the Smar 302-family, but also FOUNDATION™ Fieldbus devices from other manufacturers. New DD files are easy to add and manage as new devices are connected to the system. The logical DD filing system makes it easy to cut and paste as well as drag and drop DD files into SYSTEM302.
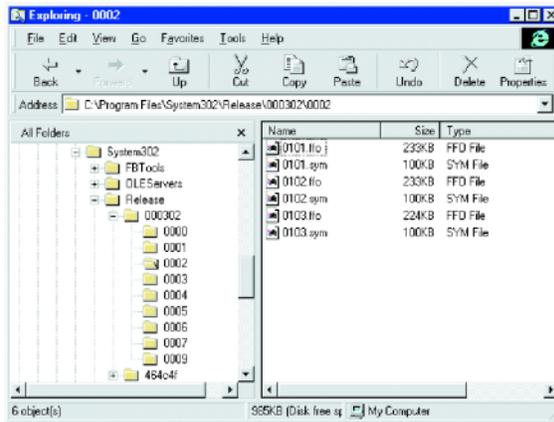

Device description support is easy to extend and let you configure device from any manufacturer.

Tags are exported for OPC, allowing database integration with any OPC compliant HMI. You are not locked to just one HMI. You can select the HMI you prefer, such as the one you are already using. SYSTEM302 is completely open, without sacrificing integration.

Automatic Documentation

Apart from saving the configuration in electronic format, SYSCON also allows you to print out the configuration for documentation purposes, together with the illustrations and annotations you have added. Hence there is no need to separately generate documentation using other tools. The documentation is generated automatically as you enter your configuration. Keeping documents up to date is therefore easy.

Point out the configuration for documentation purposes.
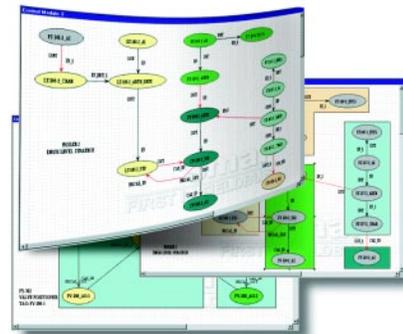
Improve Maintenance and Calibration Practices

All field instruments have more or less extensive diagnostics coverage depending on the type of device, the manufacturer and model. The devices in Smar's 302 series all have extensive diagnostics, which is a major strength. Independent of the amount of diagnostics data generated, SYSCON can using the device's DD access all those parameters and display them to the operator. These include not only information about if a device has already failed or not, but also operational statistics such as total valve travel and the number of reversals. Information that may be used to

predict the time of failure based on the manufacturer's life expectancy data for critical parts. Knowing this in advance, the chances of a surprise shutdown is reduced, and you can order the spares in advance, as well as proactively schedule the maintenance at a convenient time, where all the devices on a unit can be done at the same time. Process parameter attributes for quality and limit are displayed to the user. SYSCON may also check on the status through the all the diagnostics parameters available throughout the blocks in Fieldbus devices.

Field proven and based on experience

SYSCON version 3 builds on the experience and customer feedback from the previous versions and its predecessors CONF600 and CONF301. SYSCON was the world's first Fieldbus configuration and diagnostics tool to be used in real commercial applications. In operation around the world since 1995 in virtually every industry, SYSCON has been fully field proven and have benefited greatly from feedback from users that work with SYSCON on a daily basis. A global network of offices and experienced representatives is available to support systems on a world wide basis.

Workstation Requirements

- SYSTEM302 Workstation hardware
- Windows™ NT 4.0 Workstation Service Pack 3
- CD-ROM drive
- Ethernet 10/100 Mbit/s (optional)
- 32 MB RAM
- 10 MB hard disk
- 800 x 600, 256 colour display
- Pentium 60 MHz

How to Order

The SYSCON license is available in several levels with different function blocks capacities.

Ordering Code

SYSCON   **System Configuration**

CODE	Local Indicator
1	16 Function Blocks
2	32 Function Blocks
3	64 Function Blocks
4	128 Function Blocks
5	256 Function Blocks
6	512 Function Blocks
7	1024 Function Blocks
8	2048 Function Blocks
9	4096 Function Blocks

SYSCON	-	6

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Up-to-date address information is available on our website.

web: www.smar.com/contactus.asp

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