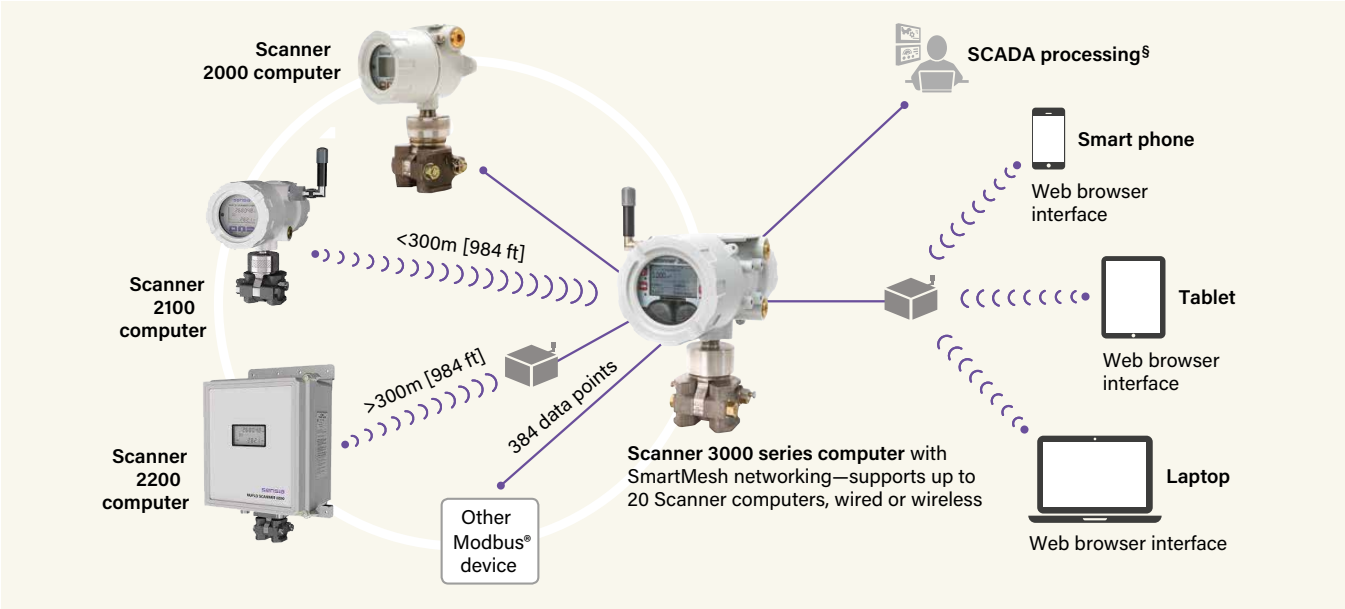
+ Programmable logic enhancement suite for Scanner 3000 series flow computer

How It Works



The programmable logic enhancement suite provides programmable logic control (PLC) style functions to the Scanner* 3000 series flow computer product family. It enables customers to apply their process application knowledge and realize their unique control objectives with best-in-class tools. The suite operates with all existing Scanner flow computer features, including the use of networked resources.

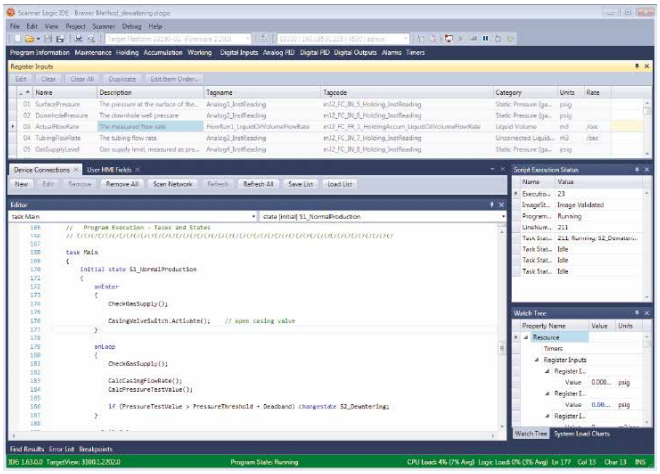
This suite applies a third-generation, object-oriented programming language with similarities to the C# (prime) programming language and ISO 61131 structured text. Its power and productivity is advantageous for experienced automation professionals whose work may entail production optimization, shutdown or startup sequencing, well testing, batch control, or other objectives.

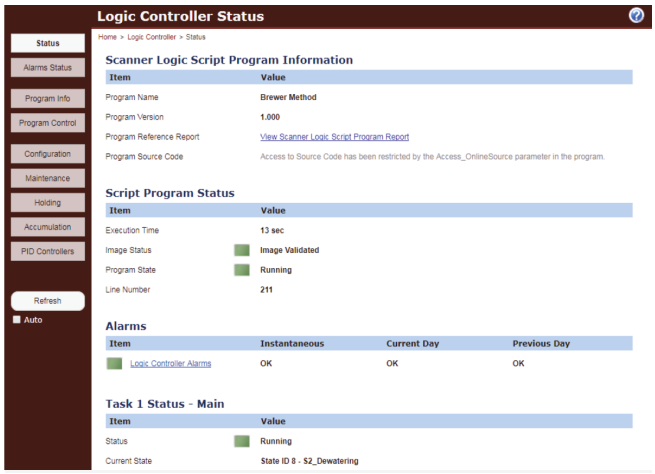
The suite delivers unparalleled value because it is standard in the Scanner 3000 series flow computer with version 3 or higher firmware. Like all firmware features that Sensia has added, the enhancement suite can be upgraded to existing Scanner 3000 series flow computers without expense or time-intensive authorizations. The latest firmware is available for download and can be remotely installed using the ScanFlash PC application.

Components

The programmable logic enhancement suite comprises five components:

+ language and related definition, which is detailed in a programmer reference manual
+ integrated development environment (IDE), a PC-based Windows program that is the workbench used to create the program that will run on the Scanner flow computer
+ compiler located in the IDE, which bundles the created program into a file that can be installed and run in the Scanner flow computer
+ script file that can be uploaded or downloaded to and from the Scanner 3000 series flow computer; downloaded files can be transferred to another Scanner 3000 series computer without involving the IDE using the HTTP or FTP interfaces
+ Scanner firmware, version 3 or higher.





Simplified, powerful programming

The Scanner flow computer functions as a state machine. Each state in the program performs in three steps—"on enter," or what you want to have occur on arrival to this state; "on loop," or what you want the flow computer to monitor and satisfy before proceeding; and "on exit," or what you want to occur as you leave this state. Each program can have 100 states, and a Scanner computer can simultaneously run four independent user programs. The suite supports more than full Boolean logic.

High-productivity performance with low barrier to entry

The enhancement suite offers a modern IDE for coding. Based on what you type, the tool offers probable choices and autocomplete features, expediting code writing and reducing errors. A real-time parser highlights syntax errors as you write, and helper dialogs present user-named resource objects and registers. Additionally, subroutines can be reused.

As applicable, programs can acquire input data or direct outputs to local and remote resources, such as

+ local display
+ data logs
+ PID controllers
+ local I/O
+ remote I/O, including other Scanner flow computers and Modbus® devices.

Protection of core objectives

The main advantages of the Scanner 3000 series flow computer are its metrological functions and record keeping. The suite includes built-in protection to avoid programming flaws that can lead to a memory leak, infinite loop, or other compromises to measurement integrity. A highly effective in-system online debugging tool is also available.

User-intuitive operations

Operators can view values and maintain configuration variables associated with a custom program, without installing software or understanding how the program was created. All operations can be performed using a web browser connected to the server within the Scanner flow computer.

Similarity to a PLC

Programmable logic controllers are versatile automation devices that efficiently operate a piece of equipment, process, or facility in accordance with user-defined objectives. These objectives are achieved within a Scanner 3000 series flow computer by monitoring and enacting throttling control and discrete responses based on the considerations of time, sequences, and calculation.

The Scanner 3000 series flow computer also serves as a remote terminal unit, data logger, data aggregator, and controller. Flow computers provide exacting calculations and specific record-keeping functions to support a measurement audit or facilitate amendments when new data arrives. Flow measurement is a fundamental requirement in upstream resource extraction activities. Many of these sites can be improved by control.

The Scanner 3000 computer offers offers a cost-effective alternative to deploying a dedicated control device that is not purpose built for use in hazardous locations. This alternative eliminates redundant expenses associated with device acquisition, engineering, and deployment.

Additional capabilities

In addition to the various configurable capabilities within the flow runs, proportional-integral-derivative controllers, alarms, and Modbus capabilities, the Scanner flow computer has a function called Calculators. Calculators offers the same mathematical operators found in a scientific calculator. The user can choose values found in the flow computer and create formulas with operators and constants. Station totals are easily summed with Calculators. Users can average or accumulate the results over a specified period and then direct them to any resource in the Scanner 3000 series flow computer, such as the display, flow run, data logs, alarms, and controllers.

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