

```

IF bPump1 THEN
  rLevel := rLevel + 10.1;
END_IF;

```

```

IF bPump2 THEN
  rLevel :=

```

```

IF bPump3 THEN
  rLevel := rLevel

```

```

IF rLevel > 100 THEN
  rLevel := 100;
ELSIF rLevel < 0 THEN
  rLevel := 0;
END_IF;

```

```

dLevel := ANY_TO_DINT(rLevel);

```

```

(*IF dLevel > 80 THEN
  bAlarmFull := TRUE;*)

```

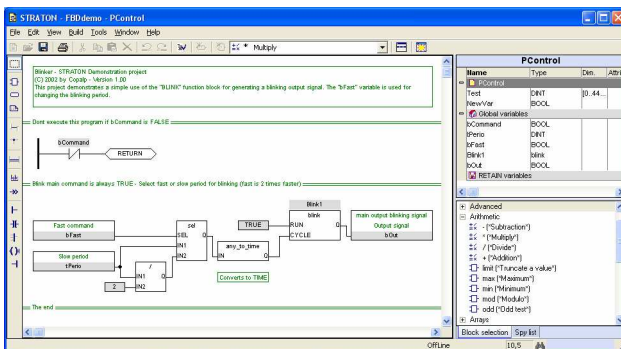
# STRATON®

software for unlimited control

**From Embedded solutions up to Softlogic, the STRATON® Package covers all the fields of Industrial and Automation Control.**

## STRATON® - IEC 61131-3 Development Tool

STRATON is an IEC61131-3 environment of development common for the embedded platform and PC based control that include the STRATON Virtual Machine from COPALP.



- Powerful online change
- Fast compiling
- Support all data types from 8 up to 64 bits
- Arrays and data structures
- UDFBs – User Defined Function Blocks
  - Nested Function Blocks
  - Written in IEC61131-3 or 'C' language
  - Support "ANY" data types
- Full support of OLE drag and drop
- Support of multitasking in a project

The **Integrated Development Environment** supports the 5 programming languages of the IEC 61131-3 Standard: Sequential Function Chart (SFC), Function Block Diagram (FBD), Ladder Diagram (LD), Structured Text (ST), and Instruction List (IL). It includes a high performance compiler that provides, at optional choice, different types of code. It is completed by a simulator and on line monitoring.

### Development Environment

- Support of several languages: English, French, German, Italian, Spanish
- Supports the 5 programming languages: Sequential Function Chart (SFC), Function Block Diagram (FBD), Ladder Diagram (LD), Structured Text (ST), Instruction List (IL)
- Project history
- Generate of the complete HTML document
- Nested User Defined Function Block (UDFB)
- Full support of OLE drag and drop
- Draws lines in the selection mode in the FBD editor
- Powerful Help engine
- Fast response time
- Do not wait when opening a project!

### Data types

- Boolean
- Integer (8bits, 16bits, 32bits, 64bits)
- Real (32bits, 64bits)
- Timer
- String
- Array (up to 3 dimensions)
- Data structure

### Compiler

- Only few seconds to recompile the application

### Application Distribution

The STRATON® Virtual Machine permits exchanging real time data among different runtime systems through TCP-IP. The event based protocol technology used ensures high performances and very low network traffic at runtime. The T5 protocol is based on a "publish-subscribe" model. Each runtime system may publish many variables on the network and consume variables from other runtime systems. The same published variable can be consumed in several destination nodes. The value of the variable is sent on the network only when it changes in order to ensure low network traffic at runtime.

### Database

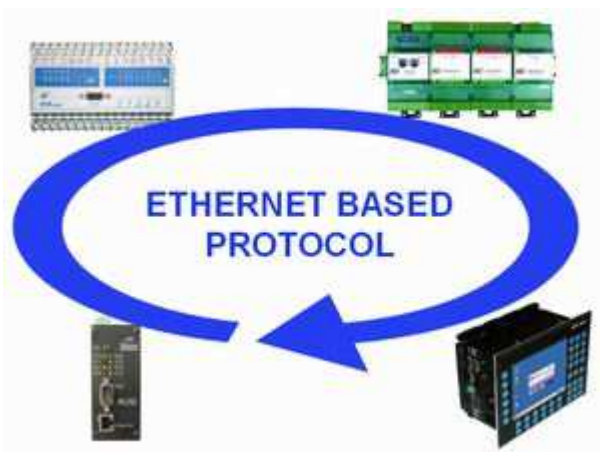
- Variable editing in several format:
  - Grid: for fast editing
  - XML: for simplified exchange with external tools
  - CSV: for simplified exchange with spreadsheet
  - IEC 61131-3
- Instant access to variable lists!
- Open to any third party tools or applications

### Tools

- Complete library of standard functions
  - Mathematical
  - Trigonometric
  - Logical
  - Conversion
  - Serial communication

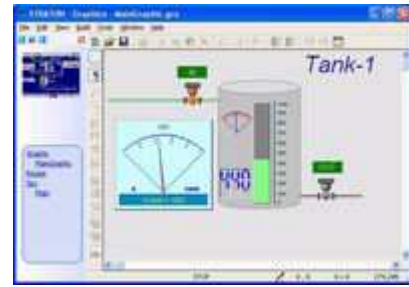
### Powerful online change

- You can freely add variables and function block instances during a change
- You can change the mapping of individual I/O channels
- You can lock and force any I/O or internal variables



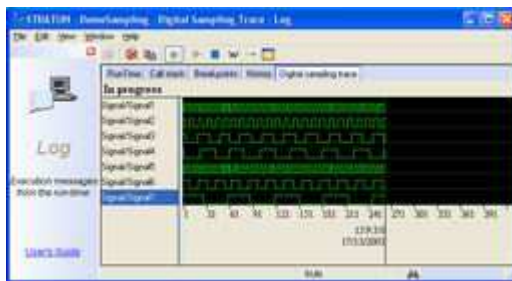
## Online tools

- Built-in simulation: A Virtual Machine is integrated with the workbench for simulation
- Cycle to cycle mode
- Start/Stop program individually
- Debug instance of function blocks
- Call stack
- Recipes



These graphic elements have been developed using the ActiveX technology, so they could be delivered separately to build your own visualisation application using an ActiveX container (Internet explorer, VBA...).

## Digital Sampling Trace



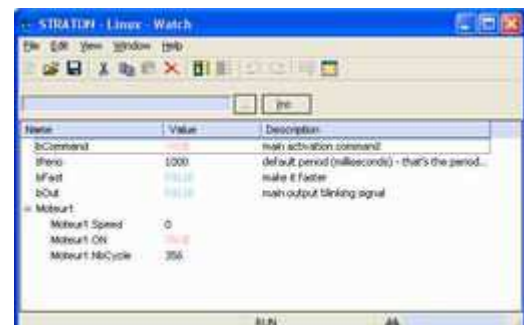
The runtime system as the simulator include a digital sampling trace recorder. The recorder is used to register periodically the state of up to 8 boolean variables. Samples can be registered either on each cycle or according to a configurable period. The digital sampling trace is a useful tool for tracking aleas and events in the runtime application

## Step by Step debugging

In addition to the cycle by cycle execution mode, the debugger has a rich collection of powerful features for making step by step debugging in the source code of your application. The step by step feature is completed by the possibility to place breakpoints in the source code of the application. The debugger also shows you the call stack of called UDFBs and sub-programs when stepping.

## Watch windows

The Watch window is a powerful monitoring tools that enables you to spy variables of the application at run time. The watch window enables you to build list of variables that you can save and re-open. Variables of simples data type could be spied as well as arrays and data structures.



## STRATON® Monitoring Tools

STRATON® includes a wizard that builds a monitoring application for the open project. The monitoring application is operated by the STRATON® Monitoring Tool for spying and controlling the project without need of a full Workbench

### Principe

The Workbench is used for building the monitoring application in a unique file. The standalone Monitoring Tool operates the monitoring application: it animates documents according to real time values from the connected target runtime.

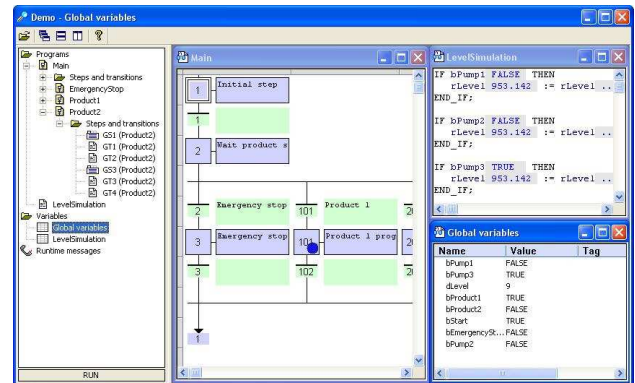
A monitoring application groups programs, lists of variables, plus the trace of runtime messages. The tool displays the value of the variables and can be used for forcing a variable.

For each variable you can select one of the following access protection, Free : the variable can be freely forced, Protected : forcing the variable is possible with a password and No : the variable can never be forced.

### Operates the application

The monitoring tools is a stand alone product, the entire workbench is not required.

The entire monitoring application is stored in an unique compressed file what could be easily send over the network to a customer for debugging purpose or maintenance.



### Security issues

All programs stored in the monitoring application are encrypted. The user of the viewer cannot explore, copy or drag the contents of a watched program.

Download a demo version of STRATON®  
[www.copalp.com/download.htm](http://www.copalp.com/download.htm)



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