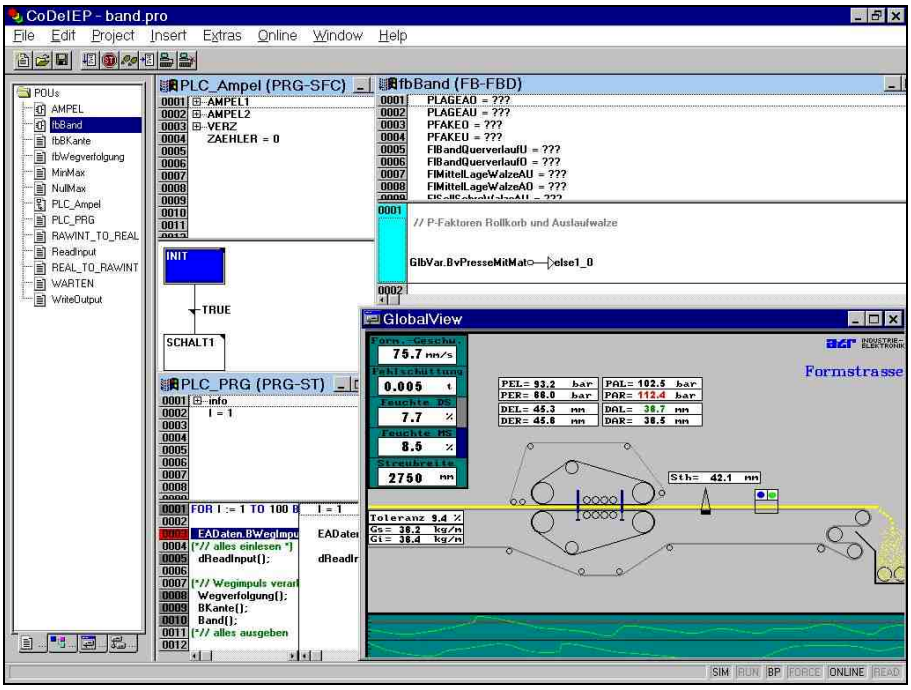
Ingenieurbüro für Echtzeitprogrammierung

CoDeSys

Soft PLC and hard realtime
For all tasks of automation



CoDeSys consists of two parts: a complete graphical PLC software development environment, runnable under Microsoft Windows opearating systems, and a PLC runtime kernel for the **RTOS-UH** realtime operating system. **RTOS-UH** guarantees for a stable and proven runtime environment for the **CoDeSys** kernel, featuring:

Capabilities

- PLC programming according to the world standard IEC 61131-3, with all 5 languages: SFC, ST, IL, LD and FBD,
- IEC tasks with preemptive multitasking
- Integration of ANSI-C and PEARL

CoDeSys combines a PC's comfort and ease-of-use with the flexibility of a PLC and the reliability of the realtime system **RTOS-UH**.

Program development

With **CoDeSys,** a broad spectrum of efficient tools for program development is at hand. Programming is possible on-line as like as off-line. An integrated PLC-simulator allows to test critical program sections offline without interrupting production systems.

Integrated Editors

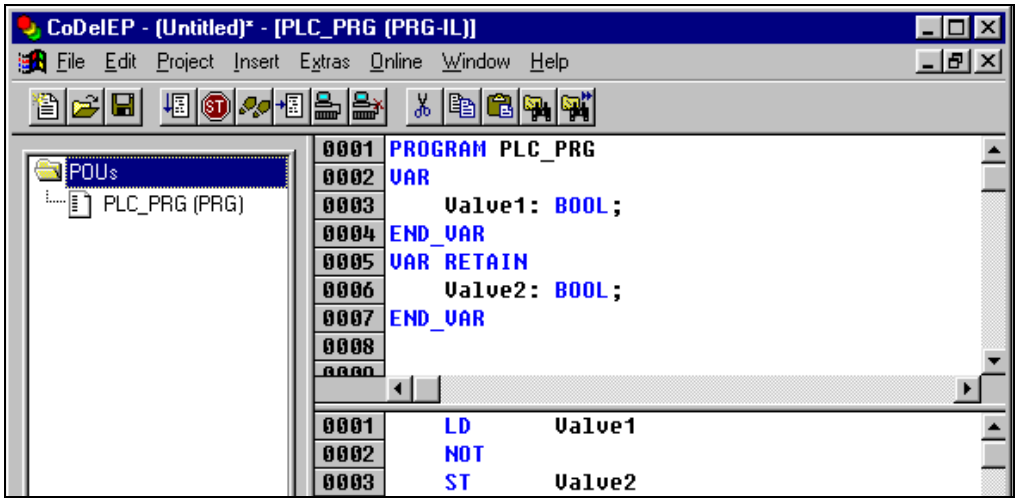
The integrated editors are providing easy programming by

- automatic formatting of the program source code
- syntactic colouring of language elements
- smooth integration into the GUI-concept of the development operating system

All 5 programming languages prescribed in IEC 61131-3 are supported.

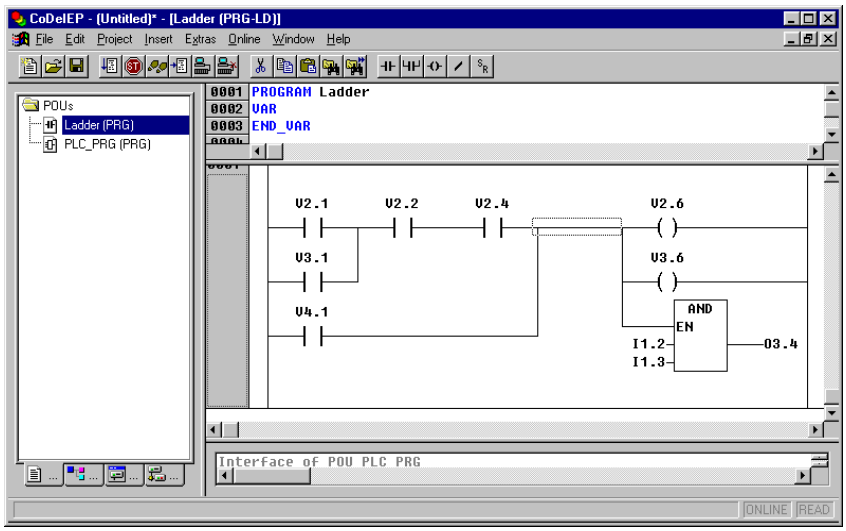
IL Instruction List

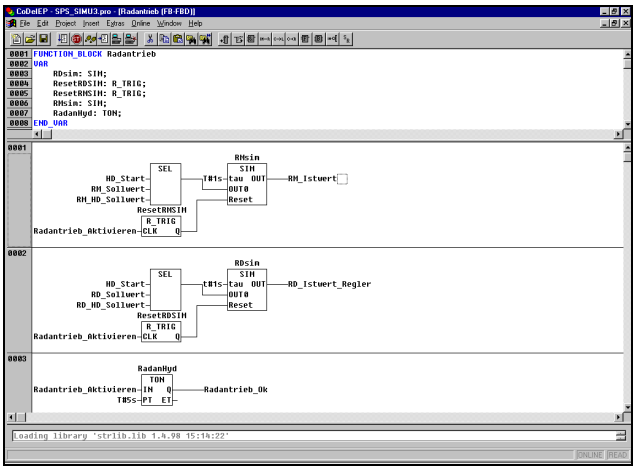
Basic language of all controls



LD Ladder Diagramm

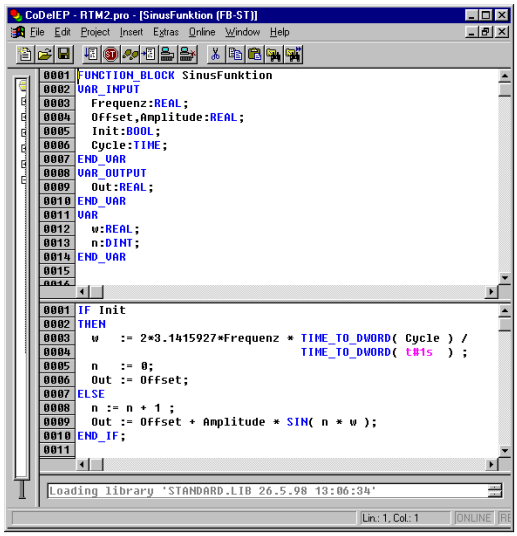
Descriptive graphic representation of relay logic





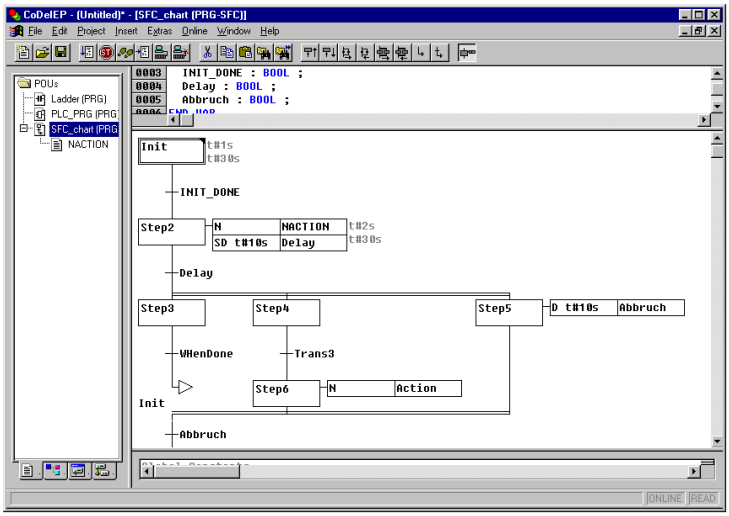
FBD Function Block Diagram

Visual representation of procedural programs



ST Structured Text

The new High-level language of the PLC



SFC Sequential Flow Chart

Graphical oriented programming showing states and state-transitions

Test Debugging

All modern programming tools are at hand:

- monitoring of input/outputs as well as of internal variables, even with the control being online
- detailled supervision of the PLC by single-cycle or continous forcing of variables
- online-changes in order to change the PLC program without interrupting a running process
- single-cycle of the control
- Inspection of the PLC's state at discret program steps by breakpoints
- full flow-control by single stepping the control from statement to statement
- state visualisation with continous display of line states and program flow
- watching of variables (with tracing of previous cycles) to catch sporadic error conditions

Operating and Visualization

Operating and graphical display is provided by the **CoDeSys** user interface:

- setting of operating conditions by batch processing and recipe administration
- visualization of the state of program and plant
- charting and archiving of plant data by variable trace

The control is operated independantly from the user interface. Headless and manual operating are supported.

Availability

CoDeSys is available for all **RTOS-UH** systems from embedded controls up to multi-processor COTS-systems with an identical behavior. For each application, an optimal trade-off between cost and capabilities of the control can be found without the need to change the operating environment. PLC software runs under the realtime operating system **RTOS-UH:** high reactivity and dependable cycle times are guaranteed, full priority control and preemptive tasking is provided.

The PLC program can use all system resources supported by the operating system: (non) removable disk, network, field busses like Profibus, CAN or InterBus are supported.

Combining PLC-programs with already existing ANSI-C or PEARL programs is integrated completely into the run time kernel.

CoDeSys for RTOS-UH is an adaption of the IEC 61131-3 development environment CoDeSys to the special possibilities of the realtime system **RTOS-UH.** CoDeSys is a product of the 3S Smart Software Solutions GmbH.