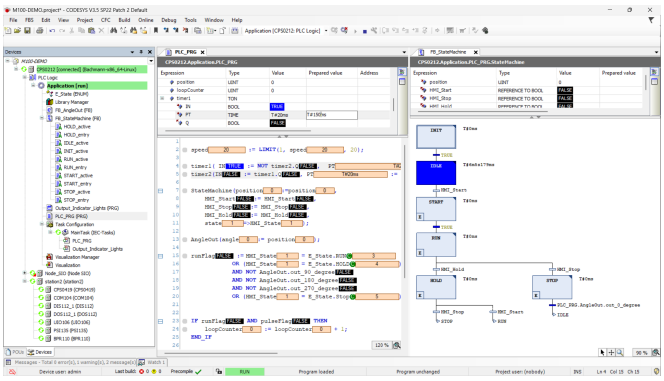


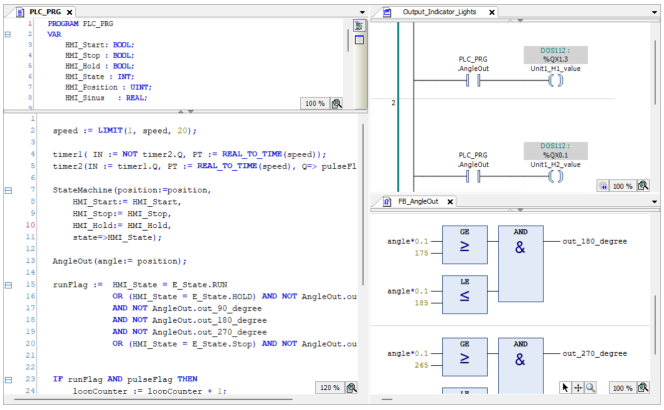
CODESYS

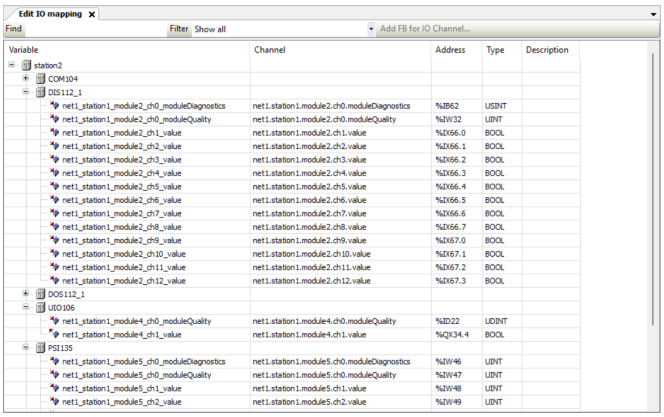
PLC programming environment compliant with IEC 61131-3

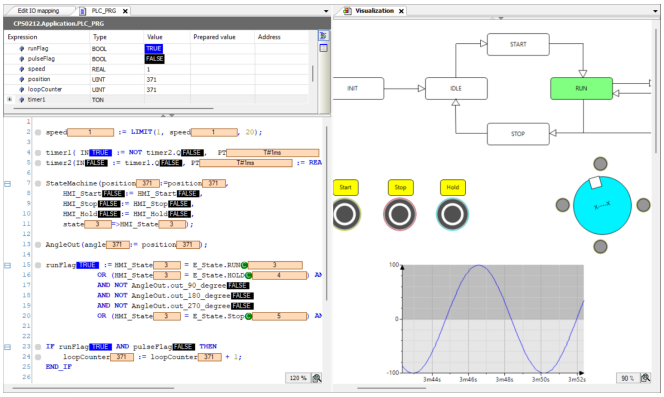
CODESYS is a complete development environment for programming the M100 controller in accordance with IEC 61131-3. CODESYS makes it easy for PLC programmers to get started with the powerful programming languages defined in the IEC standard. Its editors and debugging functions are modeled on mature development environments for high-level programming languages.

Features

- Easy introduction to the IEC 61131-3 standard
- Support for all programming languages defined in the IEC 61131-3 standard
- Editor and debugging functions
- Included libraries with prebuilt and tested functions
- Integrated visualization tool





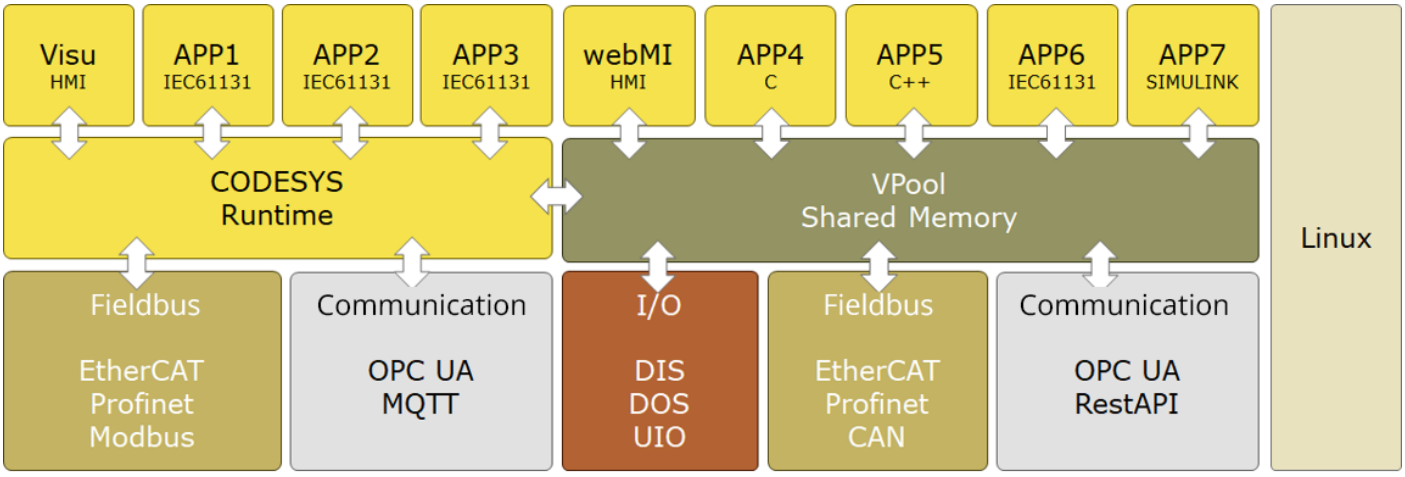


Programming

- Editors for programming in all IEC 61131-3 languages:
  - ST – Structured Text
  - LD – Ladder Diagram
  - FBD – Function Block Diagram
  - SFC – Sequential Function Chart
  - CFC – Continuous Function Chart
- Syntax highlighting for keywords defined in IEC 61131-3
- Graphical project navigation pane (based on Windows Explorer)
- Comprehensive project comparison, including support for graphical editors
- Support for all elementary IEC 61131-3 data types up to 64 bits
- Support of arrays, structures, and pointers
- Graphical controller and task configuration
- True object-oriented programming (OOP) in accordance with IEC 61131-3, 3rd Edition, in all IEC 61131-3 languages
- Library manager for creating and managing libraries
- Watch manager and recipe manager (freely configurable variable monitoring)
- Multiple instances of CODESYS can run simultaneously (multiple projects open and online at the same time)
- Automatic project saving and creation of backups
- Project archiving on the controller
- Password protection for projects
- Offline simulation
- System-wide data exchange via VPool interface programming
- Online and offline help

Runtime system

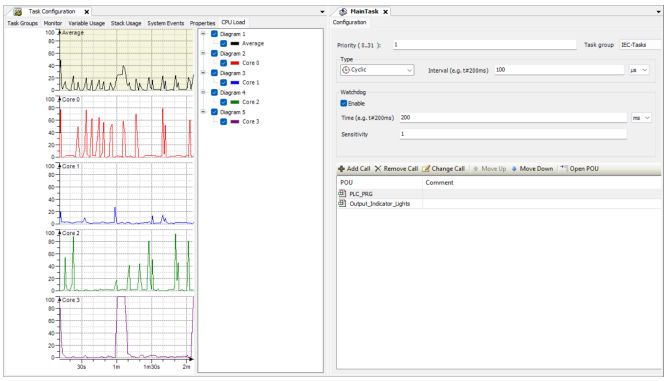
- Any number of applications in a running CODESYS project on an M100 CPU
- Each PLC project supports up to 16 dedicated tasks
- Each task can be configured independently of other tasks with respect to priority and execution mode.
- Data connectivity to visualization/SCADA/BDE
- Standard protocols: OPC UA, IEC 61850 / IEC 61400, Modbus, etc.
- Support for permanently retained data (RETAIN marker)
- Communication between software modules
  - Between different tasks within an IEC 61131 program: global variables
  - Between IEC 61131 programs: network variables
  - Between IEC 61131 programs and other software modules (PLC, C/C++, Simulink): VPool (shared memory)
  - Between any software modules on different controllers: VPool

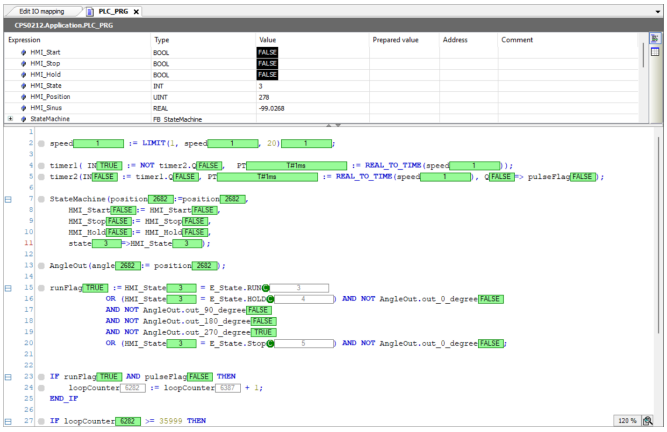


Communication paths between CODESYS Runtime, applications, communication protocols, and hardware

Online features

- Online change (replacing program blocks during operation), including in multitasking projects
- Monitoring of all project variables
- Writing and forcing of variables values
- Single-cycle execution, single stepping, and breakpoints
- Flow control (executed program lines are displayed)
- Recording and graphical display of project variables (Trace)





Manufacturer libraries

- Device Library
  Functions for accessing the device information
- Error Library
  Functions for evaluating the ErrorCode
- Time Library
  Functions for accessing the clocks built into the controller
- VPool Library
  Functions for accessing the VPool (shared memory)

