This is where your application runs.
Available control systems with CODESYS

CODESYS Users Conference 2016
Available control systems with CODESYS

Agenda

1. Introduction to CODESYS
2. Different device platforms
3. Comparison of different device platforms
Introduction to CODESYS

Product overview
Available control systems with CODESYS

Introduction to CODESYS

Product overview – best on our website
Product overview: exclusively CODESYS software products

IEC 61131-3 applications run on the most different controller platforms.
Available control systems with CODESYS

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1. Introduction to CODESYS
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3. Comparison of different device platforms
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Different device platforms

„El Clásico“ – PLC from automation device manufacturers (1/2)

Hundreds of devices from more than 350 manufacturers
Available control systems with CODESYS

Different device platforms

„El Clásico“ – PLC from automation device manufacturers (1/2)

- Different performance categories
- Devices designed for different application fields
- Support through CODESYS add-on products from the CODESYS Store (partly)
- You have the choice!
  CODESYS Device Directory at [www.codesys.net](http://www.codesys.net)
- Sales and system support through device manufacturers
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Different device platforms

PLC from automation device manufacturers (2/2)

New: Standard CODESYS SoftPLC systems for selected device platforms in the CODESYS Store

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PLC from automation device manufacturers (2/2)

- Consequences:
  - Separate purchase of device and SoftPLC, installation and licensing of the SoftPLC on the device necessary
  - Can only be programmed with standard CODESYS Development System
  - Always the most recent SoftPLC (runtime system) available
  - Support directly from 3S-Smart Software Solutions
  - Product features included in products of the CODESYS portfolio: fieldbuses, visualization, OPC UA
  - More functionality through add-ons from the CODESYS Store: extendability of the programming tool, licensing of additional functions on the device

- More device platforms are being developed.
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Different device platforms

For a quick application test: CODESYS Control Win

Hardware: your PC!
Trial version included in the delivery scope of the CODESYS Development System
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Different device platforms

For a quick application test: CODESYS Control Win

- Complete SoftPLC with soft real-time properties
- Trial version:
  - Automatic termination after 2 hours
  - Restart as often as necessary
- Numerous advantages compared to integrated simulation, such as:
  - Comprehensive support of fieldbus systems for application tests with real I/Os
  - Tests with TargetVisu, WebVisu, CODESYS SoftMotion (demo)
  - OPC/OPC UA, PLCHandler, Online Change etc. included
  ➞ Complete SoftPLC
- License for full version available in the CODESYS Store
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Different device platforms

For „makers“

- SoftPLC for low-cost platforms/embedded boards
- Available: CODESYS Control for Raspberry Pi SL
  - Ideal for hobbyists and for home automation
  - Use for industrial purposes not recommended!
- More platforms – also for industrial applications – are being developed.
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Different device platforms

For „makers“

A few suggestions for applications

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Different device platforms

For integrators

- Ready-to-use SoftPLC systems for Windows industrial PCs (IPCs) in the CODESYS Store:
  - CODESYS Control Win SL (soft real-time properties)
  - CODESYS Control RTE SL (hard real-time properties)

- Comprehensive functionality
  - Full support of the CODESYS Store
  - Almost all supported fieldbus connections
  - Extendibility by motion or CNC functionality, visualization (TargetVisu/WebVisu) and functional packages

- Performance scalable via IPC properties

- Optional: extendibility via SDK
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Available CPU chips / modules with an integrated CODESYS Control runtime system (SoC):

- Beck IPC (IPC@CHIP)
- Frenzel + Berg (EASY)
- Hilscher (netX/netPLC)
For hard- and software developers (1/2)

**Consequences:**

- Easy development of individual controllers
- Individual activation of I/Os depending on the platform
- Order-specific concept of casing, interfaces etc.
- No specific implementation of the CODESYS Control Runtime System
- Cost for modules with CODESYS Control higher than for pure CPUs

⇒ **Individual controllers even for small device series**
Available control systems with CODESYS

Different device platforms

For hard- and software developers (2/2)

Development of your own devices with integrated CODESYS Control Runtime System:

- Broad selection of CPUs:
  - 80x86/Pentium, ARM/Cortex, Power Architecture, TriCore, SH, MIPS, etc.

- Typically under Linux (OSADL), Windows/Windows CE, VxWorks, but also on embedded devices (proprietary or no operating system)
Different device platforms

For hard- and software developers (2/2)

Consequences:

- Completely individual controller development
- High initial effort for hard- and software development
- Free choice of platform, form factor, functionality, interfaces, etc.
- Low costs per controller for adapted devices

→ Individual controllers for large device series
Available control systems with CODESYS

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### Available control systems with CODESYS

#### Comparison

<table>
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<th></th>
<th>A: PLC from OEM</th>
<th>B: PLC with CODESYS SoftPLC</th>
<th>C: Workstation PC</th>
<th>D: SoftPLC for boards</th>
<th>E: SoftPLC for IPCs</th>
<th>F: PLC with SoCs</th>
<th>G: PLC own development</th>
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</thead>
<tbody>
<tr>
<td><strong>Suitability for industrial purposes</strong></td>
<td>++</td>
<td>++</td>
<td>-/0</td>
<td>0/-</td>
<td>+/+</td>
<td>+/++</td>
<td>+/+</td>
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<tr>
<td><strong>Initial cost development system</strong></td>
<td>-/+</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>+/++</td>
<td>-/+</td>
<td>-/+</td>
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<tr>
<td><strong>Cost per device</strong></td>
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<td>++</td>
<td>+</td>
<td>-/0/+</td>
<td>-/+</td>
<td>+</td>
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<tr>
<td><strong>Initial effort</strong></td>
<td>++</td>
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<td>++</td>
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<td>-</td>
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<tr>
<td><strong>Individualization</strong></td>
<td>-/0/+</td>
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<td>0/+</td>
<td>0/+</td>
<td>+</td>
<td>+</td>
<td>++</td>
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<tr>
<td><strong>Function scope</strong></td>
<td>-/0/+</td>
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<td>+</td>
<td>+</td>
<td>+</td>
<td>-/0/+</td>
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<tr>
<td><strong>Up-to-dateness runtime system</strong></td>
<td>-/0/+</td>
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<td>++</td>
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<td>++</td>
<td>-/0/+</td>
<td>-/0/+</td>
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</tbody>
</table>
You have the choice!

- Different platforms depending on your need
- Individualization almost always possible
- Consistent programming tool: CODESYS Development System
- Compatible application code for many application purposes
Thank you for your attention.