

ProductivityCODESYS



Up-to-date price list:
www.automationdirect.com/pricelist

FREE Technical Support:
www.automationdirect.com/support

FREE Videos:
www.automationdirect.com/videos

FREE Documentation:
www.automationdirect.com/documentation

FREE CAD drawings:
www.automationdirect.com/cad

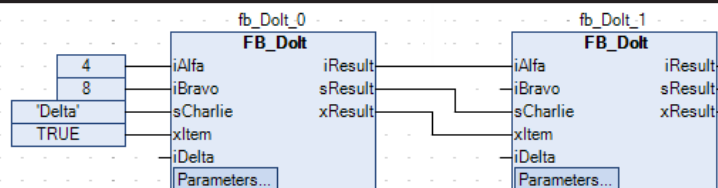


```
1 countloop := countloop + 1;
```

```
2 // used to trigger the Execution of the Explicit commands "startEIP" and "start2EIP" every 100 cycles.
```

```
3 IF ( countloop >= 100 ) THEN
4   countloop := 0;
5   startEIP := TRUE;
6   start2EIP := TRUE;
7 END_IF
```

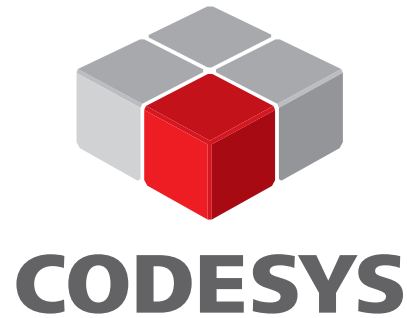
```
11 // Function in the ENIP Library
12 // In this case, the data to
13 getAttributeSingle(
```



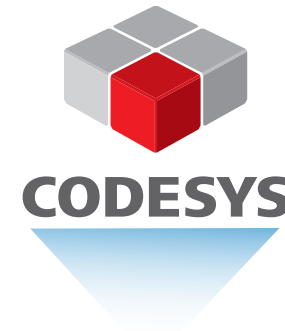
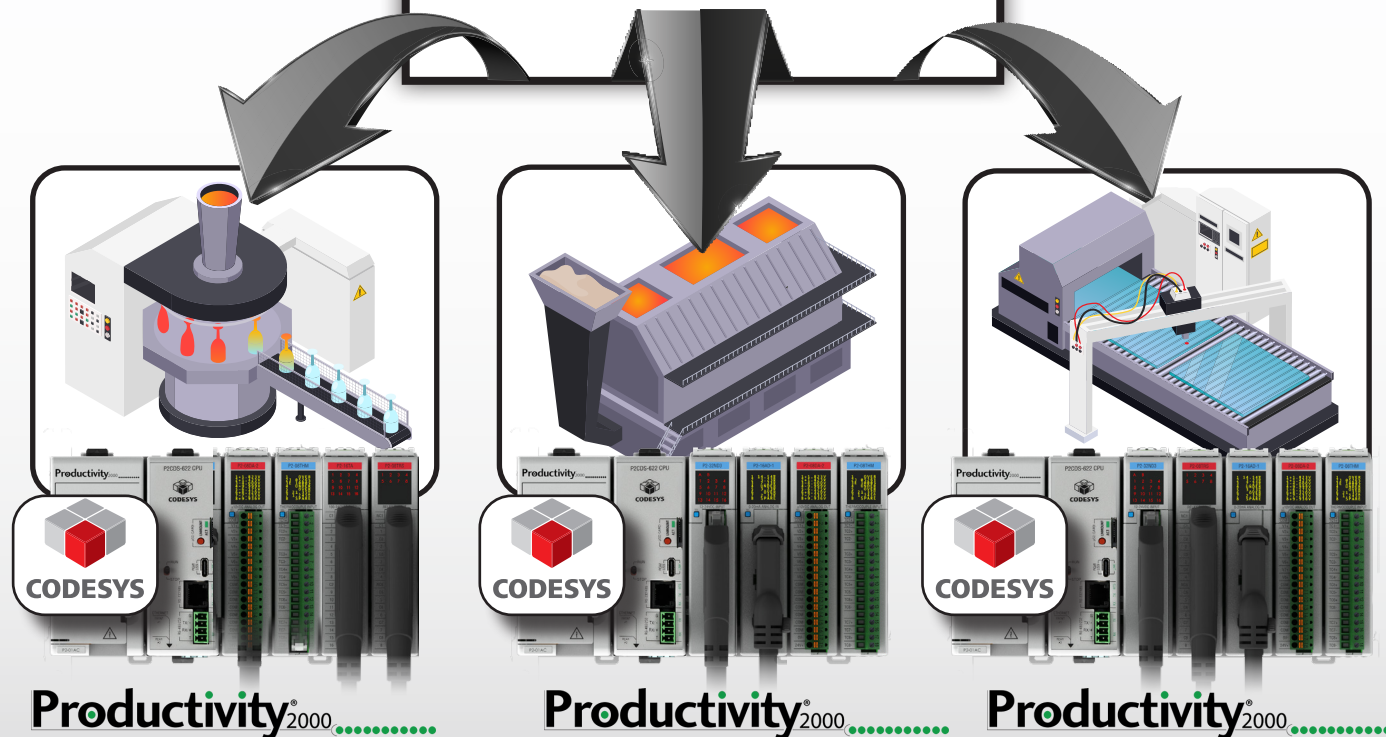
Unleash the power of CODESYS with Productivity

If you know and love CODESYS but have stayed away from implementing it in many of your applications because of high hardware costs, then the Productivity family of controllers has what you need. We've taken the time-tested Productivity2000 hardware and combined it with a CODESYS processor so you can afford to deploy CODESYS in many more ways, bringing a powerful world-renowned IEC-based programming package to applications large and small.

**Break the chains of high prices!
Add more programming power
to your systems for less with
ProductivityCODESYS!**



CODESYS is the most widely used manufacturer independent IEC 61131-3 development system on the market. With over 5 million device licenses sold worldwide, more than 500 control system manufacturers, and tens of thousands of companies using CODESYS products, this programming package has reliably served a wide variety of industries and applications.



The P2CDS-622 CPU features a CODESYS runtime application housed in a Productivity2000 controller form factor. This CPU has ample communication capabilities, works seamlessly with low-cost Productivity2000 I/O modules, and includes the CODESYS IEC 61131-3 -compliant software package along with several add-on licenses free of charge, so you can now reap the benefits of this powerful platform without breaking the bank.

**CODESYS
CPU
\$529.00**



Productivity²⁰⁰⁰

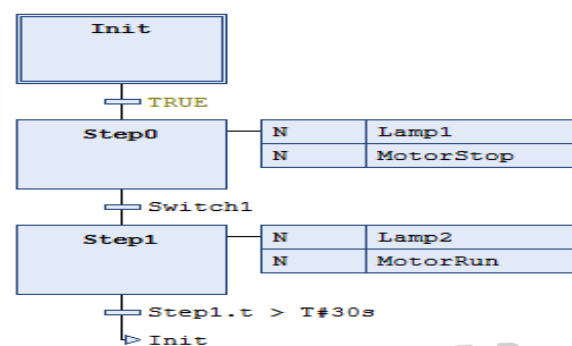
**I/O
Modules
starting at
\$57.00**



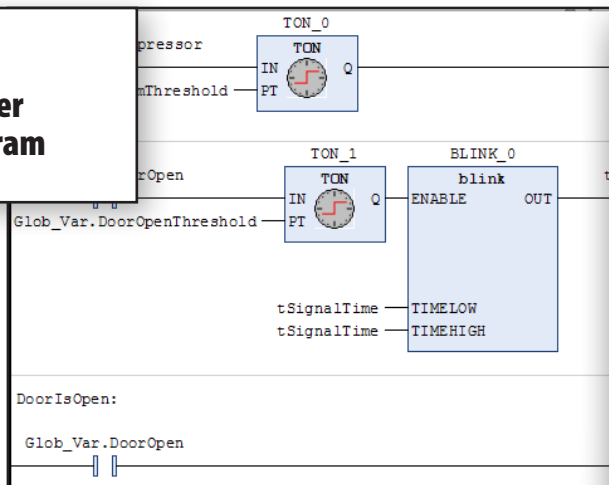
The ProductivityCODESYS CPU is designed to work effortlessly with inexpensive Productivity2000 I/O modules. Numerous I/O modules are available to choose from including analog, discrete, relay, and temperature modules, so you can create the custom I/O configuration needed for your specific application.

The most affordable CODESYS solution available - CPU only \$529.00

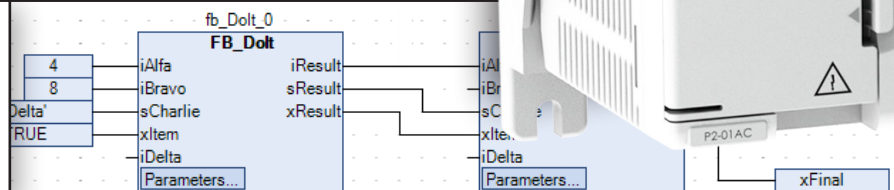
SFC Sequential Function Chart



LD Ladder Diagram



FB Function Block



ST Structured Text

```

countloop + 1;
// Function in the ENIP Library that Reads a single Attribute to the Adapter
// In this case, the data to be read is three(3) variables of Data size.
getAttributeSingle(
  xExecute:= startEIP ,
  iEtherNetIPDevice:= Generic_EtherNet_IP_device, // instance of the de
  eClass:= ENIP.CIPClass.AssemblyObject, // cip class (0x04)wh
  dwInstance:= 101, // value of 101 (0x65
  pData:= ADR(byteHostDataGet), // ADR yields data bu
  udiDataSize:= 3, // size of the data b
  wAttribute:= 3, // attribute no. 3 of
  xDone=> myDone ,
  xBusy=> myBusy ,
  xError=> myxError,
  eError=> myeError,
  udiReceivedDataSize=> udiReceivedData);
// first location of

```

For those unfamiliar with CODESYS, this software package was first developed by 3S-Smart Software Solutions in 1994. Since then, it has become the most widely used manufacturer independent IEC 61131-3 development system in the world. CODESYS is used in all sectors of the automation industry and in a wide variety of applications. OEMs, end users, system integrators, and more have found CODESYS to be a powerful, versatile solution for their project needs.

The CODESYS IDE provides a wealth of functionality and includes all IEC 61131-3 languages. Any hardware platform capable of supporting the CODESYS runtime application can be used with this amazing software, including the Productivity2000 series.



COMPLETE CODESYS SYSTEM

with over \$400 in add-on licenses included!!!

(no additional add-on licenses supported)



Low-cost, reliable Productivity2000 hardware:

- CPU priced at \$529
- I/O modules start at \$57



CODESYS Development Environment:

- Full IEC 61131-3 compliant
 - Sequential Function Chart
 - Ladder Diagram
 - Function Block
 - Structured Text
- "Stock" CODESYS allows for possible reuse/migration to other platforms
- Continuous Function Chart (CFC) programming is an extension to the IEC 61131-3 standard and uses interconnected function blocks to represent control logic visually
- Tons of existing how-to videos and open sourced code available
- Updates are managed by CODESYS directly and released quickly
- Very robust software security team for quick patches, etc.



Fieldbuses included (normally purchased separately):

- Modbus RTU
- Modbus TCP
- EtherNet/IP Scanner
- EtherNet/IP Adapter



Visualization - WebVisu included (normally purchased separately)



IIoT library included (normally purchased separately):

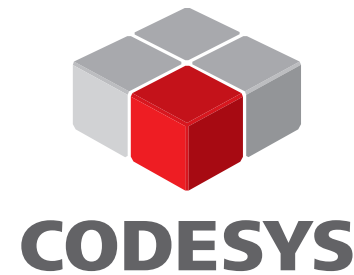
- MQTT Client w/ TLS
- Web Client (http, https)
- AWS IoT Core Client
- Azure IoT Hub Client
- Mail Service (POP3, SMTP)
- SNTP Service
- SNMP Library
- SMS Service
- JSON



The CODESYS software platform has found its home with numerous PLC manufacturers over the years. Many of these manufacturers charge premium rates for their CODESYS-enabled hardware which makes deploying CODESYS systems very cost prohibitive. Well, not anymore! Since CODESYS is hardware independent, any existing project can be easily ported over to the ProductivityCODESYS controller, so you can start saving big with each new system!

OVERPRICED BRANDS





- Plug-and-play USB programming
- A high-speed Ethernet port for HMI and peer-to-peer or business system networking (no Ethernet communications module needed)
- A secondary multipurpose Ethernet port for applications with multiple networks
- Support for EtherNet/IP devices
- MQTTS (encrypted) protocol support for secure cloud based communication
- Two software selectable (RS-232 or RS-485) serial ports for peripheral device interfacing or controller networking
- Micro SD data logging right from the CPU
- 2-year warranty and 45-day money-back guarantee!

CODESYS CPU
\$529.00

**50MB
OF BUILT-IN
MEMORY**

5 COMM PORTS

Modbus®
TCP/IP AND RTU

EtherNet/IP™

MQTT



**REMOVABLE
micro SD SLOT**
(Up to 32GB of data
storage per card)

USB

**SOFTWARE
SELECTABLE
RS-232/485**

SOFTWARE SELECTABLE RS-485/232

10/100 ETHERNET Multipurpose

10/100 ETHERNET Multipurpose



Productivity²⁰⁰⁰

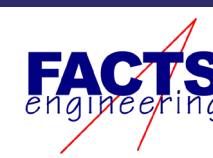
SOFTWARE



P2-622



HARDWARE



Productivity²⁰⁰⁰

SOFTWARE

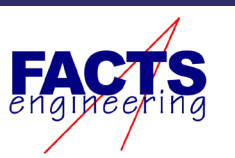


CODESYS

P2CDS-622



HARDWARE

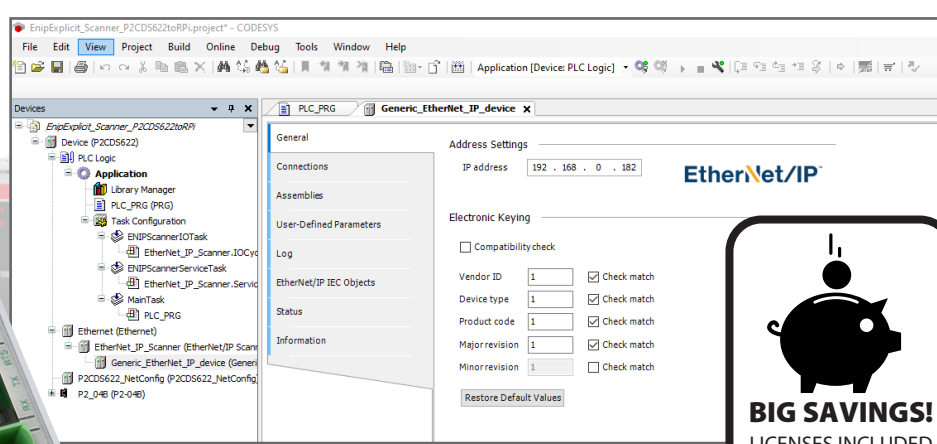




Same great, reliable hardware as the Productivity2000 PLC but with a high-powered CODESYS engine!

Versatile Ethernet - included!

The CODESYS system offers a powerful IDE with additional licenses required for various other functions. One license is for communication protocols used with fieldbus devices. Normally, this license comes with an extra cost but with the ProductivityCODESYS PLC, we have included the Fieldbus licensing free of charge so you can communicate right out

of the box using two of the most popular industry protocols - Modbus and EtherNet/IP. Pair that with the P2CDS-622 CPU's numerous built-in communication ports, and you have everything you need to get your ProductivityCODESYS PLC online quickly.





BIG SAVINGS!
LICENSES INCLUDED

PORT 1

PORT 2

EtherNet/IP™ Modbus TCP/IP



**INDUSTRY
IIoT
4.0**

ENTERPRISE NETWORK

One great hardware feature of the ProductivityCODESYS CPU is the dual Ethernet ports. With them, you can configure the CPU to communicate over two separate networks which is great for IT/OT communication:

PORT 1: This multipurpose Ethernet port can be used with numerous networks, for example, use this port to connect to IT systems like high-level production analysis programs, inventory management software, etc. (additional converters/gateways may be required).

PORT 2: Use this multipurpose Ethernet port to gather real-time data from factory-floor process controllers, control-room HMI's, field I/O systems, VFDs, etc.

By using the dual Ethernet ports in this way, the P2CDS-622 CPU can act as a data bridge, transferring vital process data from the factory floor to upper-level enterprise systems.



CONTROL NETWORK

mPCD-8 ProductivityCODESYS Overview 01-20

AUTOMATIONDIRECT.COM

1-800-633-0405

www.automationdirect.com/ProductivityOverview

ProductivityCODESYS Overview mPCD-9 01-20

Easy IIoT - included!

Industrial machines/systems are more connected than ever before, whether internally with upstream IT management systems or externally with remote support personnel, modern day plant floor machines/systems need to communicate to a variety of networks. Cloud networking, with its computing and data storage platforms, has also become a viable solution for analyzing and accessing production data from anywhere at anytime. Using powerful cloud platforms such as Microsoft Azure® to analyze production-floor data can provide better process efficiency, improved plant-wide resource management, and less operational downtime.

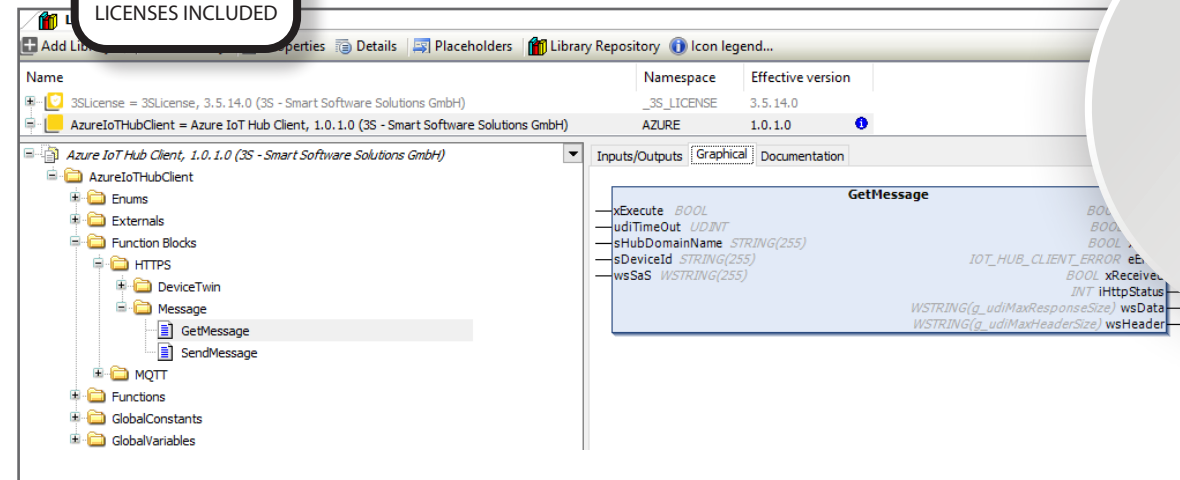
But how does data from a simple level switch on a tank get to the cloud? With ProductivityCODESYS, it's easy! The ProductivityCODESYS CPU has the communication capabilities and processing power needed to not only control plant-floor machines but gather valuable data from them, package it, and send it on to higher level analysis systems.



FREE CODESYS IIoT Library

The ProductivityCODESYS system includes the CODESYS IIoT Library free of charge so you can easily communicate with numerous MQTT brokers and cloud platforms/services including:

- AWS® IoT Core
- Azure® IoT Hub
- Mosquitto®
- HiveMQ®
- Thingsboard®
- and many more!



IIoT/Cloud platforms



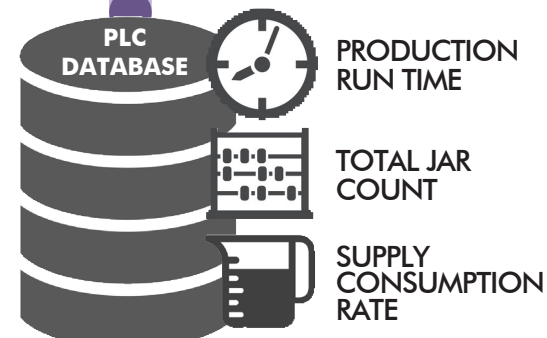
3rd party
cloud
dashboards

Multiple data gathering options

ProductivityCODESYS controllers utilize proven Productivity2000 series I/O modules, available in analog, discrete, relay, and temperature versions, allow you to create the custom I/O configurations your application needs. And with the included licensing for Modbus RTU, Modbus TCP, and EtherNet/IP protocols, ProductivityCODESYS controllers can easily gather raw data from a variety of VFDs, sensors, switches, encoders, pilot devices, or almost any other control component your system may have.

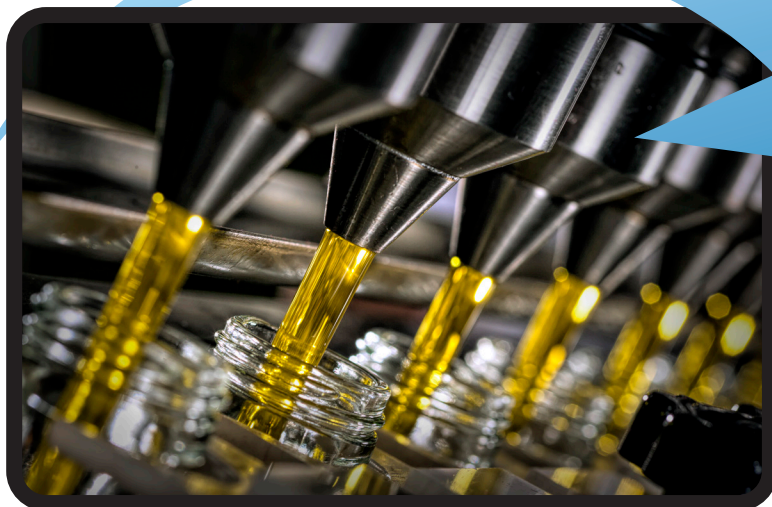


The MQTT protocol has become the frontrunner for many machine-to-machine (M2M) and IIoT/cloud networking applications, due to its lightweight overhead and reduced bandwidth consumption. The ProductivityCODESYS system includes support for MQTT messaging, so you can securely deliver vital data to advanced cloud computing platforms.



Refining data into something meaningful

The CODESYS software offers advanced IEC 61131-3 programming which can easily transform a raw process signal, like 4-20mA, into a consumption rate, a production throughput, an energy efficiency score, a rejection percentage, or any other metric that's vital to you.



INDUSTRY
IIoT
4.0

Complete system visualization - included!

Develop and deploy HMI screens with ease using CODESYS WebVisu

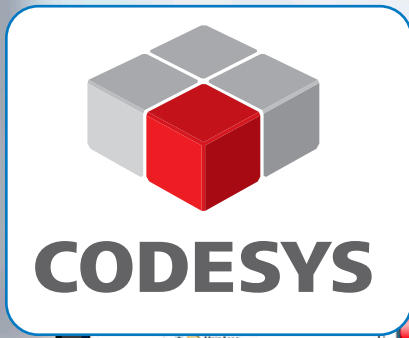
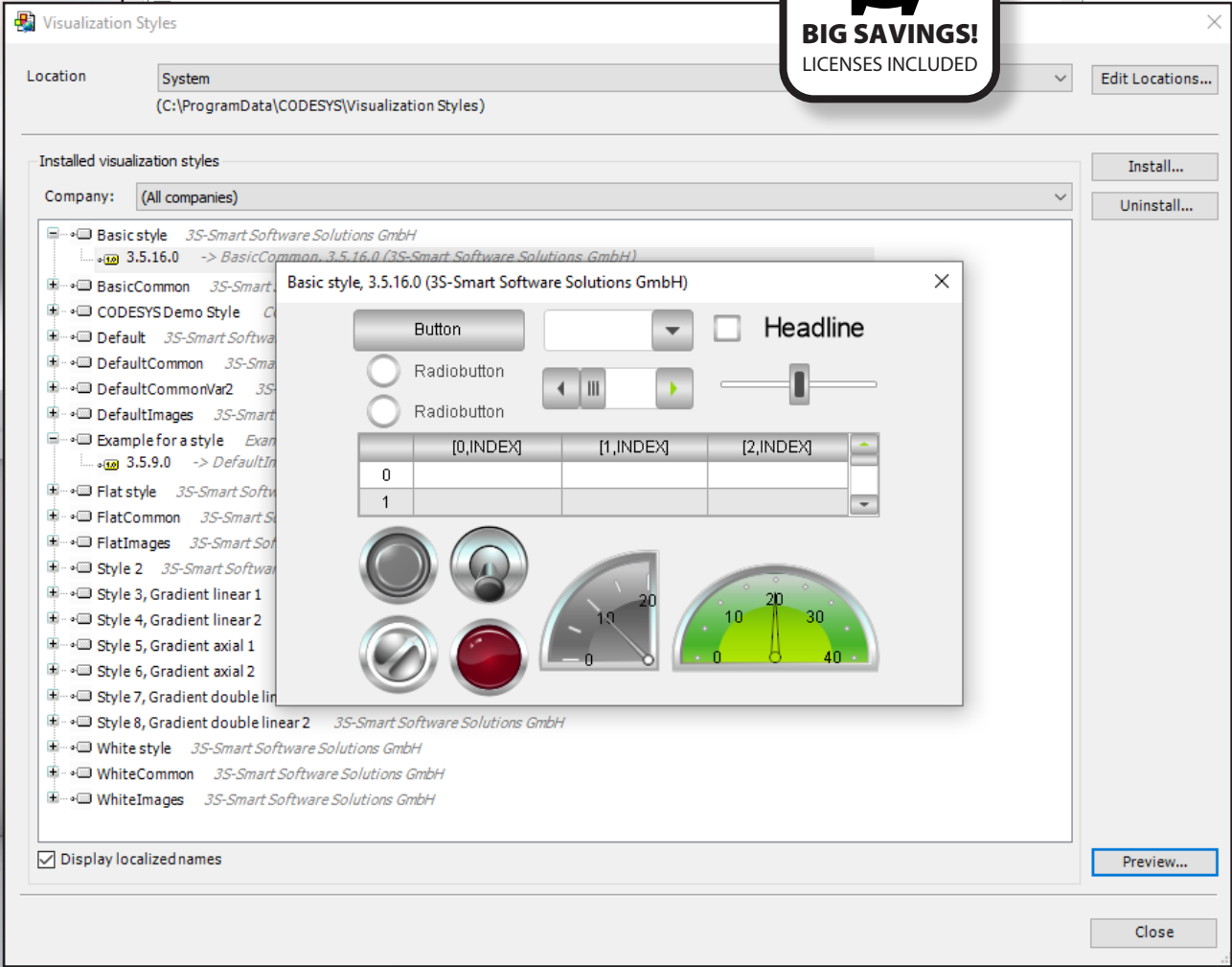
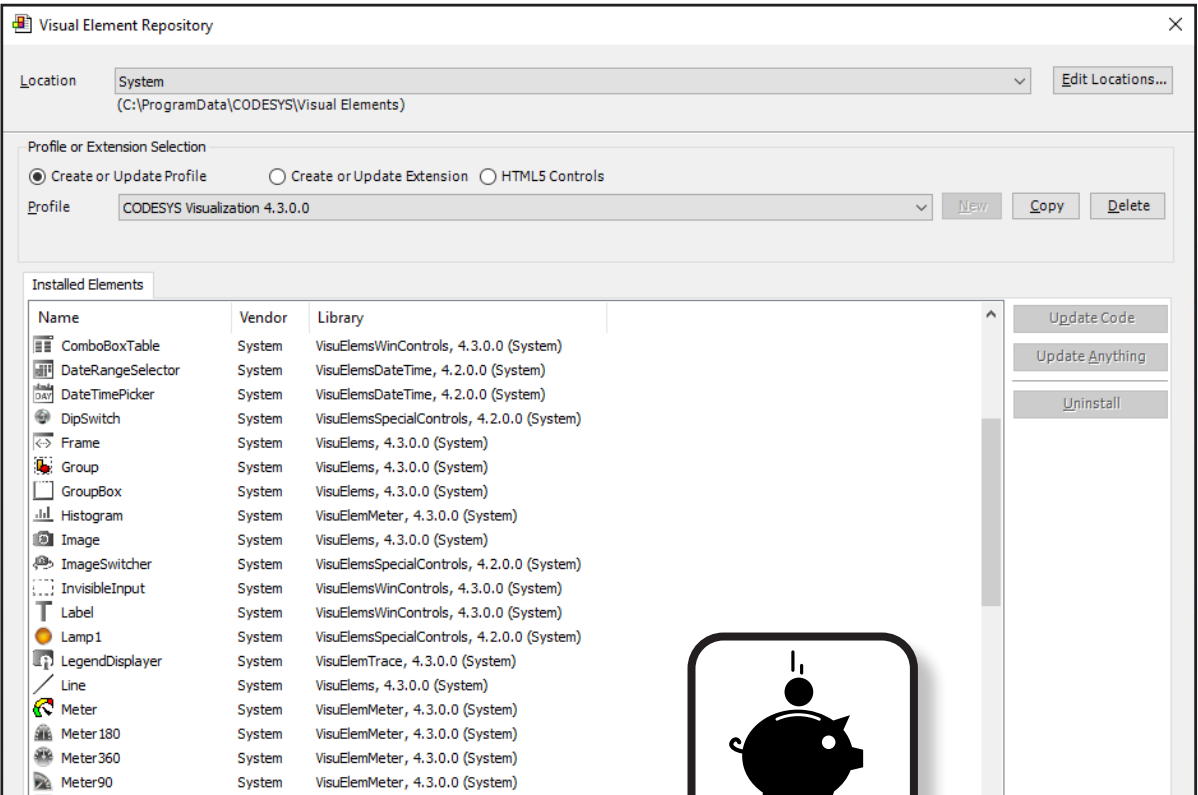
A vital component of any automated system is the ability to monitor system status and manually control its operation. Simple devices like pushbuttons, indicators, meters, etc., provide basic interfacing but HMIs, with their detailed and interactive display screens, are preferred by many. Installing a physical HMI will incur additional hardware cost, but utilizing a “virtual” HMI can alleviate the added hardware, installation, and maintenance expense.

CODESYS Visualization is a visualization editor integrated in the CODESYS Development System. It allows users to create user interfaces for their applications that can animate and display data. CODESYS WebVisu is a web-based display variant of CODESYS Visualization. It allows for remote access, remote monitoring, and diagnostics of a system over the internet.

Normally, the CODESYS WebVisu license is an added cost. However, it is included with the ProductivityCODESYS system for free. With it you can:

- Create detailed user interfaces for your applications
- Visualize data from several CODESYS-compatible controllers in one user interface
- Utilize a wide variety of display elements and styles that are available in the CODESYS Development System
- Remotely access your ProductivityCODESYS controller to service and diagnose issues quickly from anywhere in the world via web browser

With CODESYS WebVisu and the ProductivityCODESYS CPU’s integrated web server, process and system data can be displayed on any HTML5-capable display device (such as a thin client PC, tablet, phone, etc.). WebVisu can eliminate the need for a true physical HMI which can save hundreds, maybe even thousands, on each machine build.



A wealth of FREE resources for an assist with CODESYS

CODESYS has been in use around the world for decades and a vast inventory of supporting documents, videos, tutorials, etc. have been produced to help users get up and running quickly. Here are 5 FREE resources you can use anytime if you need help with your CODESYS system (click images for more information on each).

P2CDS-622 System

P2CDS-622 System Reference

Search docs

1

IOTES:

IO

STARTED:

R

2 Starter Project

Join: WebVisu

Creating a Boot Application

PC Based (Win PLC) Starter Project

PRODUCT OVERVIEW:

Codesys Development System

CPU P2CDS-622

Power Supply

Bases

IO Modules

CPU COMMUNICATIONS:

Physical Ports

Serial RS-232/RS-485

Ethernet

Modbus

EtherNet/IP

DEVICE CONFIGURATION:

IO Module Configuration

EXAMPLE PROJECTS:

Intro to Projects

Data Type Conversion

Analog Input Module

Analog In/Out Voltage Module

Thermocouple Input Module

Modbus TCP - Master Mode

Modbus RTU - Master Mode

Serial Communications

EtherNet/IP Scanner - Explicit Mode

P2CDS-622 System Reference

Welcome to the P2CDS-622 System!

World Class Industry Proven Hardware

Multiple Topologies and IO Module Options

- ✓ 600MHz Arm A5 Core CPU
- ✓ 4, 7, 11 and 15 Slot Base Options
- ✓ 52 Different IO Module Types
 - Analog Input and Output
 - Discrete Input and Output
 - Temperature and Humidity
- ✓ 3 Power Supply Options

CODESYS

New to CODESYS? Click here- [CODESYS Start](#).

Ready for First P2CDS-622 Design? Click here- [First Design](#).

Example Projects? Click here- [Example Projects](#).

No Hardware Yet? Click here- [WinPLC Emulation](#).

2

AUTOMATIONDIRECT
Customer Forum

General Community Info

Join the Discussion

1. ProductivityCODESYS Support Site - this site was developed for those new to the ProductivityCODESYS system. With product overviews, getting started information, example projects for the P2CDS-622 CPU, and more, this site will help you get your ProductivityCODESYS system installed and working in no time.

2. AutomationDirect's Community Forum - if you need further assistance with ProductivityCODESYS, the AutomationDirect Community Forum is a great place to start. There you'll get solutions and advice firsthand from fellow customers and professionals from a variety of industries.

[illegible][illegible]

3. CODESYS How-to Videos - since CODESYS is a very popular and powerful development system, thousands of videos have been created to demonstrate its capabilities. The CODESYS Group has its own YouTube page but tons of videos are also available from the multitude of end users. Just search for “CODESYS” in YouTube’s search bar and you’ll see the never-ending scroll of available how-to videos.

[illegible]

4. Open Source CODESYS Library

- within the CODESYS Forge community site is a library of user-submitted source code. The code housed here can be freely used and covers a wide array of applications from JSON parsing, to Sparkplug™ MQTT edge integration, and much more.

5. CODESYS Online Help - this help site is packed with information on just about anything CODESYS related. Use the search bar to quickly find a specific topic, check out the FAQs page for even more information, or head on over to the CODESYS Forge forum where lots of like-minded industry professionals are ready with helpful guidance. The online help site also features a listing of popular topics like safety and scripting and example programs that can be downloaded for free.

The screenshot displays the CODESYS Online Help website. A large black box with the number '5' is overlaid on the left side. The main content area shows search results for the term 'visualization'. The results are organized into sections: 'Publication', 'Libs', 'Last searches', and 'Visualization Extension'. The 'Visualization Extension' section lists various visualization elements and templates, including 'Visualization Template See [...] Visualization object [...] the visualization templates VISU' and 'Using Visualization Elements to Control Recipe Management'.

CODESYS Examples	
Sample projects are available for the following products	
▼ CODESYS Development System	
Name	Description
Application Manager	The example shows how to use the cyclops library to fetch information about projects and applications, as well as area addresses and sizes of data types.
Communication with HALCON	The example shows the communication between CODESYS HALCON and via TCP-UDP protocols.
Crypto	The example shows which cryptographic functions are available in CODESYS and how to use them.
Date and Time	The example shows how to use the date and time functions of the SysTime and Wdt libraries.
Element Collections	The sample project shows how to use the Element Collections library. The library contains function blocks for lists, queues, stacks, and hash tables.
Event Manager	This example shows how to send and receive system events, such as start, stop, login, and logout.
File Utilities	This example shows how to read and write files and work with directories. Synchronous and asynchronous function calls are used in the example.
HTTP Client	The example contains a library with a function block for communication with a web server via HTTP.
IO Mapping Tool	The example shows how to use the IEC library IO Mapping Tool to remap the inputs and outputs of a program to each other via a visualization in runtime mode.
Network Variables	The example shows how to use variables within a network with multiple devices.
Object-Oriented Programming	The example shows how to use object-oriented programming.
Object-Oriented Programming (Extended)	The example shows how to use other advantages of object-oriented programming.
OMAC PacMail State Machine	The example shows how to use the OMAC_PacMail_StateMachine library. The library includes an implementation of the OMAC PacMail State Machine.
OpenCV	The example provides a Python implementation of opencv , a free library of programming functions.
PLC Chat Net Base Services	The example provides a server application and a client application, each with a visualization. A client application communicates with another client application over the server application via TCP (Port 50000).
RPC	The example provides an application for RPC (Remote Procedure Calls).
Serial COM with Visualization	The example shows how to use three COM ports with a visualization of the contents of the read and write buffers.
Shared Memory	The example shows how to create shared memory and how to read and write to it.
Shared Memory Communication	The example shows how to exchange data between a CODESYS controller and other processes by means of shared memory.
Task Manager	The example shows how to use the ObjectTask system library to read task information.

CODESYS Forge

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Create Topic

State Graph

[Search talk](#)
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☐

Forums

Engineering ga	4750
Runtime ga	2026
Visualization ga	833
Motion ga	404
Codesys V2.3 ga	2134
Deutsch ga	4378
Automation Server ga	28
Forge ga	163

1 2 3 ... 40 >>

(Page 1 of 40)

visualization

CODESYS Forge talk (Thread)

visualization

Last updated: 2023-04-11

visualization

CODESYS Forge talk (Thread)

visualization

Last updated: 2017-10-17

Switch frame visualization from frame visualization

CODESYS Forge talk (Thread)

Switch frame visualization from frame visualization

Last updated: 2014-01-15

Axis references in visualization

CODESYS Forge talk (Thread)

Axis references in visualization

Last updated: 2023-09-19


Visualization - Parameter Table

CODESYS Forge talk (Thread)

Visualization - Parameter Table

Help

Formatting Help

CODESYS FAQ

Search

visualization

CONTRIBUTOR

IN SPACE

CODESYS FAQ ×

☐ Search archived spaces

LAST MODIFIED

Any date

Last 24 hours

Last week

Last month

Last year

Custom

OF TYPE

All content

Pages

Blog posts

Attachments

Spaces

Custom

Add a filter

Page 1 of 3. Showing 30 results (0.006 seconds)

Unresolved references after update **visualization** and **Visualization** are interconnected

CODESYS FAQ - Apr 14, 2023

CODESYS **Visualization** Chapter

CODESYS FAQ - Apr 23, 2023

Visu: Performance FAQ: limiting number of Visu-Elements or Objects

The following is a list of questions on **visualization** topics in relation to the general performance viewpoints. Especially those related to the maximum number of **visualizations**, visual elements, displayable elements and objects in relation to the system performance. Critical programming practices for **visualization**

CODESYS FAQ - Jan 17, 2023

Setting the update time of the Visu 'Update rate' and the 'VISU_TASK',
the limiting values for the CODESYS **visualization** are always depends on the used system itself. The standard update times of 150-200ms in the target settings ... considerations: In the CODESYS **visualization**, it is so that the VISU_TASK can run theoretically arbitrarily fast. In fact, it is only calculated

CODESYS FAQ - May 25, 2023

Microsoft Edge Webview2 Runtime

The CODESYS **Visualization** is using the alternative browser Webview2 since the release of CODESYS **Visualization** Add-on v4.3.0.2, the keep the system is online ... the **visualization** in online mode. There the following error message will showed up: The installed Webview2 Runtime version is not compatible to the **Visualization** version

CODESYS FAQ - May 23, 2023

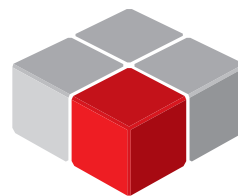
Creating and using your own dialog

wendavy3a8946c3c3085cd37907d867513c4cd89.png Using the new dialog Create a test project. Insert the object **'Visualization'** under the application. Insert a user management via the **visualization** manager. Create a user. The project must now be closed and opened again. The standard dialogs are now available

CODESYS FAQ - Mar 06, 2023

Visu, Trend: Behaviour of trend data during a project update

Visualization will work, as the database format does not change here. Modifications to the trend can also work, but do not have to. When updating CODESYS **Visualization**, keeping the trend data will usually work. CODESYS tries to keep the database formats unchanged. However, there have been cases in the past where



CODESYS