BOSCH

Bosch Connected Industry

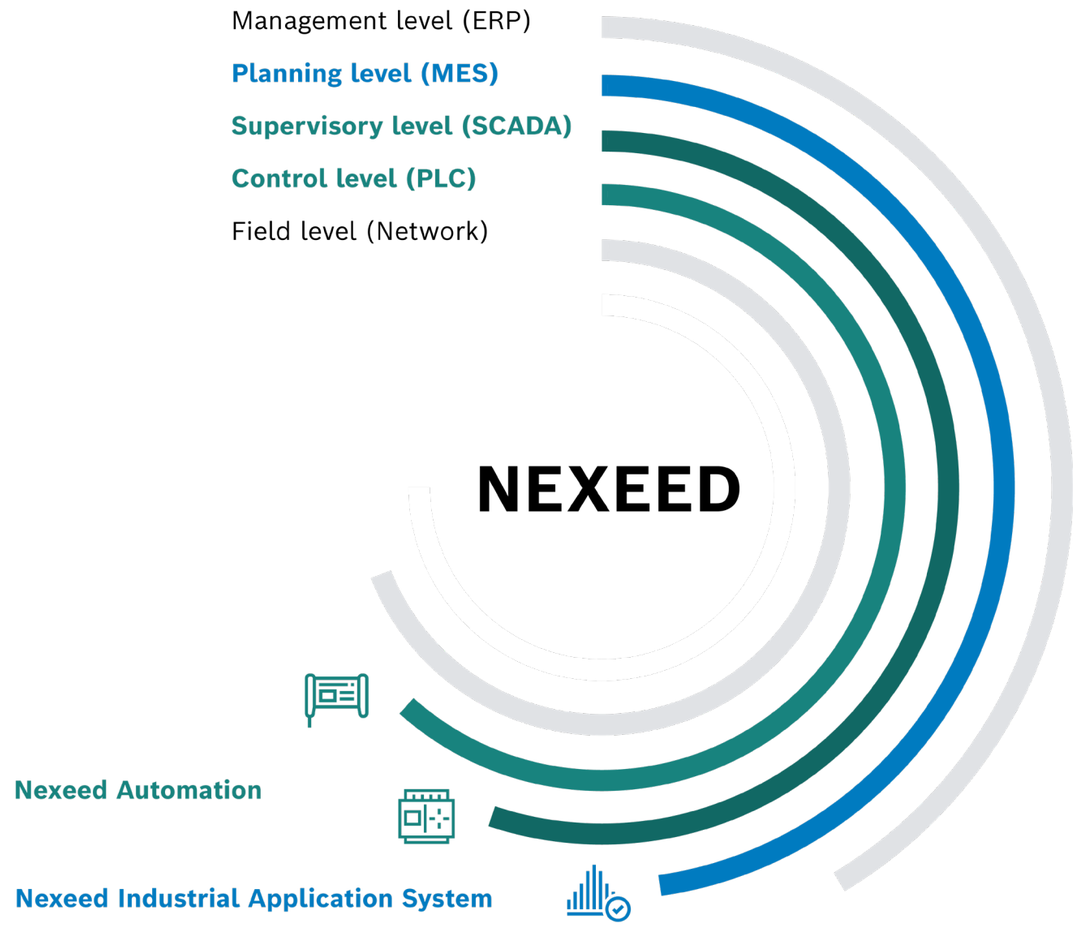
Nexeed Automation

Automation reimagined

Reading sample

Contents

Bringing together software and services for industry 4.0



Bosch Connected Industry is Bosch's IIoT software and service unit. Its portfolio covers all the requirements of the digital value chain. The manufacturer-independent Nexeed Automation platform ensures efficient construction and operation of machines and systems. The modular Nexeed Industrial Application System can be used to digitize and optimize production and intralogistics processes. The Bosch Semantic Stack offers a complete toolbox to exploit the full potential of product data throughout the entire life cycle. A wide range of services such as consulting, technical support, qualification of associates and support during implementation round off the range of services on offer.

At sites in Germany, Hungary, China and India, the "Technology for Life" team develops solutions that facilitate work in manufacturing and mechanical engineering and support companies with regard to transparency, agility, costs, quality and time.

This catalog introduces our software and hardware systems from Nexeed Automation.

Visit our homepage to discover our entire portfolio.

www.bosch-connected-industry.com

Nexeed Automation

Shaping the future today

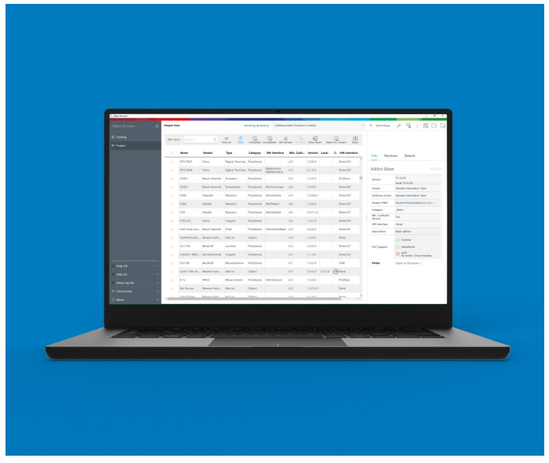
Digitalization carries clear expectations: Transparency and efficiency along the entire value stream. This is ensured by intelligent software solutions and services, which we at Bosch Connected Industry have combined in a comprehensive portfolio under the name NEXEED. With NEXEED, we have one main goal: To support you as well as possible in the digitalization and networking of your production.
The Nexeed Automation automation platform ensures greater efficiency and availability in mechanical and systems engineering. Product complexity and the diversity of product variants are constantly increasing. Machine operators and manufacturers are always looking for new concepts and solutions for flexible production. The reason: Frequent product changes and individualization from batch size one—with constant quality and at competitive prices—represent considerable hurdles in the production process. The need for future-oriented, efficient and user-friendly software and hardware solutions in the automation environment is therefore constantly increasing. Fixed processes must be replaced by flexible processes that can be controlled and directed by higher-level IT systems. At the same time, the requirements of software and hardware are becoming more and more diverse. Modern, networked control technology and the efficient handling of machine data are decisive success factors for mechanical and plant construction.

This is exactly where we start with Nexeed Automation. With our software and hardware system packages, you can implement your systems and machine projects in assembly, testing and process technology in a targeted and efficient manner. There is no need for in-depth programming knowledge or system-level expertise in aspects such as fieldbus, HMI or robotics: In addition to the actual control programming, our solution enables you to implement visualization tasks, motion control, safety, MATLAB, testing and measurement technology exactly as needed. The commissioning and maintenance of existing systems can also be carried out quickly with Nexeed Automation. Continuity and compatibility are particularly important to us, which is why we enable a high degree of consistency and reuse in operation.

With Nexeed Automation we create real added value for machine operators and machine manufacturers.

Nexeed Automation Portfolio

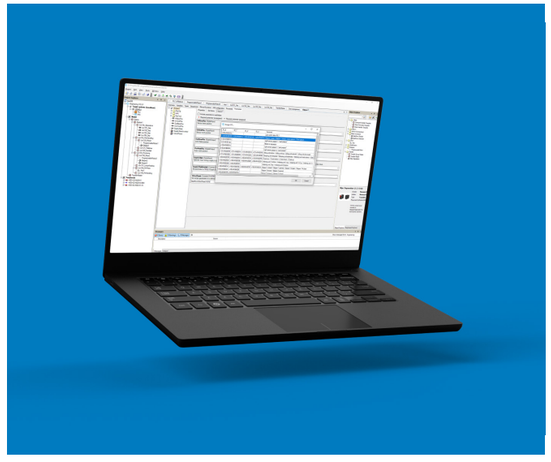
From planning to operation –
the ideal solution for every phase of your project



Planning

Mechatronic planning

- **Control plus Objects**
- **Control plus Object Browser**
- **ECAE Toolbox**



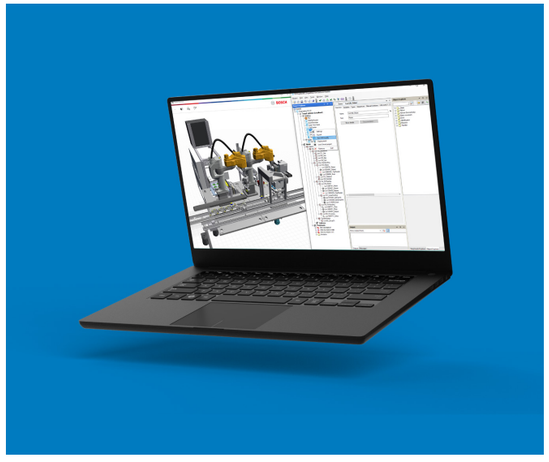
Development

Development framework

- **Control plus Object Library**
- **Control plus Object Browser**
- **Control plus Studio**
- **Control plus HMI Configurator**
- **Control plus PLC Framework**
- **Control plus Machine Hub**

Technology packages

- **Integrated Vision**
- **Integrated Robotics**
- **Integrated Robotics Vision Interface**
- **Integrated Dispensing**



Testing

Simulation

- **Control plus 3D Simulation**

Operation

Operation

- **Control plus HMI**

Diagnostics

- **Part Counter App**
- **Shift Manager App**
- **Event Recorder App**

Assistance systems

- **Virtual Assist**
- **Augmented Assist**
- **Cycle Time Assist**

Applications analysis

- **Cycle Time Analysis**

Device management

- **Device Portal**

Nexeed Automation offers a standardized and integrated automation system whose components are perfectly coordinated with one another. Our software system covers the entire development process and beyond – from planning and development to testing and operation. Specialists such as project engineers, electrical designers and programmers can rely on all phases to work together seamlessly. This Nexeed Automation portfolio overview shows which modules and features are used in the various phases to ensure an efficient project flow.

References

Our Customers

eberhard

Gluth SYSTEM TECHNIK

KEMMLER+RIEHLE

STRAMAMPS

SCHILLER | kurtz ersa

XENON

The companies listed as references are trained in the use of Nexeed Automation and have many years of experience in the successful implementation of projects.

We'd like to extend our gratitude for the good, fair working relationships we've maintained.

Device software object partners

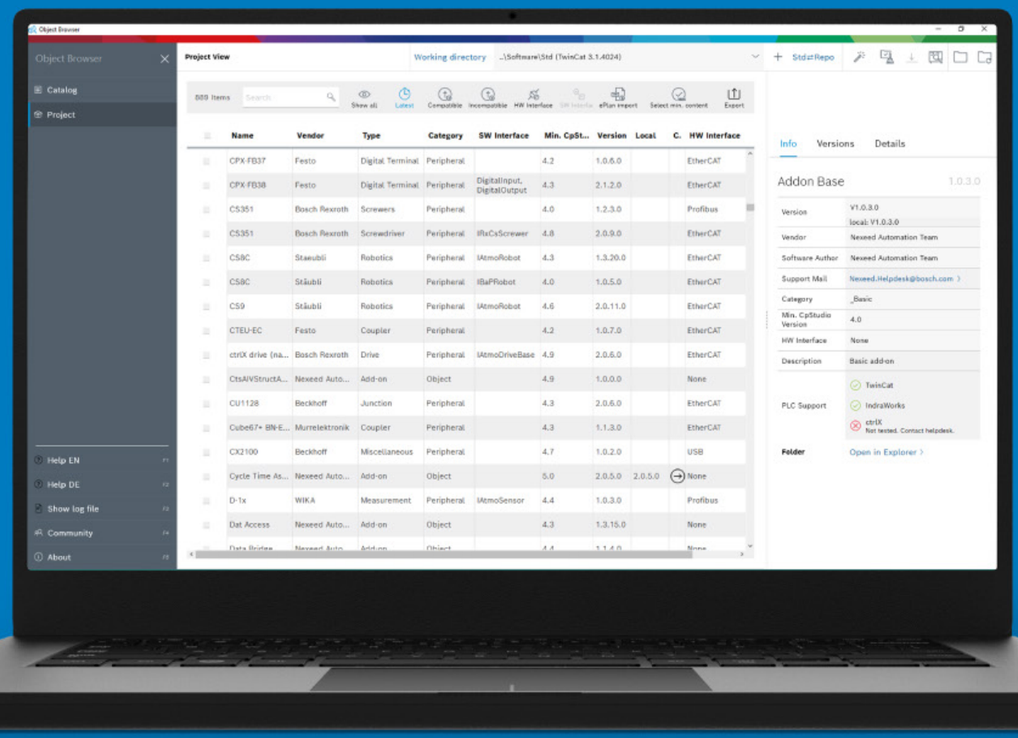
BALLUFF

wenglor the innovative family

FESTO

SCHUNK

SMC®


Object Browser
Project View
Working directory
Catalog
Project
Help EN
Help DE
Show log file
Community
About
Info
Versions
Details
Addon Base

01 Planning

A holistic approach to special-purpose mechanical engineering

Mechatronic planning

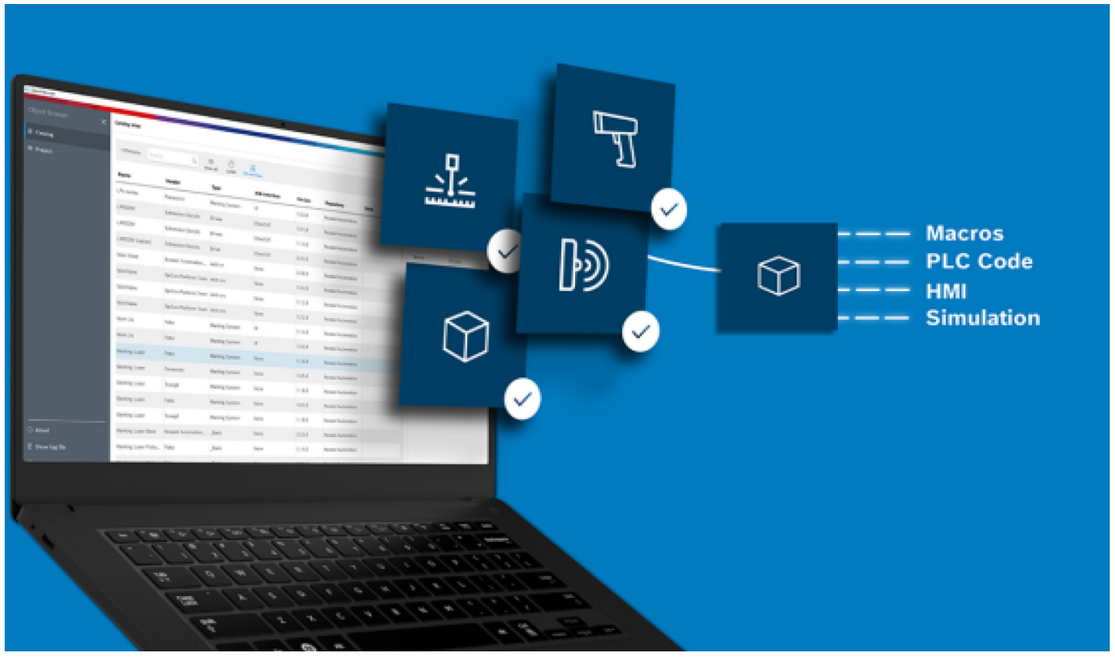
Control plus objects
Control plus Object Browser
ECAE Toolbox

Project success and efficiency in control technology/ automation are based on cross-trade cooperation and good planning. Nexeed Automation provides modules that support both collaboration and planning.

Planned reuse is a success factor for reducing the duration of projects and minimizing risk in the software project. In this context, Nexeed Automation delivers two aspects:
One aspect is the planning of the reuse of software objects—self-contained software consisting of a PLC module, HMI view, EPLAN macro, error texts—even during the configuration of the machine. The base system already includes a large repository of device objects for planning reuse at an early stage. In addition, users in mechanical engineering can encapsulate any module of their project, e.g. processes, into an object, manage it and reuse it in other projects.
Another aspect is the reuse of engineering data that has already been developed prior to software development. This includes the option of transferring electrical design data from EPLAN.

Control plus Objects

Reusable functions



Device software objects contain all the necessary elements and are easy to find.

The idea behind Control plus Objects is both simple and extremely effective: Devices and functions are defined once, bundled and prepared for easy reusability. This enables quick and uncomplicated use, even without in-depth expert knowledge. This approach not only ensures consistency in your projects, but also significantly increases the quality and efficiency of implementation.

What are device software objects?
The central development tool Control plus Studio enables you, as a machine builder, to build your machine projects – regardless of the controller manufacturer. You can integrate and parameterize your device objects using drag and drop, configure a process-specific machine visualization, define information services and diagnostic functions, and generate your code. Development times can be reduced by up to 50 percent by means of central, one-time data entry for control, visualization and data management. In addition to the Control plus Studio development tool, the base system offers a wide range of self-contained, tested and reusable objects. Well over 1000 device objects are already mapped in the object library. These objects are managed in the library, regularly extended by updates and kept up to date.

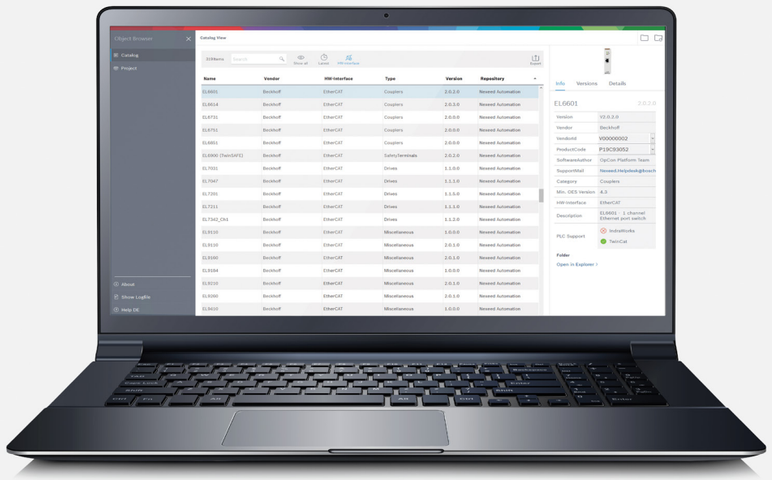
Your advantages at a glance

- Improve speed with tested control libraries, PLC code, out-of-the-box HMI views, documentation, and more
- Thanks to tested device software objects that undergo multiple use, fewer potential sources of error arise in a machine application
- The use of prepared device software objects reduces the time and cost risk for unplanned adaptation work during the machine application.

Included in the Control plus runtime license

Control plus Object Browser

Find software objects easily and accurately



Clear structure in the Control plus Object Browser

The Object Browser enables you to manage software objects, compile them for Control plus Studio projects and update them as the project progresses.
In addition to our central Object Library, you can also manage other libraries in the Object Browser, such as customer-specific software objects. This makes it easy to keep your projects up-to-date.

A search function makes it easy to find the objects you need. General descriptions of the objects as well as their version history, documentation and information on parameters provide further support when deciding which object to use. In addition, the Object Browser offers options for importing the EPLAN data of your machine project. The imported data is compared with the linked Object Library and selected accordingly. This allows you to directly assemble the objects for your project and use them in Control plus Studio without the need to search.

The Object Browser offers you two different views depending on the project phase you are in: the catalog view and the project view.

The catalog view – machine manufacturers
In the configuration and planning phase, the Object Browser provides the machine manufacturer with an insight into the available objects. This forms the basis of a better cost estimate, as it is possible to see at a glance the devices for which objects are already available.

The project view – machine developers
Using the project view, programmers can assemble the required components of a project very easily. The comparison function shows the difference between the objects in the project and the object library at any time. This allows you to view version differences at a glance. The change history of each object makes it easier to decide on an update.

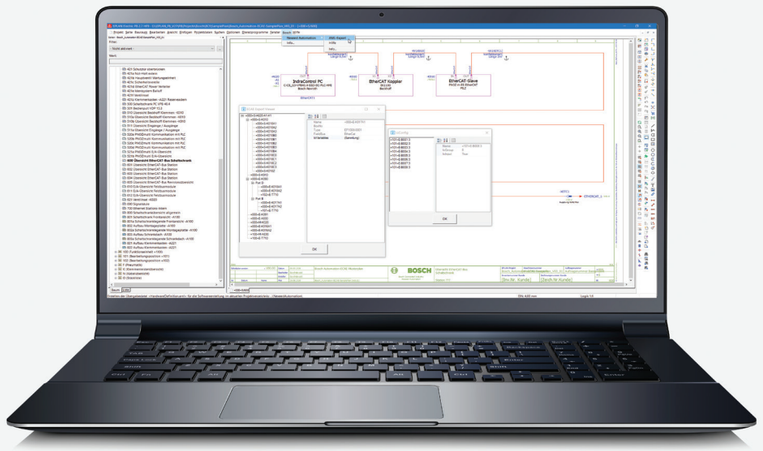
Your advantages at a glance

- Cost savings through reuse
- Risk minimization through the use of tried-and-tested software objects
- Flexibility and independence through integration of internal software objects
- Overview of existing software objects and projects
- Large selection of objects for device connection for the controller, including user interfaces for the HMI

Included in the Control plus runtime license

ECAE Toolbox

Toolbox for electrical design (ECAE)



A sample circuit diagram, which can be used to create electrical diagrams in EPLAN

Nexeed Automation offers an electrical design package with the ECAE Toolbox. The package ensures the straightforward creation of electrical diagrams in EPLAN and the seamless transfer of information to software programmers.

In addition to an up-to-date sample circuit diagram, a macro library is also available. This contains a collection of macros matching objects from the Control plus Library and is constantly being updated with new macros.
These two components ensure that electrical circuit diagrams for Control plus projects can be created quickly and easily.
The interface for the Control plus engineering environment provides programmers with a simple method of exporting configured devices. After importing the created file into Control plus Studio, extensive information is immediately made available in the engineering environment, including the bus setup, configured devices and interface texts in several languages.
This ensures an efficient toolchain and simple interaction between the electrical designers and programmers, saving a great deal of effort.

A validation function is also integrated directly into EPLAN that can be used to test the electrical plan at any time. In addition to pre-selected rules, custom test rules can also be created.

The ECAE package from Nexeed Automation consists of the following components:

- Sample circuit diagram
- Macro library
- Integration of macros in Object Browser
- EPLAN AML ProjectCheck
- EPLAN-AML export interface
- Control plus AML import interface

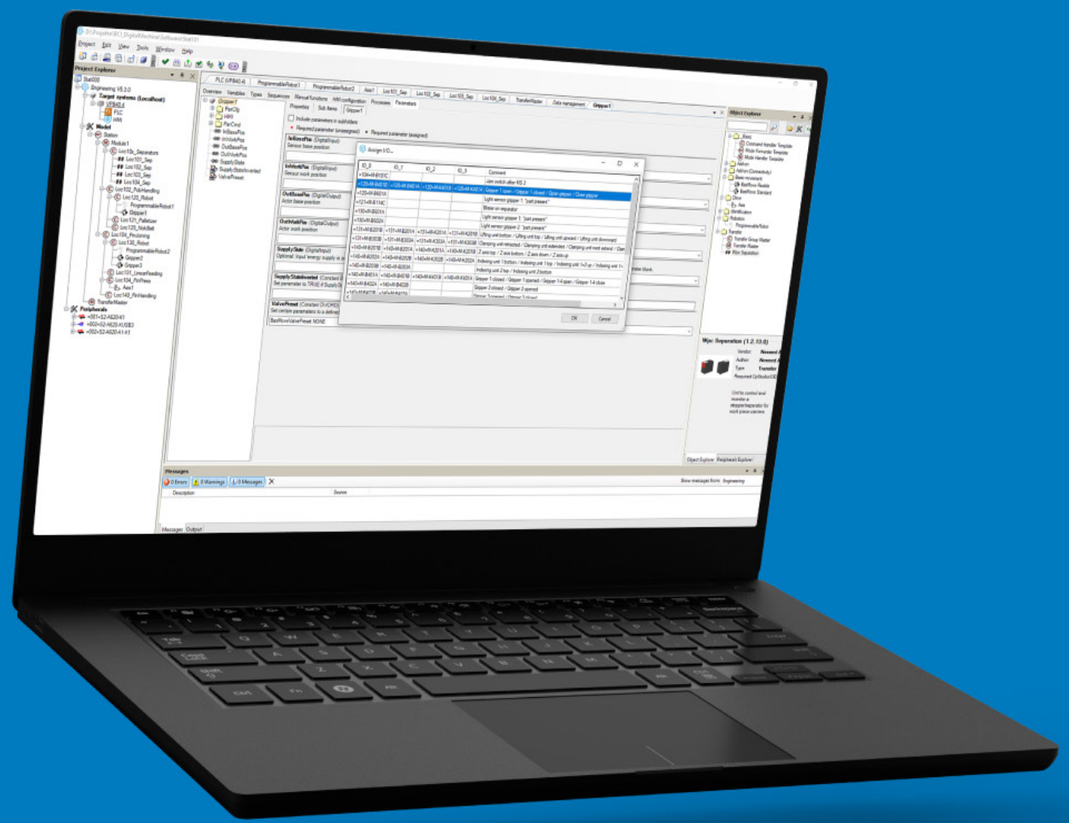
Your advantages at a glance

- Get started with construction more easily thanks to the Nexeed Automation sample circuit diagram
- Fast EPLAN creation by means of pre-fabricated and tested macros
- Clearly structured overview of macros in the Object Browser
- Validation function (AML ProjectCheck) integrated into EPLAN with pre-selected and configurable test rules
- Efficient toolchain thanks to EPLAN export and AML import interface

***The license is annual and requires the engineering dongle.**

ECAE Toolbox 365 engineering license*
Article. no. 3800.590.170
Article. des. NXA-LC-ECAE-365
Price (excl. VAT/RRP) **€9151**

Engineering dongle
Article no. 3800.590.273
Article des. NXA-LC-Engineering Dongle
Price (excl. VAT/RRP) **€395**



02 Development

Automation reimagined

Development framework
Control plus Object Library
Control plus Object Browser
Control plus Studio
Control plus HMI Configurator
Control plus PLC Framework
Control plus Code Checker
Control plus Machine Hub

Technology packages
Integrated Vision
Integrated Robotics
Integrated Robotics Vision Interface
Integrated Dispensing

Control plus is built on a base system, the development framework, and is supplemented by technology packages. The development framework comprises all the basic functions required to handle the software project: Libraries, tools for integrating the libraries, and the engineering tool, including the software for PLC and HMI. Quality assurance tools and the Machine Hub interface concept round off the base system. Technology packages can be added to the base system that provide added value for the development and operation phases. The packages are preconfigured and only need to be enriched with the purely specific process content of the machine.

Development framework

Control plus Object Library

Control plus Object Browser

Control plus Studio

Control plus PLC Framework

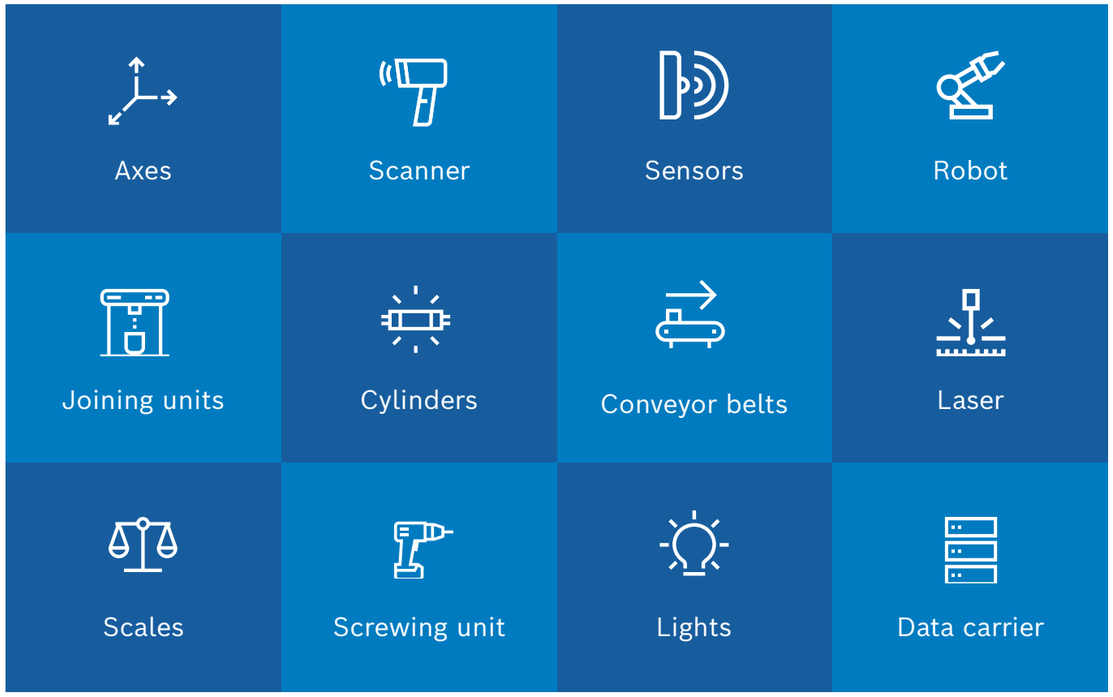
Control plus HMI Configurator

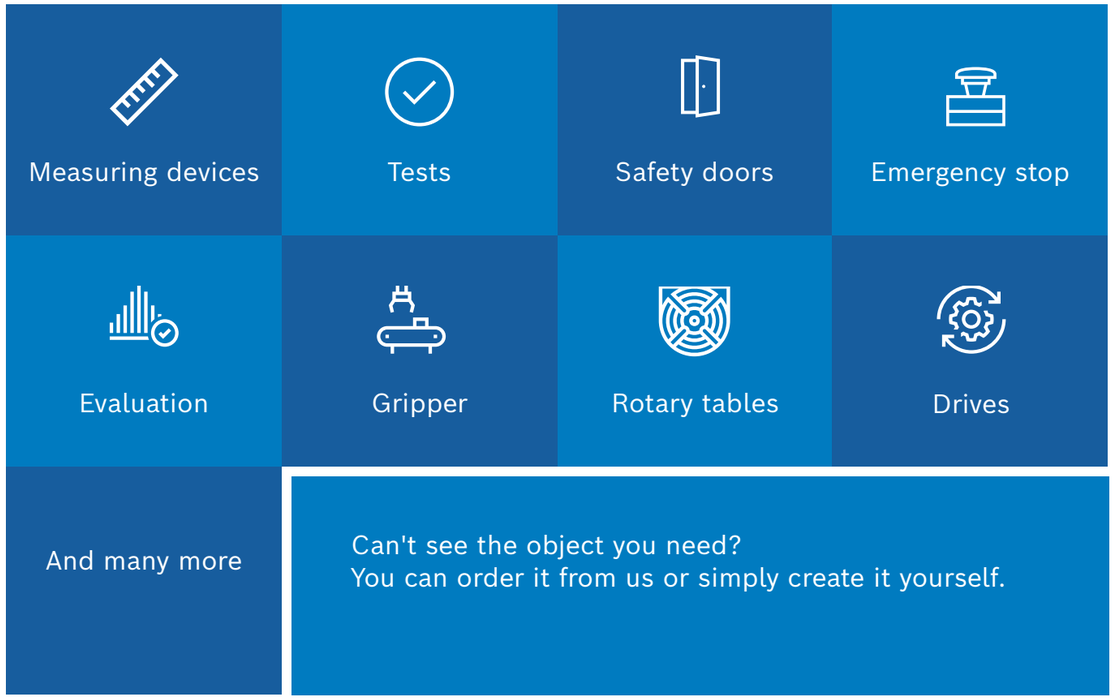
Control plus Code Checker

Control plus Machine Hub

Control plus Object Library

Module for efficient device connection





Part of the Control plus engineering environment is the Object Library with well over 400 self-contained, tested and reusable objects. These can be easily used without device-specific expert knowledge. From drive axes to conveyor belts, measuring and analysis hardware, our Object Library will provide you with access to devices from numerous manufacturers.

The objects are managed within the Object Library and updated to the latest version. Using the objects allows you to effectively reduce development time and costs. Regardless of who creates them, objects can be installed in the project by drag-and-drop and used directly in sequence chains (SFC). This means that your projects can be implemented quickly and easily with precisely those objects that are needed.

In the Control plus Object Library, we distinguish between the following object categories:

Device objects
A device object represents a specific device with a defined firmware version.

Functional objects
A functional object represents a higher-value functionality that is easy for the user to apply and reuse.

System objects
With system objects, the user can freely structure their application according to functional aspects.

In order to achieve efficiency gains in a project through reusable objects, it is essential to ensure transparency regarding the content and availability of objects in very early project phases.

This is made possible by the Control plus Object Browser, page 22, which provides a complete and convenient overview of the Object Library and ensures efficient working with the objects with many additional features.
To gain a quick and easy overview of existing objects, you can also find a list of all existing objects and their properties on our website:

https://www.bosch-connected-industry.com

If you cannot find the device object you need in our Object Library, feel free to contact us or develop the object yourself. We offer special training courses for this purpose.

Object development is offered in an expert training course (OP188) that builds on the basic programming training (OP120/OP126). For more information, see "Training" on page 188

Included in the Control plus runtime license