

cpcStudio

software PLC / IDE platform



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The machine and the robotic arm are on the same production line;
why do they have to be controlled separately?

cpcStudio helps you integrate your automated production line,
allowing you to hold the entire "factory" with one software easily!

Don't want to be constrained by hardware every time you upgrade?
Want to have your cost budget under control?

Software upgrades replace hardware upgrades, allowing you to
connect every upgrade seamlessly!

cpcStudio gives your automation upgrades unlimited flexibility!



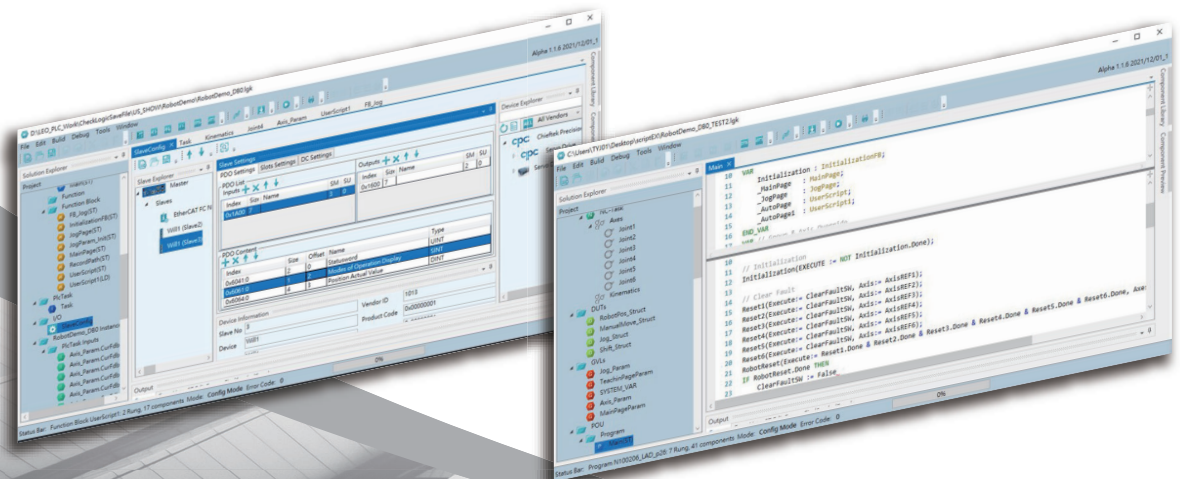
About cpc automation technology services

cpc provides flexible and highly complete automation products and services, mainly divided into cpcCell (key components), cpcRobot (six-axis robotic arm), and cpcStudio (software PLC), allowing users to freely choose hardware and software to quickly complete every system project in response to the ever-changing market demand. This way, users can focus more on their core technology and integrate with cpc products quickly and closely.



cpcStudio realizes a highly flexible integrated platform

cpcStudio is an integrated development environment that conforms to the IEC 61131-3 standard and contains cpcRuntime based on the Linux operating system. It can turn industrial computers into PLCs with real-time control capabilities, thus users are no longer restricted by the hardware of PLC manufacturers. Users can choose the hardware that best suits the requirements of the system project.



cpcStudio provides a variety of libraries to create the greatest cost performance

In addition to following the standard IEC 61131-3 programming language, it also has built-in PLCopen Motion Control Function Blocks. It provides high-precision motion control with continuous interpolation, and gantry command modules. Besides, there are other function blocks for special function extensions, and the libraries search engine manages the entire database. When integrated with cpcRobot, the user can control the system and robotic arm in their familiar PLC languages like ST or FBD.

cpcStudio supports versatile communication protocols

With the increasing demand for factory automation and scale expansion, IT and OT convergence becomes a trend. In addition to its network system, cpcStudio allows users to use industrial communication protocols such as EtherCAT and Modbus TCP but also enables users to exchange data through Ethernet and send machine information to the data center. In the future, cpcStudio will also develop the OPC UA communication protocol to improve the interoperability with third-party software.

Applications

cpcStudio is responsible for the mechanical logic process of the entire PLC, so transportation, healthcare, architecture, people's livelihood, industry, agriculture, and aquaculture are all uses. In the past, cpc products were used intensively in the industrial and medical sectors. Recently, it has been actively working with system integrators to expand applications such as packaging, handling, inspection, etching, panel displays, automated warehouse, and power engineering. In response to cost demands in different areas, cpcStudio also offers different levels of PLC function to meet customer expectations for cost performance.



IDE software development

Today's software development trend has shifted from independent operations to integration capabilities. Under the entire construction, the best system configuration can be performed according to different application requirements. The process is established by the editor, compiler, and debugger. With a friendly operating interface, it is moving towards convenient and fast integration of third-party software development (such as vision, measurement systems, robots, HMI, and other modular systems, etc.), allowing users to complete the development effectively and efficiently.

cpcStudio features highlight

Project types

■ PLC project

It is suitable for the development of general control applications; numerous variables are supported for medium to large control systems.

■ NC project

It is suitable for developing single-axis or multi-axis motion control applications using the drives supporting CoE specification.

■ Robotics project

The project template provides a simple way to integrate cpcRobot seamlessly and efficiently:

- Support MCS, PCS, ACS coordinate systems
- Support for the management of the tool libraries

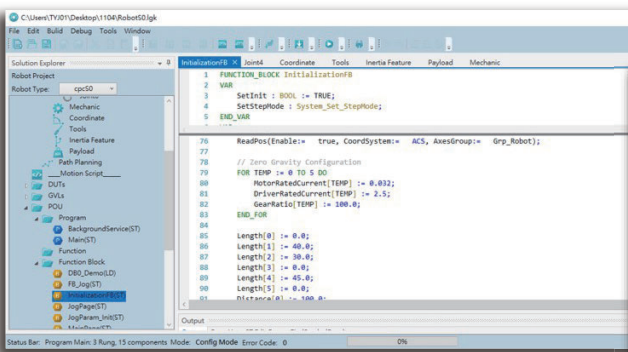
Programming languages

■ Structured Text (ST)

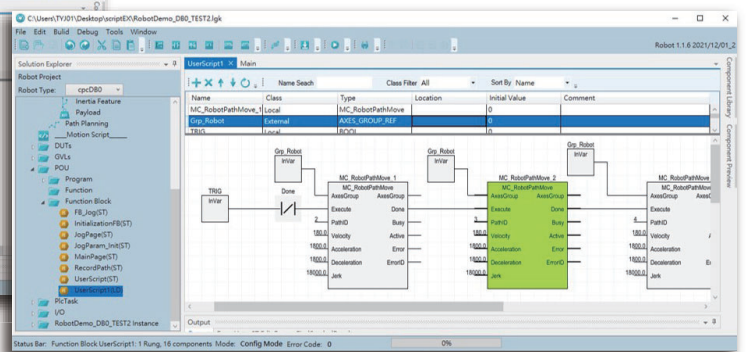
The syntax is similar to Pascal, a higher-level language, which supports statements such as assignment, expressions, condition, and iteration control. The flexible syntax is suitable for expressions of arbitrary complexity and complex control logic.

■ Function Block Diagram (FBD)

It is a graphical language that emphasizes the flow of data. Block diagrams represent calculation or control logic, and the variables connected to the block diagrams represent the data flow. It is similar to the wiring and block diagrams of control systems.



Structured Text (ST)



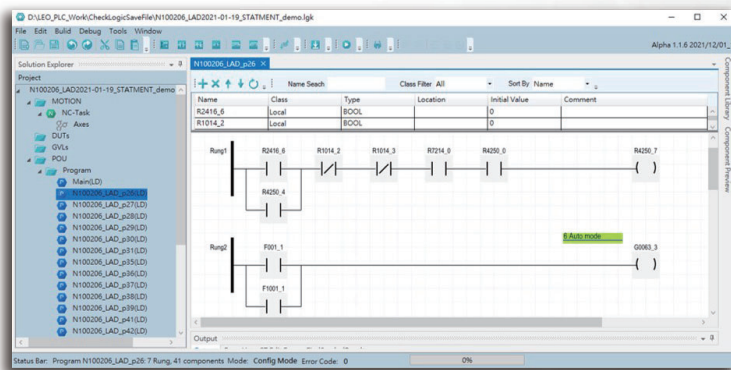
Function Block Diagram (FBD)

■ Ladder Diagram (LD)

The graphical language is derived from the relay logic design of electrical installations. It is suitable for digital signal operations or boolean logic control.

■ Continuous Function Chart (CFC)

A graphical language similar to FBD, but with more flexibility, you can freely connect input/output pins of components like a flowchart.



Ladder Diagram (LD)

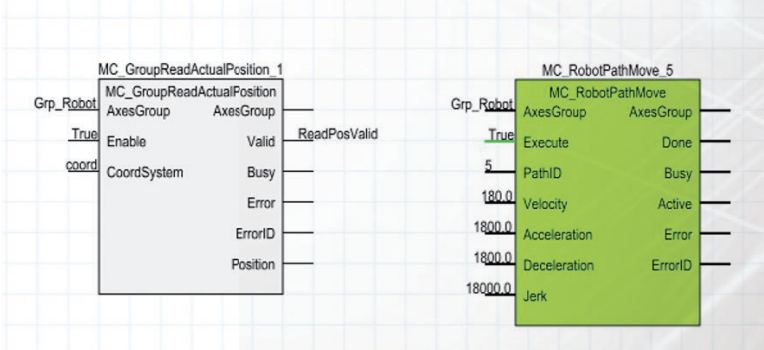
Compiler

■ Source code encryption protection *

Allow the project's source code to be uploaded to the controller in an encrypted form, and only with a password can it be downloaded. Support the entire project or individual POU with encryption protection to keep them confidential.

■ Libraries

It supports standard components such as Functions and Function Blocks specified by IEC 61131-3 and supports PLCopen Function Blocks for Motion Control part 1 and part 4. Function Blocks for robotic arm control are also supported.



```

if (GroupStatus.bits.Error) {
    SET_ERROR(MCFB_ERROR_GROUP_INTERNAL_FAILURE,
    InternID)
}

DONE:
d set done output
state
TING
done output and return a cycle
LDATA(DUNE)) {
LSET

```


cpcStudio features highlight

Editor

■ Undo/Redo (LD/FBD/ST)

You can review the history records, restore the wrong modification, or repeat it when editing.

■ Quick variables and comments searching (LD/FBD/ST)

You can search for the source of references of components and variables, and click the search results to jump to the target page.

■ Go to rung (LD)

Jump to user specified rung number directly.

■ Component library searching (LD/FBD)

Supports fuzzy searching of the component libraries based on the keyword specified by the user.

■ Referring component pins to variables (LD/FBD)

Component pins can refer to variables directly. Thus, the wiring complexity will be reduced.

■ Edit shortcut window (LD/FBD)

You can generate graphic elements and variables in the graphical language by issuing commands from the shortcut window. The graphic connections will be finished automatically.

■ Automatic network arrangement (LD/FBD)

Editor of graphical languages supports automatical connection arrangement.

■ Cross-project copy&paste (LD/FBD)

Graphical components support cross-POU and cross-project copy&paste, reducing the burden of editing operations.

■ User-defined data types (LD/FBD/ST)

Supports IEC 61131-3 user-defined data types, providing users with more flexible design space.

■ Function/Function Block Design Preview (LD/FBD/ST)

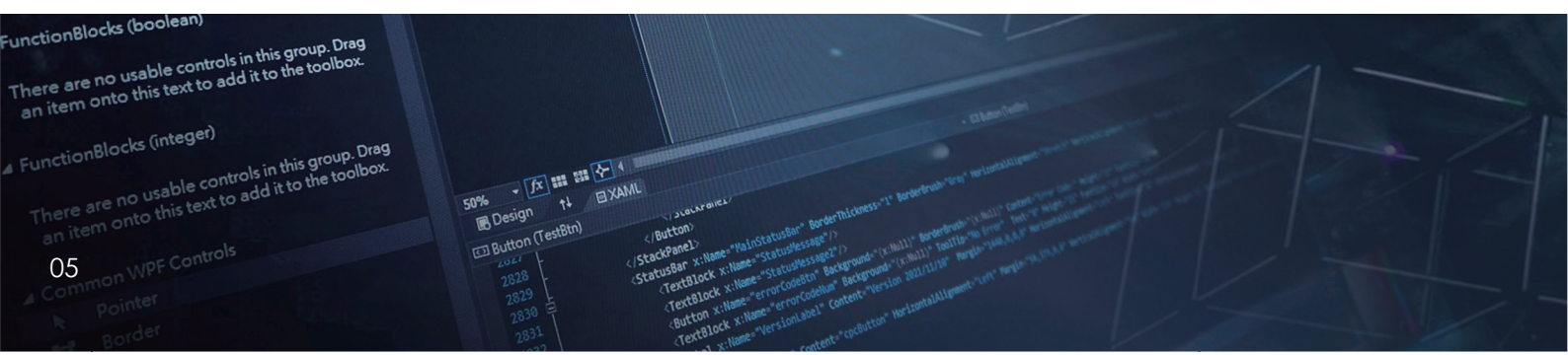
Supports IEC 61131-3 Function/Function Block design and provides a component appearance preview interface to make the component design process clearer.

■ Message window

Provide system messages and error information to help PLC programmers to find editing errors.

■ Syntax assistant

Standard data type selection, user-defined data type selection, user-defined structure members, and enumerated members are automatically recommended. Speed up programming and reduce the need for file searching.



Debugger

■ Single Step execution (Step Into/Step Over/Step Return)

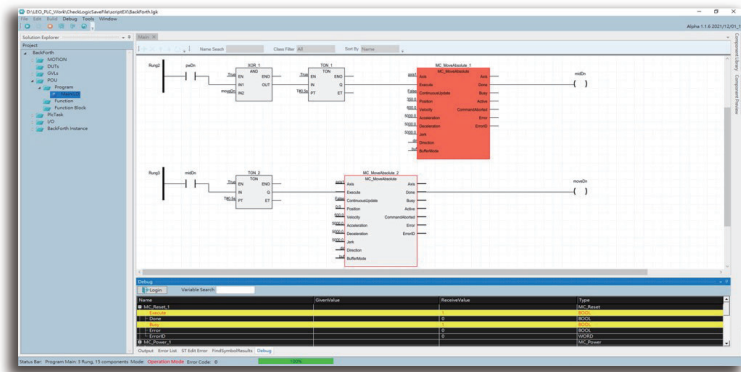
The debugging mode allows single-step execution, clearly marking the execution process. The monitoring window synchronously shows the values during single-step execution, allowing you to monitor the changing process of logic variables, making it easy to find program errors.

■ Breakpoint

Support unlimited breakpoints, support selection of breakpoint source.

■ Variables monitoring

It supports real-time monitoring of variables for both standard data types and user defined data types. Once a value changes, it will be highlighted. Runtime modification of variables is also supported.



Configurator

■ EtherCAT slaves configuration

EtherCAT slaves can be I/O modules and servo drives; they can add, modify, and delete PDO variables polled by the slaves and support EtherCAT drives with up to 64 axes.

■ Axis configuration

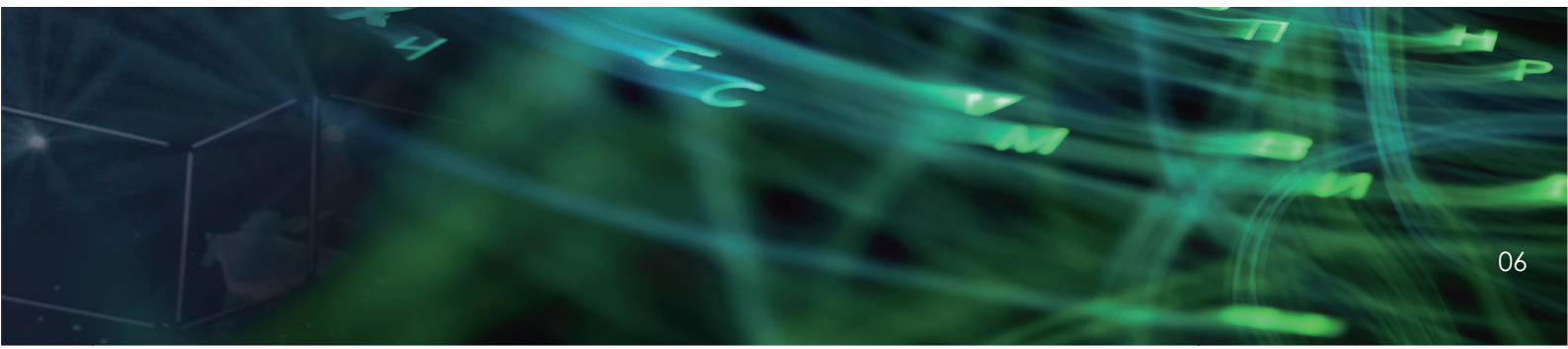
The physical axes are connected to the physical EtherCAT drives, and the basic parameters of the axes are pre-configured. Virtual axes not connected to the physical devices are also supported. In that case, the parameters of the axes can still be configured and the motion commands can be executed without physical effects.

■ Coordinate systems settings

MCS, PCS coordinate systems and group settings which can support up to 16 groups.

■ Tool library settings

Tool library sets tool coordinates and compensation values and supports up to 100 groups of tool libraries.



cpcStudio features highlight

Communication protocols

■ Modbus TCP Client

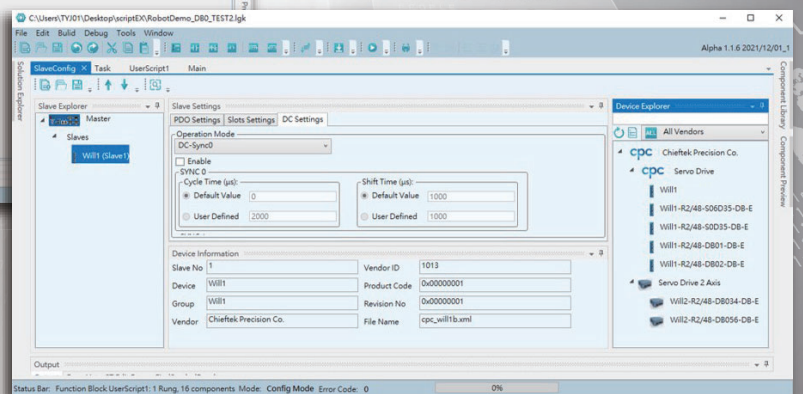
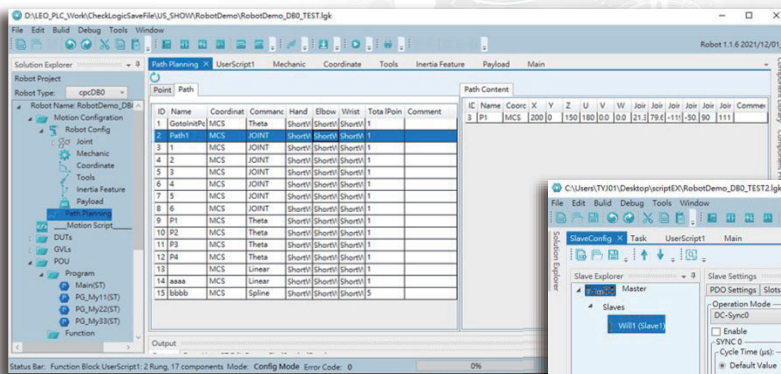
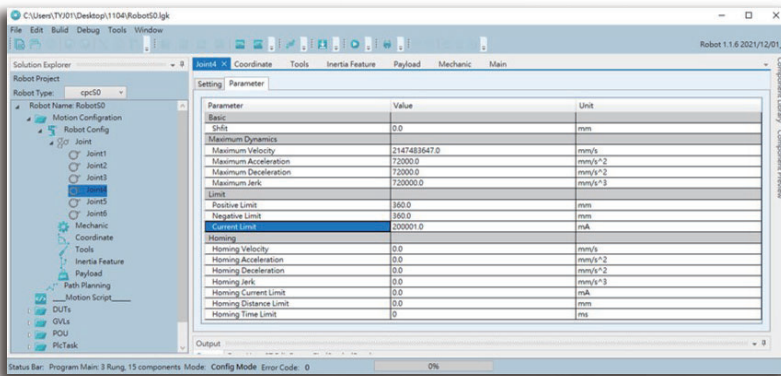
Monitor and control other PLCs via Modbus TCP protocol.

■ Modbus TCP Server

Use Modbus TCP protocol to receive control signals from other PLCs or HMIs to determine the execution of the script.

■ cpcVIP

Use the cpcVIP protocol to exchange data with other PLCs and HMIs.



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