Industrial Motors

Commercial & Appliance Motors

Automation

Digital & Systems

Energy

Transmission & Distribution

Coatings

PLC – PLC500 Programmable Logic Controller

Power in processing, **flexibility** in programming



Driving efficiency and sustainability

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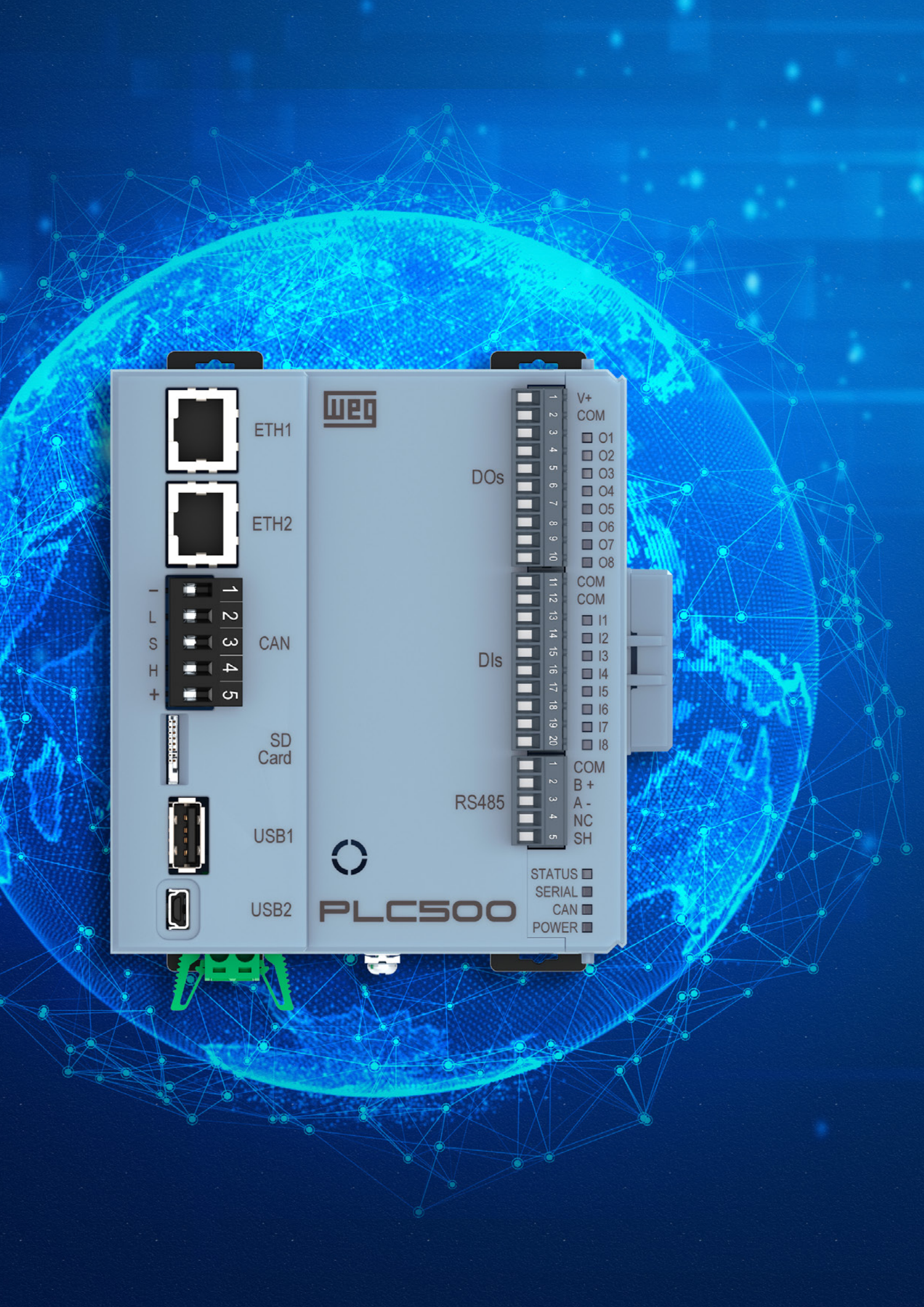
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ETH1
ETH2
CAN
SD Card
USB1
USB2
DOs
DIs
RS485
V+
COM
O1
O2
O3
O4
O5
O6
O7
O8
COM
COM
I1
I2
I3
I4
I5
I6
I7
I8
COM
B +
A -
NC
SH
STATUS
SERIAL
CAN
POWER
PLC500



Power in processing, flexibility in programming

PLC500 is a **Medium to Large-Scale Programmable Logic Controller**, featuring a compact size, robust performance and modular programming capabilities.
It is a solution that uses WEG technology and the CODESYS® platform flexibility, enabling the development of flexible and efficient solutions. With high-processing hardware, it can perform highly complex tasks, such as timing, counting, basic and advanced mathematical operations, interlocking logic, PID control, axis control, edge processing and much more. All that, at high speed and with maximum operational accuracy.





Maximum efficiency in highly complex tasks

Benefits

- Develop your solutions on the CODESYS® platform
- Achieve maximum performance through powerful hardware
- Compact design
- Expandable in Book format
- Easily add new expansions with Plug & Play functionality
- Add up to eight expansion boards locally
- Reuse your programs through the object-oriented programming concept
- Individual and synchronized axis control
- IoT and edge processing
- Cost reduction

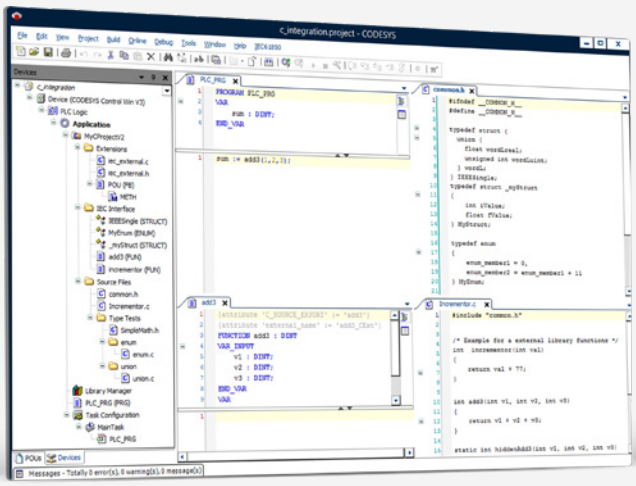
The robustness of the CODESYS® platform with WEG technology



The high processing performance that simplifies the simultaneous performance of highly complex tasks is one of the main advantages of the PLC500. Efficiently modular, WEG's Medium to Large-Scale Programmable Logic Controller combines powerful hardware, intelligent software, great memory capacity and the flexibility of the CODESYS® platform.



Especially developed for industrial automation, with open interfaces and several native functions, it also has an online platform for free download of functions (Codesys Store). The CODESYS® development platform is free and based on the IEC 61131-3 programming standard, which offers integrated solutions for developing, configuring and simulating efficient, fast and flexible applications that simplify commissioning and daily tasks.



CODESYS

Perform complex tasks with high performance processing

Mounting bracket latch

Dual port Ethernet
EtherNet/IP, EtherCAT, Modbus-TCP, PROFINET, MQTT and OPC-UA. Allows integration and simultaneous communication to the main industrial communication networks.

Plug-in for closing the expansions
It allows isolating the contact from the external environment, increasing the durability of the expansions.

CAN connector
Isolated, own internal power supply.



Contact between expansions

Expansion module
Expansions compatible with RUW100 and RUW200 remote units.

MicroSD card slot
Maximum capacity of up to 128 GB with approved card.

Quick connectors
Power supply, inputs and outputs.

USB Host Port

LEDs
Visual status indication.

RS485 connector
Modbus-RTU.

Mini USB device port
Easy firmware update, programming and monitoring via PC.

Perform complex tasks with high performance processing

Developed to be a high-performance, medium-sized controller with built-in IIoT and connectivity resources, the PLC500 allows you to achieve maximum results from your applications, optimizing time and increasing your productive and operational efficiency. Flexibility is another unique feature of this solution, enabling numerous protocols available in a single product, without the need for additional communication modules.

Features

Integrated connectivity and IoT

Native IoT protocols and services:

- Web Client SL
- MQTT Client SL
- Mail Service SL
- SMS Service SL
- SNMP Service SL
- Supported SNMP Versions
- SNTP Service SL
- AWS IoT Core Client SL
- Azure IoT Hub Client SL
- JSON Web Token SL
- Web Socket Client SL

Industrial ports and networks

- 2x Gigabit Ethernet ports (EtherNet/IP, Modbus-TCP, EtherCAT, Profinet, MQTT and OPC-UA)
- 1x CAN port (CANopen)
- 1x RS485 (Modbus-RTU)
- Allows integration and simultaneous communication to the main industrial communication networks

MicroSD card slot

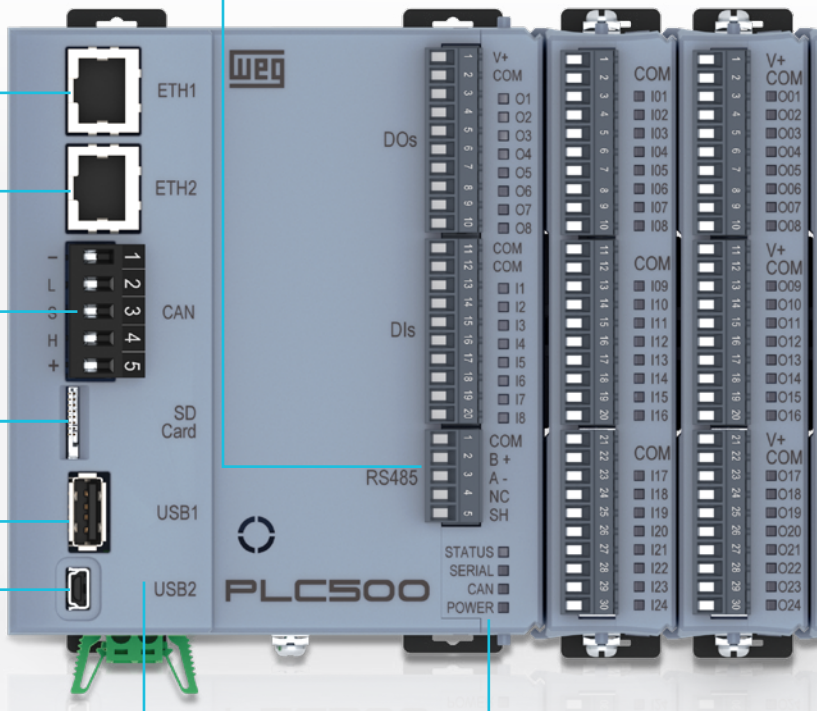
Maximum capacity of up to 128 GB.

Mini USB device port

1x mini USB device port for programming and monitoring via PC.
1x USB Host port.

Hardware and software in harmony

CODESYS® solution development platform, greater operational stability and smart tools.



Status LEDs

Visual status indication.

Have more flexibility to develop your automation

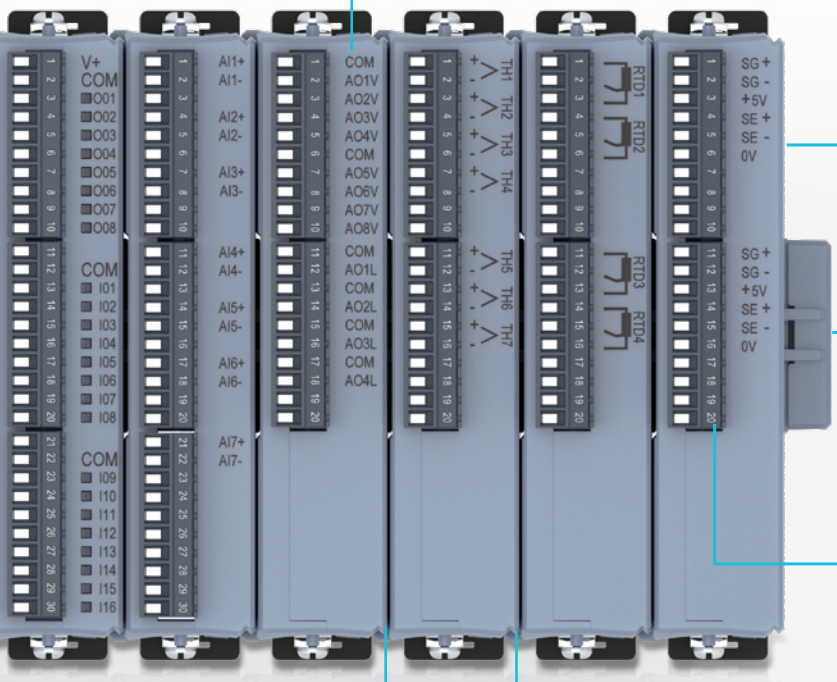
The PLC500 Programmable Controller was developed on a platform that allows interchangeability of MOD expansion boards used in the RUW100 and RUW200 remote unit lines, as well as in other programmable controllers such as the PLC200, PLC201 and PLC410. That enables high flexibility and synergy across our product line, all based on the Plug & Play concept.

Complete line of expansions

The same expansion boards used in the PLC200, PLC410 and PLC500 programmable controllers or in the RUW100 and RUW200 remote units.

Expansion boards with numerous possibilities:

- Thermocouple (J, K and T)
- Thermistor (Pt-100 and Pt-1000)
- Load cell
- Relay outputs
- Digital inputs and outputs
- Analog inputs and outputs



Plug-in for closing the expansions

It allows isolating the contact from the external environment, increasing the durability of the expansions.

Quick connectors

Power supply, inputs and outputs.

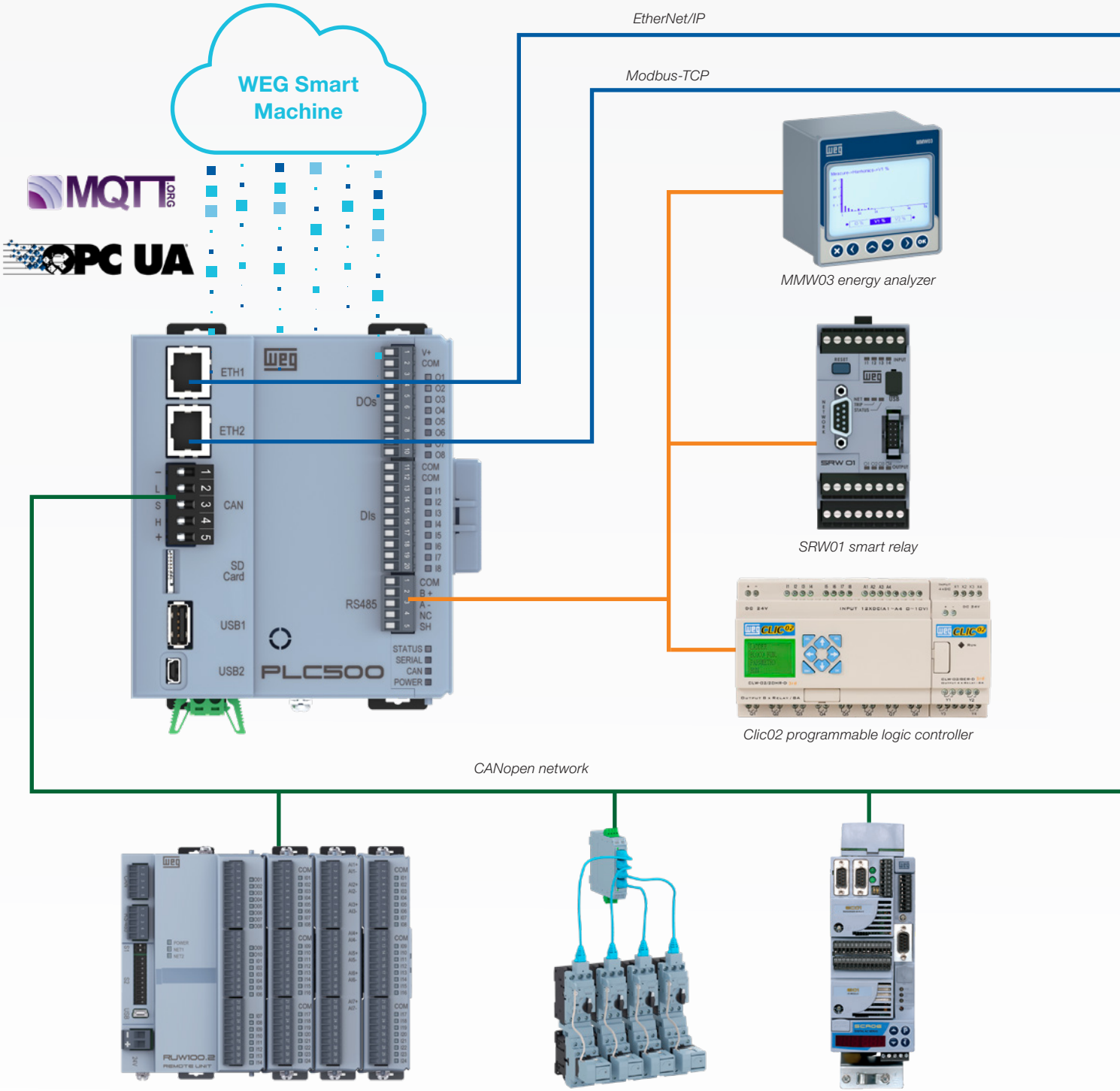
Gain more space when installing your solution

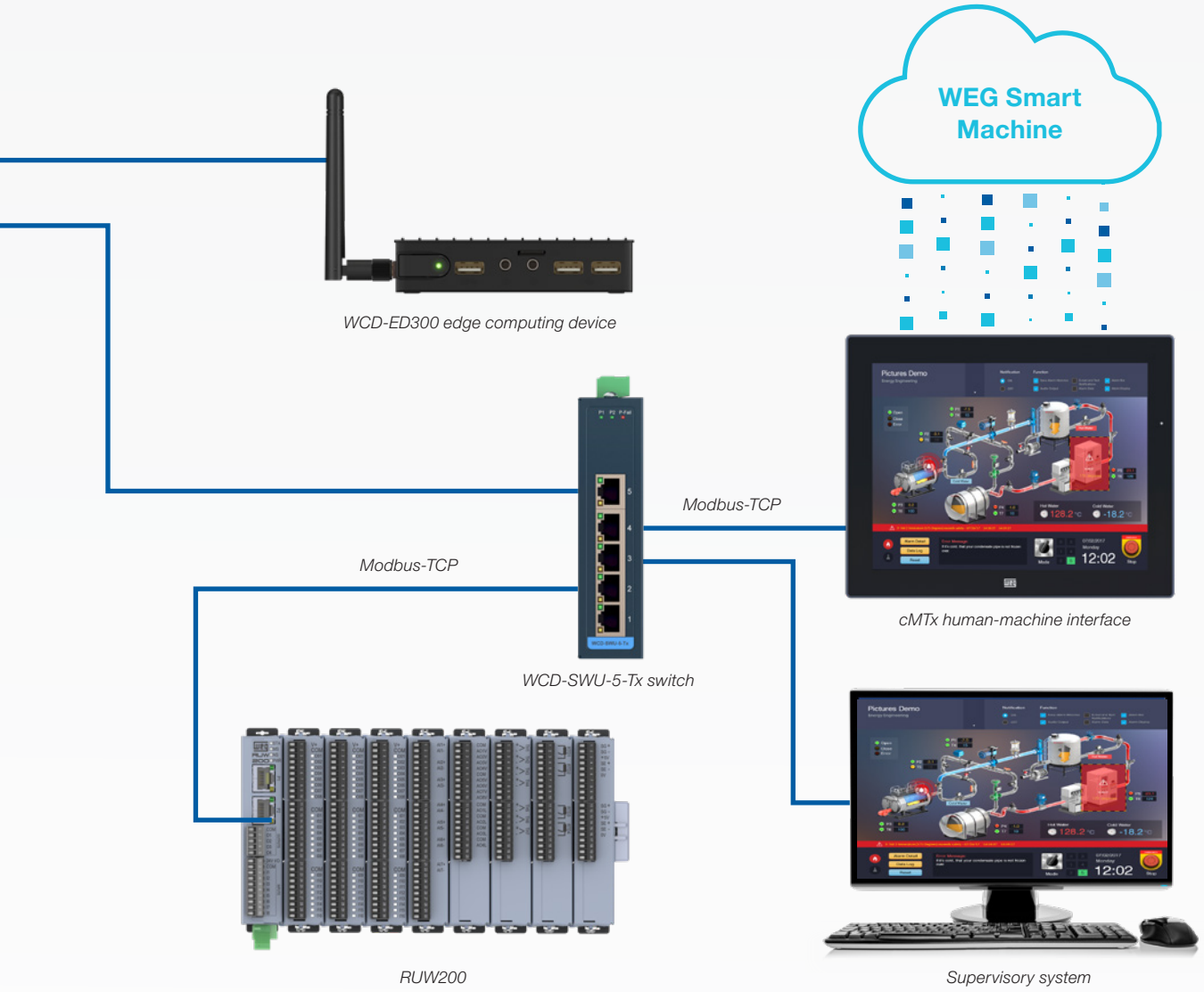
Only 25 mm expansion boards.

To learn more, access or click here.

Increase your productivity with flexibility and high performance

Diagram







SSW07 soft-starter | SSW900 soft-starter | CFW500 VSD | CFW900 VSD

EtherCAT | EtherNet/IP | PROFINET | Modbus TCP - RTU | CANopen



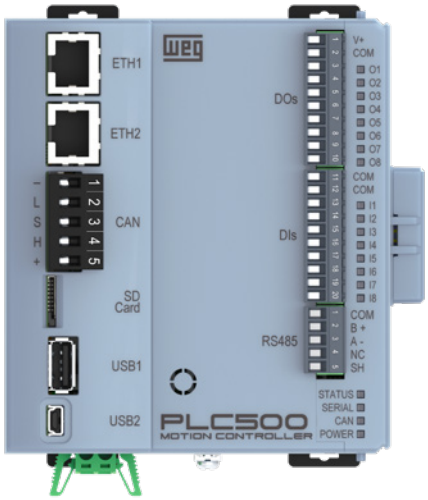


Precise, integrated and connected motions

Features

- Develop your solutions on the CODESYS® platform
- Dedicated libraries for axis control
- Certified function blocks
- Cam editor
- Easily add new expansions with Plug & Play functionality
- Add up to eight expansion boards locally
- Reuse your programs through the object-oriented programming concept
- Individual and synchronized axis control
- IoT and edge processing
- G-code decoder

Take control of motion with the PLC500MC



The PLC500MC controller was developed to provide maximum performance in machines and systems that demand precise motion control. It combines high performance for servo drive control and IoT resources, allowing the integration of complex systems also in the cloud.

With its powerful hardware, it can control up to 32 real or virtual axes, either simple or synchronized, enabling use in a wide range of applications and different levels of complexity.

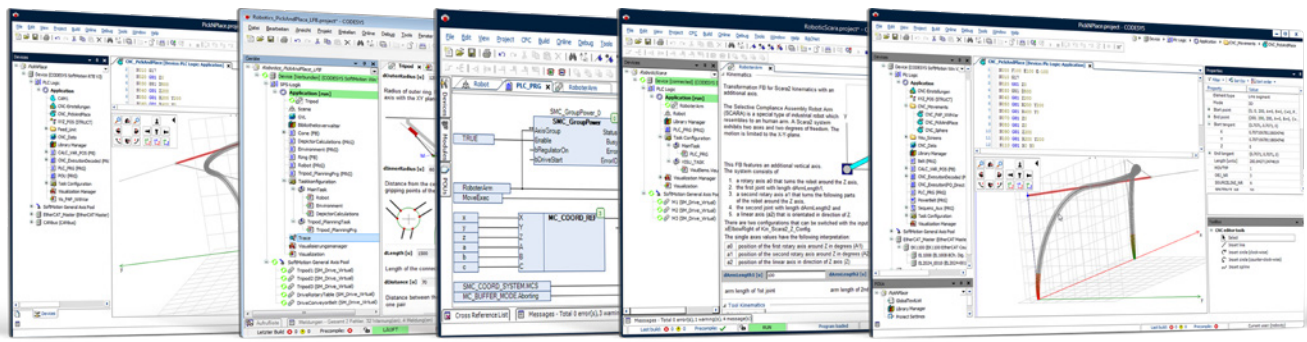


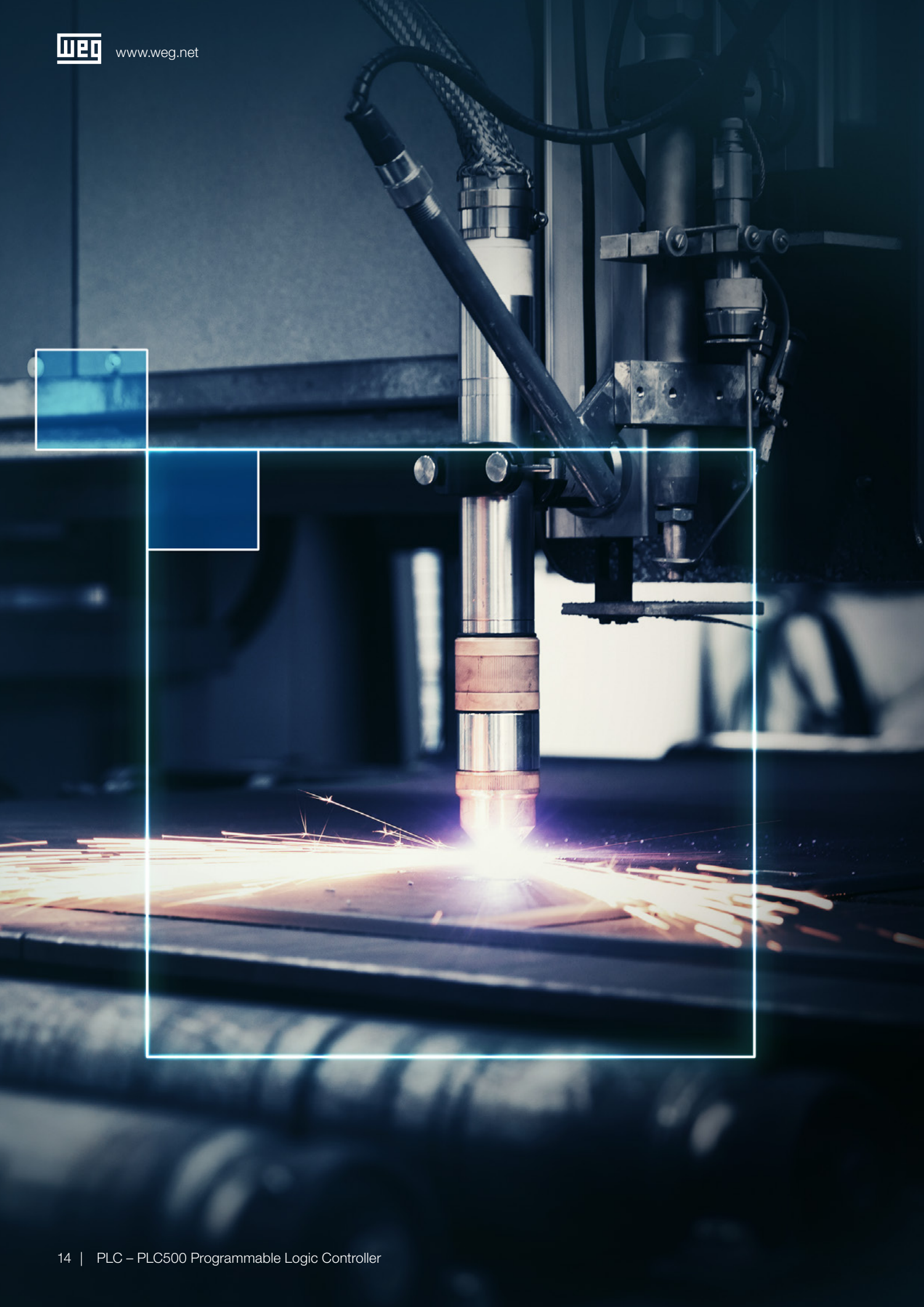
SCA06 + SWA servo drive system



The PLC500MC has several specific functionalities for motion control, including:

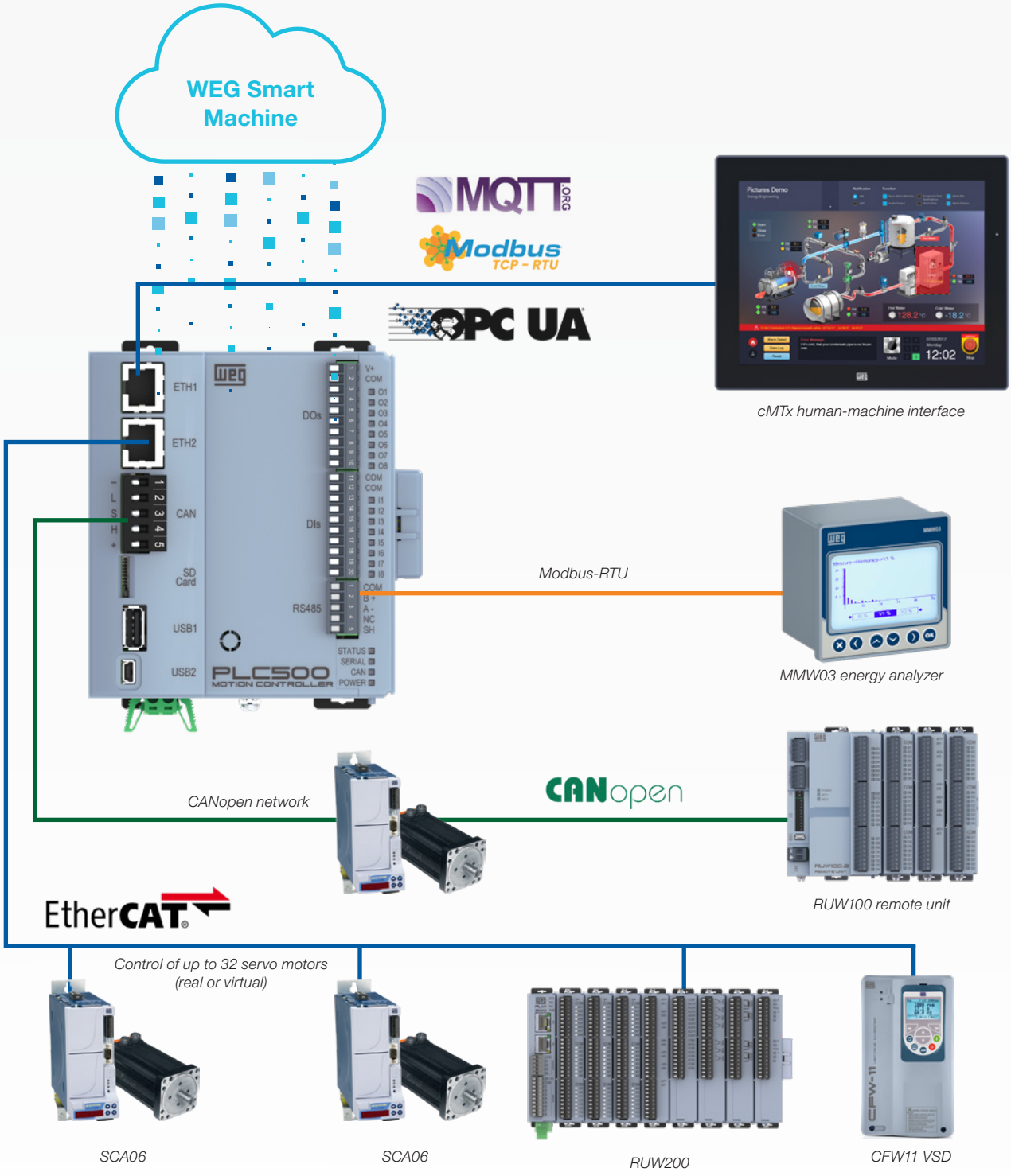
- Extensive library of blocks for axis control, CNC path handling and processing, axis groups and popular kinematic transformations.
- Integrated cam editor.
- Integrated 3D CNC editor in compliance with DIN 66025 (G-Code).
- Configurator of axis groups for different kinematics.
- Easy axis commissioning (Online Configuration Mode).
- Function blocks certified according to PLCopen MotionControl Part 1 V20).
- Function blocks certified according to PLCopen MotionControl Part 4 (coordinated motion).
- G-code decoder, including support for subprograms and expressions in g-code.
- Function blocks for testing transition speeds.
- Function blocks for reading and processing CNC paths from files (for externally created and processed paths).





Take control of motion with the PLC500MC

Diagram



Complete, reliable, connected and efficient



Specially developed for machine manufacturers (OEMs), the PLC500ED is designed to work in complete harmony with the WEGnology and WEG Smart Machine digital platforms, WEG's cloud-based platforms that allow OEMs to monitor the performance and operation of their machines from anywhere in the world.

The PLC500ED, in conjunction with one of WEG's two digital platforms, enables equipment manufacturers to add more services and functionalities to their equipment, including features such as remote assistance, operation alerts via configurable alarms, maintenance scheduling, and other services, all while adhering to the business rules established on a case-by-case basis between the manufacturers and their customers.

Main characteristics

- Cloud-based solution: always up-to-date software, providing real-time information accessible from anywhere.
- Optimal use of resources.
- Reduced machine downtime and higher performance.
- Configurable and customizable dashboards and reports, with various graphic and analytical views.
- OEE monitoring and creation of KPIs.
- Collection, view and history of process and production data.
- Customizable anomaly alarms, which can be sent by email and SMS.
- Simplified machine location.
- Co-creation of applications.
- Integration with other platforms, such as ERP and MES.
- Creation of new business models for machine manufacturers: opportunity to sell service to end customers.
- Development of predictive maintenance and control strategies (connectivity with WEG Motor Scan).
- Monitoring of machine devices, such as sensors, PLCs, drives and operating interfaces.



To learn more, watch the video or click here.

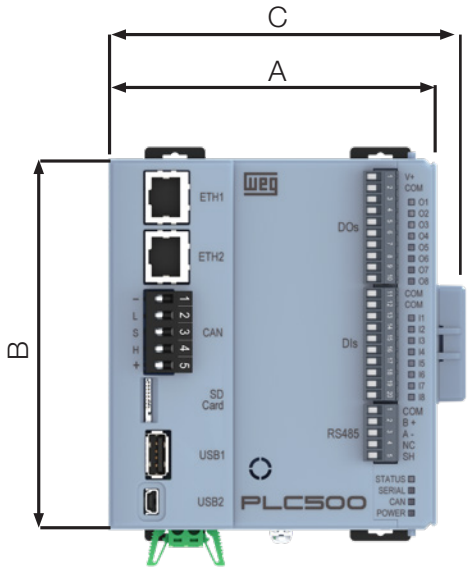
Specifications

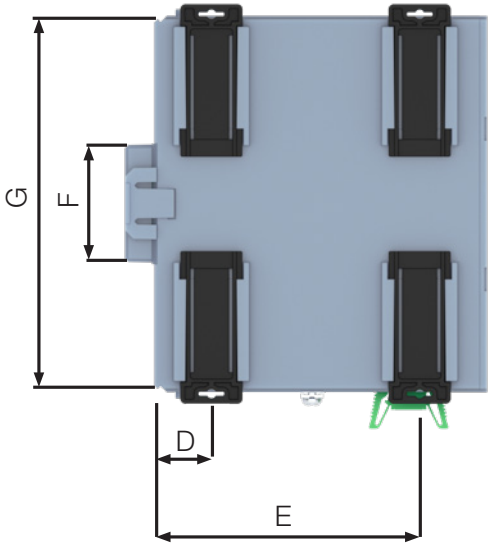
Versions		PLC500	PLC500ED	PLC500MC
Power supply		24 VDC (V min.: 20.4 VDC / V max.: 28.8 VDC)		
		Power supply: minimum recommended capacity 3 A		
		CPU consumption under normal operation: 150 mA (without accessories and without active communication networks). This value may vary due to CPU mounting plus expansion boards.		
Processor		Dual Core @1 GHz + coprocessor @ 200 MHz		
Scan cycle time	100 thousand instructions	Total time 1.19ms		
	Per instruction	0.012 µs		
Memory	RAM	1 GB		
	Flash	4 GB		
	Data	8 MB	64 MB	128 MB
	Code	16 MB	16 MB	32 MB
	Retentive	64 KB	64 KB	64 KB
	Persistent	16 KB	16 KB	16 KB
Maximum instruction capacity		Approximately 6 million simple instructions		
Digital inputs		8 DI x PNP		
		Fast inputs: DI1 to DI4 - 150 kHz per channel		
		Maximum input voltage 28.8 V		
		High level: Vin ≥ 10 VDC		
		Low level: Vin ≤ 5 VDC		
		Consumption @ 24 VDC: 2.1 mA		
		Insulation voltage: 500 V		
		Max. DI number via expansion boards: 200 points + remote units via Fieldbus		
Digital outputs		8 DO x PNP		
		Recommended voltage V+: 24 VDC		
		Maximum voltage V+: 28.8 VDC		
		Maximum frequency of PWM outputs (DO1, DO2 and DO3): 300 kHz		
		Maximum current of outputs DO1...DO3: 100 mA/output		
		Maximum current of outputs DO4...DO8: 500 mA/output		
		Max. number of DOs via expansion boards: 200 points + remote units via Fieldbus		
Communication ports	Serial CAN	CANopen (master) Maximum number of slaves: 127		
	Serial RS485	Modbus-RTU (master/slave) Maximum number of slaves: 247		
	Ethernet	2 x 10/100/1,000 Gigabit ports (RJ45) - Modbus-TCP (master/slave) – EtherCAT (master-slave) EtherNet/IP (scanner-adapter) – PROFINET (controller-device) – MQTT (publish-subscribe) - OPC-UA		
	Mini USB device	Program transfer and monitoring by emulating an ethernet port		
	USB host	USB 2.0 (used with a flash drive)		
	MicroSD card	Max.: 128 GB (optional accessory: 8 GB board code: 16352814)		
Maximum number of expansion boards		8[1)]		
Software		CODESYS® (V 3.5 SP18 or later - free)		
Cloud solutions		WEG Smart Machine - WEGnology Access: *https://www.weg.net/institutional/BR/pt/solutions/digital-solutions*		
Programming language		LD (ladder) - ST (structured text) - IL (instruction list) - SFC (sequential function chart) - FBD (function block diagram)		
Operating temperature		0 °C to 45 °C (32 °F to 113 °F)		
Storage temperature		-25 °C to 60 °C (-13 °F to 140 °F)		
Protection rating		IP20		
Pollution degree		2 (according to EN 50178 and UL 508C), with non-conductive pollution		
Altitude		1,000 m (3,300 ft). Above 1,000 m up to 4,000 m (3,300 ft to 13,200 ft), the output current must be derated by 1% for every 100 m (328 ft)		
Mounting		On DIN rail or on panel with screws		
Certifications		CE - UKCA - UL		
Dimensions (H x W x D) (Inch)		129.8 x 101.6 x 106.9 mm (5.11 x 4 x 4.2)		
Weight		0.540 kg (1.19 lbs)		

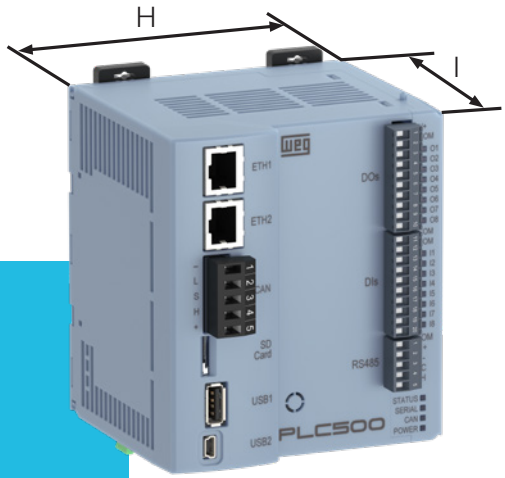
Notes: 1) For further information on mounting limitations, refer to the product user manual (chapter 13 - Expansion Boards).
2) MicroSD card not included.

Dimensions

Dimension reference	A	B	C	D	E	F	G	H	I
Dimension in mm (in)	101.7 (4)	115 (4.53)	110.7 (4.36)	20.6 (0.81)	84.7 (3.33)	35.8 (1.41)	115 (4.53)	101.7 (4)	89.5 (3.52)
Fixing screw	M3 Ø 3.1 (0.122)								





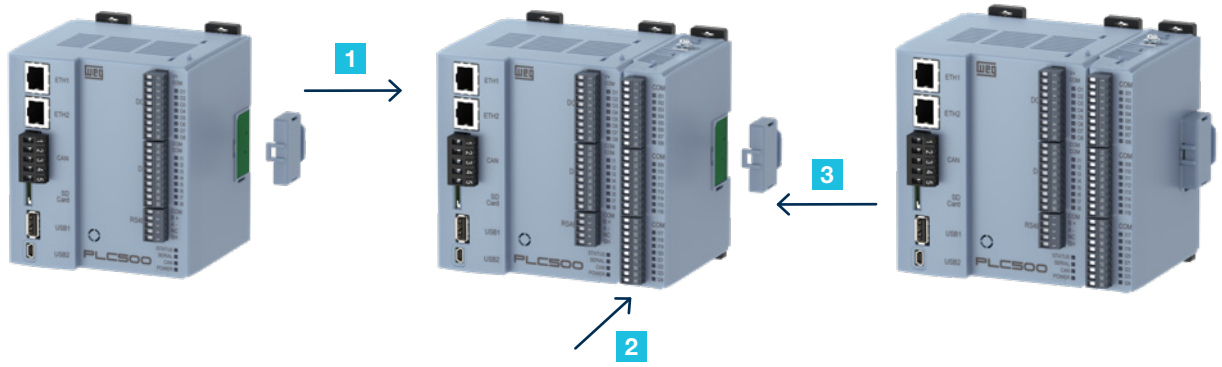


Simple and quick expansion modules

Connection of the expansion module

Connecting the expansion modules is quick and simple:

1. Remove the module cover.
2. Add the new expansion by moving it in the direction indicated in the image below.
3. Finally, remove the communication bus cover.



Specifications

The user easily and quickly installs the expansion boards on the PLC500 through the Plug & Play concept. When the PLC500 is powered up, the electronic circuit identifies the number of connected expansions, the model and the firmware version of each one. They also receive an address according to their position so that it is possible to access them through the communication bus.

Expansion units

Reference	Inputs					Outputs			
	Bidirectional digital	Analog in voltage or current analog	J, K and T type thermocouple	RTD Pt-100/ Pt-1000	Load cells	Isolated digital PNP (500 mA)	Analog in voltage (0-10 V) or current (0 - 20 mA)	Analog in voltage (0 - 10 V)	Relay outputs
MOD1.00	24	-	-	-	-	-	-	-	-
MOD1.10	-	-	-	-	-	24	-	-	-
MOD1.20	8	-	-	-	-	16	-	-	-
MOD1.30	16	-	-	-	-	8	-	-	-
MOD2.00	-	7	-	-	-	-	-	-	-
MOD3.00 [1]	-	-	-	-	-	-	4	4	-
MOD4.00	-	-	7	-	-	-	-	-	-
MOD5.00	-	-	-	4	-	-	-	-	-
MOD6.00	-	-	-	-	2	-	-	-	-
MOD7.00 [2]	-	-	-	-	-	-	-	-	6
MOD8.00	Dedicated module for starters with smart connection								

Notes: 1) The installation of three MOD3.00 expansions to the PLC500 is limited; however, other expansions of digital inputs and outputs, analog inputs, thermocouples and load cells can be installed up to a limit of 08 boards. If there are two MOD3.00 expansions installed, it is not possible to install MOD7.00 expansions. If there is only one MOD3.00 expansion installed, it is possible to install up to three MOD7.00 expansions, and it is also possible to install other expansion models up to the limit of the PLC500.

2) The installation of MOD7.00 expansions on the PLC500 is limited to five; however, other digital input/output, analog input, thermocouple and load cell expansions can be installed up to the limit of eight modules. If there are five MOD7.00 expansions installed, it is not possible to install MOD3.00 expansions. If there are three (or fewer) MOD7.00 expansions installed, it is possible to install a MOD3.00 expansion, and it is also possible to install other expansion models up to the limit of the RUW100.

Technical features

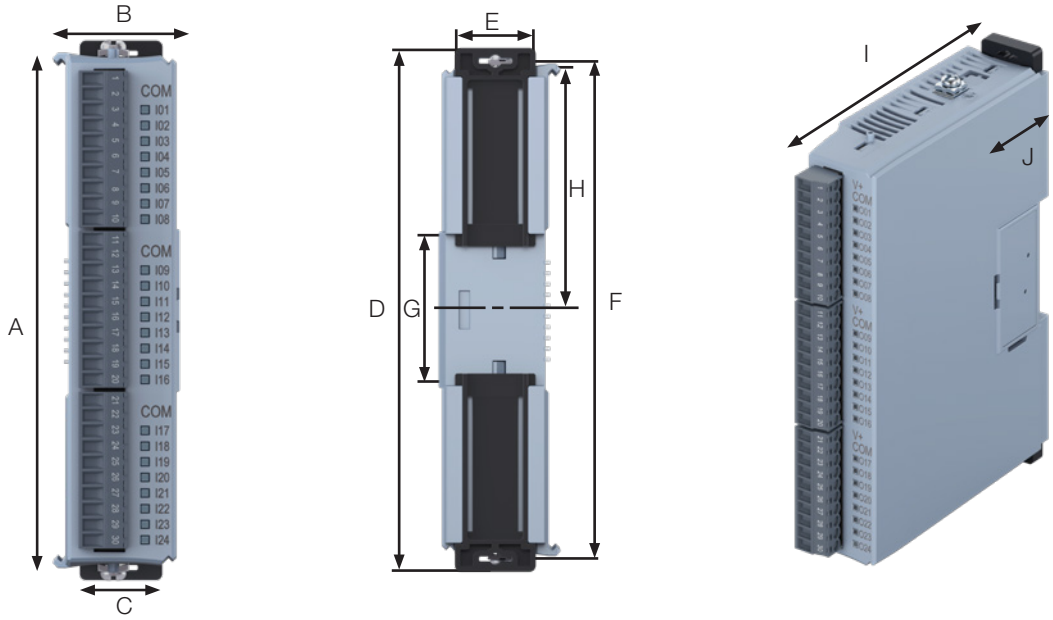
General technical characteristics		
Digital inputs	Type	Bidirectional
	Maximum input voltage	+28.8 V
	Voltage levels for detection	High level: Vin ≥ 10 V / low level: Vin ≤ 3 V
	Consumption	24 V: 10 mA
	Insulation voltage	500 V
Analog inputs	Type	Current or voltage input
	Voltage range	0 to 10 V differential
	Common mode voltage limits	-10 to 10 V
	Current range	0 to 20 mA
	Resolution	24 Bits
Digital outputs	Type	PNP
	Recommended voltage	+24 V
	Maximum voltage	+28 V
	Max. current per output	500 mA
Current analog outputs	Max. current	20 mA
	Maximum load	500 Ω
	Resolution	16 Bits
Thermocouple inputs	Type	J, K and T
RTD input	Type	Pt-100 and Pt-1000 with two or three wires[1)]
Load cell input	Type	4 or 6 wires
Relay output	Type	Isolated outputs
	Maximum load	7 A - 250 VAC, resistive load / 5 A - 30 VDC, resistive load
Operating temperature		0 °C to 45 °C
Air relative humidity		Air relative humidity: 5% to 90% non-condensing
Protection rating		IP20
Pollution degree		2 (according to EN 50178 and UL 508C), with non-conductive pollution.
Altitude		1,000 m (3,300 ft). Above 1,000 m up to 4,000 m (3,300 ft to 13,200 ft), the output current must be derated by 1% for every 100 m (328 ft) above 1,000 m (3,300 ft)
Certification		CE - UKCA - UL[2)]

Notes: 1) A three-wire model is required to perform the wire resistance compensation.
2) Only MOD7 (relay output module) is not covered by the certification; all other MODs are UL certified.

Dimensions

Expansions

Dimension reference	A	B	C	D	E	F	G	H	I	J
Dimension in mm (in)	115.7 (4.56)	25 (0.98)	19 (0.74)	123.1 (4.84)	19 (0.74)	117.1 (4.61)	35.5 (1.4)	57.9 (2.28)	89.4 (3.52)	31.6 (1.25)
Fixing screw	M3 Ø 3.1 (0.122)									



Notes



Global presence is essential, as much as understanding your needs.

Global Presence

With more than 47,000 employees worldwide, WEG is one of the largest electric motors, electronic equipments and systems manufacturers. We are constantly expanding our portfolio of products and services with expertise and market knowledge. We create integrated and customized solutions ranging from innovative products to complete after-sales service.

WEG's know-how guarantees our ***PLC – PLC500 Programmable Logic Controller*** is the right choice for your application and business, assuring safety, efficiency and reliability.

- **Availability** is to have a global support network
- **Partnership** is to create solutions that suits your needs
- **Competitive edge** is to unite technology and inovation





Learn More

High performance and reliable products to improve your production process.



Excelence is to provide a whole solution in industrial automation that improves our customers productivity.

Visit: **www.weg.net**

youtube.com/wegvideos

The scope of WEG Group solutions
is not limited to products and solutions
presented in this catalogue.
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