Main catalog

Automation products
AC500, CP400, CP600, DigiVis 500, Wireless

Power and productivity
for a better world™

Automation products

AC500 products family

Scalable PLC AC500

Control panels

DigiVis 500. Reliability and accessibility, supervision within your grasp

Wireless automation devices

AC500 products family
Summary

ABB offers a comprehensive range of scalable PLCs and robust HMI control panels as well as high-availability solutions. Since its launch in 2006, the AC500 PLC platform has achieved significant industry recognition for delivering high performance, quality and reliability. Our unique family of IP67-rated wireless Input/Output devices extends PLC solutions for robotics and similar applications. ABB delivers scalable, flexible and efficient ranges of automation components to fulfill all conceivable automation applications including:

Programming software PS501 Control Builder Plus

Control Builder complies with the IEC61131-3 CoDeSys standard offering all 5 IEC programming languages plus continuous function chart, extensive function block libraries, a powerful embedded simula feature. It also supports a number of languages (e.g. French, English, German, Chinese, Spanish, etc).
New: new libraries, FTP functions, SMTP server, smart diagnostics and debugging.

AC500

ABB's powerful flagship PLC offering a wide range of performance levels and scalability within a single, simple concept and where most competitors require multiple product ranges to deliver similar functionality. Web server integrated and IEC 60 870-5-104 remote control protocol.
New: "Extreme Conditions" modules with extended operating temperature, immunity to vibration and hazardous gases, use at high altitudes, in rainy conditions, etc.

AC500-eCo

Meets the cost-effective demands of the small PLC market whilst offering total inter-operability with the core AC500 range. A CPU integrating onboard Ethernet.
New functionalities: web server for all Ethernet versions, up to 10 I/O modules connected to the CPU, fast counter up to 50 kHz.

S500 I/O modules

Digital and analog modules can be configured to best meet customer requirements as well as offering local and/or remote expansion options using most industry standard communications protocols.
New: "Extreme Conditions" modules and an assortment of PROFINET interface modules.

Control panels

Touchscreen or keypad graphical displays utilizing low cost, user friendly configuration software, offering extensive libraries and drivers for most PLC platforms and other automation devices.
Hot IP swap functionality for redundant PLC in High Availability applications.
New: CP600 range up to 15" available with Panel Builder 600 engineering software or web panel version.

DigiVis 500

DigiVis 500 software is a simple and easily accessible solution in the development of supervision applications. It offers all the functions that are essential to a secure environment, its functional reliability and dual-display mode will simplify all your supervision operations, keeping interruptions to a minimum.

Wireless interface for sensors and actuators

Factory Automation for high productivity thanks to reliable sensor and actuator networks. Broken cable and wire issues can be a thing of the past with this solution. Wireless is ideal for robots with sensors or actuators on end moving effectors.

AC500 products family
Fields of application

ABB's automation devices deliver solutions with performance and flexibility to be effectively deployed within diverse industries and applications including:

- **Water and waste water:** pumping and doping in both water and waste water treatment plants, web server for remote control, High Availability and Extreme Conditions capability, data logging, scalability for small to large applications
- **Building infrastructure:** High Availability, marine certifications, large network capabilities
- **Data center:** HVAC, access management, High Availability, IT-protocol services including web servers
- **Solar:** thermo-solar, photovoltaic, 0.0003° tracker positioning, single-click download to 1000 PLCs, string monitoring
- **Wind:** turbine control, High speed, Extreme Conditions, multiple communication, data logging
- **Machinery:** most applications including robotics, press automation, transfer systems, assembly quality control, tracking, high performance, Motion Control, web server, remote access, communication capabilities, scalability
- **Wireless:** tools for robots, robot cell automation in automotive, white goods, cable production industries.

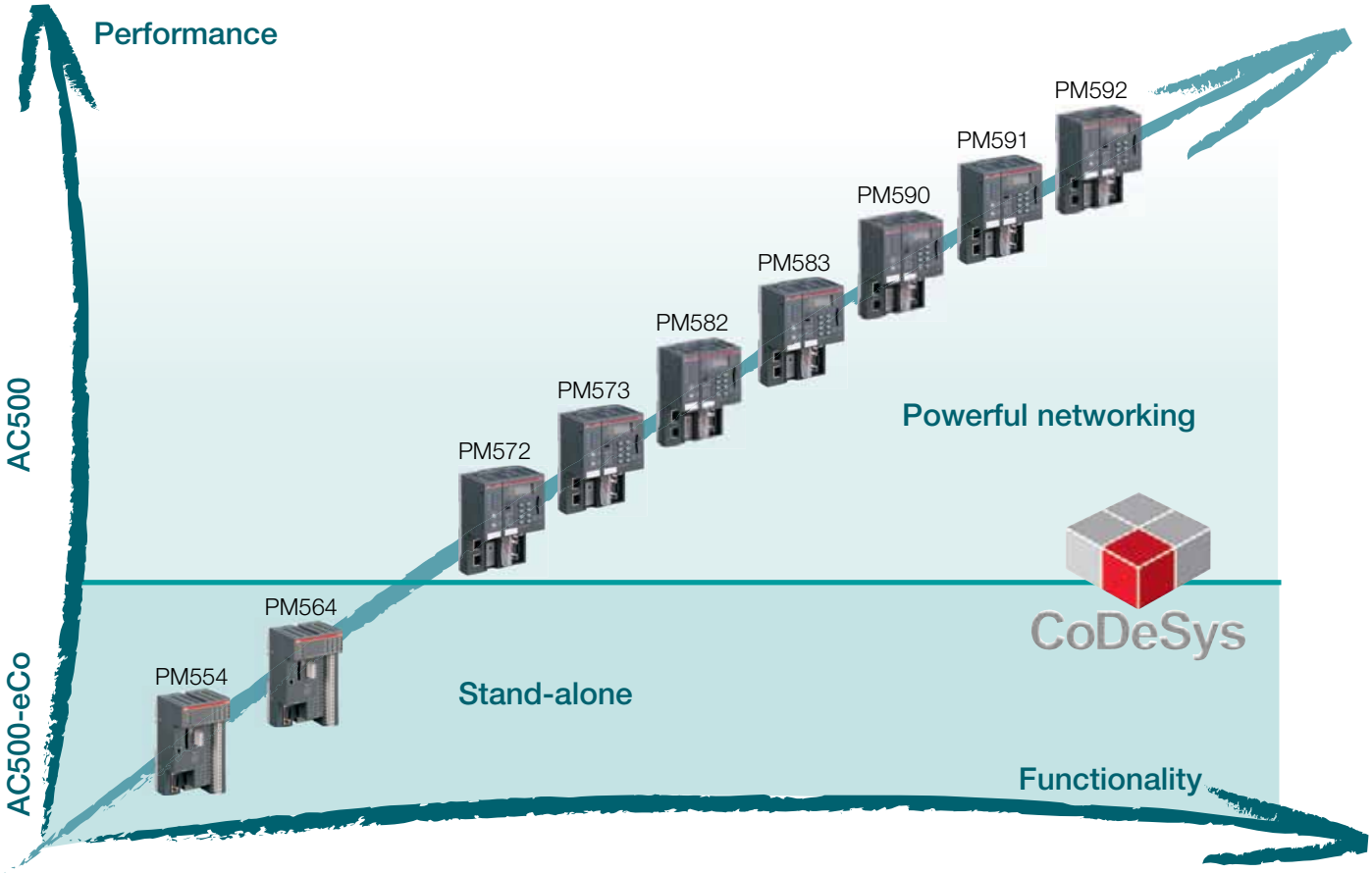








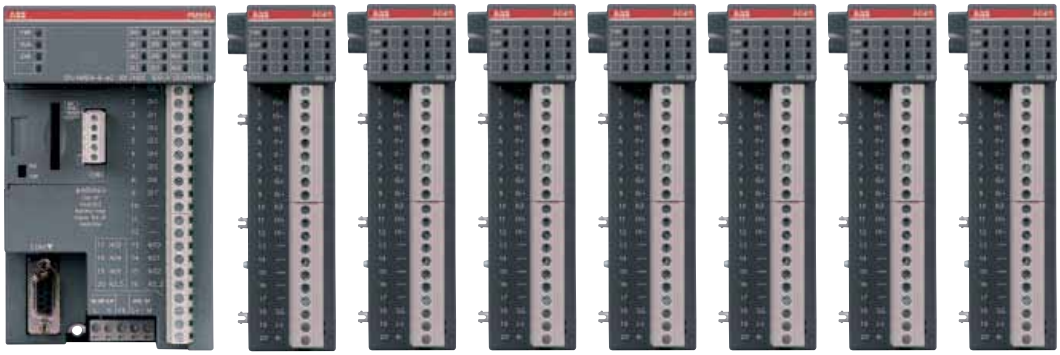
Scalable PLC AC500
AC500 and AC500-eCo



AC500 family, your PLCs from ABB - AC500 CPU range

Scalable PLC AC500
AC500-eCo

AC500-eCo: local expansion



AC500-eCo CPUs can be locally expanded with up to 10 I/O modules (S500 and S500-eCo).
Decentral expansion via CS31 or Modbus communication

AC500-eCo: broad set of accessories

1 Wall mounting

2 Cover

3 SD-card adapter

4 SD-card

5 Adapter with COM2 + realtime clock

6 Adapter with realtime clock

7 Adapter with COM2

Scalable PLC AC500
AC500

AC500: superior local extension capabilities for I/O and communication

up to four communication modules

up to 10 input/output modules including modules from AC500-eCo range

AC500 CPU: amazing functionality and industry-leading performance

① Terminal base:
- communication module easy snap-on of CPU
- CPU performance upgrade is convenient and fast
- pre-wiring of CPU connections

② Communication module:
- up to 4 modules in numerous combinations to communicate with nearly everything

③ FieldBusPlug connector:
- slaves for Profibus DP, CANopen, DeviceNet

④ Onboard Ethernet (optional)
- programming via PC
- internet protocols (web server, FTP, e-mail, time sync and more)
- IEC 60870-5-104

⑤ COM2 (Sub-D9, RS232/ RS485)
- programming via PC
- ASCII protocol
- Modbus-RTU (master or slave)

⑥ COM1 (spring terminal, RS232/RS485)
- programming via PC
- CS31 bus (master)
- ASCII protocol
- Modbus-RTU (master or slave)

AC500: extensive range for communication and interfaces

Scalable PLC AC500
PM592-ETH

Application range extended up to condition monitoring systems and more superior performance, huge memory, quick communication and fieldbuses systems.

PM592-ETH is the top CPU of the AC500 range

Its high-speed, huge memory, file management system, web visualisation and various network interfaces make this PLC a more robust alternative for industrial PCs.
Experience shows that long-term availability of PLCs is higher than that of industrial PCs and their office/consumer operating systems.

Exceptional High Speed

PM592 is approximately 170 times faster in floating point calculations than PM573-ETH.
PM592-ETH outperforms competition at least by factor two. The highly advanced HW architecture and integrated Floating Point Unit FPU for Fast Math provide speed advantages for complex controls, such as wind turbines.

Typical PLC operations will run at incredible speeds. It becomes possible to control a machine and supply a Human Machine Interface via a built-in web server to any place in the world over the Internet.

Built-in Flash Disk – 4GByte Memory

Non-removable and non-volatile flash disk – a very secure safe for logging data for wind turbines and decentralized water and building applications.
The built-in non-rotating flash disk is safe from theft. File and data operations are managed and programmed easily via the library functionality included in the engineering tool PS501 Control Builder Plus.

Biggest Memory Capacity

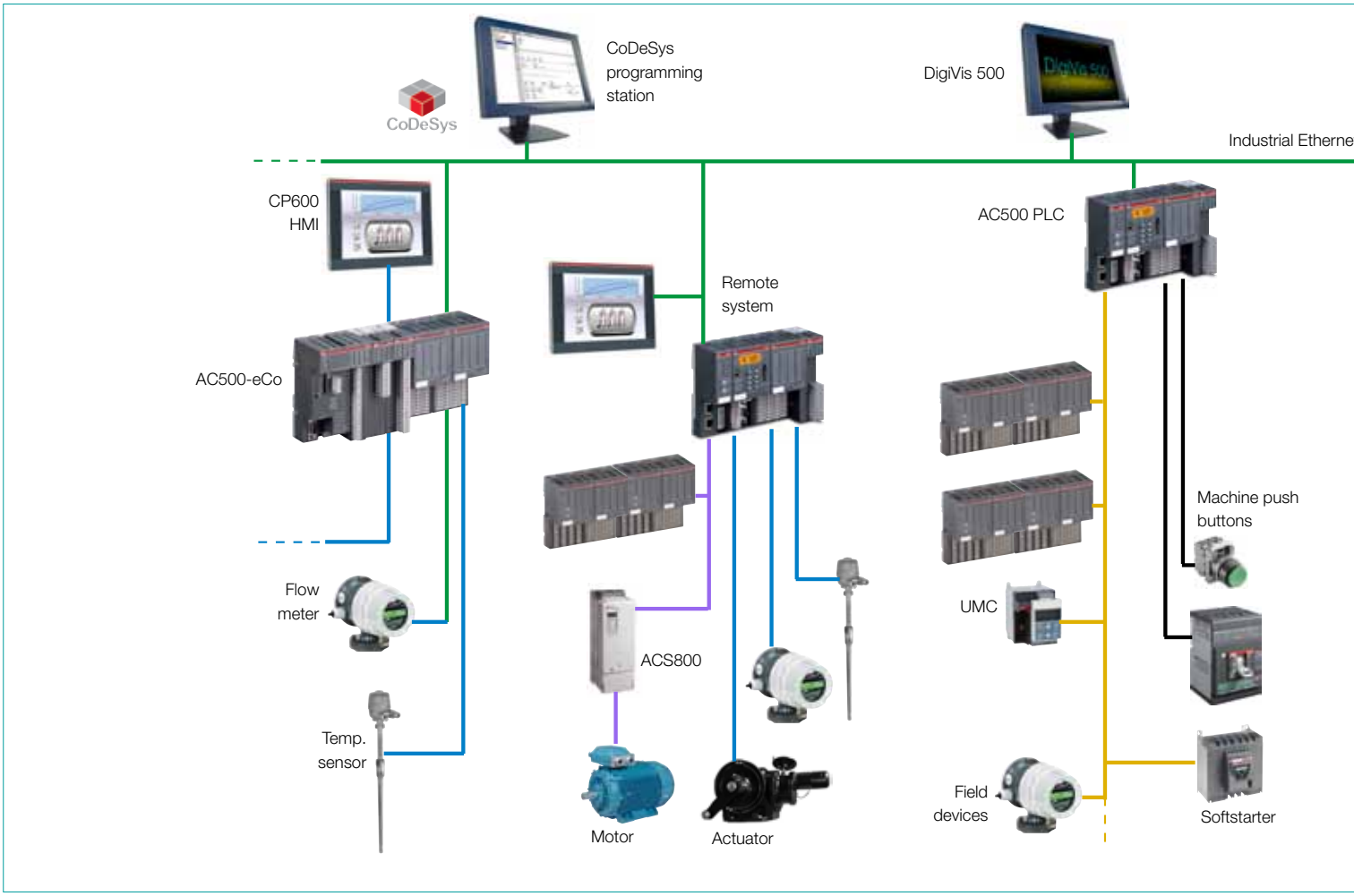
PM592-ETH offers 4 MByte of user program and 4 MByte data memory.
Programmers can create a plethora of functions and function blocks, variables and data from the running program.

Web Server for Remote Control

The web server provides an operator interface for worldwide access to AC500. Users can either use an Internet browser or CP600-WEB control panel from ABB.

Configuration of the operator interface is done via the engineering tool PS501 Control Builder Plus. Besides its global access, its benefit remains easy maintenance. The whole application is stored in one place while maintenance is completed using one engineering tool.
The web visualization system benefits from a memory of 8 MByte. Enhanced graphics and useful documentation can be stored here, for more efficient machines and safer operations.

Scalable PLC AC500
Network architecture



Communication with AC500 – always the right solution

Flexibility, real time capability and the highest possible data transmission speed are just some of the communication demands made on automation systems. With its AC500 control system, ABB developed a communication platform offering customer oriented solutions for the most varied communication tasks. Simple network configuration and diagnostic options using the PS501 Control Builder Plus enable fast planning, implementation and commissioning, thus helping save engineering time and project costs. Among others, ABB´s AC500 supports the following communication protocols:

PROFINET

PROFINET I/O meets the sophisticated demands placed on real time Ethernet protocols in the world of automation. Very fast data transmission, integrated and standardised network structures from the control to the field level as well as flexible network management support users in the implementation of their automation solutions.

PROFIBUS DP

PROFIBUS DP enables flexible configuration by means of a Mono and Multi-Master systems structure. Data rates of up to 12 Mbit/s on twisted pair cables and/or optical fibre, as well as the option to connect up to 126 devices (Master/Slave) to one bus segment enable simple and robust communication solutions.

CANopen

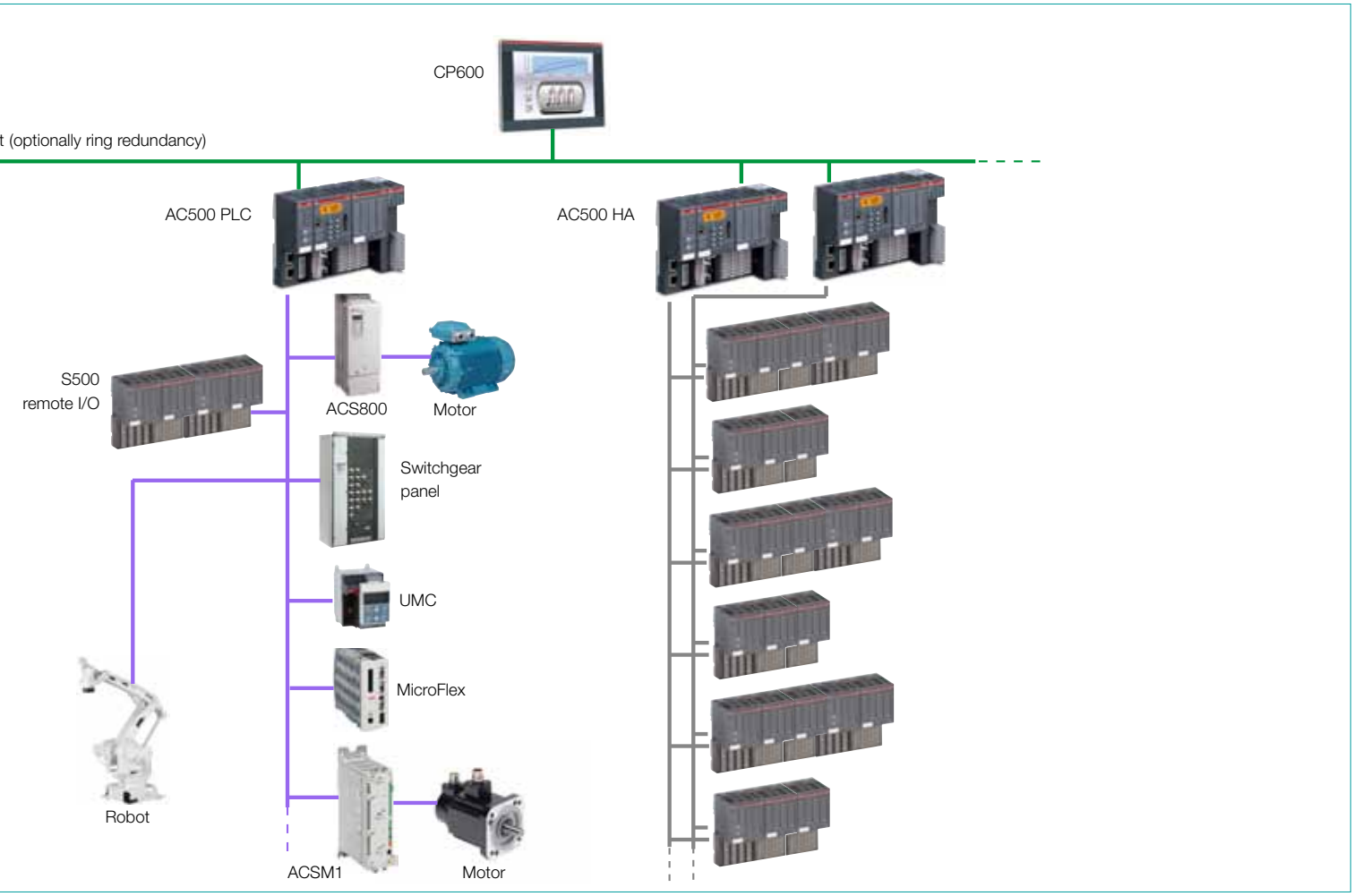
CANopen offers fast data transmission and high immunity in Master/Slave network topologies, with up to 127 participants and transmission speeds of 10 kbit/s up to 1 Mbit/s depending on bus length.

DeviceNet

DeviceNet is an open fieldbus standard based on the CAN protocol. It enables network configurations with up to 64 bus participants and Baud rates of 125, 250 or 500 kbits/s.

CS31

CS31 is a high-performance, proprietary ABB communication standard enabling transmission speeds of up to 187.5 kbit/s.



Up to 31 bus participants can communicate via RS485, simple telephone cable or optical fibre lines.

Modbus RTU

Modbus is an open serial data protocol for the implementation of Master/Slave network configurations with up to 31 network partners. Different bus lengths depending on the serial communication interface enable data transmission speeds of up to 115,2 Kbit/s.

RCOM

RCOM is a proprietary ABB bus protocol for Master/Slave communication via RS232/485. Based on expandability up to 254 RCOM Slaves and the most varied diagnostic options, this protocol is ideal for applications in the water and waste water industry.

Ethernet and Internet

Integrated communications, high data transmission rates and the use of existing data networks enable simple, customer specific solutions. Supported protocols are:

– HTTP for web server. Visualization for remote operations and maintenance
– FTP for file transfer of Condition Monitoring System´s data
– SNTP, Simple Network Time Protocol. The PLC time can be synchronized using internet-hosted time services
– SMTP, to send e-mails with attachments
– TCP and UDP sockets can be programmed for project-specific protocols. Library functions are available.
– IEC60870-5-104 Telecontrol, mainly used for long distances as like pipe-lines, water and waste-water

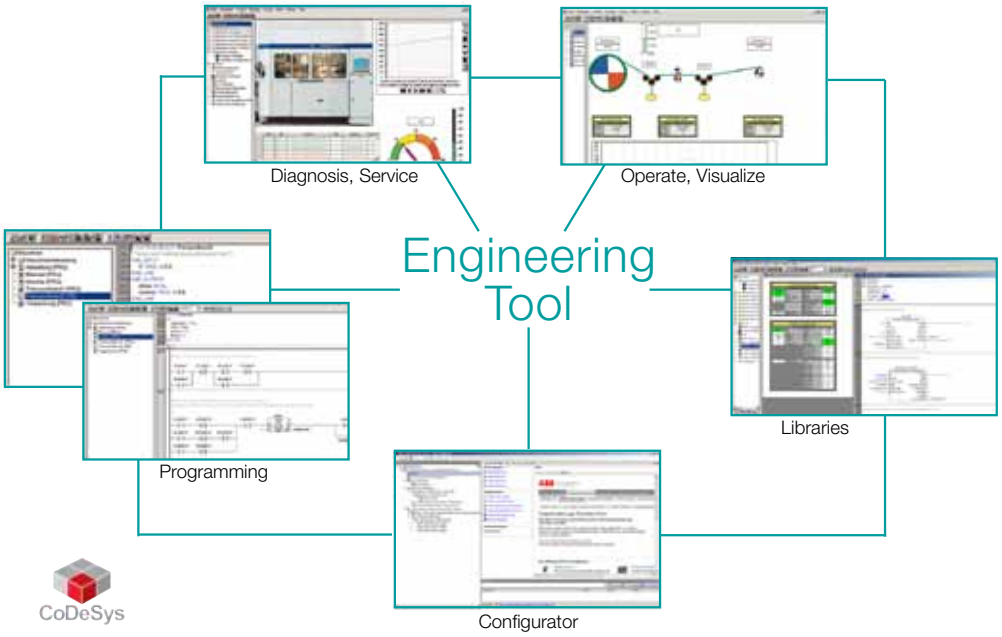
The configuration of protocols is done with the engineering tool PS501 Control Builder Plus.

EtherCat

EtherCAT is an open Industrial Ethernet standard regulated in the international Standards IEC 61158 and IEC 61784 as well as in ISO 15745-4. Because of its extremely high data transmission speeds, EtherCAT is suitable as a real time Ethernet protocol for time critical applications within the area of Motion Control technology. Whether in "cam switch" functionalities or the most varied Master / Slave network configurations, AC500 delivers the right solution for your application.

Automation products
Scalable PLC AC500

Programming
Programming software PS501 Control Builder Plus



Programming ABB PLCs and configuring drives with PS501 Control Builder Plus

For PLC, drives and control panels, there is now one single smart engineering tool: PS501 Control Builder Plus!

PS501 Control Builder Plus provides:
- Powerful programming functionality
- Advanced visualization capabilities
- Convenient diagnostics and debugging
- Easy network and fieldbus connectivity
- Remote and bulk update and parameterization of all your machine devices

Features include:

Powerful IEC 61131-3 and C programming
- One tool for programming and configuration of PLC's AC500, AC500-eCo and specific LV drives and CFC offered by ABB
- Programming in all five IEC 61131-3 languages, the only recognized international standard
- In addition, PLC functions can now be written in ANSI-C language and integrated using an external compiler

Advanced visualization
- Control Builder Plus supports many different kinds of enhanced visualization built-in
  - Integrated visualization
  - Standalone visualization used in PC with protection of code
  - AC500 web visualization built using Control Builder Plus
  - Integrated panel builder software for CP600 series panels
  - Integrated OPC-Server.

Convenient diagnostics and debugging
- Recipe management for simpler production solutions
- Multiple watch lists for superior overview and for customized tasks
- Smart online diagnostics and debugging for easier online use
- Alarm handling for enhanced maintenance and commissioning

Easy network and Fieldbus connectivity
- Simple configuration of Fieldbuses and serial connections:
  - PROFIBUS DP, CAN, CANopen, Modbus, serial and ABB IO-bus CS31
  - DeviceNet with Sycon.net configurator
- Easy configuration of real-time Ethernet networks:
  - PROFINET, EtherCAT,
- Internet protocol suite includes:
  - HTTP (web server in AC500 CPU),
  - SNTP (time synchronization of CPUs),
  - SMTP (email messages and attachments),
  - FTP (file transfers)
  - DHCP (automatic network IP configuration)
  - TCP/IP (standard transmission control and internet protocol)
  - UDP/IP (fast network communication)
  - IEC60870-5-104 (sub station automation protocol)

Remote and bulk update and parameterization
- ABB drives connected by Profibus or PROFINET to AC500 can now be remotely parameterized from a single point - the PC running PS501 Control Builder Plus
- Multi-online-change allows to modify and transfer PLC programs simutaneously
- Remote firmware updates reduces travel cost and time.

Extreme Conditions
AC500-XC

The new AC500-XC series is designed to withstand various harsh conditions during operations. In many cases, this makes engineering and operations much more cost-efficient than before.

General benefit
The major benefit of using AC500-XC is cost saving in engineering and in operations.

AC500-XC simply works in harsh areas - even if installed in plain cabinets. Many expensive extras become obsolete:

- sealings at cable entrances and doors
- shock absorbers
- HVAC for the panel
- cooling fins and cut-outs
- reduced EMC protection.

When HVAC is no longer needed, the energy and maintenance costs can be kept at a minimum.
So the efforts to design, purchase, install and argue for expensive housings are fully gone.

Due to the fact that special cabinets are no longer needed you will save time and money thanks to the now possible straight-forward cabinet design.

Benefits for design engineers
Mechanical dimensions and electrical specifications of connections are the same as for AC500. Panel layouts and wiring harnesses can be re-used.
Mechanical design effort is mostly as for plain control gear. Time and complexity are saved.

Benefits for system engineers
The new products are functionally fully compatible with the proven AC500 series. As important consequence, configuration, programming and commissioning remain completely identical with AC500. Software works as before.

PS501 Control Builder Plus is the engineering tool to be used, too.

Benefits for operators
Investments can be kept at minimum due to smaller engineering efforts. Maintenance and repair efforts are lower than with special expensive cabinets carrying plain components.

Product range
Most of AC500 products are available as AC500-XC version.

Example for AC500-XC product
CPU module PM592-ETH-XC with highest speed, most memory and numerous internet technologies built-in.

AC500-XC products carry the snow symbol.

Extreme Conditions
AC500-XC

There is growing demand from the Renewable Energies industry and others such as the water & waste water industry. Extended conditions require robust electronics, and this is just what ABB gives you in its "Extreme Conditions" range of AC500. Specifications are as follows:

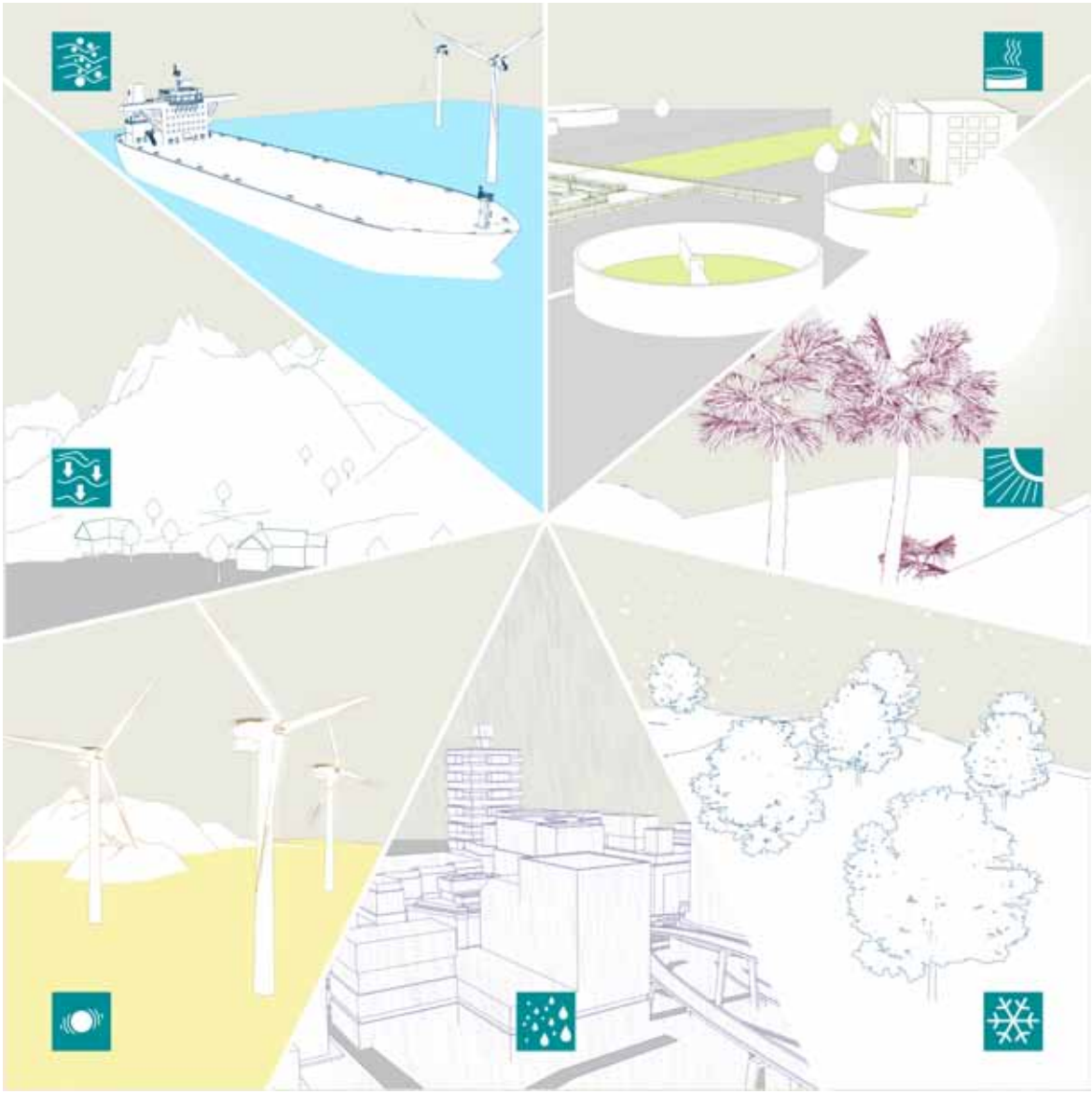
Extended operating temperature
– -30°C up to +70°C operating temperature
– -40°C power up

Extended immunity to vibration
– 4 g root mean square random vibration up to 500Hz
– 2 g sinusoidal vibration up to 500Hz

Extended immunity to hazardous gases and salt mist
– G3, 3C2 immunity
– Salt mist EN 60068-2-52 / EN 60068-2-11

Use at high altitudes
– Operating altitude up to 4,000m above sea level

Extended EMC requirements
– EN 61000-4-5 Surge immunity test
– EN 61000-4-4 Transient / burst immunity test



Scalable PLC AC500
Motion Control PS552-MC

The PS552-MC is a new type of application program based on PLC open standard, specifically intended for OEM machine builders and systems integrators looking for a reliable and easy-to-use high-performance Motion Control drive module in their demanding applications, for example in the fields of material handling, packaging, plastics, printing and the textile industry. It enables accurate positioning in one package without the need for an external motion controller.

Main features of Motion Control:

- Speed control
- Position control
- Position interpolar
- Positioning speed
- Acceleration
- Deceleration
- Standard sequential homing
- Selectable physical units for position values (mm, inch, increment, degree, revolution)
- Complete package of function blocks to work together with ABB Drives
- Multi axis control
- All PLCopen function blocks available.

Scalable PLC AC500
CD522 encoder, counter and PWM/PULSE module

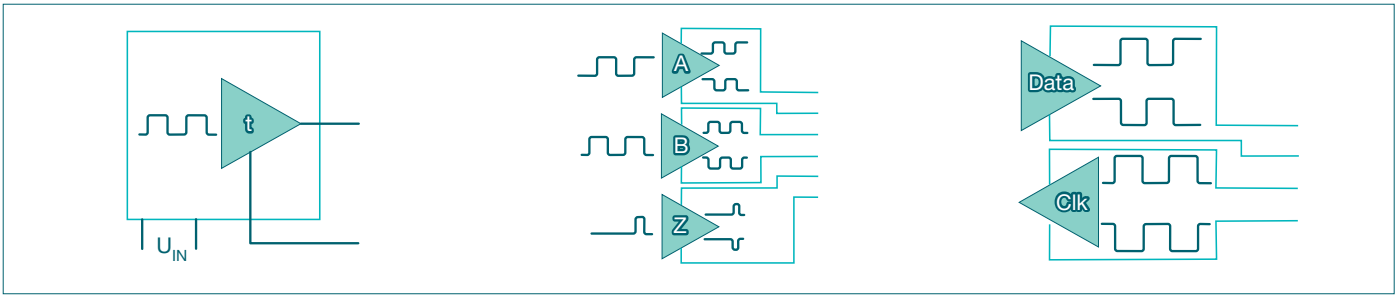
Universal encoder and flexible counting module

The CD522 module offers accuracy and dynamic flexibility for a customized solution. It has two independent encoder inputs onboard and can be easily configured using the Control Builder software for 10 different operation modes and for frequencies up to 300 kHz. Our CD522 module also integrates outputs for PWM pulses as well as normal inputs and outputs, depending on the selected encoder mode. Types of encoders vary and their requirement can be different in terms of signals, voltages, formats and methods of use. This depends heavily on the application, e.g. whether measuring a position, an angle or a velocity. Sometimes an incremental encoder is the best choice whilst, in other situations, an absolute encoder is the solution. The CD522 module can serve all these differing needs. Besides solving counting tasks, the CD522 offers pulse outputs and integrated inputs, making it capable of reacting very quickly when receiving inputs directly from the machine. This will ensure higher productivity and safer operations. Fewer function modules, flexible configuration and a library with preconfigured applications will save time and money.

Different encoder interfaces supported:
Impulse, Incremental, Absolut.

CD522 specifications

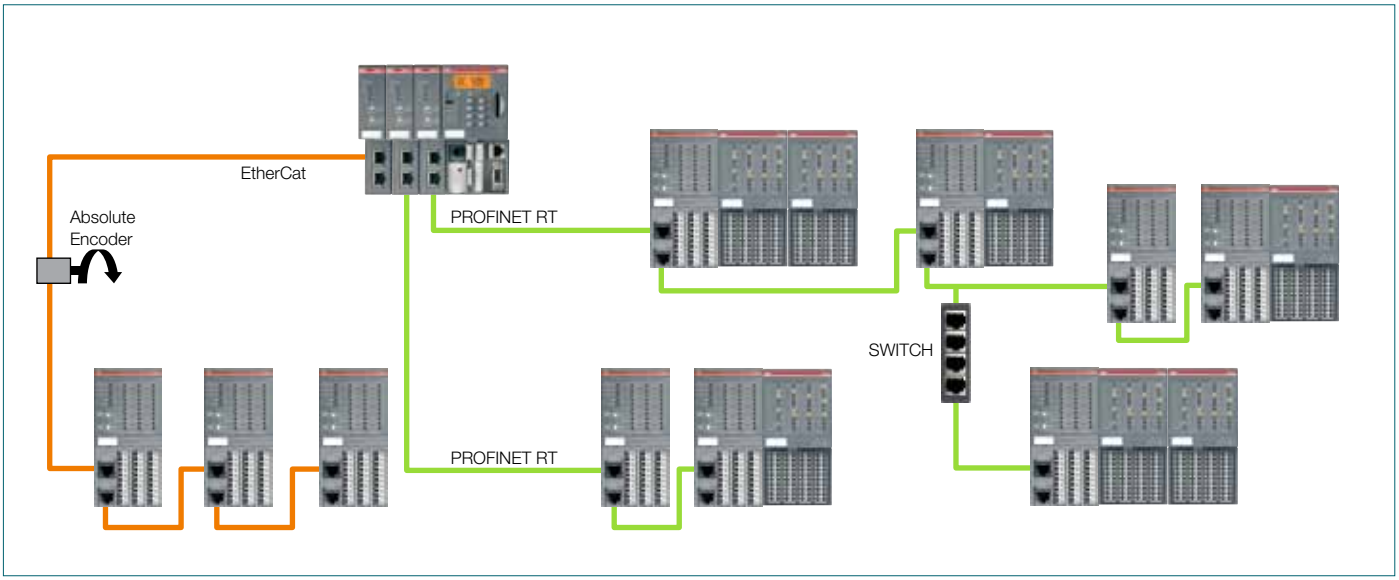
- Two independent encoders / counters
- High-speed counter input with multiple signal types such as SSI, 5 V, 24 V, Sinus with 1 Vpp
- 12 preconfigured counting modes
- Two independent PWM/PULSE outputs
- Two fast inputs for touch operation to freeze the actual counter/encoder value
- 8 configurable input/outputs
- Two independent +5 V sensor power supplies
- Frequency up to 300 kHz
- Counter can trigger digital outputs
- Certifications: CE, cULus, ABS, DNV, GL, RINA, BV and RMRS pending.



Scalable PLC AC500
Real-time Ethernet products

The RT-Ethernet modules

The modules are available on two different communication protocols on Ethernet basis (PROFINET I/O, EtherCAT). Two new master couplers provide the connection of the AC500 CPUs to the remote I/O modules. Various interface modules offer the possibility to connect I/O modules decentralized to the real-time Ethernet networks.



Cam-switch functionality

Modules based on decentralized real-time EtherCAT interface technology extended with integrated I/Os and programmed thanks to PLCopen function blocks.

Scalable PLC AC500
AC500 High Availability

Performance is the key

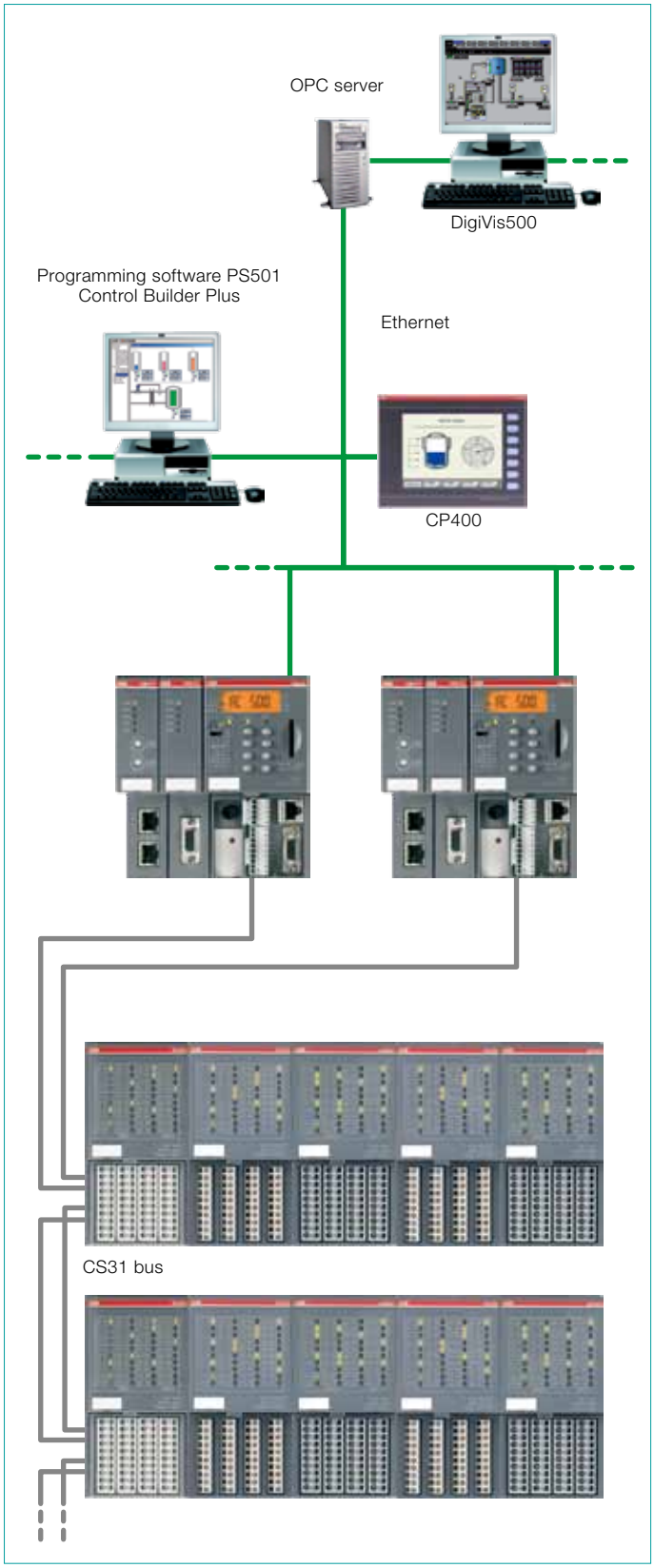
Most downtime is caused by either human error or device malfunction, which can be avoided with the right solution. Using dual CPUs helps negate the risk of total system failure, thus enhancing system availability.

If the retention of critical data and the avoidance of downtime are important to your application, then our AC500 High Availability solution is ideal for your plant.

Your benefits:

- Greater resource usage with no downtime in Hardware/ Software failure with the double CPUs and communication fieldbus CS31.
- Cost efficiency and easy system maintenance through the use of standard hardware (only specific library is necessary).
- Standard equipment and high flexibility in your choice, from PM573-ETH CPU to PM592-ETH CPU.

High Availability - System overview



Scalable PLC AC500
Overview of AC500-eCo CPUs

AC500-eCo CPUs




Type	PM554				PM564					
	PM554-T	PM554-R	PM554-R-AC	PM554-T-ETH	PM564-T	PM564-R	PM564-R-AC	PM564-T-ETH	PM564-R-ETH	PM564-R-ETH-AC
	Transistor	Relay	Relay	Transistor	Transistor	Relay	Relay	Transistor	Relay	Relay
Version available for Extreme Conditions	No									
Supply voltage	24 V DC		100-240 V AC	24 V DC			100-240 V AC	24 V DC		100-240 V AC
Program memory	128 kB									
Integrated data memory	14 kB thereof 2 kB saved									
Web server's data for user RAM disk	–	–	–	512 kB	–	–	–	512 kB	512 kB	512 kB
Cycle time for 1 instruction (minimum)										
Binary µs	0.08									
Word µs	0.1									
Floating µs	1.2									
Onboard I/Os										
Max. digital inputs/outputs	8/6				6/6					
Max. analog inputs/outputs					2/1					
Max. number of centralized inputs/outputs										
Digital inputs	320 + 8									
Digital outputs	240 + 6									
Analog inputs	160 + 2									
Analog outputs	160 + 1									
Max. number of expansion I/O modules										
Centralized I/O modules	up to max. 10 (S500 and/or S500-eCo modules allowed)									
Decentralized I/O modules	On CS31 bus: up to 31 stations with up to 120 DI / 120 DO each									
Data buffering	Flash memory									
Real-time clock (option with battery back-up)	•									
Program execution	•									
Cyclical	•									
Time controlled	•									
Multi tasking	No 1 task + 1 interrupt task max.									
Interruption	•									
User program protection by password	•									
Internal interfaces										
COM1										
RS485	•									
Sub-D connection	•									
Programming, Modbus, ASCII, CS31	•									
COM2 (option)										
RS485	•									
Terminal block	•									
Programming, Modbus, ASCII	•									
Ethernet										
RJ45				•				•		
Ethernet functions: Programming Modbus TCP/IP, UDP/IP, integrated Web server with Firmware 2.0.6 or above, DHCP, FTP server with Firmware 2.1 or above				•				•		
RUN/STOP switch	•									
LED display for power, status and error	•									
Approvals	See detailed overview page 58 or www.abb.com/plc									

Scalable PLC AC500
Overview of AC500 CPUs

AC500 CPUs

Type	PM572	PM573-ETH	PM582	PM583-ETH
Version available for Extreme Conditions	No	Yes	Yes	Yes
Supply voltage	24 V DC			
User program memory Flash EPROM and RAM	128 kB	512 kB	512 kB	1024 kB
Integrated user data memory	128 kB thereof 12 kB saved	512 kB thereof 288 kB saved	416 kB thereof 288 kB saved	1024 kB thereof 288 kB saved
Plug-in memory card (depending on SD-Card used)	at least 512 MB			
Web server's data for user RAM disk	–	1 024 kB	–	4 096 kB
Cycle time per instruction (minimum)				
Binary µs	0.06		0.05	
Word µs	0.09		0.06	
Floating-point µs	0.7		0.5	
Max. number of centralized inputs/outputs				
Max. number of extension modules on I/O bus	up to max. 10 (S500 and/or S500-eCo modules allowed)			
Digital inputs	320		320	
Digital outputs	240		240	
Analog inputs	160		160	
Analog outputs	160		160	
Max. number of decentralized inputs/outputs	depends on the used standard Fieldbus e.g. CS31 Fieldbus: up to 31 stations with up to 120 DIs/120 Dos or up to 32 Ais/32 AOs per station			
Data buffering	battery		battery	
Real-time clock (with battery back-up)	•		•	
Program execution				
Cyclical	•		•	
Time controlled	•		•	
Multi tasking	•		•	
User program protection by password	•		•	
Internal interfaces				
COM1				
RS232/RS485 configurable	•		•	
Connection (on TBs)	pluggable spring terminal block		pluggable spring terminal block	
Programming, Modbus RTU, ASCII, CS31 master	•		•	
COM2				
RS232/RS485 configurable	•		•	
Connection (on TBs)	SUB-D female 9 poles		SUB-D female 9 poles	
Programming, Modbus RTU, ASCII	•		•	
FieldBusPlug				
Serial neutral interface	•		•	
Connection (on TBs)	M12 male, 5 poles		M12 male, 5 poles	
Functions	Programming cable UTF-21-FBP, slave communication depending on FieldBusPlug used (PROFIBUS DP, CANopen, DeviceNet)		Programming cable UTF-21-FBP, slave communication depending on FieldBusPlug used (PROFIBUS DP, CANopen, DeviceNet)	
On-board Ethernet	–	•	–	•
Ethernet connection (on TBs)	–	RJ45	–	RJ45
Ethernet functions: Programming, TCP/IP, UDP/IP, Modbus TCP, integrated Web server, IEC60870-5-104 remote control protocol, SNTP (simple Network Time Protocol), DHCP, FTP server	–	•	–	•
LCD display and 8 function keys	•		•	
Function	RUN/STOP status, diagnosis		RUN/STOP status, diagnosis	
Timers	unlimited		unlimited	
Counters	unlimited		unlimited	
Approvals	See detailed overview page 58 or www.abb.com/plc			

Scalable PLC AC500
Overview of AC500 CPUs

AC500 CPUs



Type		PM590-ETH	PM591-ETH	PM592-ETH
Version available for Extreme Conditions		No	Yes	Yes
Supply voltage		24 V DC	24 V DC	24 V DC
User program memory Flash EPROM and RAM		2048 kB	4096 kB	4096 kB
Integrated user data memory		3072 kB thereof 1536 kB saved	5632 kB thereof 1536 kB saved	5632 kB thereof 1536 kB saved
User Flashdisk (Data-storage, programm access or also external with FTP)		–	–	Yes, 4GB Flash non removable
Plug-in memory card (depending on SD-Card used)		at least 512 MB		
Web server's data for user RAM disk		8 MB	8 MB	8 MB
Cycle time per instruction (minimum)				
Binary	µs	0.002	0.002	0.002
Word	µs	0.004	0.004	0.004
Floating-point	µs	0.004	0.004	0.004
Max. number of centralized inputs/outputs				
Max. number of extension modules on I/O-bus		up to max. 10 (S500 and/or S500-eCo modules allowed)		
Digital inputs		320	320	320
Digital outputs		240	240	240
Analog inputs		160	160	160
Analog outputs		160	160	160
Max. number of decentralized inputs/outputs		depends on the used standard field bus e.g. CS31 field bus: up to 31 stations with up to 120 DIs/120 DOs or up to 32 AIs/ 32AOs per station		
Data buffering		battery	battery	battery
Real-time clock (with battery back-up)		•	•	•
Program execution				
Cyclical		•	•	•
Time controlled		•	•	•
Multi tasking		•	•	•
User program protection by password		•	•	•
Internal interfaces				
COM1				
RS232/RS485 configurable		•	•	•
Connection (on TBs)		pluggable spring terminal block	pluggable spring terminal block	pluggable spring terminal block
Programming, Modbus RTU, ASCII, CS31 Master		•	•	•
COM2				
RS232/RS485 configurable		•	•	•
Connection (on TBs)		SUB-D female 9 poles	SUB-D female 9 poles	SUB-D female 9 poles
Programming, Modbus RTU, ASCII		•	•	•
FieldBusPlug				
Serial neutral interface		•	•	•
Connection (on TBs)		M12 male, 5 poles	M12 male, 5 poles	M12 male, 5 poles
Functions		Programming (cable UTF21-FBP), slave communication depending on FieldBusPlug used (PROFIBUS DP, CANopen, DeviceNet)		
On-board Ethernet		•	•	•
Ethernet connection (on TBs)		RJ45	RJ45	RJ45
Ethernet functions: Programming, TCP/IP, UDP/IP, Modbus TCP, integrated Web server, IEC60870-5-104 remote control protocol, SNTP (simple Network Time Protocol), DHCP, FTP server		•	•	•
LCD display and 8 function keys		•	•	•
Function		RUN/STOP status, diagnosis	RUN/STOP status, diagnosis	RUN/STOP status, diagnosis
Timers		unlimited	unlimited	unlimited
Counters		unlimited	unlimited	unlimited
Approvals		See detailed overview page 58 or www.abb.com/plc		

Scalable PLC AC500
Overview of digital S500-eCo I/O modules

Digital S500-eCo I/O modules




Type		DI561	DI562	DI571	DO561
Version available for Extreme Conditions		No			
Number of Channels per Module					
Digital Inputs		8	16	8 (AC)	–
Digital Outputs		–	–	–	8
Configurable as Input or Output DC		–	–	–	–
Relays (R) / Transistor (T)		–	–	–	T
Additional configuration of channels as:					
Fast Counter		No			
Digital inputs					
Input signal voltage		24 V DC	24 V DC	110-240 V AC	–
Input time delay		Typically 4...8 ms		Typically 15 ms / 30 ms	–
Input current per channel					
At Input voltage	+24 V DC	Typically 5 mA		–	–
	+5 V DC	< 1 mA		–	–
	+15 V DC	> 2.5 mA		–	–
	+30 V DC	< 6.5 mA		–	–
	40 V AC	–		< 3 mA	–
	159 V AC	–		> 6 mA	–
Output current					
Nominal current per channel		–	–	–	0.5 A at UP=24 V
Maximum (total current of all channels)		–	–	–	4 A
Residual current at signal state 0		–	–	–	< 0.5 mA
Demagnetization when switching off inductive loads		–	–	–	Must be provided externally
Switching frequency					
For inductive load		–	–	–	Max. 0.5 Hz
For lamp load		–	–	–	Max. 11 Hz at max. 5 W
Short circuit / overload proofness		–	–	–	No
Overload indication (I > 0.7 A)		–	–	–	No
Output current limiting		–	–	–	No
Proofness against reverse feeding of 24 V signals		–	–	–	No
Contact rating					
For resistive load, max.		–	–	–	–
For inductive load, max.		–	–	–	–
For lamp load		–	–	–	–
Lifetime (switching cycles)					
Mechanical lifetime		–	–	–	–
Lifetime under load		–	–	–	–
Spark suppression for inductive AC load		–	–	–	–
Demagnetization for inductive DC load		–	–	–	–
Maximum cable length for connected process signals					
Shielded cable	m	500	500	500	500
Unshielded cable	m	300	300	300	150
Potential isolation					
Per module		•	•	•	•
Between the input channels		–	per group of 8	•	–
Between the output channels		–	–	–	per group of 8
Voltage supply for the module		Internal via I/O bus	Internal via I/O bus	Internal via I/O bus	Internal via I/O bus
Fieldbus connection		CI501-PNIO, CI502-PNIO, CI504-PNIO, CI506-PNIO, CI541-DP, CI542-DP, CI581-CN, CI582-CN DC551-CS31, CI592-CS31			
Address setting		Automatically (internal)			

Scalable PLC AC500
Overview of digital S500-eCo I/O modules

Digital S500-eCo I/O modules





Type		DO571	DO572	DX561	DX571	DC561
Version available for Extreme Conditions		No				
Number of Channels per Module						
Digital Inputs		–	–	8	8	–
Digital Outputs		8	8	8	8	–
Configurable as Input or Output DC		–	–	–	–	16
Relays (R) / Transistor (T)		R	Triac (AC)	T	R	T
Process voltage						
DC		24 V	–	24 V	24 V	24 V
Digital inputs						
Input signal voltage		–	–	24 V DC	24 V DC	24 V DC
Input time delay		–	–	Typically 4...8 ms		
Input current per channel						
At Input voltage	+24 V DC	–	–	Typically 5 mA	Typically 5 mA	Typically 4 mA
	+5 V DC	–	–	< 1 mA	< 1 mA	< 1 mA
	+15 V DC	–	–	> 2.5 mA	> 2.5 mA	> 2.5 mA
	+30 V DC	–	–	< 6.5 mA	< 6.5 mA	< 6 mA
Output current						
Nominal current per channel		2 A (24 V DC or 100...240 V AC)	0.3 A at 100...240 V AC	0.5 A at UP=24 V DC	2 A (24 V DC or 230 V AC)	0.1 A at UP=24 V DC
Maximum (total current of all channels)		2 X 8 A	2.4 A / 8 X 0.3 A	4 A	2 X 8 A	1.6 A
Residual current at signal state 0		–	1.1 mA rms at 132 V AC and 1.8 mA rms at 264 V AC	< 0.5 mA	–	< 0.5 mA
Demagnetization when switching off inductive loads		must be performed externally	must be performed externally	must be performed externally	must be performed externally	must be performed externally
Switching frequency						
For inductive load		–	–	0.5 Hz max.	–	0.5 Hz max.
For lamp load		1 Hz max.	10 Hz max.	11 Hz max. at max. 5 W	1 Hz max.	–
Short circuit / overload proofness		No	No	No	No	No
Overload indication (I > 0.7 A)		No	No	No	No	No
Output current limiting		No	No	No	No	No
Proofness against reverse feeding of 24 V signals		Yes	–	No	No	No
Contact rating						
For resistive load, max.		2 A	–	–	2 A	–
For inductive load, max.		–	–	–	–	–
For lamp load		200 W at 230 V AC 30 W at 24 V DC	–	–	200 W at 230 V AC 30 W at 24 V DC	–
Lifetime (switching cycles)						
Mechanical lifetime		100 000	–	–	100 000	–
Lifetime under load		100 000	–	–	100 000	–
Spark suppression for inductive AC load		Must be performed externally	–	–	Must be performed externally	–
Demagnetization for inductive DC load		Must be performed externally	–	–	Must be performed externally	–
Maximum cable length for connected process signals						
Shielded cable	m	500	500	500	500	500
Unshielded cable	m	150	150	150	150	150
Potential isolation						
Per module		–	•	•	–	•
Between the input channels		–	–	–	–	–
Between the output channels		per group of 4	•	–	per group of 4	–
Voltage supply for the module's logic		Internal via I/O bus	Internal via I/O bus	Internal via I/O bus	Internal via I/O bus	Internal via I/O bus
Fieldbus connection		CI501-PNIO, CI502-PNIO, CI504-PNIO, CI506-PNIO, CI541-DP, CI542-DP, CI581-CN, CI582-CN DC551-CS31, CI592-CS31				
Address setting		Automatically (internal)				

Scalable PLC AC500
Overview of digital S500 I/O modules

Digital S500 I/O modules

Type	DI524	DC522	DC523	DC532	DX522	DX531
Version available for Extreme Conditions	Yes	Yes	Yes	Yes	Yes	No
Number of channels per module						
Digital inputs DI	32	–	–	16	8	8
Digital outputs DO	–	–	–	–	8 relays	4 relays
Configurable channels DC (configurable as inputs or outputs)	–	16	24	16	–	–
Additional configuration of channels as						
Fast counter	Configuration of max. 2 channels per module. Operating modes see table on page 25					–
Occupies max. 1 DO or DC when used as counter	–	•	•	•	–	–
Connection via terminal unit (refer to table on page 50)	•	•	•	•	•	•
Digital inputs						
Input signal voltage	24 V DC					230 V AC or 120 V AC
Frequency range	–					47 … 63 Hz
Input characteristic acc. to EN61132-2	Type 1					Type 2
0 signal	- 3 V DC ... + 5 V DC					0 ... 40 V AC
Undefined signal state	+ 5 V DC ... + 15 V DC					> 40 V AC ... < 74 V AC
1 signal	+ 15 V DC ... + 30 V DC					74 ... 265 V AC
Input time delay (0 -> 1 or 1 -> 0)	8 ms typically, configurable from 0.1 up to 32 ms					20 ms typically
Input current per channel						
At input voltage + 24 V DC	5 mA typically					–
+ 5 V DC	> 1 mA					–
+ 15 V DC	> 5 mA					–
+ 30 V DC	< 8 mA					
159 V AC	–					> 7 mA
40 V AC	–					< 5 mA
Digital outputs						
Transistor outputs 24 V DC, 0.5 A	–	•	•	•	–	–
Readback of output	–	•	•	•	–	–
Relay outputs, supplied via process voltage UP, changeover contacts	–	–	–	–	•	•
Switching of 24 V load	–	•	•	•	•	•
Switching of 230 V load	–	–	–	–	•	•
Output voltage at signal state 1		Process voltage UP minus 0.8 V			–	–
Output current						
Nominal current per channel	–	500 mA at UP = 24 V				
Maximum (total current of all channels)	–	8 A				
Residual current at signal state 0	–	< 0.5 mA				
Demagnetization when switching off inductive loads	–	By internal varistors				

Scalable PLC AC500
Overview of digital S500 I/O modules

Digital S500 I/O modules

Type	DI524	DC522	DC523	DC532	DX522	DX531
Switching frequency						
For inductive load	–	0.5 Hz max.			2 Hz max.	
For lamp load	–	11 Hz max. at max. 5 W			11 Hz max. at max. 5 W	
Short-circuit / overload proofness	–	•	•	•	By external fuse / circuit breaker. 6 A gL/gG per channel	
Overload indication (I > 0.7 A)	–	After approx. 100 ms			–	–
Output current limiting	Yes, with automatic reclosure				–	–
Proofness against reverse feeding of 24 V signals	–	•	•	•	–	–
Contact rating						
For resistive load, max.	–	–	–	–	3 A at 230 V AC 2 A at 24 V DC	
For inductive load, max.	–	–	–	–	1.5 A at 230 V AC 1.5 A at 24 V DC	
For lamp load	–	–	–	–	60 W at 230 V AC 10 W at 24 V DC	
Lifetime (switching cycles)						
Mechanical lifetime	–	–	–	–	300 000	
Lifetime under load	–	–	–	–	300 000 at 24 V DC/ 2 A 200 000 at 120 V AC/ 2 A 100 000 at 230 V AC/ 3 A	
Spark suppression for inductive AC load	–	–	–	–	External measure depending on the switched load	
Demagnetization for inductive DC load	–	–	–	–	External measure: Free-wheeling diode connected in parallel to the load	
Process voltage UP						
Nominal voltage	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC
Maximum ripple	5 %	5 %	5 %	5 %	5 %	5 %
Reverse polarity protection	•	•	•	•	•	•
Fuse for process voltage UP	10 A miniature fuse					
Connections for sensor voltage supply. Terminal + 24 V and 0 V for each connection. Permitted load for each group of 4 or 8 connections: 0.5 A	–	8	4	–	–	–
Short-circuit and overload proof 24 VDC sensor supply voltage	–	•	•	–	–	–
Maximum cable length for connected process signals						
Shielded cable m	1000	1000	1000	1000	1000	1000
Unshielded cable m	600	600	600	600	600	600
Potential isolation						
Per module	•	•	•	•	•	•
Between the input channels	–	–	–	–	–	• (per 2)
Between the output channels	–	–	–	–	•	•
Voltage supply for the module	Internally via extension bus interface (I/O bus)					
Fieldbus connection	Via AC500 CPU or all communication interface modules					
Address setting	Automatically (internal)					

Digital I/O modules, "Fast Counter" operating modes. Not applicable for DC541 or eCo-I/O modules (see technical documentation for details)

Operating mode, configured in the user program of the AC500		Occupied inputs DI or DC	Occupied outputs DO or DC	Maximum counting frequency kHz	Notes
0	No counter	0	0	–	–
1	One count-up counter with "end value reached" indication	1	1	50	Note for input module DI524: It is not possible to set an output directly. As an alternative, the status byte should be evaluated and applied to another output in the system.
2	One count-up counter with "enable" input and "end value reached" indication	2	1	50	
3	Two up/down counters	2	0	50	"End value" interrogation via status byte
4	Two up/down counters with 1 counting input inverted	2	0	50	
5	One up/down counter with "dynamic set" input	2	0	50	Acts to the rising signal edge (0->1) "End value" interrogation via status byte
6	One up/down counter with "dynamic set" input	2	0	50	Acts to the falling signal edge (1->0) "End value" interrogation via status byte
7	One up/down counter with directional discriminator For synchro transmitters using two counting pulses with an offset of 90° (track A and B)	2	0	50	For synchro transmitters with 24 V signals. In case of 5 V synchro transmitters, the signal has to be increased to 24 V. The zero track of the synchro transmitter is not processed. Interrogation of the "end value" indication via the status byte. Single evaluation.
8	–	0	0	–	–
9	One up/down counter with directional discriminator and double evaluation For synchro transmitters using two counting pulses with an offset of 90° towards each other (track A and B)	2	0	30	See operating mode 7 Difference: double evaluation, i.e. evaluation of the rising edge and the falling edge of track A -> higher accuracy due to the double number of counting pulses
10	One up/down counter with directional discriminator and fourfold evaluation For synchro transmitters using two counting pulses with an offset of 90° towards each other (track A and B)	2	0	15	See operating mode 7 Difference: fourfold evaluation, i.e. evaluation of the rising edge and the falling edge of track A and track B -> higher accuracy due to the fourfold number of counting pulses.

Scalable PLC AC500
Overview of analog S500-eCo I/O modules

Analog S500-eCo I/O modules





Type		AI561	AO561	AX561	AI562	AI563
Version available for Extreme Conditions		No				
Number of Channels per Module						
Analog Inputs		4	–	4	2	4
Analog Outputs		–	2	2	–	–
Inputs, single configurable as						
-2.5 V…+2.5 V	11 bits + sign	•	–	•	–	–
-5 V…+5 V	11 bits + sign	•	–	•	–	–
-10 V…+10 V	11 bits + sign	–	–	–	–	–
0…5 V	12 bits	•	–	•	–	–
0…10 V	12 bits	•	–	•	–	–
0…20 mA, 4…20 mA	12 bits	•	–	•	–	–
Temperature resolution	0.1 °C	–	–	–	•	•
Analog Inputs Signal configuration per AI						
RTD		–	–	–	2	–
Thermocouple		–	–	–	–	4
Outputs, single configurable as						
-10…+10 V		–	•	•	–	–
0…20 mA		–	•	•	–	–
4…20 mA		–	•	•	–	–
Pt100						
	-50 °C…400 °C (2/3- wire)	–	–	–	•	–
Pt1000						–
	-50 °C…+400 °C (2/3-wire)	–	–	–	•	–
Ni100/Ni1000						–
	-50 °C…+150 °C (2/3-wire)	–	–	–	•	–
	0… 150 Ω/ 0... 300 Ω	–	–	–	•	–
Thermocouples of types J, K, T, N, S, E, R		–	–	–	–	•
-80 mV... +80 mV		–	–	–	–	•
Potential isolation						
Per module		–	–	–	•	•
Fieldbus connection		CI501-PNIO, CI502-PNIO, CI504-PNIO, CI506-PNIO, CI541-DP, CI542-DP, CI581-CN, CI582-CN DC551-CS31, CI592-CS31				
Address setting		automatically (internal)				

Scalable PLC AC500
Overview of analog S500 I/O modules

Analog S500 I/O devices

Type	AX521	AX522	AI523	AO523	AI531
Version available for Extreme Conditions	Yes	Yes	Yes	Yes	Yes
Number of channels per module					
Analog inputs AI, individual configuration	4	8	16	–	8
Analog outputs AO, individual configuration	4	8	–	16	–
Signal resolution for channel configuration					
-10 V ... +10 V	12 bits + sign				15 bits + sign
0 ... 10 V	12 bits				15 bits
0 ... 20 mA, 4 ... 20 mA	12 bits				15 bits
Temperature: 0.1 °C	•	•	•	•	•
Monitoring configuration per channel					
Plausibility monitoring	•	•	•	•	•
Wire break & short-circuit monitoring	•	•	•	•	•
Analog Inputs AI					
Signal configuration per AI	Max. number per module and with regard to the configuration: AIs / Measuring points (depending on the use of 2/3-wire connection or differential input)				
0 ... 10 V	4 / 4	8 / 8	16 / 16	–	8 / 8
-10 V ... +10 V	4 / 4	8 / 8	16 / 16	–	8 / 8
0 ... 20 mA	4 / 4	8 / 8	16 / 16	–	8 / 8
4 ... 20 mA	4 / 4	8 / 8	16 / 16	–	8 / 8
Pt100					
-50 °C ... +400 °C (2-wire)	4 / 4	8 / 8	16 / 16	–	8 / 8
-50 °C ... +400 °C (3-wire), 2 channels	4 / 2	8 / 4	16 / 8	–	8 / 8
-50 °C ... +400 °C (4-wire)	–	–	–	–	8 / 8
-50 °C ... +70 °C (2-wire)	4 / 4	8 / 8	16 / 16	–	8 / 8
-50 °C ... +70 °C (3-wire), 2 channels	4 / 2	8 / 4	16 / 8	–	8 / 8
-50 °C ... +70 °C (4-wire)	–	–	–	–	8 / 8
Pt1000					
-50 °C .. .+400 °C (2-wire)	4 / 4	8 / 8	16 / 16	–	8 / 8
-50 °C ... +400 °C (3-wire), 2 channels	4 / 2	8 / 4	16 / 8	–	8 / 8
-50 °C .. .+400 °C (4-wire)	–	–	–	–	8 / 8
Ni1000					
-50 °C ... +150 °C (2-wire)	4 / 4	8 / 8	16 / 16	–	8 / 8
-50 °C ... +150 °C (3-wire), 2 channels	4 / 2	8 / 4	16 / 8	–	8 / 8
-50 °C ... +150 °C (4-wire)	–	–	–	–	8 / 8
Thermocouples of types J, K, T, N, S	–	–	–	–	•
0 ... 10 V using differential inputs, 2 channels	4 / 2	8 / 4	16 / 8	–	8 / 8
-10 V ... +10 V using differential inputs, 2 channels	4 / 2	8 / 4	16 / 8	–	8 / 8
Digital signals (digital input)	4 / 4	8 / 8	16 / 16	–	8 / 8
Input resistance per channel	Voltage: > 100 kΩ. Current: approx. 330 Ω.			–	Voltage: > 100 kΩ. Current: approx. 330 Ω.
Time constant of the input filter	Voltage: 100 µs. Current: 100 µs.			–	Voltage: 100 µs. Current: 100 µs.
Conversion cycle	2 ms (for 8 AI + 8 AO), 1 s for Pt/Ni...			–	1 ms (for 8 AI + 8 AO), 1 s for Pt/Ni...
Overvoltage protection	•	•	•	–	•
Data when using the AI as digital input					
Input time delay	8 ms typically, configurable from 0.1 up to 32 ms			–	8 ms typically, configurable from 0.1 up to 32 ms
Input signal voltage	24 V DC			–	24 V DC
0 signal	-30 V ... +5 V			–	-30 V ... +5 V
1 signal	+13 V ... +30 V			–	+13 V ... +30 V

Scalable PLC AC500
Overview of analog S500 I/O modules

Analog S500 I/O devices

Type	AX521	AX522	AI523	AO523	AI531
Version available for Extreme Conditions	No				
Analog outputs AO					
Possible configuration per AO	Max. number of AOs per module and with regard to the configuration:				
-10 V ... +10 V	4	8[1)]	–	16[1)]	–
0 ... 20 mA	4	4	–	8	–
4 ... 20 mA	4	4	–	8	–
Output resistance (burden) when used as current output	0 ... 500 Ω		–	0 ... 500 Ω	–
Output loading capability when used as voltage output	Max. ± 10 mA		–	Max. ± 10 mA	–
Process voltage UP					
Nominal voltage	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC
Maximum ripple	5 %	5 %	5 %	5 %	5 %
Reverse polarity protection	•	•	•	•	•
Max. line length of the analog lines, conductor cross section > 0.14 mm²	100 m				
Conversion error of analog values caused by non-linearity, calibration errors ex works and the resolution in the nominal range	0.5 % typically, 1 % max.				
Potential isolation					
Per module	•	•	•	•	
Fieldbus connection	Via AC500 CPU or all communication interface modules				
Voltage supply for the module	Internally via extension bus interface (I/O bus)				

[1)] Half can be used on current (the other half remains available)

Scalable PLC AC500
CD522 encoder module

The CD522 module offers accuracy and dynamic flexibility for a customized solution. It has two independent encoder inputs onboard and is easily configured using the Control Builder software for 10 different operation modes and for frequencies up to 300 kHz. The CD522 module also integrates outputs for pulses and for PWM as well as normal inputs and outputs, depending on selected encoder mode.

CD522 encoder module

Type		CD522
Version available for Extreme Conditions		Yes
Functionality		
Digital inputs/outputs		24 V DC, dedicated inputs/outputs can be used for specific counting functions: - Catch/touch operation, counter value stored in separate variable on external event (rising or falling edge) - Set input to preset counter register with predefined value - Set input to reset counter register - End value output; the output is set when predefined value is reached - Reference point initialization (RPI) input for relative encoder initialization All unused inputs/outputs can be used with the specification of standard input/output range.
High-speed counter/encoder		Integrated, 2 counters (hardware interface with +24 V DC, +5 V DC, differential and 1 Vpp sinus input): - 32 bits one counter mode - 16 bits two counter mode - Relative position encoder (X1, X2, X4) - Absolute SSI encoder - Time frequency meter - Frequency input up to 300 kHz
PWM/pulse outputs		2 pulse-width-modulators or pulse outputs Output mode specification: - Push-pull output: 24 V DC, 100 mA max. - Current limitation (thermal and over current) PWM mode specification: - Frequency from 1 Hz to 100 kHz - Value from 0 to 100 % Pulse mode specification: - Frequency from 1 Hz to 15 kHz - Pulse emission from 1 to 65535 pulses - Number of pulses emitted indicator (0 to 100 %) Frequency mode specification: - Frequency output = 100 kHz - Duty cycle set to 50 %
Number of channels per module		
Digital Inputs DI		2
Digital outputs DO		2
Configurable channels DC (configurable as inputs or outputs)		8
Additional configuration of channels as		
Fast counter		Integrated 2 counter encoders
Connection via terminal unit (refer to table on page 50)		•
Digital Inputs		
Input signal voltage		24 V DC
Input time delay		8 ms typically configurable from 0.1 up to 32 ms
Input current per channel		
At input voltage	+24 V DC	Typically 5 mA
	+5 V DC	> 1 mA
	+15 V DC	> 5 mA
	+30 V DC	< 8 mA

Scalable PLC AC500
CD522 encoder module

CD522 encoder module

Type	CD522	
Digital outputs		
Output voltage at signal state 1	UP – 0.8 V	
Output current		
Nominal current per channel	0.5 A at UP = 24 V	
Maximum (total current of all channels)	8 A	
Residual current at signal state 0	< 0.5 mA	
Demagnetization when switching off inductive loads	By internal varistors	
Switching frequency		
For inductive load	Max. 0.5 Hz	
For lamp load	Max. 11 Hz with max. 5 W	
Short-circuit / Overload proofness	•	
Overload indication (I > 0.7 A)	After approx. 100 ms	
Output current limiting	•	
Proofness against reverse feeding of 24 V signals		
Maximum cable length for connected process signals		
Shielded cable	1000 m	
Unshielded cable	600 m	
Potential isolation		
Per module	•	
Technical data of the high-speed inputs		
Number of channels per module	6	
Input Type	24 V DC	5 V DC / Differential / Sinus 1 Vpp
Frequency	300 kHz	
Technical data of the fast outputs		
Number of channels	2	
Indication of the output signals	Brightness of the LED depends on the number of pulses emitted (0 % to 100 %) (pulse output mode only)	
Output current		
Rated value, per channel	100 mA at UP = 24 V	
Maximum value (all channels together, configurable outputs included)	8 A	
Leakage current with signal 0	< 0.5 mA	
Rated protection fuse on UP	10 A fast	
De-magnetization when inductive loads are switched off	with varistors integrated in the module (see figure below)	
Overload message (I > 0.1x A)	Yes, after ca. 100 ms	
Output current limitation	Yes, automatic reactivation after short-circuit/overload	
Resistance to feedback against 24 V signals	Yes	

Scalable PLC AC500
DA501 analog / digital mixed I/O module

For all modules: max cable length for connected process signals is 1000 m for shielded cable and 600 m for unshielded ones.
For all Input modules, the signal resolution for channel configuration is: -10 V…+10 V: 12 bit + sign; 0…10 V, 0…20 mA, 4…20 mA: 12 bits

Expansion module

Type	DA501
Version available for Extreme Conditions	Yes
Number of Channels per Module	
Digital inputs DI	16
Digital outputs DO	–
Analog inputs AI	4
Analog outputs AO	2
Digital configurable channels DC (configurable as inputs or outputs)	8
Additional configuration of channels as:	
Fast counter	No
Occupies max. 1 DO or DC when used as counter	Configuration of max. 2 channels per module. Operating modes see table on page 25
Connection via terminal unit TU 5xx (refer to table on page 50)	•
Digital inputs	
Input signal voltage	24 V DC
Input characteristic acc. to EN 61 132-2	Type 1
0 signal	-3 V DC... +5 V DC
Undefined signal state	+5 V DC... +15 V DC
1 signal	+15 V DC... +30 V DC
Residual ripple, range for 0 signal	-3 V DC... +5 V DC
Residual ripple, range for 1 signal	+15 V DC...+30 V DC
Input time delay (0 -> 1 or 1 -> 0)	8 ms typically, configurable from 0.1 up to 32 ms
Digital outputs	
Transistor outputs 24 V DC, 0.5 A	•
Readback of output	•
Outputs, supplied via process voltage UP	•
Switching of 24 V load	•
Output voltage at signal state 1	Process voltage UP - 0.8 V
Output current	
Nominal current per channel	500 mA at UP = 24 V DC
Maximum (total current of all channels)	8 A
Residual current at signal state 0	< 0.5 mA
Demagnetization when switching off inductive loads	By internal varistors
Analog inputs AI	Max. number per module and with regard to the configuration: AIs / Measuring points
Signal configuration per AI	•
0…10 V / -10 V … +10 V	4/4
0…20 mA / 4…20 mA	4/4
RTD using 2/3 wire needs 1/2 channel(s)	4/2
0…10 V using differential inputs, needs 2 channels	4/2
-10 V…+10 V using differential inputs, needs 2 channels	4/2
Digital signals (digital input)	4/4
Data when using the AI as digital input	
Input time delay	8 ms typically, configurable from 0.1 up to 32 ms
Input signal voltage	24 V DC
Outputs, single configurable as	
Possible configuration per AO	•
-10…+10 V	•
0…20 mA / 4…20 mA	•
Output resistance (load) when used as current output	0...500 Ω
Output loading capability when used as voltage output	±10 mA max.
Potential isolation	
Per module	•
Voltage supply for the module	By external 24 V DC voltage via terminal
Approvals	See detailed overview page 58 or www.abb.com/plc

Scalable PLC AC500
DC541 interrupt I/O and fast counter module

In the operating mode Counter, the channels can be configured as follows:
Input, Output, 32-bit up/down counter (uses C0...C3) as a 32-bit counter without limit, 32-bit periodic counter as a 32-bit counter with a limit, limiter for a 32-bit counter (limit channel 0), 32-bit up counter (forward counter) with the frequencies 50 kHz, 5 kHz and 2.5 kHz, pulse-width modulation (PWM) with a resolution of 10 kHz, time and frequency measurement, frequency output.

DC541 interrupt I/O and fast counter module

Type		DC541
Version available for Extreme Conditions		Yes
Number of Channels per Module		
Configurable channels DC (configurable as inputs or outputs)		8
Additional configuration of channels as		
Fast counter		Yes
Connection via CPU terminal base. Occupies one communication module slot.		•
Digital inputs		
Input signal voltage		24 V DC
Input characteristic acc. to EN61132-2		Type 1
0 signal		-3 V DC ... +5 V DC
Undefined signal state		+5 V DC ... +15 V DC
1 signal		+15 V DC ... +30 V DC
Input time delay (0 -> 1 or 1 -> 0)		8 ms typically, configurable from 0.1 up to 32 ms
Input current per channel		
At input voltage	+24 V DC	5 mA typically
	+5 V DC	> 1 mA
	+15 V DC	> 5 mA
	+30 V DC	< 8 mA
Digital outputs		
Transistor outputs 24 V DC, 0.5 A		•
Readback of output		•
Switching of 24 V load		•
Output voltage at signal state 1		Process voltage UP minus 0.8 V
Output current		
Nominal current per channel		500 mA at UP = 24 V
Maximum (total current of all channels)		8 A
Residual current at signal state 0		< 0.5 mA
Demagnetization when switching off inductive loads		by internal varistors
Potential isolation		
Per module		•
Voltage supply for the module		Internally via backplane bus
Fieldbus connection		Via AC500 CPU
Address setting		Automatically (internal)

Interrupt I/O table

Configuration as		Configuration for channel no.	Chan. 0	Chan. 1	Chan. 2	Chan. 3	Chan. 4-7	Max. no. of channels for this function	Remarks and notes regarding possible alternative combinations of the remaining channels (a and b)
Mode 1: Interrupt functionality									
Interrupt	Digital input		1	1	1	1	4	8	Each channel can be configured individually as interrupt input or interrupt output.
	Digital output		1	1	1	1	4	8	
Mode 2: Counting functionality									
Digital I/Os PWM*	Digital input		1	1	1	1	4	8	Usual input
	Digital output		1	1	1	1	4	8	Usual output
	PWM, resolution 10 kHz		1	1	1	1	4	8	Outputs and pulsed signal with and adjustable on-off ratio

* Counter and fast counter data available on technical documentation

Scalable PLC AC500
Communication interface modules

For all modules: max cable length for connected process signals is 1000 m for shielded cable and 600 m for unshielded ones.
For all Input modules, the signal resolution for channel configuration is: -10 V…+10 V: 12 bits + sign; 0…10 V, 0…20 mA, 4…20 mA: 12 bits
Temperature: 0.1°C

Communication interface modules

Type	DC505-FBP	DC551-CS31	CI590-CS31-HA Dedicated to High Availlability	CI592-CS31
Product available for Extreme Conditions	No	Yes	Yes	Yes
Communication Interface				
Protocol	According to FieldBusPlug used (Fieldbus neutral on module itself)	Proprietary CS31 bus protocl on RS485 interface		
ID configuration	Per rotary switches on front face from 00d to 99d			
Field bus connection on TUs	M12 on FieldBusPlug	CS31 field bus, via terminal / redundant for CI590-CS31-HA on TU551-CS31 or TU552-CS31		
Number of Channels per Module				
Digital Inputs DI	8	8	–	8
Digital outputs DO	–	–	–	–
Analog inputs AI	–	–	–	4
Analog outputs AO	–	–	–	2
Digital configurable channels DC (configurable as inputs or outputs)	8	16	16	8
Additional configuration of channels as:				
Fast counter	–	Configuration of max. 2 channels per module		
Occupies max. 1 DO or DC when used as counter	–	•	•	•
Connection via terminal base TU 5xx (refer to table on page 50)	•	•	•	•
Local I/O extension				
Max. number of extension modules	max. 7x S500 extension mo-dules, nb and type (dig./analog) dep. On FBP and protocol used. Note: eCo I/O modules are not allowed to be used	max. 7x S500 extension modules (standard or eCo), up to 31 stations with up to 120 DIs/120 DOs or up to 32 AIs/ 32AOs per station	not for S500-eCo I/O modules	
Digital inputs				
Input signal voltage	24 V DC			
Input characteristic acc. to EN 61 132-2	Type 1			
0 signal	-3 V DC... +5 V DC			
Undefined signal state	+5 V DC... +15 V DC			
1 signal	+15 V DC... +30 V DC			
Residual ripple, range for 0 signal	-3 V DC... +5 V DC			
Residual ripple, range for 1 signal	+15 V DC...+30 V DC			
Input time delay (0 -> 1 or 1 -> 0)	8 ms typically, configurable from 0.1 up to 32 ms			
Digital outputs				
Transistor outputs 24 V DC, 0.5 A	•			
Readback of output	•			
Outputs, supplied via process voltage UP	•			
Switching of 24 V load	•			
Output voltage at signal state 1	Process voltage UP - 0.8 V			
Output current				
Nominal current per channel	500 mA at UP = 24 V DC			
Maximum (total current of all channels)	4 A	8 A	8 A	4 A
Residual current at signal state 0	< 0.5 mA			
Demagnetization when switching off inductive loads	By internal varistors			
Analog inputs AI	Max. number per module and with regard to the configuration: AIs / Measuring points			
Signal configuration per AI	–			•
0...10 V / -10 V ... +10 V	–			4/4
0…20 mA / 4…20 mA	–			4/4
RTD using 2/3 wire needs 1/2 channel(s)	–			4/2
0...10 V using differential inputs, needs 2 channels	–			4/2
-10 V…+10 V using differential inputs, needs 2 channels	–			4/2
Digital signals (digital input)	–			4/4
Data when using the AI as digital input				
Input time delay	–			8 ms typically, configurable from 0.1 up to 32 ms
Input signal voltage	–			24 V DC
Outputs, single configurable as				
Possible configuration per AO				•
-10…+10 V				•
0…20 mA / 4…20 mA				•
Output resistance (load) when used as current output				0...500 Ω
Output loading capability when used as voltage output				±10 mA max.
Potential isolation				
Per module	•	•	•	•
Between fieldbus interface against the rest of the module	•	•	•	•
Voltage supply for the module	Via FBP	By external 24 V DC voltage via terminal UP		
Approvals	See detailed overview page 58 or www.abb.com/plc			

Scalable PLC AC500
Communication interface modules for fieldbus applications

Type	PROFIBUS-DP		CANopen	
	CI541-DP	CI542-DP	CI581-CN	CI582-CN
Product available for Extreme Conditions	Yes	Yes	Yes	Yes
Communication Interface				
Protocol	PROFIBUS DP (DP-V0 and DP-V1)		CANopen	
ID configuration	Per rotary switches on front face from 00h to FFh		Per rotary switches on front face for CANopen ID node from 00h to FFh	
Field bus connection on TUs	D-Sub 9 poles on TU509-DP, TU510-DP		Terminal blocks on TU517-CNDN or TU518-CNDN	
Number of Channels per Module				
Digital Inputs DI	8	8	8	8
Digital outputs DO	8	8	8	8
Analog Inputs AI	4	–	4	–
Analog Outputs AO	2	–	2	–
Digital configurable channels DC (configurable as inputs or outputs)	–	8	–	8
Additional configuration of channels as:				
Connection via terminal unit TU5xx (refer to table on page 50)	•	•	•	•
Local I/O extension	Yes		Yes	
Max. number of extension modules	max. 10x S500 extension modules (standard or eCo modules allowed)			
Digital inputs				
Input signal voltage	24 V DC			
Input characteristic acc. to EN61132-2	Type 1			
0 signal	- 3 V DC... + 5 V DC			
Undefined signal state	+ 5 V DC... + 15 V DC			
1 signal	+ 15 V DC... + 30 V DC			
Residual ripple, range for 0 signal	- 3 V DC... + 5 V DC			
Residual ripple, range for 1 signal	+ 15 V DC...+ 30 V DC			
Input time delay (0 -> 1 or 1 -> 0)	8 ms typically, configurable from 0.1 up to 32 ms			
Digital outputs				
Transistor outputs 24 V DC, 0.5 A	•			
Readback of output	•			
Outputs, supplied via process voltage UP	•			
Switching of 24 V load	•			
Output voltage at signal state 1	Process voltage UP - 0.8 V			
Output current				
Nominal current per channel	500 mA at UP = 24 V DC			
Maximum (total current of all channels)	8 A			
Residual current at signal state 0	< 0.5 mA			
Demagnetization when switching off inductive loads	By internal varistors			
Analog Inputs AI	Max. number per module and with regard to the configuration: AIs / Measuring points			
Signal configuration per AI	4	–	4	–
0…10V / -10V … +10V	4/4	–	4/4	–
0…20mA / 4…20mA	4/4	–	4/4	–
RTD using 2/3 wire needs 1/2 channel(s)	4/2	–	4/2	–
0…10V using differential inputs, needs 2 channels	4/2	–	4/2	–
-10V…+10V using differential inputs, needs 2 channels	4/2	–	4/2	–
Digital signals (digital input)	4/4	–	4/4	–
Data when using the AI as digital input				
Input time delay	8 ms typically, configurable from 0.1 up to 32 ms	–	8 ms typically, configurable from 0.1 up to 32 ms	–
Input signal voltage	24 V DC	–	24 V DC	–
Outputs, single configurable as				
Possible configuration per AO	•	–	•	–
-10…+10V	•	–	•	–
0…20mA / 4…20mA	•	–	•	–
Output resistance (load) when used as current output	0...500 Ω	–	0...500 Ω	–
Output loading capability when used as voltage output	±10 mA max.	–	±10 mA max.	–
Potential isolation				
Per module	•	•	•	•
Between fieldbus interface against the rest of the module	•	•	•	•
Between the input channels	–	–	–	–
Between the output channels	–	–	–	–
Voltage supply for the module	By external 24 V DC voltage via terminal UP			
Approvals	See detailed overview page 58 or www.abb.com/plc			

Scalable PLC AC500

Communication interface modules, Gateway PROFINET I/O to CAN or serial

Type	PROFINET I/O	PROFINET I/O
	CI504-PNIO	CI506-PNIO
Product available for Extreme Conditions	Yes	Yes
Communication Interface		
Ethernet Interface		
Main Protocol	PROFINET I/O RT	
ID Device configuration	By rotary switch on the front side, from 00h to FFh	
Ethernet connection on TUs	2x RJ45 with switch functionality for simple daisy chain on TU520-ETH	
Gateway Interface		
Gateway to	3x RS232/RS422/RS485 ASCII serial interfaces	CAN / CANopen Master + 2x RS232/RS422/RS485 ASCII serial interfaces
Fieldbus Protocol used	–	**CAN 2A/2B Master - CANopen Master ***
CAN physical interface	–	1x 10 poles pluggable spring connector
Baudrate	–	Baudrate up to 1 MBit/s, Support for up to 126 CANopen Slaves
Serial interface	3x RS232 / RS422 or RS485	2x RS232 / RS422 or RS485
Protocol used	ASCII	ASCII
Baudrate	Configurable from 300 bit/s to 115200 bit/s	
Fieldbus or serial connection on TUs	3x pluggable terminal blocks with spring on TU520-ETH	
Additional configuration of channels as:		
Connection via terminal unit TU5xx (refer to table on page 50)	•	•
Local I/O extension	Yes	Yes
Max. number of extension modules	max. 10x S500 extension modules (standard or eCo modules allowed)	
Potential isolation		
Per module	•	•
Between Ethernet interface against the rest of the module	•	•
Voltage supply for the module	By external 24 V DC voltage via terminal UP	
Approvals	See detailed overview page 58 or www.abb.com/plc	

* Not simultaneously

Scalable PLC AC500
Communication interface modules for real-time Ethernet

Type	PROFINET I/O		EtherCAT	
	CI501-PNIO	CI502-PNIO	CI511-ETHCAT	CI512-ETHCAT
Product available for Extreme Conditions	Yes	Yes	No	No
Communication Interface				
Protocol	PROFINET I/O RT		EtherCAT	
ID Device configuration	By rotary switch on the front side, from 00h to FFh			
Field bus connection on TUs	2x RJ45 with switch functionality for simple daisy chain on TU507-ETH or TU508-ETH			
Number of Channels per Module				
Digital Inputs DI	8	8	8	8
Digital outputs DO	8	8	8	8
Analog Inputs AI	4	–	4	–
Analog outputs AO	2	–	2	–
Digital configurable channels DC (configurable as inputs or outputs)	–	8	–	8
Additional configuration of channels as:				
Connection via terminal unit TB 5xx (refer to table on page 50)	•	•	•	•
Local I/O extension	Yes		No extension modules allowed	
Max. number of extension modules	max. 10x S500 extension modules (standard or eCo modules allowed)			
Digital inputs				
Input signal voltage	24 V DC			
Input characteristic acc. to EN 61 132-2	Type 1			
0 signal	-3 V DC... +5 V DC			
Undefined signal state	+5 V DC... +15 V DC			
1 signal	+15 V DC...+30 V DC			
Residual ripple, range for 0 signal	-3 V DC...+5 V DC			
Residual ripple, range for 1 signal	+15 V DC...+30 V DC			
Input time delay (0 -> 1 or 1 -> 0)	8 ms typically, configurable from 0.1 up to 32 ms			
Digital outputs				
Transistor outputs 24 V DC, 0.5 A	•			
Readback of output	•			
Outputs, supplied via process voltage UP	•			
Switching of 24 V load	•			
Output voltage at signal state 1	Process voltage UP - 0.8 V			
Output current				
Nominal current per channel	500 mA at UP = 24 V DC			
Maximum (total current of all channels)	8 A			
Residual current at signal state 0	< 0.5 mA			
Demagnetization when switching off inductive loads	By internal varistors			
Analog inputs AI	Max. number per module and with regard to the configuration: AIs / Measuring points			
Signal configuration per AI	4	–	4	–
0…10 V / -10 V... +10 V	4/4	–	4/4	–
0…20 mA / 4…20 mA	4/4	–	4/4	–
RTD using 2/3 wire needs 1/2 channel(s)	4/2	–	4/2	–
0…10 V using differential inputs, needs 2 channels	4/2	–	4/2	–
-10 V...+10 V using differential inputs, needs 2 channels	4/2	–	4/2	–
Digital signals (digital input)	4/4	–	4/4	–
Data when using the AI as digital input				
Input time delay	8 ms typically, configurable from 0.1 up to 32 ms	–	8 ms typically, configurable from 0.1 up to 32 ms	–
Input signal voltage	24 V DC	–	24 V DC	–
Outputs, single configurable as:				
Possible configuration per AO	•	–	•	–
-10…+10 V	•	–	•	–
0…20 mA / 4…20 mA	•	–	•	–
Output resistance (load) when used as current output	0...500 Ω	–	0...500 Ω	–
Output loading capability when used as voltage output	±10 mA max.	–	±10 mA max.	–
Potential isolation				
Per module	•	•	•	•
Between Ethernet interface against the rest of the module	•	•	•	•
Between the input channels	–	–	–	–
Between the output channels	–	–	–	–
Voltage supply for the module	By external 24 V DC voltage via terminal UP			
Approvals	See detailed overview page 58 or www.abb.com/plc			

AC500 system data

Operating and ambient conditions

Voltages according to EN 61131-2		
24 V DC	Process and supply voltage	24 V DC (-15 %, +20 % without ripple)
	Absolute limits	19.2 V...30 V inclusive ripple
	Ripple	< 5 %
	Protection against reverse polarity	10 s
120 V AC	Line voltage	120 V AC (-15 %, +10 %)
	Frequency	47 Hz..62.4 Hz / 50...60 Hz (-6 %, +4 %)
230 V AC	Line voltage	230 V AC (-15 %, +10 %)
	Frequency	47 Hz..62.4 Hz / 50...60 Hz (-6 %, +4 %)
120–240 V AC	Wide-range supply	
	Line voltage	102 V...264 V / 120 V...240 V (-15 %, +10 %)
	Frequency	47 Hz..62.4 Hz / 50...60 Hz (-6 %, +4 %)
Allowed interruptions of power supply acc. to EN 61131-2	DC supply	Interruption < 10 ms, time between 2 interruptions > 1 s, PS2
	AC supply	Interruption < 0.5 periods, time between 2 interruptions > 1 s
Important: Exceeding the maximum power supply voltage (>30 V DC) for process or supply voltages could lead to unrecoverable damage of the system. The system could be destroyed.		
Temperature	Operation	0 °C...+60 °C (horizontal mounting of modules)
		0 °C...+40 °C (vertical mounting of modules and output load reduced to 50 % per group)
	Storage	-40 °C...+70 °C
	Transport	-40 °C...+70 °C
Humidity		Max. 95 %, without condensation
Air pressure	Operation	> 800 hPa / < 2000 m
	Storage	> 660 hPa / < 3500 m

Creepage distances and clearances

The creepage distances and clearances meet the requirements of the overvoltage category II, pollution degree 2

Insulation Test Voltages, Routine Test, according to EN 61131-2		
230 V circuits against other circuitry	2500 V	1.2/50 µs
120 V circuits against other circuitry	1500 V	1.2/50 µs
120 V to 240 V circuits against other circuitry	2500 V	1.2/50 µs
24 V circuits (supply, 24 V inputs/outputs), if they are electrically isolated against other circuitry	500 V	1.2/50 µs
COM interfaces, electrically isolated	500 V	1.2/50 µs
COM interfaces, electrically not isolated	not applicable	not applicable
FBP interface	500 V	1.2/50 µs
Ethernet	500 V	1.2/50 µs
ARCNET	500 V	1.2/50 µs
230 V circuits against other circuitry	1350 V	AC 2 s
120 V circuits against other circuitry	820 V	AC 2 s
120 V to 240 V circuits against other circuitry	1350 V	AC 2 s
24 V circuits (supply, 24 V inputs/outputs), if they are electrically isolated against other circuitry	350 V	AC 2 s
COM interfaces, electrically isolated	350 V	AC 2 s
COM interfaces, electrically not isolated	Not applicable	Not applicable
FBP interface	350 V	AC 2 s
Ethernet	350 V	AC 2 s
ARCNET	350 V	AC 2 s

Power supply units

For the supply of the modules, power supply units according to PELV specifications must be used.

Electromagnetic Compatibility

Immunity	
Against electrostatic discharge (ESD)	According to EN 61000-4-2, zone B, criterion B
Electrostatic voltage in case of air discharge	8 kV
Electrostatic voltage in case of contact discharge	4 kV, in a closed switch-gear cabinet 6 kV [1]
ESD with communication connectors	In order to prevent operating malfunctions, it is recommended, that the operating personnel discharge themselves prior to touching communication connectors or perform other suitable measures to reduce effects of electrostatic discharges.
ESD with connectors of Terminal Bases	The connectors between the Terminal Bases and CPUs or Communication Modules must not be touched during operation. The same is valid for the I/O-Bus with all modules involved.
Immunity	
Against the influence of radiated (CW radiated)	According to EN 61000-4-3, zone B, criterion A
Test field strength	10 V/m
Immunity	
Against transient interference voltages (burst)	According to EN 61000-4-4, zone B, criterion B
Supply voltage units (AC, DC)	4 kV
Digital inputs/outputs (24 V DC)	2 kV
Digital inputs/outputs (120/230 V AC)	2 kV
Analog inputs/outputs	1 kV
CS31 system bus	2 kV
Serial RS-485 interfaces (COM)	2 kV
Serial RS-232 interfaces (COM, not for PM55x and PM56x)	1 kV
ARCNET	1 kV
FBP	1 kV
Ethernet	1 kV
I/O supply, DC-out	1 kV
Immunity	
Against the influence of line-conducted interferences (CW conducted)	According to EN 61000-4-6, zone B, criterion A
Test voltage	3 V zone B, 10 V is also met
High energy surges	According to EN 61000-4-5, zone B, criterion B
Power supply DC	1 kV CM* / 0.5 kV DM*
DC I/O supply	0.5 kV CM* / 0.5 kV DM*
Buses, shielded	1 kV CM*
AC-I/O unshielded	2 kV CM* / 1 kV DM*
I/O analog, I/O DC unshielded	1 kV CM* / 0.5 kV DM*
Radiation (radio disturbance)	According to EN 55011, group 1, class A

[1] High requirement for shipping classes are achieved with additional specific measures (see specific documentation)
* CM = Common Mode - DM = Differential Mode

Mechanical Data

Wiring method / terminals	
Mounting	Horizontal
Degree of protection	IP 20
Housing	According to UL 94
Vibration resistance acc. to EN 61131-2	all three axes 2 Hz...15 Hz, continuous 3.5 mm 15 Hz...150 Hz, continuous 1 g (higher values on request)
Vibration resistance with SD Memory Card inserted	15 Hz...150 Hz, continuous 1 g
Shock resistance	All three axes 15 g, 11 ms, half-sinusoidal PM55x and PM56x on request
Shipping specific requirements	
Mounting of the modules	
DIN rail according to DIN EN 50022	35 mm, depth 7.5 mm or 15 mm
Mounting with screws	Screws with a diameter of 4 mm
Fastening torque	1.2 Nm

Scalable PLC AC500-eCo
AC500-eCo system data

Operating and ambient conditions

Voltages according to EN 61131-2		
24 V DC	Process and supply voltage	24 V DC (-15 %, +20 % without ripple)
	Absolute limits	19.2 V...30 V inclusive ripple
	Ripple	< 5 %
	Protection against reverse polarity	10 s
120 V AC	Line voltage	120 V AC (-15 %, +10 %)
	Frequency	47 Hz...62.4 Hz / 50...60 Hz (-6 %, +4 %)
230 V AC	Line voltage	230 V AC (-15 %, +10 %)
	Frequency	47 Hz..62.4 Hz / 50...60 Hz (-6 %, +4 %)
120–240 V AC	Wide-range supply	
	Line voltage	102 V...264 V / 120 V...240 V (-15 %, +10 %)
	Frequency	47 Hz..62.4 Hz / 50...60 Hz (-6 %, +4 %)
Allowed interruptions of power supply acc. to EN 61131-2	DC supply	Interruption < 10 ms, time between 2 interruptions > 1 s, PS2
	AC supply	Interruption < 0.5 periods, time between 2 interruptions > 1 s
Important: Exceeding the maximum power supply voltage (>30 V DC) for process or supply voltages could lead to unrecoverable damage of the system. The system could be destroyed.		
Temperature	Operation	0 °C...+60 °C (horizontal mounting of modules)
		0 °C...+40 °C (vertical mounting of modules and output load reduced to 50 % per group)
	Storage	-40 °C...+70 °C
	Transport	-40 °C...+70 °C
Humidity		Max. 95 %, without condensation
Air pressure	Operation	> 800 hPa / < 2000 m
	Storage	> 660 hPa / < 3500 m

Creepage distances and clearances

The creepage distances and clearances meet the requirements of the overvoltage category II, pollution degree 2

Insulation Test Voltages, Routine Test, according to EN 61131-2		
230 V circuits against other circuitry	2500 V	1.2/50 µs
120 V circuits against other circuitry	1500 V	1.2/50 µs
120 V to 240 V circuits against other circuitry	2500 V	1.2/50 µs
24 V circuits (supply, 24 V inputs/outputs), if they are electrically isolated against other circuitry	500 V	1.2/50 µs
COM interfaces, electrically isolated	500 V	1.2/50 µs
COM interfaces, electrically not isolated	not applicable	not applicable
FBP interface	500 V	1.2/50 µs
Ethernet	500 V	1.2/50 µs
ARCNET	500 V	1.2/50 µs
230 V circuits against other circuitry	1350 V	AC 2 s
120 V circuits against other circuitry	820 V	AC 2 s
120 V to 240 V circuits against other circuitry	1350 V	AC 2 s
24 V circuits (supply, 24 V inputs/outputs), if they are electrically isolated against other circuitry	350 V	AC 2 s
COM interfaces, electrically isolated	350 V	AC 2 s
COM interfaces, electrically not isolated	Not applicable	Not applicable
FBP interface	350 V	AC 2 s
Ethernet	350 V	AC 2 s
ARCNET	350 V	AC 2 s

Scalable PLC AC500-eCo
AC500-eCo system data

Power supply units

For the supply of the modules, power supply units according to PELV specifications must be used.

Electromagnetic Compatibility

Immunity	
Against electrostatic discharge (ESD)	According to EN 61000-4-2, zone B, criterion B
Electrostatic voltage in case of air discharge	8 kV
Electrostatic voltage in case of contact discharge	4 kV, in a closed switch-gear cabinet 6 kV [1]
ESD with communication connectors	In order to prevent operating malfunctions, it is recommended, that the operating personnel discharge themselves prior to touching communication connectors or perform other suitable measures to reduce effects of electrostatic discharges.
ESD with connectors of Terminal Bases	The connectors between the Terminal Bases and CPUs or Communication Modules must not be touched during operation. The same is valid for the I/O-Bus with all modules involved.
Immunity	
Against the influence of radiated (CW radiated)	According to EN 61000-4-3, zone B, criterion A
Test field strength	10 V/m
Immunity	
Against transient interference voltages (burst)	According to EN 61000-4-4, zone B, criterion B
Supply voltage units (AC, DC)	4 kV
Digital inputs/outputs (24 V DC)	2 kV
Digital inputs/outputs (120/230 V AC)	2 kV
Analog inputs/outputs	1 kV
CS31 system bus	2 kV
Serial RS-485 interfaces (COM)	2 kV
Serial RS-232 interfaces (COM, not for PM55x and PM56x)	1 kV
ARCNET	1 kV
FBP	1 kV
Ethernet	1 kV
I/O supply, DC-out	1 kV
Immunity	
Against the influence of line-conducted interferences (CW conducted)	According to EN 61000-4-6, zone B, criterion A
Test voltage	3 V zone B, 10 V is also met.
High energy surges	According to EN 61000-4-5, zone B, criterion B
Power supply AC	2 kV CM* / 1 kV DM*
Power supply DC	1 kV CM* / 0.5 kV DM*
DC I/O supply, add. DC-supply-out	0.5 kV CM* / 0.5 kV DM*
Buses, shielded	1 kV CM*
AC-I/O unshielded	2 kV CM* / 1 kV DM*
I/O analog, I/O DC unshielded	1kV CM* / 0.5 kV DM*
Radiation (radio disturbance)	According to EN 55011, group 1, class A

[1] High requirement for shipping classes are achieved with additional specific measures (see specific documentation)

* CM = Common Mode - DM = Differential Mode

Mechanical Data

Wiring method / terminals	
Mounting	Horizontal
Degree of protection	IP 20
Housing	According to UL 94
Vibration resistance acc. to EN 61131-2	all three axes (DIN rail mounting) 5 Hz ... 11.9 Hz, continuous 3.5 mm 11.9 Hz ... 150 Hz, continuous 1 g
Vibration resistance with SD Memory Card inserted	15 Hz...150 Hz, continuous 1 g
Shock resistance	All three axes 15 g, 11 ms, half-sinusoidal PM55x and PM56x on request
Shipping specific requirements	
Mounting of the modules	
DIN rail according to DIN EN 50022	35 mm, depth 7.5 mm or 15 mm
Mounting with screws	Screws with a diameter of 4 mm
Fastening torque	1.2 Nm

Scalable PLC AC500-XC

AC500-XC system data - XC products for Extreme Conditions

Operating and ambient conditions

Voltages according to EN 61131-2		
24 V DC	Process and supply voltage	24 V DC (-15 %, +20 % without ripple)
	Absolute limits	19.2 V...30 V inclusive ripple
	Ripple	< 5 %
	Protection against reverse polarity	10 s
Allowed interruptions of power supply acc. to EN 61131-2	DC supply	Interruption < 10 ms, time between 2 interruptions > 1 s, PS2
Important: Exceeding the maximum power supply voltage (>30 V DC) for process or supply voltages could lead to unrecoverable damage of the system. The system could be destroyed.		
Temperature	Operating	-30 °C ... +60 °C (horizontal mounting of modules)*
		0 °C ... +40 °C (vertical mounting of modules and output load reduced to 50 % per group); no application in salt mist environment
		+60 °C ... +70 °C**
	Storage	-40 °C ... +85 °C
	Transport	-40 °C ... +85 °C
Storage		IEC 60068-2-1 Test Ab: cold withstand test -40 °C / 16 h IEC 60068-2-2 Test Bb: dry heat withstand test +85 °C / 16 h
Humidity	Max. 95 % with condensation	EN 60068-2-30 Test Db: Cyclic (12h / 12h) Damp-Heat Test 55 °C, 93 % / 25 °C, 95 %, 6 cycles EN 60068-2-3, Stationary Humidity Test: 40 °C, 93 % Rh, 240 h
Air pressure	Operating	> 620 hPa / < 4000 m***
	Storage	> 620 hPa / < 4000 m***
Immunity to corrosive gases	4 components hazard gas test:	Acc. ISA S71.04.1985 Harsh group A, G3/GX Acc. DIN EN 60721-3-3 3C2 / 3C3 Acc. DIN EN 60068-2-60 method 4
		H2S 100 ± 10 ppb NOx 1250 ± 20 ppb CL2 100 ± 10 ppb SO2/SO3 300 ± 10 ppb
	Temperature	25 ± 1 °C
	Humidity	75 ± 3 %
	Duration	21 days
Immunity to salt mist		DIN_EN_60068-2-52 (1996-10) Test Kb
	Severity	1
	Concentration NaCl	5 ± 1 %
	PH value (20 ± 2°C)	between 6.5 - 7.2
	Temperature during test	15 °C ... 35 °C
	Duration	28 days

* Below 0°C the display might not be readable. Below -25 °C the proper functionality of the SD Memory Card MC502 is not guaranteed
** Only 2 communication modules allowed
*** On request

Creepage distances and clearances

The creepage distances and clearances meet the requirements of the overvoltage category II, pollution degree 2

Insulation test voltages

The insulation test are performed according to EN 61131-2.

Power supply units

For the supply of the modules, power supply units according to PELV specifications must be used.

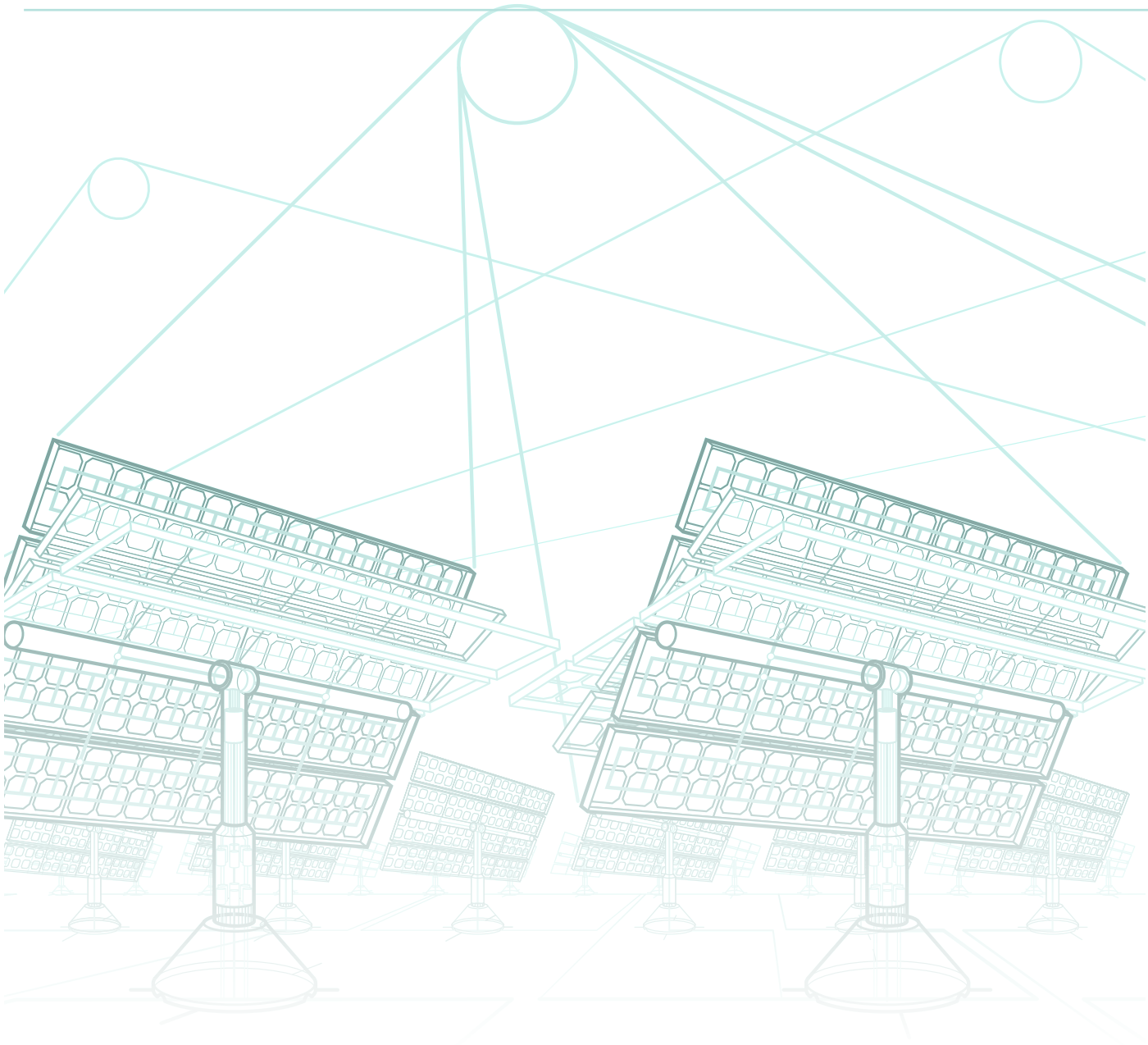
Electromagnetic Compatibility

Immunity (Extended immunity on request)	
Against electrostatic discharge (ESD)	According to EN 61000-4-2, zone B, criterion B
Electrostatic voltage in case of air discharge	8 kV
Electrostatic voltage in case of contact discharge	4 kV
with communication connectors	In order to prevent operating malfunctions, it is recommended, that the operating personnel discharge themselves prior to touching communication connectors or perform other suitable measures to reduce effects of electrostatic discharges.
with connectors of Terminal Bases	The connectors between the Terminal Bases and CPUs or Communication Modules must not be touched during operation. The same is valid for the I/O-Bus with all modules involved.
Against transient interference voltages (burst)	According to EN 61000-4-4, zone B, criterion B
Supply voltage units (AC, DC)	4 kV
Digital inputs/outputs (24 V DC)	2 kV
Digital inputs/outputs (120/230 V AC)	2 kV
Analog inputs/outputs	1 kV
CS31 system bus	2 kV
Serial RS-485 interfaces (COM)	2 kV
Serial RS-232 interfaces (COM)	1 kV
FBP	1 kV
Ethernet	1 kV
I/O supply, DC-out	1 kV
High energy surges	According to EN 61000-4-5, zone B, criterion B
Power supply DC	1 kV CM* / 0.5 kV DM*
DC I/O supply	0.5 kV CM* / 0.5 kV DM*
Buses, shielded	1 kV CM*
AC-I/O	2 kV CM* / 1 kV DM*
I/O analog, I/O DC unshielded	1 kV CM* / 0.5 kV DM*
Against the influence of radiated disturbances (CW radiated)	According to EN 61000-4-3, zone B, criterion A
Test field strength	10 V/m
Against the influence of line-conducted interferences (CW conducted)	According to EN 61000-4-6, zone B, criterion A
Test voltage	3 V zone B, 10 V is also met
Radiation (radio disturbance)	According to EN 55011, group 1, class A

* CM = Common Mode - DM = Differential Mode

Mechanical Data

Wiring method / terminals	
Mounting	Horizontal
Degree of protection	IP 20
Housing	According to UL 94
Vibration resistance acc. to EN 61131-2	2 g, 5 Hz ... 500 Hz
Vibration resistance acc. to IEC 68-2-64-B.6	5 Hz ... 500 Hz, 4 g rms, 1.5 h / axis (survival only)
Vibration resistance acc. to IEC 68-2-64	5 Hz ... 500 Hz, 1.9 g rms, 1.5h / axis
Vibration resistance with SD Memory Card inserted	15 Hz ... 150 Hz, continuous 2 g
Shock resistance	All three axes 15 g, 11 ms, half-sinusoidal
Shipping specific requirements	
	6 kV ESD contact
	Extended EMC
Mounting of the modules	
DIN rail according to DIN EN 50022	35 mm, depth 7.5 mm or 15 mm
Mounting with screws	Screws with a diameter of 4 mm
Fastening torque	1.2 Nm



Scalable PLC AC500
AC500 communication - CS31

CS31 functionality	AC500 CPU with integrated CS31 interface	S500 I/O with communication interface DC551-CS31 CI590-CS31-HA CI592-CS31
Version available for Extreme Conditions	No	
Master	Yes, at COM1	–
Slave	No	Yes / Redundant for CI590-CS31-HA
Protocols supported	ABB CS31 protocol	
Diagnosis		
Error indication	On LCD display of the CPU / AC500-eCo Error LED	Via module LEDs
Online diagnosis	Yes	
Error code	Errors are recorded in the diagnosis system of the CPU	
Associated function blocks	Yes	
Physical layer	RS485 / 2 x RS485 for CI590-CS31-HA for redundancy	
Connection	Plug at COM1	Screw-type or spring-type terminals
Baud rate	187.5 kbit/s	
Distance	AC500-eCo: up to 50 m / AC500: up to 500 m; up to 2000 m using a repeater	
Max. number of modules on fieldbus	31 modules max. Please note: The DC551 bus interface occupies one or two module addresses (if counters are configured onboard or if the module is a mixed digital analog module). Depending on the configuration, or if the module contains also mixed digital analog I/O, connected extension modules can occupy further module addresses.	
Configuration	Using configuration tool (part of the programming software)	
Station address configuration	No	Using rotary switches (99 max.)

Scalable PLC AC500
Ordering data

PM554

PM564-T-ETH

PM582

PM590

PM592

AC500-eCo CPUs

- 1 internal serial interface, RS485 (2nd is optional)
- Centrally expandable with up to 10 I/O modules (S500 and/or S500-eCo modules allowed). 10 I/O modules with CPU firmware version V2.06 or above)
- Optional SD card adapter for data storage and program backup
- Variants with integrated Ethernet
- Minimum cycle time per instruction: Bit 0.08 µs, Word 0.1 µs, Float-point 1.2 µs

Type	Program memory	Onboard I/Os DI/DO/ AI/AO	Relay/ Transistor outputs	Integrated communication	Power supply	Order code	Price	Weight per piece kg	SPU*
PM554-T	128 kB	8 / 6 / – / –	Transistor	–	24 V DC	**1TNE 968 900 R0100**		0.300	1
PM554-R	128 kB	8 / 6 / – / –	Relay	–	24 V DC	**1TNE 968 900 R0200**		0.350	1
PM554-R-AC	128 kB	8 / 6 / – / –	Relay	–	100-240 V AC	**1TNE 968 900 R0220**		0.400	1
PM554-T-ETH	128 kB	8 / 6 / – / –	Transistor	Ethernet	24 V DC	**1TNE 968 900 R0110**		0.300	1
PM564-T**	128 kB	6 / 6 / 2 / 1	Transistor	–	24 V DC	**1TNE 968 900 R1100**		0.300	1
PM564-R**	128 kB	6 / 6 / 2 / 1	Relay	–	24 V DC	**1TNE 968 900 R1200**		0.350	1
PM564-R-AC**	128 kB	6 / 6 / 2 / 1	Relay	–	100-240 V AC	**1TNE 968 900 R1220**		0.350	1
PM564-T-ETH**	128 kB	6 / 6 / 2 / 1	Transistor	Ethernet	24 V DC	**1TNE 968 900 R1110**		0.300	1
PM564-R-ETH**	128 kB	6 / 6 / 2 / 1	Relay	Ethernet	24 V DC	**1TNE 968 900 R1210**		0.350	1
PM564-R-ETH-AC**	128 kB	6 / 6 / 2 / 1	Relay	Ethernet	100-240 V AC	**1TNE 968 900 R1211**		0.400	1

*SPU: Sales Package Unit
**All analog inputs on AC500 CPU PM564 can be configured as digital inputs.

AC500 CPUs

- 2 internal serial interfaces, RS232/RS485 configurable
- Display and 8 function keys for diagnosis and status
- Centrally expandable with up to 10 I/O modules (S500 and/or S500-eCo modules allowed)
- Simultaneous operation of up to 4 external communication modules in any desired combination
- Optional SD card for data storage and program backup
- Can also be used as slave on PROFIBUS DP, DeviceNet or CANopen via FieldBusPlug, CANopen also using CM588 slave coupler
- Onboard 2nd version provides web server and IEC 60 870-5-104 remote control protocol.

Type	Program memory	Cycle time in µs per instruction min. Bit/Word/Float. point	Integrated communication	Order code	Price	Weight per piece kg	SPU*
PM572	128 kB	0.06/0.09/0.7	–	**1SAP 130 200 R0200**		0.135	1
PM573-ETH [1]	512 kB	0.06/0.09/0.7	Ethernet [2]	**1SAP 130 300 R0271**		0.150	1
Product for Extreme Conditions							
PM573-ETH-XC [1]	512 kB	0.06/0.09/0.7	Ethernet [2]	**1SAP 330 300 R0271**		0.150	1
PM582	512 kB	0.05/0.06/0.5	–	**1SAP 140 200 R0201**		0.135	1
PM583-ETH [1]	1024 kB	0.05/0.06/0.5	Ethernet [2]	**1SAP 140 300 R0271**		0.150	1
Product for Extreme Conditions							
PM582-XC	512 kB	0.05/0.06/0.5	-	**1SAP 340 200 R0201**		0.135	1
PM583-ETH-XC [1]	1024 kB	0.05/0.06/0.5	Ethernet [2]	**1SAP 340 300 R0271**		0.150	1
PM590-ETH [1]	2048 kB	0.002/0.004/0.004	Ethernet [2]	**1SAP 150 000 R0271**		0.150	1
PM591-ETH [1]	4096 kB	0.002/0.004/0.004	Ethernet [2]	**1SAP 150 100 R0271**		0.150	1
PM592-ETH [1]	4096 kB	0.002/0.004/0.004	Ethernet [2]	**1SAP 150 200 R0271**		0.150	1
Products for Extreme Conditions							
PM591-ETH-XC [1]	4096 kB	0.002/0.004/0.004	Ethernet [2]	**1SAP 350 100 R0271**		0.150	1
PM592-ETH-XC [1][3]	4096 kB	0.002/0.004/0.004	Ethernet [2]	**1SAP 350 200 R0271**		0.150	1

[1] Onboard Ethernet communication. - [2] Provides integrated web server and IEC 60 870-5-104 remote control protocol.
[3] Provides integrated 4GB Flashdisk for User Data Storage
*SPU: Sales Package Unit

Scalable PLC AC500
Ordering data

TB511

CM572-DP

CM575-DN

CM577

Terminal base

– For mounting and connection of the CPUs and communication modules
– 1 to 4 plug-in communication modules
– Connection for communication coupler integrated in the CPU
– I/O interface for direct connection of up to 10 expansion modules
– Fieldbus-neutral FieldBusPlug-Slave interface
– Connection COM1: 9-pole pluggable terminal block
– Connection COM2: 9-pole SUB-D (socket)

Type	Number of coupler slots	Connection for coupler integrated in the CPU	Order code	Price	Weight per piece kg	SPU*
TB511-ETH	1	Ethernet RJ45	**1SAP 111 100 R0270**		0.215	1
TB521-ETH	2	Ethernet RJ45	**1SAP 112 100 R0270**		0.215	1
TB541-ETH	4	Ethernet RJ45	**1SAP 114 100 R0270**		0.215	1
Product for Extreme Conditions						
TB511-ETH-XC	1	Ethernet RJ45	**1SAP 311 100 R0270**		0.215	1
TB521-ETH-XC	2	Ethernet RJ45	**1SAP 312 100 R0270**		0.215	1
TB421-ETH-XC	4	Ethernet RJ45	**1SAP 314 100 R0270**		0.215	1

*SPU: Sales Package Unit

⚠ These TBs are compatible with previous AC500 CPU versions (R01xx) and new ones (R02xx).

PROFIBUS DP communication module

For PROFIBUS DP master V0/V1. Multi master functionality
Transfer rate: 9.6 kbit/s up to 12 Mbit/s
Max. no. of subscribers: 126 (V0) or 32 (V1)
CPU interface: 8 kB dual-port memory
Contains a separate communication processor and 256 kB RAM memory
No external power supply required

Type	Interface	Order code	Price	Weight per piece kg	SPU*
CM572-DP	Sub-D socket	**1SAP 170 200 R0001**		0.115	1
Product for Extreme Conditions					
CM572-DP-XC	Sub-D socket	**1SAP 370 200 R0001**		0.135	1

DeviceNet communication module

For DeviceNet master
Transfer rate: 125 kbit/s, 250 kbit/s, 500 kbit/s
CPU interface: 8 kB dual-port memory
Contains a separate communication processor, 256 kB RAM memory and 512 kB flash memory
No external power supply required

Type	Interface	Order code	Price	Weight per piece kg	SPU*
CM575-DN	Plug-in terminal block, spring-type terminals	**1SAP 170 500 R0001**		0.115	1

Ethernet communication module

10/100 Mbit/s, full/half duplex with auto-sensing. 2-port switch integrated.
Transport protocols TCP/IP, UDP/IP, Modbus TCP.
CPU interface: 8 kB dual-port memory.
Contains a separate communication processor, 256 kB RAM memory and 512 kB flash memory.
No external power supply required.

Type	Protocol	Interfaces	Order code	Price	Weight per piece kg	SPU*
CM577-ETH	TCP/IP, UDP/IP, Modbus TCP	2 X RJ45	**1SAP 170 700 R0001**		0.115	1
Product for Extreme Conditions						
CM577-ETH-XC	TCP/IP, UDP/IP, Modbus TCP	2 x RJ45	**1SAP 370 700 R0001**		0.115	1

Scalable PLC AC500
Ordering data

CM578-CN

CANopen communication module

For CANopen master
Transfer rate: 10 kbit/s up to 1 Mbit/s
CPU interface: 8 kB dual-port memory
Contains a separate communication processor, 256 kB RAM memory and 512 kB flash memory
No external power supply required

Type	Interface	Order code	Price	Weight per piece kg	SPU*
CM578-CN	Plug-in terminal block, spring type terminals	**1SAP 170 800 R0001**		0.115	1
Product for Extreme Conditions					
CM578-CN-XC	Plug-in 5 poles terminal block, spring type terminals	**1SAP 370 800 R0001**		0.115	1

CM588-CN

For CANopen slave communication
Transfer rate: 10 kbit/s up to 1 Mbit/s
CPU interface: 8 kB dual-port memory
Contains a separate communication processor, 256 kB RAM memory and 512 kB flash memory.
No external power supply required.

Type	Interface	Order code	Price	Weight per piece kg	SPU*
CM588-CN	Plug-in 2x5 poles terminal block, spring type terminals	**1SAP 172 800 R0001**		0.115	1
Product for Extreme Conditions					
CM588-CN-XC	Plug-in 5 poles terminal block, spring type terminals	**1SAP 372 800 R0001**		0.115	1

*SPU: Sales Package Unit

CM579-PNIO

PROFINET I/O RT master communication module

Controller protocol, integrated 2 ports switch.
Interface to the CPU using Dual Port Memory coupler bus,
Up to 4 communication modules can be used on an AC500 CPU.

Type	Interface	Order code	Price	Weight per piece kg	SPU*
CM579-PNIO	2 X RJ45	**1SAP 170 901 R0001**		0.115	1
Product for Extreme Conditions					
CM579-PNIO-XC	2x RJ45 with integrated switch	**1SAP 370 901 R0001**		0.115	1

ETHERCAT master protocol communication module

Interface to the CPU using Dual Port Memory coupler bus,
Up to 4 communication modules can be used on an AC500 CPU.

Type	Interface	Order code	Price	Weight per piece kg	SPU*
CM579-ETHCAT	2 X RJ45	**1SAP 170 902 R0001**		0.115	1

CM574-RS

Serial communication module and CPU coprocessor

Stand alone CPU in coupler module housing allowing to be used as standard serial interface or as free programmable serial interface coupler. 2x serial RS-232/485 interfaces COM1 / COM2
CPU interface: dual-port memory
Program memory: 256 kB / Data memory 384 KB not saved
Protocols ASCII / free configurable / 2xCS31 master COM1/COM2 / 2x Modbus Master/Slave, independent internal CPU which can be programmed by the PS501 for own communication protocol or data processing. Interface to the CPU using Dual Port Memory coupler bus. Connection with 2x 9 pole pluggable spring terminals. Up to 4 communication modules can be used on an AC500 CPU.

Type	Interface	Order code	Price	Weight per piece kg	SPU*
CM574-RS	Serial 2x RS-232/485	**1SAP 170 400 R0201**		0.115	1

Scalable PLC AC500
Ordering data

CM574-RCOM

Serial protocol RCOM communication module

2x serial RS-232/485 interfaces with 1x RCOM / 1x Console,
Interface to the CPU using Dual Port Memory coupler bus.
Connection with 2x 9 pole pluggable spring terminals.
Up to 4 communication modules can be used on an AC500 CPU.

Type	Interface	Order code	Price	Weight per piece kg	SPU*
CM574-RCOM	Serial 2x RS-232/485 (1x RCOM / 1x Console)	**1SAP 170 401 R0201**		0.115	1

*SPU: Sales Package Unit

All communication modules are to be inserted in a slot of terminal base TB5xx. The terminal base is a separate product and mandatory for the CPU modules PM57x/58x/59x.

DO572

Digital input/output modules

- For central expansion of the AC500 or AC500-eCo CPUs
- For decentralized expansion in combination with interface module DC551-CS31, PROFINET CI50x modules, or DC505-FBP for S500 I/Os
- DC: Channels can be configured individually as inputs or outputs
- S500-eCo digital I/O modules
- Not usable with DC505-FBP module
- Usable with all CI5xx modules except CI590-CS31-HA.

Type	Number of DI/DO/DC	Input signal	Output type	Output signal	Order code	Terminal block 9 poles	Terminal block 11 poles	Price	SPU**
DI561	8 / – / –	24 V DC	–	–	**1TNE 968 902 R2101**	1	–		1
DI562	16 / – / –	24 V DC	–	–	**1TNE 968 902 R2102**	1	1		1
DI571	8 / – / –	100-240 V AC	–	–	**1TNE 968 902 R2103**	1	1		1
DO561	– / 8 / –	24 V DC	Transistor	24 V DC, 0.5 A	**1TNE 968 902 R2201**	–	1		1
DO571	– / 8 / –	–	Relay	24 V DC, 120/ 240 V AC, 2 A	**1TNE 968 902 R2202**	–	1		1
DO572	– / 8 / –	–	Triac	100-240 V AC, 0.3 A	**1TNE 968 902 R2203**	1	1		1
DX561	8 / 8/ –	24 V DC	Transistor	24 V DC, 0.5 A	**1TNE 968 902 R2301**	1	1		1
DX571	8 / 8/ –	24 V DC	Relay	24 V DC, 120/ 240 V AC, 2 A	**1TNE 968 902 R2302**	1	1		1
DC561	– / – / 16	24 V DC	Transistor	24 V DC, 0.1A	**1TNE 968 902 R2001**	HE10-20	–		1

Terminal block (9 or 11 poles) is necessary for each S500-eCo I/O. They are delivered separately. See page 50.

DC532

- S500 digital input modules
- Plug-in electronic modules, terminal unit required (refer to table below)
- Usable with DC505-FBP and all CI5xx modules

Type	Number of DI/DO/DC	Input signal	Output type	Output signal	Order code	Price	Weight per piece kg	SPU**
DI524	32/–/–	24 V DC	–	–	**1SAP 240 000 R0001**		0.200	1
DC522	–/–/16	24 V DC	Transistor	24 V DC, 0.5 A	**1SAP 240 600 R0001**		0.200	1
DC523	–/–/24	24 V DC	Transistor	24 V DC, 0.5 A	**1SAP 240 500 R0001**		0.200	1
DC532	16/–/16	24 V DC	Transistor	24 V DC, 0.5 A	**1SAP 240 100 R0001**		0.200	1
DX522	8/8/–	24 V DC	Relay	230 V AC, 3 A[1)]	**1SAP 245 200 R0001**		0.300	1
DX531	8/4/–	230 V AC	Relay	230 V AC, 3 A[1)]	**1SAP 245 000 R0001**		0.300	1
Product for Extreme Conditions								
DI524-XC	32/-/-	24VDC	-	-	**1SAP 440 000 R0001**		0.200	1
DC522-XC	-/-/16	24VDC	Transistor	24 V DC, 0.5 A	**1SAP 440 600 R0001**		0.200	1
DC523-XC	-/-/24	24VDC	Transistor	24 V DC, 0.5 A	**1SAP 440 500 R0001**		0.200	1
DC532-XC	16/-/16	24VDC	Transistor	24 V DC, 0.5 A	**1SAP 440 100 R0001**		0.200	1
DX522-XC	8/8/-	24VDC	Relay	230 V AC, 3 A[1)]	**1SAP 445 200 R0001**		0.200	1

[1)] Relay outputs, changeover contacts

DI524

Type	Scope of delivery	Order code	Price	Weight per piece kg	SPU**
CD522	CD522, encoder & PWM module, 2 encoder inputs, 2 PWM outputs, 2 digital inputs 24 V DC, 8 digital configurable inputs/ outputs 24 V DC	**1SAP 260 300 R0001**		0.125	1
Product for Extreme Conditions					
CD522-XC	CD522, encoder & PWM module, 2 encoder inputs, 2 PWM outputs, 2 digital inputs 24 V DC, 8 digital outputs 24 V DC	**1SAP 460 300 R0001**		0.125	1

AI561

AI562

AI531

– DC541 occupies one communication module slot on the AC500 CPU terminal base, no terminal block required
– Not usable with DC505-FBP or all CI5xx modules

Type	Number of DI/DO/DC	Input signal	Output type	Output signal	Order code	Price	Weight per piece kg	SPU**
DC541-CM[2)]	–/–/8	24 V DC	Transistor	24 V DC, 0.5 A	**1SAP 270 000 R0001**		0.100	1
Product for Extreme Conditions								
DC541-CM-XC[2)]	-/-/8	24V DC	Transistor	24 V DC, 0.5 A	**1SAP 470 000 R0001**		0.200	1

[2)] Multifunctional module, refer to table on page 32 for details.

Analog input/output modules

– For central expansion of the AC500 or AC500-eCo CPUs
– For decentralized expansion in combination with communication interface module DC551-CS31, PROFINET CI50x, Fieldbus CI5xx or DC505-FBP (no eCo I/O allowed) for S500 I/Os
– Each channel can be configured individually
– Resolution: 12 bits + sign (AI531: 15 bits + sign) (AI561, AO561, AX561: 12 bits/11 bits + sign) (AI562, AI563: 15 bits + sign)
– S500-eCo analog I/O modules
– Not usable with DC505-FBP and CI550-CS31-HA
– Usable with all other CI5xx modules

Type	Number of AI/AO	Input-signal	Output-signal	Order code	Terminal block 9 poles	Terminal block 11 poles	Price	SPU**
AI561	4 / 0	±2.5 V, ±5 V, 0...5 V, 0...10 V, 0...20 mA, 4...20 mA	–	**1TNE 968 902 R1101**	1	1		1
AI562	2 / 0	PT100, PT1000, Ni100, Ni1000, Resistance: 150 Ω, 300 Ω	–	**1TNE 968 902 R1102**	–	1		1
AI563	4 / 0	S, T, R, E, N, K, J, Voltage range : ±80 mV	–	**1TNE 968 902 R1103**	1	1		1
AO561	0 / 2	–	-10...+10 V, 0...20 mA, 4...20 mA	**1TNE 968 902 R1201**	–	1		1
AX561	4 / 2	±2.5 V, ±5 V, 0...5 V, 0...10 V, 0...20 mA, 4...20 mA	-10...+10 V, 0...20 mA, 4...20 mA	**1TNE 968 902 R1301**	1	1		1

Terminal block (9 or 11 poles) is necessary for each S500-eCo I/O. They are delivered separately. See page 50.

– S500 analog I/O modules
– Plug-in electronic modules, terminal unit required (refer to table below)
– Usable with DC505-FBP and all CI5xx modules

Type	Number of AI/AO	Input signal	Output signal	Order code	Price*	Weight per piece kg	SPU**
AI523	16 / 0	0 ... 10 V, ± 10 V 0 /4 ... 20 mA, PT100, PT1000, Ni1000	–	**1SAP 250 300 R0001**		0.200	1
AX521	4 / 4		± 10 V 0 /4 ... 20 mA	**1SAP 250 100 R0001**		0.200	1
AX522	8 / 8 (max. 4 current outputs)			**1SAP 250 000 R0001**		0.200	1
AO523	0 / 16 (max. 8 current outputs)	–		**1SAP 250 200 R0001**		0.200	1
AI531	8 / 0	0…5 V, 0…10 V, ±50 mV, ±500 mV, 1 V, ±5 V, ±10 V 0/4…20 mA, ± 20 mA PT100, PT1000, Ni1000, Cu50, 0…50 kΩ S, T, N, K, J	–	**1SAP 250 600 R0001**		0.200	1
Product for Extreme Conditions							
AI523-XC	16 / 0	0…10 V, ±10 V 0/4…20 mA PT100, PT1000, Ni1000	– ±10 V, 0/4…20 mA	**1SAP 450 300 R0001**		0.200	1
AX521-XC	4 / 4			**1SAP 450 100 R0001**		0.200	1
AX522-XC	8 / 8 (max. 4 current outputs)			**1SAP 450 000 R0001**		0.200	1
AO523-XC	0 / 16 (max. 8 current outputs)	-		**1SAP 450 200 R0001**		0.200	1
AI531-XC	8 / 0	0…5 V, 0…10 V, ±50 mV, ±500 mV, 1 V, ±5 V, ±10 V, 0/4…20 mA, ± 20 mA PT100, PT1000, Ni1000, Cu50, 0…50 kΩ S, T, N, K, J	–	**1SAP 450 600 R0001**		0.200	1

**SPU: Sales Package Unit

Scalable PLC AC500
Ordering data

DA501

TU508-ETH

TU515

TU516

TU520-ETH

TU532

TU551-CS31

TU552-CS31

Analog/digital mixed I/O module

Standard I/O module with high functionality: 16 digital input channels 24 V DC with configurable input filter time, 8 configurable In/Output channels, DC as DI: 24 V DC, DC as DO: 24 V DC/0.5 A, input filter configurable from 0.1, 1, 8... 32 ms, first two inputs are also usable as high-speed counter (up to 50 kHz) together with AC500 CPU, CS31 or CI5xx communication interface. 4 independent analog input channels configurable for voltage (0...10 V, ±10 V), current (0/4... 20 mA), 12 bit + sign, 1-2 wire connection, 24 V DC process supply voltage. Galvanic isolation per module. Usable with DC505-FBP and all CI5xx modules.

Type	Number of AI/AO/DI/ DO/DC	Input signal	Output type	Output signal	Order code	Price*	Weight per piece kg	SPU**
DA501	4/2/16/-/8	24 V DC / 0…10 V, -10…+10 V, 0…20 mA, 4…20 mA, PT100, PT1000, Ni100, Ni1000	Transistor	24 V DC, 0.5 A / -10…+10 V, 0…20 mA, 4…20 mA	**1SAP 250 700 R0001**		0.200	1
Product for Extreme Conditions								
DA501-XC	4/2/16/-/8	24 V DC, 0…10 V, ±10 V, 0/4…20 mA, PT100, PT1000, Ni100, Ni1000	Transistor	24 V DC, 0.5 A / ±10 V, 0/4…20 mA	**1SAP 450 700 R0001**		0.200	1

Terminal units

For digital and analog expansion modules and interface modules. Please note: for modules with relay outputs, terminal units for 230 V AC (TU531/TU532) are required! For the module-terminal unit assignments, please consult the table.

	For I/O modules				For communication interface modules										
	TU515 / TU516	TU531 / TU532	TU516-XC	TU532-XC	TU505-FBP / TU506-FBP	TU507-ETH / TU508-ETH	TU510	TU518	TU520-ETH	TU551-CS31 / TU552-CS31	TU508-ETH-XC	TU510-XC	TU518-XC	TU520-ETH-XC	TU552-CS31-XC
DA501	•														
DC522	•														
DC523	•														
DC532	•														
DI524	•														
DX522		•													
DX531		•													
CD522	•														
AI523	•														
AI531	•														
AO523	•														
AX521	•														
AX522	•														
DA501-XC			•												
DC522-XC			•												
DC523-XC			•												
DC532-XC			•												
DI524-XC			•												
DX522-XC				•											
CD522-XC			•												
AI523-XC			•												
AI531-XC			•												
AO523-XC			•												
AX521-XC			•												
AX522-XC			•												
DC505-FBP					•										
DC551-CS31										•					
CI590-CS31-HA										•					
CI592-CS31										•					
CI501-PNIO						•									
CI502-PNIO						•									
CI504-PNIO									•						
CI506-PNIO									•						
CI511-ETHCAT						•									
CI512-ETHCAT						•									
CI541-DP							•								
CI542-DP							•								
CI581-CN								•							
CI582-CN								•							
DC551-CS31-XC															
CI590-CS31-HA-XC															•
CI592-CS31-XC															•
CI501-PNIO-XC											•				•
CI502-PNIO-XC											•				
CI504-PNIO-XC														•	
CI506-PNIO-XC														•	
CI541-DP-XC												•			
CI542-DP-XC												•			
CI581-CN-XC													•		
CI582-CN-XC													•		

Scalable PLC AC500
Ordering data

TU505-FBP

TU531

L44470901501

L44471101501

L44460901501

L44461101501

Type	For	Supply	Connection type	Order code	Price*	Weight per piece kg	SPU**
TU505-FBP	FBP interface modules		Screw-type terminals	**1SAP 210 200 R0001**		0.300	1
TU506-FBP	FBP interface modules		Spring-type terminals	**1SAP 210 000 R0001**		0.300	1
TU507-ETH	Ethernet interface modules	24 V DC	Screw-type terminals	**1SAP 214 200 R0001**		0.300	1
TU508-ETH	Ethernet interface modules	24 V DC	Spring-type terminals	**1SAP 214 000 R0001**		0.300	1
TU510	PROFIBUS interface modules	24 V DC	Spring-type terminals	**1SAP 210 800 R0001**		0.300	1
TU515	I/O modules	24 V DC	Screw-type terminals	**1SAP 212 200 R0001**		0.300	1
TU516	I/O modules	24 V DC	Spring-type terminals	**1SAP 212 000 R0001**		0.300	1
TU518	CANopen interface modules	24 V DC	Spring-type terminals	**1SAP 211 200 R0001**		0.300	1
TU520-ETH	Ethernet gateway modules	24 V DC	Spring-type terminals	**1SAP 241 400 R0001**		0.300	1
TU531	I/O modules AC / relay	230 V AC	Screw-type terminals	**1SAP 217 200 R0001**		0.300	1
TU532	I/O modules AC / relay	230 V AC	Spring-type terminals	**1SAP 217 000 R0001**		0.300	1
TU551-CS31	CS31 interface modules	24 V DC	Screw-type terminals	**1SAP 210 600 R0001**		0.300	1
TU552-CS31	CS31 interface modules	24 V DC	Spring-type terminals	**1SAP 210 400 R0001**		0.300	1
Product for Extreme Conditions							
TU508-ETH-XC	Ethernet interface modules	24 V DC	Spring-type terminals	**1SAP 414 000 R0001**		0.300	1
TU510-XC* **	PROFIBUS interface modules	24 V DC	Spring-type terminals	**1SAP 410 800 R0001**		0.300	1
TU516-XC	I/O modules	24 V DC	Spring-type terminals	**1SAP 412 000 R0001**		0.300	1
TU518-XC* **	CANopen interface modules	24 V DC	Spring-type terminals	**1SAP 411 200 R0001**		0.300	1
TU520-ETH-XC	Ethernet gateway modules	24 V DC	Spring-type terminals	**1SAP 414 400 R0001**		0.300	1
TU532-XC	I/O modules AC / Relay	230 V AC	Spring-type terminals	**1SAP 417 000 R0001**		0.300	1
TU552-CS31-XC	CS31 interface modules	24 V DC	Spring-type terminals	**1SAP 410 400 R0001**		0.300	1

* Unit price is given by piece - **SPU: Sales Package Unit - *** In preparation

Terminal blocks for AC500-eCo

Type	Description	Order code	Price*	Weight per piece kg	SPU**
L44460901501	9 poles terminal block for S500 I/O eCo modules Screw Front / Cable Side	**1SSS 444 609 R1100**		0.017	6
L44461101501	11 poles terminal block for S500 I/O eCo modules Screw Front / Cable Side	**1SSS 444 611 R1100**		0.020	6
L44440901501	9 poles terminal block for S500 I/O eCo modules Screw Front / Cable Front	**1SSS 444 409 R1100**		0.026	6
L44441101501	11 poles terminal block for S500 I/O eCo modules Screw Front / Cable Front	**1SSS 444 411 R1100**		0.035	6
L44470901501	9 poles terminal block for S500 I/O eCo modules Spring Front / Cable Front	**1SSS 444 709 R1100**		0.016	6
L44471101501	11 poles terminal block for S500 I/O eCo modules Spring Front / Cable Front	**1SSS 444 711 R1100**		0.020	6

* Unit price is given by piece

Only ABB connectors must be used with AC500-eCo

Scalable PLC AC500
Ordering data

DC505-FBP

CI541-DP

CI582-CN

Communication interface modules

Type	Number of AI/AO/ DI/DO/DC	Input signal	Output-type	Output-signal	Order code	Price	Weight per piece kg	SPU**
Communication interface module for FieldBusPlug								
DC505-FBP	-/-/8/-/8	24 V DC	Transistor	24 V DC, 0.5 A	**1SAP 220 000 R0001**		0.200	1
Communication interface module for CS31-Bus								
DC551-CS31	-/-/8/-/16	24 V DC	Transistor	24 V DC, 0.5 A	**1SAP 220 500 R0001**		0.200	1
CI590-CS31-HA	-/-/-/-/16	24 V DC	Transistor	24 V DC, 0.5 A	**1SAP 221 100 R0001**		0.200	1
CI592-CS31	4/2/8/-/8	24 V DC / 0…10 V, -10…+10 V, 0…20 mA, 4…20 mA, PT100, PT1000, Ni100, Ni1000	Transistor	24 V DC, 0.5 A / -10…+10 V, 0…20 mA, 4…20 mA	**1SAP 221 200 R0001**		0.200	1
Communication interface module for Fieldbus or PROFIBUS-DP								
CI541-DP	4/2/8/8/-	24 V DC / 0...10 V, -10...+10 V, 0...20 mA, 4...20 mA, PT100, PT1000, Ni100, Ni1000	Transistor	24 V DC, 0.5 A / -10…+10 V, 0…20 mA, 4…20 mA"	**1SAP 224 100 R0001**		0.200	
CI542-DP	-/-/8/8/8	24 V DC	Transistor	24 V DC, 0.5 A	**1SAP 224 200 R0001**		0.200	
Communication interface module for CANopen								
CI581-CN	4/2/8/8/-	24 V DC / 0...10 V, -10...+10 V, 0...20 mA, 4...20 mA, PT100, PT1000, Ni100, Ni1000	Transistor	24 V DC, 0.5 A / -10…+10 V, 0…20 mA, 4…20 mA	**1SAP 228 100 R0001**		0.200	
CI582-CN	-/-/8/8/8	24 V DC	Transistor	24 V DC, 0.5 A	**1SAP 228 200 R0001**		0.200	
Product for Extreme Conditions								
Communication interface module for CS31-Bus								
DC551-CS31-XC	-/-/8/-/16	24 V DC	Transistor	24 V DC, 0.5 A	**1SAP 420 500 R0001**		0.200	
CI590-CS31-HA-XC	-/-/-/-/16	24 V DC	Transistor	24 V DC, 0.5 A	**1SAP 421 100 R0001**		0.200	
CI592-CS31-XC	4/2/8/-/8	24 V DC / 0...10 V, -10...+10 V, 0...20 mA, 4...20 mA, PT100, PT1000, Ni100, Ni1000	Transistor	24 V DC, 0.5 A / -10…+10 V, 0…20 mA, 4…20 mA	**1SAP 421 200 R0001**		0.200	
Communication interface module for Fieldbus or PROFIBUS-DP								
CI541-DP-XC	4/2/8/8/-	24 V DC / 0...10 V, -10...+10 V, 0...20 mA, 4...20 mA, PT100, PT1000, Ni100, Ni1000	Transistor	24 V DC, 0.5 A / -10…+10 V, 0…20 mA, 4…20 mA	**1SAP 424 100 R0001**		0.200	
CI542-DP-XC	-/-/8/8/8	24 V DC	Transistor	24 V DC, 0.5 A	**1SAP 424 200 R0001**		0.200	
Communication interface module for CANopen								
CI581-CN-XC	4/2/8/8/-	24 V DC / 0...10 V, -10...+10 V, 0...20 mA, 4...20 mA, PT100, PT1000, Ni100, Ni1000	Transistor	24 V DC, 0.5 A / -10…+10 V, 0…20 mA, 4…20 mA	**1SAP 428 100 R0001**		0.200	
CI582-CN-XC	-/-/8/8/8	24 V DC	Transistor	24 V DC, 0.5 A	**1SAP 428 200 R0001**		0.200	

* Please refer to the FieldBusPlug catalog for information about FBP. The currently available FBP Fieldbus plugs are listed in the catalog 2CDC 190 022 D0203.

Scalable PLC AC500
Ordering data


CI501-PNIO


CI502-PNIO


CI511-ETHCAT


CI512-ETHCAT


CI504-PNIO


CI506-PNIO

Communication interface modules

Type	Number of AI/AO/ DI/DO/DC	Input signal	Output-type	Output-signal	Order code	Price	Weight per piece kg	SPU**
Communication interface module for Ethernet based protocol - PROFINET I/O								
CI501-PNIO	4/2/8/8/-	24 V DC/0…10 V, -10…+10 V, 0…20 mA, 4…20 mA, PT100, PT1000, Ni100, Ni1000	Transistor	24 V DC, 0.5 A/ -10…+10 V, 0…20 mA, 4…20 mA	**1SAP 220 600 R0001**		0.200	1
CI502-PNIO	-/-/8/8/8	24 V DC	Transistor	24 V DC, 0.5 A	**1SAP 220 700 R0001**		0.200	1
Communication interface module for Ethernet based protocol - EtherCAT								
CI511-ETHCAT	4/2/8/8/-	24 V DC/0…10 V, -10…+10 V, 0…20 mA, 4…20 mA, PT100, PT1000, Ni100, Ni1000	Transistor	24 V DC, 0.5 A / -10…+10 V, 0…20 mA, 4…20 mA	**1SAP 220 900 R0001**		0.200	1
CI512-ETHCAT	-/-/8/8/8	24 V DC	Transistor	24 V DC, 0.5 A	**1SAP 221 000 R0001**		0.200	1
Product for Extreme Conditions								
Communication interface module for Ethernet based protocol - PROFINET I/O								
CI501-PNIO-XC	4/2/8/8/-	24 V DC / 0…10 V, -10…+10 V, 0…20 mA, 4…20 mA, PT100, PT1000, Ni100, Ni1000	Transistor	24 V DC, 0.5 A / -10…+10 V, 0…20 mA, 4…20 mA	**1SAP 420 600 R0001**		0.200	
CI502-PNIO-XC	-/-/8/8/8	24 V DC	Transistor	24 V DC, 0.5 A	**1SAP 420 700 R0001**		0.200	

**SPU: Sales Package Unit

Communication interface modules

Type	Gateway	From	To	Output-signal	Order code	Price	Weight per piece kg	SPU**
Communication interface module gateway on Ethernet based protocol - PROFINET I/O								
CI504-PNIO		PROFINET I/O	–	3x RS232/485 ASCII serial interfaces	**1SAP 221 300 R0001**		0.200	1
CI506-PNIO		PROFINET I/O	1x CAN 2A/2B or CANopen Master	2x RS232/485 ASCII serial interfaces	**1SAP 221 500 R0001**		0.200	1
Product for Extreme Conditions								
Communication interface module for Ethernet based protocols - PROFINET I/O or EtherCAT								
CI504-PNIO-XC		PROFINET I/O	–	3x RS232/485 ASCII serial interfaces	**1SAP 421 300 R0001**		0.200	
CI506-PNIO-XC		PROFINET I/O	1x CAN 2A/2B or CANopen Master	2x RS232/485 ASCII serial interfaces	**1SAP 421 500 R0001**		0.200	

**SPU: Sales Package Unit

Scalable PLC AC500
Ordering data


PS501 Control Builder Plus


TK506


TA561-RTC


TA562-RS-RTC


TA566


TA570

Programming software PS501 Control Builder Plus

For all AC500 CPUs, all programming languages including Continuous Function Chart according to IEC 61131-3

Contains: 6 programming languages, sampling - trace, debugging, offline simulation, integrated visualization, trace recording (multi-channel), recipe management

Languages: French, English, German, Chinese, Spanish

Scope of delivery: Software, libraries and documentation (PDF) on USB ROM

Type	For	Description	Order code	Price	Weight per piece kg	SPU**
PS501	all AC500 CPUs	Programming package PS501 Control Builder Plus	**1SAP 190 100 R0200**		0.300	1
PS541-HMI[1]		License for runtime visualization package, For installation and visualization of images created with the programming package PS501 Control Builder Plus. Delivery includes license code and documentation.	**1SAP 190 500 R0001**		0.300	1
PS542-WEB-PC[1)2)]		License enabling package for PC applet for Web server visualization. Delivery includes licence code and documentation	**1SAP 190 900 R0001**		0.300	1

[1)] This package allows granting the license for the software. To install the PC applet WEB server or HMI software, the PS501 Control Builder Plus should be purchased separately. - [2)] PS542-WEB-PC includes visualization package.

Motion Control library

Type	For	Description	Order code	Price	Weight per piece kg	SPU**
PS552-MC	all AC500 CPUs	Motion Control library single license	**1SAP192100R0001**		0.300	1
PS552-MC	all AC500 CPUs	Motion Control library multiple license	**1SAP192100R0101**		0.300	1

Drives library

Type	For	Description	Order code	Price	Weight per piece kg	SPU**
PS553-DRIVES	all AC500 CPUs	Drives library delivered on SD Card	**1SAP181900R0001**		0.020	1

Accessories for AC500-eCo

Type	Description	Order code	Price	Weight per piece kg	SPU**
MC502	SD Memory Card 512 MB needs the MC503 option	**1SAP 180 100 R0001**		0.020	1
MC503	SD Memory Card adapter	**1TNE 968 901 R0100**		0.100	1
TK503	Programming cable USB => RS485 SUB-D, 3 m	**1TNE 968 901 R1100**		0.400	1
TK504	Programming cable USB => RS485 Terminal block, 3 m	**1TNE 968 901 R2100**		0.400	1
TK506[4)]	AC500-eCo, RS485 isolator, D-Sub 9 poles/Terminal 5 poles for COM1 of the AC500-eCo CPU	**1SAP 186 100 R0001**		0.100	1
TA561-RTC[3)]	Real time clock option board, battery CR2032 not included	**1TNE 968 901 R3200**		0.100	1
TA562-RS	TA562-RS, RS485 serial adapter COM2 for CPU's PM554 and PM564, to be installed in right option slot of the CPU, pluggable screw terminal block included	**1TNE 968 901 R4300**		0.100	1
TA562-RS-RTC[3)]	TA562-RS-RTC, Combined Real Time Clock option with RS485 serial adapter COM2 for CPU's PM554 and PM564, to be installed in right option slot of the CPU, pluggable screw terminal block, battery CR2032 not included	**1SAP 181 500 R0001**		0.100	1
TA566	Wall Mounting Accessory for AC500 eCo CPU and S500 eCo I/O modules (100 pieces per case)	**1TNE 968 901 R3107**		0.200	1 case
TA570	Set of accessories: 6 x plastic cover for option slot, 6 x 5 pole terminal block for AC500 eCo, 6 x 5 pole screw terminal block for COM2 serial interface.	**1TNE 968 901 R3203**			1
TA571-SIM	Input simulator for onboard I/O of CPU PM55x and PM56x, 6 x switch, 24 V DC	**1TNE 968 903 R0203**		0.050	1

* Promotion CD means no licensed product
**SPU: Sales Package Unit
[3)] Standard battery CR 2032 has to be purchased separately
[4)] In preparation

Scalable PLC AC500
Ordering data

TK501

MC502

TA511-CASE

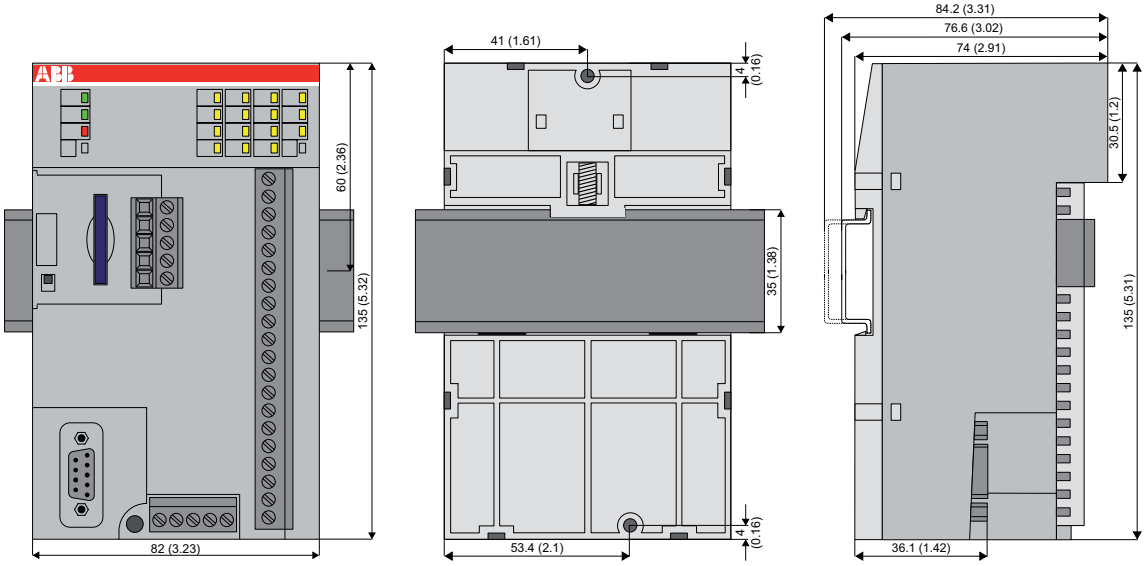
Accessories for AC500

Type	For	Description	Order code	Price	Weight per piece kg	SPU**
TK501	AC500 CPUs COM2	Programming cable Sub-D/Sub-D, length 5 m	**1SAP 180 200 R0001**		0.400	1
TK502	AC500 CPUs COM1	Programming cable Sub-D/terminal block, length 5 m	**1SAP 180 200 R0101**		0.400	1
UTF21-FBP	Cable for programming the AC500 via the integrated fieldbus neutral interface	Connection to PC via USB interface. Includes USB extension cable and installation CD.	**1SAJ 929 400 R0001**			1
MC502	AC500 CPUs	Memory card (SD card) 512 MB	**1SAP 180 100 R0001**		0.100	1
TA521	AC500 CPUs	Lithium battery for data buffering	**1SAP 180 300 R0001**		0.100	1
TA523	I/O modules	Pluggable marker holder for I/O modules, packing unit incl. 10 pcs	**1SAP 180 500 R0001**		0.300	1
TA524	Terminal base	Communication module, dummy housing	**1SAP 180 600 R0001**		0.120	1
TA525	I/O modules	White labels, packing unit incl. 10 pcs	**1SAP 180 700 R0001**		0.100	1
TA526	CPU terminal base	Accessories for mounting, packing unit incl. 10 pcs	**1SAP 180 800 R0001**		0.200	1
TA527	CPU terminal base	5-pole power plug for AC500. Spare part. Can be plugged to CPU terminal base TB5x1. Packing unit incl. 5 pcs	**1SAP 181 100 R0001**		0.200	1
TA528	CPU terminal base	9-pole COM1 plug for AC500. Spare part. Can be plugged to CPU terminal base TB5x1. Packing unit incl. 5 pcs	**1SAP 181 200 R0001**		0.200	1
TA511-CASE	AC500	AC500 basic training case with Ethernet CPUs, I/Os, FBP, PROFIBUS	**1SBP 260 082 R1001**		6.500	1

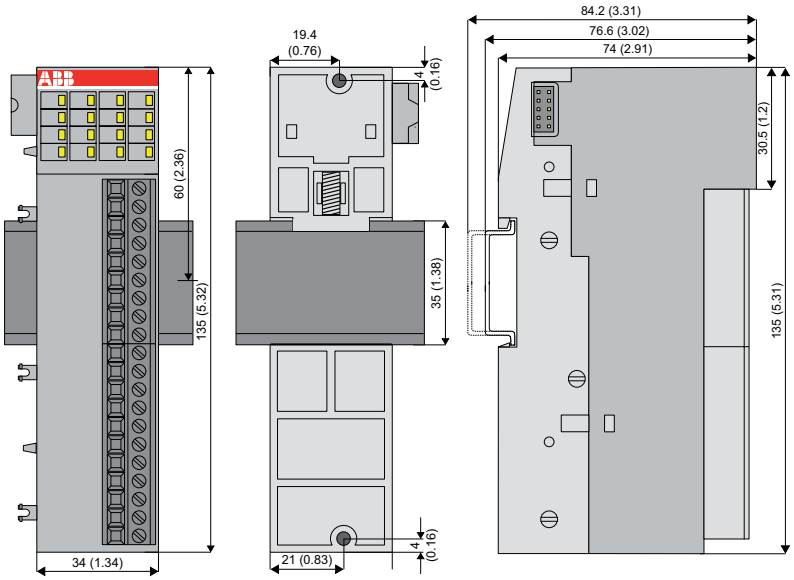
** SPU: Sales Package Unit

AC500-eCo scalable PLC
CPU, I/O expansion

Dimensions mm (inches)



CPU AC500-eCo

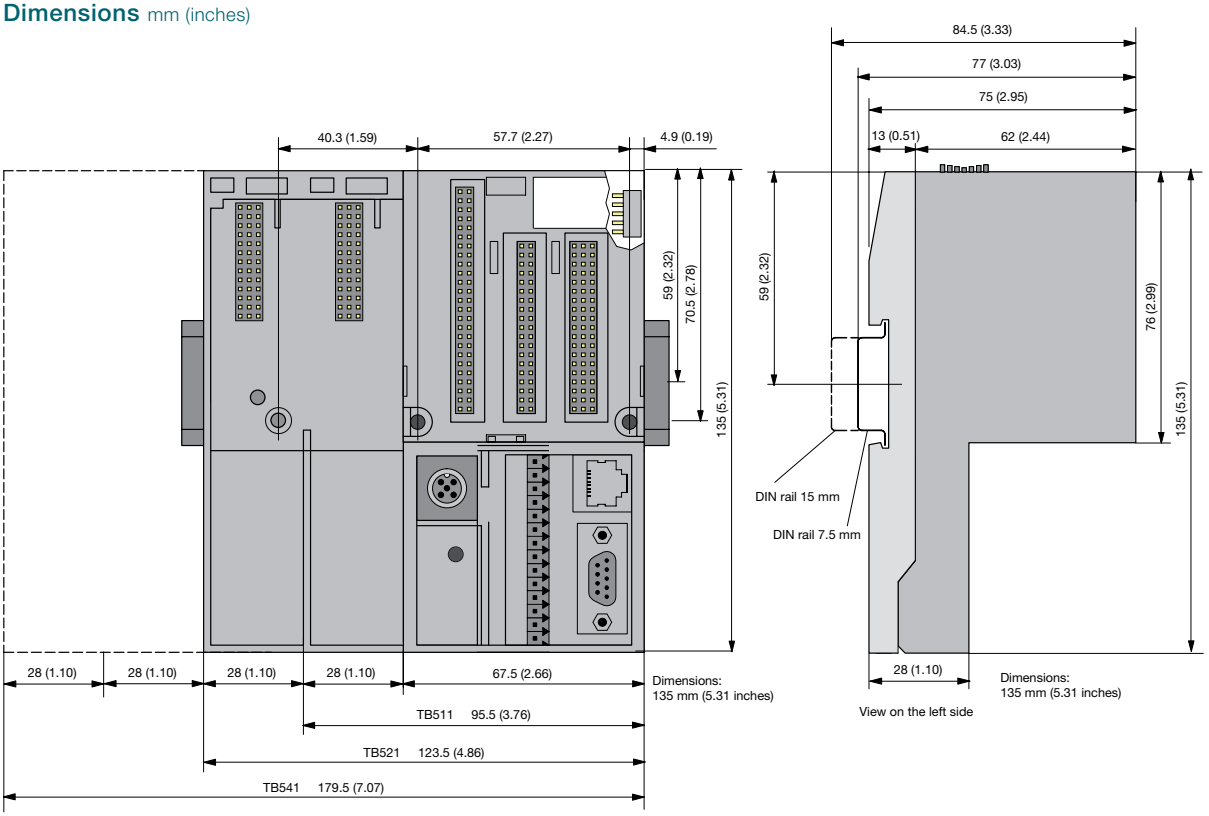


I/O expansion

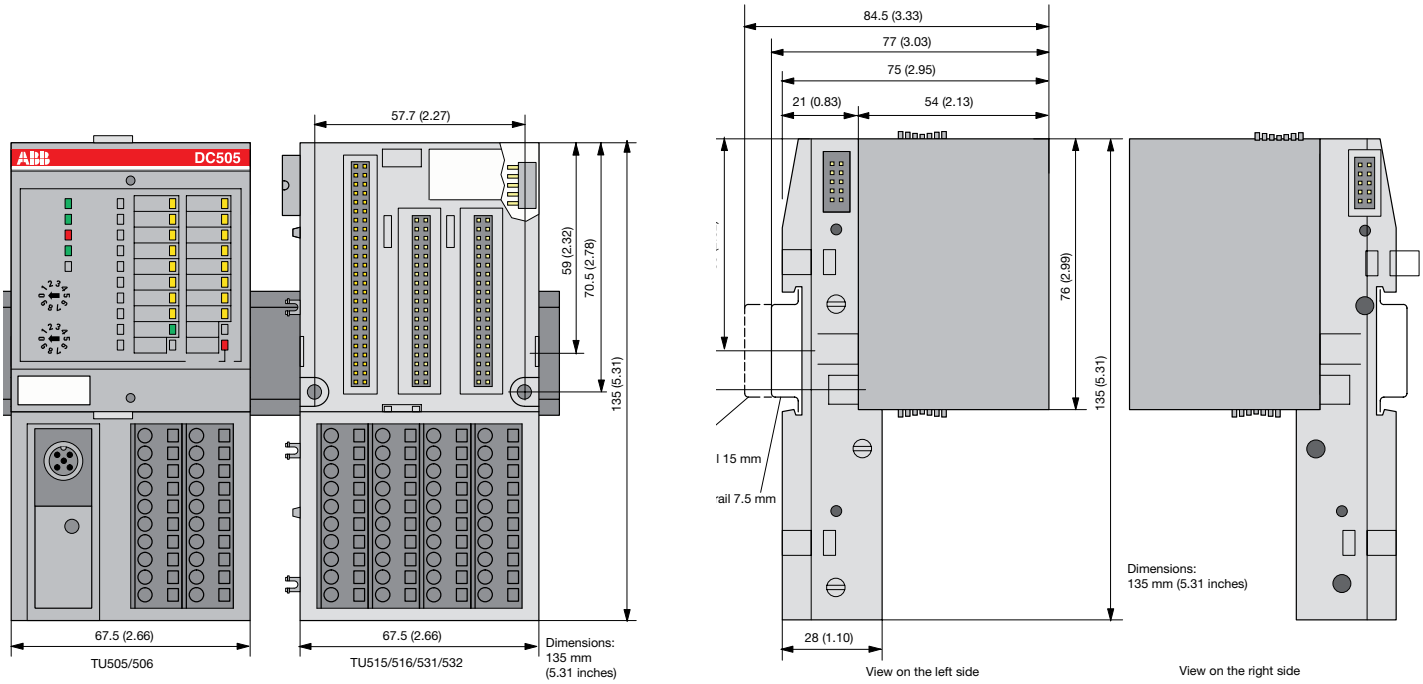
AC500 scalable PLC

CPU terminal bases TB5XX, I/O expansion and interface module

Dimensions mm (inches)



CPU terminal base TB511, TB521 and TB541



I/O expansion and interface modules

Scalable PLC AC500
Approvals and certifications

Symbols and legends:
- ■ Standard product certified: product sticker wears approval mark when it is obligatory
- ● In special model certified
- ◆ Certified with restrictions
- n.a. Not applicable
- □ Approval submitted, date of approval delivery on request
- O No general approbation obligation, unless special cases
- ◇ Submission planned (no date available, details on request)
- n.n. Not needed

	Approvals					Shipping classification companies						
Symbol	CE	cULus LISTED		C-Tick	GOST R	ABS	BV	DNV	GL	LRS	RINA	RMRS
Abbreviation	CE	cUL		C-Tick	GOST R	ABS	BV	DNV	GL	LRS	RINA	RMRS
Approved in		USA/Canada	Class 1, Division 2, Groups A, B, C, D	Australia	Russia	USA	France	Norway	Germany	Great Britain	Italy	Russia
TB511-ARCNET	■	■	■	■	■	■	■	■	■	■	■	■
TB511-ETH (-XC)	■	■	■	■	■	■	■	■	■	■	■	■
TB521-ARCNET	■	■	■	■	■	■	■	■	■	■	■	■
TB521-ETH (-XC)	■	■	■	■	■	■	■	■	■	■	■	■
TB541-ETH (-XC)	■	■	■	■	■	■	■	■	■	■	■	■
PM572	■	■	■	■	■	■	■	■	■	◇	■	◇
PM573-ETH (-XC)	■	■	■	■	■	■	■	■	■	◇	■	◇
PM582 (-XC)	■	■	■	■	■	■	■	■	■	■	■	■
PM582-ETH	■	■	■	■	■	■	■	■	■	■	■	■
PM583-ETH (-XC)	■	■	■	■	■	■	■	■	■	◇	■	◇
PM590	■	■	■	■	■	■	■	■	■	■	■	■
PM590-ETH	■	■	■	■	■	■	■	■	■	■	■	■
PM591	■	■	■	■	■	■	■	■	■	■	■	■
PM591-ETH (-XC)	■	■	■	■	■	■	■	■	■	■	■	■
PM592-ETH (-XC)	■	■	■	■	■	■	■	■	■	◇	■	◇
CM572-DP (-XC)	■	■	■	■	■	■	■	■	■	■	■	■
CM574-RS	■	■	■	■	■	■	■	■	■	◇	■	◇
CM574-RCOM	■	■	■	■	■	■	■	■	■	◇	■	◇
CM575-DN	■	■	■	■	■	■	■	■	■	■	■	■
CM577-ETH (-XC)	■	■	■	■	■	■	■	■	■	■	■	■
CM578-CN (-XC)	■	■	■	■	■	■	■	■	■	■	■	■
CM579-ETHCAT	■	■	■	■	■	■	■	■	■	◇	■	◇
CM579-PNIO (-XC)	■	■	■	■	■	■	■	■	■	◇	■	◇
CM588-CN (-XC)	■	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
MC502	n.a.	■		n.a.	■	■	■	■	■	■	■	■
TK501	n.a.	■		n.a.	■	n.a.	n.a.	n.a.	n.a.	n.a.	■	n.a.
TK502	n.a.	■		n.a.	■	n.a.	n.a.	n.a.	n.a.	n.a.	■	n.a.
TA521	n.a.	■		n.a.	■	n.a.	n.a.	n.a.	n.a.	n.a.	■	n.a.
TA523	n.a.	■		n.a.	■	n.a.	n.a.	n.a.	n.a.	n.a.	■	n.a.
TA524	n.a.	■		n.a.	■	n.a.	n.a.	n.a.	■	n.a.	■	n.a.
TA525	n.a.	■		n.a.	■	n.a.	n.a.	n.a.	n.a.	n.a.	■	n.a.
TA526	n.a.	■		n.a.	■	n.a.	n.a.	n.a.	n.a.	n.a.	■	n.a.
TA511-CASE	■	n.a.		n.a.	n.a.	n.n.	n.n.	n.n.	n.n.	n.n.	n.n.	n.n.
TA527	n.a.	n.a.		n.a.	■	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
TA528	n.a.	n.a.		n.a.	■	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
TU505-FBP	■	■	■	■	■	■	■	■	■	■	■	■
TU506-FBP	■	■	■	■	■	■	■	■	■	■	■	■
TU507-ETH	■	■	■	■	■	■	■	■	■	◇	■	◇
TU508-ETH (-XC)	■	■	■	■	■	■	■	■	■	◇	■	◇
TU509-DP	■	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
TU510-DP (-XC)	■	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
TU517-CNDN	■	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
TU518-CNDN (-XC)	■	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
TU520-ETH (-XC)	■	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
TU515	■	■	■	■	■	■	■	■	■	■	■	■
TU516 (-XC)	■	■	■	■	■	■	■	■	■	■	■	■
TU531	■	■	■	■	■	■	■	■	■	■	■	■
TU532 (-XC)	■	■	■	■	■	■	■	■	■	■	■	■
TU541	■	■	■	■	■	■	■	■	■	■	■	■
TU542	■	■	■	■	■	■	■	■	■	■	■	■
TU551-CS31	■	■	■	■	■	■	■	■	■	■	■	■
TU552-CS31 (-XC)	■	■	■	■	■	■	■	■	■	■	■	■
CI501-PNIO (-XC)	■	■	■	■	■	■	■	■	■	◇	■	◇
CI502-PNIO (-XC)	■	■	■	■	■	■	■	■	■	◇	■	◇
CI504-PNIO (-XC)	■	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
CI506-PNIO (-XC)	■	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
CI511-ETHCAT	■	■	■	■	■	■	■	■	■	◇	■	◇
CI512-ETHCAT	■	■	■	■	■	■	■	■	■	◇	■	◇
CI541-DP (-XC)	■	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
CI542-DP (-XC)	■	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
CI581-CNDN (-XC)	■	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
CI582-CNDN (-XC)	■	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
CD522 (-XC)	■	■	■	■	■	■	■	■	■	◇	■	◇
DC522 (-XC)	■	■	■	■	■	■	■	■	■	■	■	■
DC523 (-XC)	■	■	■	■	■	■	■	■	■	■	■	■

Scalable PLC AC500
Approvals and certifications

Symbols and legends:
- ■ Standard product certified: product sticker wears approval mark when it is obligatory
- ● In special model certified
- ◆ Certified with restrictions
- n.a. Not applicable
- □ Approval submitted, date of approval delivery on request
- O No general approbation obligation, unless special cases
- ◇ Submission planned (no date available, details on request)
- n.n. Not needed

	Approvals				Shipping classification companies						
Symbol	CE	cUL LISTED		C-Tick	GOST R	ABS	BV	DNV	GL	LRS	RINA	RMRS
Abbreviation	CE	cUL		C-Tick	GOST R	ABS	BV	DNV	GL	LRS	RINA	RMRS
Approved in		USA/Canada	Class 1, Division 2, Groups A, B, C, D	Australia	Russia	USA	France	Norway	Germany	Great Britain	Italy	Russia
DC532 (-XC)	■	■	■	■	■	■	■	■	■	■	■	■
DC551-CS31 (-XC)	■	■	■	■	■	■	■	■	■	■	■	■
DI524 (-XC)	■	■	■	■	■	■	■	■	■	■	■	■
DX522 (-XC)	■	■		■	■	■	■	■	■	■	■	■
DX531	■	■		■	■	■	■	■	■	■	■	■
AI523 (-XC)	■	■	■	■	■	■	■	■	■	■	■	■
AI531 (-XC)	■	■	■	■	■	■	■	■	■	◇	■	◇
AO523 (-XC)	■	■	■	■	■	■	■	■	■	■	■	■
AO523 (-XC)	■	■	■	■	■	■	■	■	■	■	■	■
AX521 (-XC)	■	■	■	■	■	■	■	■	■	■	■	■
AX522 (-XC)	■	■	■	■	■	■	■	■	■	■	■	■
DC541-CM (-XC)	■	■	■	■	■	■	■	■	■	■	■	■
PM554-R	■	■	■	■	■	◇	■	■	■	■	◇	
PM554-R-AC	■	■	■	■	■	◇	■	■	■	■	◇	
PM554-T	■	■	■	■	■	◇	■	■	■	■	◇	
PM554-T-ETH	■	■	■	■	■	◇	■	■	◇	■	◇	
PM564-R	■	■	■	■	■	◇	■	■	■	■	◇	
PM564-R-AC	■	■	■	■	■	◇	■	■	■	■	◇	
PM564-R-ETH	■	■	■	■	■	◇	■	■	◇	■	◇	
PM564-R-ETH-AC	■	■	■	■	■	◇	■	■	◇	■	◇	
PM564-T	■	■	■	■	■	◇	■	■	■	■	◇	
PM564-T-ETH	■	■	■	■	■	◇	■	■	◇	■	◇	
MC503	■	■	■	■	■	◇	■	■	■	■	◇	
TK503	■	■	■	■	■	◇	■	■	◇	■	◇	
TK504	■	■	◇	■	■	◇	◇	◇	◇	■	◇	
TA561-RTC	■	■	■	■	■	◇	■	■	■	■	◇	
TA562-RS	■	■	■	■	■	◇	■	■	■	■	◇	
TA562-RS-RTC	■	■	■	■	■	◇	■	■	■	■	◇	
TA566	n.a.	n.a.	n.a.	■	■	n.a.	■	n.a.	■	n.a.	n.a.	
TA560	n.a.	■	■	■	◇	◇	■	■	■	■	◇	
TA570	n.a.	■	◇	■	◇	◇	◇	◇	◇	■	◇	
AI561	■	■	■	■	■	◇	■	■	■	■	◇	
AI562	■	■	■	■	■	◇	■	■	■	■	◇	
AI563	■	■	■	■	■	◇	■	■	■	■	◇	
AO561	■	■	■	■	■	◇	■	■	■	■	◇	
AX561	■	■	■	■	■	◇	■	■	■	■	◇	
DC561	■	■	■	■	■	◇	■	■	■	■	◇	
DI561	■	■	■	■	■	◇	■	■	■	■	◇	
DI562	■	■	■	■	■	◇	■	■	■	■	◇	
DI571	■	■	■	■	■	◇	■	■	■	■	◇	
DO561	■	■	■	■	■	◇	■	■	■	■	◇	
DO571	■	■	■	■	■	◇	■	■	■	■	◇	
DO572	■	■	■	■	■	◇	■	■	■	■	◇	
DX561	■	■	■	■	■	◇	■	■	■	■	◇	
DX571	■	■	■	■	■	◇		■	■	■	◇	
L44440901501	□	■	◇	◇	■	◇		■	■	■	◇	
L44441101501	□	■	◇	◇	■	◇		■	■	■	◇	
L44460901501	□	■	◇	◇	■	◇		■	■	■	◇	
L44461101501	□	■	◇	◇	■	◇		■	■	■	◇	
L44470901501	□	■	◇	◇	■	◇		■	■	■	◇	
L44471101501	□	■	◇	◇	■	◇		■	■	■	◇	

Automation products
Control panels

Human Machine Interfaces

ABB operator panels can be distinguished from their competitors by their easy yet comprehensive functionality, making comprehensive operational information for production plants and machines available at a single touch.
This enables an operator to intervene manually at any time to stop or modify the production process.

Individual solutions for each application

The ABB range of HMI operator panels offers an excellent diversity of features and functionalities for maximum operator comfort, at a price that meets every budget. The solution is now composed of two ranges.
The new CP600 series up to 15" completes the CP400 range that was available up to 10.4" and offer new design capabilities, a complete engineering sofware solution or a web browser panel version.

CP600 series

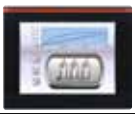
The CP600 series, ABB's latest HMI, is now available in a broader range, from the entry level (4.3") to the high-end panel (15"). It is highly flexible and is specifically designed for advanced applications in complex systems or processes. Using premium graphic panels created with either the PB610 engineering software or the web browser panels via the PLC Web server, the CP600 series gives better information representation to ease human-machine interaction.
The engineering software is based on XML technology, enabling you to create easy intuitive graphics. Visual objects created with the Scalable Vector Graphics (SVG) are totally independent of the operating system, providing high customization flexibility and easy integration with your automation system, as well as the easy creation of dynamic objects with configurable properties, the ability to interconnect objects, transformation or easy resizing and, quite simply, getting the most out of your creative design.

CP400 series

ABB operator panels offer highly efficient and effective functionality such as alarm and event management, graphics, animation, macro and Ladder Diagram functionality and recipe management. The range is available from a compact 3" monochrome version up to a large 10.4" color TFT display. RS232 & 485 Modbus are standard communications options across the whole range with Ethernet being available on most products. Other options include Ethernet plus CF Memory card slots and USB ports. Most models are available in either STN or TFT screen format.
Hot IP Swap functionality: the panel will switch transparently from one PLC to another in the event of communication loss, with the active PLC ensuring a better sustainability of your installations and offering a permanent operational system. Available on the panel Ethernet version, this function is standardized for the whole range and is easy to configure with direct IP address-changing. Users can also manually select their own communication channel directly on the display. By creating a single program that you can duplicate on several PLCs, you will save memory and development time.

Control panels
CP600 series



		CP620 CP620-WEB	CP630 CP630-WEB	CP635 CP635-WEB	CP650 CP650-WEB	CP660 CP660-WEB	CP675 CP675-WEB
Display							
Exact display size diameter	inch	4.3 widescreen	5.7	7 widescreen	10.4	12.1	15
Resolution	pixels	480 x 272	320 x 240	800 x 480	800 x 600	800 x 600	1024 x 768
Display type		TFT color					
Touch screen material		glass covered by plastic film					
Touch screen type		analog resistive					
Colors		64 k					
Backlight type		LED				CCFL	
Backlight life	h	40.000 typ at 25°C			50.000 typ at 25°C		
Brightness	cd/m²	150	200	300			
Housing							
Protection class front		IP66					
Protection class rear		IP20					
Front side material		Zamak			Aluminium		
Reverse side material		Zamak	Aluminium				
System resources							
Processor type	MHz	ARM Cortex A8 - 600			MIPS+FPU - 600		
Operating system, version		Microsoft Windows CE 6.0					
HMI software		PB610 Panel Builder 600					
OPC technology		yes					
CodeSys web visualization		yes					
User memory type, capacity	MB	Flash Disk 128					
RAM type, capacity	MB	256 DDR					
Interfaces							
Ethernet ports number, type		2 - 100 Mbit (with integrated Switch function)			1 - 10/100 Mbit		
USB ports number, type		1 - host interface, version 2.0	2 - host interface, version 2.0	2 - host interface, version 2.0	1 - host interface, version 2.0		
Serial ports number, type		1 - RS-232, RS-485, RS-422, software configurable			2 - RS-232, RS-485, RS-422, software configurable		
Additional ports number, type		1 - Expansion slot for optional modules	2 - Expansion slot for optional modules	2 - Expansion slot for optional modules	1 - aux port		
Card slot number, type		1 - SD card slot					
Optional plug-in modules, type		optional fieldbus and controller modules; connected to expansion slot			optional fieldbus and controller modules; connected to aux port		
Power supply voltage nominal + tol.	V DC	24 (18 to 30)					
Current consumtion	A	0.4	0.7	0.7	1.0	1.1	1.2
Battery type		Rechargeable Lithium battery, not user-replaceable					
Weight	kg	approx 1.0	approx 1.3	approx 1.3	approx 2.1	approx 2.8	approx 3.4
Faceplate (L x H)	mm	149 x 109	187 x 147	187 x 147	287 x 232	337 x 267	392 x 307
Cutout (L x H)	mm	136 x 96	176 x 136	176 x 136	276 x 221	326 x 256	381 x 296
Environmental conditions							
Operating temperature range	°C	0 to 50					
Operating humidity range	%	5 to 85 relative humidity, non-condensing					
Storage temperature range	°C	-20 to 70					
Storage humidity range	%	5 to 85 relative humidity, non-condensing					

For the entire range:

- Vector graphics
- Object dynamics (types)
- True type fonts
- Multiple driver communication : 2
- Unicode capability
- Character sets for Chinese language
- Multilanguage capability
- Runtime language switching
- Recipes (capacity): flash memory storage limited only by available memory
- Alarms
- Data acquisition + capacity: flash memory storage limited only by available memory
- Trend presentation + capacity: flash memory storage limited only by available memory
- Historical event list
- Users/passwords
- Hardware realtime clock, battery back-up
- Screen saver
- Integration within CoDeSys
- Approvals : RoHS, (cUL), (DNV), (C-Tick)

Control panels
CP400 series

	 CP410M	 CP415M	 CP420B	 CP430B	CP430BP	CP430BP-ETH	 CP430T	CP430T-ETH	 CP435T	CP435T-ETH	 CP440C-ETH	 CP450T	CP450T-ETH
Display type	LCD-STN 16 grey	Touch Mono FSTN 16 grey	Touch 16 blue STN	Touch 16 blue, STN			Touch 64K colors, TFT		Touch 64K colors, TFT		Touch 64K colors, STN	Touch 64K colors, TFT	
Display size	3"	3.5"	4.7"	5.7"			5.7"		7"		7.5"	10.4"	
Resolution (Pixels)	160 x 80	240 x 240	240 x 128	320 x 240			320 x 240		800 x 480		640 x 480	640 x 480	
Brightness (cd/m2)	36	90	110	110			300		250		350	350	
Contrast adjustment	Via VR (variable resistance)	Via touch panel	Via touch panel	Via touch panel			Via touch panel		Via touch panel		Via touch panel	Via touch panel	
Back-light type	LED	LED	CCFL	CCFL			CCFL		CCFL		CCFL	CCFL	
Back-light life	75 000 hours	40 000 hours	50 000 hours	50 000 hours			60 000 hours		30 000 hours		45 000 hours	50 000 hours	
Touch screen (number of times)	-	> 1 million	> 1 million	> 1 million			> 1 million		> 1 million		> 1 million	> 1 million	
Function keys / other keys	16 keys (10 of which may be function keys)	-	-	5 keys + 1 key menu			5 keys + 1 key menu		6 keys + 1 key menu		6 keys + 1 key menu	7 keys + 1 key menu	
Application flash prom	4 MB	4 MB	4 MB	4 MB			4 MB		8 MB		8 MB	8 MB	
RTC (rechargeable lithium battery)	•	•	•	•	•	•	•	•	•	•	•	•	•
Ethernet	-	-	-	-	-	•	-	•	-	•	•	-	•
Alarm management	-	•	•	•	•	•	•	•	•	•	•	•	•
Recipe management	-	-	-	-	•	•	•	•	•	•	•	•	•
Data/Recipe	-	-	-	-	512 KB		512 KB		512 KB		512 KB	512 KB	
Trends	-	•	•	•	•	•	•	•	•	•	•	•	•
Data storage (CF card)	-	-	-	-	•	•	•	•	•	•	•	•	•
Communication interface	1	1	2	2			2		3		3	3	
USB 2.0	-	-	-	-	1 host + 1 device		1 host + 1 device		2 hosts + 1 device		2 hosts + 1 device	2 hosts + 1 device	
Printer port	-	-	-	-	USB		USB		USB		USB	USB	
Consumption	< 330 mA	< 330 mA	< 500 mA	< 840 mA			< 840 mA		< 1 A		< 1 A	< 1.25 A	
Dimensions mm L x H x D (external)	173 x 106 x 52	96 x 96 x 40.6	170 x 103 x 45	195 x 145 x 60			195 x 145 x 60		231 x 176 x 47		231 x 176 x 47	297 x 222 x 52	
Weight (kg)	0.65	0.23	0.47	0.81			0.81		1.20		1.20	1.90	

For the entire range:

- 32 bit RISC CPU
- Graphics and text
- Macro and Ladder
- On-line and off-line simulation
- Real time clock
- Password protection
- 24 V DC ± 15% supply voltage
- IP65 class protection
- Conform to ROHS
- UL certified

Control panels
Ordering data

CP620

HMI panels CP600 series

Type	Resolution	Display size	Order code	Price	Weight per piece kg
CP620	480 x 272	4.3"	**1SAP 520 100 R0001**		approx 1.0
CP630	320 x 240	5.7"	**1SAP 530 100 R0001**		approx 1.3
CP635	800 x 480	7.0"	**1SAP 535 100 R0001**		approx 1.3
CP650	800 x 600	10.4"	**1SAP 550 100 R0001**		approx 2.1
CP660	800 x 600	12.1"	**1SAP 560 100 R0001**		approx 2.8
CP675	1024 x 768	15.0"	**1SAP 575 100 R0001**		approx 3.4
CP620-WEB	480 x 272	4.3"	**1SAP 520 200 R0001**		approx 1.0
CP630-WEB	320 x 240	5.7"	**1SAP 530 200 R0001**		approx 1.3
CP635-WEB	800 x 480	7.0"	**1SAP 535 200 R0001**		approx 1.3
CP650-WEB	800 x 600	10.4"	**1SAP 550 200 R0001**		approx 2.1
CP660-WEB	800 x 600	12.1"	**1SAP 560 200 R0001**		approx 2.8
CP675-WEB	1024 x 768	15.0"	**1SAP 575 200 R0001**		approx 3.4

Accessories for CP600 series

Type	Description	Order code	Price	Weight per piece kg
TK681	Communication cable RS232: CP600-AC500	**1SAP 500 981 R0001**		0.130
TK682	Communication cable RS485: CP600-AC500-eCo	**1SAP 500 982 R0001**		0.130
PB610	Panel Builder for CP600	**1SAP 500 900 R0001**		0.070

CP450

Operator panels CP400 series

Type	Pixels	Display	Order code	Price	Weight per piece kg
Operator panels with graphics display - LCD screen with backlight					
CP410M	160 x 80	3", 16 grey levels	**1SBP 260 181 R1001**		0.650
Operator panels with touch display					
CP415M	240 x 240	3.5", 16 grey levels	**1SBP 260 191 R1001**		0.230
CP420B	240 x 128	4.7", 16 blue levels	**1SBP 260 182 R1001**		0.470
CP430B	320 x 240	5.7", 16 blue levels	**1SBP 260 183 R1001**		0.810
CP430BP	320 x 240	5.7", 16 blue levels	**1SBP 260 192 R1001**		0.810
CP430BP-ETH	320 x 240	5.7", 16 blue levels	**1SBP 260 194 R1001**		0.810
CP430T	320 x 240	5.7", 64000 colors TFT	**1SBP 260 195 R1001**		0.810
CP430T-ETH	320 x 240	5.7", 64000 colors TFT	**1SBP 260 196 R1001**		0.810
CP435T	800 x 480	7", 64000 colors TFT	**1SBP 260 193 R1001**		1.200
CP435T-ETH	800 x 480	7", 64000 colors TFT	**1SBP 260 197 R1001**		1.200
CP440C-ETH	640 x 480	7.5", 64000 colors STN	**1SBP 260 187 R1001**		1.200
CP450T	640 x 480	10.4", 64000 colors TFT	**1SBP 260 188 R1001**		1.900
CP450T-ETH	640 x 480	10.4", 64000 colors TFT	**1SBP 260 189 R1001**		1.900

Programming cables CP400

Type	Plug on CP400 side	Description	Order code	Price	Weight per piece kg
TK401	SubD9	Connection to COM1 of CP400. Length: 4 m	**1SBN 260 216 R1001**		0.180
TK402	SubD25	Connection to COM2 of CP400. Length: 4 m	**1SBN 260 217 R1001**		0.230

Communication cables CP400 (connection operator panel <-> PLC)

Type	Plug on PLC side	PLC	Order code	Price	Weight per piece kg
TK403	MiniDin	AC31 series 40..50	**1SBN 260 218 R1001**		0.120
TK405	SubD9	AC500	**1SBN 260 221 R1001**		0.130
TK406	SubD9	AC500-eCo	**1SBN 260 224 R1001**		0.130

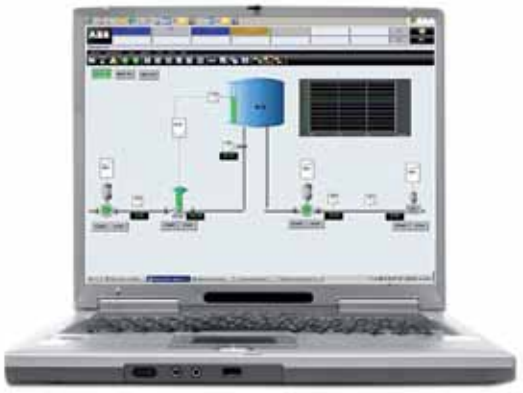
Programming software

Type	Description	Order code	Price	Weight per piece kg
CP400Soft	Programming software for CP400 operator panels. Delivery includes the programming software and corresponding documentation on CD-ROM.	**1SBS 260 284 R1001**		0.070

DigiVis 500
Reliability and accessibility, Supervision within your grasp…

Reliability and accessibility, supervision within your grasp

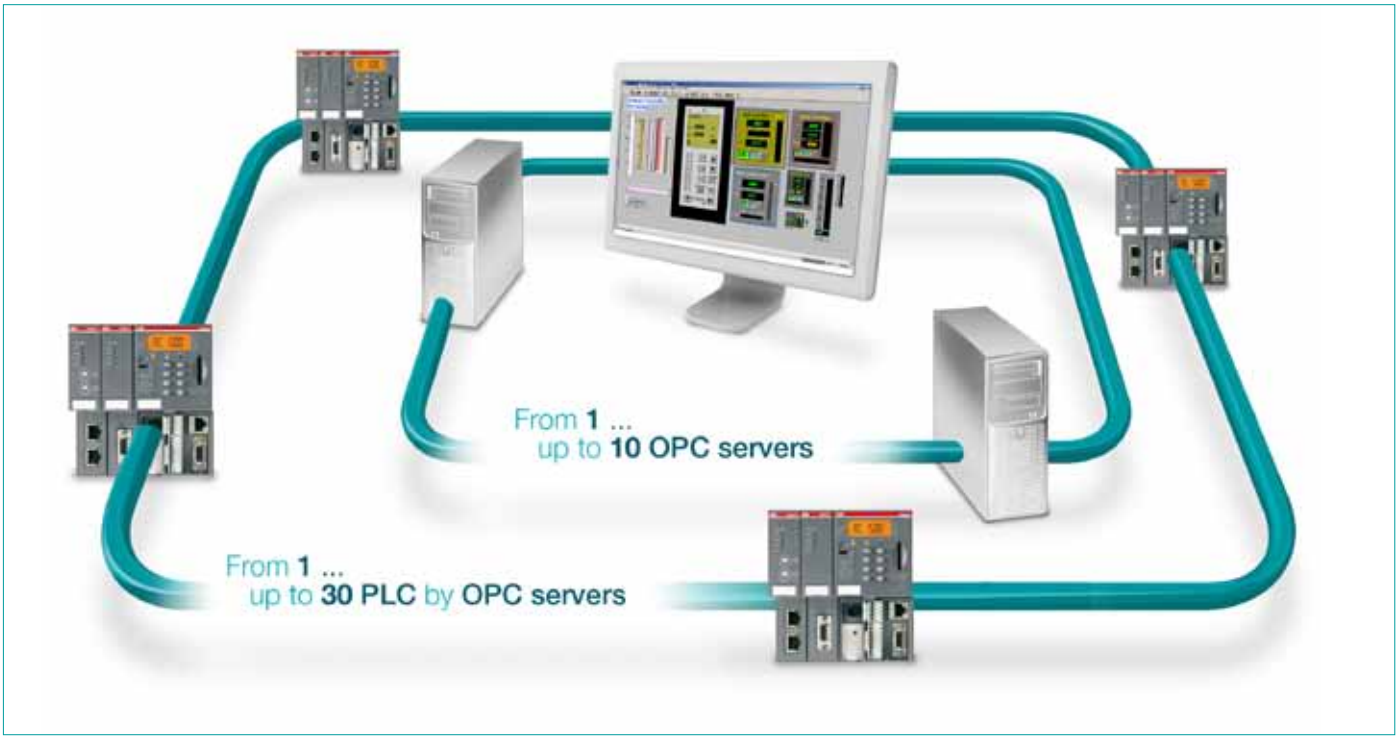
DigiVis 500 software is a simple and easily accessible solution in the development of supervision applications. It offers all the functions that are essential to a secure environment, its functional reliability and dual-display mode will simplify all your supervision operations, keeping interruptions to a minimum.
Whether you are an OEM, a machine manufacturer or an integrator, DigiVis 500 will adapt to any application, machine or control room.



Create your applications quickly and easily

The environment and the development functions have been designed to offer greater accessibility and to be exceptionally user friendly. The management structure allows you to place data in a hierarchy and access the different elements of your project efficiently.

Configuring the supervision applications is easy, whether you create your own or choose to customize or use one of the predefined models from the different libraries.



Reliability and accessibility, supervision within your grasp

Adaptability

A range of options is available to allow you to choose and adjust the maximum number of operational variables per project. Ranging from 50 to an infinite number of variables, you will surely find a size to fit your application needs.

Save time

DigiVis 500 is easy to connect and put into operation thanks to its interaction with our PLC AC500 solution.

The development functions require no scripting, so you will not waste time debugging.

What is more, updating your projects on the fly allows you to quickly make any minor changes without rebooting the software.

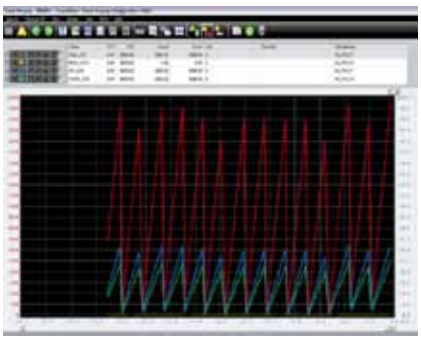
Manage your projects efficiently

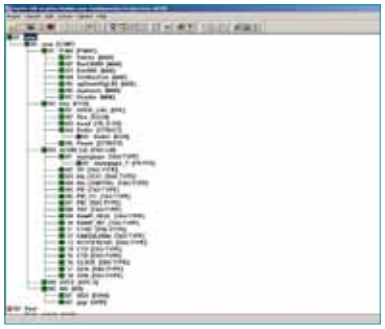
DigiVis 500 software runs on any Windows XP PC platform. The dual-display mode enhances availability.

The overview offers quick access to all available visualization screens. The “DigiBrowse” option gives you access to all the supervision data outside the software.

Manage your results

Data processing is optimized from archiving and safeguarding to exporting and making practical use of the data.

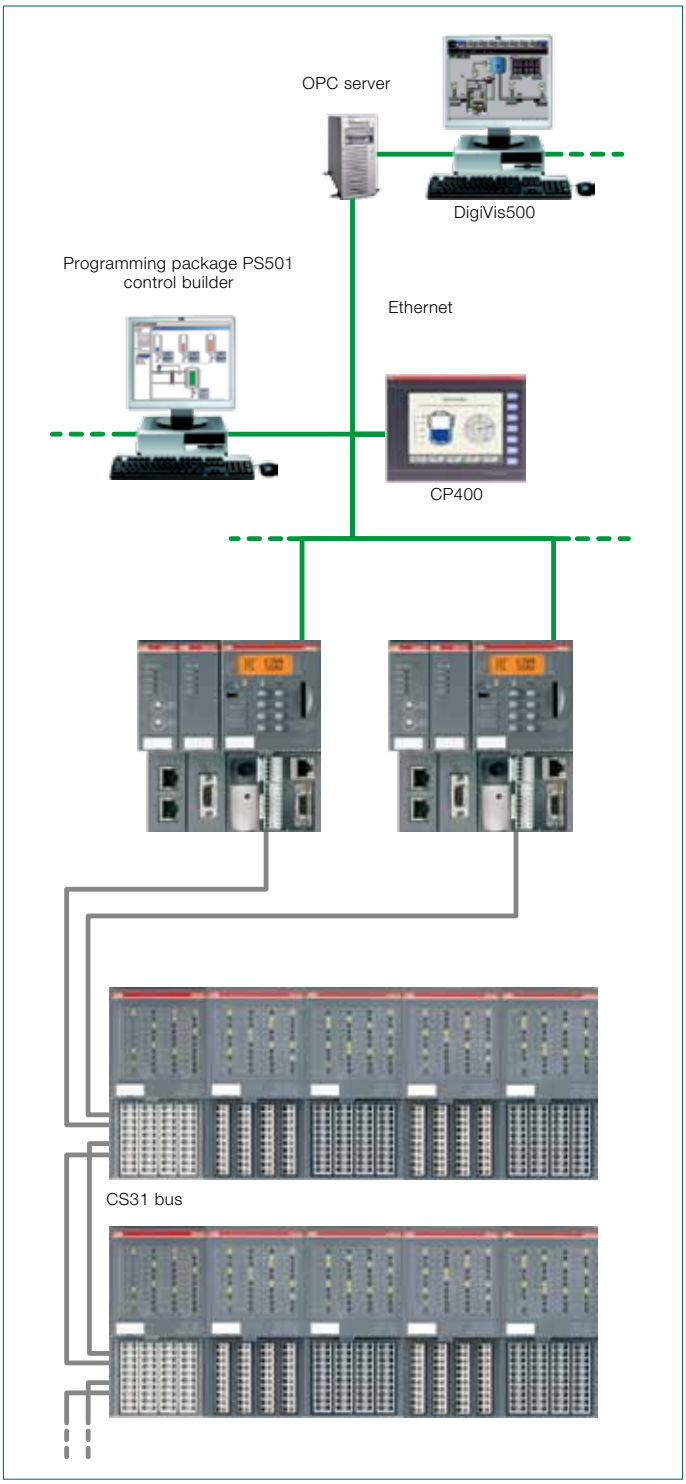




Reliability and accessibility, supervision within your grasp

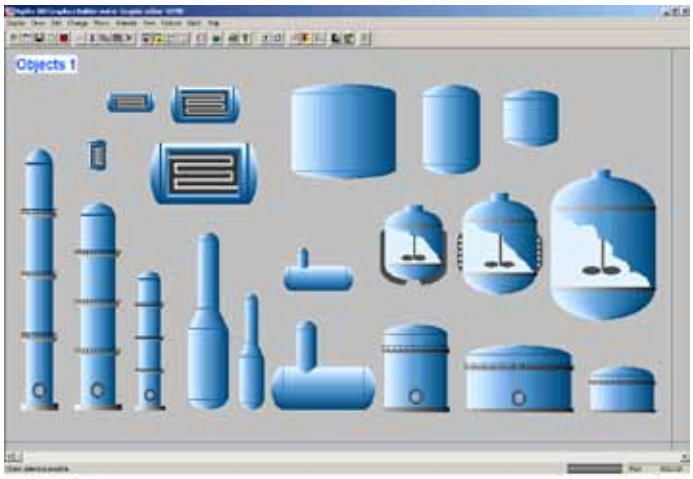
Modularity

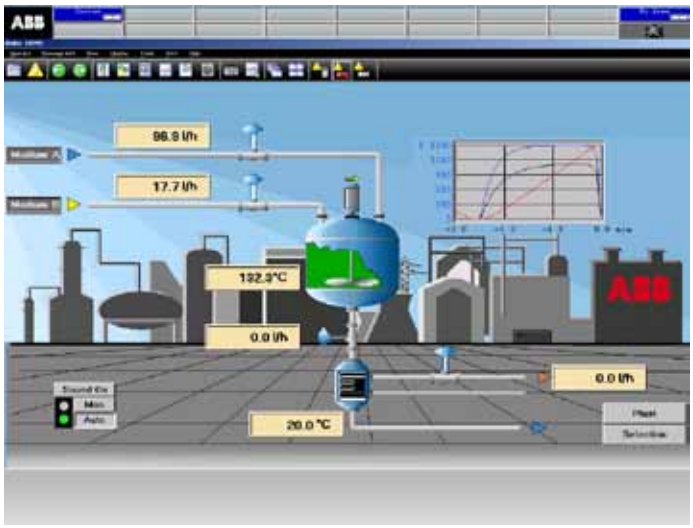
Whatever the size of your system, DigiVis 500 will suit your needs. It will also allow you to manage High Availability systems with our turnkey PLC (CI590) supervision solution.



Reliability and security

The software's reliability and stability ensure a constant flow in the supervision of installations and the recovery of key data, particularly in managing high-availability solutions. The in-built alarm system enables you to ensure the integrity of your installations by customizing the advanced configuration. The "Security Lock" option, which controls access, allows you to configure up to 16 profiles for a maximum of 1 000 individual users.





DigiVis 500
Ordering data

Type	Description	Order code
DV500-GBUILDER	DigiVis 500 – Graphics Builder	**1SBS 260 262 R1001**
DV500-OP50	DigiVis 500 – Operations, 50 OPC signals	**1SBS 260 263 R1001**
DV500-OP100	DigiVis 500 – Operations, 100 OPC signals	**1SBS 260 264 R1001**
DV500-OP250	DigiVis 500 – Operations, 250 OPC signals	**1SBS 260 265 R1001**
DV500-OP500	DigiVis 500 – Operations, 500 OPC signals	**1SBS 260 266 R1001**
DV500-OP1000	DigiVis 500 – Operations, 1000 OPC signals	**1SBS 260 267 R1001**
DV500-OP2000	DigiVis 500 – Operations, 2000 OPC signals	**1SBS 260 268 R1001**
DV500-OPUNL	DigiVis 500 – Operations, unlimited OPC signals	**1SBS 260 269 R1001**
DV500-EXP100	DigiVis 500 – Expansion from 50 to 100 OPC signals	**1SBS 260 270 R1001**
DV500-EXP250	DigiVis 500 – Expansion from 100 to 250 OPC signals	**1SBS 260 271 R1001**
DV500-EXP500	DigiVis 500 – Expansion from 250 to 500 OPC signals	**1SBS 260 272 R1001**
DV500-EXP1000	DigiVis 500 – Expansion from 500 to 1000 OPC signals	**1SBS 260 273 R1001**
DV500-EXP2000	DigiVis 500 – Expansion from 1000 to 2000 OPC signals	**1SBS 260 274 R1001**
DV500-EXPUNL	DigiVis 500 – Expansion to unlimited OPC signals	**1SBS 260 275 R1001**
DV500-USB-R	DigiVis 500 – USB dongle replacement license	**1SBS 260 276 R1001**
DV500-WEBDIS	DigiVis 500 – WEB Display runtime	**1SBS 260 290 R1001**
DV500-DUALMON	DigiVis 500 – Dual monitor Support	**1SBS 260 291 R1001**
DV500-DIGIB	DigiVis 500 – DigiBrowse	**1SBS 260 292 R1001**
DV500-SLOCK	DigiVis 500 – Security Lock	**1SBS 260 293 R1001**
DV500-USB	DigiVis 500 – USB dongle	**1SBN 260 318 R1001**
DV500-CD	DigiVis 500 – Software and Documentation CD	**1SBS 260 261 R1001**

Automation products
Wireless automation devices
Reduce life cycle costs of robots

Wireless automation device
Overview

Wireless Interface for sensors and actuators

The wireless sensor and actuator interface technology that ABB developed is the only one to meet the demands of real-time factory automation applications, particularly robotics and handling scenarios. It covers both:

– Wireless communication and
– Optional wireless power supply.

Wireless automation advantages

– Reduces life-cycle costs, compared with robots using moving cables.
– Higher reliability compared with moving cables and connectors, thus providing outstanding productivity.
– Ideally suited for retrofits and sensor/actuator extensions.
– Can replace slip rings and contacts moving on tool changers (swivels) for higher reliability and cost reduction.
– Real-time capability: wireless cycle time of 2 ms.
– High node density of up to 624 field devices without loss of performance.
– Free from frequency/radio planning.
– Coexistence with Bluetooth, WLAN, and other common radio systems.

Field devices for wireless automation

Wireless I/O pad (WIOP100, WIOP208)

Wireless I/O pads are particularly suitable for the integration of conventional sensor technology and actuators into a wireless system. These devices communicate via radio transmission to replace fieldbus cables and are powered with conventional 24 V DC.

TrueWireless communication module WSIX

The WSIX is primarily a control, communication and power module. Both data and power are wireless, without batteries. As sensors, switches can be used. It also accommodates the WSIF or WSIN inductive proximity switches from ABB.

TrueWireless sensor pad (WSP100)

Similar to WSIX, the WSP100 accommodates up to eight special low power sensor heads (WSIF..., WSIN...) or switches (limit switches, reed/auxiliary contacts, pushbuttons, etc.)

Wireless: Reliable industrial real-time communication

The wireless field devices communicate by radio technology with an input/output module (WDIO100) which sends/receives the signals via a pair of antennas (WAT100). Communication is based on IEEE802.15.1 in the license-free 2.4 GHz band, i.e. the globally available Industrial, Scientific and Medical ISM band. One input/output module can support up to 120 wireless proximity switches or up to 13 wireless pads assigned or a mixed configuration of different wireless field devices. Periodical diagnostic signals of all wireless field devices enable continuous monitoring and advanced fault recognition. Up to three WDIO100 modules can be operated inside a machine or a cell. The connection between the WDIO100 and the control (PLC, e.g. AC500 from ABB) is done via a field bus. For this purpose, the WDIO100 is equipped with a FieldBusPlug (FBP) interface. Depending on the selected FieldBusPlug, data exchange can take place via Profibus DP, DeviceNet, Modbus, etc. Stand-alone operation is also possible (called "Mapping"), useful in the event of cable-replacement.

Wireless automation advantages

– Better reliability than moving cables and connectors
– Real-time capability: deterministic protocol, delays are independent of the number of wireless field devices used.
– High node density (up to 624 sensors/actuators are possible inside a working area without change in timing, more are possible (slight delay increase), practically unlimited number of nodes inside a plant hall).

Optional wireless power supply

The WSP and WSIX wireless field devices receive their operating power from low-emission magnetic fields: The WPU100 power supply produces a sinusoidal current at 120 kHz to generate the magnetic field. Typically, two WPU100 modules with one pair of primary loops connected are each required to supply a volume of 3 x 3 x 3 m3. Using further power supplies and primary loops, this arrangement can be extended to a volume of up to 6 x 6 x 3 m3. Modular structures of several cells are possible. Optional wireless-power makes it possible to implement circular, line and spot wireless power supply concepts of. Whether small or large, the possibilities are endless. Easy design and set-up guides (for the wireless system, for instance) are available from ABB on CD-ROM or online.

Wireless automation devices
Overview of modules

Wireless I/O pads

Type		WIOP100-8DI8DC	WIOP208-8DC
Number of inputs		8, digital (type 3 in accordance with with IEC 61131) per switching	
Number of configurable (as Input or Output, DC)		8, digital; 0.5 A	8, digital; 0.5 A
Module/actuator supply		Separate, 24 V each in 7/8“ mini plug, loopable through to next pad	24 V DC in M12 plug
Communication band	GHz	2.4 ISM band, based on standard IEEE 802.15.1	
Range of radio communication		5 m (industrial environment; typically 10 m)	
Diagnostics		Block by block for sensors, actuators; continuous radio monitoring	
Status LEDs		Status of inputs/outputs, input/output diagnostics, voltages, communication	
Addressing		By pushbutton and WDIO100-CON-FBP	
Protection category in accordance with IEC 60529		IP67	
Ambient temperature	°C	0 ... +55	0 ... +70
Data transmission		Wireless automation real-time capable ABB radio standard (see WDIO100)	
Dimensions H x W x D	mm	213 x 60 x 39.5	205.5 x 30 x 40.5
Accessories		- Plug, 7/8“ socket (“Mini”) 5-pole for power supply - M12 standard Y-splitter SZC1-YU0 for 2 sensors/ actuators at one connection	

Wireless input/output module WDIO100-CON-FBP

Configuration for 1 I/O module; max. 3 I/O modules possible		Choice of: - 13 WIOPxxx wireless I/O pads or - 56 wireless sensors + 7 WIOPxxx wireless I/O pads or - 120 wireless sensors WSIX
Number of WDIO100 per machine unit/manufacturing cell		1 ... 3 without significant loss of performance
Communication band	GHz	2.4 ISM band, based on IEEE 802.15.1
Range of radio communication		5 m (industrial environment; typically 10 m)
Connection to machine control system		FieldBusPlug (FBP: PROFIBUS, DeviceNet, Modbus, CANopen…)
Operator display		- LCD display, two lines with 16 characters each - 4 membrane pushbuttons
Supply voltage		24 V DC; 15 W max.
Protection category in accordance with IEC 60529		IP20
Ambient temperature	°C	0 ... +50
Mounting		On 35 mm DIN rail in accordance with EN 60715 or screw mounting
Dimensions H x W x D	mm	140 x 120 x 85 (housing: 120 x 120 x 80
Total delay (for 99.9% of signals)		7 ms for Mapping, 20 ms until the signal is available on fieldbus. Wireless cycle time is 2 ms.
Mapping function		Easy to setup, fast radio transmission of the inputs of one wireless field device (e.g. WIOP100) to the outputs of another one (field device of the WIOP type without PLC, no fieldbus required)
Accessories		For connection to the control system (PLC): ABB FieldBusPlug, available for PROFIBUS, DeviceNet, CANopen, Modbus

Antennas

WAT100-x		Panel antenna, 70 degree beam width x = R, L (right, left-handed circular polarisation)
Dimensions H x W x D	mm	101 x 95 x 32
WAC100-N0x		Antenna cable in lengths x = 3 m or 5 m
Accessories		WAM100 antenna mounting for mast mounting

Wireless automation devices
Overview of modules

Sensor heads for wireless sensor pad and communication module

Type (diameter as metric thread, pitch)		M8x1	M12x1	M18x1	M30x1.5
Designation (inductive, flush)		WSIF015-M8N	WSIF020-M12N	WSIF050-M18N	WSIF100-M30N
Designation (inductive, non-flush)		WSIN020-M8N	WSIN040-M12N	WSIN080-M18N	WSIN150-M30N
Nominal operating distance Sn (flush /non-flush)	mm	1.5 / 2	2 / 4	5 / 8	10 / 15
Assured operating distance Sa (flush/non-flush)	mm	0...1.21 / 0...1.62	0...1.62 / 0...3.24	0...4.05 / 0...6.5	0...8.1 / 0...12.15
Reduction factor rV2A/rAl/rCu					
flush	mm	0.75 / 0.4 / 0.4	0.75 / 0.3 / 0.25	0.75 / 0.35 / 0.3	0.75 / 0.45 / 0.25
non-flush	mm	0.75 / 0.4 / 0.4	0.8 / 0.45 / 0.4	0.75 / 0.45 / 0.4	0.7 / 0..45 / 0.35
Overall length/thread	mm	50 / 30	60 / 50	60 / 50	60 / 50
Nominal signal transmission rate (1/s)		5 (min.; signal changes per second, higher in individual cases, see below)			
Ambient temperature	°C	-25 ... +70 (0 ... +55 for wireless modules)			
Protection category in accordance with IEC 60529		IP67			

Wireless sensor pad and communication module

Type		WSP100-8i sensor pad	WSIX100 communication module
Number of inputs		8 for ABB sensor heads and dry contacts (limit switches)	1 for ABB sensor heads and dry contacts (limit switches)
Nominal signal transmission rate 1/s		≥ 5 signal changes per second per input; Up to 40/s for individual input; may be higher, dependent on available power/field strength of magnetic field	≥ 5 (signal change per second)
Range of radio communication		5 m (industrial environment; typically 10 m)	
Switching status indicator		LED, yellow per input	LED, yellow
Operating indicator		LED, green	
Addressing/diagnostics		By membrane pushbutton and WDIO100-CON-FBP; captive storage	
Operating temperature range	°C	0 ... +55	
Protection category in accordance with IEC 605299		IP67	
Connections		4 M12 device sockets, 2 inputs ABB pin assignment, regular 4-pin cable can be used each Sensor signals on contacts 4 and 1 (I)	1 M12 device socket
Weight	g	550	125
Sensor head supply		Pin 2; 2.8 VDC (1 mW max.)	
Power supply		120 kHz magnetic field	
Data transmission		real-time capable ABB radio standard (see WDIO100)	
Accessories		M12 ABB Y-splitter WSC1-YU0 for 2 sensors on a single connection	WSC100 extension cable, mounting between WSIX communication module and WSI/WSIF sensor head: 0.3/0.6/ 0.75/1 m

WPU100-24M power supply

Volume supplied by one pair WPU100	m^3	1 x 1 x 1 to 3 x 3 x 3 or 2.5 x 2.5 x 5
Expandability		with several WPU100-24M up to 6 x 6 x 3 m
Frequency of power transmission	kHz	120
Power supply and consumption		100-264 V AC, max. 600 W (typ. 10 W/m^3 supplied machine volume)
Protection category in accordance with IEC 60529		IP65
Ambient temperature	°C	0 ... +45
Distance of heart pacemaker wearers		0.8 – 2.5 m depending on cell size or electricity
Mounting		Screw mounting

WPC100-Nxx primary loop conductor

Length	m	10 to 28 in steps of 1
Connection type		Lug for direct connection to WPU100

Wireless automation devices
Ordering data


WDIO100


WAT100


WAC100


WAM100-N


WSIX100


WIOP100

Input/output module

Type	Description	Order code	Price	Weight per piece kg
WDIO100-CON-FBP	Basic infrastructure for wireless. I/O module	**1SAF 960 300 R2000**		0.410

Antennas for input module

The antennas WAT100 transmit and receive the signals between an input module and the wireless proximity switches. Please order one WAT100-R and one WAT100-L per WDIO.

Type	Description	Order code	Price	Weight per piece kg
WAT100-R	Right circular polarized antenna	**1SAF 900 600 R0001**		0.100
WAT100-L	Left circular polarized antenna	**1SAF 900 600 R0002**		0.100

Antenna cables for input module

Type	Description	Order code	Price	Weight per piece kg
WAC100-N03	3 m coaxial cable	**1SAF 900 600 R1030**		0.370
WAC100-N05	5 m coaxial cable	**1SAF 900 600 R1050**		0.600

Antenna mounting bracket

Type	Description	Order code	Price	Weight per piece kg
WAM100-N	Antenna mounting bracket, one per antenna	**1SAF 900 900 R0001**		0.095

Wireless Proximity switches and wireless sensor pads - Sensor heads

Type	Description	Order code	Price	Weight per piece kg
WSIF015-M8N	1.5 mm switching distance, M8x1 flush mounted	**1SAF 108 911 R3000**		0.025
WSIN020-M8N	2 mm switching distance, M8x1 non flush mounted	**1SAF 108 921 R3000**		0.025
WSIF020-M12N	2 mm switching distance, M12x1 flush mounted	**1SAF 112 911 R3000**		0.030
WSIN040-M12N	4 mm switching distance, M12x1 non flush mounted	**1SAF 112 921 R3000**		0.025
WSIF050-M18N	5 mm switching distance, M18x1 flush mounted	**1SAF 118 911 R3000**		0.060
WSIN080-M18N	8 mm switching distance, M18x1 non flush mounted	**1SAF 118 921 R3000**		0.055
WSIF100-M30N	10 mm switching distance, M30x1.5 flush mounted	**1SAF 130 911 R3000**		0.140
WSIN150-M30N	15 mm switching distance, M30x1.5 non flush mounted	**1SAF 130 921 R3000**		0.120

IP67 Input/Output Pads, Input Pad - Communication module, I/O pads, sensor pad

Type	Description	Order code	Price	Weight per piece kg
WSIX100-B50NF	Wireless Communication module	**1SAF 900 100 R4000**		0.125
WIOP100-8DI8DC	Wireless I/O Pad, 8DI/8DC	**1SAF 960 100 R1000**		0.350
WIOP208-8DC	Wireless I/O Pad, 8DC	**1SAF 975 100 R1000**		0.165
WSP100-8I	Wireless Sensor pad, 8E	**1SAF 968 100 R1000**		0.550

Wireless automation devices
Ordering data


WSC100


WPU100


WPC100

Connection cables/ holder for WSIX

Type	Description	Order code	Price	Weight per piece kg
WSC100-N000	Bracket f. WSIX, M12 recept., no cable	**1SAF 900 100 R1000**		0.070
WSC100-N003	Bracket f. WSIX, M12 recept., 0,30 m cable	**1SAF 900 100 R1003**		0.085
WSC100-N006	Bracket f. WSIX, M12 recept., 0,60 m cable	**1SAF 900 100 R1006**		0.095
WSC100-N007	Bracket f. WSIX, M12 recept., 0,75 m cable	**1SAF 900 100 R1007**		0.100
WSC100-N008	Bracket f. WSIX, M12 recept., 0,85 m cable	**1SAF 900 100 R1008**		0.105
WSC100-N010	Bracket f. WSIX, M12 recept., 1,00 m cable	**1SAF 900 100 R1010**		0.110

Optional Power supplies (only when WSIX or WSP is used)

Type	Description	Order code	Price	Weight per piece kg
WPU100-24M	Power supply 24A mod.	**1SAF 960 200 R0001**		17.000

Primary loops for optional Wireless-POWER (only when WSIX or WSP is used)

The primary loops WPC100 emit an electromagnetic field of 120kHz with the help of the connected power supply for WPU.

Type	Description	Order code	Price	Weight per piece kg
WPC100-N10	10 m prepacked cable (cable shoes on both ends) for the connection to the power supply for wireless position sensors	**1SAF 900 800 R2100**		1.280
WPC100-N11	11 m prepacked cable (cable shoes on both ends) for the connection to the power supply for wireless position sensors	**1SAF 900 800 R2110**		1.410
WPC100-N12	12 m prepacked cable (cable shoes on both ends) for the connection to the power supply for wireless position sensors	**1SAF 900 800 R2120**		1.535
WPC100-N13	13 m prepacked cable (cable shoes on both ends) for the connection to the power supply for wireless position sensors	**1SAF 900 800 R2130**		1.665
WPC100-N14	14 m prepacked cable (cable shoes on both ends) for the connection to the power supply for wireless position sensors	**1SAF 900 800 R2140**		1.790
WPC100-N15	15 m prepacked cable (cable shoes on both ends) for the connection to the power supply for wireless position sensors	**1SAF 900 800 R2150**		1.920
WPC100-N16	16 m prepacked cable (cable shoes on both ends) for the connection to the power supply for wireless position sensors	**1SAF 900 800 R2160**		2.050
WPC100-N17	17 m prepacked cable (cable shoes on both ends) for the connection to the power supply for wireless position sensors	**1SAF 900 800 R2170**		2.175
WPC100-N18	18 m prepacked cable (cable shoes on both ends) for the connection to the power supply for wireless position sensors	**1SAF 900 800 R2180**		2.305
WPC100-N19	19 m prepacked cable (cable shoes on both ends) for the connection to the power supply for wireless position sensors	**1SAF 900 800 R2190**		2.430
WPC100-N20	20 m prepacked cable (cable shoes on both ends) for the connection to the power supply for wireless position sensors	**1SAF 900 800 R2200**		2.550
WPC100-N21	21 m prepacked cable (cable shoes on both ends) for the connection to the power supply for wireless position sensors	**1SAF 900 800 R2210**		2.690
WPC100-N22	22 m prepacked cable (cable shoes on both ends) for the connection to the power supply for wireless position sensors	**1SAF 900 800 R2220**		2.815
WPC100-N23	23 m prepacked cable (cable shoes on both ends) for the connection to the power supply for wireless position sensors	**1SAF 900 800 R2230**		2.945
WPC100-N24	24 m prepacked cable (cable shoes on both ends) for the connection to the power supply for wireless position sensors	**1SAF 900 800 R2240**		3.070
WPC100-N25	25 m prepacked cable (cable shoes on both ends) for the connection to the power supply for wireless position sensors	**1SAF 900 800 R2250**		3.200
WPC100-N26	26 m prepacked cable (cable shoes on both ends) for the connection to the power supply for wireless position sensors	**1SAF 900 800 R2260**		3.330
WPC100-N27	27 m prepacked cable (cable shoes on both ends) for the connection to the power supply for wireless position sensors	**1SAF 900 800 R2270**		3.455
WPC100-N28	28 m prepacked cable (cable shoes on both ends) for the connection to the power supply for wireless position sensors	**1SAF 900 800 R2280**		3.585

Wireless automation devices
Ordering data


SZCI-YU0


SZCI8-YU0


WSC1-YU0


SZC7-5POL-P


SZC7-5POL-S

Y-connectors (Data ports - Splitters)

Type	Description	Order code	Price	Weight per piece kg
SZC1-YU0	Y-distributor M12-2xM12 f. 2 SA, for WIOP100	**1SAF 912 910 R1000**		0.035
SZC8-YU0	Y-distributor M12-2xM8 f. 2 SA, for WIOP100	**1SAF 912 911 R1000**		0.045
WSC1-YU0	Y-distributor M12-2xM12, for WSP	**1SAF 912 990 R1000**		0.035

7/8” connectors 5 poles (Power connectors for WIOP100)

Type	Description	Order code	Price	Weight per piece kg
SZC7-5POL-P	Power connector for WIOP100. Plug 7/8”	**1SAF 937 780 R1000**		0.045
SZC7-5POL-S	Power connector for WIOP100. Socket 7/8”	**1SAF 937 781 R1000**		0.045

Documentation

Type	Description	Order code	Price	Weight per piece kg
CD-ROM	English/German documentation and use-case videos	**2CDC 171 007 E0406**		0.020

Notes:
Videos about Wireless Automation Application Reports and Use Cases

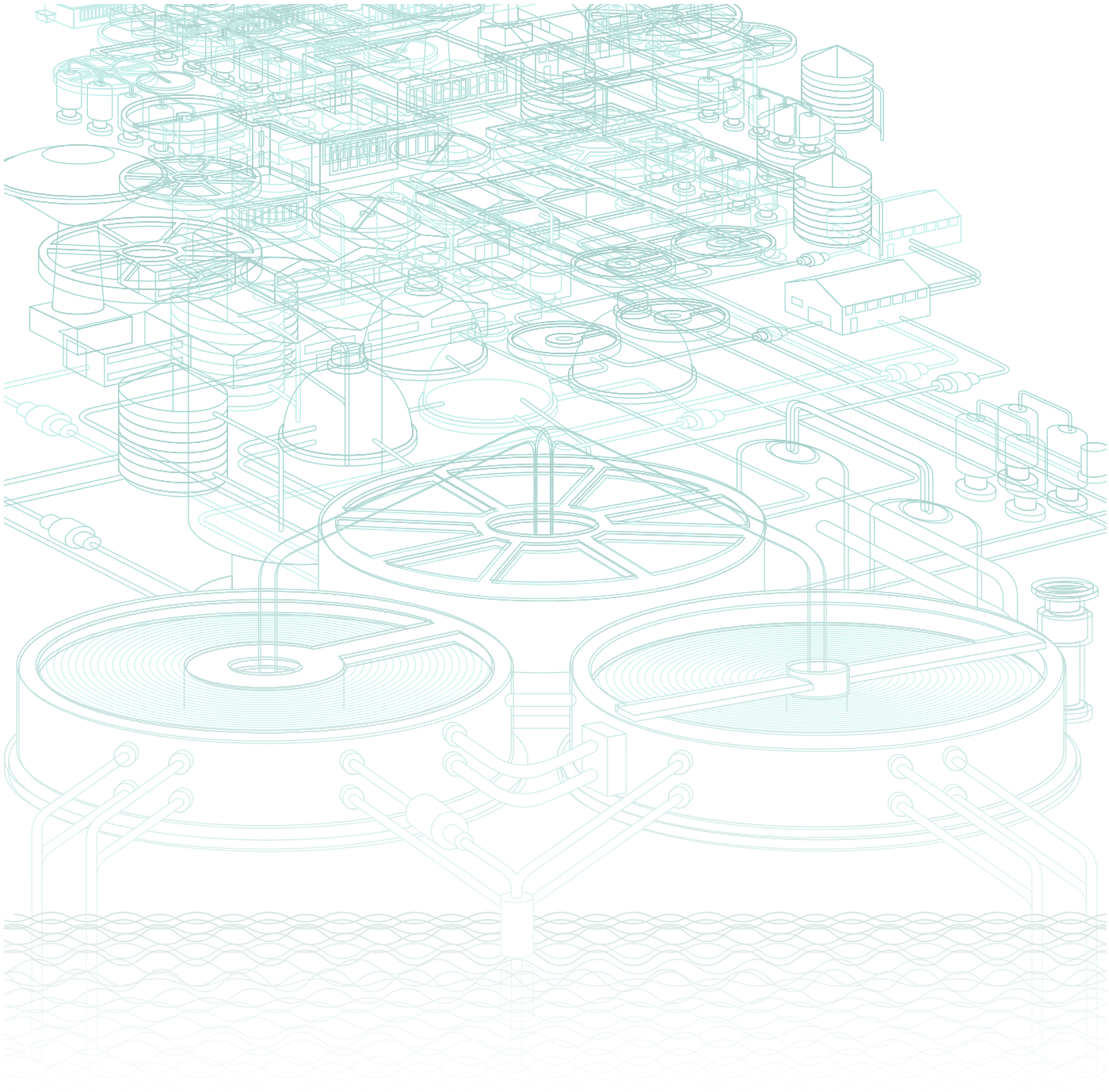
Pick & Place, Discrete Manufacturing, ABB Manufacturing Heidelberg/Germany:

http://www.youtube.com/watch?v=suuaFZFj0HM **Spanish Language**
http://www.youtube.com/watch?v=r_kUF8ejxGM **French Language**
http://www.youtube.com/watch?v=xxd9uFJ3cow **English Language**

From non-ABB manufacturing sites:

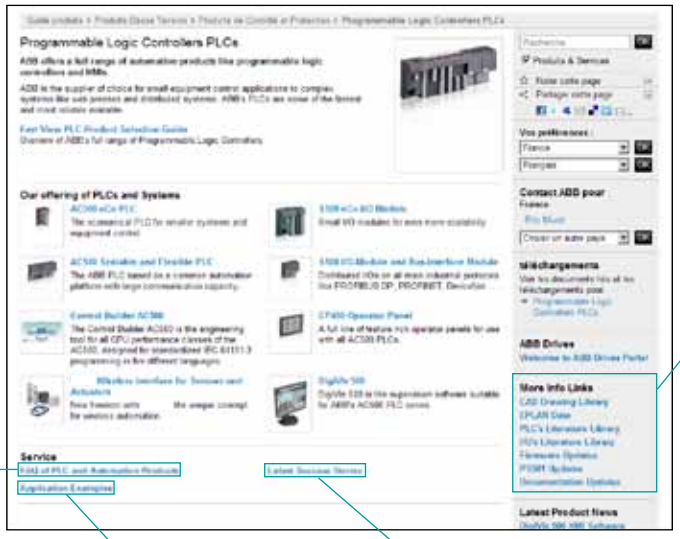
FORD Motors, Inc., Detroit
http://www.youtube.com/watch?v=cr9Lsb7WlmY

Food Packaging in USA/South Carolina
http://www.youtube.com/watch?v=UmxLow7yzqM

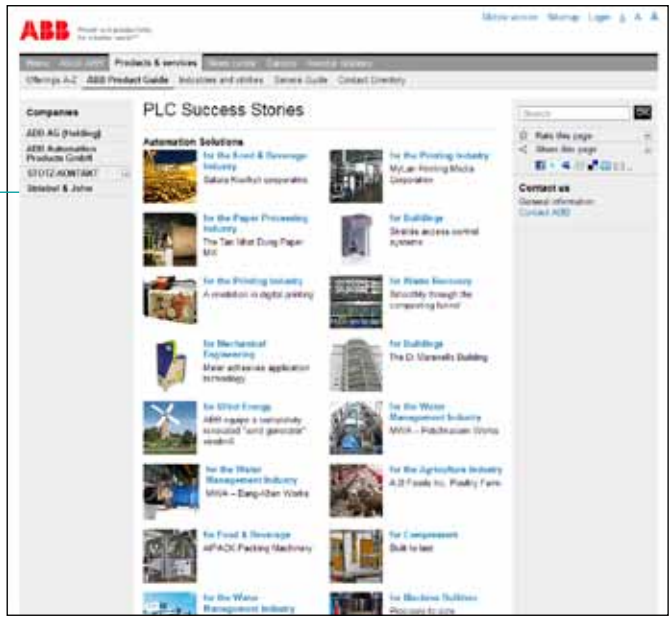


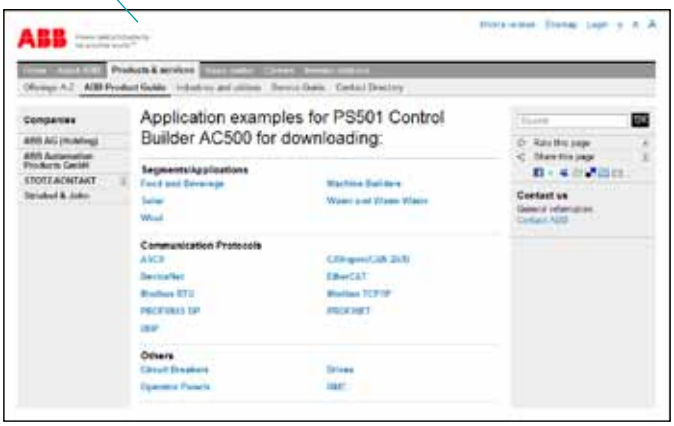
Online tools

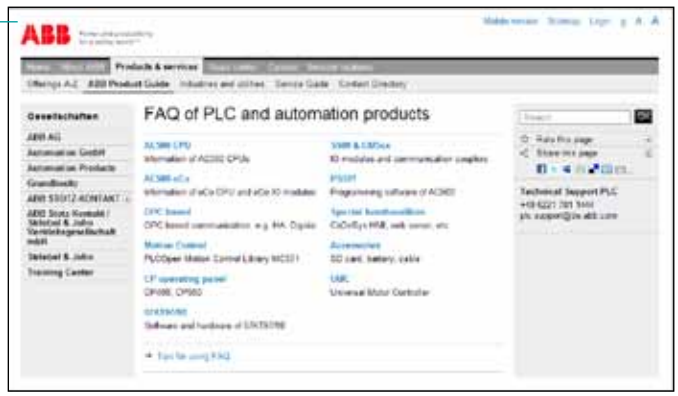
The www.abb.com/plc website is a mine of information on our products and documentation.
On our website, Frequently Asked Questions (FAQ), application examples and success stories are available.
There are several info links to update your products' firmware directly from the website and to download the new versions of your PS501 Control Builder Plus programming software.
You can find spare part details on www.abb.com/partsonline under Low Voltage Products and Systems.



More Info Links
CAD Drawing Library
EPLAN Data
PLC's Literature Library
I/O's Literature Library
Firmware Updates
PS501 Updates
Documentation Updates







PLC-trainer ABB AC500
Training packages with didactic models, software, teachware for schools and universities

Teach IEC 61131 programming based on CoDeSys with ABB AC500 PLC´s

The PLC-Trainer ABB AC500 addresses learners and students starting from the basic logic programming over motivating exercises up to Ethernet communication tasks and graphical user-screens using the integrated web server.

The included exercises range from the basic logical functions to practical samples like boiler heating with solar collector, parking bay monitoring or rolling gate with IR-remote.

Expansion possibilities like Plug-On Module Motor, Plug-On Module Traffic Light and the simulation model Solar Tracking will increase the motivation of the learners.

These training packages are built in cooperation with IKH Didactic Systems. For more information please visit www.IKHDS.com/ABB.

PLC-trainer ABB AC500

Description:

- 1 PLC-Trainer ABB AC500 with CPU and software
- 1 Power supply 230V AC/24V DC
- 1 IR-remote control without batteries
- 34 Learning cards 110 x 81 mm laminated in transparent storage box
- 1 CD with 45 practical exercises and solutions
- 1 quick guide for operation

PLC-trainer ABB AC500

PLC-trainer ABB AC500 with plug-on traffic light module

PLC-trainer ABB AC500 with plug-on motor module

Other ABB offering for factory automation
Drives, motors, robots and Motion Control

Low voltage drives
Drive technology extends the motor speed range from zero to high above the rated speed, increasing the productivity of the driven process. With lower output demand, the drive reduces the machine speed and saves energy.
ABB drives are available directly from ABB or through valued ABB drives partners.
www.abb.com/drives

AC drives
ABB offers a wide range of AC drives designed for various applications and industries such as the food & beverage, converting, wire drawing, mixer, extruders, test rigs, ski lifts, metals, cement, mining, pulp & paper and printing.
ABB AC drives are available both as complete drives and as modules to meet the requirements of the end-users, OEM's and system integrators.

DC drives
ABB DC drives continue to be an attractive alternative for machine suppliers. The modern DC converters are easy to operate, compact and low in maintenance.
DC drives can be used in most industrial applications as well as for the modernization of old plants. We offers the complete portfolio of three-phase DC drives - from 9 kW (12 Hp) up to 18 MW (24 000 Hp).

Motion Control solutions
ABB offers a range of Motion Control products, providing a complete motion solution for machine automation.
Products include:

- Multi-axis motion controllers: boxed and board level solutions
- Servo drives: single- and three-phase units
- Rotary and linear servo motors.

Low voltage motors
ABB offers a wide range of low voltage AC motors with improved energy efficiency and lifecycle value. The range comprises of industrial motors (IEC, NEMA) and servo motors.
ABB has long advocated the need for efficiency in motors, and high efficiency products have formed the core of its portfolio for many years.
www.abb.com/motors

Industrial robots
ABB is a leading supplier of industrial robots, modular manufacturing systems and service. A strong solutions focus helps manufacturers improve productivity, product quality and worker safety. ABB has installed more than 190 000 robots worldwide.
www.abb.com/robots

Other ABB offering
Electronic products and relays

Power supplies, CP range

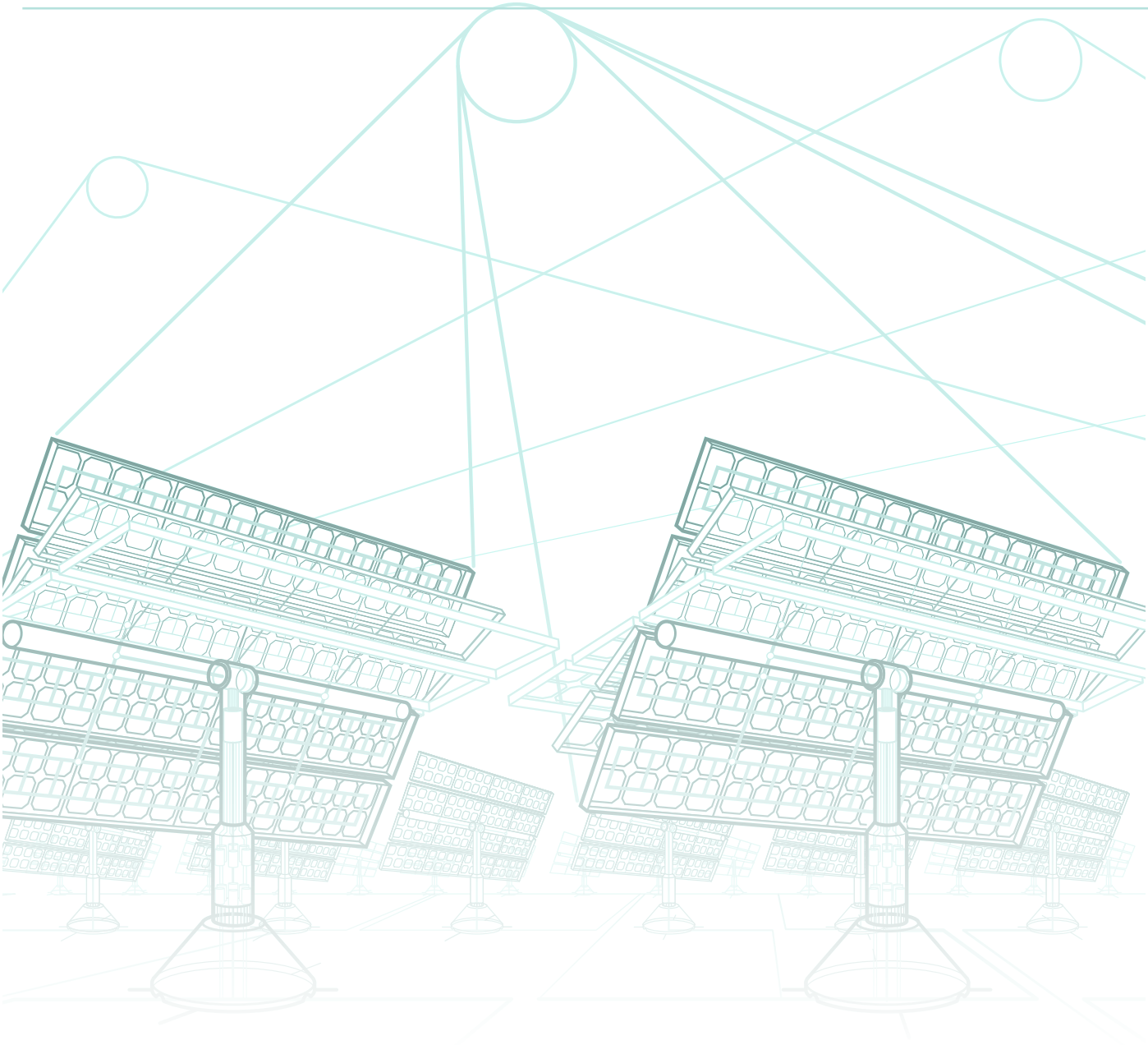
Modern power supply units are a vital component in most areas of energy management and automation technology. As your global partner in this area, ABB pays close attention to corresponding requirements. Innovation is the key to the substantial enlargement of our power supply product range. ABB offers four different product lines for single and threephase supplies, output voltages 5/12/24, and 48 VDC in plastic and metal enclosure, as well as various accessories.
For more information, refer to the following brochure:
"Primary switch mode power supplies CP range"
document number: 2CDC114038B0205
www.abb.com/lowvoltage

Interface relays and optocouplers, CR range and R600

Interface relays and optocouplers are widely used in various industrial applications. As an interface, they link the controller, e.g. PLC (Programmable Logic Controller), PC or field bus systems to the sensor/actuator level. Here, they have various functions: switching AC or DC loads with different resistive, inductive and capacitive parts, switching voltages from a few mV up to 250 V, switching currents from a few mA up to 16 A, amplification of weak control signals, electrical isolation of control and load circuits, and signal multiplying.
For more information, refer to the following brochure:
"Electronic Products and Relays - Selection Table Interface Relays CR-Range and R600 Range"
document number: 2CDC110070C0201
www.abb.com/lowvoltage

Signal converters, CC range and ILPH

The ABB serial data converters allow communication to be established between units with different communication standards. In order to assure process continuity, existing systems must be updated consistently or connected to new devices. Serial data enables communication to be established if the communication standard of the existing system and the connected device vary. As well as converting signals, analog signal converters and serial data converters can amplify, filter or separate signals.
For more information, refer to the following brochure:
"Electronic Products and Relays - Selection Table Signal Converters CC-Range"
document number: 2CDC110069C0201
www.abb.com/lowvoltage



Comprehensively customer support

ABB has many years of demonstrable experience in low-voltage engineering thus enabling us to provide you with a comprehensive range of support services, which are available worldwide. There is always a contact person available in your country sales offices who will be happy to assist with any automation engineering queries.

Life-cycle management

ABB's PLC life-cycle management model maximizes the value of your investment by maintaining high availability, eliminating unplanned repair costs and extending the lifetime of the device. Life-cycle management includes:

- Availability of spare parts and expertise throughout each products life cycle
- Providing efficient product support for improved reliability
- Ongoing product upgrades to maximize functionality
- Ensuring a smooth transition to latest technologies at the end of the life cycle.

Training

PLC product training can be provided where required. A range of training programs is offered from basic standard tutorials to programs tailored to the customer's specific needs.

Contact us

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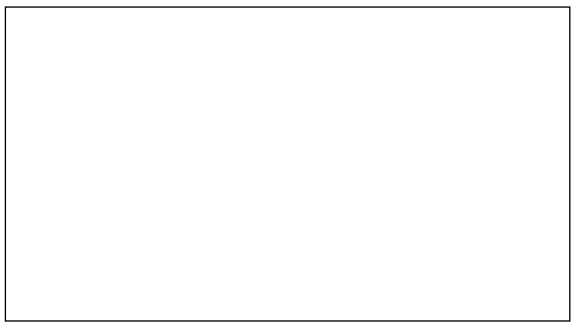
www.abb.com/plc



As part of its on-going product improvement, ABB reserves the right to modify the characteristics or the products described in this document. The information given is not-contractual. For further details please contact the ABB company marketing these products in your country.

ABB Global Contact Directory
The ABB Contact Directory (http://www.abb.com/contacts/) helps you find local contacts for ABB products in your country.
Please select the relevant product group from the dropdown menu to the right or from the page.

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for a better world™