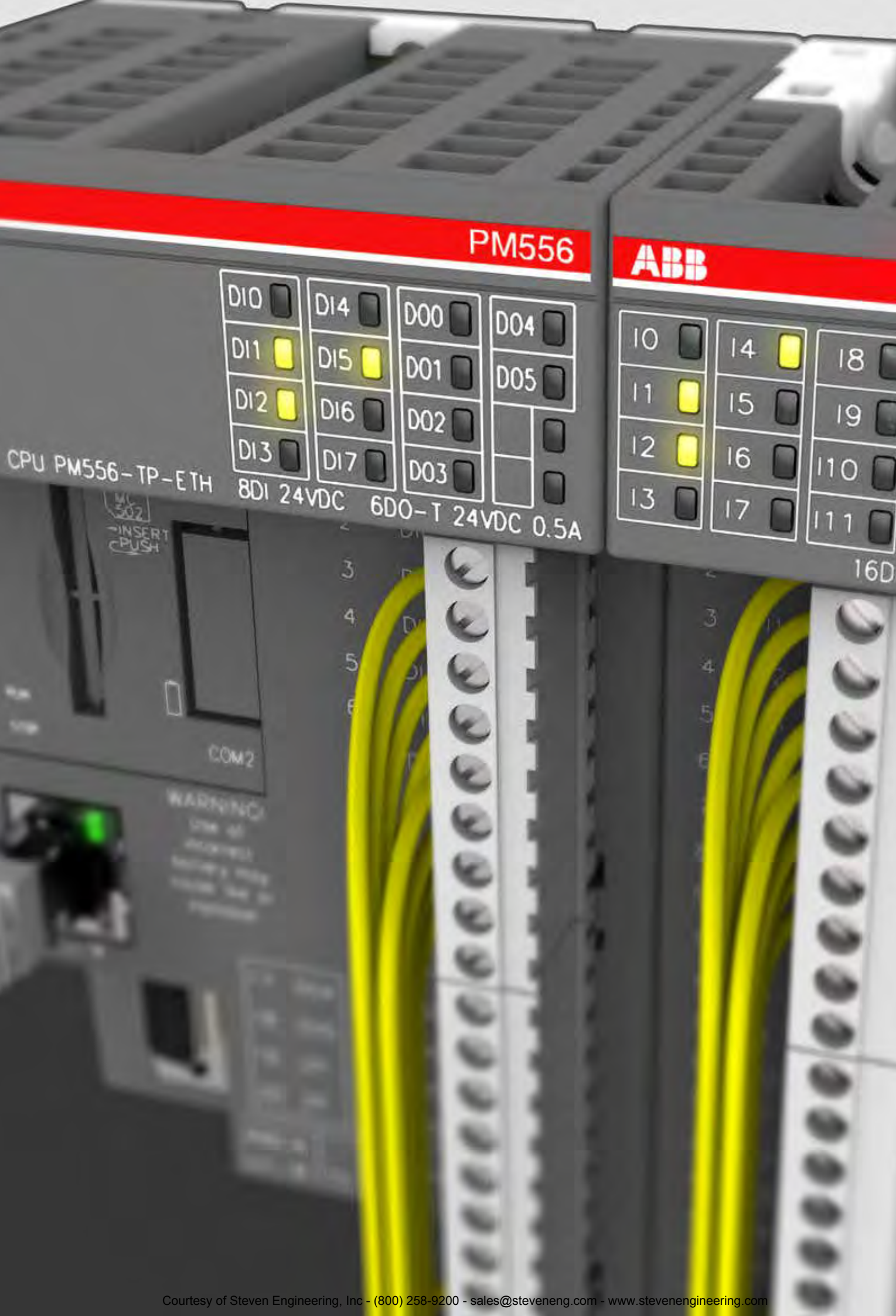

AC500-eCo

Entry level PLC solutions

065	Key features
066–069	Ordering data
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AC500-eCo

Key features



High performance variant with large memory available

- Up to 10 I/O modules connected to the CPU
- Compatible with all standard I/O modules (S500 and S500-eCo)
- Digital I/O module with configurable I/O available

- Three different types of terminal blocks available
- Integrated onboard I/O
- AC versions with integrated power supply

- Comprehensive communication options:
- Ethernet for communication and web server for user defined visualization
 - Up to two serial ports for decentralized I/O and communication

AC500-eCo

Ordering data

AC500-eCo CPUs

- 1 RS485 serial interface (2nd is optional)
- Centrally expandable with up to 10 I/O modules (standard S500 and/or S500-eCo modules can be mixed)
- Optional SD card adapter for data storage and program backup
- Variants with integrated Ethernet (Ethernet includes web server)
- Minimum cycle time per instruction: Bit 0.08 µs, Word 0.1 µs, Float-point 1.2 µs.

Program memory kB	Onboard I/Os DI/DO/AI/AO	Relay /Transistor outputs	Integrated communication	Power supply	Type	Order code	Price	Weight (1 pce) kg
PM554: digital I/Os								
128	8 / 6 / - / -	Transistor	-	24 V DC	PM554-TP	1SAP120600R0001		0.300
128	8 / 6 / - / -	Relay	-	24 V DC	PM554-RP	1SAP120700R0001		0.400
128	8 / 6 / - / -	Relay	-	100-240 V AC	PM554-RP-AC	1SAP120800R0001		0.400
128	8 / 6 / - / -	Transistor	Ethernet	24 V DC	PM554-TP-ETH	1SAP120600R0071		0.400
PM556: digital I/Os, 512 kB program memory								
512	8 / 6 / - / -	Transistor	Ethernet	24 V DC	PM556-TP-ETH	1SAP121200R0071		0.400
PM564: digital and analog I/Os (1)								
128	6 / 6 / 2 / 1	Transistor	-	24 V DC	PM564-TP	1SAP120900R0001		0.300
128	6 / 6 / 2 / 1	Relay	-	24 V DC	PM564-RP	1SAP121000R0001		0.400
128	6 / 6 / 2 / 1	Relay	-	100-240 V AC	PM564-RP-AC	1SAP121100R0001		0.400
128	6 / 6 / 2 / 1	Transistor	Ethernet	24 V DC	PM564-TP-ETH	1SAP120900R0071		0.300
128	6 / 6 / 2 / 1	Relay	Ethernet	24 V DC	PM564-RP-ETH	1SAP121000R0071		0.400
128	6 / 6 / 2 / 1	Relay	Ethernet	100-240 V AC	PM564-RP-ETH-AC	1SAP121100R0071		0.400
PM566: digital and analog I/Os, 512 kB program memory (1)								
512	6 / 6 / 2 / 1	Transistor	Ethernet	24 V DC	PM566-TP-ETH	1SAP121500R0071		0.400

Terminal blocks (9 and 11 poles) are necessary for each AC500-eCo I/O. The terminal blocks must be ordered separately.

(1) All analog inputs on PM564 and PM566 can be configured as digital inputs.



PM554
AC500-eCo CPU
with Ethernet



PM564
AC500-eCo CPU
without Ethernet

AC500-eCo

Ordering data

S500-eCo I/O modules

- For central expansion of the AC500 or AC500-eCo CPUs
- For decentralized expansion in combination with communication interface module DC551-CS31, CI52x-MODTCP, PROFINET CI50x modules, CI592-CS31, PROFIBUS modules CI54x, EtherCAT modules CI51x, and CANopen modules CI58x (not usable with DC505-FBP module and CI590-CS31-HA).

Digital I/O

- DC: Channels can be configured individually as inputs or outputs.

Number of	Input signal	Output type	Output signal	Terminal block required		Type	Order code	Price	Weight (1 pce) kg
				9 poles	11 poles				
DI/DO/DC									
8 / - / -	24 V DC	-	-	1	-	DI561	1TNE968902R2101		0.12
16 / - / -	24 V DC	-	-	1	1	DI562	1TNE968902R2102		0.12
8 / - / -	100-240 V AC	-	-	1	1	DI571	1TNE968902R2103		0.15
16 / - / -	100-240 V AC	-	-	1	1	DI572	1SAP230500R0000		0.19
- / 8 / -	-	Transistor	24 V DC, 0.5 A	-	1	DO561	1TNE968902R2201		0.12
- / 16 / -	-	Transistor	24 V DC, 0.5 A	1	1	DO562	1SAP230900R0000		0.16
- / 8 / -	-	Relay	24 V DC, 120 / 240 V AC, 2 A	-	1	DO571	1TNE968902R2202		0.15
- / 8 / -	-	Triac	100-240 V AC, 0.3 A	1	1	DO572	1TNE968902R2203		0.12
- / 16 / -	-	Relay	24 V DC, 120 / 240 V AC, 2 A	1	1	DO573	1SAP231300R0000		0.19
8 / 8 / -	24 V DC	Transistor	24 V DC, 0.5 A	1	1	DX561	1TNE968902R2301		0.12
8 / 8 / -	24 V DC	Relay	24 V DC, 120 / 240 V AC, 2 A	1	1	DX571	1TNE968902R2302		0.15
- / - / 16	24 V DC	Transistor	24 V DC, 0.5 A	1	1	DC562	1SAP231900R0000		0.15

Terminal blocks (9 or 11 poles) are necessary for each S500-eCo I/O. The terminal blocks must be ordered separately.

Analog I/O

- Each channel can be configured individually
- Resolution:
 - AI561, AO561, AX561: 12 bits/11 bits + sign
 - AI562, AI563: 15 bits + sign.

Number of AI/AO	Input signal	Output signal	Terminal block required		Type	Order code	Price	Weight (1 pce) kg
			9 poles	11 poles				
4 / 0	±2.5 V, ±5 V, 0...5 V, 0...10 V, 0...20 mA, 4...20 mA	–	1	1	AI561	1TNE968902R1101		0.12
2 / 0	PT100, PT1000, Ni100, Ni1000, Resistance: 150 Ω, 300 Ω	–	–	1	AI562	1TNE968902R1102		0.12
4 / 0	S, T, R, E, N, K, J, Voltage range: ±80 mV	–	1	1	AI563	1TNE968902R1103		0.12
0 / 2	–	-10...+10 V, 0...20 mA, 4...20 mA	–	1	AO561	1TNE968902R1201		0.12
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	1	1	AX561	1TNE968902R1301		0.13

Terminal blocks (9 or 11 poles) are necessary for each S500-eCo I/O. The terminal blocks must be ordered separately.



DI561



AI562



AX561

AC500-eCo

Ordering data

Positioning module

- For central expansion of the AC500 or AC500-eCo CPUs
- For decentralized expansion in combination with communication interface modules CI50X-PNIO or CI54X-DP
- The FM562 module provides Pulse Train Outputs for 2 axes. Profile generator integrated.

Number of axis	Input signal	Output signal	Terminal block required		Type	Order code	Price	Weight (1 pce) kg
			9 poles	11 poles				
2	4 digital inputs 24 V (2 per axis)	4 pulse outputs RS422 (2 per axis)	1	1	FM562	1SAP233100R0001		0.15

Terminal blocks (9 or 11 poles) are necessary for each S500-eCo I/O. The terminal blocks must be ordered separately. Library PS552-MC-E is required for programming this module.



FM562

Accessories

Description	Type	Order code	Price	Weight (1 pce) kg
SD Memory Card 2 GB needs the MC503 option	MC502	1SAP180100R0001		0.020
SD Memory Card adapter	MC503	1TNE968901R0100		0.010
Programming cable USB => RS485 Sub-D, 3 m	TK503	1TNE968901R1100		0.400
Programming cable USB => RS485 Terminal block, 3 m	TK504	1TNE968901R2100		0.400
RS485 isolator, Sub-D 9 poles / Terminal 5 poles for COM1	TK506	1SAP186100R0001		0.080
Real time clock option board, battery CR2032 not included	TA561-RTC (1)	1SAP181400R0001		0.007
RS485 serial adapter COM2, pluggable screw terminal block included	TA562-RS	1TNE968901R4300		0.007
Combined real time clock option with RS485 serial adapter COM2, pluggable screw terminal block, included	TA562-RS-RTC (1)	1SAP181500R0001		0.012
Screw mounting accessory for AC500-eCo CPU and S500-eCo I/O modules (100 pieces per pack)	TA566	1TNE968901R3107		0.450
RS485 isolated serial adapter COM2, pluggable screw terminal block included	TA569-RS-ISO	1SAP186400R0001		0.030
Set of accessories: 6 x plastic cover for option slot, 6 x 5 pole terminal block, 6 x 5 pole screw terminal block for COM2 serial interface.	TA570	1TNE968901R3203		0.090
Digital input simulator for onboard I/O of CPU, 6 x switch, 24 V DC	TA571-SIM	1TNE968903R0203		0.040

(1) Standard battery CR 2032 has to be purchased separately.



TK506



TA561-RTC



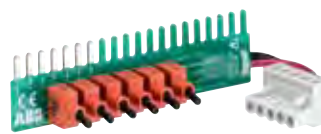
TA562-RS
TA569-RS-ISO



TA562-RS-RTC



TA570



TA571-SIM

AC500-eCo

Ordering data

Terminal blocks for S500-eCo I/O modules and AC500-eCo CPUs

Number of poles	Connection type	Cable entry	Type	Order code	Price	Weight (1 pce) kg
9	Screw	Side	TA563-9	1TNE968901R3101		0.017
11	Screw	Side	TA563-11	1TNE968901R3102		0.020
9	Screw	Front	TA564-9	1TNE968901R3103		0.026
11	Screw	Front	TA564-11	1TNE968901R3104		0.035
9	Spring	Front	TA565-9	1TNE968901R3105		0.016
11	Spring	Front	TA565-11	1TNE968901R3106		0.020



Only ABB terminal blocks must be used with AC500-eCo.
Package unit for these terminal blocks = 6.



TA563-9



TA564-11



TA565-9

AC500-eCo

Technical data

AC500-eCo CPUs

Type	PM554-TP	PM554-RP	PM554-RP-AC	PM554-TP-ETH	PM556-TP-ETH
Supply voltage	24 V DC		100-240 V AC		24 V DC
Current consumption on	24 V DC		100 V AC	240 V AC	24 V DC
Min. (module alone)	0.06 A	0.08 A	0.02 A	0.012 A	0.07 A
Max. (I/Os)	0.18 A	0.22 A	0.2 A	0.11 A	0.19 A
Program memory	128 kB				512 kB
Integrated data memory	14 kB thereof 2 kB saved				130 kB thereof 2 kB saved
Web server's data for user RAM disk	–				512 kB
Data buffering (of saved data)	flash memory				
Real-time clock (option with battery back-up) (1)	●				
Program execution					
Cyclical	●				
Time controlled	●				
Multi tasking	no, 1 task + 1 interrupt task max.				
Interruption	●				
User program protection by password	●				
Cycle time for 1 instruction (minimum)					
Binary	0.08 µs				
Word	0.1 µs				
Floating	1.2 µs				
Onboard digital inputs					
Channels	8 (including 2 counter inputs, or up to 4 interrupt inputs)				
Signal voltage	24 V DC				
Onboard digital outputs					
Channels	6 (including 2 PWM outputs for types with transistor outputs)				
Relay / Transistor	Transistor	Relay	Relay	Relay	Transistor
Rated voltage	24 V DC	240 V AC	240 V AC	240 V AC	24 V DC
Nominal current per channel	0.5 A	2 A resistive	2 A resistive	2 A resistive	0.5 A
Onboard analog outputs					
Channels	-				
signal ranges	-				
Onboard analog inputs					
Channels	-				
signal ranges	-				
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 + 8			
	outputs	320 + 6			
Analog	inputs	160			
	outputs	160			
Max. number of decentralized inputs/outputs					
On CS31 bus	up to 31 stations with up to 120 DI / 120 DO each or up to 32 AI/32 AO per station				
Internal interfaces					
COM1					
RS485	●				
Sub-D connection	●				
Programming, Modbus-RTU, ASCII, CS31	●				
COM2 (option) (2)					
RS485 / RS485 isolated	●/●				
Terminal block	●				
Programming, Modbus-RTU, ASCII	●				
Ethernet					
RJ45	–				●
Ethernet functions: Programming, Modbus TCP/IP, UDP/IP, integrated Web server, DHCP, FTP server, SNTP client	–				●
SMTP	–				●
RUN/STOP switch	●				
LED for power, status and error	●				
Approvals	see detailed overview page 238 or www.abb.com/plc				

(1) Real-time clock requires optional TA561-RTC or TA562-RS-RTC.

(2) COM2 requires TA562-RS-RTC, TA562-RS or new TA569-RS-ISO.

AC500-eCo

Technical data

AC500-eCo CPUs

Type	PM564-TP	PM564-RP	PM564-RP-AC	
Supply voltage	24 V DC		100-240 V AC	
Current consumption on	24 V DC		100 V AC	240 V AC
Min. (module alone)	0.095 A	0.11 A	0.02 A	0.011 A
Max. (I/Os)	0.21 A	0.24 A	0.21 A	0.125 A
Program memory	128 kB			
Integrated data memory	14 kB thereof 2 kB saved			
Web server's data for user RAM disk				
Data buffering (of saved data)	flash memory			
Real-time clock (option with battery back-up) (1)	●			
Program execution				
Cyclical	●			
Time controlled	●			
Multi tasking	no, 1 task + 1 interrupt task max.			
Interruption	●			
User program protection by password	●			
Cycle time for 1 instruction (minimum)				
Binary	0.08 μs			
Word	0.1 μs			
Floating	1.2 μs			
Onboard digital inputs				
Channels	6 (including 2 counter inputs, or up to 4 interrupt inputs)			
Signal voltage	24 V DC			
Onboard digital outputs				
Channels	6 (including 2 PWM outputs for types with transistor outputs)			
Relay / Transistor	Transistor	Relay	Relay	
Rated voltage	24 V DC	240 V AC	240 V AC	
Nominal current per channel	0.5 A	2 A resistive	2 A resistive	
Onboard analog inputs				
Channels	2			
signal ranges	0...10 V / can be configured as digital input 24 V DC			
Onboard analog outputs				
Channels	1			
signal ranges	0...10 V / 0...20 mA / 4...20 mA			
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 + 8		
	outputs	320 + 6		
Analog	inputs	160 + 2		
	outputs	160 + 1		
Max. number of decentralized inputs/outputs				
On CS31 bus	up to 31 stations with up to 120 DI / 120 DO each or up to 32 AI/32 AO per station			
Internal interfaces				
COM1				
RS485	●			
Sub-D connection	●			
Programming, Modbus-RTU, ASCII, CS31	●			
COM2 (option) (2)				
RS485 / RS485 isolated	●/●			
Terminal block	●			
Programming, Modbus-RTU, ASCII	●			
Ethernet				
RJ45	–			
Ethernet functions: Programming, Modbus TCP/IP, UDP/IP, integrated Web server, DHCP, FTP server, SNMP client	–			
SMTP	–			
RUN/STOP switch	●			
LED for power, status and error	●			
Approvals	see detailed overview page 238 or www.abb.com/plc			

(1) Real-time clock requires optional TA561-RTC or TA562-RS-RTC.

(2) COM2 requires TA562-RS-RTC, TA562-RS or new TA569-RS-ISO.

AC500-eCo

Technical data

AC500-eCo CPUs

Type	PM564-TP-ETH	PM566-TP-ETH	PM564-RP-ETH	PM564-RP-ETH-AC
Supply voltage	24 V DC			100-240 V AC
Current consumption on	24 V DC			100 V AC 240 V AC
Min. (module alone)	0.10 A	0.10 A	0.12 A	0.023 A 0.014 A
Max. (I/Os)	0.22 A	0.22 A	0.25 A	0.22 A 0.13 A
Program memory	128 kB	512 kB	128 kB	
Integrated data memory	14 kB thereof 2 kB saved	130 kB thereof 2 kB saved	14 kB thereof 2 kB saved	
Web server's data for user RAM disk	512 kB	1024 kB	512 kB	
Data buffering (of saved data)	flash memory			
Real-time clock (option with battery back-up) (1)	●			
Program execution				
Cyclical	●			
Time controlled	●			
Multi tasking	no, 1 task + 1 interrupt task max.			
Interruption	●			
User program protection by password	●			
Cycle time for 1 instruction (minimum)				
Binary	0.08 µs			
Word	0.1 µs			
Floating	1.2 µs			
Onboard digital inputs				
Channels	6 (including 2 counter inputs, or up to 4 interrupt inputs)			
Signal voltage	24 V DC			
Onboard digital outputs				
Channels	6 (including 2 PWM outputs for types with transistor outputs)			
Relay / Transistor	Transistor	Transistor	Relay	Relay
Rated voltage	24 V DC	24 V DC	240 V AC	240 V AC
Nominal current per channel	0.5 A	0.5 A	2 A resistive	2 A resistive
Onboard analog inputs				
Channels	2			
signal ranges	0...10 V / can be configured as digital input 24 V DC			
Onboard analog outputs				
Channels	1			
signal ranges	0...10 V / 0...20 mA / 4...20 mA			
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 + 8		
	outputs	320 + 6		
Analog	inputs	160 + 2		
	outputs	160 + 1		
Max. number of decentralized inputs/outputs				
On CS31 bus	up to 31 stations with up to 120 DI / 120 DO each or up to 32 AI/32 AO per station			
Internal interfaces				
COM1				
RS485	●			
Sub-D connection	●			
Programming, Modbus-RTU, ASCII, CS31	●			
COM2 (option) (2)				
RS485 / RS485 isolated	●/●			
Terminal block	●			
Programming, Modbus-RTU, ASCII	●			
Ethernet				
RJ45	●			
Ethernet functions: Programming, Modbus TCP/IP, UDP/IP, integrated Web server, DHCP, FTP server, SNMP client	●			
SMTP	–	●	–	
RUN/STOP switch	●			
LED for power, status and error	●			
Approvals	see detailed overview page 238 or www.abb.com/plc			

(1) Real-time clock requires optional TA561-RTC or TA562-RS-RTC.

(2) COM2 requires TA562-RS-RTC, TA562-RS or new TA569-RS-ISO.

AC500-eCo

Technical data

Digital S500-eCo I/O modules

Type		DI561	DI562	DI571	DI572	DO561	DO562
Supply voltage		–	–	–	–	24 V DC	24 V DC
Current consumption on UP							
Max. (without load current)		–	–	–	–	0.005 A	0.005 A
Number of channels per module							
Digital	inputs	8	16	8 (AC)	16 (AC)	–	–
	outputs	–	–	–	–	8	16
Configurable as Input or Output DC		–	–	–	–	–	–
Relay / Transistor		–	–	–	–	Transistor	Transistor
Additional configuration of channels as:							
Fast Counter		no				not applicable	
Digital inputs							
Input signal voltage		24 V DC	24 V DC	100-240 V AC	100-240 V AC	–	–
Input time delay		typically 4...8 ms	typically 4...8 ms	typically 15 ms / 30 ms	typically 15 ms / 30 ms	–	–
Input current per channel							
At Input voltage	24 V DC	typically 5 mA	typically 5 mA	–	–	–	–
	5 V DC	typically 1 mA	typically 1 mA	–	–	–	–
	15 V DC	> 2.5 mA	> 2.5 mA	–	–	–	–
	30 V DC	< 8 mA	< 8 mA	–	–	–	–
	40 V AC	–	–	< 3 mA	< 3 mA	–	–
	164 V AC	–	–	> 6 mA	> 6 mA	–	–
Output current							
Nominal current per channel		–	–	–	–	0.5 A	
Maximum (total current of all channels)		–	–	–	–	4 A	8 A
Residual current at signal state 0		–	–	–	–	< 0.5 mA	
Demagnetization when switching off inductive loads		–	–	–	–	must be provided externally	
Switching frequency							
For resistive load		–	–	–	–	limited by CPU cycle time	
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	
Resistance 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		–	–	–	–	–	–
Maximum cable length for connected process signals							
Cable	shielded	500 m					
	unshielded	300 m				150 m	
Potential isolation							
Per module		●	●	●	●	●	●
Between the channels	input	–	per group of 8	●	per group of 8	–	–
	output	–	–	–	–	–	–
Voltage supply for the module's logic	internal via I/O bus						
Fieldbus connection							
Suitable communication interface module	CI501-PNIO, CI502-PNIO, CI504-PNIO, CI506-PNIO, CI511-ETHCAT, CI512-ETHCAT, CI541-DP, CI542-DP, CI581-CN, CI582-CN, DC551-CS31, CI592-CS31, CI521-MODTCP, CI522-MODTCP						

AC500-eCo

Technical data

Digital S500-eCo I/O modules

Type		D0571	D0572	D0573
Supply voltage		24 V DC		
Current consumption on UP				
Max. (without load current)		0.050 A	–	0.050 A
Number of channels per module				
Digital	inputs	–	–	–
	outputs	8	8	16
Configurable as Input or Output DC		–	–	–
Relay / Transistor		Relay (n.o.)	Triac (AC)	Relay (n.o.)
Process voltage				
DC		24 V	–	–
Digital inputs				
Input signal voltage		–	–	–
Input time delay		–	–	–
Input current per channel				
At Input voltage	24 V DC	–	–	–
	5 V DC	–	–	–
	15 V DC	–	–	–
	30 V DC	–	–	–
Output current				
Nominal current per channel		2 A	0.3 A	2 A
Maximum (total current of all channels)		2 x 8 A	2.4 A	max 10 A per group (20 A per module)
Residual current at signal state 0		–	1.1 mA rms at 132 V AC and 1.8 mA rms at 264 V AC	–
Demagnetization when switching off inductive loads		must be performed externally		
Switching frequency				
For resistive load		1 Hz max.	10 Hz max.	1 Hz max.
For inductive load		–	–	–
For lamp load		1 Hz max.	10 Hz max.	1 Hz max.
Short circuit / overload proofness		no		
Overload indication (I > 0.7 A)		no		
Output current limiting		no		
Resistance against reverse feeding of 24 V signals		●	–	●
Output rating for different loads				
For resistive load, max.		2 A	0.3 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 at rated load	–	100 000 at rated load
Maximum cable length for connected process signals				
Cable	shielded	500 m		
	unshielded	150 m		
Potential isolation				
Per module		between outputs and logic	●	between outputs and logic
Between the channels	input	–	–	–
	output	per group of 4	●	per group of 8
Voltage supply for the module's logic		internal via I/O bus		
Fieldbus connection				
Suitable communication interface module		CI501-PNIO, CI502-PNIO, CI504-PNIO, CI506-PNIO, CI511-ETHCAT, CI512-ETHCAT, CI541-DP, CI542-DP, CI581-CN, CI582-CN, DC551-CS31, CI592-CS31, CI521-MODTCP, CI522-MODTCP		

AC500-eCo

Technical data

Digital S500-eCo I/O modules

Type		DX561	DX571	DC562
Supply voltage		24 V DC		
Current consumption on UP				
Max. (without load current)		0.005 A	0.050 A	0.010 A
Number of channels per module				
Digital	inputs	8	8	–
	outputs	8	8	–
Configurable as Input or Output DC		–	–	16
Relays / Transistor		Transistor	Relay (n.o.)	Transistor
Process voltage				
DC		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		typically 8 ms
Input current per channel				
At Input voltage	24 V DC	typically 5 mA	typically 5 mA	typically 5 mA
	5 V DC	< 1 mA	< 1 mA	typically 1 mA
	15 V DC	> 2.5 mA	> 2.5 mA	> 2.5 mA
	30 V DC	< 6.5 mA	< 6.5 mA	< 8 mA
Output current				
Nominal current per channel		0.5 A	2 A	0.5 A
Maximum (total current of all channels)		4 A	2 x 8 A	8 A
Residual current at signal state 0		< 0.5 mA	–	< 0.5 mA
Demagnetization when switching off inductive loads		must be performed externally		
Switching frequency				
For resistive load		Limited by CPU cycle time	1Hz max.	Limited by CPU cycle time
For inductive load		0.5 Hz max.	–	0.5 Hz max.
For lamp load		11 Hz max. at max. 5 W	1 Hz max.	11 Hz max. at max. 5 W
Short circuit / overload proofness		no		
Overload indication (I > 0.7 A)		no		
Output current limiting		no		
Resistance against reverse feeding of 24 V signals		no	yes	no
Output rating for different loads				
For resistive load, max.		–	2 A	–
For inductive load, max.		–	–	–
For lamp load		–	200 W at 230 V AC 30 W at 24 V DC	–
Lifetime (switching cycles)				
Mechanical lifetime		–	100 000	–
Lifetime under load		–	100 000 at rated Load DC-13 according to IEC 60947-5-1	–
Maximum cable length for connected process signals				
Cable	shielded	500 m		
	unshielded	150 m		
Potential isolation				
Per module		●	–	●
Between the channels	input	–	per group of 8	–
	output	–	per group of 4	–
Voltage supply for the module's logic		internal via I/O bus		
Fieldbus connection				
Suitable communication interface module		CI501-PNIO, CI502-PNIO, CI504-PNIO, CI506-PNIO, CI511-ETHCAT, CI512-ETHCAT, CI541-DP, CI542-DP, CI581-CN, CI582-CN, DC551-CS31, CI592-CS31, CI521-MODTCP, CI522-MODTCP		

AC500-eCo

Technical data

Analog S500-eCo I/O modules

Type		AI561	AO561	AX561	AI562	AI563
Supply voltage		24 V DC				
Current consumption on UP						
Max. (without load current)		0.100 A	0.100 A	0.140 A	0.040 A	0.100 A
Number of channels per module						
Analog	inputs	4	–	4	2	4
	outputs	–	2	2	–	–
Inputs, individually configurable						
-2.5...+2.5 V	11 bits + sign	●	–	●	–	–
-5...+5 V	11 bits + sign	●	–	●	–	–
-10...+10 V	11 bits + sign	–	–	–	–	–
0...5 V	12 bits	●	–	●	–	–
0...10 V	12 bits	●	–	●	–	–
0...20 mA, 4...20 mA	12 bits	●	–	●	–	–
RTD		–	–	–	2	–
Pt100	-50...+400 °C (2/3-wire)	–	–	–	●	–
Pt1000	-50...+400 °C (2/3-wire)	–	–	–	●	–
Ni100 / Ni1000	-50...+150 °C (2/3-wire)	–	–	–	●	–
Resistor	0...150 Ω/0...300 Ω	–	–	–	●	–
Thermocouple	Types J, K, T, N, S, E, R	–	–	–	–	●
Voltage	-80...+80 mV	–	–	–	–	●
Resolution of temperature measurement 0.1°C		–	–	–	●	●
Outputs, individually configurable						
-10...+10 V	11 bits + sign	–	●	●	–	–
0...20 mA	12 bits	–	●	●	–	–
4...20 mA	12 bits	–	●	●	–	–
Potential isolation						
Per module		–	–	–	●	●
Fieldbus connection						
Suitable communication interface module		CI501-PNIO, CI502-PNIO, CI504-PNIO, CI506-PNIO, CI511-ETHCAT, CI512-ETHCAT, CI541-DP, CI542-DP, CI581-CN, CI582-CN, DC551-CS31, CI592-CS31, CI521-MODTCP, CI522-MODTCP				

AC500-eCo

Technical data

FM562 positioning module

The FM562 module contains Pulse Train Outputs for 2 axes. Profile generator for simple motion control tasks are integrated. The RS422 outputs allow a direct connection to Stepper- or Servo drives. Function blocks in PLCopen motion control style allow the integration of the module in an application. These function blocks are contained in the library PS552-MC-E.

Type	FM562	
Functionality		
Number of axis	2	
Digital inputs	2 digital inputs per axis Function: for axis enable or limit switch	
Pulse outputs	Modes cw/ccw or pulse/direction Built in profile generators	
Data of the digital inputs		
Signal voltage	24 V DC	
Input current at 24 V DC	typically 5 mA	
Potential isolation	by groups of 2	
Data of pulse outputs		
Signal	RS422 (differential)	
Frequency range	0...250 kHz	
Potential isolation	RS422 outputs of both axes in one group isolated against the inputs, the process voltage and the PLC CPU logic	
Maximum cable length for digital inputs		
Cable	shielded	500 m
	unshielded	300 m
Maximum cable length for pulse outputs		
Cable	shielded	300 m
	unshielded	30 m
Process voltage UP		
Nominal voltage	24 V DC	
Current consumption on UP	typically 0.04 A	
Reverse polarity protection	●	
Potential isolation		
Per module	●	
Voltage supply for the internal logic	From UP / ZP with isolation	
Fieldbus connection		
Suitable communication interface module	CI501-PNIO, CI502-PNIO, CI504-PNIO, CI506-PNIO, CI541-DP, CI542-DP	

AC500-eCo

System data

Environmental Conditions

Process and supply voltages

24 V DC	Voltage	24 V (-15%, +20%)
	Protection against reverse polarity	yes
100 V...240 V AC Wide Range Supply	Voltage	100...240 V (-15 %, +10 %)
	Frequency	50/60 Hz (-6 %, +4%)
Allowed interruptions of power supply	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 process and supply voltages could lead to unrecoverable damage of the system. The system could be destroyed. For the supply of the modules, power supply units according to PELV or SELV specifications must be used. The creepage distances and clearances meet the requirements of the overvoltage category II, pollution degree 2.

Assembly position

Horizontal	•
Vertical	•

Temperature

Operating	0 °C ... +60 °C	Preferred mounting position horizontal. Other mounting positions see manual.
Storage / Transport	-40 °C ... +70 °C	

Humidity

Operating / Storage	Max 95 % r. H. without condensation
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Air pressure

Operating	-1000 m ... 2000 m (1080 hPa ... 800 hPa)
Storage	<3500 m (>660 hPa)

Electromagnetic Compatibility

Radiated emission (radio disturbances)	Yes, in accordance with CISPR 16-2-3
Conducted emission (radio disturbances)	Yes, in accordance with CISPR 16-2-1, CISPR 16-1-2
Electrostatic discharge (ESD)	Yes, in accordance with IEC 61000-4-2, zone B, criterion B
	Electrostatic voltage in case of air discharge: 8 kV Electrostatic voltage in case of contact discharge: 6 kV
Fast transient interference voltages (burst)	Yes, in accordance with IEC 61000-4-4, zone B, criterion B
	Supply voltage units (DC): 2 kV
	Supply voltage units (AC): 2 kV
	Digital inputs/outputs (24 V DC): 1 kV
	Digital inputs/outputs (100...240 V AC): 2 kV
	Analog inputs/outputs: 1 kV
	Communication lines shielded: 1 kV I/O supply (DC-out): 1 kV
High energy transient interference voltages (surge)	Yes, in accordance with IEC 61000-4-5, zone B, criterion B
	Supply voltage units (DC): 1 kV CM* / 0.5 kV DM*
	Supply voltage units (AC): 2 kV CM* / 1 kV DM*
	Digital inputs/outputs (24 V DC): 1 kV CM* / 0.5 kV DM*
	Digital inputs/outputs (100...240 V AC): 2 kV CM* / 1 kV DM*
	Analog inputs/outputs: 1 kV CM* / 0.5 kV DM*
	Communication lines shielded: 1 kV CM* I/O supply (DC-out): 0.5 kV CM* / 0.5 kV DM*
* CM = Common Mode, * DM = Differential Mode	
Influence of radiated disturbances	Yes, in accordance with IEC 61000-4-3, zone B, criterion A Test field strength: 10 V/m
Influence of line-conducted interferences	Yes, in accordance with IEC 61000-4-6, zone B, criterion A Test voltage: 10 V
Influence of power frequency magnetic fields	Yes, in accordance with IEC 61000-4-8, zone B, criterion A
	30 A/m 50 Hz 30 A/m 60 Hz

WARNING!

Risk of malfunctions and damages to persons!

Unused slots for communication modules are not protected against contact discharge. Dust and Dirt may cause contact problems and malfunctions.

I/O-Bus connectors must not be touched during operation.

In order to prevent 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.

AC500-eCo

System data

Environmental Conditions

Environmental Tests		
Storage		IEC 60068-2-1 Test Ab: cold withstand test -40 °C / 16 h
		IEC 60068-2-2 Test Bb: dry heat withstand test +70 °C / 16 h
Humidity		IEC 60068-2-30 Test Db: Cyclic (12 h / 12 h) Damp-Heat Test 55 °C, 93 % r. H. / 25 °C, 95 % r. H., 2 cycles
Vibration resistance		IEC 61131-2 / IEC 60068-2-6: 5 Hz ... 150 Hz, 1 g (with SD Memory Card inserted)
Shock resistance		IEC 60068-2-27: all 3 axes 15 g, 11 ms, half-sinusoidal
Mechanical Data		
Wiring method		Spring terminals / Screw terminals
Degree of protection		IP 20
Assembly on DIN rail	DIN rail type	According to IEC 60715
		35 mm, depth 7.5 mm or 15 mm
Assembly with screws	Screw diameter	4 mm
	Fastening torque	1.2 Nm

Main dimensions mm, inches

