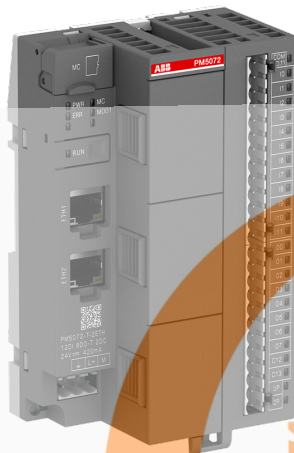


DATA SHEET

PM5012, PM5032, PM5052, PM5072, PM5082

Processor module



1 Ordering data

Processor modules for AC500-eCo V3 products

To enable better product availability into the production and to provide some new features, a revision of the existing AC500-eCo V3 processor module was necessary. The existing AC500-eCo V3 processor module with rubric **R007x** will move to classic and will be replaced by compatible new AC500-eCo V3 processor module revision 1 with rubric **R017x**.

For example:

The processor module revision 1 PM5012-T-ETH (1SAP122 600 **R0172**) replaces the existing processor module PM5012-T-ETH (1SAP 122 600 **R0072**) and provides the same features or functionality of the previous ones.

Following points must be considered with the processor module revision 1:



- The processor module revision 1 (R017x) requires a new BootFW / CPUFW from V3.6.x and higher.
- **It cannot be downgraded** and used with lower FW versions than V3.6.0.
- The processor module revision 1 (R017x) provides the same features as the processor module (R007x) existing today and is fully compatible.
- An existing application using a processor module (R007x) built with Automation Builder < 2.6 can run on a processor module revision 1 (R017x) but the application **must be upgraded** to at least AB 2.6.0 or higher.

What must be done using a new processor module revision 1 (R017x)?

- On a new application?
 - Just use the processor module revision 1 (R017x)
 - Use the latest Automation Builder Software from 2.6.0 or higher.
- On an existing application using an Automation Builder software version smaller than 2.6.0?
 - To use a processor module revision 1 in an existing application (e.g., replacement of the processor module), the application must be upgraded to at least AB 2.6.0 or higher.
 - If several processor module (revision 1 and revision 0) are used within the same project, all the processor modules used in the same application must be upgraded to the FW Version V3.6.x and higher.

Table 1: Processor modules for AC500-eCo V3

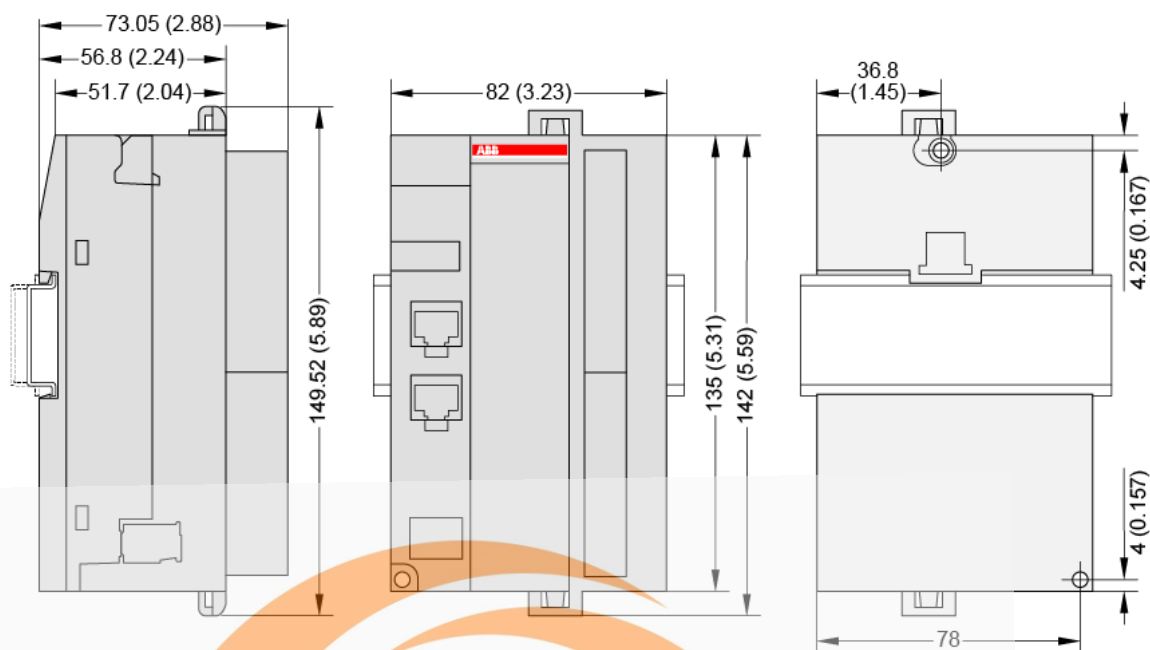
Part no.	Description	Product life cycle phase *)
1SAP 122 600 R0072 (processor module revision 0)	Basic CPU PM5012-T-ETH, AC500-eCo V3 processor module, programmable logic controller 1 MB, 6DI/4DO-Transistor, Ethernet, 24 V DC, 1 option board slot	Active -> Classic in 2024 (replaced by processor module revision 1)
1SAP 122 600 R0172 (processor module revision 1)	Basic CPU PM5012-T-ETH, AC500-eCo V3 processor module, programmable logic controller 1 MB, 6DI/4DO-Transistor, Ethernet, 24 V DC, 1 option board slot	In preparation
1SAP 122 700 R0072 (processor module revision 0)	Basic CPU PM5012-R-ETH, AC500-eCo V3 processor module, programmable logic controller 1 MB, 6DI/4DO-Relay, Ethernet, 24 V DC, 1 option board slot	Active -> Classic in 2024 (replaced by processor module revision 1)
1SAP 122 700 R0172 (processor module revision 1)	Basic CPU PM5012-R-ETH, AC500-eCo V3 processor module, programmable logic controller 1 MB, 6DI/4DO-Relay, Ethernet, 24 V DC, 1 option board slot	In preparation
1SAP 123 400 R0072 (processor module revision 0)	Standard CPU PM5032-T-ETH, AC500-eCo V3 processor module, programmable logic controller 2 MB, 12DI/8DO-Transistor/2DC, Ethernet, 24 V DC, 2 option board slots	Active -> Classic in 2024 (replaced by processor module revision 1)
1SAP 123 400 R0172 (processor module revision 1)	Standard CPU PM5032-T-ETH, AC500-eCo V3 processor module, programmable logic controller 2 MB, 12DI/8DO-Transistor/2DC, Ethernet, 24 V DC, 2 option board slots	In preparation
1SAP 123 500 R0072 (processor module revision 0)	Standard CPU PM5032-R-ETH, AC500-eCo V3 processor module, programmable logic controller 2 MB, 12DI/6DO-Relay/2DC, Ethernet, 24 V DC, 2 option board slots	Active -> Classic in 2024 (replaced by processor module revision 1)
1SAP 123 500 R0172 (processor module revision 1)	Standard CPU PM5032-R-ETH, AC500-eCo V3 processor module, programmable logic controller 2 MB, 12DI/6DO-Relay/2DC, Ethernet, 24 V DC, 2 option board slots	In preparation
1SAP 124 000 R0072 (processor module revision 0)	Standard CPU PM5052-T-ETH, AC500-eCo V3 processor module, programmable logic controller 4 MB, 12DI/8DO-Transistor/2DC, Ethernet, 24 V DC, 3 option board slots	Active -> Classic in 2024 (replaced by processor module revision 1)

Part no.	Description	Product life cycle phase *)
1SAP 124 000 R0172 (processor module revision 1)	Standard CPU PM5052-T-ETH, AC500-eCo V3 processor module, programmable logic controller 4 MB, 12DI/8DO-Transistor/2DC, Ethernet, 24 V DC, 3 option board slots	In preparation
1SAP 124 100 R0072 (processor module revision 0)	Standard CPU PM5052-R-ETH, AC500-eCo V3 processor module, programmable logic controller 4 MB, 12DI/6DO-Relay/2DC, Ethernet, 24 V DC, 3 option board slots	Active -> Classic in 2024 (replaced by processor module revision 1)
1SAP 124 100 R0172 (processor module revision 1)	Standard CPU PM5052-R-ETH, AC500-eCo V3 processor module, programmable logic controller 4 MB, 12DI/6DO-Relay/2DC, Ethernet, 24 V DC, 3 option board slots	In preparation
1SAP 124 500 R0073 (processor module revision 0)	Pro CPU PM5072-T-2ETH, AC500-eCo V3 processor module, programmable logic controller 8 MB, 12DI/8DO-Transistor/2DC, 2 Ethernet, 24 V DC, 3 option board slots	Active -> Classic in 2024 (replaced by processor module revision 1)
1SAP 124 500 R0173 (processor module revision 1)	Pro CPU PM5072-T-2ETH, AC500-eCo V3 processor module, programmable logic controller 8 MB, 12DI/8DO-Transistor/2DC, 2 Ethernet, 24 V DC, 3 option board slots	In preparation
1SAP 124 400 R0073 (processor module revision 0)	Pro CPU PM5072-T-2ETHW, AC500-eCo V3 processor module, programmable logic controller 8 MB, 12DI/8DO-Transistor/2DC, 2 Ethernet, 24 V DC, 3 option board slots, wide temperature	Active -> Classic in 2024 (replaced by processor module revision 1)
1SAP 124 400 R0173 (processor module revision 1)	Pro CPU PM5072-T-2ETHW, AC500-eCo V3 processor module, programmable logic controller 8 MB, 12DI/8DO-Transistor/2DC, 2 Ethernet, 24 V DC, 3 option board slots, wide temperature	In preparation
1SAP 124 600 R0173 (processor module revision 1)	Pro CPU PM5082-T-2ETH, AC500-eCo V3 processor module, programmable logic controller 8 MB, 12DI/8DO-Transistor/2DC, 2 Ethernet, 24 V DC, 3 option board slots	Active



*) Modules in lifecycle Classic are available from stock but not recommended for planning and commissioning of new installations.

2 Dimensions



The dimensions are in mm and in brackets in inch.

3 Technical data

The system data of AC500-eCo V3 apply ↗ Chapter 4 “System data AC500-eCo” on page 9

Only additional details are therefore documented below.

General data

Parameter		Value				
		PM5012	PM5032	PM5052	PM5072	PM5082
Power supply		24 V DC				
Connection of power supply		Via removable 3-pin terminal				
Current consumption from power supply (max.)						
	Transistor version	200 mA	340 mA	400 mA	420 mA	420 mA
	Relay version	200 mA	340 mA	400 mA	-	-
Melting integral of a fuse at 24 V DC		0.9 A²s				
Peak inrush current from 24 V DC		65 A				
Max. power dissipation within the processor module						
	Transistor version	5.7 W	8.1 W	9.0 W	9.2 W	9.2 W
	Relay version	5.9 W	8.3 W	9.2 W	-	-
Processor module interfaces		RS485/RS232 (optional), Ethernet				
		-	I/O bus			
Weight						

Parameter		Value				
		PM5012	PM5032	PM5052	PM5072	PM5082
	Transistor version	225 g	253 g	257 g	265 g	265 g
	Relay version	235 g	268 g	273 g		
Mounting position		Horizontal or vertical				

Detailed data

Parameter		Value				
		PM5012	PM5032	PM5052	PM5072	PM5082
Total maximum downloadable application size ¹⁾		1 MB	5 MB	7 MB	9 MB	9 MB
	Thereof user program code / data memory dynamically allocated	256 KB	512 KB	768 KB	1 MB	1 MB
	Thereof user web server memory for web visualization max.	no web	1.5 MB	3.2 MB	7 MB	7 MB
	Flash memory for user data					
	Remaining for all other usage (project save, infra- structure...)	30 MB	30 MB	30 MB	30 MB	30 MB
	Buffered (FRAM)	8 KB	32 KB	32 KB	100 KB	100 KB
	VAR_RETAIN persistent	4 KB	16 KB	16 KB	36 KB	36 KB
	%MB data	4 KB	16 KB	16 KB	64 KB	64 KB
Expandable memory		None	None	None	None	None
Integrated mass storage memory (FLASH)		None	None	None	None	None
Slot for pluggable memory card		x	x	x	x	x
Real-time clock (RTC)		Optional with TA5131-RTC	Built in			
Min. retention time for RTC at room temperature (if at least powered for 8 hours)		7 days	20 days			
	Accuracy	±2 s/day				
Programming languages		• Instruction List (IL) • Function Block Diagram (FBD) • Ladder Diagram (LD) • Sequential Function Chart (SFC) • Structured Text (ST) • Continuous Function Chart (CFC)				
	Processor type	TI ARM Cortex-A9 32-bit-RISC				
	Processor clock speed	300 MHz				600 MHz
Calculation time per instructions (minimum)		PM5012	PM5032	PM5052	PM5072	PM5082
	Binary	20 ns				10 ns
	Word	50 ns				10 ns
	Floating point	600 ns				10 ns
	Lowest cycle time usable (also f. PTO)	-	5	2	1	1
Using onboard EtherCAT protocol (licensed) in preparation						
EtherCAT onboard No. of synchronized axis		PM5012	PM5032	PM5052	PM5072	PM5082

Parameter		Value				
		PM5012	PM5032	PM5052	PM5072	PM5082
	axis per 1 ms CM typically	-	-	-	-	2 - 4*
	axis per 2 msCM typically	-	-	-	2 - 4*	4 - 8*
	axis per 4 ms CM typically	-	-	-	4 - 8*	8 - 16
	Cyclic min. configurable	10 ms	5 ms	2 ms	1 ms	1 ms
	Time-controlled	Yes				
	Multitasking	Yes				
	Interruption	Yes				
LEDs		Power, Error, Run, MC, MOD1, States of I/Os				
RUN/STOP button		Yes				
Protection of the user program by password		On request				
Usable accessories		On request				
Remarks:						
* Depending an application complexity						
1): The values are for information only and cannot be fulfilled altogether. The available resources are limited at the end by the maximal downloadable application size for each CPU.						

Data of I/Os	PM5012-x-ETH	PM5032-x-ETH	PM5052-x-ETH	PM5072-T-2ETH(W)	PM5082-T-2ETH
Onboard digital inputs					
Channels	6 (incl. 2 counter inputs 5 kHz and 4 interrupts)	12 (incl. 4 fast counter/encoder inputs (100 kHz/200 kHz), 4 counter inputs (5 kHz), 4 standard inputs)			
Signal voltage	24 V DC type 1				
Onboard digital outputs					
Type of digital outputs	PM5012-T-ETH: Transistor	PM5032-T-ETH: Transistor	PM5052-T-ETH: Transistor	PM5072-T-2ETH(W): Transistor	PM5082-T-2ETH: Transistor
	PM5012-R-ETH: Relay	PM5032-R-ETH: Relay	PM5052-R-ETH: Relay	-	-
Channels for transistor version	4 (5 kHz standard and PWM)	8 (incl. 4 fast outputs for standard or 4 PWM/2-4 PTO (100 kHz/200 kHz), 4 standard outputs (5 kHz))			

Data of I/Os	PM5012-x-ETH	PM5032-x-ETH	PM5052-x-ETH	PM5072-T-2ETH(W)	PM5082-T-2ETH
Channels digital input/output configurable (valid for both PLC version relays or transistor)	-	2 Relay version: The DC channels can be used as 1 PTO/2 PWM (100 kHz) or standard digital inputs/outputs Transistor version: The DC channels can only be used as standard digital inputs/outputs		2 Transistor version: The DC channels can only be used as standard digital inputs/outputs	
Rated voltage transistor	24 V DC				
Nominal current per transistor channel	0.5 A resistive				
Channels for relay version	4	6		-	-
Rated voltage relay	100 V AC ... 240 V AC or 24 V DC			-	-
Nominal current per relay channel	2 A resistive			-	-
Analog inputs	Optional				
Analog outputs	Optional				
Number of option board slots	1	2	3	3	3
Usage of option board	Each slot can be used for all type of existing option boards, same option board for serial interface or digital/analog I/O extension can be used on several slot per CPU. Note: RTC option board is only for PM5012 possible.				
KNX address switch	No			TA5130-KNXPB only on 1 slot	
Real-time clock (RTC)	TA5131-RTC	No			
Serial interface	TA5141-RS232I, TA5142-RS485/TA5142-RS485I				
Digital in/out channels	TA5101-4DI, TA5105-4DOT, TA5110-2DI2DOT				
Analog in/out channels	TA5120-2AI-UI, TA5123-2AI-RTD, TA5126-2AO-UI				
Max. number of I/O modules on I/O bus	0	10			
Digital inputs	Onboard I/O only	128 byte	1 KB		
Digital outputs		128 byte	1 KB		
Number of decentralized inputs and outputs	Depending on the fieldbus used				

Data of I/Os	PM5012-x-ETH	PM5032-x-ETH	PM5052-x-ETH	PM5072-T-2ETH(W)	PM5082-T-2ETH
Internal interfaces					
Serial COMx	Optional, use a dedicated serial interface option board (up to 1)	Optional, use a dedicated serial interface option board (up to 2)	Optional, use a dedicated serial interface option board (up to 3)		
	Modbus RTU Master/Slave, ASCII				
Ethernet interface RJ45	1			2 Independent with switch functionality	
Ethernet functions	Programming, TCP/IP, UDP/IP, DHCP, PING, network variables, and other listed below				
Modbus TCP/IP client/server	Yes 8 / 3	Yes 13 / 8	Yes 20 / 10	Yes 30 / 15	Yes 30 / 15
SNTP client/server	No	Yes			
HTTPs and WebVisu number of connections	No	Yes 1	Yes 2	Yes 4	Yes 4
FTP number of connections	No	Yes 1	Yes 2	Yes 2	Yes 2
OPC UA server number of free tags	No	Yes 125	Yes 250	Yes 1000	Yes 3000
MQTT and JSON library	No	Yes			
OPC DA server	Yes				
IEC 60870-5-104 telecontrol protocol	No			Yes Substation only, 5 connections max., only 1 Ethernet supported	
Licensed protocols (runtime protocol per CPU)					
BACnet IP B-BC	No			Yes (max. 1000 object variables)	
KNXIP	No			Yes (max. 1000 object variables)	
IEC 61850 MMS server/goose pub/sub	No			Yes (max. 1000 data attributes)	

Data of I/Os	PM5012-x-ETH	PM5032-x-ETH	PM5052-x-ETH	PM5072-T-2ETH(W)	PM5082-T-2ETH
EtherNet/IP adapter/scanner	No	Yes max. 512 byte in / 512 byte out data for adapter			
EtherCAT Master	No	Yes max. 512 byte in / 512 byte out data for adapter			

4 System data AC500-eCo

4.1 Environmental conditions

Table 2: Process and supply voltages

Parameter		Value
24 V DC		
	Voltage	24 V (-15 %, +20 %)
	Protection against reverse polarity	Yes
24 V AC		
	Voltage	24 V (-15 %, +10 %)
	Frequency	50/60 Hz (-6 %, +4 %)
100 V AC		
	Voltage	100 V (-15 %, +10 %)
	Frequency	50/60 Hz (-6 %, +4 %)
230 V AC		
	Voltage	230 V (-15 %, +10 %)
	Frequency	50/60 Hz (-6 %, +4 %)
100 V AC...240 V AC wide-range supply		
	Voltage	100 V ... 240 V (-15 %, +10 %)
	Frequency	50/60 Hz (-6 %, +4 %)
Allowed interruptions of power supply, according to EN 61131-2		
	DC supply	Interruption < 10 ms, time between 2 interruptions > 1 s, PS2
	DC supply (only for analog option boards TA512x)	Interruption < 1 ms, time between 2 interruptions > 1s, PS1



NOTICE!

Risk of damaging the PLC due to improper voltage levels!

- Never exceed the maximum tolerance values for process and supply voltages.
 - Never fall below the minimum tolerance values for process and supply voltages.
- Observe the **system data** and the **technical data** of the used module.
- 📖 Chapter 4 "System data AC500-eCo" on page 9

**NOTICE!**

Improper voltage level or frequency range which cause damage of AC inputs:

- AC voltage above 264 V
- Frequency below 47 Hz or above 62.4 Hz

**NOTICE!**

Improper connection leads cause overtemperature on terminals.

PLC modules may be destroyed by using wrong cable type, wire size and cable temperature classification.

CPUs

Table 3: Temperature ranges for processor modules revision 0

Parameter		Value		
		PM5012-x-ETH	PM5032-x-ETH, PM5052-x-ETH, PM5072-T-2ETH	PM5072-T-2ETHW
Temperature				
	Operating			
	Horizontal mounting	0 °C ... +55 °C	0 °C ... +60 °C	-20 °C ... +70 °C Between 60 °C ... 70 °C: I/O derating to 75 % Only 75 % of the I/O channels are allowed to be energized simultaneously, e.g., only 6 of 8 output channels.
	Vertical mounting (output load reduced to 50 % per group)	0 °C ... +40 °C		-20 °C ... +40 °C
	Storage	-40 °C ... +70 °C		
	Transport	-40 °C ... +70 °C		
Humidity		Max. 95 %, without condensation		
Air pressure				
	Operating	> 800 hPa / < 2000 m		
	Storage	> 660 hPa / < 3500 m		

Table 4: Temperature ranges for processor modules revision 1

Parameter		Value		
		PM5012-x-ETH	PM5032-x-ETH, PM5052-x-ETH, PM5072-T-2ETH, PM5082-T-2ETH	PM5072-T-2ETHW
Temperature				
	Operating			

Parameter			Value		
			PM5012-x-ETH	PM5032-x-ETH, PM5052-x-ETH, PM5072-T-2ETH, PM5082-T-2ETH	PM5072-T-2ETHW
		Horizontal mounting	0 °C ... +55 °C	-20 °C ... +60 °C	-20 °C ... +70 °C Between 60 °C ... 70° C: I/O derating to 75 % Only 75 % of the I/O channels are allowed to be energized simultaneously, e.g., only 6 of 8 output channels.
		Vertical mounting (output load reduced to 50 % per group)	0 °C ... +40 °C	-20 °C ... +40 °C	-20 °C ... +40 °C
	Storage		-40 °C ... +70 °C		
	Transport		-40 °C ... +70 °C		
	Humidity		Max. 95 %, without condensation		
		-	Simple coating for accidental condensation		
Air pressure					
	Operating		> 800 hPa / < 2000 m		
	Storage		> 660 hPa / < 3500 m		

Option boards

Table 5: Standard temperature ranges with processor modules revision 0

Option boards	Configuration	Processor modules	Operating temperature ranges	Derating	
Digital I/O option boards					
TA5101-4DI	Not relevant	PM5012-x-ETH	0 °C ... +55 °C	No derating	
TA5105-4DOT		PM50x2-x-ETH	0 °C ... +60 °C	No derating	
TA5110-2DI2DOT		PM5072-T-2ETH			
Analog input option boards					
TA5120-2AI-UI	Not relevant	PM5012-x-ETH	0 °C ... +55 °C	No derating	
TA5123-2AI-RTD		PM50x2-x-ETH	0 °C ... +60 °C	No derating	
		PM5072-T-2ETH			
Analog output option boards					
TA5126-2AO-UI	0 V ... +10 V	PM5012-T-ETH	0 °C ... +55 °C	No derating	
		PM50x2-R-ETH			
	0 mA ... +20 mA	PM50x2-T-ETH	0 °C ... +60 °C	No derating	
		PM5072-T-2ETH			
	0 mA ... +20 mA	PM50x2-x-ETH	0 °C ... +45 °C	No derating	
		PM5072-T-2ETH	+45 °C ... +50 °C	50 %	
				Load: 0 Ω ... 500 Ω	
				Load: 250 Ω ... 500 Ω	

Option boards	Configuration	Processor modules	Operating temperature ranges	Derating
			+50 °C ... +55 °C	100 % Load: 500 Ω
Accessory option boards				
TA5130-KNXPB	Not relevant	PM5072-T-2ETH	0 °C ... 60 °C	No derating
TA5131-RTC	Not relevant	PM5012-x-ETH	0 °C ... +55 °C	No derating
Option boards for serial interface				
TA5141-RS232I	Not relevant	PM5012-x-ETH	0 °C ... +55 °C	No derating
TA5142-RS485I		PM50x2-x-ETH	0 °C ... +60 °C	No derating
TA5142-RS485		PM5072-T-2ETH		

Table 6: Standard temperature ranges with processor modules revision 1

Option boards	Configuration	Processor modules	Operating temperature ranges	Derating
Digital I/O option boards				
TA5101-4DI	Not relevant	PM5012-x-ETH	0 °C ... +55 °C	No derating
TA5105-4DOT		PM50x2-x-ETH	-20 °C ... +60 °C	No derating
TA5110-2DI2DOT		PM50x2-T-2ETH		
Analog input option boards				
TA5120-2AI-UI	Not relevant	PM5012-x-ETH	0 °C ... +55 °C	No derating
TA5123-2AI-RTD		PM50x2-x-ETH	-20 °C ... +60 °C	No derating
		PM50x2-T-2ETH		
Analog output option boards				
TA5126-2AO-UI	0 V ... +10 V	PM5012-T-ETH	0 °C ... +55 °C	No derating
		PM50x2-R-ETH	-20 °C ... +55 °C	No derating
		PM50x2-T-ETH	-20 °C ... +60 °C	No derating
		PM50x2-T-2ETH		
	0 mA ... +20 mA	PM5012-x-ETH	0 °C ... +45 °C	No derating
		PM50x2-x-ETH	-20 °C ... +45 °C	Load: 0 Ω ... 500 Ω
		PM50x2-T-2ETH		
		PM50x2-x-ETH	+45 °C ... +50 °C	50 %
		PM50x2-T-2ETH		Load: 250 Ω ... 500 Ω
		PM50x2-x-ETH	+50 °C ... +55 °C	100 %
		PM50x2-T-2ETH		Load: 500 Ω
Accessory option boards				
TA5130-KNXPB	Not relevant	PM50x2-T-2ETH	-20 °C ... 60 °C	No derating
TA5131-RTC	Not relevant	PM5012-x-ETH	0 °C ... +55 °C	No derating
Option boards for serial interface				
TA5141-RS232I	Not relevant	PM5012-x-ETH	0 °C ... +55 °C	No derating
TA5142-RS485I		PM50x2-x-ETH	-20 °C ... +60 °C	No derating
TA5142-RS485		PM50x2-T-2ETH		

Table 7: Wide temperature ranges

Option boards	Configuration	Processor modules	Operating temperature ranges	Derating
Digital I/O option boards				
TA5101-4DIW TA5105-4DOTW TA5110-2DI2DOW	Not relevant	PM5072-T-2ETHW	-20 °C ... +60 °C	No derating
			+60 °C ... +70 °C	I/O derating to 75 % Only 3 of 4 I/O channels are allowed to be energized simultaneously.
Analog input option boards				
TA5120-2AI-UIW TA5123-2AI-RTW	Not relevant	PM5072-T-2ETHW	-20 °C ... +60 °C	No derating
Analog output option boards				
TA5126-2AO-UIW	0 V ... +10 V 0 mA ... +20 mA	PM5072-T-2ETHW PM5072-T-2ETHW	-20 °C ... +60 °C	No derating
			-20 °C ... +45 °C	No derating Load: 0 Ω ... 500 Ω
			+45 °C ... +50 °C	50 % Load: 250 Ω ... 500 Ω
			+50 °C ... +55 °C	100 % Load: 500 Ω
Accessory option boards				
TA5130-KNXPBW	Not relevant	PM5072-T-2ETHW	-20 °C ... 70 °C	No derating
Option boards for serial interface				
TA5141-RS232IW TA5142-RS485IW TA5142-RS485W	Not relevant	PM5072-T-2ETHW	-20 °C ... +70 °C	No derating

4.2 Creepage distances and clearances

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

4.3 Power supply units

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



Safety Extra Low Voltage (SELV) and Protective Extra Low Voltage (PELV)

To ensure electrical safety of AC500/AC500-eCo extra low voltage circuits, 24 V DC supply, communication interfaces, I/O circuits, and all connected devices must be powered from sources meeting requirements of SELV, PELV, class 2, limited voltage or limited power according to applicable standards.

**WARNING!****Improper installation can lead to death by touching hazardous voltages!**

To avoid personal injury, safe separation, double or reinforced insulation and separation of the primary and secondary circuit must be observed and implemented during installation.

- Only use power converters for safety extra-low voltages (SELV) with safe galvanic separation of the primary and secondary circuit.
- Safe separation means that the primary circuit of mains transformers must be separated from the secondary circuit by double or reinforced insulation. The protective extra-low voltage (PELV) offers protection against electric shock.

4.4 Electromagnetic compatibility

Table 8: Range of use

Application		
Device suitable only as <i>Control Equipment for Industrial Applications</i> .		
Immunity against electrostatic discharge (ESD):		According to 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
	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.
Immunity against the influence of radiated (CW radiated):		According to IEC 61000-4-3, zone B, criterion A
	Test field strength	10 V/m
Immunity against transient interference voltages (burst):		According to IEC 61000-4-4, zone B, criterion B
	Power supply (DC)	2 kV
	Digital inputs/outputs (24 V DC)	1 kV
	Digital inputs/outputs (100 V AC ... 240 V AC)	Relay 2 kV
	Ethernet	1 kV
	Serial interfaces	1 kV
Immunity against the influence of line-conducted interferences (CW conducted):		According to IEC 61000-4-6, zone B, criterion A
	Test voltage	10 V pass A
High energy surges		According to IEC 61000-4-5, zone B, criterion B
	Power supply (DC)	1 kV CM / 0.5 kV DM ¹⁾
	DC I/O supply	1 kV CM / 0.5 kV DM ¹⁾
	Ethernet	1 kV CM ¹⁾

Immunity against electrostatic discharge (ESD):		According to IEC 61000-4-2, zone B, criterion B
	Serial interfaces	1 kV CM ¹⁾
	AC I/O unshielded	2 kV CM, 1 kV DM ¹⁾
	I/O analog, I/O DC unshielded	1 kV CM ¹⁾
Radiation (radio disturbance)		According to IEC 55011, group 1, class A

¹⁾ CM = Common Mode, DM = Differential Mode

4.5 Mechanical data

Parameter	Value
Mounting	Horizontal
Degree of protection	PLC system: IP 20 • with all modules or option boards plugged in • with all terminals plugged in • with all covers closed
Housing	Classification V0 according to UL 94
Vibration resistance acc. to EN 61131-2	all three axes (DIN rail mounting) 5 Hz ... 8.2 Hz: ± 7.5 mm peak 8.2 Hz...150 Hz: 2 g peak
Shock test	All three axes 15 g, 11 ms, half-sinusoidal
Mounting of the modules:	
DIN rail according to DIN EN 50022	35 mm, depth 7.5 mm or 15 mm
Mounting with screws	M3
Fastening torque	1.2 Nm

4.6 Approvals and certifications

Information on approvals and certificates can be found in the PLC Automation [catalog](#), in the table "Certifications" in the chapter "Additional information".

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