

DATA SHEET

TA5105-4DOT

Option Board



1 Ordering data

Part no.	Description	Product life cycle phase *)
1SAP 187 000 R0002	TA5105-4DOT: AC500, option board for digital I/O extension, 4DO-T 24 V DC / 0.5 A, spring/cable front terminal 3.50 mm pitch	Active
Spare parts		
1SAP 187 400 R0014 **)	TA5220-SPF7: spring terminal block, removable, 7-pin, spring front, cable front, 6 pieces per packing unit	Active

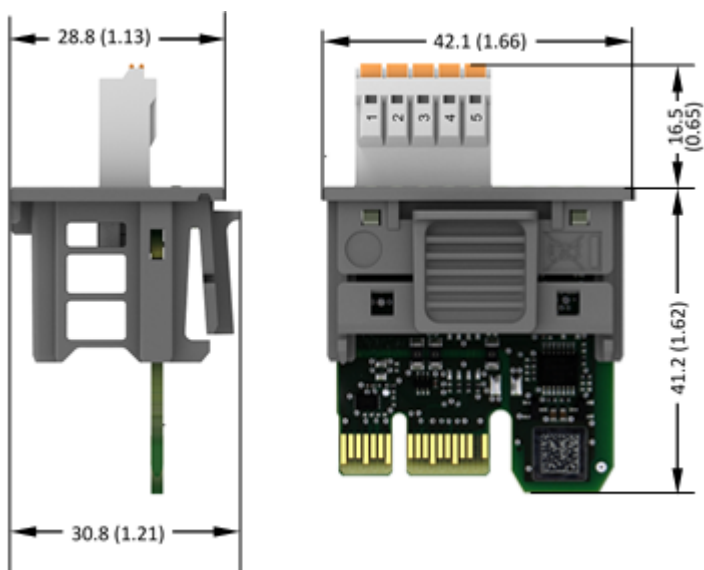


*) Modules in lifecycle Classic are available from stock but not recommended for planning and commissioning of new installations.



***) The needed spring terminal block is always delivered with the option board. The terminal block listed in the table is for spare part only if needed.

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 V3” on page 4](#)
 Only additional details are therefore documented below.

Parameter	Value
Process supply voltage UP	
Connections	Terminal 6 for UP (+24 V DC) and terminal 7 for ZP (0 V DC)
Rated value	24 V DC
Current consumption via UP terminal	5 mA + max. 0.5 A per output
Max. ripple	5 %
Inrush current	0.000002 A ² s
Protection against reversed voltage	Yes
Rated protection fuse for UP	On request
Current consumption from 24 V DC power supply at the L+/M terminals of the CPU	Ca. 10 mA
Galvanic isolation	Yes, between the output group and the rest of the module
Isolated groups	1 (4 channels per group)
Surge-voltage (max.)	35 V DC for 0.5 s
Max. power dissipation within the module	0.5 W
Weight	16 g

Parameter	Value
Mounting position	Horizontal or vertical
Cooling	The natural convection cooling must not be hindered by cable ducts or other parts in the switch-gear cabinet.

Table 1: Technical data of the digital outputs

Parameter	Value
Number of channels per module	4 transistor outputs (24 V DC, 0.5 A max.)
Distribution of the channels into groups	1 (4 channels per group)
Connection of the channels O0 to O3	Terminals 2 to 5
Common power supply voltage	Terminal 6 (positive pole of the process voltage, signal name UP)
Reference potential for the channels O0 to O3	Terminal 7 (negative pole of the process voltage, signal name ZP)
Indication of the output signals	1 yellow LED per channel; the LED is on when the output signal is high (signal 1). Only internal logic is powered from CPU. Outputs are powered from UP/ZP terminals.
Way of operation	Non-latching type
Min. output voltage at signal 1	UP - 0.1 V
Output delay (max. at rated load)	
0 to 1	50 μ s
1 to 0	200 μ s
Output data length	1 byte
Output current	
Rated current per channel (max.)	0.5 A at UP 24 V DC (resistance, general use and pilot duty)
Rated current per group (max.)	2 A (4 channels * 0.5 A)
Max. leakage current with signal 0	0.5 mA
Output type	Non-protected
Protection type	External fuse on each channel
Rated protection fuse (for each channel)	On request
Demagnetization when inductive loads are switched off	Must be performed externally according to driven load specification
Switching Frequencies	
With inductive loads	On request
Short-circuit-proof / Overload-proof	No
Overload message	No
Output current limitation	No
Resistance to feedback against 24 V DC	No
Connection of 2 outputs in parallel	Not possible
Max. cable length	

Parameter		Value
	Shielded	On request
	Unshielded	On request

4 System data AC500-eCo V3

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



NOTICE!

Exceeding the maximum power supply voltage (> 30 V DC) for process or supply voltages could lead to unrecoverable damage of the system. The system might be destroyed.

Parameter		Value				
		PM5012-x-ETH	PM5032-x-ETH	PM5052-x-ETH	PM5072-T-2ETH	PM5072-T-2ETHW
Temperature						
	Operating					
	Horizontal mounting					
	Standard temperature range	0 °C...+55 °C	0 °C...+60 °C			-

Parameter		Value				
		PM5012-x-ETH	PM5032-x-ETH	PM5052-x-ETH	PM5072-T-2ETH	PM5072-T-2ETHW
	Wide temperature range	-			-20 °C...+70 °C I/O derating in range 60 °C...70 °C: 75 %	
	Vertical mounting (output load reduced to 50 % per group)					
	Standard temperature range	0 °C...+40 °C			-	
	Wide temperature range	-			-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				
Ingress protection		PLC System: IP 20 in accordance with IEC 60529 <ul style="list-style-type: none"> • with all modules or option boards plugged in • with all terminal blocks plugged in • with all covers closed 				

Option boards	Temperature range
TA5101-4DI	0 °C... 60 °C
TA5105-4DOT	0 °C... 60 °C
TA5110-2DI2DOT	0 °C... 60 °C
TA530-KNXPB	0 °C... 60 °C
TA5131-RTC	0 °C...+55 °C
TA5141-RS232I	0 °C... 60 °C
TA5142-RS485I	0 °C... 60 °C
TA5142-RS485	0 °C... 60 °C

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

Electromagnetic Compatibility		
Device suitable for:		
	Industrial applications	Yes
	Domestic applications	Yes
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
	Supply voltage units (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

Electromagnetic Compatibility		
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⁾
	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	EN61131-2: IP20 with all option boards or option board slot covers attached (and all terminal screws are tightened)
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 corresponding chapter of the *Main catalog, PLC Automation*.