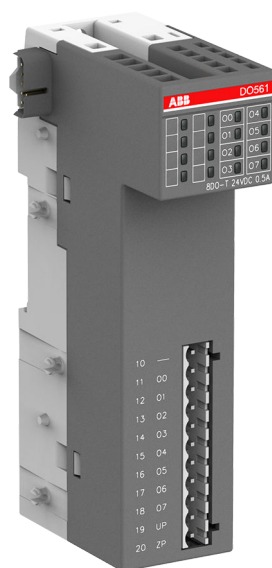


DATA SHEET

DO561

Digital output module



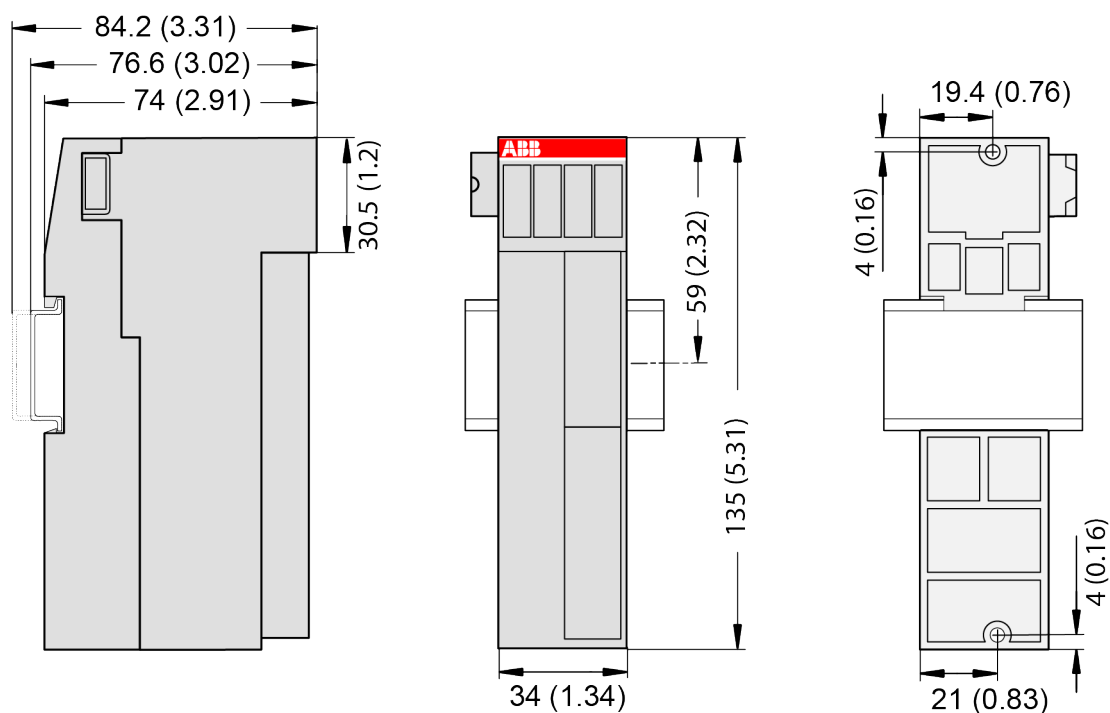
1 Ordering data

Part no.	Description	Product life cycle phase *)
1TNE 968 902 R2201	DO561, digital output module, 8 DO, transistor output	Active
1TNE 968 901 R3102	Terminal block TA563-11, 11 pins, screw front, cable side, 6 pieces per unit	Active
1TNE 968 901 R3104	Terminal block TA564-11, 11 pins, screw front, cable front, 6 pieces per unit	Active
1TNE 968 901 R3106	Terminal block TA565-11, 11 pins, spring front, cable front, 6 pieces per unit	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 apply [Chapter 4 "System data AC500-eCo" on page 4](#)

Only additional details are therefore documented below.

Parameter		Value
Process supply voltage UP		
Connections		Terminal 19 for UP (+24 VDC) and terminal 20 for ZP (0 VDC)
Rated value		24 VDC
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		Recommended; the outputs must be protected by an 3 A fast fuse
Current consumption from 24 VDC power supply at the L+/UP and M/ZP terminals of the CPU/bus module		Ca. 10 mA
Galvanic isolation		Yes, between the output group and the rest of the module

Parameter	Value
Isolated groups	1 (8 channels per group)
Surge-voltage (max.)	35 VDC for 0.5 s
Power dissipation within the module (max.)	1.6 W
Weight	Ca. 115 g
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.

No effects of multiple overloads

No effects of multiple overloads on isolated multi-channel modules occur, as every channel is protected individually by an external fuse.

3.1 Technical data of the digital outputs

Parameter	Value
Number of channels per module	8 transistor outputs (24 VDC, 0.5 A max.)
Distribution of the channels into groups	1 (8 channels per group)
Connection of the channels O0 to O7	Terminals 11 to 18
Common power supply voltage	Terminal 19 (plus pole of the process voltage, signal name UP)
Reference potential for the channels O0 to O7	Terminal 20 (minus 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) and the module is powered via the I/O bus
Way of operation	Non-latching type
Min. output voltage at signal 1	20 VDC at max. current consumption
Output delay (max. at rated load)	
0 to 1	50 µs
1 to 0	200 µs
Output data length	1 byte
Output current	
Rated current per channel (max.)	0.5 A at UP 24 VDC
Rated current per group (max.)	4 A
Lamp load (max.)	5 W
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)	3 A fast
Demagnetization when inductive loads are switched off	Must be performed externally according to driven load specification
Switching Frequencies	
With inductive loads	Max. 0.5 Hz

Parameter		Value
	With lamp loads	Max. 11 Hz at max. 5 W
Short-circuit-proof / Overload-proof		No
	Overload message	No
	Output current limitation	No
	Resistance to feedback against 24 VDC	No
Connection of 2 outputs in parallel		Not possible
Max. cable length		
	Shielded	500 m
	Unshielded	150 m

4 System data AC500-eCo

4.1 Environmental conditions

Table 1: Process and supply voltages

Parameter		Value
24 VDC		
	Voltage	24 V (-15 %, +20 %)
	Protection against reverse polarity	Yes
24 VAC		
	Voltage	24 V (-15 %, +10 %)
	Frequency	50/60 Hz (-6 %, +4 %)
100 VAC		
	Voltage	100 V (-15 %, +10 %)
	Frequency	50/60 Hz (-6 %, +4 %)
230 VAC		
	Voltage	230 V (-15 %, +10 %)
	Frequency	50/60 Hz (-6 %, +4 %)
100...240 VAC 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
	AC supply	Interruption < 0.5 periods, time between 2 interruptions > 1 s



NOTICE!

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

Parameter		Value
Temperature		
	Operating	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		
	Operating	> 800 hPa / < 2000 m
	Storage	> 660 hPa / < 3500 m

4.2 Creepage distances and clearances

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

4.3 Insulation test voltages, routine test

According to EN 61131-2

Parameter	Value	
200 V...240 V circuits against other circuitry	2500 V	1.2/50 µs
100 V...127 V circuits against other circuitry	1500 V	1.2/50 µs
100 V...240 V circuits against other circuitry	2500 V	1.2/50 µs
24 V circuits (supply, 24 V inputs/outputs, analogue 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
200 V... 240 V circuits against other circuitry	1350 V	AC 2 s
100 V circuits against other circuitry	820 V	AC 2 s
100 V...240 V circuits against other circuitry	1350 V	AC 2 s

Parameter	Value	
24 V circuits (supply, 24 V inputs/outputs, analogue 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

4.4 Power supply units

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

4.5 Electromagnetic compatibility

Electromagnetic Compatibility		
Device suitable for:		
	Industrial applications	Yes
	Domestic applications	No
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	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.
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
	Supply voltage units (AC)	2 kV
	Digital inputs/outputs (24 VDC / 24 VAC)	1 kV
	Digital inputs/outputs (100 VAC...240 VAC)	2 kV
	Analog inputs/outputs	1 kV
	Serial RS-485 interfaces (COM)	1 kV
	Ethernet	1 kV

Electromagnetic Compatibility		
	I/O supply, DC-out	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
High energy surges		According to IEC 61000-4-5, zone B, criterion B
	Power supply AC	2 kV CM / 1 kV DM ²⁾
	Power supply DC	1 kV CM / 0.5 kV DM ²⁾
	DC I/O supply, add. DC-supply-out	1 kV CM / 0.5 kV DM ²⁾
	Communication lines, shielded	1 kV CM ²⁾
	AC I/O unshielded ³⁾	2 kV CM / 1 kV DM ²⁾
	I/O analog, I/O DC unshielded ³⁾	1 kV CM / 0.5 kV DM ²⁾
Radiation (radio disturbance)		According to IEC 55011, group 1, class A

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

²⁾ CM = Common Mode, DM = Differential Mode

³⁾ When DC I/O inputs are used with AC voltage, external filters limiting high energy surges to 1 kV CM / 0.5 DM are required to meet requirements according IEC 61131-2.

4.6 Mechanical data

Parameter	Value
Mounting	Horizontal
Degree of protection	IP 20 (if all terminal screws are tightened)
Housing	Classification V-2 according to UL 94
Vibration resistance acc. to EN 61131-2	all three axes (DIN rail mounting) 5 Hz...8.4 Hz, continuous 3.5 mm 8.4 Hz...150 Hz, continuous 1 g
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	Screws with a diameter of 4 mm
Fastening torque	1.2 Nm

4.7 Approvals and certifications

Information on approvals and certificates can be found in the corresponding chapter of the Main catalog, PLC Automation.

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