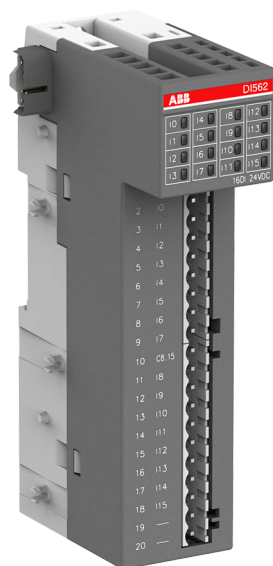


DATA SHEET

# DI562

## Digital input module



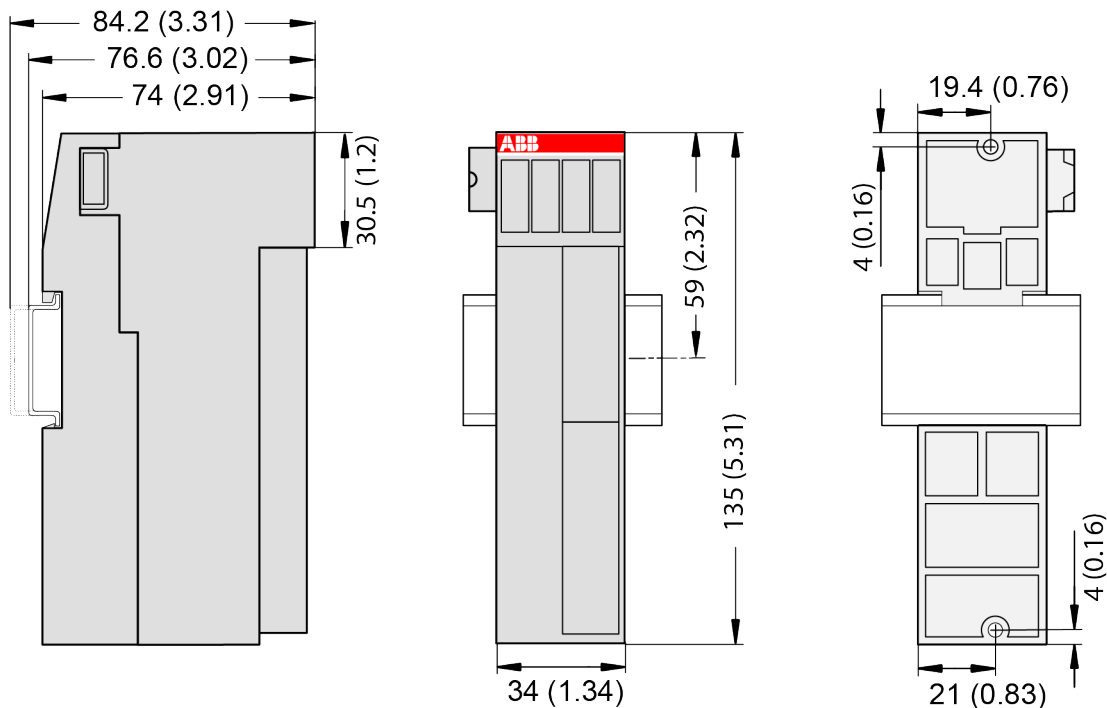
### 1 Ordering data

Part no.	Description	Product life cycle phase *)
1TNE 968 902 R2102	DI562, digital input module, 16 DI, 24 V DC / 24 V AC	Active
1TNE 968 901 R3101	Terminal block TA563-9, 9 pins, screw front, cable side, 6 pieces per unit	Active
1TNE 968 901 R3102	Terminal block TA563-11, 11 pins, screw front, cable side, 6 pieces per unit	Active
1TNE 968 901 R3103	Terminal block TA564-9, 9 pins, screw front, cable front, 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 R3105	Terminal block TA565-9, 9 pins, spring 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 3](#)

Only additional details are therefore documented below.

Parameter	Value
Galvanic isolation	Yes, between the input groups and the rest of the module
Isolated groups	2 (8 channels per group)
Current consumption from 24 V DC power supply at the L+/UP and M/ZP terminals of the CPU/communication interface module	Ca. 10 mA
Max. power dissipation within the module	3.2 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.

### 3.1 Technical data of the digital inputs

Parameter	Value		
Number of channels per module	16 inputs (24 V DC / 24 V AC)		
Distribution of the channels into groups	2 (8 channels per group)		
Connections of the channels I0 to I7	Terminals 2 to 9		
Connections of the channels I8 to I15	Terminals 11 to 18		
Reference potential for the channels I0 to I7	Terminal 1 (positive or negative pole of the process supply voltage, signal name C0..7)		
Reference potential for the channels I8 to I15	Terminal 10 (positive or negative pole of the process supply voltage, signal name C8..15)		
Indication of the input signals	1 yellow LED per channel; the LED is ON when the input signal is high (signal 1). The module is powered through the I/O bus.		
Monitoring point of input indicator	LED is part of the input circuitry		
Input type according to EN 61131-2	Type 1 source	Type 1 sink	Type 1 AC <sup>1)</sup>
Input signal range	-24 V DC	+24 V DC	24 V AC 50/60 Hz
Signal 0	-5 V...+3 V	-3 V...+5 V	0 V AC...5 V AC
Undefined signal	-15 V...-5 V	+5 V...+15 V	5 V AC...14 V AC
Signal 1	-30 V...-15 V	+15 V...+30 V	14 V AC...27 V AC
Input current per channel			
Input voltage 24 V	Typ. 5 mA		Typ. 5 mA r.m.s.
Input voltage 5 V	Typ. 1 mA		Typ. 1 mA r.m.s.
Input voltage 14 V			Typ. 2.7 mA r.m.s.
Input voltage 15 V	> 2.5 mA		
Input voltage 27 V			Typ. 5.5 mA r.m.s.
Input voltage 30 V	< 8 mA		
Max. permissible leakage current (at 2-wire proximity switches)	1 mA		Typ. 1 mA r.m.s.
Input delay (0->1 or 1->0)	Typ. 8 ms		
Input data length	2 bytes		
Max. cable length			
Shielded	500 m		
Unshielded	300 m		

<sup>1)</sup> When inputs are used with 24 V AC, external surge limiting filters are required.

Refer to  Chapter 4 "System data AC500-eCo" on page 3 for details

## 4 System data AC500-eCo

### 4.1 Environmental conditions

Table 1: Process and supply voltages

Parameter	Value
24 V DC	
Voltage	24 V (-15 %, +20 %)

Parameter		Value
	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...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
	AC supply	Interruption < 0.5 periods, time between 2 interruptions > 1 s

**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
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 $\mu$ s
100 V...127 V circuits against other circuitry	1500 V	1.2/50 $\mu$ s
100 V...240 V circuits against other circuitry	2500 V	1.2/50 $\mu$ s
24 V circuits (supply, 24 V inputs/outputs, analog inputs/outputs), if they are galvanically isolated against other circuitry	500 V	1.2/50 $\mu$ s
COM interfaces, galvanically isolated	500 V	1.2/50 $\mu$ s
COM interfaces, electrically not isolated	Not applicable	Not applicable
FBP interface	500 V	1.2/50 $\mu$ s
Ethernet	500 V	1.2/50 $\mu$ s
ARCNET	500 V	1.2/50 $\mu$ s
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
24 V circuits (supply, 24 V inputs/outputs, analog inputs/outputs), if they are galvanically isolated against other circuitry	350 V	AC 2 s
COM interfaces, galvanically 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 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.

**4.5 Electromagnetic compatibility**

<b>Electromagnetic Compatibility</b>		
Device suitable for:		
	Industrial applications	Yes
	Domestic applications	No
<b>Immunity against electrostatic discharge (ESD):</b>		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 switchgear cabinet 6 kV <sup>1)</sup>
	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.
<b>Immunity against the influence of radiated (CW radiated):</b>		According to IEC 61000-4-3, zone B, criterion A
	Test field strength	10 V/m
<b>Immunity against transient interference voltages (burst):</b>		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 V DC / 24 VAC)	1 kV
	Digital inputs/outputs (100 V AC...240 V AC)	2 kV
	Analog inputs/outputs	1 kV
	Serial RS-485 interfaces (COM)	1 kV
	Ethernet	1 kV

<b>Electromagnetic Compatibility</b>		
	I/O supply, DC-out	1 kV
<b>Immunity against the influence of line-conducted interferences (CW conducted):</b>		According to IEC 61000-4-6, zone B, criterion A
	Test voltage	10 V
<b>High energy surges</b>		According to IEC 61000-4-5, zone B, criterion B
	Power supply AC	2 kV CM / 1 kV DM <sup>2)</sup>
	Power supply DC	1 kV CM / 0.5 kV DM <sup>2)</sup>
	DC I/O supply, add. DC-supply-out	1 kV CM / 0.5 kV DM <sup>2)</sup>
	Communication lines, shielded	1 kV CM <sup>2)</sup>
	AC I/O unshielded <sup>3)</sup>	2 kV CM / 1 kV DM <sup>2)</sup>
	I/O analog, I/O DC unshielded <sup>3)</sup>	1 kV CM / 0.5 kV DM <sup>2)</sup>
<b>Radiation (radio disturbance)</b>		According to IEC 55011, group 1, class A

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

<sup>2)</sup> CM = Common Mode, DM = Differential Mode

<sup>3)</sup> 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*.

Telephone: +49 (0)6221 701 1444  
E-mail: [plc.support@de.abb.com](mailto:plc.support@de.abb.com)  
[abb.com/plc](http://abb.com/plc)  
[abb.com/automationbuilder](http://abb.com/automationbuilder)  
[abb.com/contacts](http://abb.com/contacts)

ABB AG  
Eppelheimer Str. 82  
69123 Heidelberg, Germany

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