ADDI-DATA®
SPIRIT OF EXCELLENCE

TECHNICAL

DESCRIPTION

PX9000

3-row screw terminal panel for DIN rail

DIN EN ISO 9001:2008 certified

Edition: 04.02-11/2014

Product information

This manual contains the technical installation and important instructions for correct commissioning and usage, as well as production information according to the current status before printing.
The content of this manual and the technical product data may be changed without prior notice.
ADDI-DATA GmbH reserves the right to make changes to the technical data and the materials included herein.

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Warning!

The following risks result from the improper implementation of the screw terminal panel and from use contrary to the regulations:

Personal injury

Damage to the screw terminal panel, the PC and peripherals

Pollution of the environment.

- Protect yourself, others and the environment!
- Read the safety precautions (yellow leaflet) carefully!

  If this leaflet is not enclosed with the documentation, please contact us and ask for it.
- Observe the instructions of this manual!

  Make sure that you do not forget or skip any step!
  We are not liable for damages resulting from the wrong use of the screw terminal panel.
- Pay attention to the following symbols:

NOTICE!
Designates hints and other useful information.

NOTICE!
Designates a possibly dangerous situation.
If the instructions are ignored, the screw terminal panel, the PC and/or peripherals may be **destroyed**.

WARNING!
Designates a possibly dangerous situation.
If the instructions are ignored, the screw terminal panel, the PC and/or peripherals may be **destroyed** and persons may be **endangered**.

Contents

Figures

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Chapter overview

In this manual, you will find the following information:

Chapter	Content
1	Important information on the application and the user of the screw terminal panel
2	Description of the screw terminal panel including layout diagram
3	Detailed information on the connection of the screw terminal panel to the PC boards including terminal assignments
4	Procedure for returning or disposing of the screw terminal panel
5	List of technical data and limit values of the screw terminal panel
6	Appendix with glossary and index
7	Contact and support address

1 Definition of application, user, handling

1.1 Definition of application

1.1.1 Intended use

The screw terminal panel **PX9000** is used as electrical equipment for electrical measurement, control and laboratory pursuant to the norm EN 61010-1 (IEC 61010-1).

1.1.2 Usage restrictions

The screw terminal panel **PX9000** must not be used as safety related parts (SRP).

The screw terminal panel **PX9000** must not be used in potentially explosive atmospheres.

1.1.3 Limits of use

All safety information and the instructions in the manual must be followed to ensure proper intended use.

Uses of the screw terminal panel beyond these specifications are considered as improper use.
The manufacturer is not liable for damages resulting from improper use.

The screw terminal panel must remain in its anti-static packaging until it is installed.

Please do not delete the identification numbers of the screw terminal panel or the warranty claim will be invalid.

1.2 User

1.2.1 Qualification

Only persons trained in electronics are entitled to perform the following works:

- Installation
- Commissioning
- Use
- Maintenance.

1.2.2 Country-specific regulations

Do observe the country-specific regulations regarding

- the prevention of accidents
- electrical and mechanical installations
- Electromagnetic compatibility (EMC).

1.3 Questions and updates

If you have any questions, you can send them to us by e-mail or call us:

E-mail: info@addi-data.com

Phone: +49 7229 1847-0.

Manual and software download from the Internet

The latest version of the technical manual for the screw terminal panel **PX9000** can be downloaded for free at: www.addi-data.com

NOTICE!

Before using the board or in case of malfunction during operation, check if there is an update available on our website (manual, etc.) or contact us directly.

2 Layout

The screw terminal panel **PX9000** is used to connect up to 32 signal lines and the possibly required voltage supply lines for the external signal generators.

Each of the 37 contacts of the 37-pin D-Sub female connector is assigned to a contact in the top terminal row of the 3 x 39-pin screw terminal unit. Furthermore, to each signal line (terminals 1-32 of this terminal row), a status LED is assigned (see Fig. 2-1).
The two bottom terminal rows, which are protected by a reverse polarity protection diode, are used to connect a voltage supply for the external signal generators. An applied voltage is indicated by a green status LED.
For a simple conduction of this voltage supply to another screw terminal panel, each of the two bottom terminal rows is extended by a cascading terminal on the right and on the left.

For the voltage supply of the digital board, four more terminals are available: two for the connection of the 24 V operating voltage and two for the operating ground.
The terminals for the operating voltage are additionally protected against overvoltage by varistors and transil diodes. The connection of the operating voltage is also indicated by a green status LED.
For the connection of the operating ground, two ground terminals (pins 10 and 29) need to be connected.

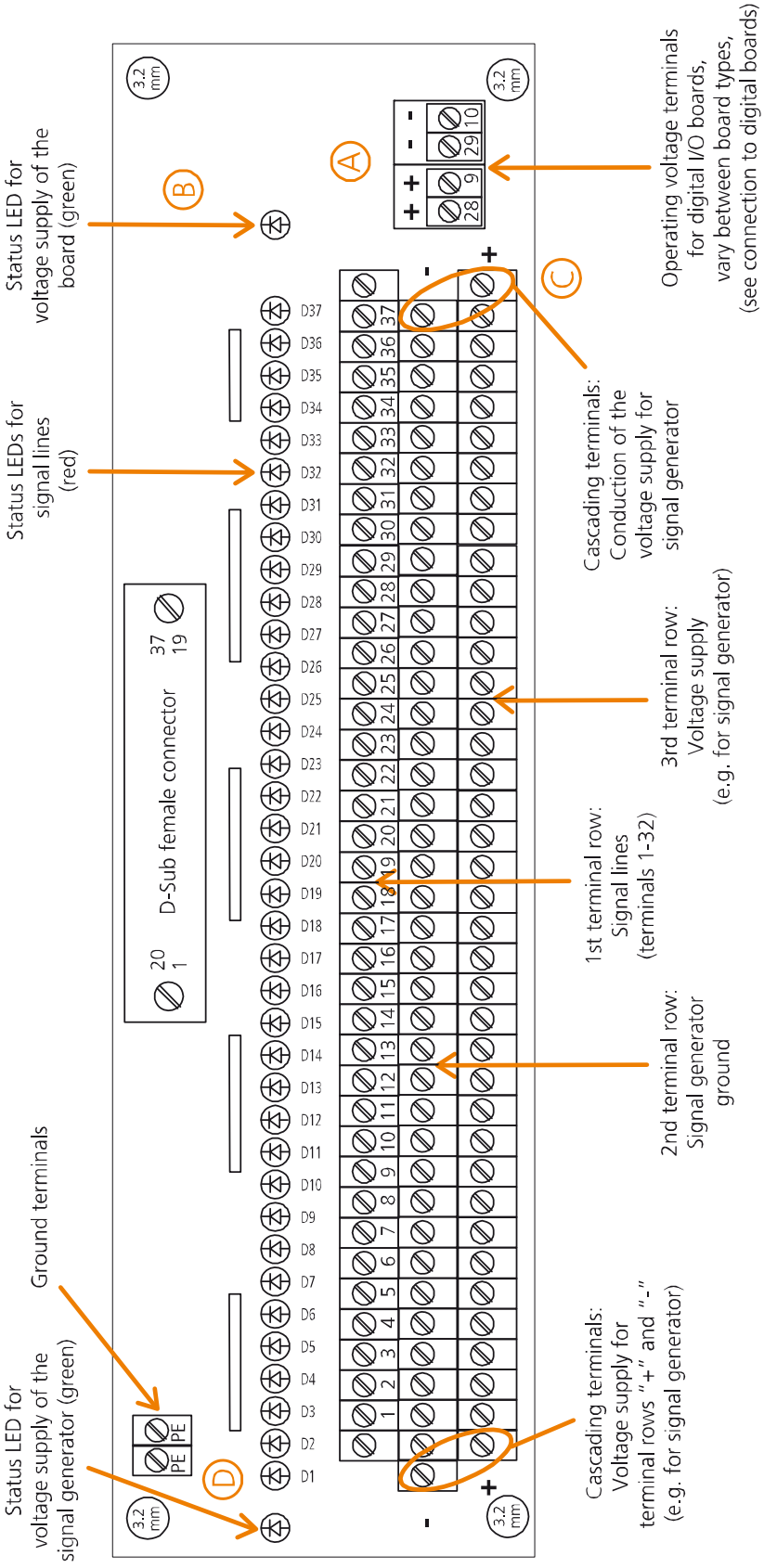
A connection between the terminals for the voltage supply of the board and the supply of the signal generator can be established through a cable. The terminal rows “+” and “-” are serially connected then.

The screw terminal panel **PX9000** can be connected to the following PC boards and MSX-E systems with **digital** signals:

Table 2-1: Boards and MSX-E systems with PX9000

PCI Express boards	APCIe-1502, APCIe-1516, APCIe-1532, APCIe-1564
PCI boards	APCI-1016, APCI-1032, APCI-1500, APCI-1516, APCI-1564, APCI-2016, APCI-2032
CompactPCI boards	CPCI-1500, CPCI-1564
CompactPCI Serial boards	CPCIs-1532, CPCIs-1564
ISA boards	PA 1000, PA 1500, PA 2000
PC/104-PLUS boards	PC104-PLUS1500
MSX-E systems	MSX-E3121, MSX-E3701-DIO

Fig. 2-1: PX9000: Layout diagram



3 Connection to the PC boards

Risk of injury!
Please follow the safety precautions!
An improper handling of the screw terminal panel may cause property damage and injury.

Using the 37-pin D-Sub female connector and the standard cable **ST010** or **ST011**, the screw terminal panel **PX9000** can be connected to digital boards and to the Ethernet systems **MSX-E3121** and **MSX-E3701-DIO**. In terms of electromagnetic compatibility (EMC), the standard cable has the following properties:

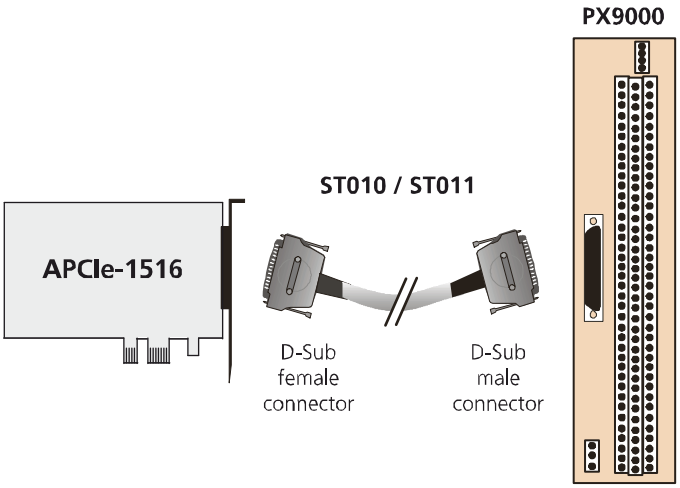
- Metallised connector housing
- Shielded cable
- Cable shield folded back over insulation and firmly screwed on both sides to the connector housing.

The housing of the female connector is connected with two ground terminals which allow for additional grounding of the screw terminal panel. All components of the screw terminal panel are enclosed in a ground strap that is also connected to the ground terminals.

Each terminal of the screw terminal panel is directly connected to a pin of the 37-pin D-Sub female connector and can hold a conductor cross-section up to 2.5 mm². According to the ADDI-DATA board used, the terminals have different functions.

In the following figure, the connection of the **PX9000** to the board **APCIe-1516** is shown.

Fig. 3-1: PX9000: Connection to the board APCIe-1516



3.1 Pin and terminal assignments

On the screw terminal panel, the pins of the 37 pin D-Sub female connector and the terminals connected to them are numbered in the same way. Thus, the terminal assignment of the screw terminal panel is identical with the pin assignment of the PC board.

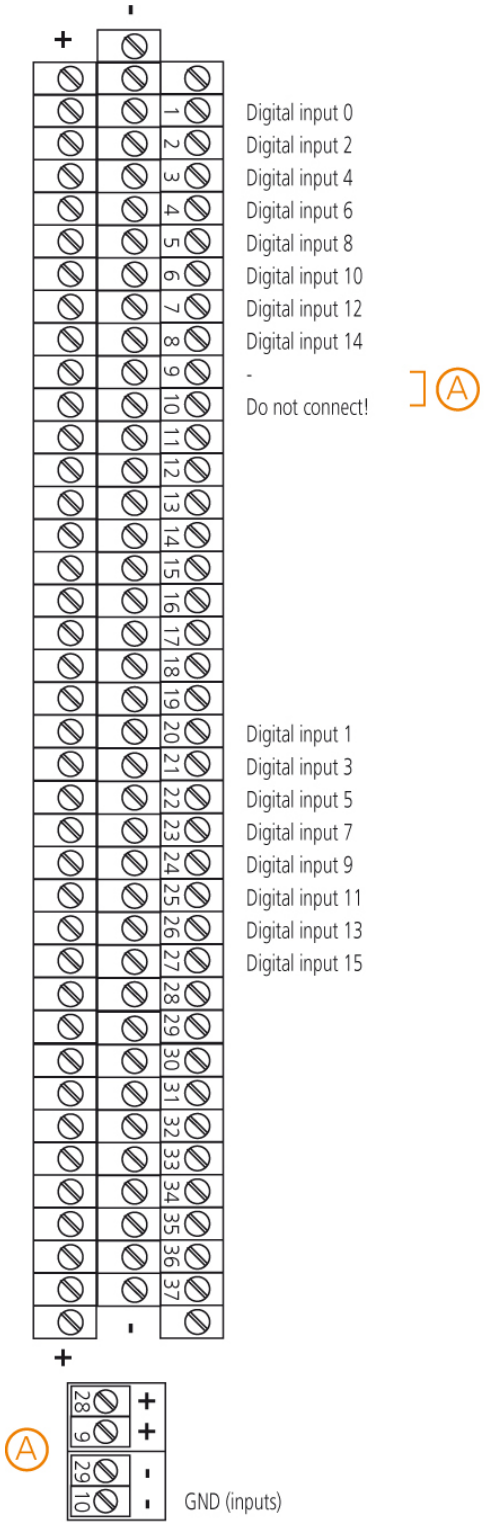
Table 3-1: Pin and terminal numbers

Pin No.	Terminal No.
1	1
2	2
...	...
37	37

3.2 Connection to digital input boards

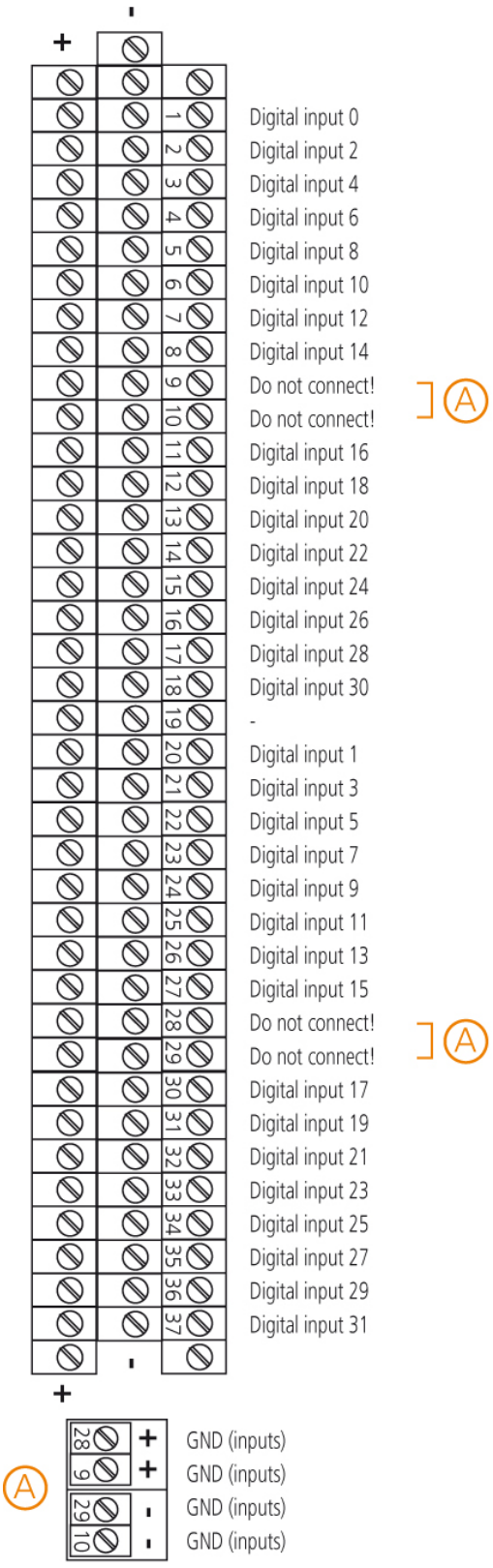
3.2.1 Connection to the APCI-1016

Fig. 3-2: Terminal assignment with the APCI-1016



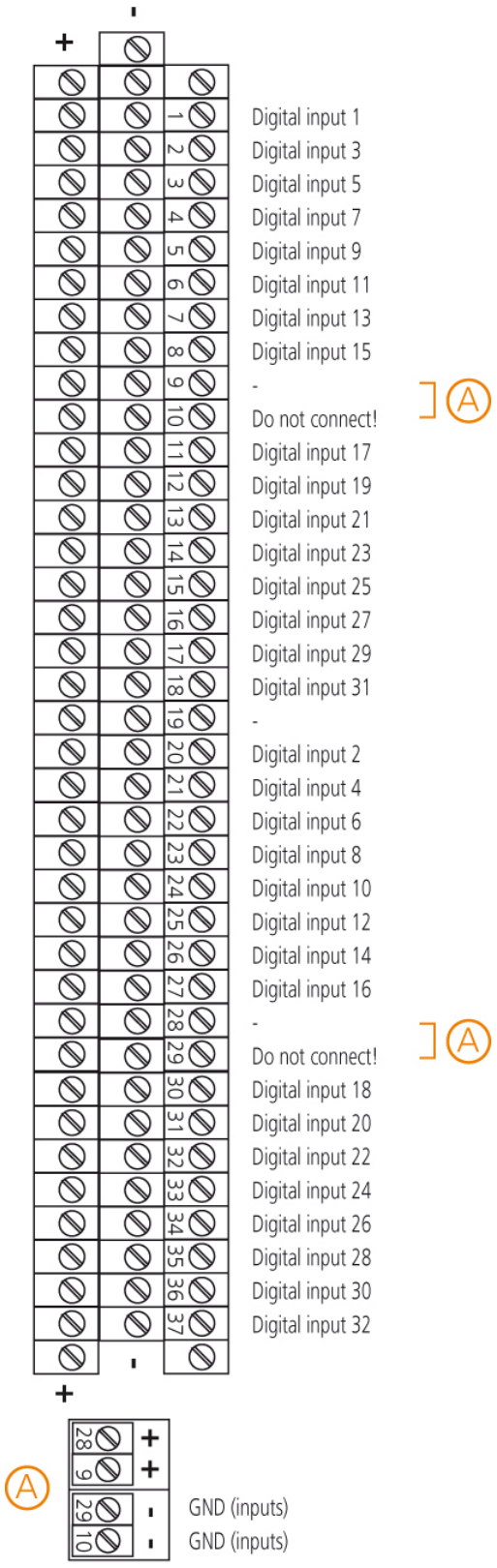
3.2.2 Connection to the APCI-1032

Fig. 3-3: Terminal assignment with the APCI-1032



3.2.3 Connection to the PA 1000

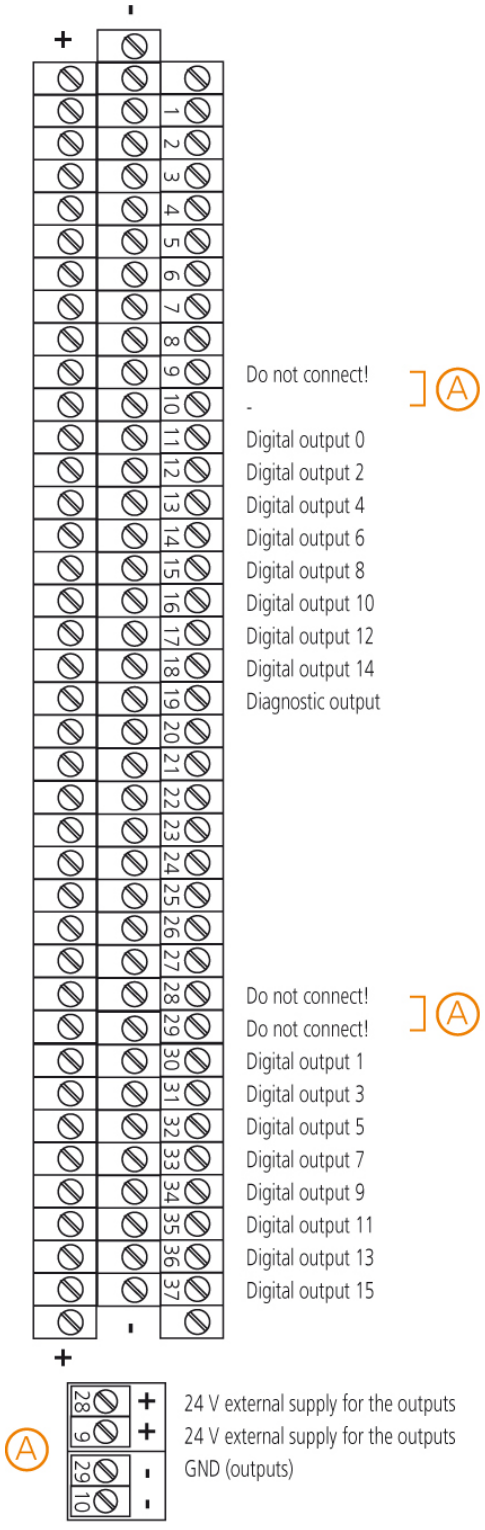
Fig. 3-4: Terminal assignment with the PA 1000



3.3 Connection to digital output boards

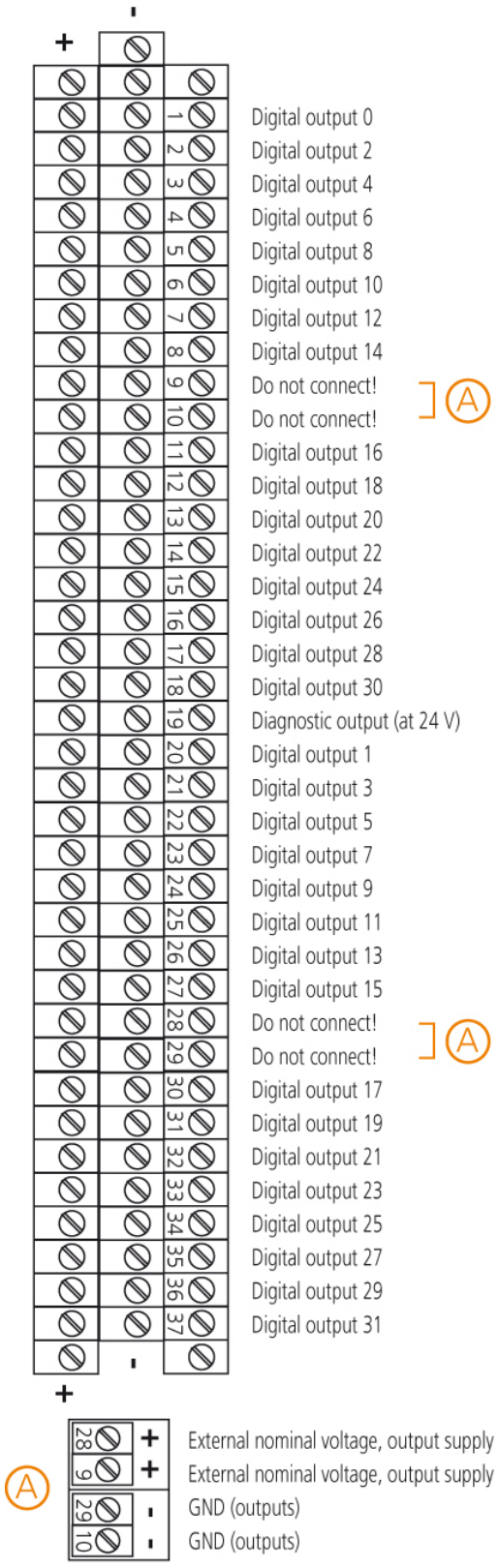
3.3.1 Connection to the APCI-2016

Fig. 3-5: Terminal assignment with the APCI-2016



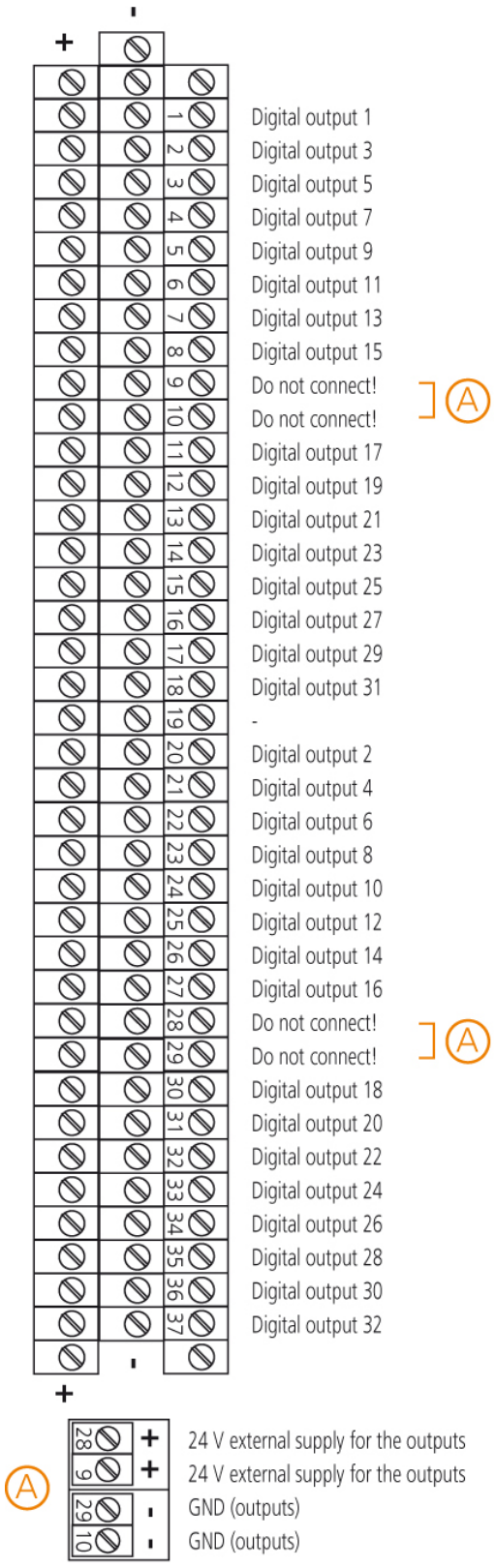
3.3.2 Connection to the APCI-2032

Fig. 3-6: Terminal assignment with the APCI-2032



3.3.3 Connection to the PA 2000

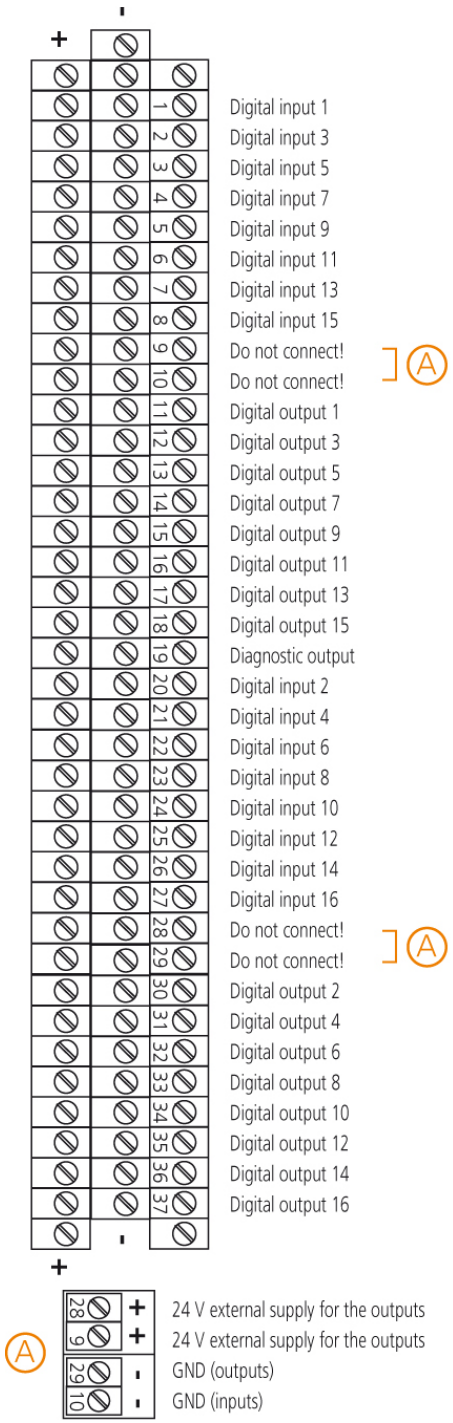
Fig. 3-7: Terminal assignment with the PA 2000



3.4 Connection to digital input and output boards as well as to Ethernet systems

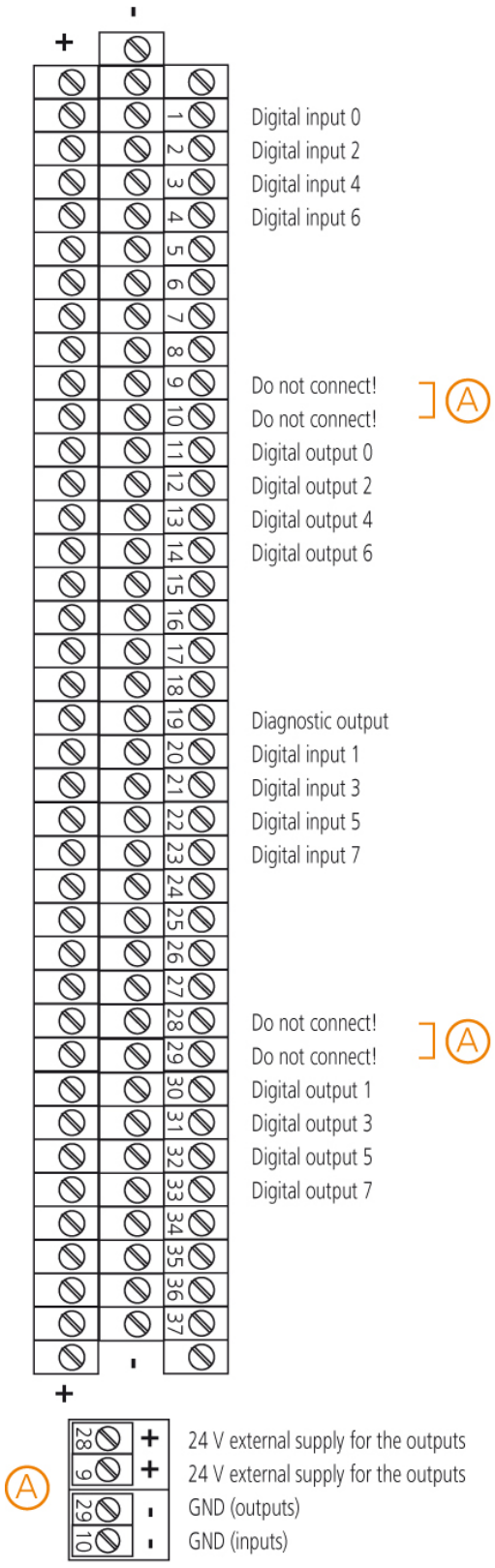
3.4.1 Connection to the APCIe-1502, APCIe-1532, APCI-/CPCI-1500 and PC104-PLUS1500 as well as to the Ethernet systems MSX-E3121 and MSX-E3701-DIO

Fig. 3-8: Terminal assignment with the APCIe-1502, APCIe-1532, APCI-/CPCI-1500 and PC104-PLUS1500 as well as with the Ethernet systems MSX-E3121 and MSX-E3701-DIO



3.4.2 Connection to the APCIe-/APCI-1516

Fig. 3-9: Terminal assignment with the APCIe-/APCI-1516



3.4.3 Connection to the APCIe-/APCI-/CPCI-/CPCI-s1564

Fig. 3-10: Terminal assignment with the APCIe-/APCI-/CPCI-/CPCI-s1564 (digital inputs)

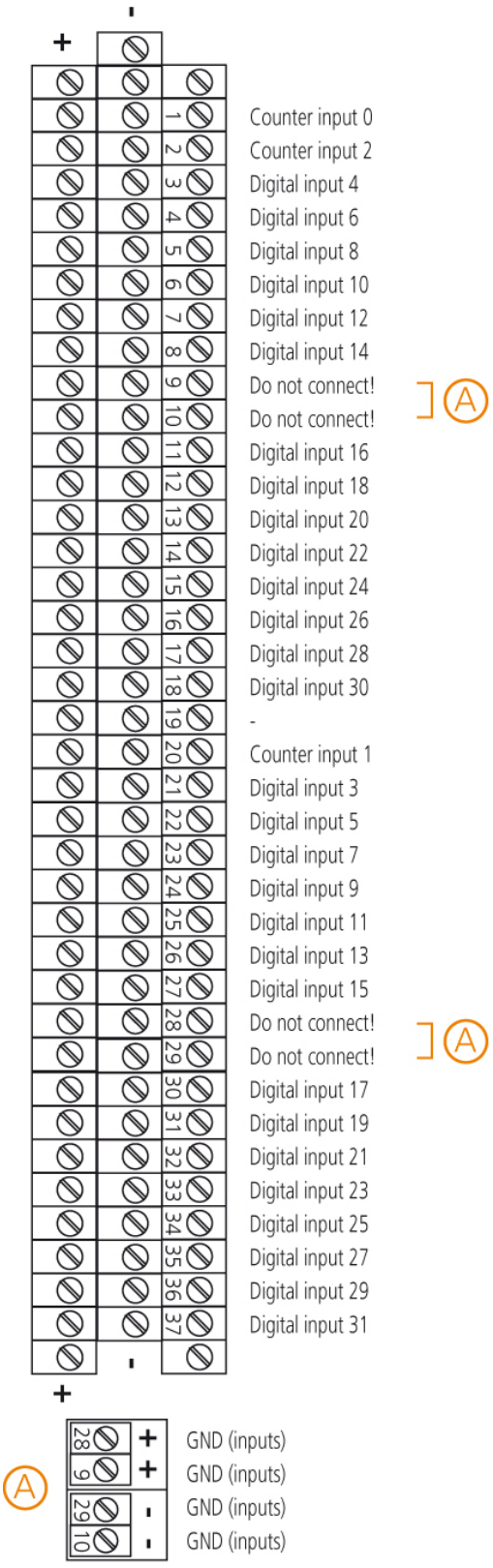
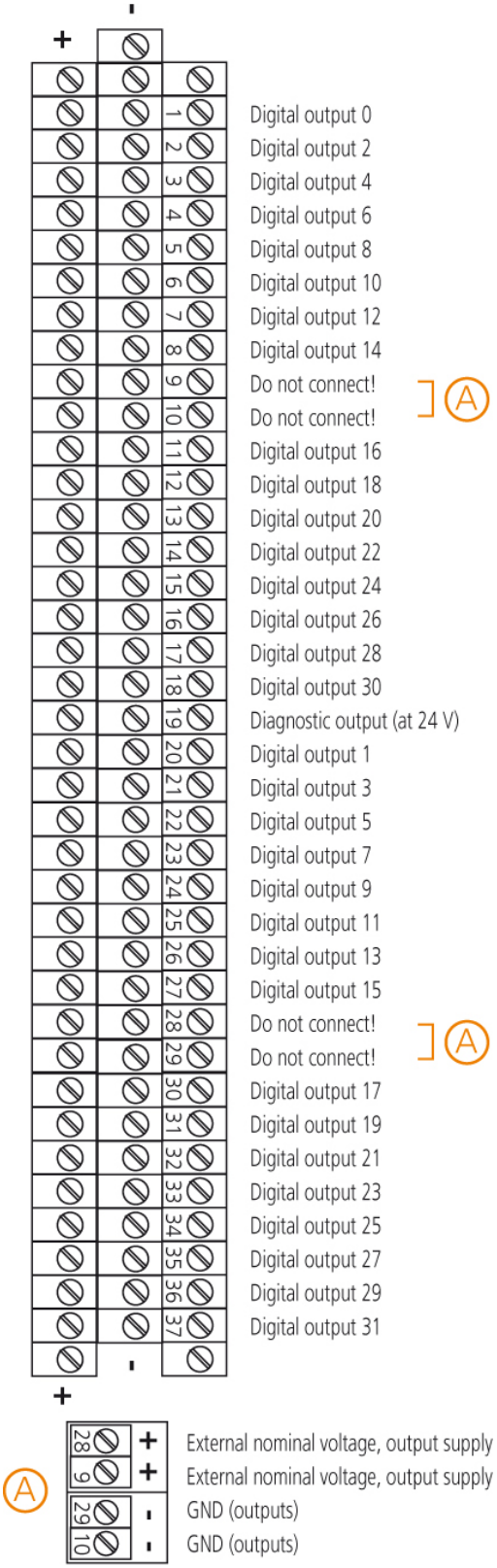
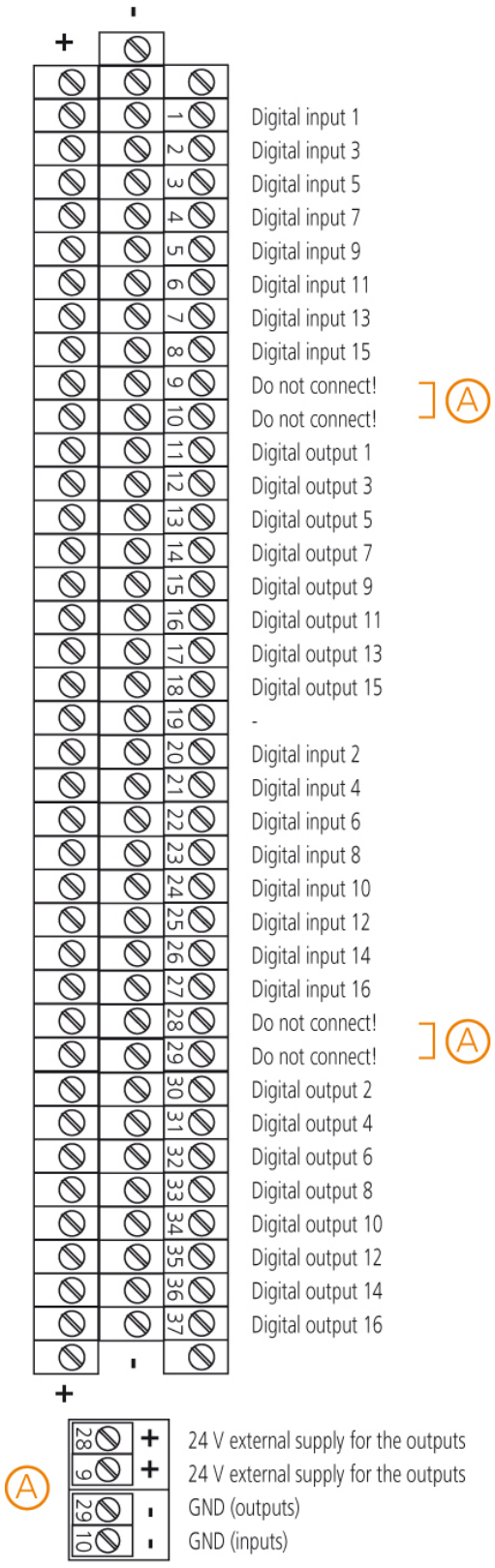


Fig. 3-11: APCIe-/APCI-/CPCI-/CPCI-s1564 (digital outputs)



3.4.4 Connection to the PA 1500

Fig. 3-12: Terminal assignment with the PA 1500



4 Return or disposal

4.1 Return

If you need to return your screw terminal panel, you should read the following checklist before.

Checklist for returning the screw terminal panel:

- Specify the reason for returning your screw terminal panel (e.g. exchange), the serial number of the screw terminal panel, the contact person in your company including his/her telephone extension and e-mail address, as well as the mailing address for a potential new delivery.
  You do not have to indicate the RMA number.

Fig. 4-1: Serial number

- Note down the serial number of the screw terminal panel.
- Place the screw terminal panel in an ESD protective cover. Then pack it in a cardboard box so that it is well-protected for shipping. Send the packed screw terminal panel together with your details to:

  ADDI-DATA GmbH
  Airpark Business Center
  Airport Boulevard B210
  77836 Rheinmünster
  Germany
- If you have any questions, do not hesitate to contact us:

  Phone: +49 7229 1847-0
  E-mail: info@addi-data.com

4.2 Disposal of ADDI-DATA waste equipment

ADDI-DATA organises the disposal of ADDI-DATA products that were put on the German market after 13 August 2005.
If you want to return waste equipment, please e-mail your request to: rohs@addi-data.com.

Screw terminal panels that were delivered after 13 August 2005 can be recognised by the following label:

Fig. 4-2: Disposal: Label

This symbol indicates the disposal of waste electrical and electronic equipment. It is valid in the European Union and in other European countries that have a separate collection system. Products carrying this symbol must not be treated as household waste.
For more detailed information on the recycling of these products, please contact your local citizens' office, your household waste collection service, the shop where you bought this product or the distributor you purchased this product from.

If you dispose of this product correctly, you will help to prevent damage that could be caused to the environment and to human health by inappropriate disposal. The recycling of materials will help to conserve our natural resources.

Disposal in other countries than Germany
Please dispose of the product according to the country-specific regulations.

5 Technical data and limit values

5.1 Electromagnetic compatibility (EMC)

The screw terminal panel **PX9000** complies with the European EMC directive. The tests were carried out by a certified EMC laboratory in accordance with the norm from the EN 61326 series (IEC 61326). The limit values as set out by the European EMC directive for an industrial environment are complied with.

The respective EMC test report is available on request.

5.2 Mechanical structure

Dimensions (L x W x H):	248 x 87 x 78 mm (with housing for DIN rail mounting)
Connection to peripherals:	
Connector:	37-pin D-Sub female connector (for the connection to the PC board)
Accessories: [1]	see Chapter 3
Cables:	**ST010** (2 m) **ST011** (5 m)

NOTICE!
The connection lines must be installed in such a way that they are protected against mechanical loads.

5.3 Versions

The specific version name can be found on the type label of your screw terminal panel.

5.4 Limit values

NOTICE!
Please observe the limit values of the connected peripherals (PC board, MSX-E system)!

Temperature range:	0-60 °C
Terminals:	
Conductor cross-section:	0,13 mm^2 to 2,5 mm^2
Max. current of the reverse polarity protection diode:	6 A / 200 V
Overvoltage protection when supplying	

[1] not included in standard delivery

the screw terminal panel:	breakdown voltage = ± 33 V V_{CL} = ± 53,9 V at I_{PP} = 7.4 A P_{PP} = 400 W/ms
Max. current when supplying the screw terminal panel per terminal:	2 A
Max. voltage at the signal terminals :	30 V
Max. current at the signal terminals:	1 A
Max. current consumption for each LED:	3 mA (at 24 V)
Max. current supply at the voltage supply terminals for the signal generators:	15 A

6 Appendix

6.1 Glossary

Digital signal
A digital signal is a digital representation of a constantly changing value or other piece of information. Digital signals consist of a finite number of values. The smallest possible difference between two digital values is referred to as the resolution. Digital signals are discontinuous in terms of value and time ranges.

EMC
= Electromagnetic Compatibility

The definition of the VDE regulation 0870 states: Electromagnetic compatibility is the ability of an electrical installation to function satisfactorily within its electromagnetic environment without unduly affecting its environment and the equipment it contains.

ESD
= Electrostatic Discharge

On non-conductive surfaces, an electric charge is conducted away very slowly. If the dielectric strength is overcome, there is a fast potential equalisation between the surfaces involved. The often very sudden equalisation process is referred to as electrostatic discharge (ESD). Currents of up to 20 A may occur in this process.

Limit value
Exceeding the limit values, even for a short time, can easily result in the destruction of the component or the (temporary) loss of functionality.

Operating voltage
The operating voltage is the voltage to the device in sustained operation. It must not exceed the maximum sustained voltage, and all unfavourable operating conditions, such as possible mains power surges for over a minute when the device is switched on, must be taken into account.

6.2 Index

7 Contact and support

Do you have any questions? Write or phone us:

Address: ADDI-DATA GmbH
Airpark Business Center
Airport Boulevard B210
77836 Rheinmünster
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Phone: +49 7229 1847-0
Fax: +49 7229 1847-222

E-mail: info@addi-data.com

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