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Technical description

ADDIVARIOUS PX 9000

Screw terminal board

3rd edition 05/2004

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.
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Trademarks

WARNING

The following risks result from improper implementation and from use of the board contrary to the regulations:

- **Personal injury**

- **Damage to the MSX-Box, PC and peripherals**

- **Pollution of the environment**

- **Protect yourself, the others and the environment!**

- **Read carefully the safety precautions (yellow leaflet).**

  If this leaflet is not with the documentation, please contact us and ask for it.

- **Observe the instructions of the manual.**

  Make sure that you do not forget or skip any step. We are not liable for damages resulting from a wrong use of the board.

- **Used symbols:**

IMPORTANT!
designates hints and other useful information.

WARNING!
It designates a possibly dangerous situation.
If the instructions are ignored the board, PC and/or peripheral may be destroyed.

Figures

Tables

1 DEFINITION OF APPLICATION

1.1 Intended use

The screw terminal board **PX 9000** is used as electrical equipment for measurement, control and laboratory use as defined in the norm IEC 61010-1.

The screw terminal board PX 9000 is intended to connect up to 37 signal lines and/or signal-reference lines and the voltage supply of sensors/actuators.

1.2 Usage restrictions

The **PX 9000** board must not to be used as safety related part for securing emergency stop functions.

The **PX 9000** board must not be used in potentially explosive atmospheres.

1.3 Generalities

The use of the terminal board according to its intended purpose includes observing all advises given in this manual and in the safety leaflet.

Uses beyond these specifications are not allowed. The manufacturer is not liable for any damages which would result from the non-observance of this clause.

Make sure that the board remains in its protective pack **until it is used**.

Do not remove or alter the identification numbers of the terminal board.
If you do, the guarantee expires.

2 USER

2.1 Qualification

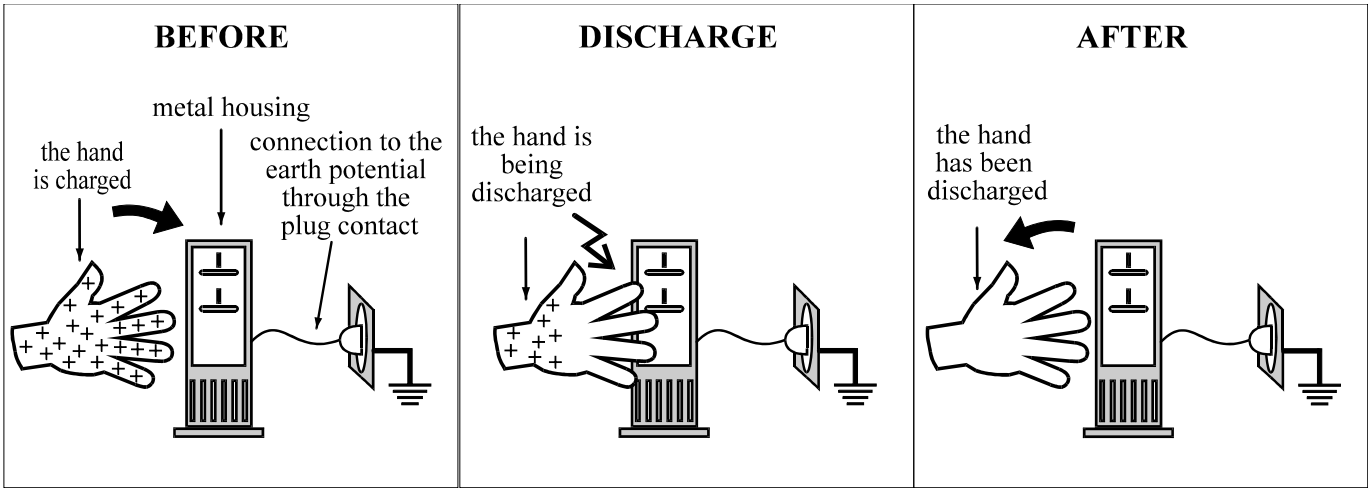
Only persons trained in electronics are entitled to perform the following works:
- installation
- use,
- maintenance.

2.2 Personal protection

Consider the country-specific regulations about:
- the prevention of accidents
- electrical and mechanical installations
- radio interference suppression.

3 HANDLING OF THE BOARD

♦ **Discharge yourself** before touching the board.



♦ **Seize the board** on its edge or by the housing

4 TECHNICAL DATA

4.1 Physical set-up of the board

The board is assembled on a 2-layer printed circuit card.

A 1.5 mm printed circuit card supports the mechanical and electrical connection.

Dimensions of the printed circuit card (without components):
Length: ..... 244 mm
Max. width: ..... 68 mm

Dimensions of the printed circuit card (with components and housing):
Length: ..... 248 mm
Max. Width: ..... 87 mm
Max. component height: ..... 78 mm
Weight: ..... 465 g

4 screw holes allow installing the printed circuit card on a housing rear panel or a mounting plate (intended for M3 screws).
See component scheme

Installation: ..... on DIN rail (board supplied with housing

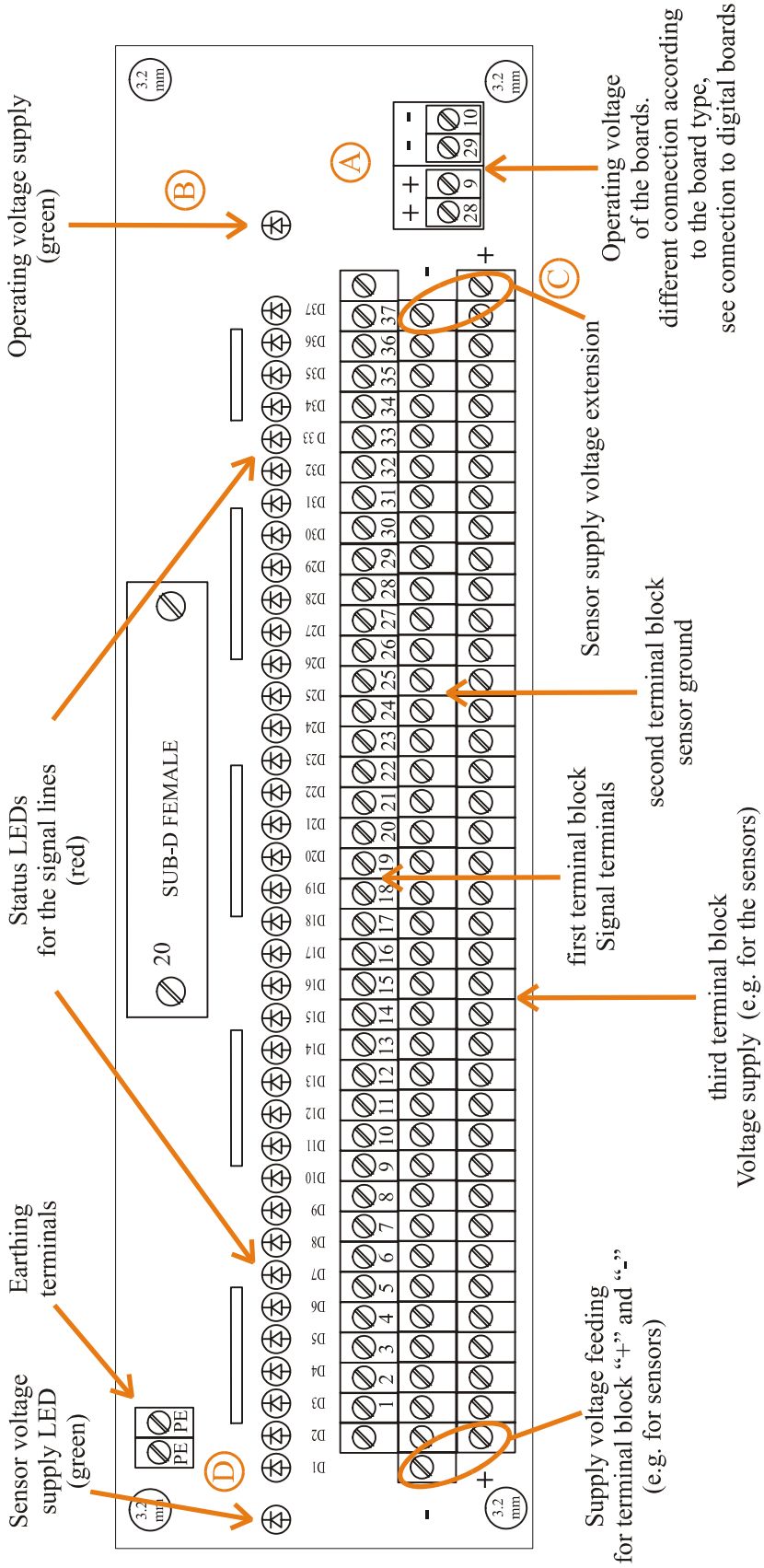
Terminal screws for
conductor cross sections: .....0.13 to 2.5 mm²

4.2 Limit values

Voltage supplying terminals:
Protection diode against pole reversal: .....max. current 6 A / 200 V
Overvoltage protection:.....Breakdown voltage = ± 33 V
VCL = ± 53.9 V ; at IPP 7.4 A
PPP = 400 W / 1 ms
Max. current for each terminal:.....2 A
Max voltage for signal terminals: .....30 V
Max current for signal terminals:.....1 A
Max current consumption for each LED:...3 mA / 24 V
Max. current supply
for the sensors/actuators:.....15 A

4.3 Component scheme

Fig. 4-1: Component scheme



5 DESCRIPTION OF THE BOARD

The board is intended for connecting:
- maximum 37 signal lines
- and the voltage supply of sensors/actuators .

The ADDI-DATA digital I/O boards can be connected to the 37-pin SUB-D female connector of the screw terminal board through the standard cable ST010 (shielded round cable with twisted pairs and metallised plastic hoods).

The female front connector is connected to 2 additional ground terminals. All components of the board are enclosed in an earthing strip which is also connected to the ground terminals.

3 blocks of 39 terminals

All 37 contacts of the 37-pin female connector are assigned a contact on a row of terminals. Each signal line (terminal 1-37) is assigned a status LED.

Both other rows of terminals are intended for connecting the voltage supply of the sensors/actuators. These rows are protected against unintentional voltage reversal through a diode. A LED indicates when a voltage is applied (See component scheme, Ⓓ).

These rows of terminals are equipped with 2 additional terminals, one on the right and one on the left side, for the easy connection of the voltage supply to a further terminal board.

4 further screw terminals (See component scheme, Ⓐ) are at disposal for the supply voltage of ADDI-DATA digital I/O boards: two for the connection of the 24 V operating voltage and two for the operating ground. Both terminals for the operating voltage 24V are in addition protected against overvoltage through varistors and transorb diodes. A LED Ⓑ indicates if the operating voltage is connected.

Connection of digital input signals

The 2 ground terminals of Ⓐ (pin 10 and 29) must be connected.

Connection of sensors/actuators

The voltage supply is bridged from Ⓐ to the supply voltage extension terminals Ⓒ. Both rows (+ and -) are then serially connected.

6 CONNECTION TO ADDI-DATA BOARDS

6.1 General advises

The terminals are organised in several groups.
All terminals accept conductor cross section of up to 2.5 mm².
To simplify the connection, the terminals numbers correspond to the pin numbers of the 37-pin female connector. Thus the connector pin assignments are identical to the terminal assignments.

6.2 Connector pin assignment

Table 6-1: Connection between terminals and connector pins

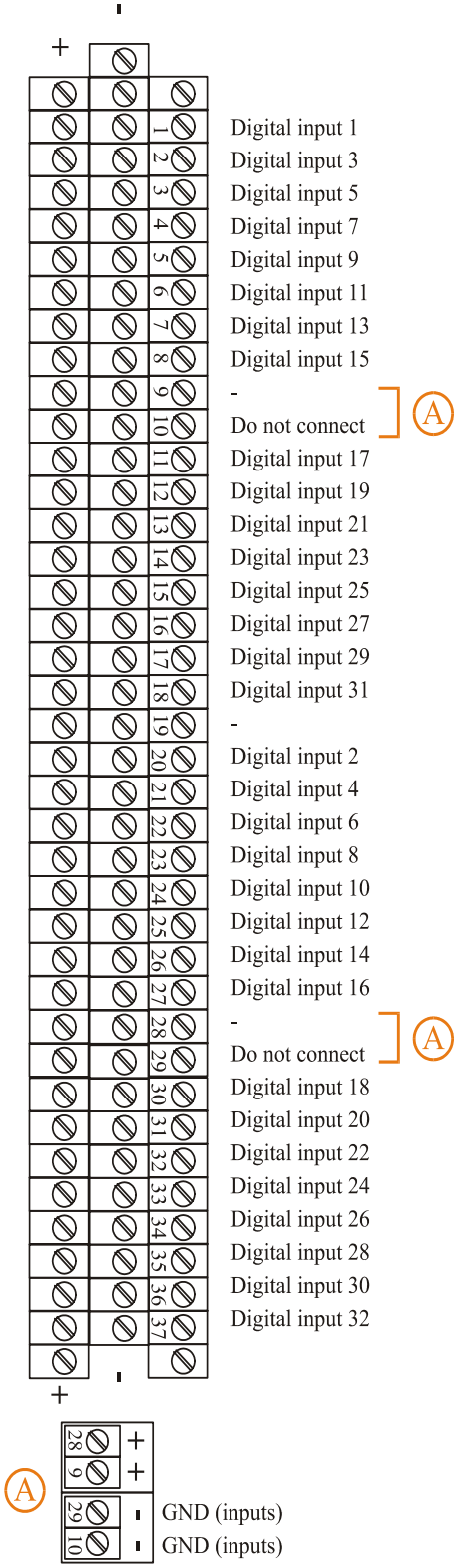
Terminal designation	Pin designation of the 37-pin SUB-D female connector
1	1
2	2
3	3
...	...
37	37

6.3 Connection to digital input boards

6.3.1 Connection to the PA 1000

Board features: 32 digital input channels, 24 V, ISA bus

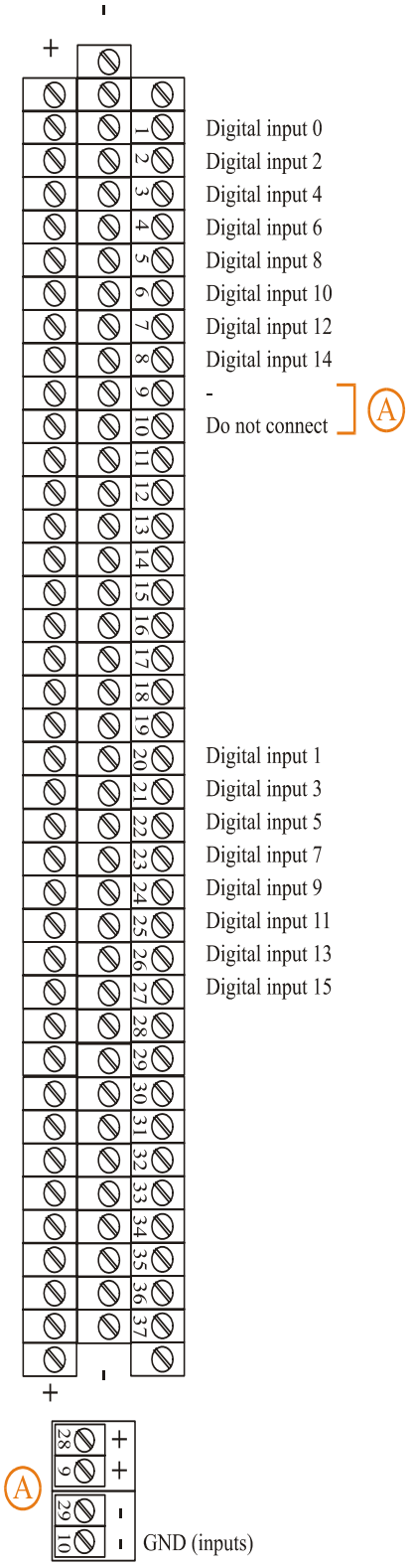
Fig. 6-1: Connection to the PA 1000



6.3.2 Connection to the APCI-1016

Board features: 16 digital input channels, 24 V, PCI bus

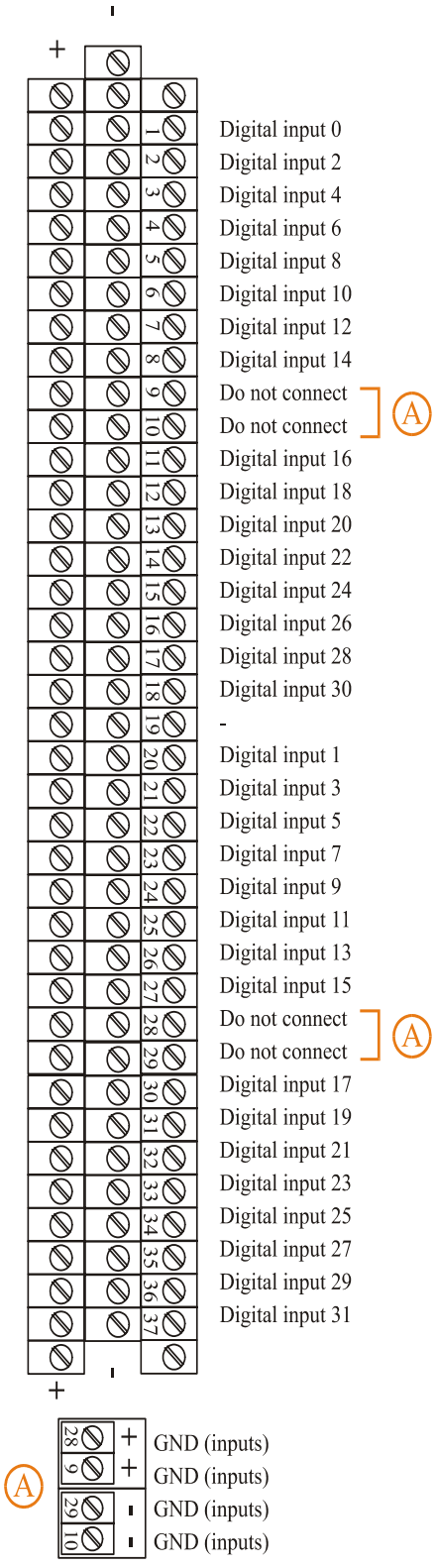
Fig. 6-2: Connection to the APCI-1016



6.3.3 Connection to the APCI-1032

Board features: 32 digital input channels, 24 V, 12 V or 5 V PCI bus

Fig. 6-3: Connection to the APCI-1032

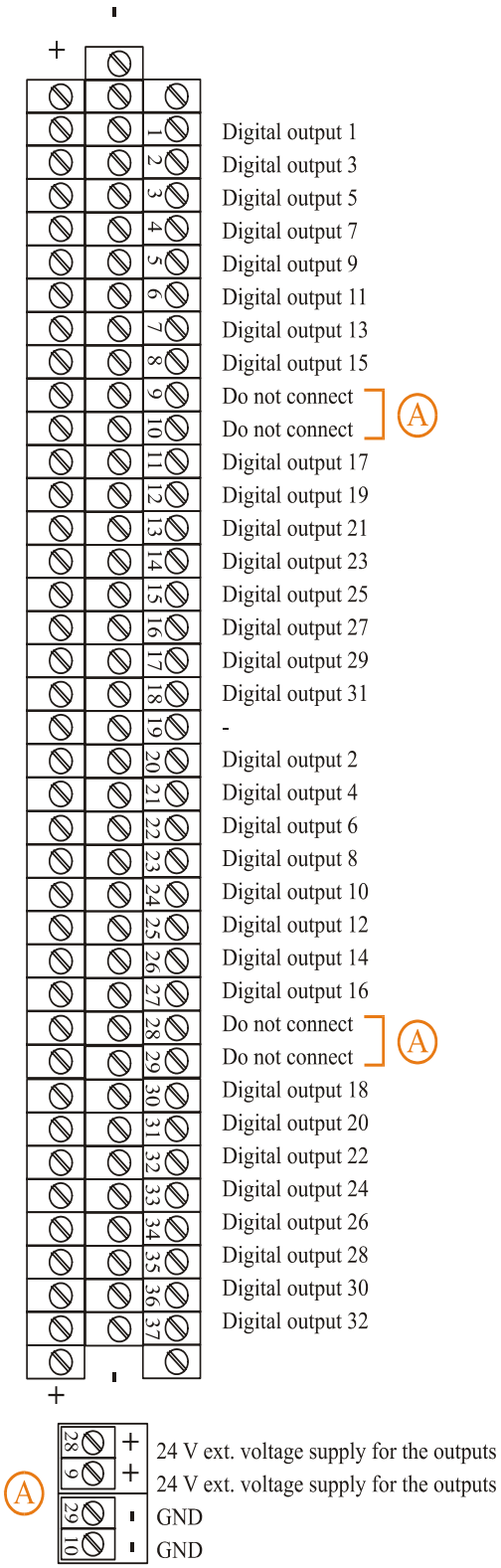


6.4 Connection to the digital output boards

6.4.1 Connection to the PA 2000

Board features: 32 digital output channels, 24 V, 500 mA, ISA bus

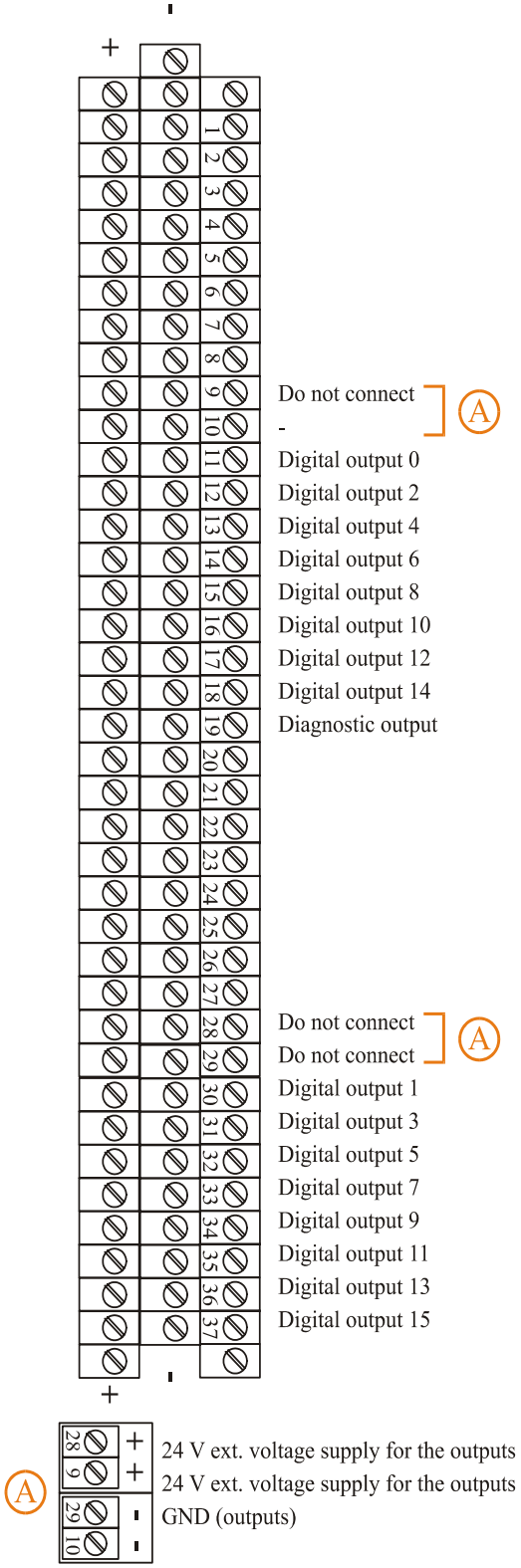
Fig. 6-4: Connection to the PA 2000



6.4.2 Connection to the APCI-2016

Board features: 16 digital output channels, 24 V, 500 mA, PCI bus

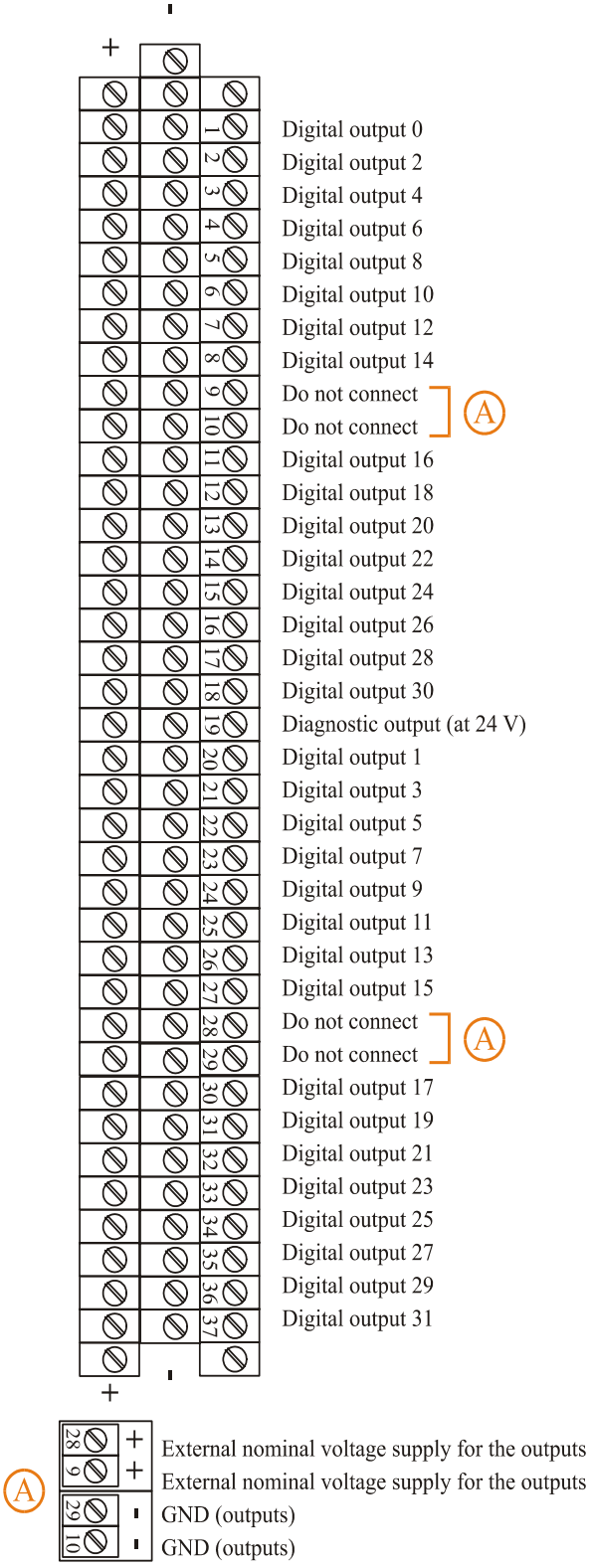
Fig. 6-5: Connection to the PA 2016



6.4.3 Connection to the APCI-2032

Board features: 32 digital output channels, 24 V or 5 V, 500 mA, PCI bus

Fig. 6-6: Connection to the APCI-2032

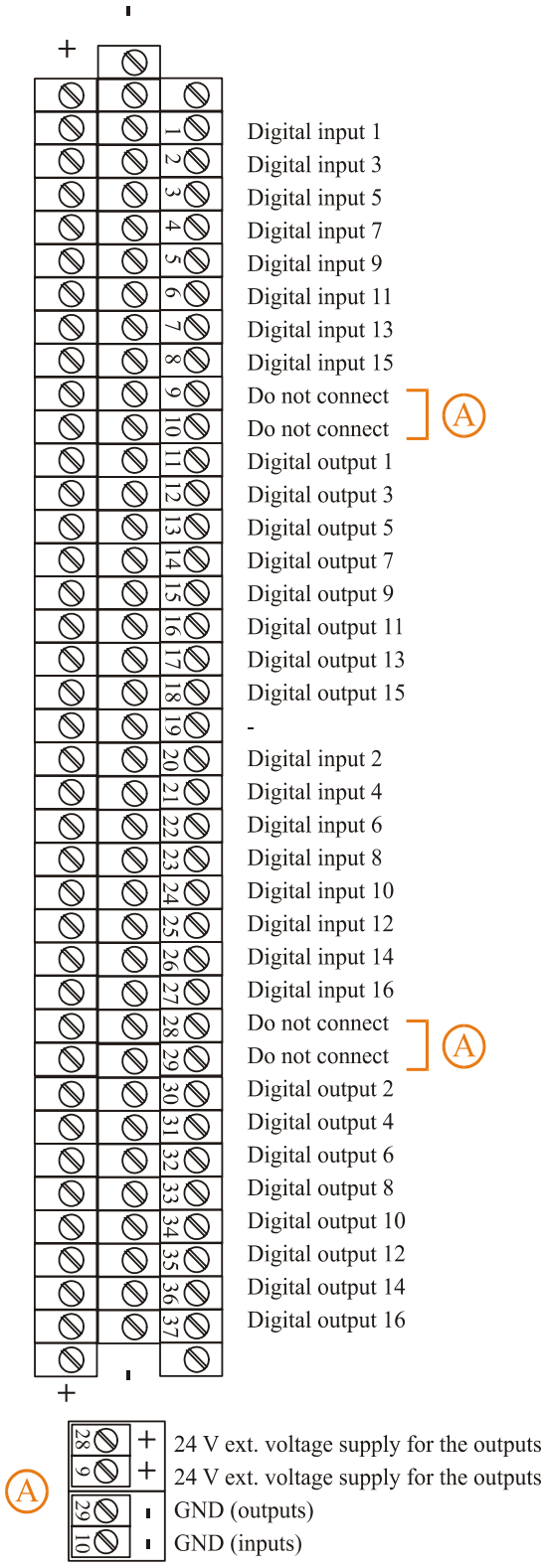


6.5 Connection to the digital input and output boards

6.5.1 Connection to the PA 1500

Board features: - ISA bus
- 16 digital input channels, 24
- 16 digital output channels, 24 V, 500 mA

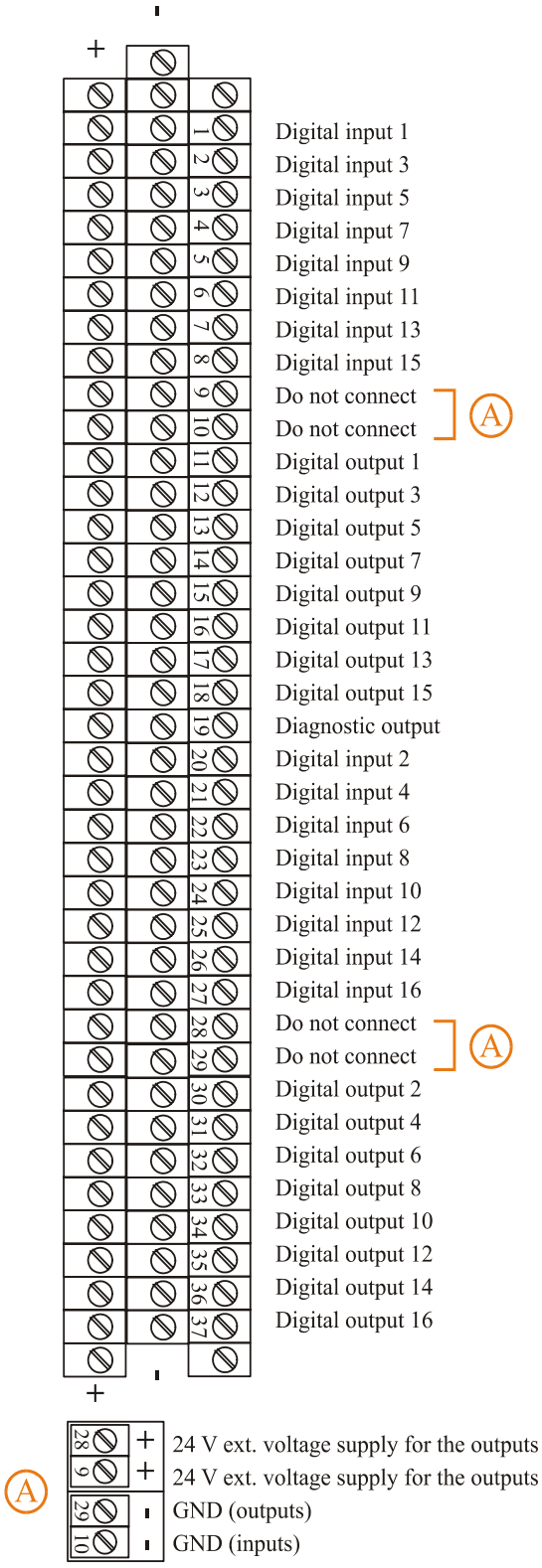
Fig. 6-7: Connection to the PA 1500



6.5.2 Connection to the APCI-/CPCI-1500

Board features:
- PCI-/CompactPCI-Bus
- 16 digital input channels, 24 V
- 16 digital output channels, 24 V, 500 mA

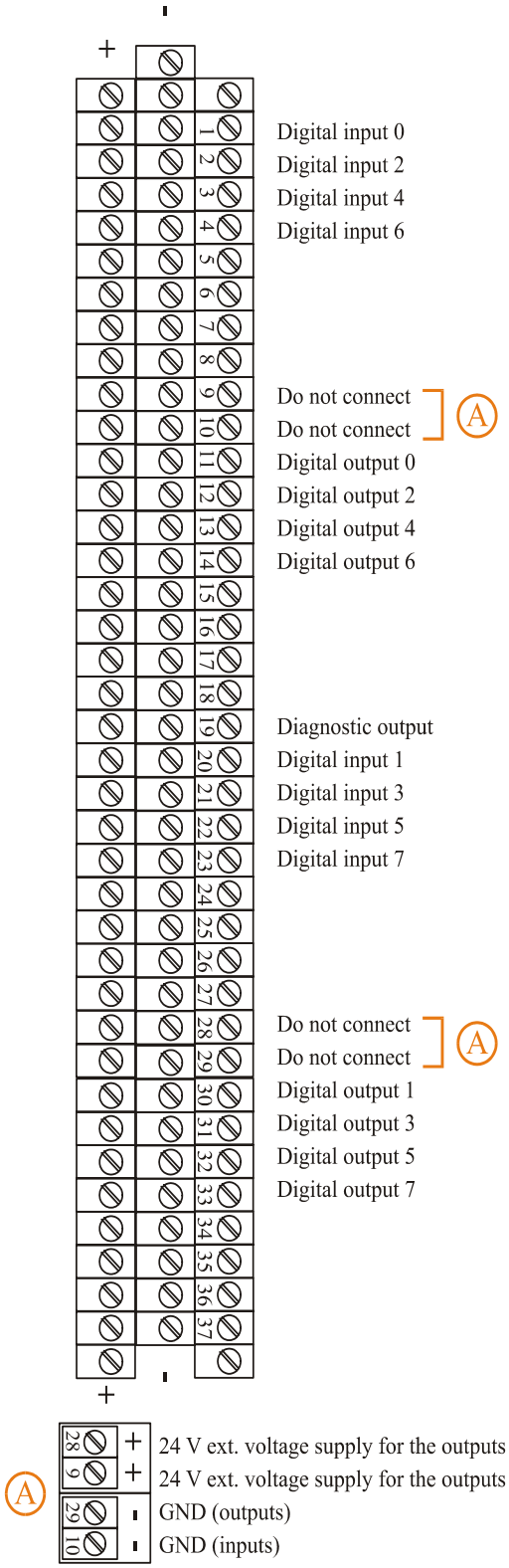
Fig. 6-8: Connection to the APCI-/CPCI-1500



6.5.3 Connection to the APCI-1516

Board features: - 8 digital input channels, 24 V, PCI bus
- 8 digital output channels, 24 V, 500 mA PCI bus

Fig. 6-9: Connection to the APCI-1516



6.5.4 Connection to the APCI-1564

Board features: - 32 digital input channels, 24 V or 5 V, PCI bus; connection through separate connector with ribbon cable FB1564
- 32 digital output channels, 24 V or 5 V, PCI bus

Fig. 6-10: Connection to the APCI-1564 (digital input channels)

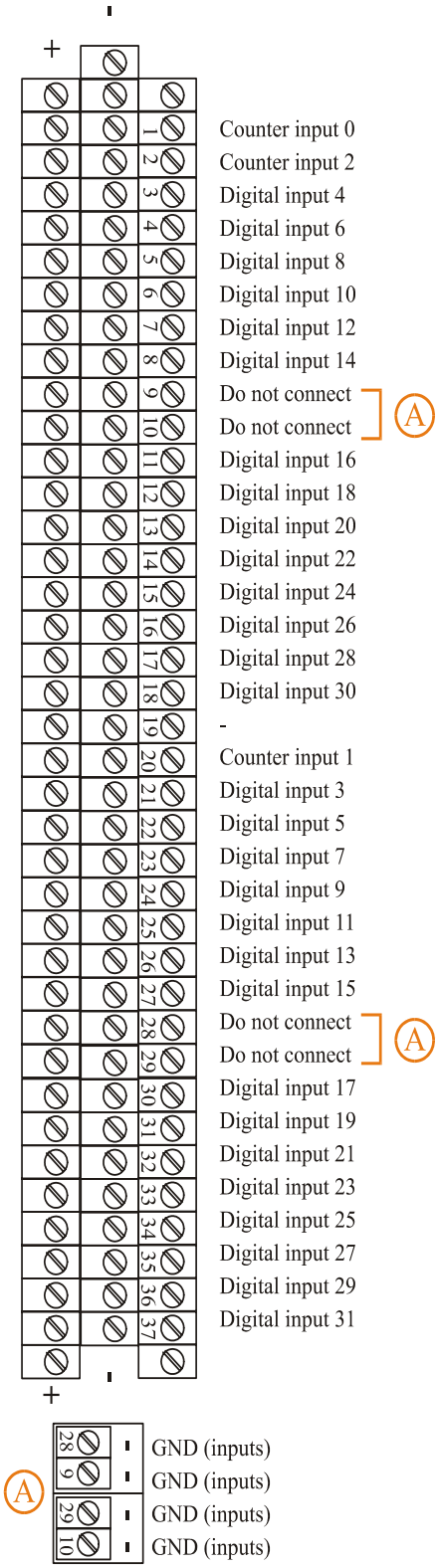
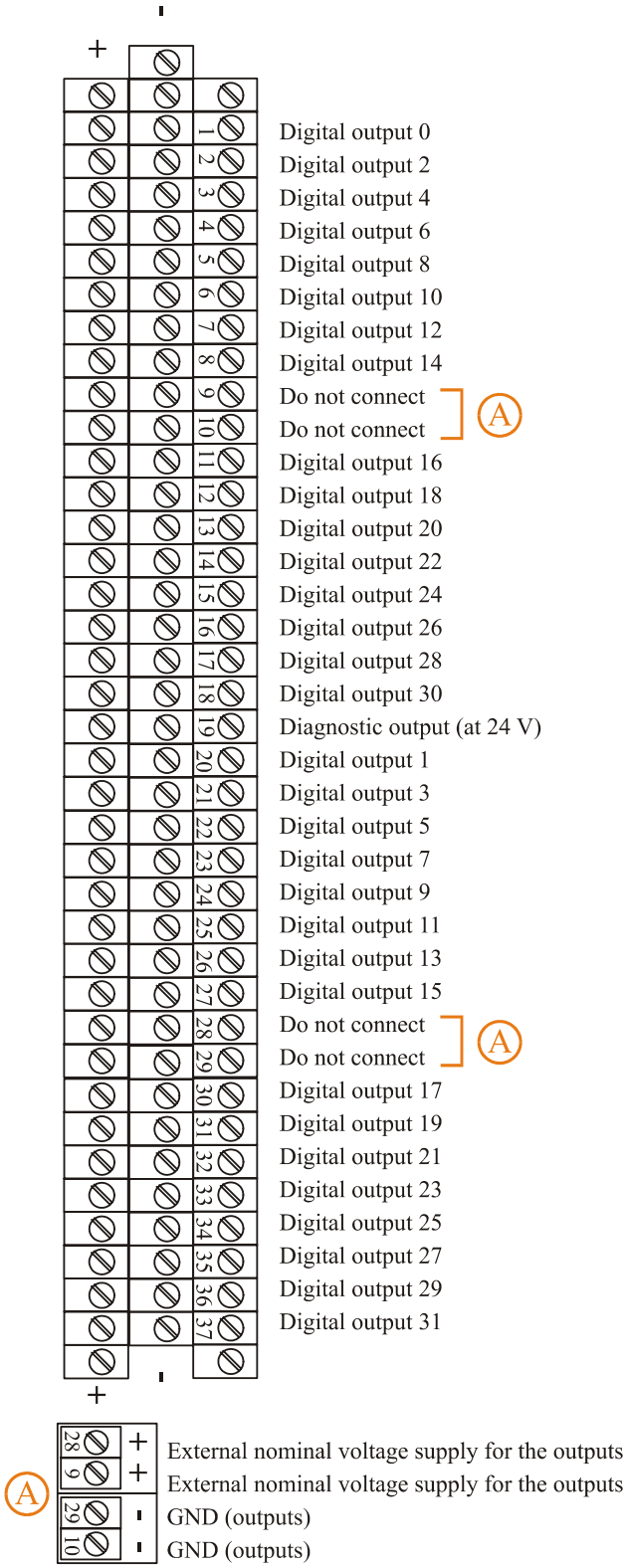


Fig. 6-11: Connection to the APCI-1564 (digital output channels)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Digital output 0
Digital output 2
Digital output 4
Digital output 6
Digital output 8
Digital output 10
Digital output 12
Digital output 14
Do not connect
Do not connect
A
Digital output 16
Digital output 18
Digital output 20
Digital output 22
Digital output 24
Digital output 26
Digital output 28
Digital output 30
Diagnostic output (at 24 V)
Digital output 1
Digital output 3
Digital output 5
Digital output 7
Digital output 9
Digital output 11
Digital output 13
Digital output 15
Do not connect
Do not connect
A
Digital output 17
Digital output 19
Digital output 21
Digital output 23
Digital output 25
Digital output 27
Digital output 29
Digital output 31
A
28
9
29
10
+
+
-
-
External nominal voltage supply for the outputs
External nominal voltage supply for the outputs
GND (outputs)
GND (outputs)