Screw terminal panels,
Relay output boards, connection cables

How important are cables and terminal panels?

When the PC runs important controlling and regulating tasks in a processing system, then data transfer must be reliable in order to ensure the reliability of the whole system. This is why ADDI-DATA cables and terminal panels have the same high safety and EMC standards as the PC boards and MSX-E systems.

What makes the difference between cables?

The connection cable as a mechanical device is not submitted to the EMC specifications, though it can affect the emission immunity of the devices to which it is connected.
The use of cables with industry-standard D-Sub connectors has many advantages:
- Robustness
- Protection against EM fields
- Earthing on both connector ends
- High noise immunity

Application

Suitable for use as control or signal cables in noisy environment, for indoor or outdoor applications. The tight braid reduces the emissions.
The copperbraid is used as „ground". Twisted pairs provide protection against crosstalk and external interference. The cables are suited for dry or damp environments.

Robust industry-standard D-Sub connector

Protection against electromagnetic fields

High noise immunity

Indispensable terminal panels

Terminal panels are essential in most industrial applications. They dispatch to the sensors, tracers or control modules the numerous signals which are to be processed.

Prevent connection errors
- The terminal panels are pin-compatible with the PC boards
- The terminal panels lead the control signals in increasing order from the PC to the screw terminal which also corresponds to the bit set in the board

Helpful LEDs
- Indicate the status of each digital signal

Integrated 24 V supply
- Separate 24 V supply terminal for the easy connection of digital 24 V PC boards
- Varistors and diodes for overvoltage protection are connected to the screw terminals to prevent emissions from the external supply voltage.
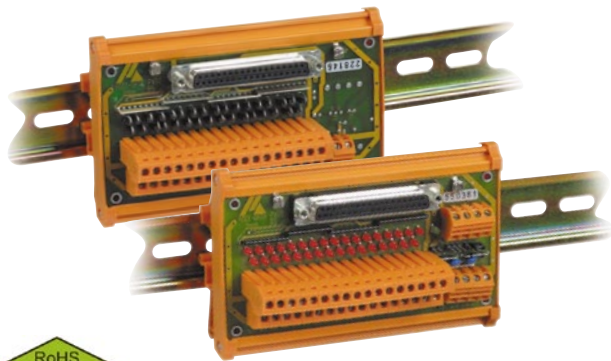
High noise immunity
- The connection between housing and shield through the ground connection terminal creates an earthing on both sides

	PX901	PX9000	PX8001	PX9200	PX8500	PX_BNC
Description	Panel for connecting up to 32 signal lines	Panel for connecting up to 32 signal lines	Panel for connecting 50 signal lines	Panel for connecting 22 signal lines and 4 analog channels	Relay output board with 8 relays, cascadable in 16, 24 and 32 relays	Connection of up to 8 diff. or 16 SE inputs through BNC connector
Function indication with LEDs	PX901-D: yes	For 24 V and sensor supply		For 24 V and sensor supply	For relay and sensor supply	
Overvoltage protection of the 24 V supply voltage	Through varistors and transil diodes	Through varistors and transil diodes		Through varistors and transil diodes	Through varistors and transil diodes	
Available versions	**PX901-D**: For digital boards, with 32 LEDs for status indication of the data lines . **PX901-DG**: Same as PX901-D with housing **PX901-A**: For analog boards with transil diodes for the overvoltage protection of the analog I/O **PX901-AG**: Same as PX901-A with housing for DIN rail **PX901-ZG**: For digital I/O boards, analog boards APCI-3120/3001, APCIe-3121/3021/3521 and counter boards PA1700-2, with housing for DIN rail				**PX8500-G**: With housing for DIN rail **PX8500-Vt+G**: With varistors and housing for DIN rail	
Connection to	ADDI-DATA digital, analog or counter boards	All ADDI-DATA digital boards	APCI-1710, CPCI-1710 APCI-8001, APCIe-1711, APCI-2200, APCIe-2200 APCI-311x/301x, CPCI-8004	Multifunction board APCI-3122 and analog board APCI-3504	ADDI-DATA digital boards with digital outputs	ADDI-DATA analog boards
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Screw terminal panel for DIN rail

PX901

32 terminals for signal lines

LED status indication for digital signals

Transil diodes for analog signals

DIN-rail mounting

Direct connection to ADDI-DATA boards

RoHS 2002/95/EC

The screw terminal panel PX901-xx is used for the connection of maximum 32 signal or signal-reference lines.

ADDI-DATA boards can be connected through 37-pin D-Sub female connector with our standard cables of the STxxx series.

The housing of the female connector is connected with two ground terminals so that the board is additionally earthed for more security. All components of the board are enclosed in an earthing strip also connected to the ground terminals.

Each terminal is directly connected to one pin of the 37-pin D-Sub female connector. The designations on the terminals indicate the respective connections for the 37-pin D-Sub female connector.

The PX901-D version is equipped with LEDs which are ideal for status display when working with ADDI-DATA digital 24 V I/O boards.

The PX901-A version is fitted with transil diodes for analog signals, but without LEDs.

An additional 4-pin terminal is available in order to be able to connect more than one 24 V operating voltage and ground line.

The 24 V or the ground terminal can be connected very easily through wire wrap to the 4-pin terminal.

The 24 V operating voltage lines are additionally protected against overvoltage through varistors and transil diodes.

Features

- Connection of up to 32 signal lines
- Separate ground connections
- Connection through screw terminals
- 2 rows of terminals
- Terminals can be labelled
- Additional 4-pin terminal for connecting the ground or the supply voltage
- With housing for mounting on a standard DIN rail
- All terminals intended for large conductor cross sections: up to 2.5 mm²

Safety features

- Overvoltage protection of the 24 V supply terminals through varistors and transil diodes

Applications

- Process control
- Industrial measuring
- Acquisition of sensor data
- Signal analysis

Specifications

Signal line terminals:	32 for the connection of peripherals
Additional terminals:	– 4 for feeding the external operating voltage (digital I/O) – 2 for the connection of ground lines
status indication:	32 LEDs for status indication, 1 LED for status display of the operating voltage (version D)
Safety features:	Varistors and transil diodes
Connector:	37-pin D-Sub female connector
Dimensions of the board:	(L x W x H) 130 x 70 x 35 mm
Dimensions with housing:	(L x W x H) 132 x 87 x 70 mm
Temperature range:	0-60 °C

Example:
Connection of a digital input board to the screw terminal panel PX901-DG

PX901-DG

ST010 / ST011

APCI-1032

D-Sub female connector

D-Sub male connector
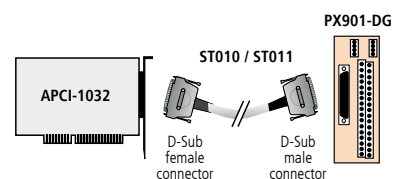
Ordering information

PX901
Screw terminal panel. Incl. technical description.

Versions
PX901-D: For digital boards, with status indication through LEDs
PX901-DG: Same as PX901-D, with housing for mounting on DIN rail
PX901-A: For analog boards, with transil diodes
PX901-AG: Same as PX901-A, with housing for mounting on DIN rail

PX901-ZG: For analog output boards with current outputs and for connecting the digital I/O on some ADDI-DATA boards. With housing for DIN-rail mounting
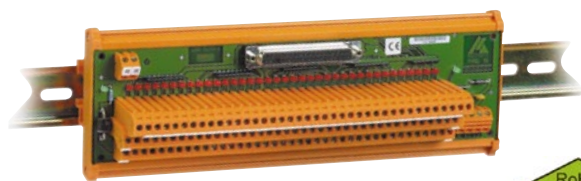
Accessories (see page 200/201)
Please order separately!
ST010: Standard round cable, shielded, twisted pairs, 2 m
ST011: Standard round cable, shielded, twisted pairs, 5 m

Screw terminal panels for DIN rail

PX9000

3-row screw terminal panel

LED status indication

DIN rail mounting

For digital or analog boards

The screw terminal panel PX9000 is intended for the connection of maximum 32 signal lines and the voltage supply for the external sensors/actuators. All components of the board are enclosed in an earthing strip which is also connected to the ground terminals.

On the 3x39-pin terminal block, all 37 contacts of the 37-pin female connector are assigned a contact on a row of terminals. Each signal line (terminal 1-32) is assigned a status LED.

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

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 panel.

4 further screw terminals 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 overvoltages through varistors and transorb diodes.

Features

- 3 rows of terminals, terminals can be labelled
- LED indicator status
- Additional 4-pin terminal for the direct connection of the ground and the 24 V supply voltage to ADDI-DATA boards
- With housing for DIN-rail mounting
- All terminals intended for large conductor cross sections: up to 2.5 mm²
- 2 x 39 screw terminals to the distribution of the voltage supply e.g. on sensors and for cascading several PX9000

Specifications

Signal line terminals:	32 for the connection of peripherals
Supply voltage terminals:	2 rows of 39 terminals
Additional terminals:	– 4 terminals for the external voltage power supply (digital I/O) – 2 for connecting the ground lines
Status indication:	37 LEDs for status indication, LEDs for operating and supply voltage
Safety features:	Varistors and transil diodes, ground lines
Connector:	37-pin D-Sub female connector
Dimensions of the board:	(L x W x H) 244 x 68 x 35 mm
Dimensions with housing:	(L x W x H) 248 x 87 x 78 mm
Temperature range:	0-60 °C

PX8001

3-row screw terminal panel, 50-pin, for DIN rail

Connection of 50 signal lines

With numbered screw terminals

Features

- Screw terminal panel for 50 signal line terminals
- Ground connection of the connector is lead directly to the connecting terminal
- With 50-pin female connector
- For free mounting

Specifications

Cross conductor section up to:	4 mm²
Input/output test voltage:	2.5 kV, 50 Hz, 60 s
Operating temperature:	-20 °C to +50 °C
Dimensions in mm (L x W x H):	69 x 98 x 62
Current/Voltage:	2 A / 125 V

Ordering information

PX9000
3-row screw terminal panel, 37-pin, with housing for DIN-rail mounting. Incl. technical description.

PX8001
3-row screw terminal panel, 50-pin, with housing for DIN-rail mounting. Incl. technical description.

Accessory
please order separately!
ST010: Shielded round cable, twisted pairs, 2 m, 37-pin
ST011: Shielded round cable, twisted pairs, 5 m, 37-pin
ST370-16: Shielded round cable, twisted pairs, 2 m, 50-pin
ST8001: Cable for connecting the APCI-8001 and APCI-8008 to the screw terminal panel PX8001

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Screw terminal panel for DIN rail

PX9200

Separate connector for digital I/O
and analog outputs

LED status indication for digital signals

Protection through transil diodes for analog signals

DIN-rail mounting

The terminal panel PX9200 combines the connection of analog and digital channels. It features 2 separate male connectors between the digital and the analog signals. Both signal types are driven through one own layer board and are protected from each other.

The two terminals blocks for the digital signals allow to connect 22 lines distributed as follows: 12 lines for digital output signals and 10 lines for digital input signals. The cable ST3122-D is used for digital data transfer to the ADDI-DATA boards and is equipped with a 26-pin D-Sub high-density female connector.

The terminal block for the analog signals allow to connect 4 analog channels with a separated ground line. The cable ST3122-A is used for analog data transfer to the ADDI-DATA boards and is equipped with a 15-pin D-Sub high-density female connector.

All components of the layer board are included in an earthing strip which is itself connected to the earthing terminal.

The screw terminals are labelled to differentiate the different signals (analog/digital).

The PX9200 is supplied with LEDs for status display of the digital signals.

The analog signals are protected against fast transients and the mechanical layout allows the separation from the digital signals. The voltage supply for the analog or digital functions are driven separately.

Features

- Max. connection of 22 digital signal lines and 4 analog channels with separated ground line
- Separate ground connection
- Connection through screw terminals
- Separated connection blocks for analog and digital channels
- Terminals can be labelled
- With housing for DIN rail mounting
- All terminals for screw terminals for large conductor cross sections: up to 2.5 mm²

Safety features
- Transil diodes on the analog channels
- Separate lines for analog and digital channels

Applications

- Process control
- Industrial measurement
- Acquisition of sensor data
- Signal analysis

Specifications

Signal line terminals:	for the connection of peripherals
Status indication:	22 LEDs for digital status indication, including: – 12 yellow LEDs for digital outputs – 10 orange LEDs for digital inputs
	One additional LED (green) for the voltage supply of the analog and digital channels
Safety features:	Varistors and transil diodes
Connector:	26-pin high-density D-Sub female connector (digital)
	15-pin high-density D-Sub female connector (analog)
Dimensions:	(L x W x H) 132 x 87 x 65 mm
Temperature range:	0-60 °C

ST3122, High-density round cable, 2 m

Ordering information

PX9200
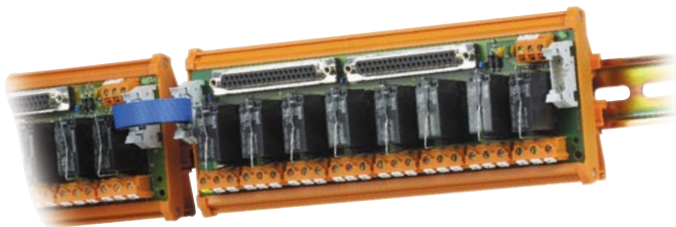Screw terminal panel. Incl. technical description.

PX9200: for multifunction board APCI-3122 and analog output board APCI-3504 with status indication through LEDs

Accessories
ST3122-D: High-density round cable, 2 m, shielded, twisted pairs, for digital inputs and outputs
ST3122-A: High-density round cable, 2 m, shielded, twisted pairs, for analog outputs

8-port relay output board

PX8500

For the connection of digital output boards

Cascadable in 16/24/32 relays

8 relays on socket

DIN-rail mounting

30 VDC - 277 VAC

300 W - 2500 VA

10 A

RoHS
2002/95/EC

The PX8500 is an external 8-channel relay board for the connection of digital output boards. It can be cascaded in 16, 24 and 32 relays and is intended for mounting on DIN supporting rails. The board provides a convenient interface between an industrial process and the D-Sub connectors on ADDI-DATA boards.

The change-over contacts of the relay are controlled through 24 V signals. The 24 V voltage supply is protected through varistors and transil diodes.
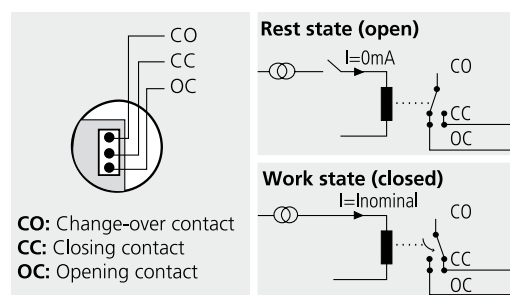
The board is intended for the use with 220 V supply. The creeping distance (acc. to DIN VDE0110) and the connector cross sections allows high-power switching (up to 2,500 VA). The board has a female D-Sub connector for connecting an ADDI-DATA digital 24 V output board through a standard I/O cable ST010. The red LEDs display the state of the relays (open/closed). A green LED displays the ON/OFF of the operating voltage.

The 37-pin cable shielded can be grounded on both sides for the protection against high-frequency EMI

Features

- Relay output board with 8 relays, cascadable in 16, 24 and 32 relays
- Max. switching voltage: 30 VDC/277 VAC
- Max. switching current: 10 A
- All terminals intended for large conductor cross sections up to 2.5 mm^2
- Operating voltage display through green LED
- Relay state display through red LED
- Relays mounted on sockets
- High switching capacity
- Long-lasting life

Safety features

- Overvoltage protection of the 24 V supply voltage through varistors and transil diodes
- Contact protection of the relays through varistors (option Vt)
- 4 mm creeping distance between change-over, closer and opening contact
- 6 mm creeping distance between change-over contact and closer of adjoining relay
- Free-wheeling diode in the coil circuit
- With housing for mounting on a standard DIN rail, (option G)
- Operating safety tested according to the low-voltage directive: 73/23/EEC

Applications

- Industrial digital I/O control
- Automatic test equipment
- External high power relay control
- Alarm monitoring
- Test automation
- Alarm monitoring
- Digital monitoring
- ON/OFF monitoring of motors, lights ...
- ...

Function principle of the relays

Rest state (open)

Work state (closed)

CO: Change-over contact
CC: Closing contact
OC: Opening contact

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Specifications

EMC – Electromagnetic compatibility

The product 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.

Contact side

Type of contacts:	8 change-over
Max. switching voltage:	30 VDC - 277 VAC
Max. switching capacity:	300 W - 2500 VA
Max. switching current:	10 A
Contact resistance:	<100 mΩ
Response time:	15 ms
Release time:	5 ms
Mechanical life:	5.000.000 operations
Life at max. switching capacity:	100.000 operations

Control side

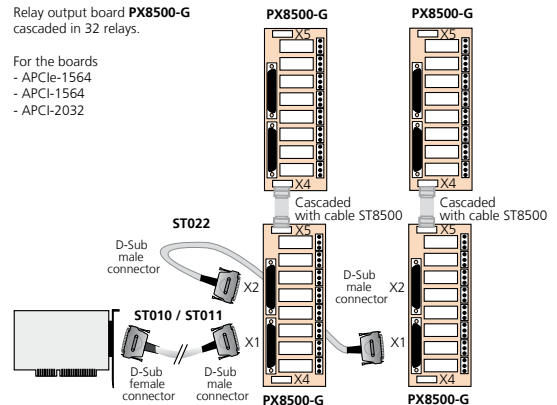|	
Switching behaviour:	Monostable
Operating voltage:	24 VAC
Operating efficiency:	533 mW
Switch. frequency at max. load:	20 switchings/minute
Threshold voltage at +20 °C:	16.8 V
Release voltage at +20 °C:	2.4 V

Physical and environmental conditions

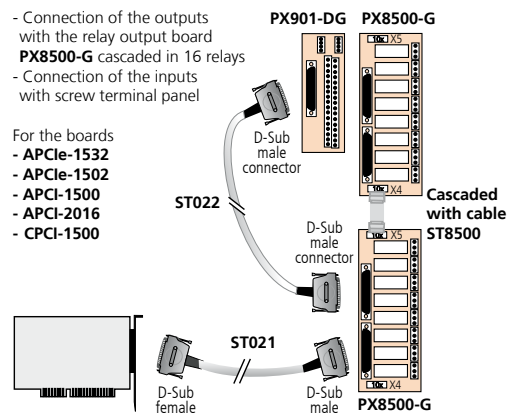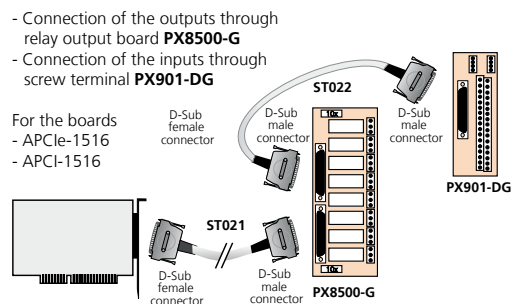|	
Operating voltage:	+ 24 V
Current consumption:	210 mA typ.
Dimensions (L x W x H):	with housing 212 x 87 x 72 mm
Connector:	2 x 37-pin D-Sub female connector
X1:	For the connection to the PC
X2:	For cascading the PX8500 in max. 32 relays, for example the digital output board APCI-2032. In this case the digital output signal 1 corresponds to the 24 V control signal of the relays 1, output 2 to relays 2, etc.
Temperature range:	0-60 °C
Humidity:	30-95 %

Standard round cable **ST010**

PX8500 cascaded in 32 relays

Relay output board **PX8500-G** cascaded in 32 relays.

For the boards
- APCIe-1564
- APCI-1564
- APCI-2032

PX8500 cascaded in 16 relays

- Connection of the outputs with the relay output board **PX8500-G** cascaded in 16 relays
- Connection of the inputs with screw terminal panel

For the boards
- **APCIe-1532**
- **APCIe-1502**
- **APCI-1500**
- **APCI-2016**
- **CPCI-1500**

Connection example for the digital I/O board APCI-1516

- Connection of the outputs through relay output board **PX8500-G**
- Connection of the inputs through screw terminal **PX901-DG**

For the boards
- APCIe-1516
- APCI-1516

Ordering information

PX8500
8-port relay output board. Incl. technical description.

PX8500-G:	With housing for mounting on DIN rail
PX8500-VtG:	PX8500 with varistors and housing for mounting on DIN rail

Accessories
ST8500:	Ribbon cable for cascading the board in 16, 24 or 32 relays
ST021:	Standard round cable, shielded, for connecting to APCI-1500 or APCI-1516
ST022:	Standard round cable, shielded, for cascading two PX8500
ST010:	Standard round cable, shielded, twisted pairs, 2 m, for connecting to APCI-2032, APCI-1564
ST011:	Same as ST010, 5 m

BNC connection box for DIN rail

PX_BNC

BNC connection box

For analog I/O boards

DIN-rail mounting

Features

The connection box PX_BNC allows the direct connection of analog voltage and current signals through BNC connectors. Many ADDI-DATA analog boards can be connected (see table on the right). With the PX-BNC, you can connect up to 8 differential or 16 single-ended analog inputs as well as 8 analog output channels through BNC connectors.

Housing
The compact housing consists of black painted aluminium, profile IP65 with good impact resistance.

Accessories
The standard delivery contains 2 clamps for DIN rail mounting.

Connection to the board
The connection to the board is made through the 37-pin D-Sub female connector, the pin assignment depends on the type of board connected.
The connection between PX_BNC and the ADDI-DATA analog board is made through the standard round cable ST010 (shielded cable, 2 m).
Please order the cable separately.

16 BNC connectors for analog inputs
The connection box has 16 BNC connectors In 0 to In 15 for the connection of the analog input channels (Channel 0-15) of many ADDI-DATA input and multifunction boards (see table on the right).
The BNC ground is connected to the ground of the analog signals.
The connection of the differential channels (DIFF) is only possible through a special BNC cable.

8 BNC connectors for analog outputs
The connection box has 8 BNC connectors Out 0 to Out 7 for the connection of the analog output channels (channel 0-7) of many ADDI-DATA multifunction and output boards (see table on the right).
The BNC ground is connected to the ground of the respective analog output channel.

The PX-BNC can be connected to the following ADDI-DATA analog boards:

Analog input boards	Multifunction boards	Analog output board
APCI-3001 / CPCI-3001 APCI-3010 / APCI-3016 APCIe-3021	APCI-3110 / APCI-3116 APCI-3120 / CPCI-3120 APCIe-3121 / APCIe-3123	APCI-3501 APCIe-3521
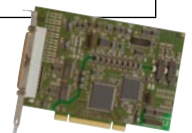
Specifications

BNC connector:	For the connection of peripherals
BNC connector:	In 0-15 for analog inputs
	Out 0-7 for analog outputs
D-Sub connector	37-pin D-Sub female connector
Dimensions:	(L x W x H) 210 x 105 x 50 mm
Weight:	727 g
Temperature range:	0-60 °C

Ordering information

PX_BNC
BNC connection box for DIN rail. Incl. technical description.

Accessories
Please order separately!
ST010: Standard round cable, shielded, twisted pairs, 2 m
ST011: Same as ST010, 5 m
Other cable version on request

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