

Screw terminal boards, Relay output boards, connection cables

EMC-compliant selection of electromechanical components: A complete range of products for safety!

In automation systems in which a PC has to undertake important controlling and regulating tasks, it must be guaranteed that data transfer is reliable. The interaction between all components determines the function safety of the whole system. The selection of each single component is therefore an important part of the interface structuring. Provided the PC enables data exchange with external devices through addition of plug-in boards, it can function as the central switching unit of a production process. Through the connection cables, interference is emitted and coupled, which largely influences the electronic properties of the extension boards and as a consequence the properties of the PC.

An interface board with a low-emission design and an adequate protection circuitry of the interface is a basic condition for the interaction of components. ADDI-DATA offers a large product range of EMC compliant boards. However, it also depends on the data transfer lines, whether the data exchange with external devices is disturbed and meets the requirements of the EMC specifications and EU directives or not.

Selecting the right cable

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. Therefore a thought-out conception requires connection cables with a braid shielding.

The selected connectors are to be connected to the cable shielding at low impedance to create earthing on both connector ends; This earthing is indispensable for shielding against electromagnetic fields. To this end the cable braid shielding has to be connected on both sides with the metallised plastic hoods of the connector.

Noise immunity of the board is additionally increased through the adapted pin assignment of the cables because the way the cable leads are twisted in pairs corresponds to the pin assignment of the boards.

Using pin-compatible screw terminals

Screw terminal boards are indispensable in most of the industrial applications. They dispatch to the sensors, tracers or control modules the numerous signals which are to be processed. If screw terminal boards are used to transmit the signals from the PC board, several conditions are to be considered: to avoid any connection errors, the screw terminal board should be pin-compatible with the PC board. The terminal board can thus lead the control signals in increasing order from the PC to the screw terminal which also corresponds to the bit set in the board. Besides the pin compatibility, the ADDI-DATA screw terminal boards have other advantages

- Adaptability to the signal form: the screw terminal boards used for processing digital signals are equipped with status indicator LEDs. For the analog signals, diodes for overvoltage protection are mounted on the screw terminal board.
- Separate fuse protection: the digital 24 V extension boards require an external 24 V supply. To this end a separate 4-pin screw terminal is mounted on the terminal board for connecting the external supply voltage without additional installation. Varistors and diodes for overvoltage protection are connected to the screw terminals to prevent emissions from the external supply voltage.
- Earth connection terminal: the cable cannot be earthed on the SUB-D connector of the terminal board. Yet, a connection between housing and shield can be built through the ground connection terminal. An earthing on both sides is then created, reducing interference emissions and increasing noise immunity against electromagnetic radiation.

Screw terminal boards and relay output boards



	Description	Function display with LEDs	Overvoltage protection of the 24 V supply voltage	Available functions	Connection to	Page
PX 901	Terminal board for connecting up to 32 signal lines	PX 901-D: yes	through varistors and transorb diodes	PX 901-D: For digital boards with 32 LEDs for status display of the data lines PX 901-DG: Same as PX901-D with housing for DIN rail PX 901-A: For analog boards with transorb diodes for protecting the analog I/O against overvoltage PX 901-AG: Same as PX901-A with housing for DIN rail PX 901-ZG: For counter boards with housing for DIN rail	ADDI-DATA digital, analog or counter, boards	125
PX 9000	Terminal board for connecting up to 32 signal lines	for 24 V and sensor supply	through varistors and transorb diodes		All ADDI-DATA digital boards	126
PX 9200	Terminal board for connecting 22 signal lines and 4 analog channels	for 24 V and sensor supply	through varistors and transorb diodes		For multifunction board APCI-3122; and for analog board APCI-3504	127
PX 8500	Relay output board with 8 relays, cascadable to 16, 24 and 32 relays	for the relays and 24 V supply	through varistors and transorb diodes	PX 8500: Without varistors and with housing for DIN rail PX 8500-G: With housing for DIN rail PX 8500-V+G: With varistors and housing for DIN rail	APCI-1500, APCI-1516, APCI-1564, APCI-2016, APCI-2032, PA 1500, PA 2000, CPCL-1500	128