

PCIeDIOTB User Manual

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Document Revisions

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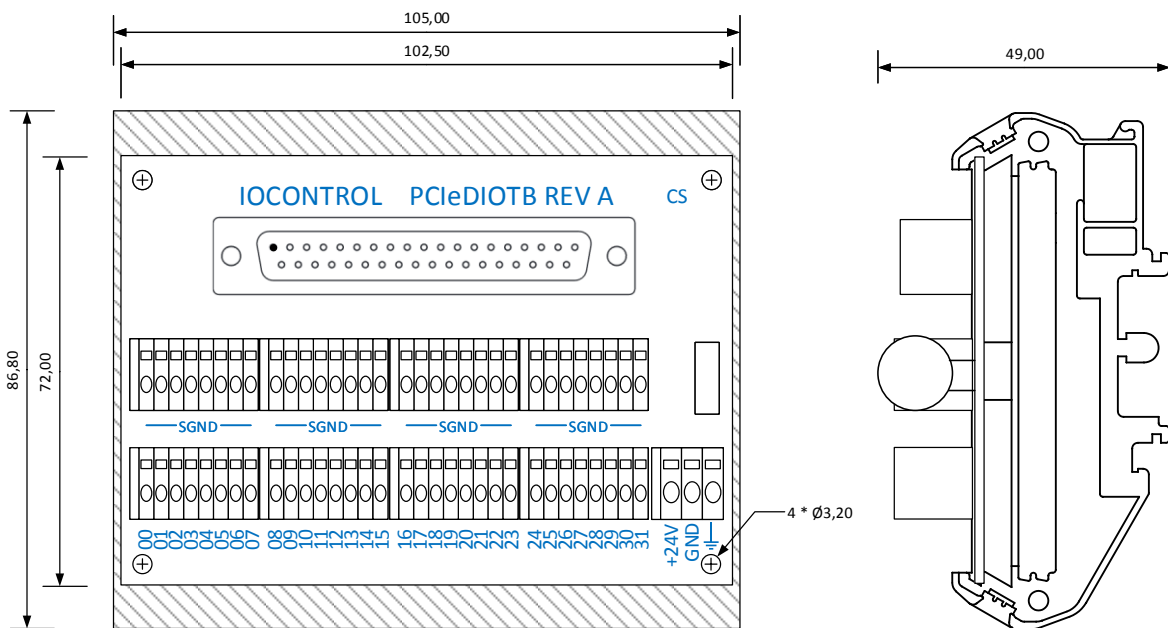
PCIeDIO User Manual

1. General information

The PCIeDIOTB is a DIN-Rail Mount Terminal Block Interface Module for the usage in conjunction with the PCI Express add-in card PCIeDIO and makes for easy sensor/actuator cabling. It can be mounted on conventional NS 35  or NS 32  DIN rails.

The module connects to the 37-pin DSUB female socket of the PCIeDIO card via its 37-pin DSUB male connector. The pin assignment is organized for the use of a 1:1 connecting cable. Not only for electrically noisy environments, shielded connecting cables are highly recommended.

The terminal blocks of the module allow access to every pin on the DSUB connector and therefore likewise to every I/O and to the +24V/GND of the PCIeDIO board. To support flexible connectivity of the users' sensors and actuators to the module, further terminals with GND reference potential are available. The terminal blocks provide push-in spring connection technology with easy actuation.



2. Connection to the terminals

All external connections to the module should only be made or removed in a powered down state of all its associated components.


The terminal of the module labelled as GND must be connected to the ground (0V) of the external power supply and the pin labelled as +24V to the +24V DC.

If no I/O of the PCIeDIO is to be operated as an output, but any I/O is to be operated as an input, a connection of the terminal GND to the ground (0V) of the external power supply or

to another reference ground is sufficient, and the connection to the terminal of the module labelled as +24V can be left floating.

The terminals labelled as 00, 01,..., 31 on the module make for the connection to the user's sensors/actuators. If a 1:1 connecting cable is used for the connection between the 37-pin DSUB male connector of the module and the 37-pin DSUB socket of the PCIeDIO card, the terminal 00 connects to I/O 00 of the card, the terminal 01 to I/O 01, and so forth.

Optionally, the terminals labelled as SGND can be used as GND reference potential for the user's sensors/actuators. All SGND terminals are internally interconnected to the GND terminal.

It is recommended to connect the terminal labelled as  to earth potential to ground the shield of the DSUB cable to earth via the high-voltage capacitor provided on the module.

Unused pins may be left open. Any external sources can be left connected when the card is not powered by the PC and/or the external power supply.

The table below shows the connections between the PCIeDIOTB module and the PCIeDIO card when a 1:1 connecting cable between both units is used.

| Label on PCIeDIOTB | Signal name | Pin on either DSUB | Label on PCIeDIOTB | Signal name | Pin on either DSUB |
|--------------------|-------------|--------------------|--------------------|-------------|--------------------|
| GND | GND | 18 ^(*) | +24V | +24V | 36 ^(**) |
| | GND | 19 ^(*) | | +24V | 37 ^(**) |
| 00 | I/O 00 | 20 | 16 | I/O 16 | 28 |
| 01 | I/O 01 | 2 | 17 | I/O 17 | 10 |
| 02 | I/O 02 | 21 | 18 | I/O 18 | 29 |
| 03 | I/O 03 | 3 | 19 | I/O 19 | 11 |
| 04 | I/O 04 | 22 | 20 | I/O 20 | 30 |
| 05 | I/O 05 | 4 | 21 | I/O 21 | 12 |
| 06 | I/O 06 | 23 | 22 | I/O 22 | 31 |
| 07 | I/O 07 | 5 | 23 | I/O 23 | 13 |
| 08 | I/O 08 | 24 | 24 | I/O 24 | 32 |
| 09 | I/O 09 | 6 | 25 | I/O 25 | 14 |
| 10 | I/O 10 | 25 | 26 | I/O 26 | 33 |
| 11 | I/O 11 | 7 | 27 | I/O 27 | 15 |
| 12 | I/O 12 | 26 | 28 | I/O 28 | 34 |
| 13 | I/O 13 | 8 | 29 | I/O 29 | 16 |
| 14 | I/O 14 | 27 | 30 | I/O 30 | 35 |
| 15 | I/O 15 | 9 | 31 | I/O 31 | 17 |

(*) The terminal GND of the PCIeDIOTB module is internally connected to pins 18 and 19

(**) The terminal +24V of the PCIeDIOTB module is internally connected to pins 36 and 37

3. Specifications

3.1 General

| | |
|-------------------------------|--------------------------|
| Operating temperature range | 0°C to 70 °C |
| Storage temperature range | -40 °C to 100°C |
| Humidity | 0% to 95% non-condensing |
| Mounting | NS 35 or NS 32 DIN rails |
| Module dimensions (L × W × H) | 105 × 86,8 × 49 mm |

3.2 Terminal +24V, GND and earth

| | |
|--|----------------------|
| Conductor cross section solid min. | 0.2 mm ² |
| Conductor cross section solid max. | 1.5 mm ² |
| Conductor cross section flexible min. | 0.2 mm ² |
| Conductor cross section flexible max. | 1.5 mm ² |
| Conductor cross section flexible, with ferrule without plastic sleeve min. | 0.25 mm ² |
| Conductor cross section flexible, with ferrule without plastic sleeve max. | 1 mm ² |
| Conductor cross section flexible, with ferrule with plastic sleeve min. | 0.25 mm ² |
| Conductor cross section flexible, with ferrule with plastic sleeve max. | 0.5 mm ² |
| Stripping length | 9 mm |
| Conductor cross section AWG min. | 24 |
| Conductor cross section AWG max. | 16 |
| Maximum load current | 6A ^(*) |
| External power supply at +24V min. | 16.8V DC |
| External power supply at +24V max. | 31.2V DC |

(*) The current rating of the connecting cable between the PCIeDIOTB module and the PCIeDIO card has to be taken into account as the load current of the terminal of the module must not be greater than the maximum current rating of the strand(s) of the cable used.

3.3 Terminal 00, 01, ..., 31 and all SGND terminals

| | |
|---------------------------------------|----------------------|
| Conductor cross section solid min. | 0.14 mm ² |
| Conductor cross section solid max. | 0.5 mm ² |
| Conductor cross section flexible min. | 0.2 mm ² |
| Conductor cross section flexible max. | 0.5 mm ² |
| Stripping length | 9 mm |
| Conductor cross section AWG min. | 24 |
| Conductor cross section AWG max. | 20 |
| Maximum input voltage | 31.2V DC |

3.4 37-pin DSUB male connector

| | |
|---------------------|---------------|
| Current rating max. | 3A (each pin) |
| Integrated thread | UNC 4-40 |