

D001 Octal Digital Output Buffer

8 Channels, 6 V to 36 V Supply, 1 A per Channel, Current Monitor

Product Description

The D001 device is a versatile and easy-to-use octal high-current digital output module. Every of the eight channels can individually be set to logic low or high.

Depending on the voltage rating of the connected transducers, an external power supply is needed to supply them.

Electro-mechanical relays, electrical or electro-pneumatic valves, long transmission lines, digital transducers or even DC motors can directly be interfaced with the D001 device.

The versatility and the straightforward usability make the device ideal for industrial applications as well as for scientific experiments.

Features

- ▶ Connected to 10/100BASE-TX Ethernet over RJ45 jack
- ▶ Eight independent digital output channels
- ▶ High switching current of up to 1 A per channel
- ▶ Fast switching times of typically 40 μ s
- ▶ Internal flyback diodes required for inductive loads
- ▶ Current monitor for all channels
- ▶ Thermal shutdown and internal current limitation
- ▶ External power supply needed providing 6 V to 36 V
- ▶ Polarity-protected external power supply connection
- ▶ Under- and overvoltage protection
- ▶ Surveillance of all voltages and board temperature
- ▶ Powered via PoE (Power over Ethernet)
- ▶ Idle power consumption of less than 0.9 W
- ▶ Compatible with all modern Ethernet standards
- ▶ Drivers for Microsoft® Visual C++™, MathWorks® MATLAB™, Python and National Instruments® LabVIEW™ programming environment

Transducer Connection

The figure on the next page shows the recommended pin configuration of the D001 device. Any transducer needs to be connected between

X1 to X8 (pins 1 to 8) and GND (pins 12, 13, 14 or 15) respectively. The output current per channel should not exceed 1 A, any overrating can endanger the D001 device and leads to excessive heating. At room temperature the switch resistance of any channel is typically less than 110 m Ω but might change with temperature.

Inductive loads like relay coils or motors can be utilized without external flyback diodes if the inductance does not exceed 10 mH.

The current per channel can individually be monitored which helps to detect any broken connections or transducers. Unused channels may be left unconnected. The D001 device features an internal current limitation and thermal shutdown protection. In case of failure let the device cool down and continue operation.

Do not connect or disconnect wires unless power has been switched off in order not to endanger the sensitive electronics.

External Power Supply

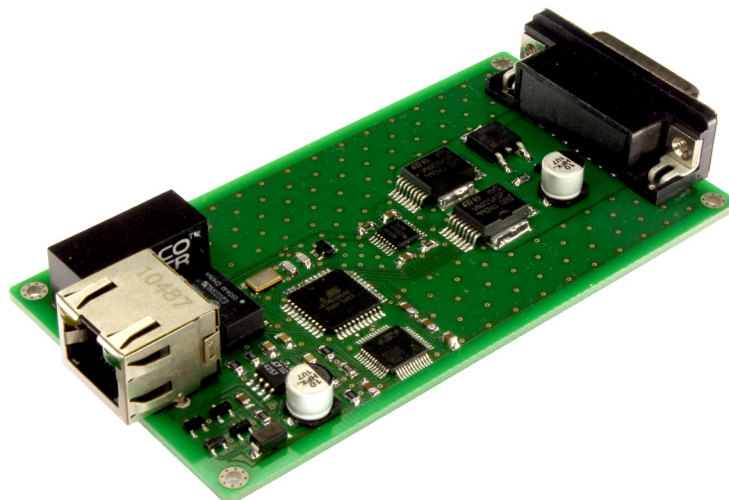
An external power supply needs to be connected to the D001 device in order to operate the attached transducers. The voltage should be at least 6 V and must not exceed 36 V for proper operation.

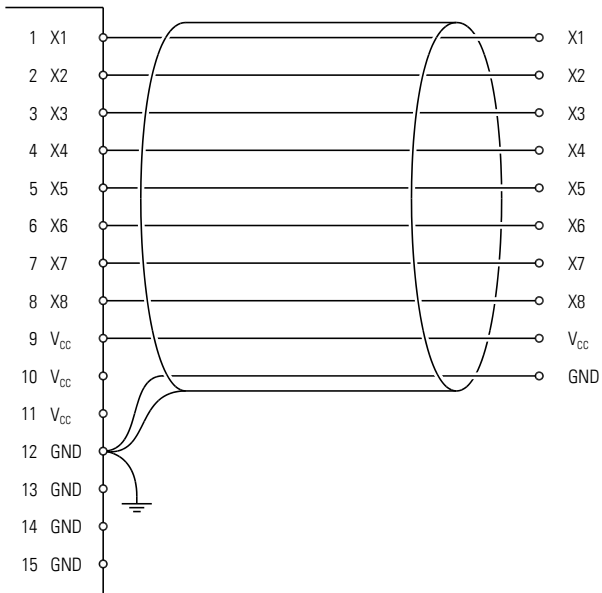
In case of wrong polarity, the special low-loss input circuitry is continuously protecting the D001 device and attached transducers. The plus pole of the power supply must be connected to V_{CC} (pins 9, 10 or 11) and the minus pole to GND.

The current through one pin should not exceed 3 A and it is advisable to use more pins if higher currents are expected. In order to ensure proper operation, the D001 device can monitor the supply voltage.

Shielding and Grounding

For lowest error-proneness the transducers should be connected to the D001 device by using a single shielded cable with multiple leads or multiple coaxial cables. Since pins 12, 13, 14 and 15 represent the ground signal of the printed circuit board and are connected internally, any shield must be connected to one of these pins.





Physical Specifications

Dimensions: 100 mm x 54 mm x 18 mm (3.94 in x 2.13 in x 0.71 in)

Mounting: 4 holes \varnothing 2.2 mm (0.087 in) at a distance of 94 mm x 48 mm (3.70 in x 1.89 in), intended for the use with metric M2 screws

PCB operating temperature: 0 °C to 70 °C (32 °F to 158 °F), ambient operating temperature depends on the case and its thermal isolation

Weight: 42 g (1.48 oz)

This product is not authorized for use as a critical component in life support devices or systems without the express written approval.