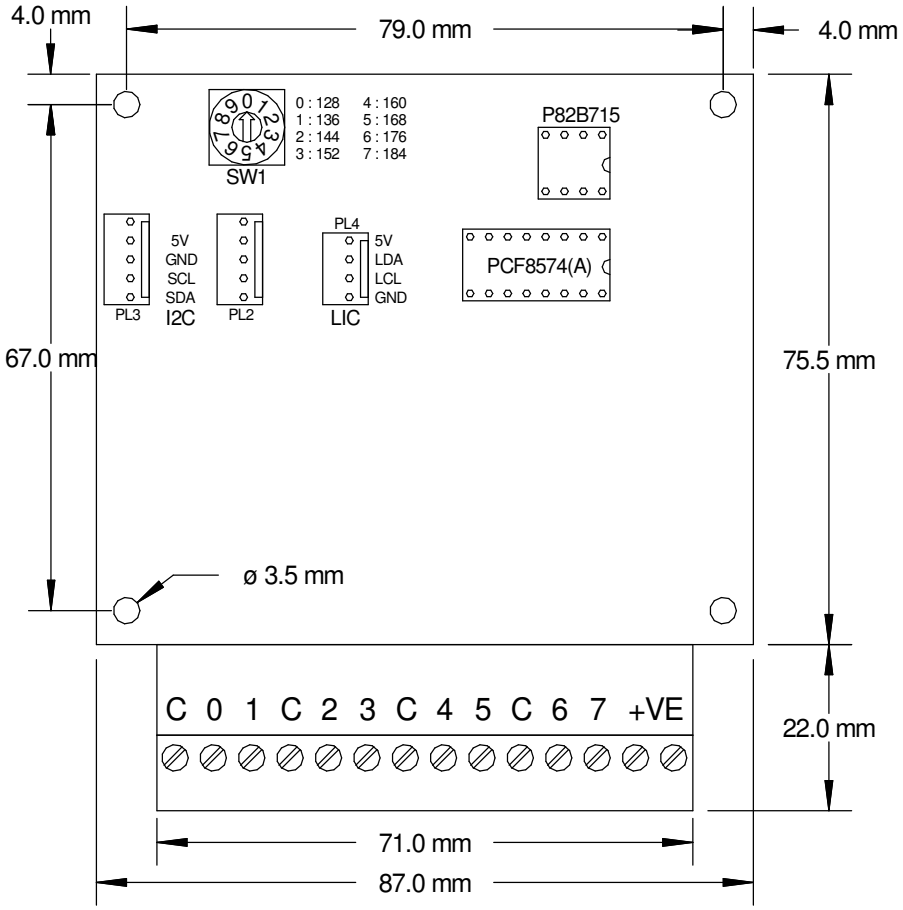
Digital Output Card Datasheet

Introduction

The 8-channel Digital Output Card can be used to switch a wide variety of DC operated devices at up to 30 Volts and 4 Amps. The outputs are opto-isolated low-side switches. All the common terminals are connected together. Each of the output circuits is connected, via a diode, to a single zener clamp so that over voltages from inductive loads are handled safely. This clamp is available on two terminals of the connector.

The unit links to the I^2C Bus connector on an Application Board. Up to 8 of these cards may be attached to the bus (depending on how many other digital channel based cards are also used). Another 8 may be attached if appropriate driver devices are substituted. See *More than one card* below for more information.



The Old Maltings
135 Ditton Walk
Cambridge
CB5 8QB

tel: +44 (0) 1223 523100
fax: +44 (0) 1223 524242
sales@microrobotics.co.uk
www.microrobotics.co.uk

Unpacking

The package should contain:

- 1 off MOSFET Output Card
- 1 off 150mm 5 way daisy chain cable
- This set of instructions

Installation

- Mount the card using the four M3 screw holes on the PCB. Note that the mounting pillars under the board should be no more than 8mm diameter. Each input and common terminal has a spark gap. These are intended to dissipate excess energy from input transients in abnormal conditions. The spark gaps are earthed to the front two mounting holes on the card. If this facility is to be used then these mounting holes should be connected to the equipment chassis.
- Plug the 5-way cable between the card and the I²C Bus connector on the Application Board - you may need to refer to the datasheet to find the correct connector.
- Check that the rotary switch on the card is in the "0" position. This puts the 8 outputs onto digital channels 128 - 135. The other switch positions give channel groupings as printed on the card.
- Turn the power supply on and get to the '`-->`' prompt. Refer to the Tutorial manual if you have any difficulties with this.
- The command `PRINT net` may be used to confirm that the card is present on the I²C Bus. See 'I²C Bus' in the Venom-SC Help File for an explanation of the print output.
- Your devices to be switched should have their negative terminals connected to a MOSFET output (labelled 0 - 7) and their positive terminals connected to the positive supply. The C (Common) terminals of the MOSFET card should be attached to the negative supply. You don't need to use the terminals labelled '+Ve', though these can be connected to the positive supply.

Only use the cables supplied by Micro-Robotics Ltd for the I²C Bus connections unless you make sure that the total length of the I²C Bus does not exceed 2 metres and that the capacitance of each signal line in the bus is less than 400 pF in total.

This card is fitted with a socket for P82B715 IC, allowing the I²C Bus to be extended to 20m. In order to use this facility you will need to plug in a P82B715 to the eight-way socket and drive the card from a 'long' I²C Bus via the four way connector 'LIC'. Also see *More than one card* below.

Controlling the card

The command below will create an object that represents the first MOSFET on the card. This need only be done once, normally in the init procedure.

```
-->MAKE output_zero Digital (128)
```

The following command will turn the MOSFET on. When the MOSFET turns on the LED associated with that channel will light up.

```
-->output_zero . On
-->
```

For some applications it may be useful to turn several outputs on and/or off at the same instant. It is possible to do this by defining some or all of the 8 channels on the card as being one digital port. For more detailed information about turning outputs on and off, see 'Digital' in the Venom-SC Help File.

Trouble Shooting

If the card does not seem to be working, first check all the connections. Check that the switches on the card are set correctly as described above. If the card still does not work then contact your supplier.

More Than One Card

If you wish to connect more that one MOSFET Output Card to a Scorpion, the I²C Bus cables can be 'daisy-chained' from one card to the next using the second I²C Bus connector. The switch setting determines which

set of 8 Digital channels the card responds to. The bank of channels selected by each setting of the rotary switch is printed on the card.

In order to gain an extra 64 channels, a PCF8574A chip may be substituted for the PCF8574 the card is supplied with. Add 64 to channel numbers selected by the switch.
Note that other cards may also use digital channels in the range 128 - 191. If you are using other cards that map onto digital channels, then make sure the switch is set so as to avoid collisions.

Specification

Isolation Voltage	1KV max.
Current drawn from I2C Bus	30mA
Capacitance added to I2C Bus	10pF
Zener Clamp	35V
Maximum Switched Voltage	30 VDC
Maximum Switched Current	4A
Operating Temperature	0 - 70℃