

# Relay Card 5620

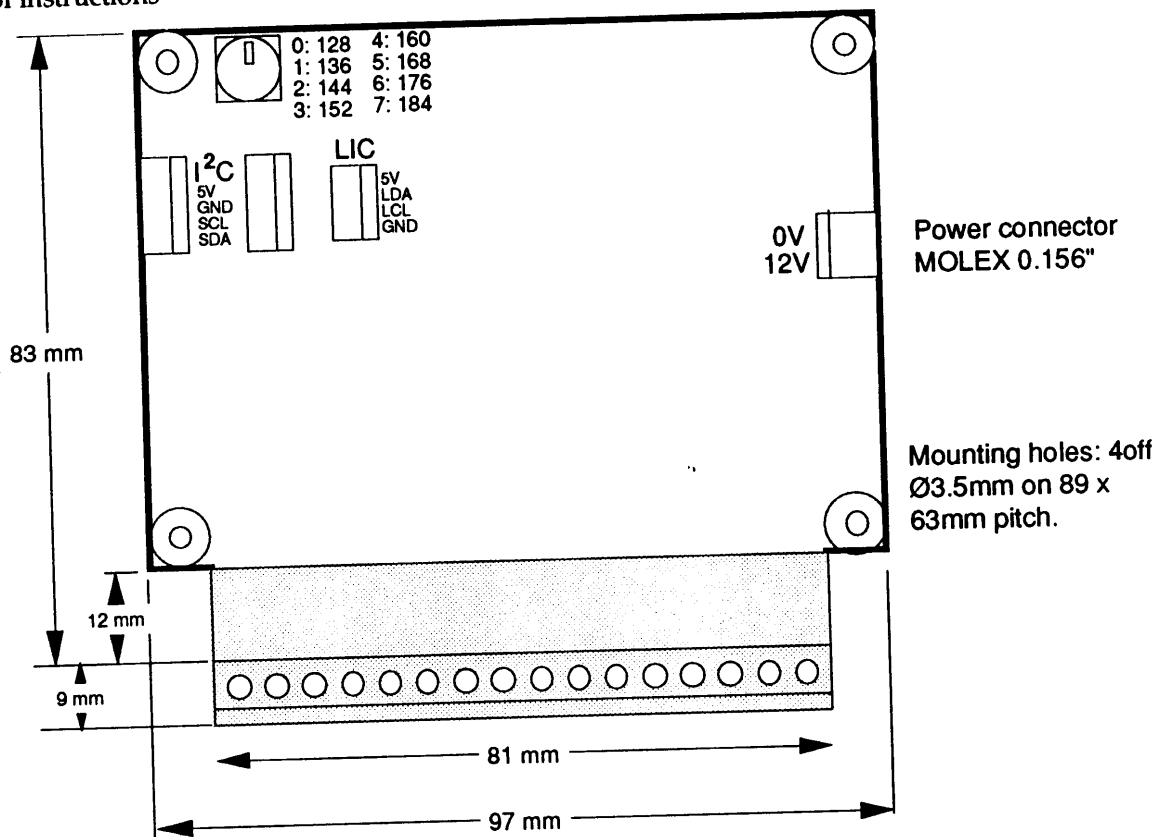
The 8 channel relay output card can be used to switch a wide variety of devices at up to 250 Volts, 6 Amps AC. The outputs have transient suppression components fitted for the reduction of electrical noise when switching inductive loads.

The unit links to the I<sup>2</sup>C (I Squared C) connector on Scorpion control products and development boards. Up to 8 of these card 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.

## Unpacking

The package should contain:

- 1 off Relay 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 either insulating OR less than 8mm diameter and earthed.

- Make up a power lead to take a nominal 12 volts (see specifications below) to the power connector on the card. Take care to guard against accidental reversal of the

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power supply.

- Plug the 5 way cable between the card and the I<sup>2</sup>C connector on the controller - you may need to refer to the manual for the controller 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 in the controller. 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 I<sup>2</sup>C bus. See 'I<sup>2</sup>CBus' in the Tutorial or Reference manuals for an explanation of the print output.

#### Installation Notes

Only use the cables supplied by Micro-Robotics Ltd for the I<sup>2</sup>C connections (so that the maximum I<sup>2</sup>C bus capacitance is not exceeded).

If it is necessary to use cables other than those supplied by Micro-Robotics Ltd make sure that the total length of the I<sup>2</sup>C 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 allowing a P82B715 IC to be used, allowing the I<sup>2</sup>C bus to be extended by up to 20m. In order to use this facility you will need to plug in the P82B715 to the eight way socket and drive the card from a 'long' I<sup>2</sup>C bus via the four way connector.

#### Output Connections

Connections are made to the eight relays on the card via plug-in screw terminals on 5.08 MM pitch. All the contacts are normally open and have transient suppressors fitted.

#### Controlling the card

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

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

The following command will turn the relay on. When the relay turns on you may hear it click and 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 relays on the card as being one digital port. For more detailed information about turning outputs on and off, see 'Digital' in 'Designing with the Scorpion K4' or the K4 'Programmer's Reference Vol II'.

#### Trouble Shooting

If the card does not seem to be working first check all the connections, including power and your load 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 than one Relay Output Card the I<sup>2</sup>C cables can be 'daisy-chained'. 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 the 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**

Current Drawn from 12v supply	130 mA
Current drawn from I <sup>2</sup> C bus	1.5 mA
Capacitance added to I <sup>2</sup> C bus	10pF
Power supply	10 - 28 (nom 12) Volts
Max switched voltage	250 V AC
Max switched current	6A
Operating Temperature	0 - 70°C