# 7I77 ISOLATOR

**GALVANIC ISOLATOR FOR 7I77**

V1.0

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# GENERAL

## DESCRIPTION

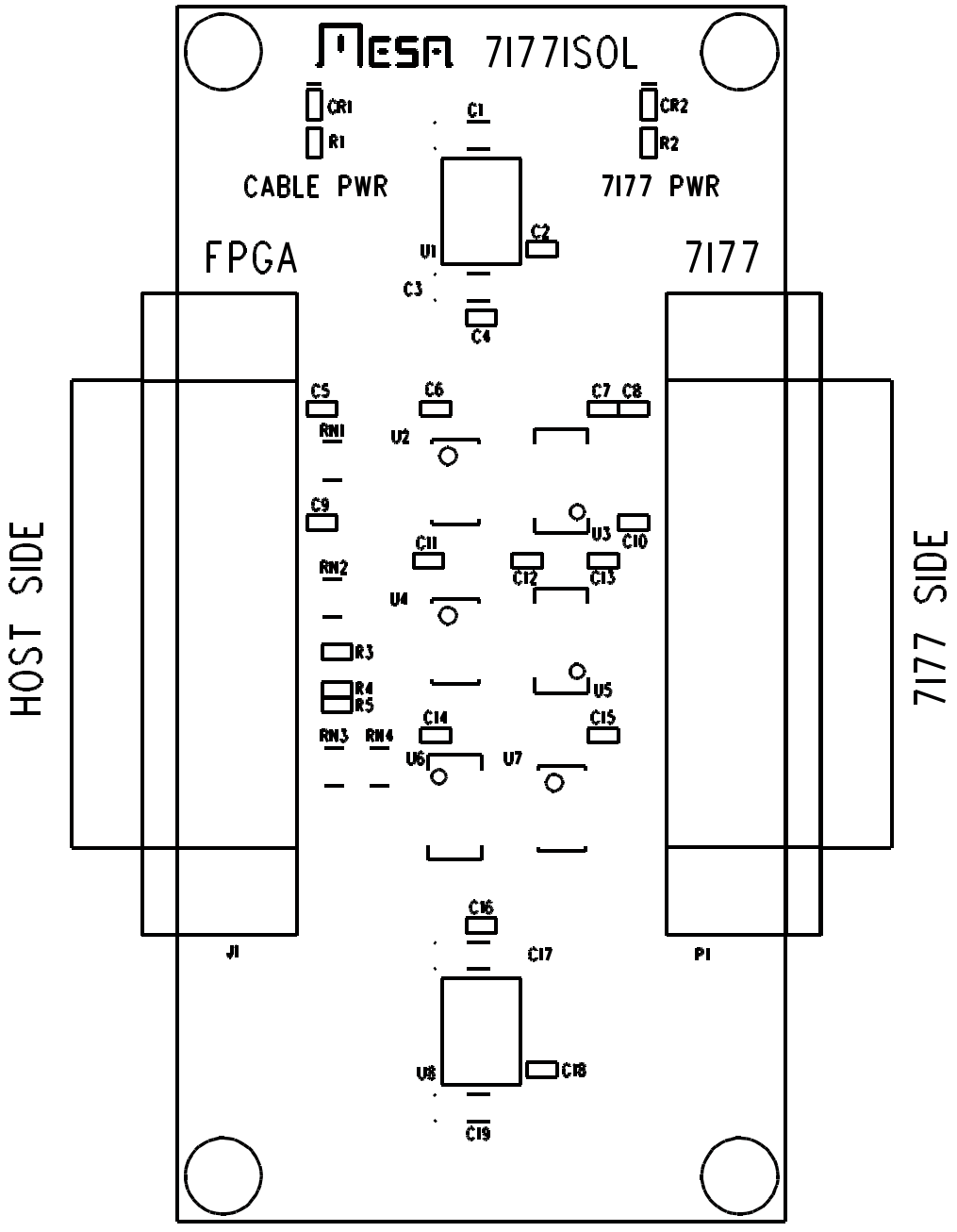
The 7I77ISOL is a galvanic isolator for the 7I77. The 7I77ISOL completel isolated all 7I77 functions from the host computer. It can help in situations where EMI from servo or spindle drives cause issues with the 7I77 to host interface or host PC.

## WARNING

***Because of the additional signal delay caused by the isolation and cable signal buffering, the 7I77s muxed encoders may not operate properly until adjustments for this signal skew have been made***. ***For linuxcnc, these adjustments are made in the HAL file and require LinuxCNC 2.6 or greater***. ***EXPECT RUNAWAYS if you simply install the 7I77ISOL without compensating for the additional delay.***

# CONNECTORS

## CONNECTOR AND SIGNAL LOCATIONS



# CONNECTORS

## HOST CONNECTOR

The 7I77ISOL host side interface is a DB25 female connector that will connect with the host FPGA cable.

## 7I77 CONNECTOR

The 7I77ISOL 7I77 side interface is a DB25 male connector that is designed to connect directly to a 7I77.

# OPERATION

## POWER

THE 7I77ISOL requires 5V power from both the host side and the 7I77 side. This means the the host interface FPGA card should be jumpered to provide 5V cable power and the 7I77 should be jumpered to use cable power. The 7I77 needs a external 5V power source when used with the 7I77ISOL. Power status LEDs are provided to monitor both host side and 7I77 side power. Both LEDs must be on for normal operation.

## ENCODER SIGNAL SKEW

Because of the additional delay contributed by the isolator, the 7I77s muxed encoder frequency must be reduced from the default ~8 MHz, or the cable skew setting must be adjusted. Both the muxed encoder frequency and cable skew adjust parameters are available in LinuxCNC 2.6 or above. Lowering the encoder multiplex rate to 4 MHz will work with up to 15 foot cables. Adjusting the cable skew allows using the default multiplex frequency or higher. The Skew adjust is only available with HostMot2 encoder versions 4 and above. For the 7I77ISOL, the nominal skew value should be set for 100 ns + (cable length in feet) *3 ns .

HAL file examples

setp hm2_5i25.0.muxed-sample-frequency 4000000

or

setp hm2_5i25.0.muxed-skew 130

(for 10 ft cable = 100 ns + 3ns per foot)

Symptoms of muxed encoder skew problems are swapped even/odd encoder channels or noisy encoder channels. For the highest multiplex rate (16 MHz is possible) the skew may have to be adjusted for the individual 7I77ISOL.

# SPECIFICATIONS

| | MIN | MAX | UNITS |
|---|---|---|---|
| 5V POWER SUPPLY | 4.5 | 5.5 | VDC |
| 5V POWER CONSUMPTION | — | 50 | mA |
| ISOLATION VOLTAGE | — | 100 | Volts AC/DC |
| INPUT TO OUTPUT CAPACITANCE | — | 25 | pF |
| ISOLATOR DELAYS (ONE WAY) | — | 50 | ns |
| ISOLATOR BANDWIDTH | | | |
| OPERATING TEMP. | 0 | +70 | $^{o}$C |
| OPERATING TEMP. (-I version) | -40 | +85 | $^{o}$C |
| OPERATION HUMIDITY | 0 | 95% | NON-COND |

# REFERENCE INFORMATION

## CARD DIMENSIONS