

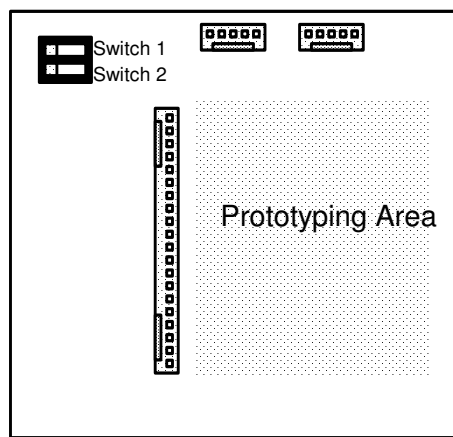
Analogue IO Port Datasheet

Introduction

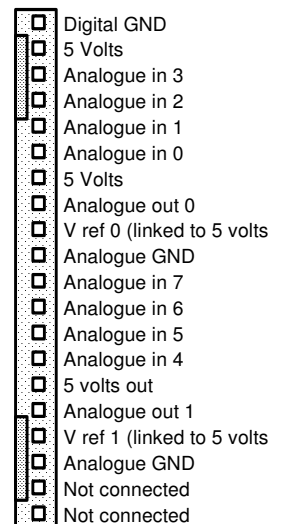
The Analogue I/O Port allows a controller to monitor 8 analogue inputs and generate 2 analogue outputs in a 0 - 5 Volt range. Both inputs and outputs are at 8-bit resolution. Up to 4 Analogue I/O Ports may be connected to a controller, giving up to 32 analogue input channels and 8 analogue output channels.

The Analogue I/O Board will plug directly into the I²C Bus connector on any Application Board using the lead provided.

Connections to the I/O Ports are via a 20 way 0.1" MOLEX 6410 header or via the prototyping area (60 mm square).



Analogue I/O Board 1024



Connector
Pin-Out

Absolute Maximum Ratings

Quantity	Symbol	Min	Max	Unit
Supply Voltage	Vdd	-0.5	8.0	V
Input Voltage	Vi	Vss-0.5	Vdd+0.5	V
DC Input Current	Ii	-	10	mA
DC Output Current	Io	-	20	mA
Vdd or Vss Current	Idd, Iss	-	50	mA
Total Power Dissipation, per driver	Ptot	-	300	mW
Dissipation per Output	Po	-	100	mW
Operation Temperature	Tamb	-40	85	°C
Storage Temperature	Tstg	-65	150	°C

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Characteristics

Quantity	Sym.	Test Condition	Min	Typ	Max	Unit
Supply Voltage	Vdd		2.5		6.0	V
Supply Current, per driver	Idd			0.45	1.0	mA

Analogue Output Characteristics

Quantity	Sym.	Conditions	Min	Typ	Max	Unit
Output Voltage Range	Voa	No Load	Vss		Vdd	V
Output Voltage Range	Voa	Rload = 10K $\frac{1}{2}$	Vss		0.9Vdd	V
Offset Error	OSe	Tamb = 25 °C			50	mV
Linearity Error	Le				$\pm 1/2$	LSB
Gain Error	Ge	No load			1	%
Settling Time	Tdac	To 1/2 LSB			90	μ S
Supply Noise Rejection	SNRR	100Hz		40		dB

Analogue Input Characteristics

Quantity	Sym.	Conditions	Min	Typ	Max	Unit
Input Voltage Range	Via		Vss		Vdd	V
Input Current	Iia	Leakage			100	nA
Measurement Range	Vis		Vagnd		Vref	V
Offset Error	OSe	Tamb = 25 °C			20	mV
Linearity Error	Le				± 1.5	LSB
Gain Error	Ge				1	%
Gain Error - small signal	GSe	DVin = 16LSB			5	%
Supply Noise Rejection	SNRR	100Hz		40		dB

The pins on the connector marked 'Analogue GND' and 'Vref' are the analogue ground and the analogue reference voltage. The output voltage from the D/A convertor is scaled to lie between these two voltages. Normally Analogue GND is connected to the normal system ground, and Vref is connected to the 5 volt supply, giving an output voltage range between 0 and 5 volts. However, the Vrefs may be separated from 5 Volts by cutting the tracks at the points marked by arrows on the PCB, and your own Vrefs supplied through the pins on the I/O connector. The input voltages are also scaled by these reference voltages.

Analogue GND and Vref must lie between the 0 and 5 volt supply rails, and Vref must be more positive than Analogue GND. The resistance between Vref and Analogue GND is 100K Ω .

Mechanical

Size	130 x 93 x 26 mm
Mounting	4 off \varnothing 3.6 mm on 120 x 81 mm
Weight	120 grams