

The ANY-maze Analogue interface



Overview

The ANY-maze Analogue interface connects ANY-maze to devices that output analogue signals, for example a blood pressure monitor or a respiratory gas analyser. This allows ANY-maze to monitor (and if desired, respond to) these inputs, while simultaneously tracking the animal within the apparatus.

The interface can also output analogue signals, which can, for example, represent the location of the animal in the apparatus.

Inputs

- Up to four independent single-ended input channels.
- **OR** up to two independent differential input channels.
- Single ended ranges: 0 to 3V, 0 to 6V and 0 to 12V.

- Differential ranges: -3 to 3V, -6 to 6V and -12 to 12V.
- 12-bit resolution
- Sampling frequencies up to 1kHz
- Outputs use pluggable screw terminal blocks for easy connection to bare wires.

Outputs

- Two independent channels.
- Output range: 0 – 5V.
- 12-bit resolution
- 200Hz maximum update rate
- 5V power available at output ports.
- 300mA can be drawn from power output when device is powered from USB. 900mA can be drawn from power output when device is powered from an external DC power supply (not included).

Technical specification

Connection to PC	
Connection type	USB (USB1.1, USB2.0, USB3.0 compatible)
Data isolation	2500 V _{RMS}
Connection indication	LED: Red=Powered; Green=Communicating (note 1)
Power:	Powered from USB or external DC power supply
USB powered:	
Maximum current drawn from USB	500mA
USB power isolation	500 V _{DC}
Externally powered:	
Input voltage	9 V _{DC} – 32 V _{DC}
Input current	1.5A
Connector	2.0mm jack, centre positive or centre negative
Inputs	
Number of single ended channels	4 (note 2)
Single ended ranges	0 to 3V, 0 to 6V, 0 to 12V
Number of differential channels	2 (note 2)
Differential ranges	-3 to 3V, -6 to 6V, -12 to 12V
Resolution	12-bit
Maximum sampling frequency	1kHz
Minimum sampling frequency	1Hz
Sampling frequencies	1Hz, 10Hz, 50Hz, 100Hz, 200Hz, 500Hz, 1kHz
Connector	2-pin pluggable screw terminal block
Input impedance	>1GΩ
Absolute maximum input voltage	15V
Absolute minimum input voltage	-12V
Outputs	
Number of channels	2
Resolution	12-bit
Maximum output voltage	5V
Minimum output voltage	0V
Output resolution	1.22mV
Output accuracy	±15mV
Current sink/source from output	±300mA
Output power	
Voltage	5V
Maximum current (interface powered from USB)	300mA
Maximum current (interface powered from external DC supply)	900mA

Notes

- Indicator LED can be suppressed, which is useful for tests performed in darkness and/or to avoid providing potential cues to the animals.
- There are a total of 4 channels. When configured for differential input, channels are used in pairs. For example, channels 1 and 2 could be configured as a single differential input, while channels 3 and 4 are simultaneously configured as two independent single-ended inputs.