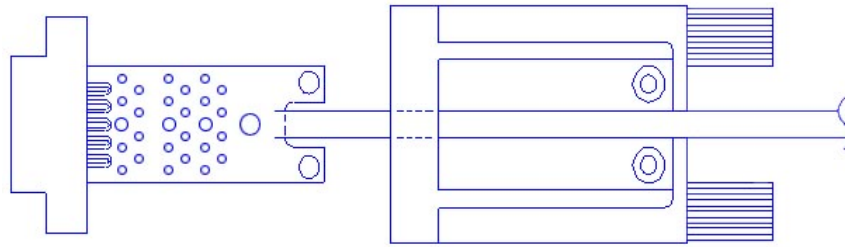


SS-KIT-OUT GUIDE



The SS-KIT-OUT allows custom cables to be made that connect to pins on the Analog Out port. Typical uses are:

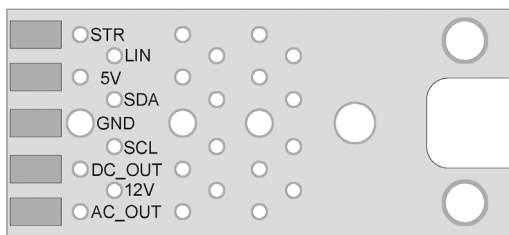
1. Synchronizing 3rd party equipment to the MP3X's start of acquisition.
2. Listening to pulses ("clicks") or tones with headphones which can be used for reaction time studies.
3. Controlling audio or visual stimulus device (Audio tone, LED or Strobe flash, etc.).
4. Listening to input signals such as EMG via headphones or an audio amp./speaker.

The "Analog Out" port on the back panel of the MP35 or MP30 (MP3X) can output pulses (digital) or analog voltage levels, or it can pipe out analog signals from one of the input channels. The port is controlled through one of the Output Control Panels in the Biopac Student Lab (BSL) *PRO* software, which is described in the BSL *PRO* manual.

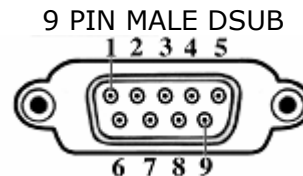
Typical Analog Out connections include:

Analog Out Function	MP35 and MP30
Listening to pulses ("Clicks") via headphones or audio amp./speakers	Headphone "+": pin 1 Headphones "-": pin 3
Headphones for listening to analog signals (EMG, etc)	Headphone "+": pin 1 Headphones "-": pin 3
Driving output LED's <i>Note</i> A resistor should be in series with pin 2 to limit LED current.	"+": pin 2 "-": pin 3
Synchronizing to 3 rd party equipment	Out "+": pin 5 Out "-": pin 3

The following diagrams and table show the pin-outs of the "Analog Out" port on the back of the MP3X and the Printed Circuit Board (PCB) layout of the SS-KIT-OUT. Each pin is accessible on the PCB and can be located by the label shown in the table.



SS-KIT-OUT PCB



Back Panel—MP35 or MP30

ANALOG OUT PORT

PIN	LABEL on PCB	PIN FUNCTION	
		MP35	MP30
1	AC_OUT	Buffered analog or pulse output A.C. coupled (1,000 uF) Analog range: +/- 2.048 V Pulse range: 0 to 2.048V	Buffered analog or pulse output A.C. coupled (2,200 uF) Analog range: +/- 2.5 V Pulse range: 0 to 2.5V
2	DC_OUT	Buffered analog or pulse output D.C. coupled Z out = 50 Ω Range: 0 to 4.096 V	Buffered analog or pulse output D.C. coupled Z out = 50 Ω Range: 0 to 5 V
3	GND	Ground	Ground
4	5V	+5 V (100mA max.)	+7.5 V (100 mA max.)
5	STR	Buffered pulse output Z out = 1 kΩ Range: 0 to 5 V	Un-buffered analog or pulse output (D.C. coupled) Z out = 1 kΩ Range: 0 to 5 V
6	12V	+12 V (100 mA max)	Not used
7	SCL	I ² C SCL Do not connect!	Not used
8	SDA	I ² C SDA Do not connect!	Not used
9	LIN	Monitor Do not connect!	Not Used

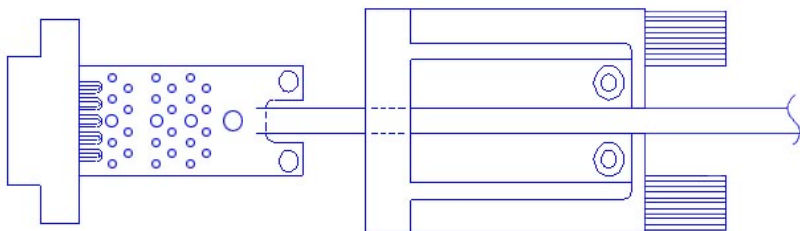
Notes Pins 1 and 2

For the MP35, pins 1 and 2 can output analog or pulses when using MP35 firmware revision 1.26.037.030 or greater. When run under previous firmware, pins 1 and 2 can only be used for analog output. To identify the firmware revision, launch the BSL PRO software and check the *Help > About Biopac Student Lab* dialog. See the Support section at www.biopac.com for upgrade information.

Pins 3, 4 and 6

The Power supply pins (3, 4 and 6) can be used for external circuits as long as the load current does not exceed 100 mV.

Assembly notes:



The PCB assembly fits into the thumb screw housing as shown. Two screws attach the PCB to the housing and hold the strain relief in place. The strain relief is used to prevent the cable and attached wires from pulling off the SS-KIT-OUT PCB. It is a good idea to place the strain relief over the cable prior to soldering the wires to the PCB so that it only

has to be slid on a small distance. If the strain relief fits too tightly around the cable, use water to wet the cable, allowing the strain relief to slide. Place the strain relief such that the case cover pinches and holds the cable. The stick on panel is used to cover the screws and protect the label.