

REV 1.4

MagicDAQ USB DAQ

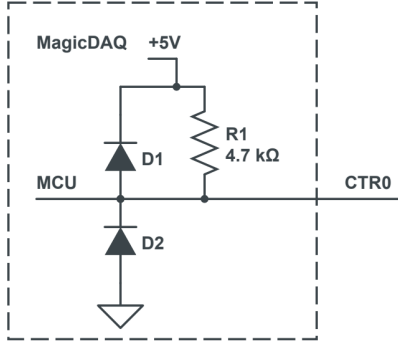
Benchmark automation and testing has never been this easy. Use stand alone or seamlessly integrate with the MagicDAQ off-the-shelf test jig to access a comprehensive suite of testing capabilities.

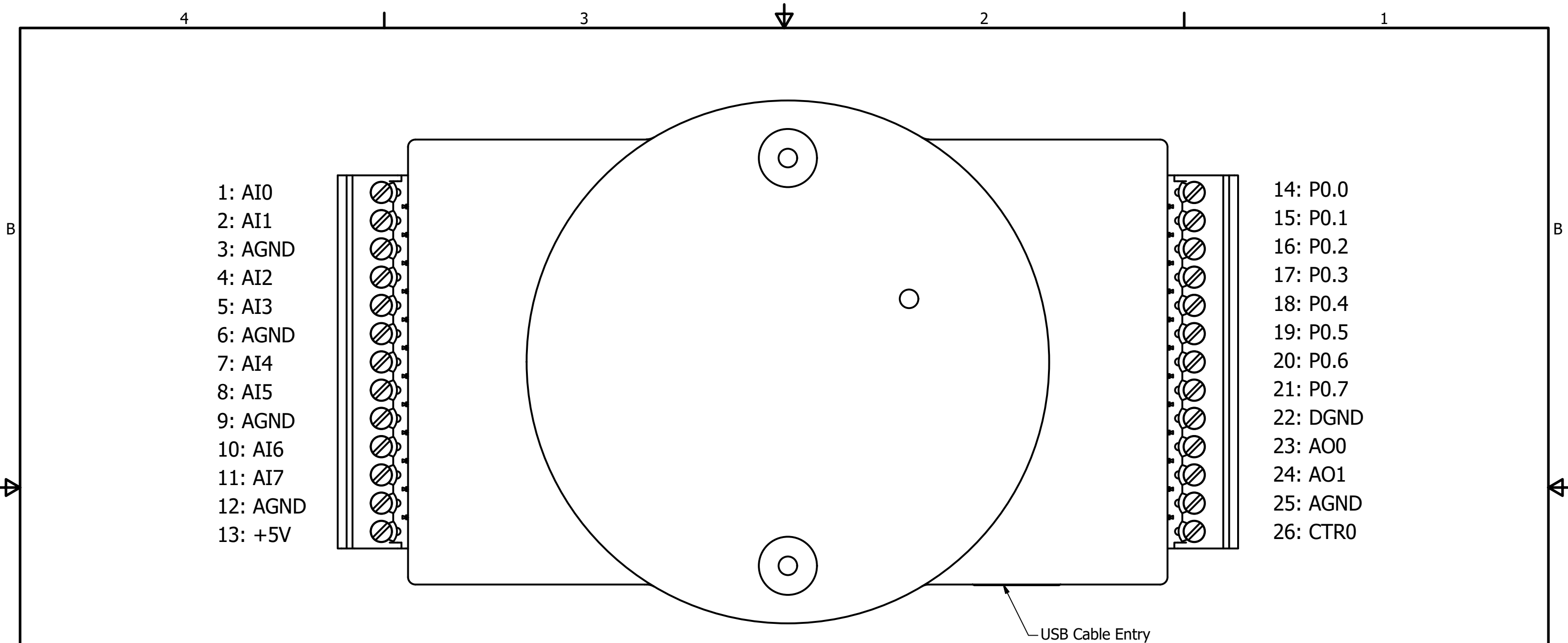
- Easy to use Python API (www.magicdaq.com)
- 8 Analog Inputs (14 bit, 48KS/s, +/-10V)
- 8 Digital Input / Outputs (0 - 5V)
- 2 Analog Outputs / PWM (0 - 5V)
- 1 Counter / PWM (0 - 3.3V)
- USB powered
- USB cable and optional DIN rail mount included
- Compatible with MagicDAQ off-the-shelf test jig



Technical Specifications

| Analog Input – 8 Channels (8 Single Ended or 4 Differential) | |
|---|---|
| Pins | AI0 - AI7 |
| Voltage Measurement Range | -10V to + 10V |
| Maximum Measurement Frequency | 48 K Samples / Sec |
| ADC Resolution | 14 bit |
| Typical Voltage Resolution | 0.01 V |
| Measurement Type | Single Ended (AI0 to AGND) or Differential (AI0 to AI1) |
| Single Ended Input Impedance (AI0 to AGND) | 75K Ohm |
| Differential Input Impedance (AI0 to AI1) | 150K Ohm |
| Maximum Applied Voltage | -14V to + 24V (relative to AGND) |
| Digital Input or Output – 8 Channels | |
| Pins | P0.0 – P0.7 |
| High Output Voltage | 5V |
| Maximum Current Output | 1mA |
| Low Output Voltage | 0V (DGND) |
| Maximum Current Sink | 20mA |
| Input Low Voltage Measurement Threshold | <= 1.15V |
| Input High Voltage Measurement Threshold | >=1.55V |
| Maximum Applied Voltage | -0.3V to 7.3V (relative to DGND) |
| Oversoltage / Undervoltage Protection | Diode protected |
| Pin Type | Open Drain with Pull Up Resistor |
| | |

| | |
|---|---|
| Analog Output – 2 Channels | |
| Pins | A00 - A01 |
| Voltage Output Range | 0V to 5V |
| Configurable Output Types | Single Voltage or Sine Wave or PWM Wave (see API docs.) |
| Maximum Output Current | 15 mA |
| Maximum Output Wave Frequency | 31.25 kHz |
| DAC Resolution | 12 bit |
| Maximum Applied Voltage | -0.3V to 5.3V (relative to DGND) |
| Counter or PWM Output – 1 Channel | |
| Pin | CTR0 |
| Pulse Count Range | 0 to 65,535 Pulses |
| Maximum Frequency of Pulses Being Counted | 5 MHz |
| Pulse Edge Detection | Falling Edge or Rising Edge (configurable, see API docs.) |
| Pin Type | <p>Pull Up Resistor Connect CTR0 to DGND to Count 1 Pulse</p>  |
| PWM Output High Voltage | 3.3V (when CTR0 configured as PWM, see API docs.) |
| PWM Output Low Voltage | 0V |
| Maximum Frequency of PWM Output Wave | 65.535 KHz |
| Maximum PWM Output Current | 20 mA |
| Maximum Applied Voltage | -0.3V to 7.3V (relative to DGND) |
| Overvoltage / Undervoltage Protection | Diode protected |
| 5V Output – 1 Channel | |
| Pin | +5V |
| Maximum Output Current | 250 mA |
| Other Specifications | |
| Note on DGND and AGND | <p>DGND and AGND are electrically connected within the MagicDAQ.</p> <p>DGND and AGND are electrically connected to the the USB power supply GND.</p> <p>Consider using a USB to USB optical isolator if you require GND isolation between the DAQ and your computer.</p> |
| Note on 5V Output | The maximum voltage the MagicDAQ can output is limited by the voltage supplied by the USB cable (4.9V supplied = 4.9V max output). Consider using a powered USB hub if needed. |
| Included Accessories | <p>USB Cable (USB A Male to USB B Male – 1.5 Meters Length)</p> <p>Optional DIN Rail MagicDAQ Mount and Mounting Screws</p> |



- 1: AI0
- 2: AI1
- 3: AGND
- 4: AI2
- 5: AI3
- 6: AGND
- 7: AI4
- 8: AI5
- 9: AGND
- 10: AI6
- 11: AI7
- 12: AGND
- 13: +5V

- 14: P0.0
- 15: P0.1
- 16: P0.2
- 17: P0.3
- 18: P0.4
- 19: P0.5
- 20: P0.6
- 21: P0.7
- 22: DGND
- 23: AO0
- 24: AO1
- 25: AGND
- 26: CTR0

USB Cable Entry

| TYPE | PINS |
|------------------------|-------------|
| Analog Input | AI0 - AI7 |
| Analog Ground | AGND |
| 5V Output | +5V |
| Digital Input / Output | P0.0 - P0.7 |
| Digital Ground | DGND |
| Analog Output | AO0 - AO1 |
| Counter / PWM | CTR0 |



MAGICDAQ

| | | |
|------------|-------------------|----------------------|
| SIZE | TITLE | REV |
| B | MDAQ300 - Pin Out | 1.0 |
| DIMENSIONS | mm | WEB www.magicdaq.com |

SHEET 1 OF 1