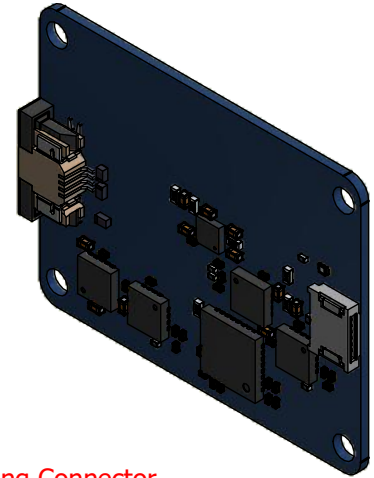


# FUTEK MODEL QIA123

Digital Low Power Controller with SPI, UART, and Analog Output



DRAWING NUMBER: FI1481 - D  
INCH [mm] | R.O.= Rated Output

Item #: QSH01943

## BOARD TO BOARD CONNECTOR

Pin	Code	Pin	Code
1	VIN	8	MOSI
2	GND	9	MISO
3	TRIG	10	TX
4	GND	11	RX
5	DRDY	12	GND
6	CS	13	GND
7	SCLK	14	VOUT

## PROGRAMMING CONNECTOR

Pin	Code
1	MCLR
2	3V3
3	GND
4	DAT
5	CLK
6	N/C

## SENSOR CONNECTOR

Pin	Code
1	-Signal
2	+Signal
3	-Excitation
4	+Excitation

## Noise Free Resolution

SPS	NFR (bits)*
10	15.4
60	14.1
100	13.6
1000	11.9
4800	10.6
9600	9.9

\* NFR calculated for 75% of the dynamic range

## SPECIFICATIONS:

### Analog Output:

- Range: 0.2VDC-2.8VDC over  $\pm 750\text{mNm}$
- Type: Single-ended
- Calibration: offset/span
- Bandwidth:
  - FC: 1.6kHz
  - Topology: Flat Pass-band--Sallen-Key
- Load Impedence:  $\geq 1.6\text{k}\Omega$
- Noise: 1.8mVp-p
- Gain Drift : 35ppm/°C

### Sensor Input:

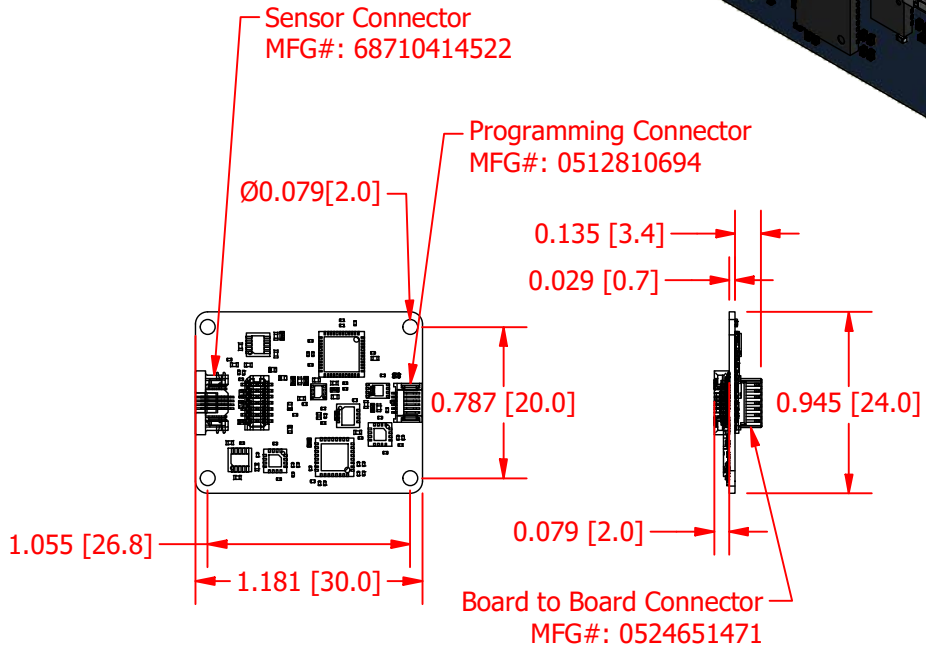
- Input Range: 1mV/V - 5mV/V
- Excitation: 3.5VDC-4.2VDC (max)
- Bridge Resistance: 350-5000 Ohms

Operating Temperature: -20[-29] to +185[+85] °F[°C]

Firmware Revision 1.6

RoHS 2011/65/EU Compliant

Note: See latest revision of FUTEK document EM1035 for timing, commands, and communication structure



All Mounting Holes Not Grounded

### Power:

- 5V +/-4%
- 20-40mV peak-to-peak ripple in passband
- 20MHz bandwidth (cutoff 40dB @ 20MHz)
- Inrush Current: 210mA
- Power Consumption
  - Sleep-Mode: 60mW
  - Wake-Mode: 95mW

### Digital Output:

- Sampling: 10 - 9600 SPS
- Offset Error Drift: 10nV/°C
- Gain Error Drift: 2ppm/°C
- SPI Output:
  - Voltage: 3.3VDC
  - Clock Speed: 3MHz - 8MHz
  - Word Size: 16 Bits
  - Stored Calibration: 5 Points per direction
- UART
  - Voltage: 3.3VDC

**FUTEK**  
ADVANCED SENSOR TECHNOLOGY, INC.

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