NWCS
NORTHWEST CONTROL SYSTEMS

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Sensor Board Version 1.0

Force Gauge* & Switch Interface

*FlexiForce™ Resistance Gauges

General Specifications

Supply Input ..... 5V (from connected Stepper Board)
Dimensions ..... 3.5" X 1.5" (90mm X 38mm)
With 3mm mounting holes

Force Gauge Inputs 2
Optical Sensor Inputs 4
Contact Closure Inputs 4
Control Protocol ..... Proprietary I2C interface, optimized for fast streaming Protocol. Additional protocols available upon request.
Secondary Control Interface ..... TTL level serial port
Mating Connectors..... To Master Board: JST 6-pin, 2mm pin spacing
Optical Sensors: JST 4-pin. 2mm pin spacing
Force Gauge: JST 2-pin 2 mm pin spacing
Switch Closures: JST 2-pin 2 mm pin spacing
Optical Switch Interface..... Accepts opto-electronic or mechanical switch inputs, two for each motor (home and end).
Signal Levels: <0.8V Vlow; >2V Vhigh (TTL compatible)
Optical switch specifications: Transistor optical switch with IC> 1 mA @ IF=20mA. *Examples*: OPTEK # OPB941W51Z (Mouser # 828-OPB941W51Z)
(prewired)
Operating Temperature ..... -20 to 85 °C PCB copper temperature
Relative Humidity..... 10% to 90% non condensing (operating and storage)

OPTICAL SWITCH CONNECTOR
Mating connector: JST connector PH-4P
Digikey part S9457-ND

Pin	Name	Notes
1	Anode	Marked "O" in the diagram
2	Output (reflects state)	Marked "I" in the diagram
3	VCC	Marked "5" in the diagram
4	Cathode / Ground	Marked "G" in the diagram

FORCE GAUGE CONNECTOR
Mating connector: JST connector PHP-2
Digikey part S9463-ND

Pin	Function	Notes
1	Contact 1	No Polarity
2	Contact 2	No Polarity

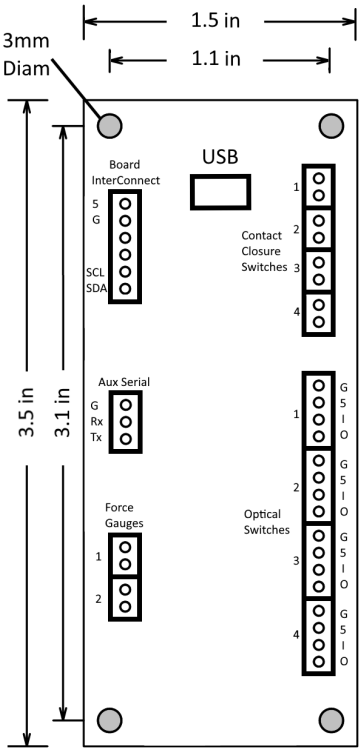
CONTACT CLOSURE CONNECTOR
Mating connector: JST connector PH-3P
Digikey part S9463-ND

Pin	Function	Notes
1	Contact 1	No Polarity
2	Contact 2	No Polarity

BOARD INTERCONNECT CONNECTOR
Mating connector: JST connector PH-6P
Digikey part S9455-ND

Pin	Function	Notes
1	+5VDC	Marked "5" in the diagram
2	Ground	Marked "G" in the diagram
5	I2C SCL	Marked "SCL" in the diagram
6	I2C SDA	Marked "SDA" in the diagram

Mechanical Specifications



Key Features

- Native USB interface
- Two linearized force gauge inputs
- Derives power from master
- 4 optical switch inputs
- 4 contact closure switch inputs
- Based on 32 bit ARM architecture
- Streaming of data to master
- Force can be used as EOT point
- Prewired for opto-switch input
- Demo software provided
- Custom programming available

Ordering Information

Name	Order Number
Sensor Board.....	SENS020-E1
Interconnect Cable (option).....	CBL-09
Dual Stepper Board Master (option).....	STEP020-B2
Optical Encoder…. (option).....	ENC-01

REV 050522

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