

FEATURES:

- Flexure suspension allows stiction free motion of the mirror with an infinite fatigue lifetime
- Built in optical sensor allows the user to monitor both axes of mirror motion
- Moving magnet design allows coils to be heat sunk to the mirror base structure
- New coil design eliminates coil overheating problems, no need to monitor coil temperature

Model NS1001 features a 3" dia x 0.5" thick mirror substrate. The pivots are located at the center of gravity.

A built in high precision optical sensor monitors mirror angle. The optical head is attached to a servo controller using a supplied 10 foot cable. The user inputs analog mirror command to the controller to steer the mirror.



NS1001 - Three Inch FSM (Thick Silicon Substrate)

Mirror Specifications

Specification	Typical	Units
Dynamic Performance		
Mirror Angular Range (mechanical)	+/- 5.0	degrees
Angular resolution	<2	urads
3dB Bandwidth	> 180	Hz
Linearity	2%	% Full Scale
Step Response (1 mrad step)	<10	ms
Mirror Substrate		
Material	Silicon or Glass	
Mirror substrate size	3.0 dia x 0.5 thk	inches
Coating	User supplied substrate	
Reflectivity	Depends on coating	
Wavefront quality	User supplied substrate	
Clear Aperture	3.0	inches
Electrical		
Peak power	30	Watts
Mechanical		
Mirror head size	4.75 X 4.0 X 3.072	inches
Weight no foot	2.75	lbs
Controller size	2.0 X 4.0 X 6.1	inches
Weight	21	oz
Cable from Head to Controller 6 foot	10	oz

Pricing

Complete mirror system (mirror head, controller, cables, and power supply) Includes: Fast Steering Mirror Head Fits Newport 76.2mm dia x 14.7mm thick zerodur substrates (30Z20ER.4) Analog Servo Controller 10 foot cable FSM to Controller Table top power supply	NS1001	\$9,500, no substrate
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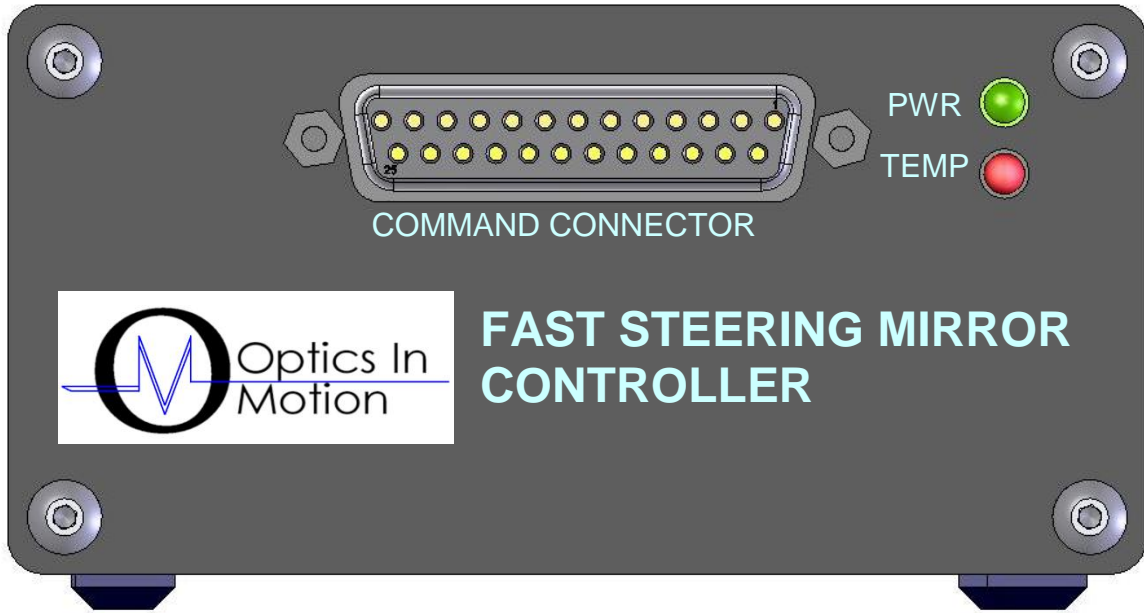


Figure 1: Controller Front View

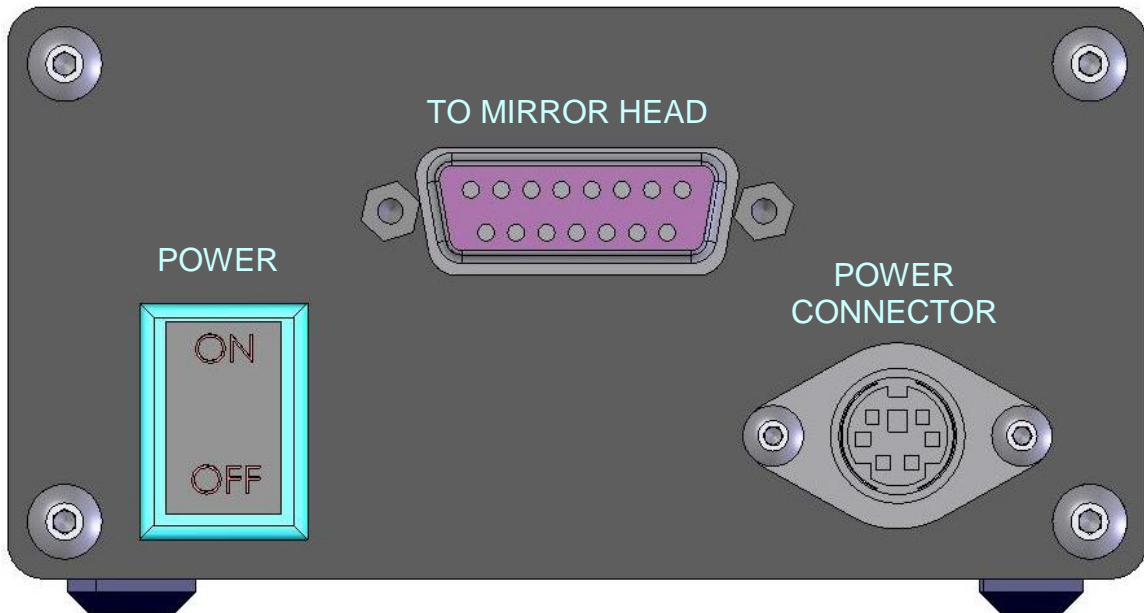
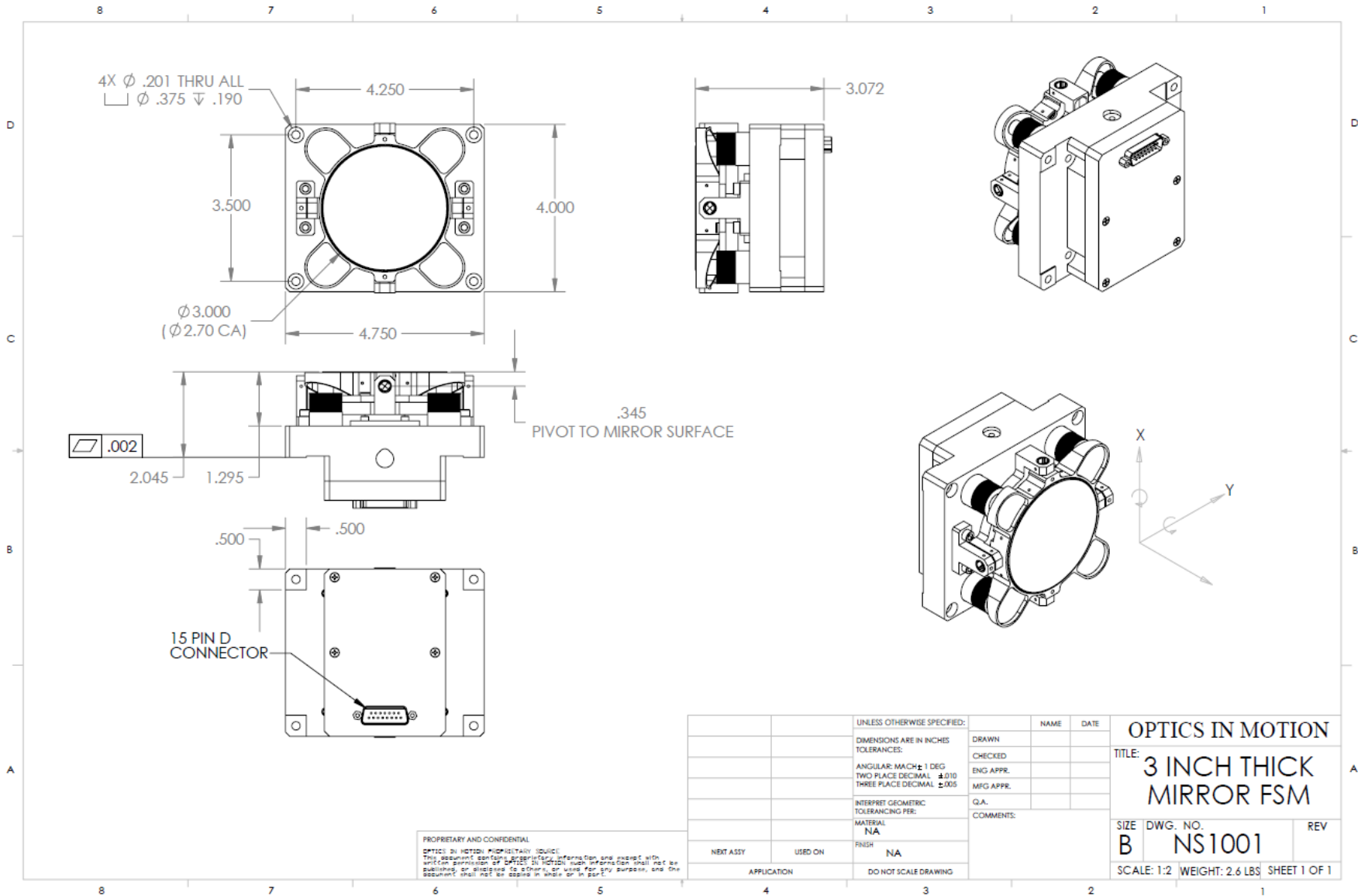


Figure 2: Controller Rear View

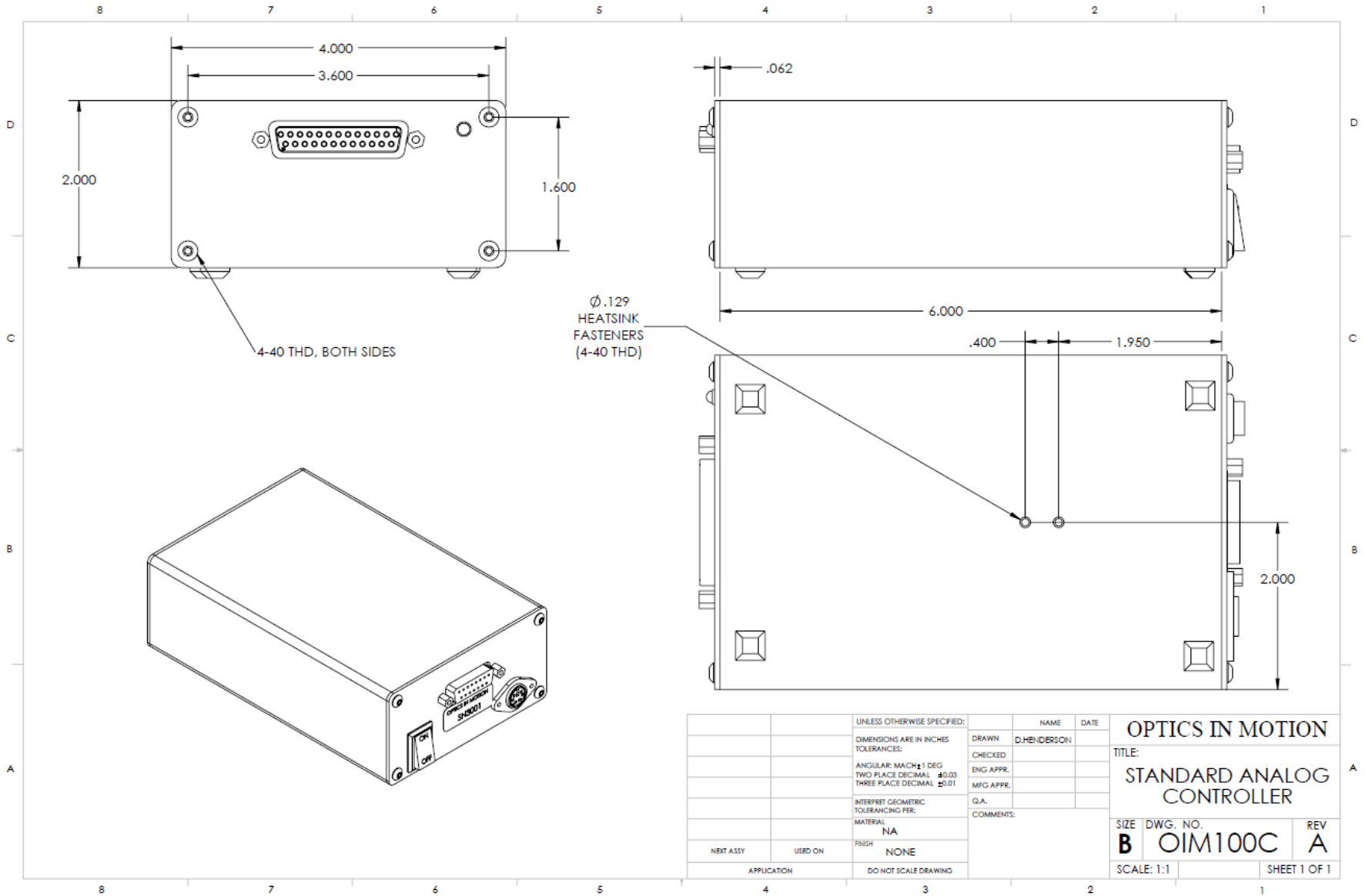
Command Connector Wiring Table

25-Socket Sub-miniature D Connector

Pin Number	Signal Name	I/O Type	Description
1	X ERROR	Output	X summing junction error voltage output, difference between commanded and actual position. (referenced to ground)
2	INT/EXT SWITCH	Input	Normally low TTL input. High level switches the position feedback input from local to external. (used with input pins 10,11 and 17, 5)
3	X- COMMAND	Input	X mirror position command. Low side of differential command input. Range +/-10 Volts.
4	X+ COMMAND	Input	X mirror position command. High side of differential command input. Range +/-10 Volts.
5	X- EXTERNAL	Input	X external mirror position. Low side of differential position input (from external quad or similar position sensor)
6	GND	Output	Ground Reference
7	-15 VOLTS	Output	-15 VDC for external loads of less than 100ma.
8	RESERVED		
9	N/C		
10	Y+ EXTERNAL	Input	Y external mirror position. High side of differential position input (from external quad or similar position sensor)
11	Y- EXTERNAL	Input	Y external mirror position. Low side of differential position input (from external quad or similar position sensor)
12	Y- COMMAND	Input	Y mirror position command. Low side of differential command input. Range +/-10 Volts.
13	Y+ COMMAND	Input	Y mirror position command. High side of differential command input. Range +/-10 Volts.
14	X POSITION	Output	X mirror angular position readout from local position sensor. (referenced to ground)
15	+5 VOLTS	Output	5 VDC for external loads of less than 100ma.
16	GND	Output	Ground Reference
17	X+ EXTERNAL	Input	X external mirror position Low side of differential position input (from external quad or similar position sensor)
18	RESERVED		
19	+15 VOLTS	Output	+15 VDC for external loads of less than 100ma.
20	GND	Output	Ground Reference
21	RESERVED		
22	GND	Output	Ground Reference
23	Y POSITION	Output	Y mirror angular position readout from local position sensor. (referenced to ground)
24	Y ERROR	Output	Y summing junction error voltage output, difference between commanded and actual position. (referenced to ground)
25	RESERVED		



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UNLESS OTHERWISE SPECIFIED:		NAME	DATE	OPTICS IN MOTION
DIMENSIONS ARE IN INCHES TOLERANCES:		DRAWN	D.HENDERSON	
ANGULAR: MACH ±1 DEG		CHECKED		STANDARD ANALOG CONTROLLER
TWO PLACE DECIMAL ±0.03		ENG APPR.		
THREE PLACE DECIMAL ±0.01		MFG APPR.		B OIM100C
INTERPRET GEOMETRIC TOLERANCING PER:		Q.A.		REV
MATERIAL:		COMMENTS:		A
FINISH:				SCALE: 1:1
NEXT ASSY	USED ON			SHEET 1 OF 1
APPLICATION		DO NOT SCALE DRAWING		

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