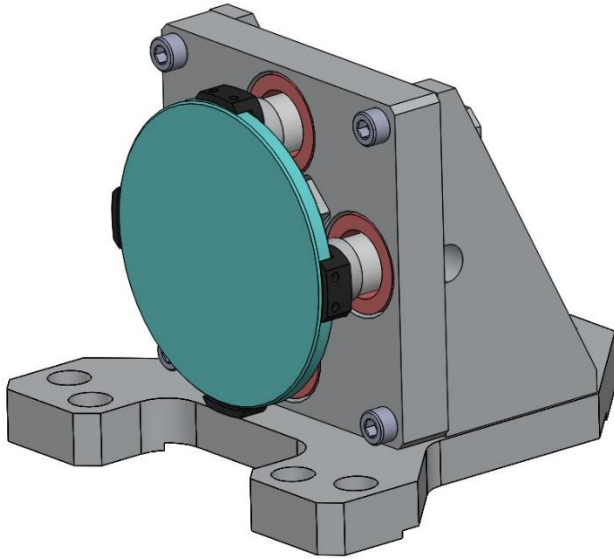


### FEATURES:



- 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
- Uses 1/4<sup>th</sup> wave 2" diameter x 0.125" glass mirrors
- Mirror coating to customer requirements
- Mirror mounted into sub-mount using RTV
- Clear aperture = 85%
- Angular range of +/-1.5 to +/-3.0 degrees mechanical

Model OIM5002 features a 1/4<sup>th</sup> wave glass 2" diameter mirror substrate

A built in high precision optical sensor monitors mirror angle. The compact optical head is attached to a servo controller using a supplied 6 foot cable. The user inputs analog mirror command to the controller to steer the mirror.



**Mirror Specifications**

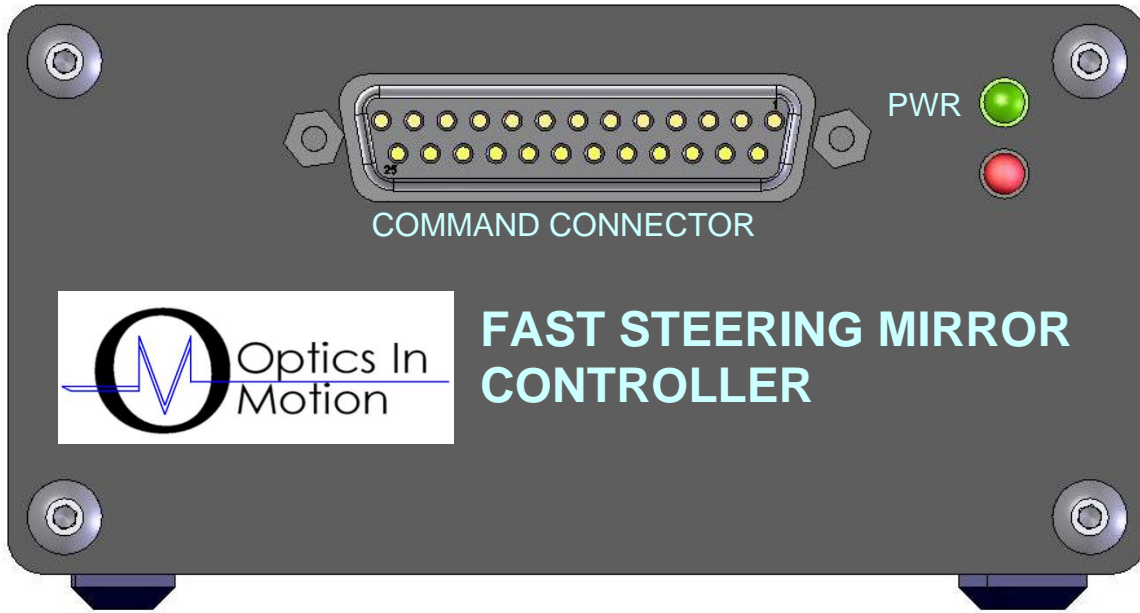
Specification	Typical	Units
<b>Dynamic Performance</b>		
Mirror Angular Range (mechanical)	+/- 1.5 to +/-3.0	degrees
Angular resolution	<0.6 to <1.2	urads rms
3dB Bandwidth (user adjustable, factory set for 450Hz)	> 650	Hz
Linearity	1 to 2	% Full Scale
Step Response (1 mrad step)	<5	ms
<b>Mirror Substrate</b>		
Material	Fused Silica	
Mirror substrate size	2" diameter x 0.125" thick	
Coating	Protected Aluminum	
Reflectivity	>85% from 400 – 700nm	
Wavefront quality	$\lambda/4$ @ 633nm	Waves rms
Clear Aperture	85	percent
<b>Electrical</b>		
Peak power	30	Watts
<b>Mechanical</b>		
Mirror head size	2.3 X 2.3 X 1.5	inches
Weight, no foot	178	grams
Controller size	2.0 X 4.0 X 6.1	inches
Weight	488	grams
Head to Controller Cable Weight	100	grams
<b>Thermal</b>		
Operational Temperature Range	-10 to +60	Deg C
Storage Temperature Range	-20 to +80	Deg C

Complete mirror system  
(mirror head, controller, cables, and power supply)

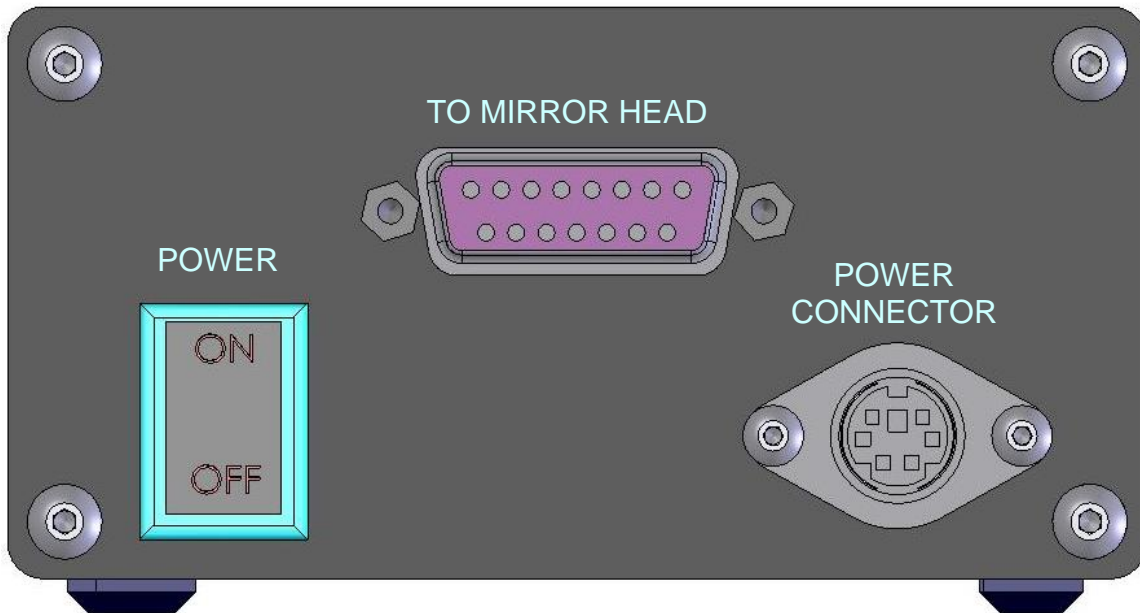
Includes:

- Fast Steering Mirror Head
- Protected aluminum or gold mirror substrate\*
- Analog Servo Controller
- 6 foot cable FSM to Controller
- Table top power supply

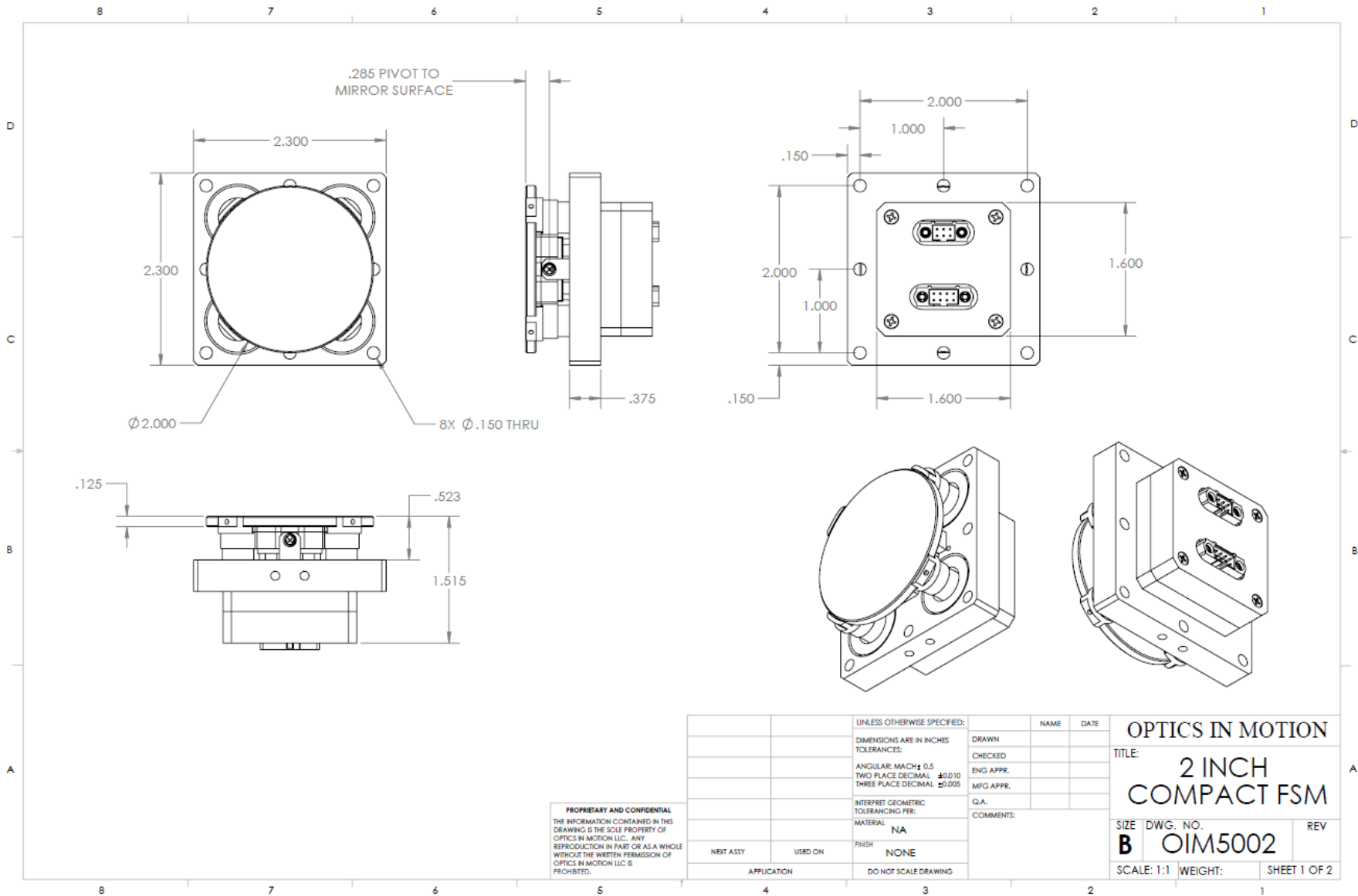
\* Contact Optics In Motion to obtain a price for other mirror coatings (protected silver, multilayer ...).



**Figure 1: Controller Front View**



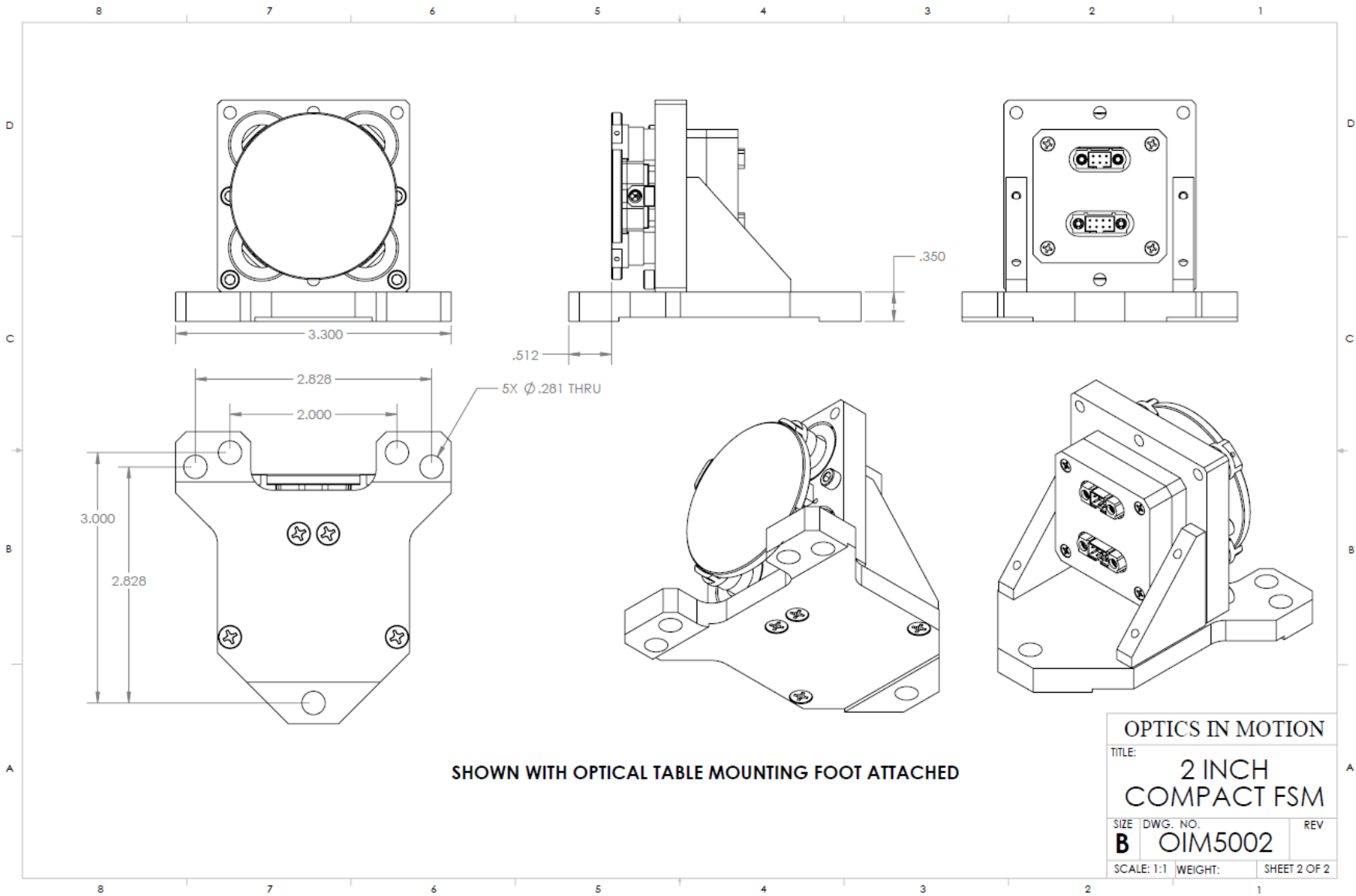
**Figure 2: Controller Rear View**



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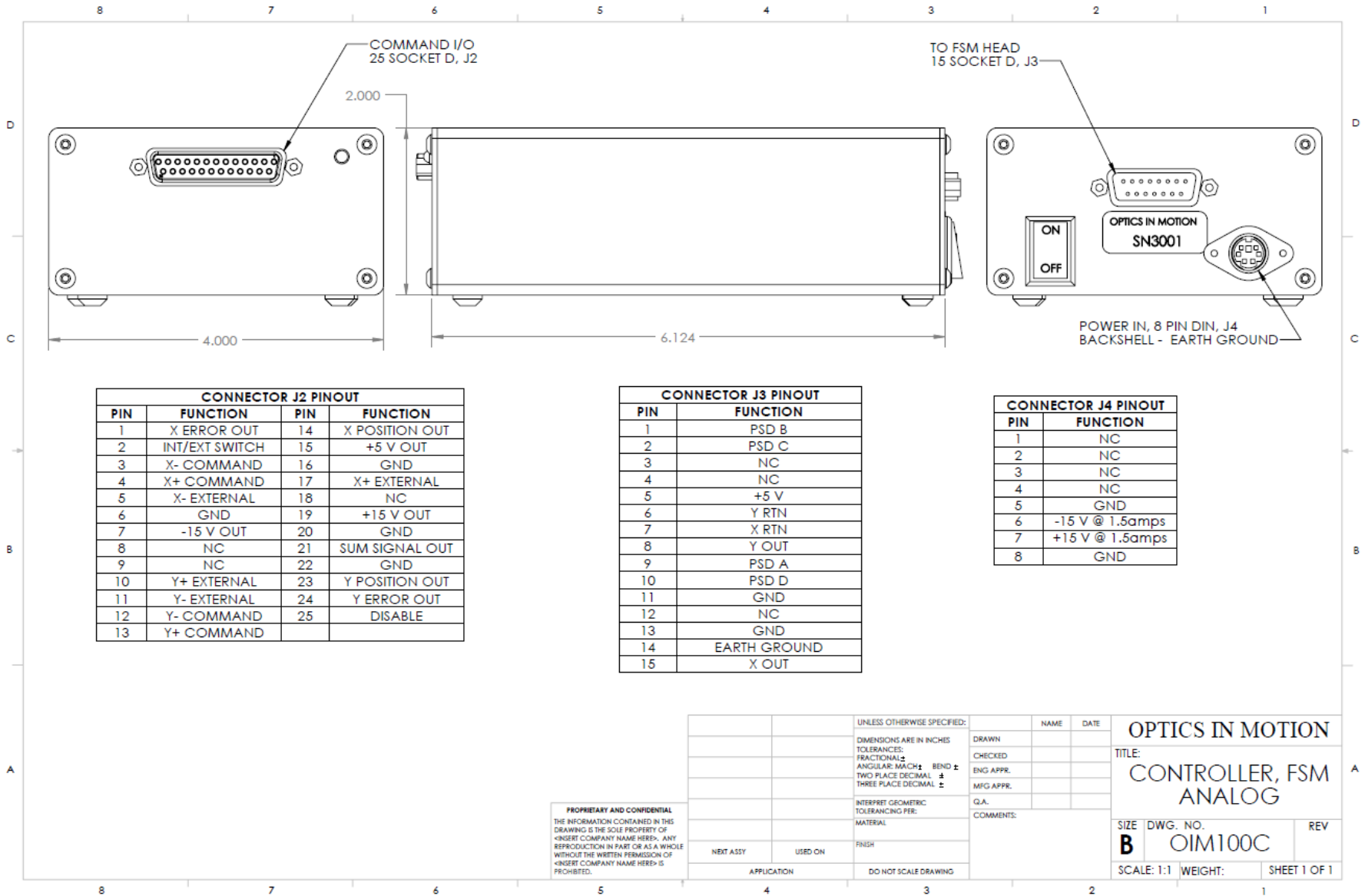
		UNLESS OTHERWISE SPECIFIED:	NAME	DATE	OPTICS IN MOTION
		DIMENSIONS ARE IN INCHES TOLERANCES:	DRAWN		
		ANGULAR: MACH ± 0.5	CHECKED		2 INCH
		TWO PLACE DECIMAL ±0.010	ENG APPR.		COMPACT FSM
		THREE PLACE DECIMAL ±0.005	MFG APPR.		
		INTERPRET GEOMETRIC TOLERANCING PER:	Q.A.		SIZE DWG. NO.
		MATERIAL	COMMENTS:		<b>B</b> OIM5002
		FINISH			REV
NEXT ASSY	USED ON	NONE			SCALE: 1:1
APPLICATION		DO NOT SCALE DRAWING			WEIGHT:
					SHEET 1 OF 2

**Optics In Motion LLC, 4223 Rutgers Ave, Long Beach, CA 90808**  
 (562) 481-7103, E-Mail: sales@opticsinmotion.net



SHOWN WITH OPTICAL TABLE MOUNTING FOOT ATTACHED

OPTICS IN MOTION		
TITLE: 2 INCH COMPACT FSM		
SIZE	DWG. NO.	REV
<b>B</b>	<b>OIM5002</b>	
SCALE: 1:1	WEIGHT:	SHEET 2 OF 2



# 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		