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

- Mirror coating to customer requirements

- Wave-front quality 1/4th wave rms
    - Substrate $1/4^{th}$ wave p-v

- Useable aperture 2.7" x 4.05"

Model OIM3450 features a 3.0" x 4.5" silicon mirror substrate. Standard coating protected gold.

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
Dynamic Performance		
Mirror Angular Range (mechanical)	+/- 5.0	degrees
Angular resolution	<2	urads
3dB Bandwidth	>180 x axis > 250 y axis	Hz
Linearity	1%	% Full Scale
Step Response (1 mrad step)	<8	ms
Mirror Substrate		
Material	Silicon	
Mirror substrate size	3.0 x 4.5	inches
Coating	Protected Gold	
Reflectivity	Depends on coating	
Wavefront quality	λ/4 @ 633nm	waves rms
Clear Aperture	2.7 x 4.05 (90%)	inches
Electrical		
Peak power	30	Watts
Mechanical		
Mirror head size	4.5 X 3.4 X 2.8	inches
Weight	23.7	oz
Controller size	2.0 X 4.0 X 6.1	inches
Weight	21	oz
Cable from Head to Controller 6 foot	8	oz

Pricing

Complete mirror system (mirror head, controller, cables, and power supply) Includes: Fast Steering Mirror Head Protected gold coated silicon mirror substrate Analog Servo Controller 6 foot cable FSM to Controller Table top power supply	OIM3450	$8,000
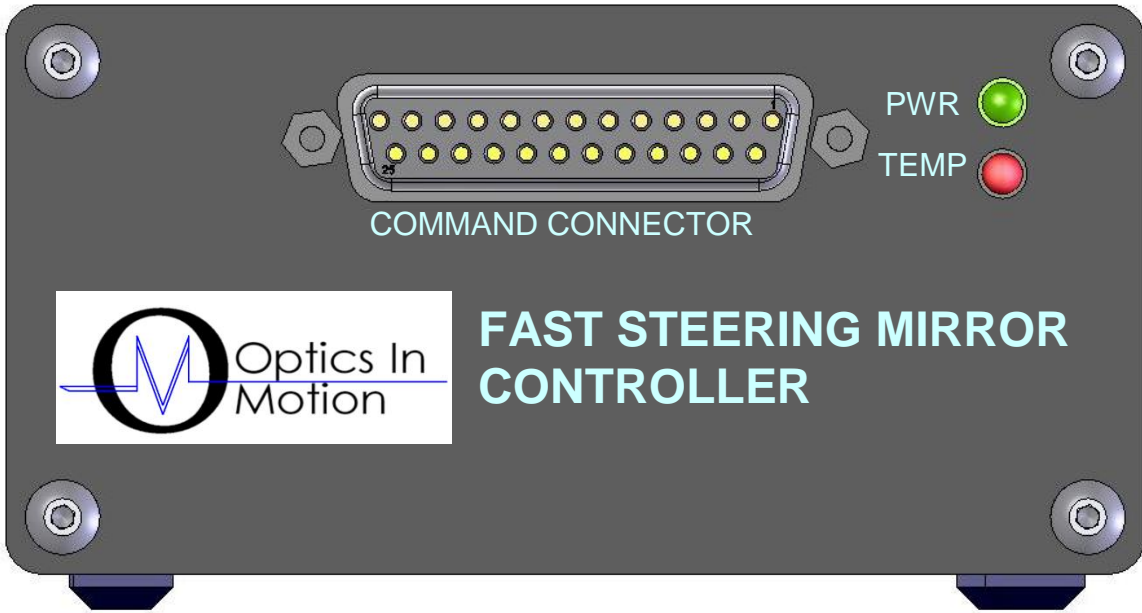
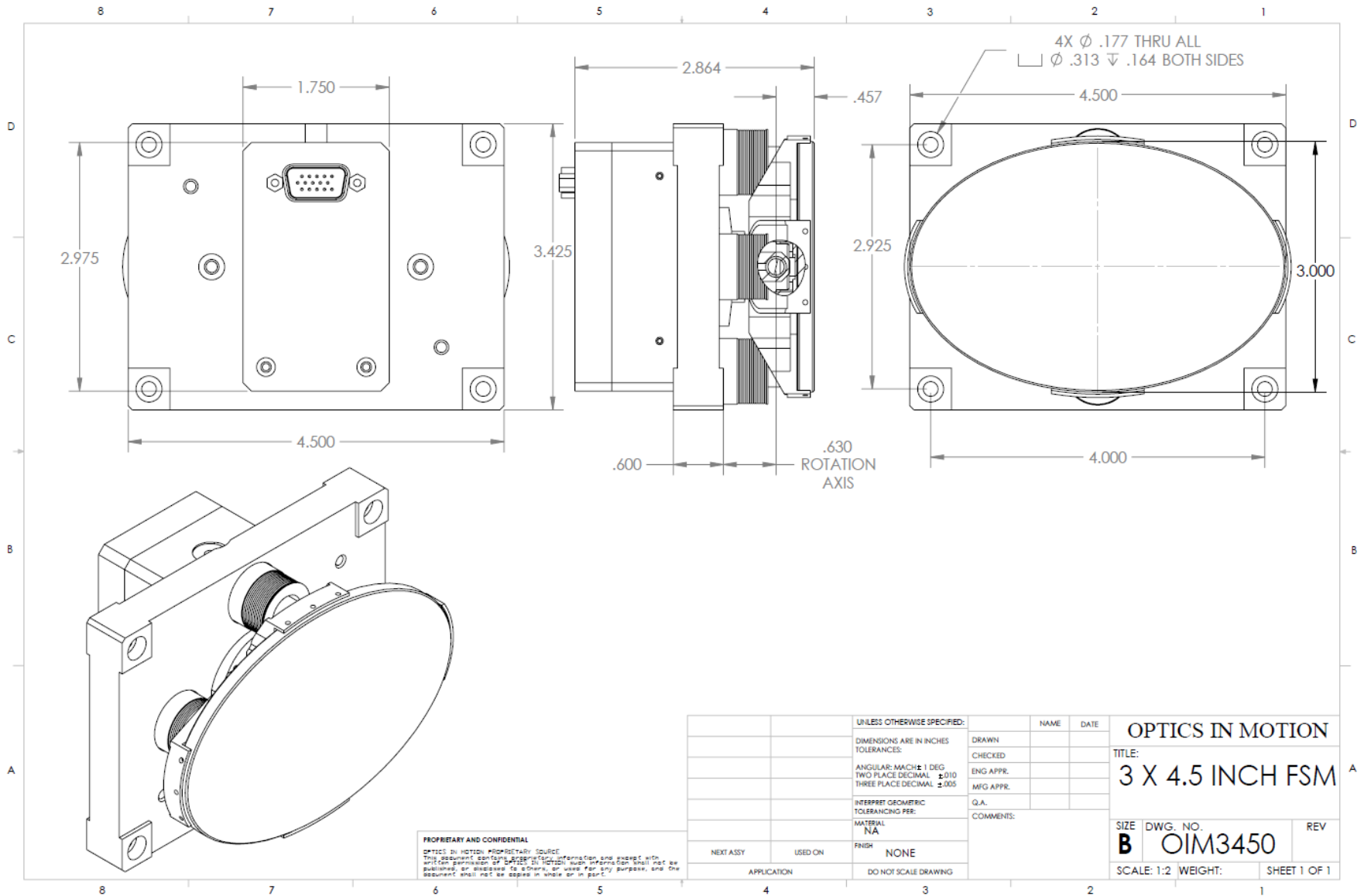**Figure 1: Controller Front View**
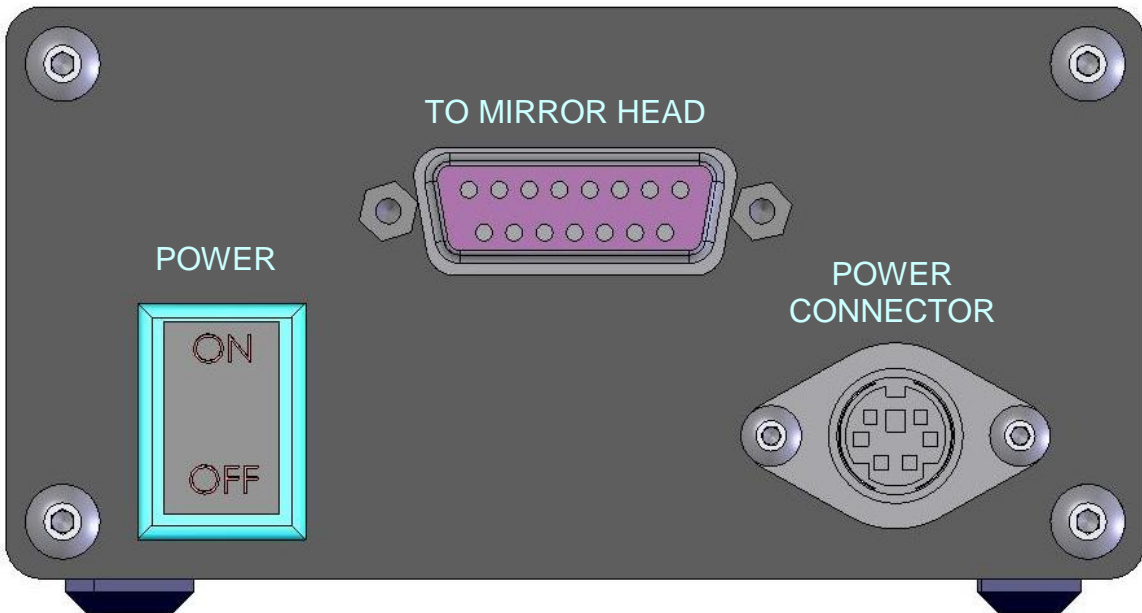
Figure 2: Controller Rear View

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		

4X Ø .177 THRU ALL
⌴ Ø .313 ▽ .164 BOTH SIDES

1.750

2.864

.457

4.500

2.975

3.425

2.925

3.000

4.500

.600

.630
ROTATION
AXIS

4.000

UNLESS OTHERWISE SPECIFIED:		NAME	DATE	OPTICS IN MOTION
DIMENSIONS ARE IN INCHES TOLERANCES:	DRAWN			TITLE:
	CHECKED			3 X 4.5 INCH FSM
ANGULAR: MACH± 1 DEG TWO PLACE DECIMAL ±.010 THREE PLACE DECIMAL ±.005	ENG APPR.			
	MFG APPR.			
INTERPRET GEOMETRIC TOLERANCING PER:	Q.A.			
NA	COMMENTS:			
MATERIAL				SIZE DWG. NO. REV
NA				B OIM3450
FINISH NONE				SCALE: 1:2 WEIGHT: SHEET 1 OF 1

NEXT ASSY | USED ON
APPLICATION | DO NOT SCALE DRAWING

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