OIM3300G-Three Inch FSM (Glass Version)

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 1/4th wave p-v
- Useable aperture 3.0”

Model OIM3300G features a 3” silicon mirror substrate. Standard coating protected gold, silver or aluminum.

A built in high precision optical sensor monitors mirror angle. The compact 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.

Optics In Motion LLC, 4223 Rutgers Ave, Long Beach, CA 90808
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Mirror Specifications

Specification	Typical	Units
Dynamic Performance		
Mirror Angular Range (mechanical)	+/- 5.0	degrees
Angular resolution	<2	urads
3dB Bandwidth	> 250	Hz
Linearity	1%	% Full Scale
Step Response (1 mrad step)	<5	ms
Mirror Substrate		
Material	Silicon	
Mirror substrate size	3.0	inches
Coating	Protected Gold, Silver, or Aluminum	
Reflectivity	Depends on coating	
Wavefront quality	λ/4 @ 633nm	waves rms
Clear Aperture	3.0	inches
Electrical		
Peak power	30	Watts
Mechanical		
Mirror head size	4.5 X 3.67 X 2.75	inches
Weight no foot	19.4	oz
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 Protected gold, silver, or aluminum mirror substrate Analog Servo Controller 10 foot cable FSM to Controller Table top power supply	OIM3300G	$10,000

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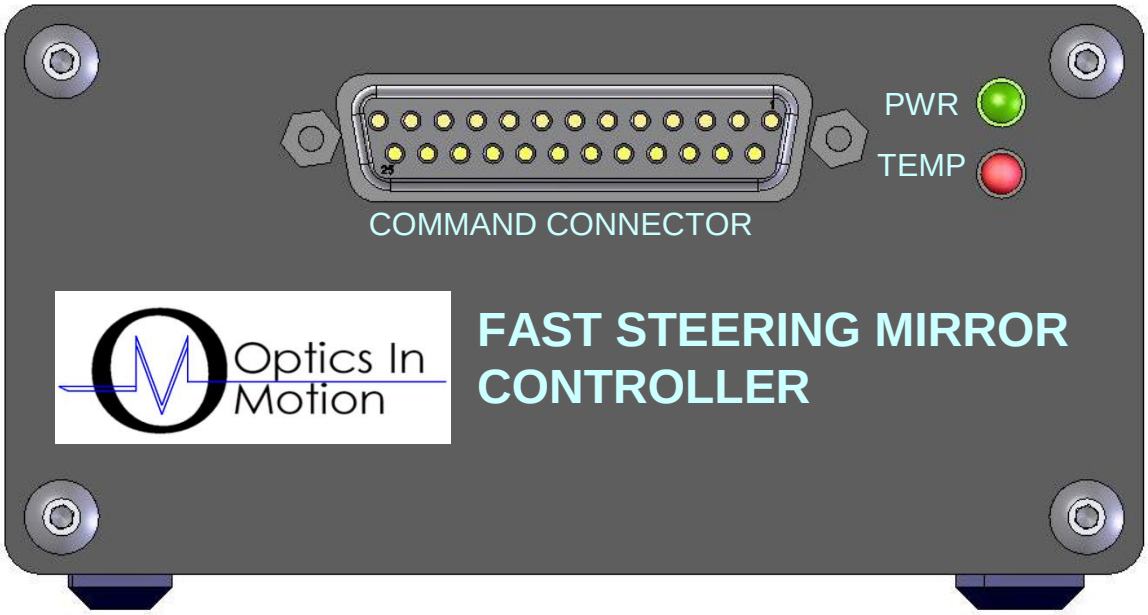

Figure 1: Controller Front View

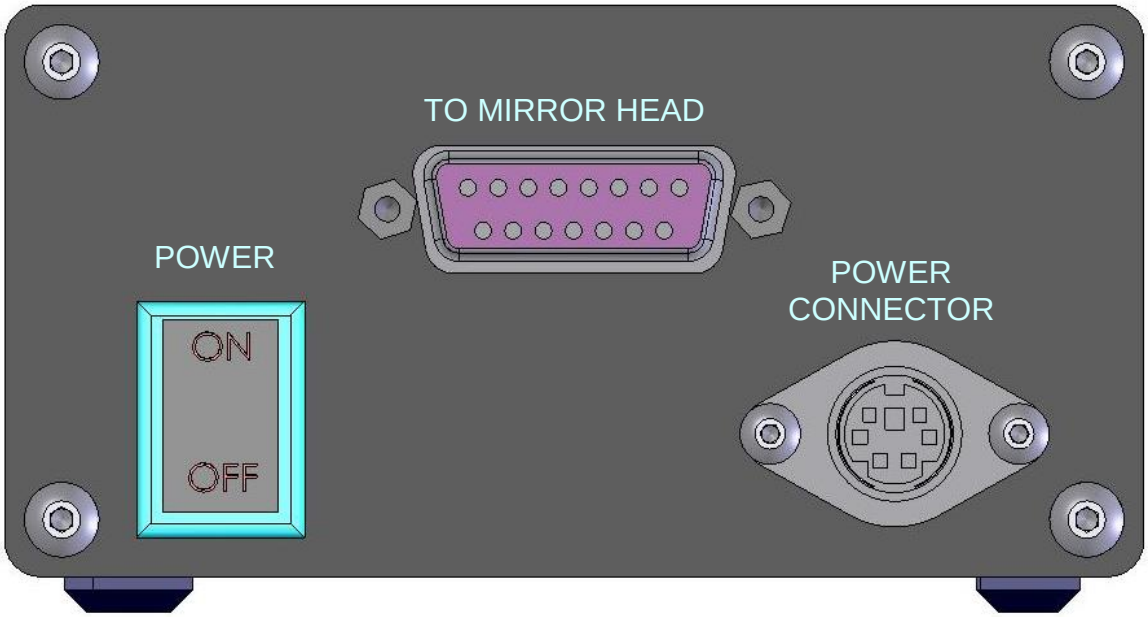

Figure 2: Controller Rear View

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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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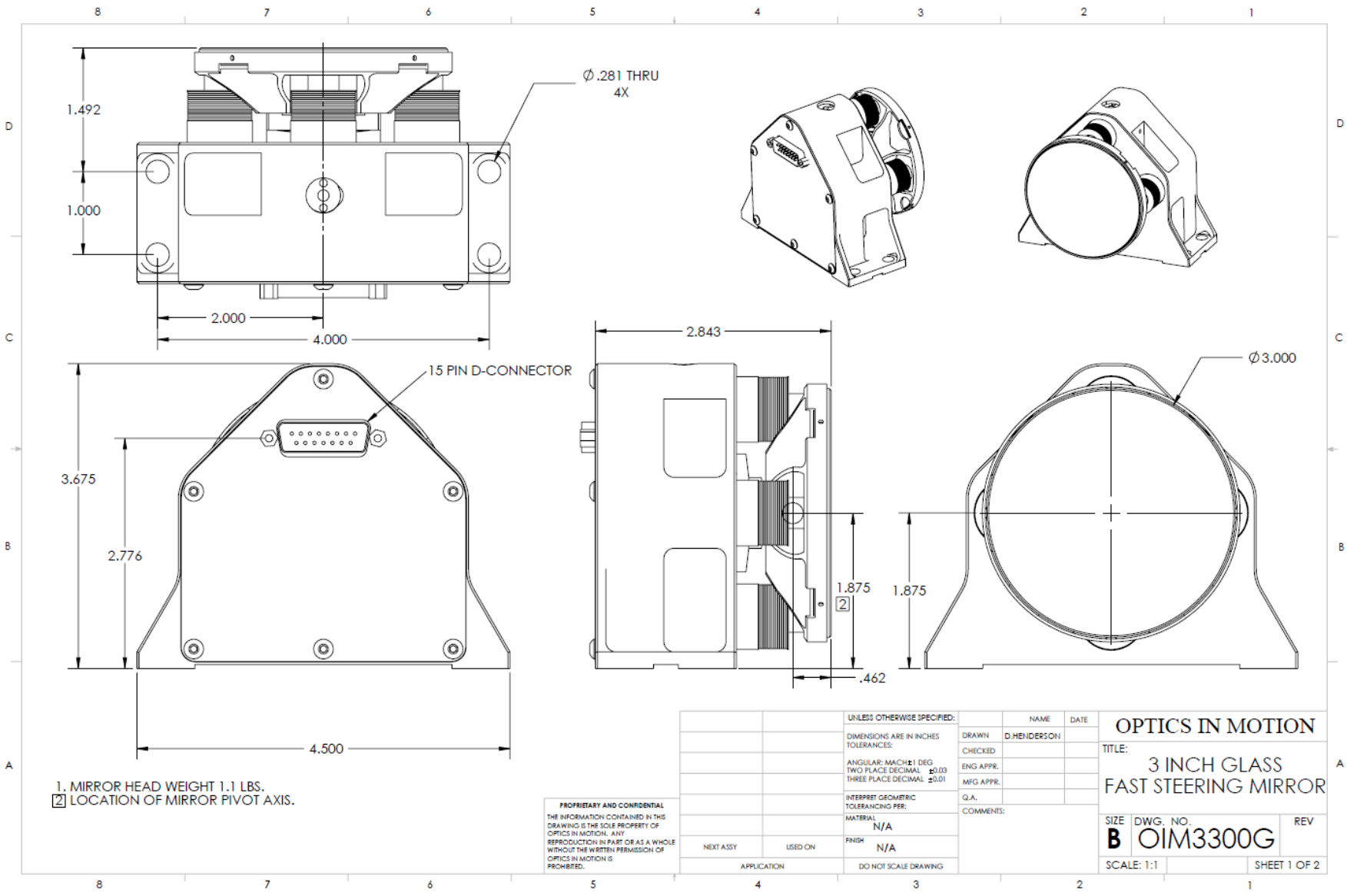

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J2: Mirror Head Connector

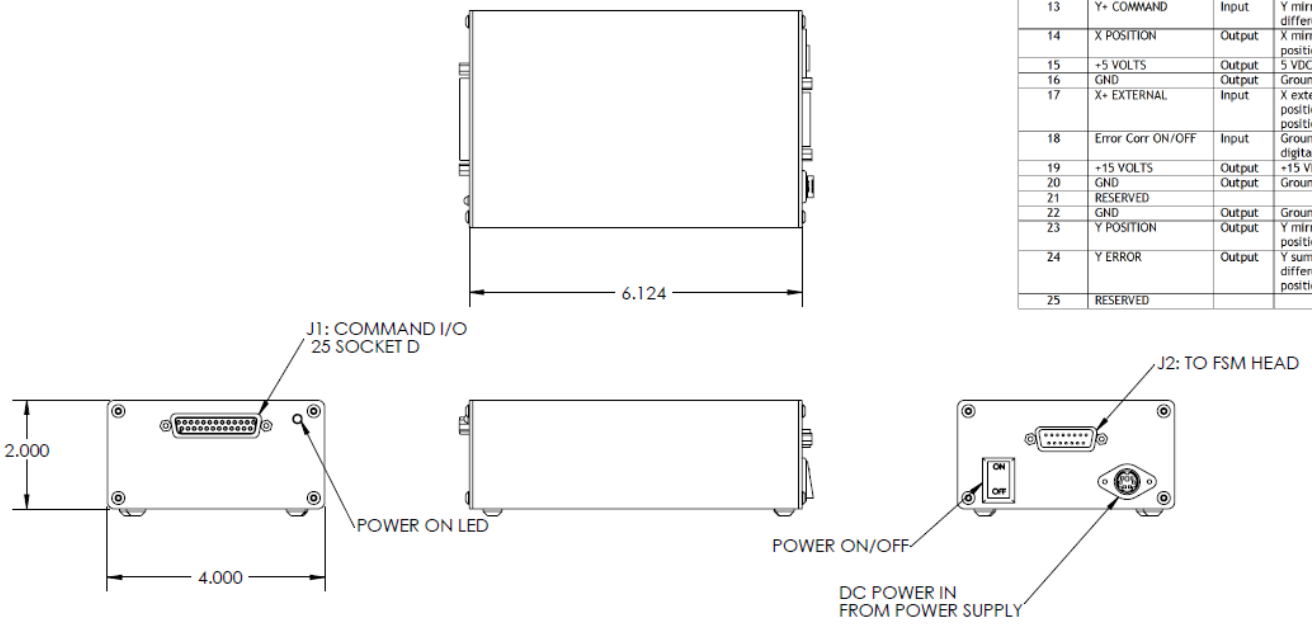
15 Socket Sub-miniature D Connector (PINOUT FOR REFERENCE)

Pin Number	Signal Name	I/O Type	Description
1	PSD B	N/A	Signal from position sensor built into FSM head
2	PSD C	N/A	Signal from position sensor built into FSM head
3	GND	N/A	Ground Reference
4	N/C		
5	+5V	N/A	Supply voltage to power FSM head laser diode
6	Y RTN	N/A	Y coil drive return
7	X RTN	N/A	X coil drive return
8	Y OUT	N/A	Y coil drive signal range +/- 15 VDC
9	PSD A	N/A	Signal from position sensor built into FSM head
10	PSD D	N/A	Signal from position sensor built into FSM head
11	GND	N/A	Ground Reference
12	N/C		
13	GND	N/A	Ground Reference
14	EARTH GND	N/A	Earth ground, connected to FSM head housing
15	X OUT	N/A	X coil drive signal range +/- 15 VDC

J1: Command I/O Connector Wiring

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	Error Corr ON/OFF	Input	Ground this pin if you want to disable onboard digital error correction.
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		



OPTICS IN MOTION

TITLE: 3 INCH MIRROR ELECTRONICS ICD

SIZE B | DWG. NO. OIM3300G | REV

SCALE: 1:2 | SHEET 2 OF 2

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