

DM005300

MARADIN 2D MEMS PROJECTION EVALUATION KIT

The DM005300 is the industry's first evaluation kit supporting the all-digital MAR2200 MEMS controller integrated with the MAR1200 MEMS Mirror and the MAR3200 video controller.

The MAR1200 MEMS family has a high refresh rate of up to 120mHz and a wide optical field of view (FOV), which makes it a suitable choice for LBS systems who need large images or large scanning areas.



The MAR2200 revolutionizes MEMS control based on dynamic MEMS models, utilizing more accurate and flexible control schemes than current state of the art controllers, resulting in improved MEMS performance. Additionally, the MAR2200 all-digital controller produces unprecedented operational stability despite temperature changes and MEMS manufacturing tolerances. An example of its flexibility is the support of on-the-fly resolution, field of view adjustments, and easy customization for different MEMS mirrors. The DM005300 is provisioned with a newly modified version of the MAR3200 Video controller.

THE KIT INCLUDES:

- MAR1200.E MEMS scanner
- MAR2200 digital MEMS controller + EL000335.X MEMS extender
- MAR3200 video controller
- API for direct system control
- Windows demo control application

* Upon special request, Maradin can provide lasers and optics components

SYSTEM CHARACTERISTICS

#	Parameter	Min	Typical Value	Max	Unit	Remarks
General	Scan Type		Raster, Progressive			
	Frame Rate	10	60	200	Hz	
	Video input type		HDMI			
Image	Resolution (H)	1	1280	1440	Pixel	Horizontal
	Resolution (V)		720		Pixel	Vertical
	Optical Angle (H)		50	50	Deg.	HFOV – Image size
	Optical Angle (V)		30	30	Deg.	VHOV – Image size
	Throw Ratio		1.2	1		Distance/Diagonal FOV
	Position error			+/-0.3	Pix. (typ.)	Both vertical and Horizontal

Table 1: Image properties

#	Parameter	Min	Typical Value	Max	Unit	Remarks
Controller (MAR2200 + MAR3200)	LxWxH		161x102x38.5		mm	
MEMS (MAR1200.E)	LxWxH		11.4x6x5.1		mm	(for additional info see MAR1200.X datasheet)
	Effective mirror size (H)		1		mm	
	Effective mirror size (V)		1.1		mm	Vertical direction for Y torsion bar
MEMS Extender (FPC EL000350.X)	length		300		mm	
	Width			11.5	mm	Available models: V, RA and H

Table 2: Physical properties

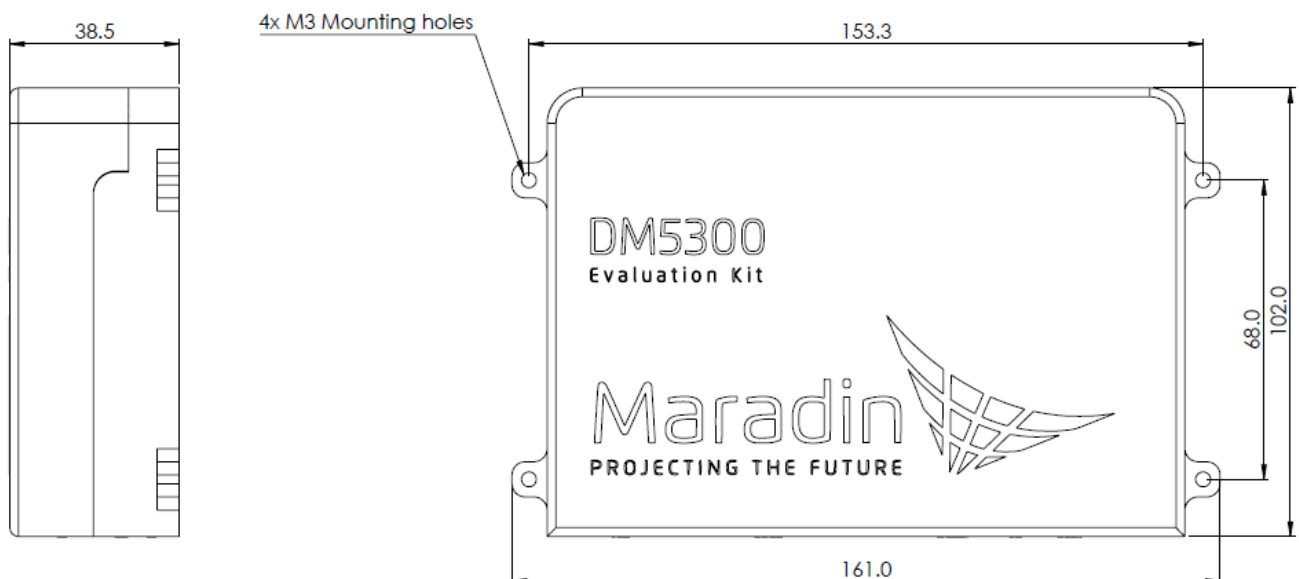


Figure 1: Controllers package mechanical drawing

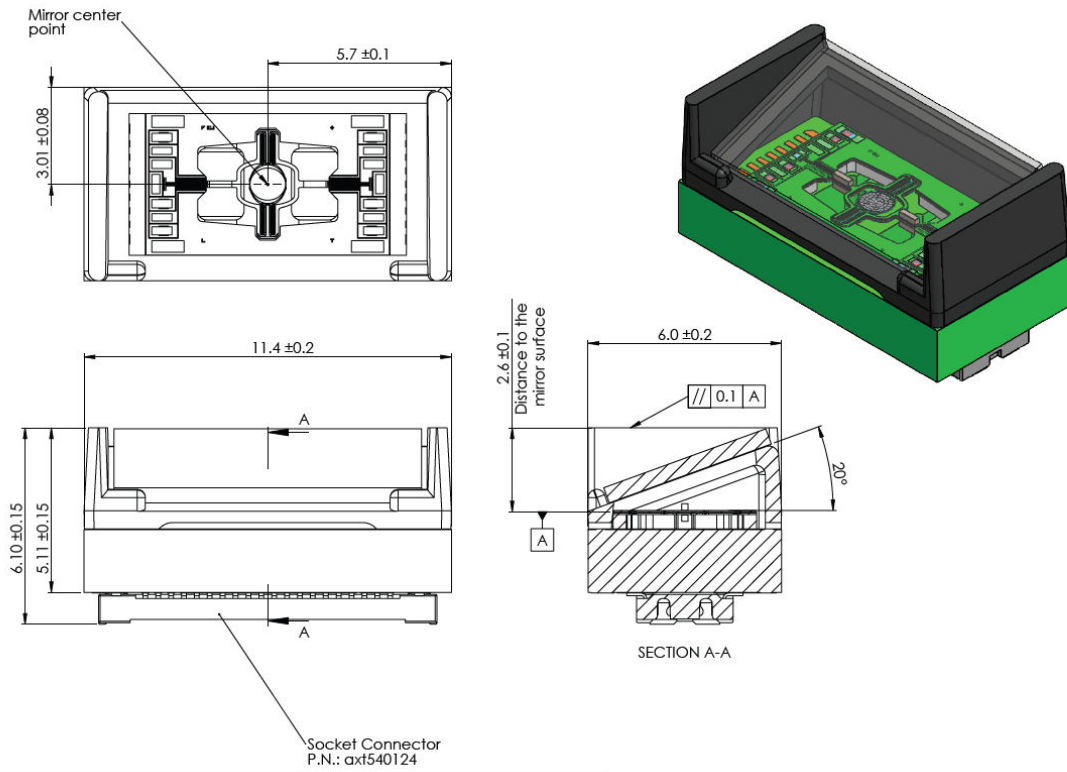


Figure 2: MAR1200.E mechanical drawing

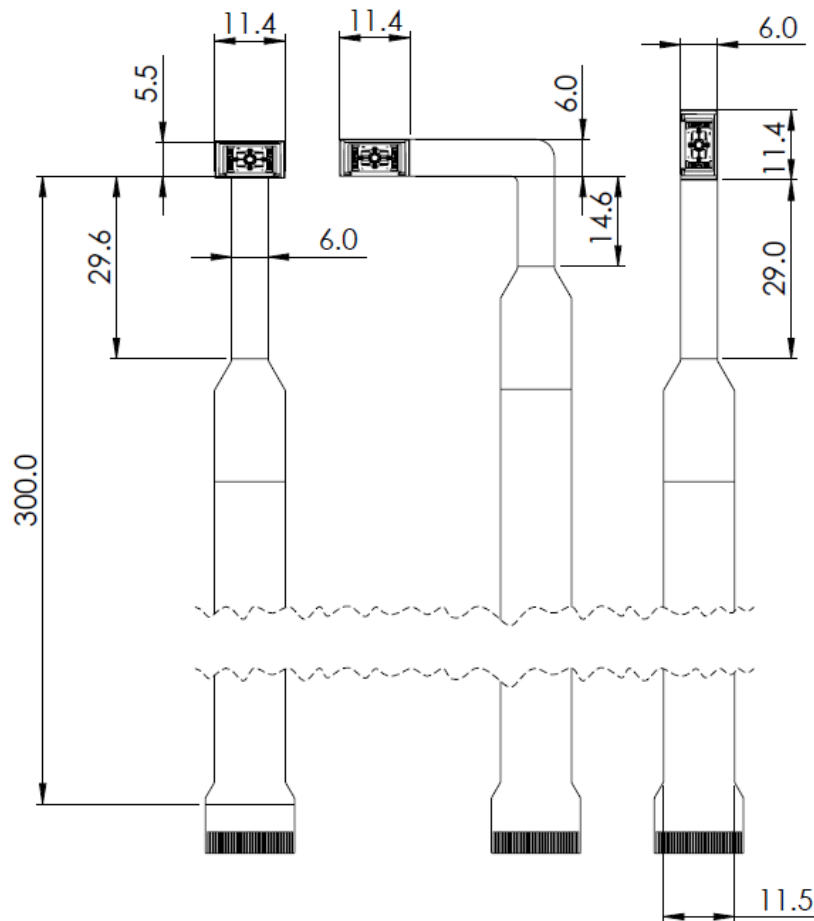


Figure 3: EL000350.X mechanical drawing (models from left to right: V, RA, and H)

#	Parameter	Min	Typical Value	Max	Unit	Remarks
Optical	Mirror reflectance		90	98	%	For 400~700nm
	Overall reflectance	84		94	%	Including package
	Wavelength range for reflection	400	400-700	1550	nm	
	Laser input diameter		0.7	0.8	mm	
	Laser max power			1000	mW	

Table 3: Optical properties

#	Interface	Comments
System power supply	12V/2A (Main Supply); 5.5x2.1mm Power jack	
Video interface	mini HDMI Interface (HDMI type C)	Input resolution: 1080p
Demo control application	USB to mini USB cable	Demo parameters configuration
General propose connector	Synchronization and Projection control signals output for external use	GPIO
Laser diodes	MAR3200 could drive up to 6 different laser diodes.	
Warping and tiled display interface	USB cable to control image warping correction and up to 2 tiled images	Warping and image Tiling is optional

Table 4: Electrical interfaces

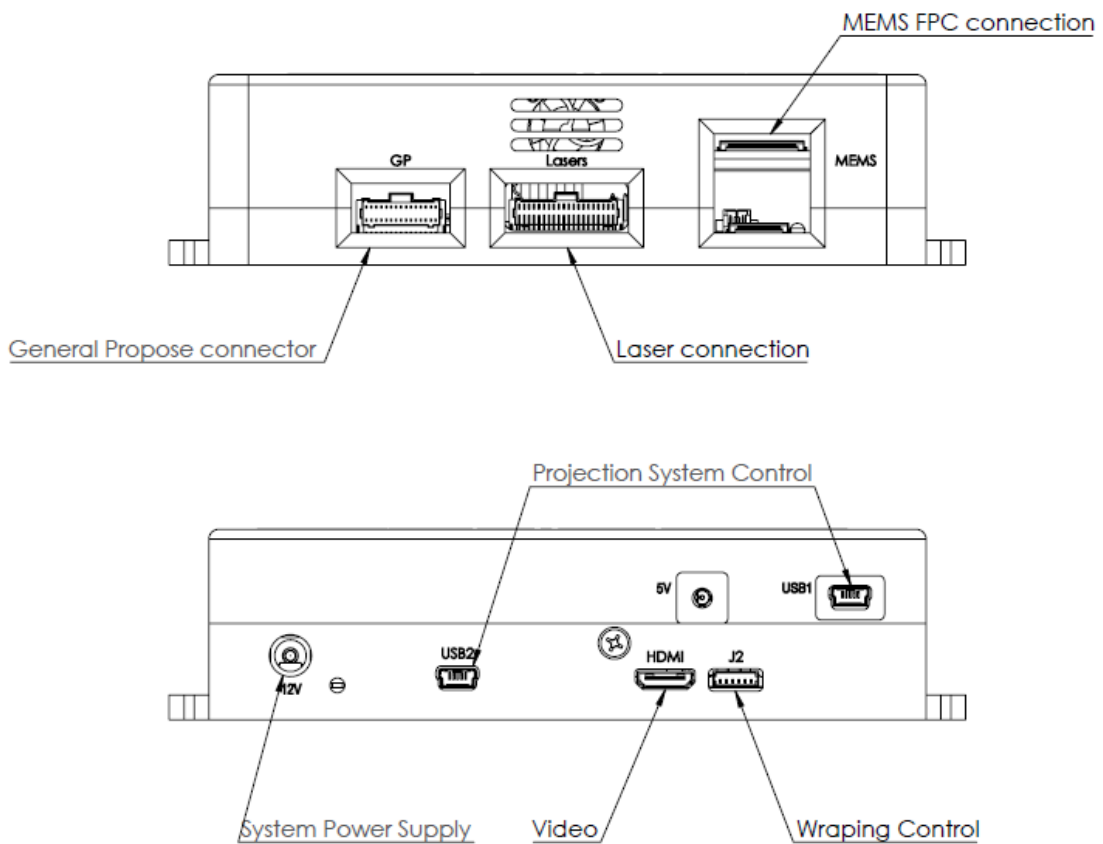


Figure 4: Controllers electrical interfaces

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