DM005220_SU250

MARADIN 2D MEMS BASED LASER PROJECTION EVALUATION KIT FOR AUTOMOTIVE

The DM005220_SU250 is the industry's first MEMS-based laser projection evaluation kit, supporting an all-in-one digital controller for laser scanner and video. The laser projection evaluation kit utilizes an automotive designed MAR1110.X MEMS scanning mirror, compact RGB laser module and electrical interfaces.

The MAR5220 laser projection evaluation kit revolutionizes MEMS and video control, to be a single chip solution, designed specifically for the demand of the automotive market. That being said, all interfaces are aligned to state-of-the-art automotive requirements, including CAN communication and FPD-Link III data protocol. The MAR5220 all-digital controller produces unprecedented operational stability despite temperature changes and MEMS manufacturing tolerances.
The DM5220_SU2500 is provisioned with a full Light Engine comprised of MAR1110.E, RGB lasers, and integral optics.

THE KIT INCLUDES:

- MAR5220 unify digital controller for MEMS and video + EL000335.X MEMS extender
- Light Engine module - MAR1110.E MEMS scanner optically packed with RGB lasers
- API for direct system control
- Windows demo control application

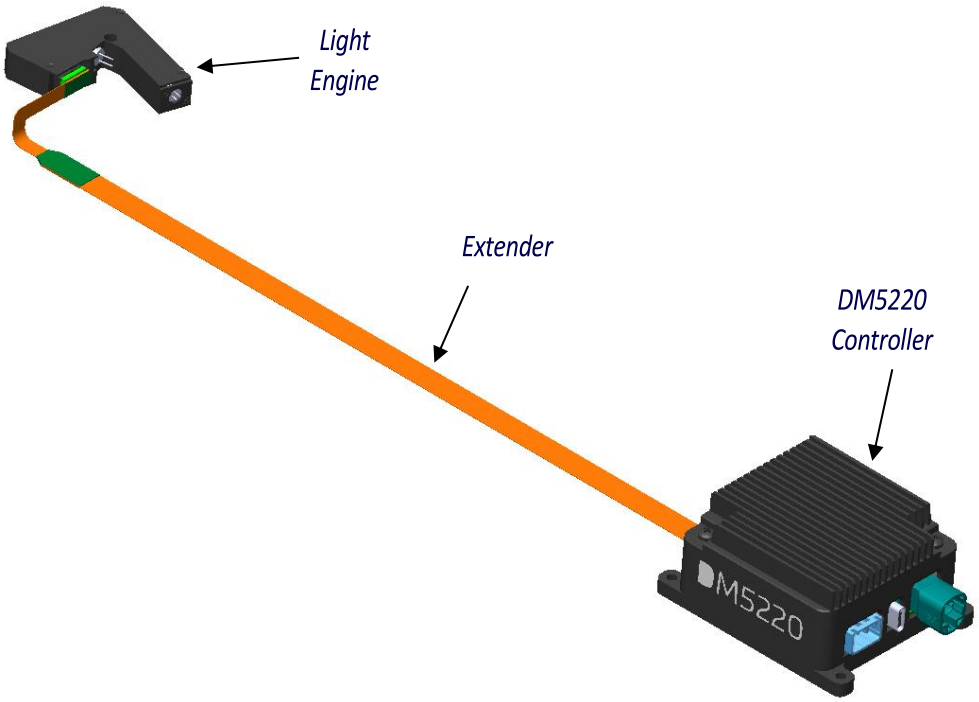

Figure 1: DM5220_SU250 – General View

SYSTEM CHARACTERISTICS

#	Parameter	Min	Typical Value	Max	Unit	Remarks
General	Scan type		Raster, interlaced			
	Frame rate	10	60	200	Hz	
	Video input type		LVDS			Via FPD link III
Image	Resolution (H)	1	1280	1920	Pixel	Horizontal
	Resolution (V)	240	480		Pixel	Vertical
	Optical angle (H)		45	45	Deg.	HFOV – image size
	Optical angle (V)		17	30	Deg.	VHOV – image size
	Throw ratio		1.2	1		Distance/diagonal FOV
	Color resolution		24		bit	RGB
	Position error			±0.5	Pix. (typ.)	Both vertical and horizontal

Table 1: Image Properties

#	Parameter	Min	Typical Value	Max	Unit	Remarks
Controller	LxWxH		83x63x36		mm	
	Mounting Holes diameter		3.4		mm	X4
Light Engine	LxWxH		46x44x10		mm	
	Mounting Hole diameter		2.4		mm	
	Mounting Threads		M2x0.4		mm	X2
MEMS (MAR1110.E)	LxWxH		10x5.5x5		mm	For additional info see MAR1110.X datasheet
	Effective mirror size (H)		1		mm	
	Effective mirror size (V)		1.1		mm	Vertical direction for Y torsion bar
MEMS Extender (FPC EL000335.X)	length		300		mm	
	Width			9.5	mm	Available models: V, RA, and H

Table 2: Physical Properties

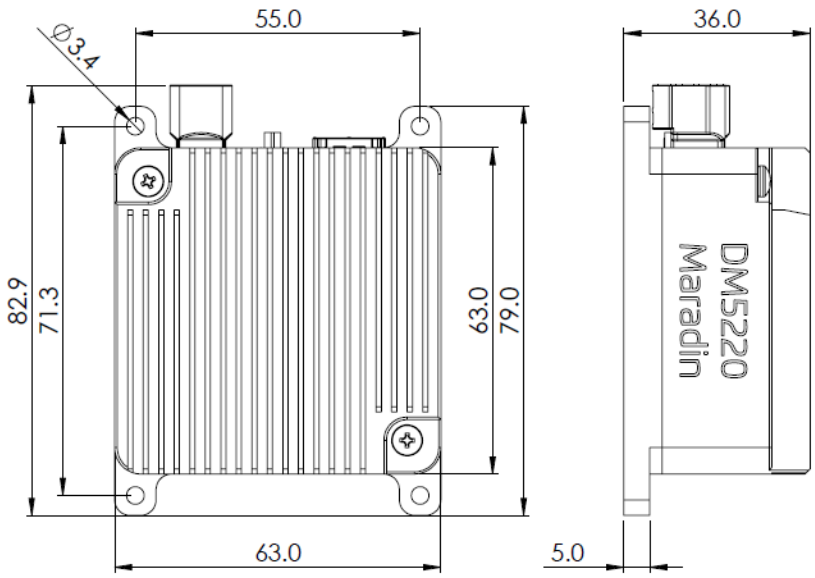

Figure 2: Controllers Package Mechanical Drawing

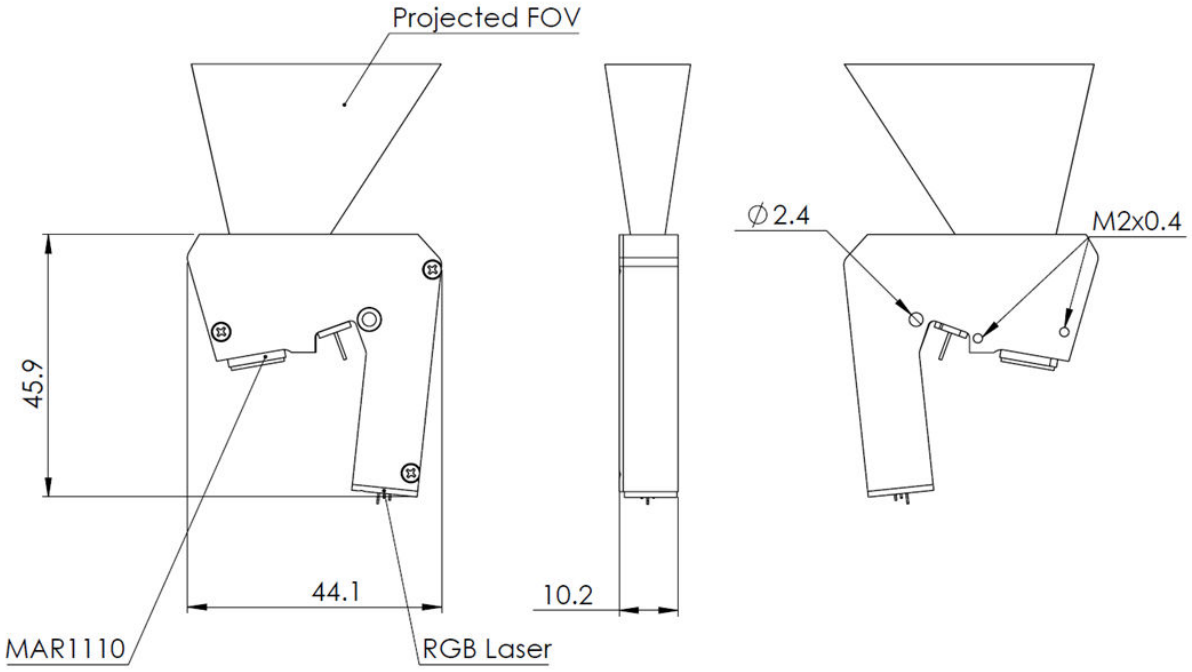

Figure 3: Light Engine Mechanical Drawing

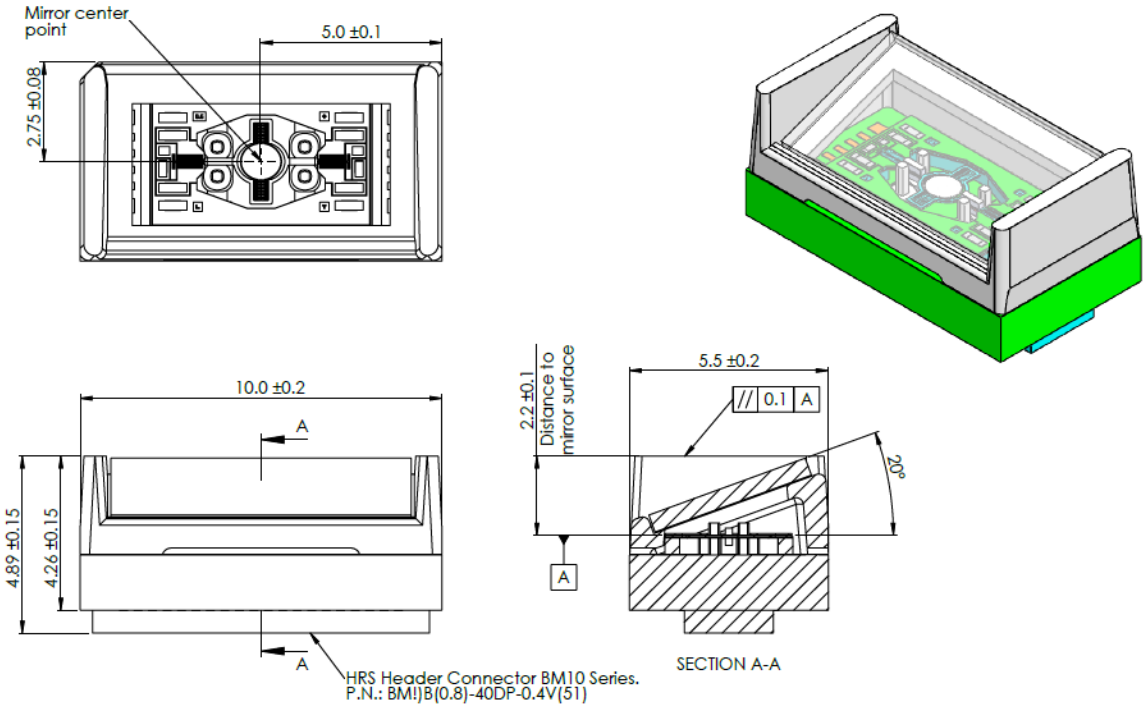

Figure 4: MAR1110.E Mechanical Drawing

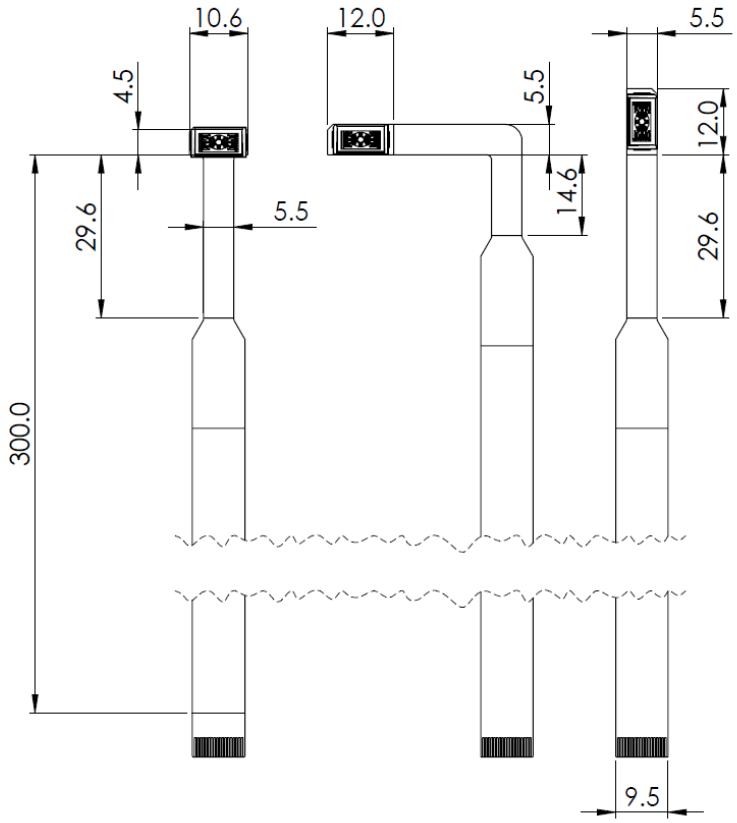

Figure 5: EL000335.X Mechanical Drawing (models from left to right: V, RA, and H)

#	Parameter	Min	Typical Value	Max	Unit	Remarks
Light Engine	Laser illumination	30	40	45	lm	
	Lasers wavelength (RGB)		635, 515, 450		nm	
MAR1110.X Optical Characteristics	Mirror reflectance		90	98	%	For 400~700nm
	Overall reflectance	83		94	%	Including package
	Wavelength range for reflection	400	450-640	1550	nm	
	Laser input diameter		0.7	0.8	mm	
	Laser max power			1.5	W	

Table 3: Optical Properties

#	Functionality	Interface details
CAN/PWR	Power supply	12V/2A; MX81A004NF2R300 – 4 pins Automotive connector
	System control communication via CAN bus	Basic system control MX81A004NF2R300 – 4 pins Automotive connector
USB	System control communication via UART	Demo parameters configuration USB type C connector
Video interface	Video input data via LVDS – FPD III	Input resolution: Typical 1280x480; Maximal 1920x1080 FAKRA high-speed data 4POS connector
Laser diodes	Laser diodes connection	Drive and control 3 different laser diodes – RGB

Table 4: Electrical Interfaces

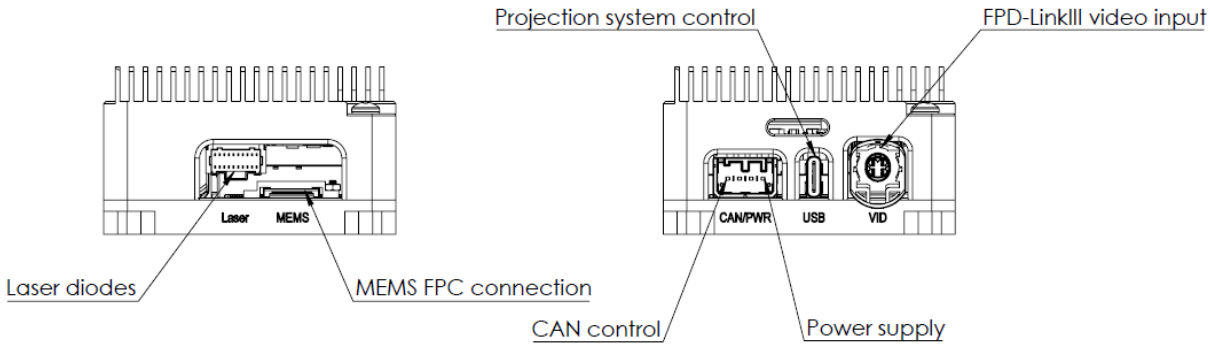

Figure 6: Controllers Electrical Interfaces

*** Upon special request, Maradin can quote and provide HDMI to FPD Link converter**

NOTICE

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