

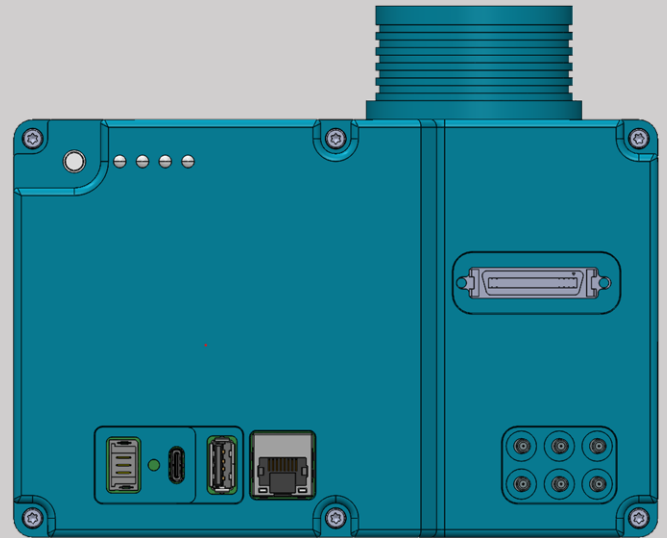
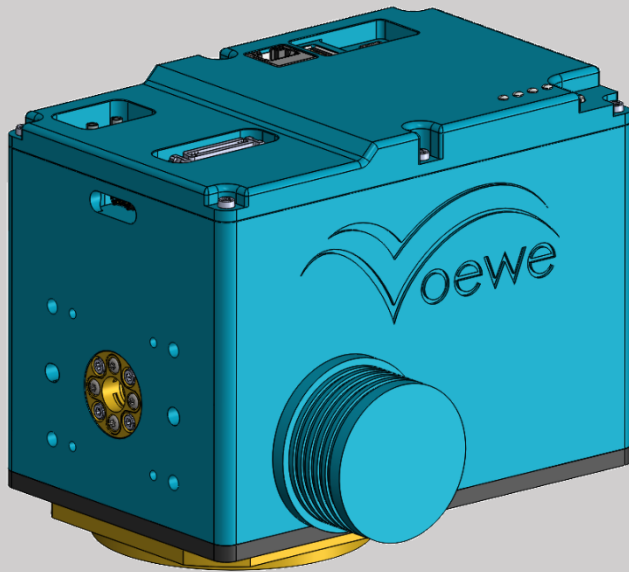
# Polygon mirror scanner PM10



Ultrafast 2D beam deflection

10 mm aperture

High throughput



MOEWE's polygon mirror scanners (PM) are designed for high throughput laser processing on the fly and in 2D applications. The PM10 is designed as a cost-efficient entry-level model for low and medium laser

## KEY FEATURES

- Patented low distortion double polygon mirror
- Free aperture of 10 mm
- 50 – 70 % duty cycle
- Ultra-fast scan speeds on the entire scanning field (no acceleration loss)
- Full digital, FPGA on-board data processing
- Bitmaps or line processing
- Real-time laser switching for highest accuracy

## Options and variants

### Optics

- 8 or 12 facets with  $\pm 30^\circ$  and  $\pm 15^\circ$  scan angle
- Utilize standard and customized f-theta lenses
- Easy exchange with adapter ring

### Hardware

- High speed laser trigger up to 100 MHz
- Position related pulse trigger

powers but well-known high-speed beam deflection. The PM10 stands out with a 10 mm aperture and proven real-time on-board data processing allowing highest accuracy for micro and macro processing.

## YOUR ADVANTAGES

- Two-dimensional beam deflection allows stand-alone utilization or machine integration (axis, roll-to-roll)
- Synchronization of two scanners on a single laser source (optional)
- Applications: Laser marking, micro structuring, Surface cleaning, Drilling, Cutting, spot welding, Engraving (2.5D) and much more

### Software

- Parameter or bitmap mode
- 32-bit greyscale processing, engraving 2.5D
- Synchronization of multiple scanners
- Real-time on the fly processing with external axis

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## General specifications

Power supply	Voltage	24 - 48 V <sub>DC</sub> , GND
	Power	max. 150 W
	Ripple/Noise	max.200 mVpp
Operating temperature		+18...+30°C
Humidity		20...90 % rel.H.
Wight		<10 kg
Size (LxWxH)		170 x 140 x 135

## Input / Output

Data transfer	1x	Gbit Ethernet
Configurable.	up to 6x digital	5 V @ 120 MHz
Laser I/O (SMB)	up to 6x analog	0...5 V @ 1 MHz
Axis I/O / GPIO	10 GPIO pins	2 axis inc. ABZ.

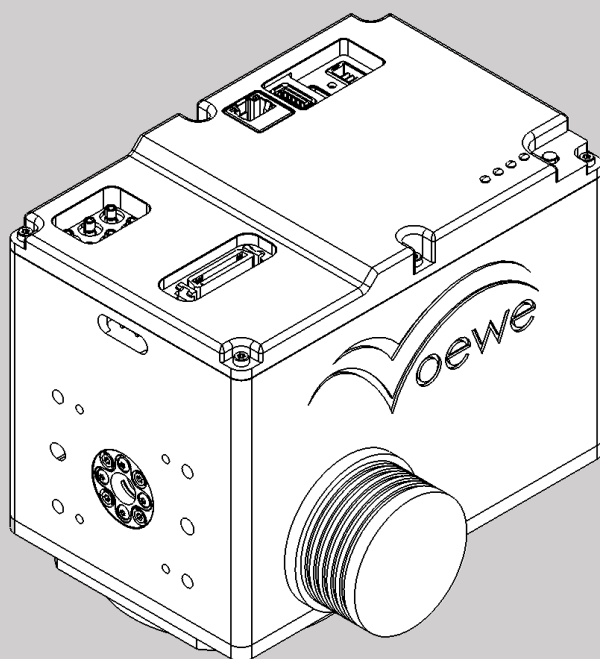
## Real-time FPGA processing

On-board memory	1-2 GByte
Scanning field	90 000 x 90 000 pixel
FPGA frequency	200 MHz, (5 ns)
Image Processing	BMP 1-bit (2D)
	BMP 8-32 bit (2.5D)

## Optical specifications

	Polygon mirror Primary axis	Galvo mirror Secondary axis
Max. deflection	± 525 mrad @ 8F (±30.12°) ± 263 mrad @ 12F (±15.11°)	up to ± 400 mrad (±22.54°)
Resolution	<2 µrad (24-bit)	< 4 µrad (20 bit)
Repeatability	< 12 µrad (RMS)	< 12 µrad (RMS)
Temp. Drift	< 24 µrad/8 hour	
Max. Lines / s	666 Hz @ 5,000 rpm, 8 facets	
	1,000 Hz @ 5,000 rpm, 12 facets	
Max. scan speed	440 m/s @ 5,000 rpm, 420 mm f-θ	
	270 m/s @ 5,000 rpm, 255 mm f-θ	
	170 m/s @ 5,000 rpm, 163 mm f-θ	
Speed boost	up to 10,000 rpm on request	
Wavelength	NIR >1,000 nm (Au)	
	VIS / UV or other on request	
Free Aperture	10 mm	

## Drawings



- A: M4 for lens adapter ring, max. screw-in 10 mm  
 B: M6 for scanner mounting, max. screw-in 10 mm  
 C: Ø 6 H7 x 20 for dowel pins ISO 2338-6 m6

