



PROMETHEUS 10MM LENS COLORIMETER

—
Specification

ADMESY

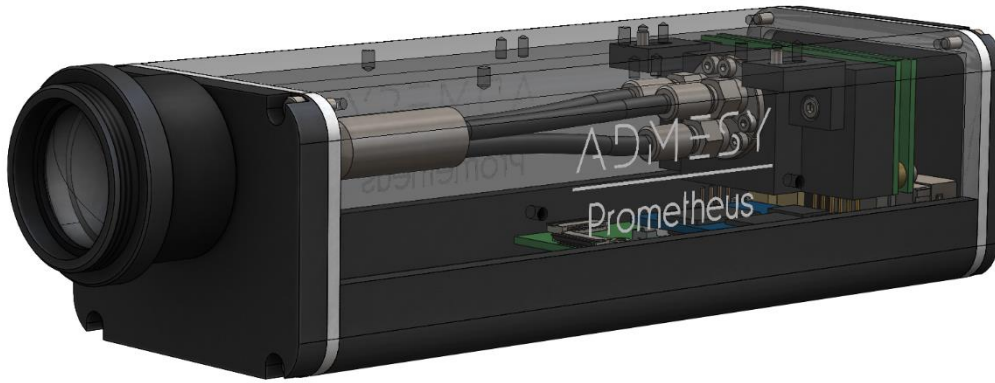
colorimeters | spectroradiometers | lightmeters

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PROMETHEUS

The Prometheus colorimeter offers a unique combination of high speed and accurate colour measurement capabilities packed in a robust package. In comparison to its predecessors, the Prometheus has highly accurate filter characteristics and compared to the hyperion a higher sampling speed and dynamic range.



The Prometheus colorimeter is available with a several different optics ranging from 2.1mm spot size to 27mm. A fiber version is also available with several optics, custom optics can be applied on request. Added to the improved filter characteristics the high sensitivity, ultra-low noise electronics and a huge dynamic range make it the ideal device for display measurements especially at low levels.

HIGHLIGHTS

- Highly accurate colour measurement according to human eye (CIE1931)
- Fast colour measurement even at low luminance level
- Flicker luminance (Y) function: 2500 samples/second
- Auto-range function
- Powerful MCU enables internal JEITA flicker calculation
- Mechanical shutter
- USBMTC standard compliant
- Windows, Linux and MAC OSX compatible
- Directly supported in Labview, LabWindows, Visual Studio via VISA library

STANDARDS

The Prometheus is compliant to the USBMTC standard and can be used in combination with external provided USBMTC compliant drivers. Currently it has been tested on Windows, Linux and Apple OSX using NI VISA (www.ni.com/visa) and using the open source drivers on Linux (i686, x86_64 and ARM).

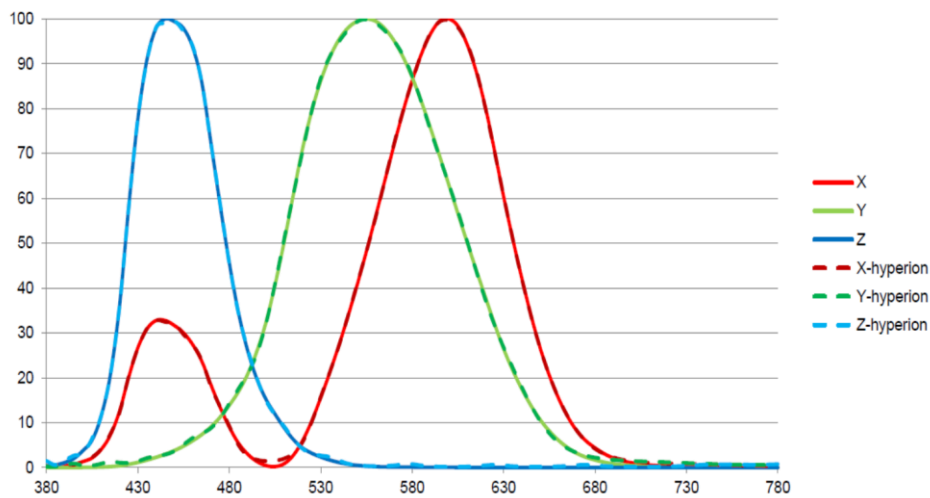
GENERAL SPECIFICATIONS

Interfaces	
USB 2.0	USBMTC compliant, SCPI command set, high speed device
RS 232	For PC and embedded purposes, using same command set as USB
Trigger in & out	5V compliant

Power ratings				
	Min voltage	Typical voltage	Max voltage	Max current
USB power	4.75V	5.00V	5.25V	300mA
9V power	8.75V	9.00V	9.25V	300mA

Measurement system	
Photo detector	3 silicon photo diode using XYZ interference filter
Spectral response	Approximates CIE 1931 colour matching functions
Measurement parameters	XYZ, Yxy, Yuv, correlated colour temperature (CCT), dominant wavelength DWL, Flicker, Response time
Size (HxWxD)	53x70x190 mm (without lens system)
Weight	~850 gram
Mounting	12 M3 thread holes spread over four sides

TYPICAL SPECTRAL SENSITIVITY



10 MM MEASUREMENT SPECIFICATIONS

Measurement system	
Optical system- focusing lens	Acceptance angle 5° (± 2.5)
Measurement spot size	18.7 mm at 100 mm distance 14.4 mm at 50 mm distance 10.2 mm at 1 mm distance
Flicker measurement speed (sample mode)	Luminance 2500 samples / second, XYZ 2500 samples / second Correct detected frequency of at least 1 Hz.
Colour measurement speed	Colour 22 ms or higher, depending on luminance level and frame frequency

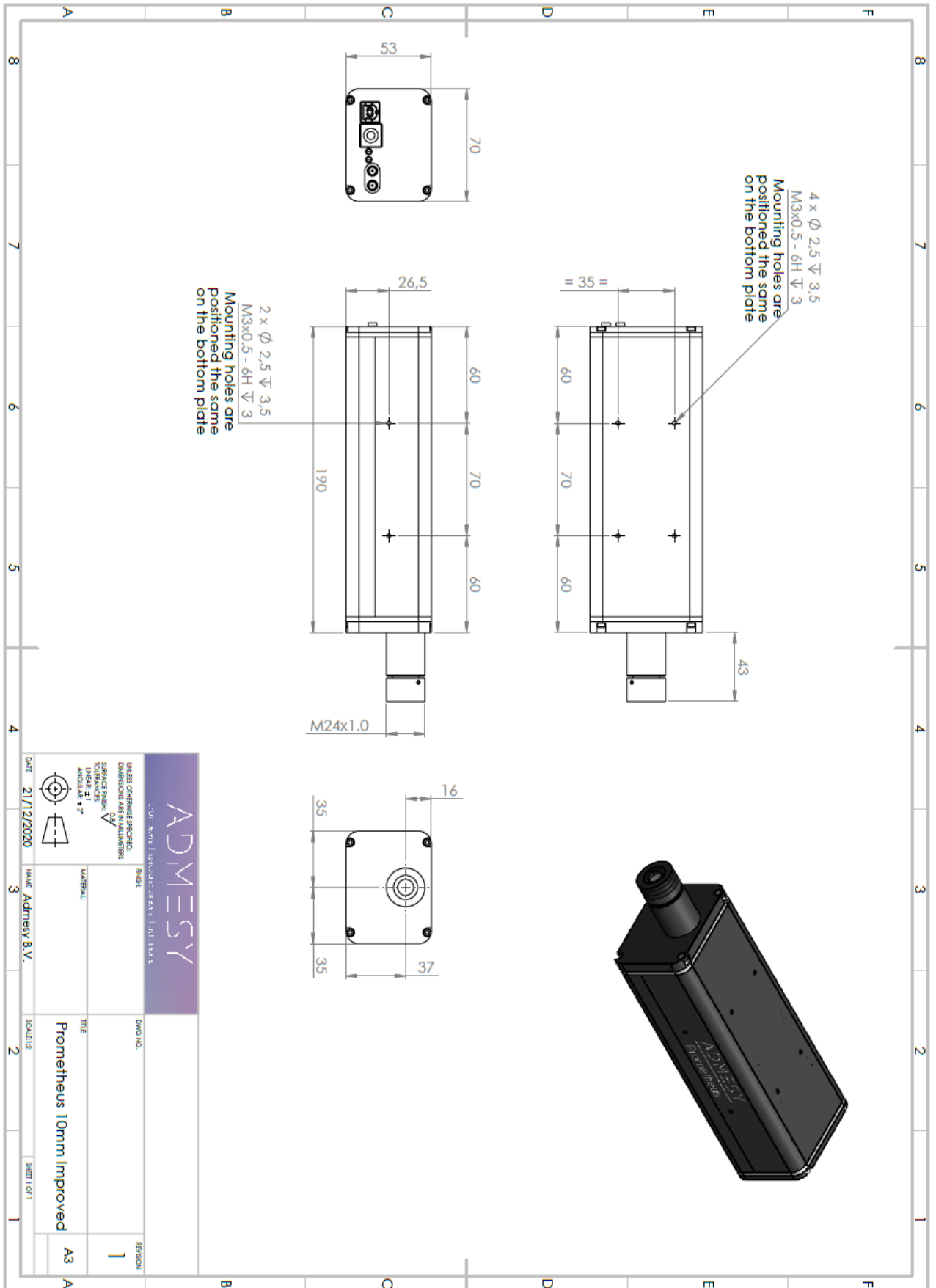
Sample mode signal frequency response	
Parameter	F _{3db} ^a
Gain 1	DC – 500 Hz
Gain 2	DC – 500 Hz
Gain 3	DC – 500 Hz

General	
Operating temperature	10-35°C ²
Shutter lifetime	> 1000000 h
Shutter speed	250 - 300 ms depending on temperature and lifetime

Specifications		Auto-range condition 1		Auto-range condition 2			
	Performance guarantee range	~0.003 to ~12000 Cd/m2					
Luminance		Spec	Max int time [μs]	Spec	Max int time [μs]		
	Accuracy(white)	~ 0.003 cd/m ²	+/-9%	1000000	—		
		~ 0.01 cd/m ²	+/-5%	1000000			
		~ 0.1 cd/m ²	+/-3%	100000			
		~ 1 cd/m ²	+/-1.5%	33333			
		~ 10 cd/m ²					
		100 ~ cd/m ²					
	Repeatability auto-range on (2σ) *1	~ 0.003 cd/m ²	4%	1000000	4%	1000000	
		~ 0.01 cd/m ²	1%	1000000	4%	250000	
		~ 0.1 cd/m ²	1%	100000	2%	50000	
		~ 1 cd/m ²	0.2%	33333	0.2%	33333	
		~ 10 cd/m ²					
~ 100 cd/m ²							
Chromaticity	Performance guarantee range	~0.01 to ~12000 Cd/m2					
	Accuracy (white)	~ 0.01 cd/m ²	+/- 0.006	1000000	—		
		~ 0.1 cd/m ²	+/- 0.002	1000000			
		~ 1 cd/m ²	+/- 0.0015	33333			
		~ 10 cd/m ²					
		~ 100 cd/m ²					
	Repeatability auto-range on (2σ) *1	~ 0.01 cd/m ²	0.0025	1000000	0.0025	1000000	
		~ 0.1 cd/m ²	0.0003	1000000	0.0025	100000	
		~ 1 cd/m ²	0.0003	100000	0.0004	33333	
		~ 10 cd/m ²	0.0002	33333	0.0002	33333	
		~ 100 cd/m ²					
	Flicker Wave-form	Sampling frequency	2500				
Memory for saving sampling data		30000 samples					
Max measurement time		12 seconds					
Dynamic range - luminance		1 - 12000					
Dynamic range - frequency		0.5 - 250					
Synchronization mode		ARFREQ					
Object under measurement (frequency)		0.5 - 250					

1 Measured with internal Admesy reference display.

PROMETHEUS 10 MM DIMENSIONS



		DATE: 21/12/2020	
NAME: Admesy B.V.		SCALE: 1:2	
DRAWING NO.:		SHEET TOP: 1	
TITLE: Prometheus 10mm Improved		REGION: 1	
MATERIAL:		A3	

ADMESY

colorimeters | spectroradiometers | lightmeters

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