hera
spectrometer

Contents

1 Hera: cost effective spectrometer for display measurements

The Hera 01 with lens is the ideal spectrometer for display measurements where ease of use, stability, performance and price are essential. A perfect solution for hassle free integration in production processes.
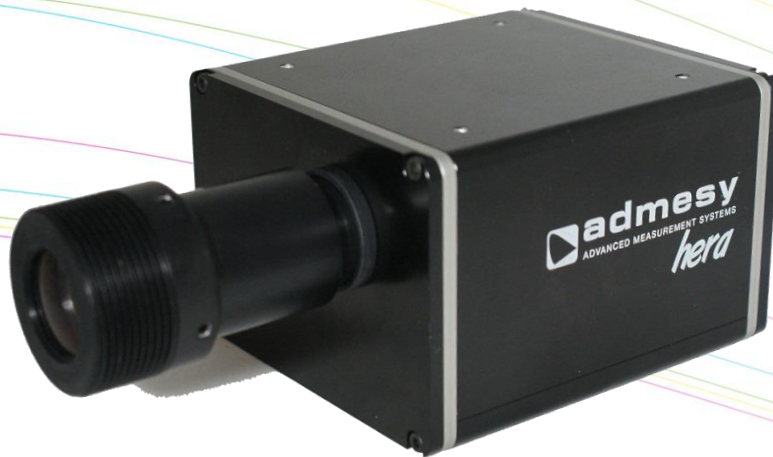
2 Highlights

- Spectral range 380-780nm
- Spectral output or colour values output are both possible
- Autorange function
- Luminance range of 0.05 – 6000 cd/m²
- Excellent linearity over entire dynamic range
- Dark current compensated, virtually zero over entire integration range
- Holographic grating for low stray light
- USBTMC compliant, SCPI command set, high speed device
- Numerous interfaces, ideal for system integration
- All spectral calculations are done inside
- Several lens system options
- Robust housing

3 Speed & ease of use

Admesy strongly believes in developing and manufacturing devices where ease of use and speed are key factors. In order to achieve these aspects, Admesy considers the following aspects of spectrometers to be taken care of.

- Wavelength calibration
- Dark current
- Linearity
- Absolute calibration

Calculations and compensations are done in a staggering 14ms. All this is possible due to the high speed processor inside the Hera combined with algorithms developed for this specific device. In production processes, no external calculation power is needed from computers. Data can be used directly in production settings without any delay of processing data afterwards. This saves time and processing power of the operating system of a production line. Additional feature is the Hera's autorange function: the most ideal integration time is chosen automatically. Manually, the integration time can be changed.

4 General specification Hera 01

Hera 01	
Model	Hera 01 – VIS
Spectral range	380-780nm
Optical resolution (FWHM)	2.3nm
Order sorting filter	2nd order sorting filter
Wavelength accuracy	+/- 0.5nm
Stray light	<0.2% (measured at 400nm with 455nm cut-off filter with broadband light source)
Luminance accuracy [1]	+/-2%
Chromaticity accuracy [1]	+/- 0.0015
Non–Linearity	< 1%
Integration time	1.3ms – 20s
Spectral resolution	Selectable 0.5nm-1nm-2.5nm-5nm-10nm
Interfaces	High speed USB, RS232, Ethernet, Trigger connections
Measurement parameters	Spectral output, radiometric data or colour data (Lumen, x,y, DWL, PWL, CRI, CCT, etc.)
Data processing time	14ms
Size (LxWxH)	95 x 81 x 61mm (without optical system)
Weight	650 gram
Operating temperature	10-35°C
Power consumption	1250mW
Wavelength accuracy	+/-0.5nm

1 After calibration to the working standard

5 Hera lens specifications

The Hera series is available with several lens systems, available as fixed optics and optics with fibers. For fiber connections, Admesy uses M8 connectors. This connector has been developed to connect the optical fiber in a consistent way to ensure the best possible repeatability.

Model	1	2	3	4	5
Description	20mm lens	10mm lens	5mm lens	IDMS	VMS
Target	Display	Display	Display	Display	Variable message signs
FOV [1]	N/a	N/a	N/a	+/-1º	+/-1.5º
Acceptance angle	+/-0.3º	+/-0.6º	+/-0.6º	+/-1º	+/-0.5º
Luminance range (cd/m²)	0.1 – 6000	0.1 – 6000	0.4 – 20,000	TBD	TBD
Working distance (WD)	100mm	100mm	100mm	100mm	1910mm
Spot size at WD	21mm	12.6	7.7	11.4	106
Spot size at WD – 50mm	20.5mm	11.3	6.3	9.6	103.6
Spot size at WD +50mm	21.5mm	13.9	9.1	13.2	108.6

1 Models 1, 2 and 3 are collimating lens systems and can be used closely to the display.

6   Speed & performance, Hera 01 20mm

Measurement parameters	
Used target display	LCD display with LED backlight
Spectral resolution	1nm
Average	1
Autorange function	Off
Temperature	24⁰

Repeatability[1] [2]			
Luminance level	**Luminance (2 sigma)**	**Colour (2 sigma)**	**Measurement time (ms)**
250cd/m²	<0.3%	+/- 0.0005	50
10cd/m²	<0.5%	+/- 0.0005	1000
1cd/m²	<3%	+/- 0.002	2000
0.25cd/m²	<3%	+/- 0.002	5000

1 Speed and repeatability are directly related to each other; a lower repeatability can increase speed and vice versa.

2 Measurements are real life taken measurement and can vary slightly from device to device.
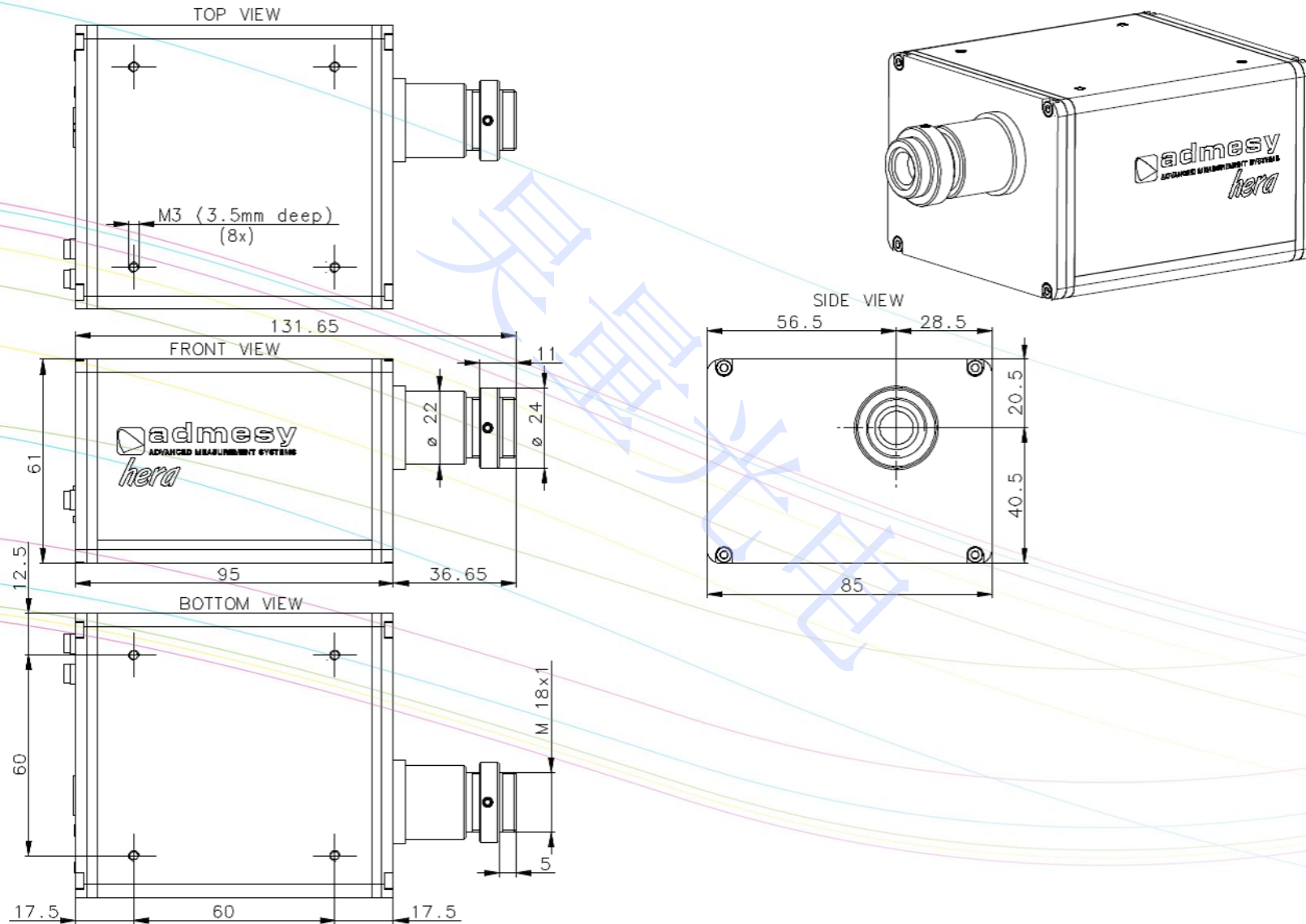
Results for the 10mm hera are the same as for the 20mm, for the 5mm above luminance levels should be multiplied by 4.
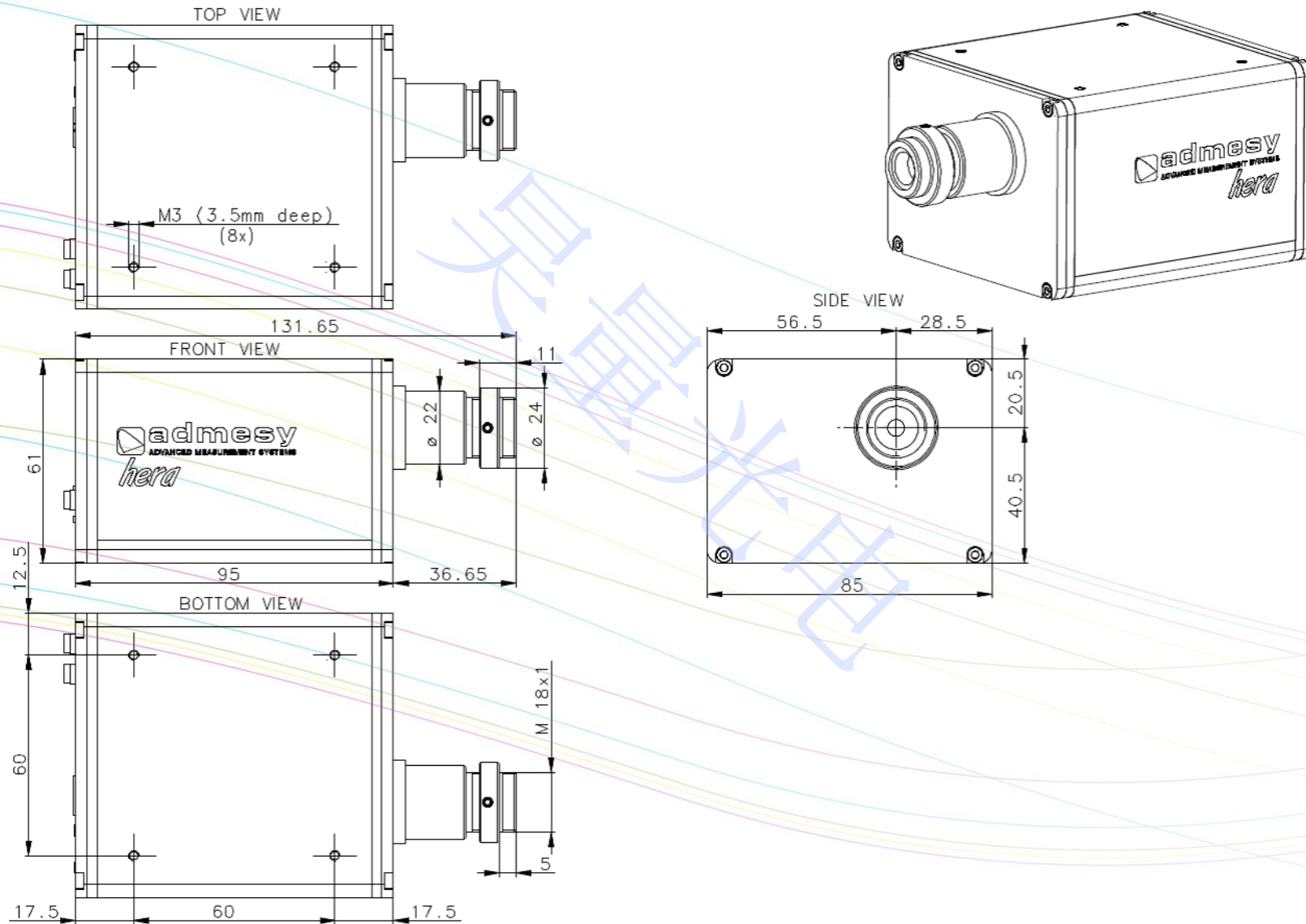
7　Hera 20mm dimensions

8 Hera 10mm dimensions

9 Hera 5mm dimensions

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