

# Luminance Meters LMT L 1000



- Universal precision luminance meter
- Class A luminance meter (according to DIN 5032 part 7)
- Angular fields selectable (3°, 1°, 20', 6'), Option: Special angular fields (2', 2'x20', 3'x10')
- Display range from  $2 \times 10^7$  cd/m<sup>2</sup> to 0.0001 cd/m<sup>2</sup>
- 6 decade-stepped ranges
- Fine  $V(\lambda)$ -approximation of the photometer head with certificate
- Measuring distance focusable from 0.50 m to  $\infty$ , with close-up lens from 0.10 m
- 3½-digit display incorporated in view-finder and at external display
- High-speed telescopic view-finder
- Excellent longtime stability
- Analog output 0-2 V, V.24- (RS 232-) interface
- Built-in rechargeable battery for mains- independent operation



# Luminance Meter Series LMT L 1000

Technical Data according to DIN 5032 part 8 and and CIE S023/E:2013

<b>Marking</b>	LMT L 1000 Luminance Meter Series							
<b>Field of application</b>	Laboratory and high precision measurement of luminance							
<b>Classification</b>	Class A luminance meter according to DIN 5032 part 7 for 3°- and 1°-field							
<b>Display range / Angular fields</b>	<b>Angular field</b>	<b>L 1003</b>		<b>L 1009</b>		<b>all versions</b>		
		Luminance (cd/m <sup>2</sup> )		Luminance (cd/m <sup>2</sup> )		Area (mm)		
		<b>max</b>	<b>min</b>	<b>max</b>	<b>min</b>	<b>min</b>	<b>lens 2</b>	<b>lens 1</b>
	3°	1999 x 10 <sup>1</sup>	1 x 10 <sup>-4</sup>	1999 x 10 <sup>1</sup>	1 x 10 <sup>-4</sup>	27 ∅	12.5 ∅	4.5 ∅
	1°	1999 x 10 <sup>2</sup>	1 x 10 <sup>-3</sup>	1999 x 10 <sup>2</sup>	1 x 10 <sup>-3</sup>	9.0 ∅	4.2 ∅	1.5 ∅
	20'	1999 x 10 <sup>3</sup>	1 x 10 <sup>-2</sup>	1999 x 10 <sup>3</sup>	1 x 10 <sup>-2</sup>	3.0 ∅	1.4 ∅	0.5 ∅
	6'	-	-	1999 x 10 <sup>4</sup>	1 x 10 <sup>-1</sup>	1.0 ∅	0.5 ∅	0.18 ∅
	2' (Opt. 20)	-	-	1999 x 10 <sup>5</sup>	1	0.4 ∅	0.2 ∅	0.08 ∅
	2' x 20' (Opt. 21)	-	-	1999 x 10 <sup>4</sup>	1 x 10 <sup>-1</sup>	0.4 x 3.0	0.2 x 1.4	0.08 x 0.5
3' x 10' (Opt. 22)	-	-	1999 x 10 <sup>4</sup>	1 x 10 <sup>-1</sup>	0.5 x 1.5	0.3 x 0.7	0.1 x 0.3	
6 ranges graduated in steps of ten, all ranges overload protected								
<b>Photometer</b>	· Ultra-stable Si-photoelement with fine V(λ)-adaption and individual test certificate							
<b>Display Unit</b>	<ul style="list-style-type: none"> <li>· Transducer: precision operational amplifier</li> <li>· Integration time: 100 ms, t<sub>a</sub> = 200 ms, or 500 ms, t<sub>a</sub> = 1 s in the most sensitive range</li> <li>· Conversion rate of A/D-converter: about 2.5 readings</li> <li>· Switching time of autoranging system: 400 ms</li> <li>· Time of response t<sub>max</sub>: 1.0s , or 1.8 s in the most sensitive range</li> <li>· Display: LED display in the finder and at control panel with dimmer 0 – 1999 digit with decimal point and exponent value manually, automatically or remote controlled</li> <li>· Range selection: manually, automatically or remote controlled</li> <li>· Digital data output: RS 232 interface or BCD output (on request only)</li> <li>· Analogue output: 0 – 2000 mV, source resistance 1000 Ω</li> <li>· Electrical operated: by rechargeable battery or by mains with supply converter</li> <li>· Specials: rechargeable battery with charging control circuit, deep-discharge protection and automatic charging unit, stand-by modus, reading hold function, ¼" tripod thread</li> </ul>							
<b>Maximum errors and qualities according to DIN EN 13032-1, DIN 5032-7 and CIE S023/E:2013</b>	<ul style="list-style-type: none"> <li>· V(λ)-adaption: f<sub>1</sub>' &lt; 2.5 %, typically &lt; 2.0%</li> <li>· UV-response: u &lt; 0.1 %</li> <li>· IR-response: r &lt; 0.1 %</li> <li>· Directional response: f<sub>2(g)</sub>' &lt; 2.0 % for 3° and 1°</li> <li>· Effect of surrounding field: f<sub>2(u)</sub>' &lt; 0.5 %, typically &lt; 0.3%</li> <li>· Error by non-linearity: f<sub>3</sub>' &lt; 0.15 % ± 1 digit</li> <li>· Error by display-unit: f<sub>4</sub>' &lt; 0.6 %</li> <li>· Temperature coefficient: α<sub>0</sub> &lt; 0.05 %/K</li> <li>· Fatigue: f<sub>5</sub>' &lt; 0.1 %, measured at 10000 cd/m<sup>2</sup></li> <li>· Error due to modulated light: f<sub>7</sub>' &lt; 0.1 %</li> <li>· Polarization: f<sub>8</sub>' &lt; 0.4 %</li> <li>· Range change: f<sub>11</sub>' &lt; 0.15 %</li> <li>· <b>Total error:</b> f<sub>11</sub>' &lt; <b>7.5 % (class A) for 3° and 1° field</b></li> <li>· Lower frequency limit: f<sub>u</sub>' &lt; 25 Hz</li> <li>· Upper frequency limit: f<sub>o</sub>' &gt; 100 kHz</li> </ul>							
<b>Calibration</b>	<ul style="list-style-type: none"> <li>· Against Standard Illuminant A and 25°C, re-calibration period &lt; 2 years / PTB traceable</li> <li>· Relative expanded measurement uncertainty includes the uncertainty of the standard employed of 0,8%</li> <li>· Calibration in cd/m<sup>2</sup></li> </ul>							
<b>Electrical supply</b>	<ul style="list-style-type: none"> <li>· Rated supply voltage: 100...230 V AC with supply converter</li> <li>· Power consumption: mains operation &lt; 6 VA, battery operation &lt; 0.5 W</li> <li>· Rated frequency: 50 Hz, range 45 to 60 Hz (mains supply)</li> </ul>							
<b>Environmental specifications</b>	<ul style="list-style-type: none"> <li>· Operating temperature range: 0 to +50°C</li> <li>· Storage temperature range: -5 to +50°C</li> <li>· Relative humidity: 10 to 90 %, non condensing</li> </ul>							
<b>Dimensions</b>	· Instrument: 240 mm x 160 mm x 110 mm (L x W x H, without handle)							
<b>Weight</b>	· Instrument: approximately 2.4 kg , 6 kg with accessories and case							