

# Photometer LMT Photometer Unit 1600 AMR



- Highest accuracy photometer for high speed, computer controlled measurements of light sources in conjunction with LMT goniometers
- Selectable integration times suitable for goniometer-based testing of both modulated and non-modulated light sources
- Precision SP 30 SOT AMR photometer head with integrated amplifiers and calibration circuit, suitable for use with cable lengths of up to 50m
- Quality index for  $v(\lambda)$ -mismatch typically  $\leq 0.8\%$  by means of LMT Mosaic Filtering® with individual test certificate
- Resolution for illuminance as low as 0.0001 lx
- Up to 3 separate inputs, calibration in lx and cd
- Computer coupling via IEEE-488 interface with LMT goniometers



# LMT Photometer-Unit 1600 AMR

## Technical Data in imitation of DIN 5032 part 8

<b>Marking</b>	LMT Photometer-Unit 1600						
<b>Field of application</b>	Laboratory and high precision measurement of illuminance in combination with LMT goniometers						
<b>Display range</b>	<b>Number of Ranges</b>	<b>3.16 m</b>		<b>10 m</b>		<b>25 m</b>	
		<b>max</b>	<b>min</b>	<b>max</b>	<b>min</b>	<b>max</b>	<b>min</b>
	6	16 x 10 <sup>5</sup> cd	0.001 cd	16 x 10 <sup>6</sup> cd	0.01 cd	16 x 10 <sup>7</sup> cd	0.1 cd
Ranges graduated in steps of ten, all ranges overload protected							
<b>Photometer Head</b>	<ul style="list-style-type: none"> <li>• SP 30 SOT AMR with ultra-stable Si-photoelement and built-in amplifier</li> <li>• Spatial evaluation: without cos-correction (basic)</li> <li>• Thermostatic stabilization: built-in</li> <li>• Light sensitive surface: 30 mm diameter (SP 30 SOT)</li> <li>• Quality index for v(λ)-mismatch: typically ≤ 0.8 % by means of LMT Mosaic Filtering® with individual test-certificate</li> </ul>						
<b>Measuring Console</b>	<ul style="list-style-type: none"> <li>• Transducer: precision operational amplifier</li> <li>• Integration time: fast mode: 1 ms, t<sub>a</sub> = 2 ms</li> <li>• Conversion rate of A/D-converter: &gt; 1000 readings/s</li> <li>• Switching time of autoranging system: 100 ms</li> <li>• Time of response t<sub>max</sub>: 0.05 to 0.2 s (depends on option and range)</li> <li>• Display: LED display, 0 – 32383 digit with decimal point and exponent value and unit display</li> <li>• Range selection: manually, automatically or remote controlled</li> <li>• Digital data output: IEEE-488 bus interface</li> <li>• Analogue output: 0 – 1600 mV, source resistance &lt; 500 Ω</li> <li>• Electrical operated: mains</li> <li>• Specials: up to five calibration settings selectable (option)</li> </ul>						
<b>Maximum errors and qualities in imitation of DIN 5032 part 6 and 7</b>	<ul style="list-style-type: none"> <li>• v(λ)-adaption: f<sub>1</sub>' &lt; 1.0 % (SP 30 SOT AMR)</li> <li>• UV-response: u &lt; 0.1 %</li> <li>• IR-response: r &lt; 0.1 %</li> <li>• Spatial evaluation: f<sub>2</sub> – (no cosine correction)</li> <li>• Error by non-linearity: f<sub>3</sub>' &lt; 0.1 % ± 1 digit</li> <li>• Error by display-unit: f<sub>4</sub>' &lt; 0.15 %</li> <li>• Temperature coefficient: α<sub>0</sub> &lt; 0.01 %/K</li> <li>• Fatigue: f<sub>5</sub>' &lt; 0.1 %, measured at 2000 lx</li> <li>• Error due to modulated light: f<sub>7</sub>' &lt; 0.1 %</li> <li>• Range change: f<sub>11</sub>' &lt; 0.1 %</li> <li>• <b>Total error:</b> f<sub>ges</sub>' &lt; <b>3.0 % (class L) with head SP 30 SOT AMR</b></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 ±0,7 % and ±7 K according to PTB certificate</li> <li>• Standard calibration in lx</li> </ul>						
<b>Electrical supply</b>	<ul style="list-style-type: none"> <li>• Rated supply voltage: 230 V ± 10 %, 115 V ± 10 %</li> <li>• Power consumption: &lt; 40 VA</li> <li>• Rated frequency: 50 Hz, range 45 to 65 Hz (mains supply)</li> </ul>						
<b>Environmental specifications</b>	<ul style="list-style-type: none"> <li>• Operating temperature range: +5 to +40°C</li> <li>• Storage temperature range: +5 to +40°C</li> <li>• Transportation temperature range: –5 to +50°C</li> <li>• Relative humidity: &lt; 70 %, non condensing</li> </ul>						
<b>Dimensions</b>	<ul style="list-style-type: none"> <li>• Measuring console: 450 mm x 135 mm x 365 mm (W x H x D)</li> <li>• Photometer head: 120 mm x 130 mm x 282 mm (W x H x D)</li> <li>• Length of cable: 5 m standard, lengths up to 50 m optional</li> </ul>						