

# Tristimulus Colorimeter LMT C 1210



- Highest accuracy tristimulus colorimeter for absolute measurements of light sources and self-luminant objects, especially SSL products
- Spectral adjustment to the CIE color matching functions by LMT Mosaic Filtering® of highest accuracy
- Simultaneous acquisition and integral determination of X, Y, Z tristimulus values eliminating measurement errors caused by fluctuations in test object characteristics over time
- Display of tristimulus values X, Y, Z chromaticity coordinates x, y and illuminance Y (standard); correlated color temperature and MPCD (optional)
- Resolution for illuminance as low as 0.001lx
- Computer interfaces and LMT colorimetrics software for rapid and precise determination of the colorimetric properties of lamps and luminaires in conjunction with LMT goniometers and LMT integrating spheres

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## Technical Data in imitation of DIN 5032 part 8



<b>Marking</b>	LMT C 1210 Tristimulus Colorimeter		
<b>Field of application</b>	Laboratory and high precision measurements on light sources, evaluation of tristimulus values X-Y-Z, chromaticity coordinates x, y, and correlated colour temperature T <sub>cp</sub> (opt.07)		
<b>Display range</b>	<b>Version</b>	<b>Number of Ranges</b>	<b>Reading</b>
			<b>max</b>
			<b>min</b>
	Standard	6	600 klx
	Option 05	7	600 klx
	ranges graduated in steps of ten, all ranges overload protected		
<b>Colorimeter Head</b>	<ul style="list-style-type: none"> <li>· CH 60 with ultra-stable Si-photoelements</li> <li>· Connection to display and evaluation unit by plug-in cable</li> <li>· Thermostatic stabilization: built-in</li> <li>· Light sensitive surface: 60 mm diameter (CH 60), 30 mm diameter on request (CH 30)</li> <li>· Special equipment: individual test-certificate</li> </ul>		
<b>Measuring Console</b>	<ul style="list-style-type: none"> <li>· Transducer: precision operational amplifier in three channels</li> <li>· Integration time: 200 ms, t<sub>a</sub> = 400 ms, (standard) or 100 ms, t<sub>a</sub> = 200 ms (at ranges 5 and 6)</li> <li>· Conversion rate of A/D-converter: 4-5 readings/s</li> <li>· Switching time of autoranging system: 1 s</li> <li>· Time of response t<sub>max</sub>: 1.4 s, 1.2 s for ranges 5 and 6</li> <li>· Display: LED display, 3 x 0 – 9999 digit with decimal point, exponent value and mode of operation display</li> <li>· Range selection: manually, automatically or remote controlled</li> <li>· Digital data output: IEEE-488 bus interface (Option 02) V.24- (RS 232-) interface (Option 03)</li> <li>· Electrical operated: mains</li> <li>· Attenuator / multiplier: 4-digit attenuator, disconnectable</li> <li>· Specials: Printer (Option 06))</li> </ul>		
<b>Maximum errors and qualities in imitation of DIN 5032 part 6 and 7</b>	<ul style="list-style-type: none"> <li>· <math>\bar{x}(\lambda)</math>-adaption: f<sub>1x</sub> &lt; 1.5 %</li> <li>· <math>\bar{y}(\lambda)</math>-adaption: f<sub>1y</sub> &lt; 1.0 %</li> <li>· <math>\bar{z}(\lambda)</math>-adaption: f<sub>1z</sub> &lt; 2.0 %</li> <li>· UV-response: u &lt; 0.1 %</li> <li>· IR-response: r &lt; 0.1 %</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; 0.15 %</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 % (referring to Y-channel)</li> <li>· Total error: f<sub>ges</sub> &lt; 3.0 % (referring to Y-channel)</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 ±0,7 % and ±7 K according to PTB certificate</li> <li>· Standard calibration in lx (Y-channel)</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 60 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: -15 to +60°C</li> <li>· Relative humidity: 10 to 85 %, non condensing</li> </ul>		
<b>Dimensions</b>	<ul style="list-style-type: none"> <li>· Measuring console: 365 mm x 450 mm x 135 mm (L x W x H)</li> <li>· Colorimeter head: 82 mm in diameter, height approximately 225 mm</li> <li>· Length of cable: 3 m standard, different lengths as option</li> </ul>		
<b>Weight</b>	<ul style="list-style-type: none"> <li>· Measuring console: approximately 8 kg</li> <li>· Colorimeter head: approximately 1.5 kg</li> </ul>		