

Main Specifications of CA-410 Probes

		Small Spot Probe	CA-VP404	LWD Probe		
		CA-VP402	CA-VP404	CA-VP410T		
Measurement area		Ø 2.1 mm	Ø 4 mm	Approx. Ø 10 mm		
Acceptance angle		±10°	±8.5°	± 4°		
Accuracy guaranteed measurement distance		28 ± 2 mm	30 ± 2 mm	200 ± 2 mm		
Display range	Luminance ¹	0.0001 to 6,000 cd/m ²	0.0001 to 12,000 cd/m ²	0.0001 to 12,000 cd/m ²		
	Chromaticity	Displayed in 4 digits	Displayed in 4 digits	Displayed in 4 digits		
Luminance	Accuracy guaranteed range ²	0.002 to 6,000 cd/m ²	0.004 to 12,000 cd/m ²	0.004 to 12,000 cd/m ²		
	Accuracy (for white) ^{1, 3}	> 0.001 cd/m ²	± 9% (>0.002 cd/m ²)	± 9% (>0.004 cd/m ²)	± 9% (>0.004 cd/m ²)	
		> 0.01 cd/m ²	± 9%	± 9%	± 9%	
		> 0.1 cd/m ²	± 3%	± 3%	± 3%	
		> 1 cd/m ²	± 3%	± 3%	± 3%	
		> 10 cd/m ²	± 2.5%	± 2.5%	± 2.5%	
	Repeatability (2σ) ¹	> 0.001 cd/m ²	10% (> 0.002 cd/m ²)	10% (>0.004 cd/m ²)	10% (>0.004 cd/m ²)	
		> 0.01 cd/m ²	5%	5%	5%	
		> 0.1 cd/m ²	1%	0.5%	0.5%	
		> 1 cd/m ²	0.25%	0.20%	0.20%	
> 10 cd/m ²		0.10%	0.10%	0.10%		
Chromaticity	Accuracy guaranteed luminance range ²	0.02 to 6,000 cd/m ²	0.04 to 12,000 cd/m ²	0.04 to 12,000 cd/m ²		
	Accuracy (for white) ^{1, 3}	> 0.01 cd/m ²	± 0.004 (> 0.02 cd/m ²)	± 0.004 (>0.04 cd/m ²)	± 0.004 (>0.04 cd/m ²)	
		> 0.1 cd/m ²	± 0.004	± 0.004	± 0.004	
		> 1 cd/m ²	± 0.003	± 0.003	± 0.003	
		> 10 cd/m ²	± 0.003	± 0.003	± 0.003	
		> 100 cd/m ²	± 0.002	± 0.002	± 0.002	
	Repeatability (2σ) ¹	At 100 cd/m ² (for monochrome) ²	100 cd/m ²	± 0.003	± 0.003	
		> 0.01 cd/m ²	0.0030 (> 0.02 cd/m ²)	0.0030 (>0.04 cd/m ²)	0.0030 (>0.04 cd/m ²)	
		> 0.1 cd/m ²	0.0030	0.0015	0.0015	
		> 1 cd/m ²	0.0008	0.0005	0.0005	
> 10 cd/m ²		0.0003	0.0003	0.0003		
Flicker (CA-310 Mode) ⁶	Flicker (Contrast)	Measurement luminance range ⁸	---	---	---	
		Measurement target (Flicker frequency)	---	---	---	
		Accuracy	30 Hz, AC/DC 10% sine wave	---	---	
	Flicker (JEITA / VESA)	Measurement luminance range ⁸	---	---	---	
		Measurement target (Flicker frequency)	---	---	---	
		Accuracy	30 Hz, AC/DC 4% sine wave	---	---	
	XYZ (Wide Frequency Mode) ⁶	Flicker (Contrast)	Measurement luminance range ⁸	35 to 6,000 cd/m ²	20 to 12,000 cd/m ²	20 to 12,000 cd/m ²
			Measurement target (Flicker frequency)	0.25 to 200 Hz	0.25 to 200 Hz	0.25 to 200 Hz
			Accuracy	30 Hz, AC/DC 10% sine wave	± 1.1 %	± 1.1 %
		Flicker (JEITA / VESA)	Measurement luminance range ⁸	35 to 6,000 cd/m ²	20 to 12,000 cd/m ²	20 to 12,000 cd/m ²
Measurement target (Flicker frequency)			0.42 to 200 Hz	0.42 to 200 Hz	0.42 to 200 Hz	
Accuracy			30 Hz, AC/DC 4% sine wave	± 0.35 dB	± 0.35 dB	
Waveform		Repeatability (2σ)	30 Hz, AC/DC 4% sine wave	± 0.35 dB	± 0.35 dB	
		Measurement luminance range ⁸	7 to 6,000 cd/m ²	4 to 12,000 cd/m ²	4 to 12,000 cd/m ²	
		Sampling frequency	3 kHz	3 kHz	3 kHz	
		Accuracy guaranteed measurement speed ⁴	Lvxy	AUTO	0.16 times/sec (> 0.002 cd/m ²) 1 time/sec (> 0.05 cd/m ²) 5 times/sec (> 1.5 cd/m ²) 20 times/sec (> 25 cd/m ²)	1 time/sec (> 0.004 cd/m ²) 5 times/sec (> 0.6 cd/m ²) 20 times/sec (> 8 cd/m ²)
Measurement synchronization mode			NTSC, PAL, EXT, UNIV, INT, MANU (4 ms to 4 s)			
Measurement speed mode			AUTO, LTD. AUTO, SLOW, FAST			
Measurement target (Vertical synchronization frequency)			0.5 to 240 Hz (luminance and chromaticity)			
User calibration memory channel			99 channels			
Interface	Communication		USB2.0, RS-232C			
	Trigger, External synchronization signal voltage ⁹		IN: 1.8 V / 3.3 ~ 5 V switching			
Size (mm)			47 x 47 x 222.9			
Weight			580 g (including mount)			
Power supply			DC 5 V (input from USB bus power line or RS communication connector)			
Operation temperature/humidity range ⁵			10 to 35°C, relative humidity 85% or less with no condensation			
Storage temperature/humidity range			0 to 45°C, relative humidity 85% or less (at 35°C) with no condensation			

¹: Measured under Konica Minolta's standard light source (6,500K).
²: Luminance for monochrome is measured when reading of luminance for white is 100 cd/m².
³: Temperature 23°C/±2°C, relative humidity 40%±10%
⁴: In NTSC synchronization mode using USB with one probe
⁵: Reading fluctuation (compared to reference reading at 23°C, 40% RH): Luminance: ±2% for white; Chromaticity (at 100 cd/m²): ±0.002 for white, ±0.003 for monochrome

⁶: "Flicker (CA-310 Mode)" and "XYZ (Wide Frequency Mode)" are mode names for PC Software CA-S40. "XYZ (Wide Frequency Mode)" can only be used when no CA-DP40 data processor is connected.
⁸: Measured under Konica Minolta's standard light source (constant light). If the luminance momentarily greatly exceeds the upper limit, such as with a PWM light source with a small duty cycle, luminances below the upper limit may be shown as too high.
⁹: Supports 1.8V switching from products produced in March 2021.
 * Unless otherwise specified, specifications are given for conditions established by Konica Minolta.

Probe Dimensions (unit: mm)

