

Main Specifications of CA-500 series/ CA-410 series Probes				CA-500 series		CA-410 series									
				CA-527	CA-510	CA-VP427A	CA-P427	CA-P427H	CA-VP410A	CA-VP410H	CA-VP410T	CA-P410	CA-P410H		
				Display Color Analyzer	Display Color Analyzer	Advanced High Sensitivity Probe	Normal Probe	High Luminance Probe	Advanced High Sensitivity Probe	High Sensitivity Probe for high luminance	LWD Probe	Normal Probe	High Luminance Probe		
Measurement area				Ø 27 mm	Ø 10 mm	Ø 27 mm	Ø 27 mm	Ø 27 mm	Ø 10 mm	Ø 10 mm	Approx. Ø 10 mm	Ø 10 mm	Ø 10 mm		
Acceptance angle				± 8.5°	± 15°	± 2.5°	± 2.5°	± 2.5°	± 8.5°	± 8.5°	± 4°	± 5°	± 5°		
Accuracy guaranteed measurement distance				30 ± 5 mm	30 ± 5 mm	30 ± 10 mm	30 ± 10 mm	30 ± 10 mm	30 ± 5 mm	30 ± 5 mm	200 ± 2 mm	30 ± 5 mm	30 ± 5 mm		
Luminance	Accuracy guaranteed range ⁸			0.0001 to 10,000 cd/m ²	0.0002 to 20,000 cd/m ²	0.0003 to 5,000 cd/m ²	0.001 to 5,000 cd/m ²	0.01 to 30,000 cd/m ²	0.0003 to 3,000 cd/m ²	0.0006 ~ 6,000 cd/m ²	0.004 to 12,000 cd/m ²	0.002 to 10,000 cd/m ²	0.1 to 30,000 cd/m ²		
	Accuracy (for white) ^{*1, *3}			> 0.0001 cd/m ² ± 9 % > 0.0002 cd/m ² ± 9 % > 0.0003 cd/m ² ± 9 % > 0.0005 cd/m ² ± 3 % > 0.001 cd/m ² ± 2 % > 0.01 cd/m ² ± 1.5 % > 0.1 cd/m ² ± 1.5 % > 1 cd/m ² ± 1.5 % > 10 cd/m ² ± 1.5 % > 100 cd/m ² ± 1.5 %	--- ± 9 % --- ± 3.5 % ± 3 % ± 2 % ± 1.5 % ± 1.5 % ± 1.5 % ± 1.5 % ± 1.5 % ± 1.5 % ± 1.5 % ± 1.5 %	--- ± 9 % --- ± 4 % ± 9 % ± 2 % ± 1.5 % ± 1.5 % ± 1.5 % ± 1.5 % ± 1.5 % ± 1.5 % ± 1.5 % ± 1.5 %	--- ± 9 % --- ± 9 % ± 2 % ± 1.5 % ± 1.5 % ± 1.5 % ± 1.5 % ± 1.5 % ± 1.5 % ± 1.5 % ± 1.5 % ± 1.5 %	--- ± 9 % --- ± 9 % ± 2 % ± 1.5 % ± 1.5 % ± 1.5 % ± 1.5 % ± 1.5 % ± 1.5 % ± 1.5 % ± 1.5 % ± 1.5 %	--- ± 9 % --- ± 9 % ± 4 % ± 2 % ± 2 % ± 2 % ± 2 % ± 1.5 % ± 1.5 % ± 1.5 % ± 1.5 % ± 1.5 %	--- ± 9 % --- ± 9 % (0.0006 to cd/m ²) ± 4 % ± 2 % ± 2 % ± 2 % ± 2 % ± 2.5 % ± 2.5 % ± 2.5 % ± 2.5 % ± 2.5 % ± 2.5 % ± 2.5 % ± 2.5 %	--- ± 9 % --- ± 9 % (0.004 to cd/m ²) ± 9 % (0.004 to cd/m ²) 5 % 0.25 % 0.20 % 0.20 % 0.20 % 0.20 % 0.20 % 0.20 % 0.20 % 0.20 % 0.20 % 0.20 % 0.20 %	--- ± 9 % --- ± 9 % (0.002 to cd/m ²) ± 9 % (0.002 to cd/m ²) 2 % 0.60 % 0.20 % 0.20 % 0.20 % 0.20 % 0.20 % 0.20 % 0.20 % 0.20 % 0.20 % 0.20 % 0.20 %	--- ± 9 % --- ± 9 % (0.002 to cd/m ²) ± 9 % (0.002 to cd/m ²) 2 % 0.60 % 0.20 % 0.20 % 0.20 % 0.20 % 0.20 % 0.20 % 0.20 % 0.20 % 0.20 % 0.20 % 0.20 %		
	Repeatability (2σ) ^{*1}	AUTO	> 0.0001 cd/m ²	10 %	---	---	---	---	---	---	---	---	---	---	
			> 0.0002 cd/m ²	---	10 %	---	---	---	---	---	---	---	---	---	
			> 0.0003 cd/m ²	---	---	10 %	---	---	---	---	---	---	---	---	
			> 0.0005 cd/m ²	2 %	3 %	---	---	---	7 %	7 % (0.0006 to cd/m ²)	---	---	---	---	
			> 0.001 cd/m ²	1 %	2 %	4 %	10 %	---	3 %	3 %	10 % (0.004 to cd/m ²)	10 % (0.002 to cd/m ²)	---	---	
			> 0.01 cd/m ²	0.30 %	0.35 %	1 %	1 %	10 %	1 %	0.60 %	5 %	2 %	---	---	
			> 0.1 cd/m ²	0.12 %	0.12 %	0.25 %	0.40 %	1 %	0.25 %	0.25 %	0.50 %	0.60 %	2 %	---	
			> 1 cd/m ²	0.10 %	0.10 %	0.10 %	0.10 %	0.40 %	0.10 %	0.10 %	0.20 %	0.20 %	0.60 %	---	
			> 10 cd/m ²	0.10 %	0.10 %	0.10 %	0.10 %	0.10 %	0.10 %	0.10 %	0.10 %	0.10 %	0.20 %	---	
			> 100 cd/m ²	0.10 %	0.10 %	0.10 %	0.10 %	0.10 %	0.10 %	0.10 %	0.10 %	0.10 %	0.20 %	---	
			Accuracy guaranteed luminance range ⁸			0.001 to 10,000 cd/m ²	0.002 to 20,000 cd/m ²	0.003 to 5,000 cd/m ²	0.01 to 5,000 cd/m ²	0.1 to 30,000 cd/m ²	0.003 to 3,000 cd/m ²	0.006 to 6,000 cd/m ²	0.04 to 12,000 cd/m ²	0.01 to 10,000 cd/m ²	0.1 to 30,000 cd/m ²
			Accuracy (for white) ^{*1, *3}			> 0.001 cd/m ² ± 0.003 > 0.002 cd/m ² ± 0.003 > 0.003 cd/m ² ± 0.002 > 0.1 cd/m ² ± 0.002 > 0.1 cd/m ² ± 0.002 > 1 cd/m ² ± 0.002 > 10 cd/m ² ± 0.002 > 100 cd/m ² ± 0.002 > 100 cd/m ² ± 0.003 > 100 cd/m ² ± 0.002 > 100 cd/m ² ± 0.003 > 100 cd/m ² ± 0.002 > 100 cd/m ² ± 0.00									

Main Specifications of
CA-410 series Probes

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				CA-VP404	CA-VP402	CA-P427C	
				Small Spot Probe	Small Spot Probe	CIE 170-2: 2015 Supported Probe ^{*7}	
Measurement area				Ø 4 mm	Ø 2.1 mm	Ø 27 mm	
Acceptance angle				±8.5°	±10°	± 2.5°	
Accuracy guaranteed measurement distance				30 ± 2 mm	28 ± 2 mm	30 ± 10 mm	
Luminance	Accuracy guaranteed range ^{*8}			0.004 to 12,000 cd/m ²	0.002 to 25,000 cd/m ²	0.001 to 5,000 cd/m ²	
	Accuracy (for white) ^{*1, *3}		> 0.0001 cd/m ²	---	---	---	
			> 0.0002 cd/m ²	---	---	---	
			> 0.0003 cd/m ²	---	---	---	
			> 0.0005 cd/m ²	---	---	---	
			> 0.001 cd/m ²	± 9 % (0.004 to cd/m ²)	± 9 % (0.002 to cd/m ²)	± 9 %	
			> 0.01 cd/m ²	± 9 %	± 9 %	± 2 %	
			> 0.1 cd/m ²	± 3 %	± 3 %	± 1.5 %	
			> 1 cd/m ²	± 3 %	± 3 %	± 1.5 %	
			> 10 cd/m ²	± 2.5 %	± 2.5 %	± 1.5 %	
	Repeatability (2σ) ^{*1}		> 100 cd/m ²	± 2 %	± 2 %	± 1.5 %	
			> 0.0001 cd/m ²	---	---	---	
			> 0.0002 cd/m ²	---	---	---	
			> 0.0003 cd/m ²	---	---	---	
			> 0.0005 cd/m ²	---	---	---	
			> 0.001 cd/m ²	10 % (0.004 to cd/m ²)	10 % (0.002 to cd/m ²)	10 %	
			> 0.01 cd/m ²	5 %	10 %	1 %	
			> 0.1 cd/m ²	0.50 %	1 %	0.4 %	
			> 1 cd/m ²	0.20 %	0.25 %	0.10 %	
AUTO		> 10 cd/m ²	0.10 %	0.10 %	0.10 %		
		> 100 cd/m ²	0.10 %	0.10 %	0.10 %		
		> 0.001 cd/m ²	---	---	---		
		> 0.002 cd/m ²	---	---	---		
		> 0.003 cd/m ²	---	---	---		
		> 0.0005 cd/m ²	---	---	---		
		> 0.001 cd/m ²	10 % (0.004 to cd/m ²)	10 % (0.002 to cd/m ²)	10 %		
		> 0.01 cd/m ²	5 %	10 %	1 %		
		> 0.1 cd/m ²	0.50 %	1 %	0.4 %		
Chromaticity	Accuracy (for white) ^{*1, *3}		> 0.001 cd/m ²	---	---	---	
			> 0.002 cd/m ²	---	---	---	
			> 0.003 cd/m ²	---	---	---	
			> 0.01 cd/m ²	± 0.004 (0.04 to cd/m ²)	± 0.004 (0.02 to cd/m ²)	± 0.003	
			> 0.1 cd/m ²	± 0.004	± 0.004	± 0.002	
			> 1 cd/m ²	± 0.003	± 0.003	± 0.002	
			> 10 cd/m ²	± 0.003	± 0.003	± 0.002	
			> 100 cd/m ²	± 0.002	± 0.002	± 0.002	
			At 100 cd/m ² (for monochrome) ^{*2}		> 100 cd/m ²	± 0.003	± 0.003
	> 0.001 cd/m ²	---			---	---	
	> 0.002 cd/m ²	---			---	---	
	> 0.003 cd/m ²	---			---	---	
	> 0.01 cd/m ²	0.0030 (0.04 to cd/m ²)			0.003 (0.02 to cd/m ²)	0.0035	
	> 0.1 cd/m ²	0.0015			0.003	0.0015	
	Flicker (Contrast)	Flicker ^{*5}	Accuracy	30 Hz, AC/DC 10 % sine wave	---	---	± 0.4 %
60 Hz, AC/DC 10 % sine wave				---	---	± 0.7 %	
20-65 Hz, AC/DC 10 % sine wave				---	---	0.3 %	
Measurement luminance range ^{*8}				---	---	5 to 1,500 cd/m ²	
XYZ ^{*6}		Accuracy	30 Hz, AC/DC 10 % sine wave	± 1.1 %	± 1.1 %	± 1.2 %	
			60 Hz, AC/DC 10 % sine wave	± 1.7 %	± 1.7 %	± 1.7 %	
			20-65 Hz, AC/DC 10 % sine wave	1.6 %	1.6 %	1.7 %	
			Measurement luminance range ^{*8}	---	---	5 to 1,500 cd/m ²	
			Measurement target (Flicker frequency)	---	---	0.25 to 65 Hz	
			Accuracy	30 Hz, AC/DC 10 % sine wave	---	---	± 0.4 %
Flicker (JEITA)	Flicker ^{*5}	Accuracy	30 Hz, AC/DC 4 % sine wave	---	---	± 0.35 dB	
			30 Hz, AC/DC 1.2 % sine wave	---	---	± 0.35 dB	
			30 Hz, AC/DC 4 % sine wave	---	---	0.1 dB	
			30 Hz, AC/DC 1.2 % sine wave	---	---	0.3 dB	
	XYZ ^{*6}	Accuracy	30 Hz, AC/DC 4 % sine wave	± 0.35 dB	± 0.35 dB	± 0.35 dB	
			30 Hz, AC/DC 1.2 % sine wave	± 0.35 dB	± 0.35 dB	± 0.35 dB	
			30 Hz, AC/DC 4 % sine wave	0.4 dB	0.4 dB	0.4 dB	
			30 Hz, AC/DC 1.2 % sine wave	1.4 dB	1.4 dB	1.5 dB	
			Measurement luminance range ^{*8}	---	---	---	
			Sampling frequency	---	---	---	
Waveform	Flicker ^{*5}	Repeatability (2σ)	Lv: Measurement minimum luminance	---	---	---	
			Lv: 1 cd/m ²	---	---	---	
			Measurement luminance range ^{*8}	---	---	---	
			Measurement target (Flicker frequency)	---	---	---	
	XYZ ^{*6}	Repeatability (2σ)	Measurement luminance range ^{*8}	---	---	---	
			Sampling frequency	---	---	---	
			Measurement luminance range ^{*8}	---	---	---	
			Sampling frequency	---	---	---	
			Measurement luminance range ^{*8}	---	---	---	
			Sampling frequency	---	---	---	
VRR-Flicker ^{*10, *11}	Flicker ^{*5}	Repeatability (2σ)	Measurement luminance range ^{*8}	---	---	---	
			Sampling frequency	---	---	---	
			Measurement Target (Flicker frequency)	---	---	---	
			Accuracy	---	---	---	
	XYZ ^{*6}	Repeatability (2σ)	Measurement luminance range ^{*8}	---	---	---	
			Sampling frequency	---	---	---	
			Measurement Target (Flicker frequency)	---	---	---	
			Accuracy	---	---	---	
			Repeatability (2σ)	---	---	---	
			Measurement luminance range ^{*8}	---	---	---	
Accuracy guaranteed measurement speed ^{*4}	Lvxy	AUTO	Measurement luminance range ^{*8}	---	---	---	
			Sampling frequency	---	---	---	
			Measurement Target (Flicker frequency)	---	---	---	
			Accuracy	---	---	---	
	Flicker ^{*5}	Repeatability (2σ)	Measurement luminance range ^{*8}	---	---	---	
			Sampling frequency	---	---	---	
			Measurement Target (Flicker frequency)	---	---	---	
			Accuracy	---	---	---	
			Repeatability (2σ)	---	---	---	
			Measurement luminance range ^{*8}	---	---	---	
Interface	Communication	Trigger ^{*9}	Measurement luminance range ^{*8}	---	---	---	
			Sampling frequency	---	---	---	
			Measurement Target (Flicker frequency)	---	---	---	
			Accuracy	---	---	---	
	Size (excluding mount)	Weight	Power supply	Measurement luminance range ^{*8}	---	---	---
				Sampling frequency	---	---	---
				Measurement Target (Flicker frequency)	---	---	---
				Accuracy	---	---	---
				Repeatability (2σ)	---	---	---
				Measurement luminance range ^{*8}	---	---	---
Operation temperature/humidity range ^{*5}	Storage temperature/humidity range	Power supply	Measurement luminance range ^{*8}	---	---	---	
			Sampling frequency	---	---	---	
			Measurement Target (Flicker frequency)	---	---	---	
			Accuracy	---	---	---	
	Flicker ^{*5}	Repeatability (2σ)	Measurement luminance range ^{*8}	---	---	---	
			Sampling frequency	---	---	---	
			Measurement Target (Flicker frequency)	---	---	---	
			Accuracy	---	---	---	
			Repeatability (2σ)	---	---	---	
			Measurement luminance range ^{*8}	---	---	---	

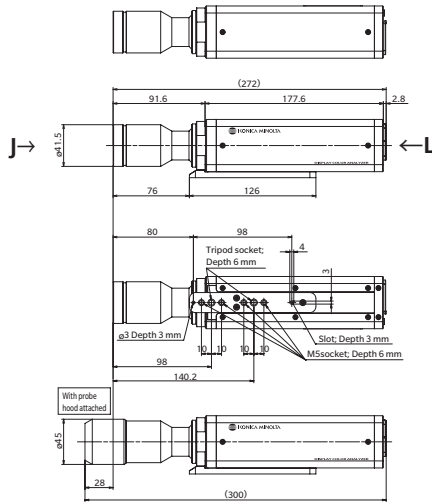
*1: Measured under Konica Minolta's standard light source (6,500 K).
*2: Luminance for monochrome is measured when reading of luminance for white is 100 cd/m².
*3: Temperature 23°C/±2°C, relative humidity 40%±10 %
*4: In NTSC (DOUBLE FRAME) synchronization mode using USB with one probe
*5: Reading fluctuation (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" and "XYZ" are mode names for PC Software CA-S40.
*7: "XYZ" can only be used when no CA-VP40 data processor is connected.
*8: The spectral sensitivities of probes conforming to CIE 170-2:2015 are different from those defined for the CIE 1931 color-matching functions; therefore, displayed values for luminance and chromaticity will be different from those calculated based on the CIE 1931 color-matching functions.

*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.
*10: The listed values are for use with CA-SDK2 or CA-S40.
*11: To measure VRR-Flicker with the CA-410 series, firmware must be Ver. 1.40 or later and CA-SDK2 or CA-S40 must be used.

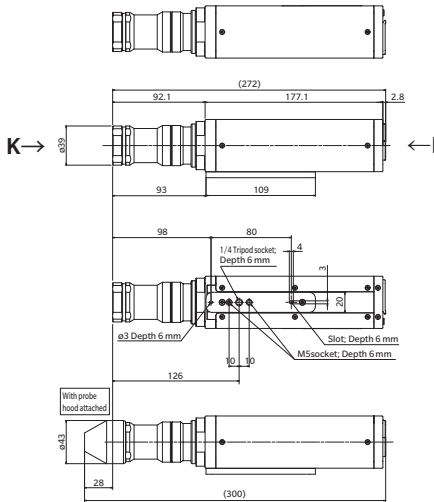
* Unless otherwise specified, specifications are given for conditions established by Konica Minolta.

Probe Dimensions (unit: mm)

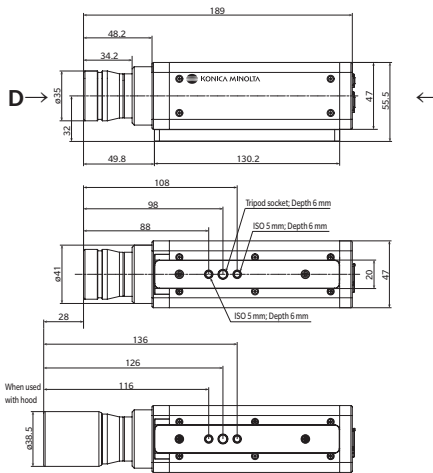
CA-527 Display Color Analyzer



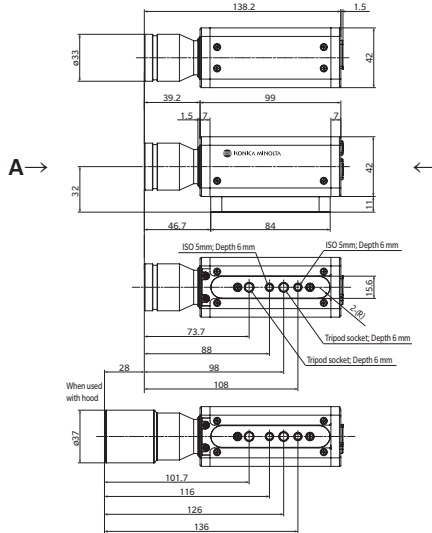
CA-510 Ø10 Display Color Analyzer



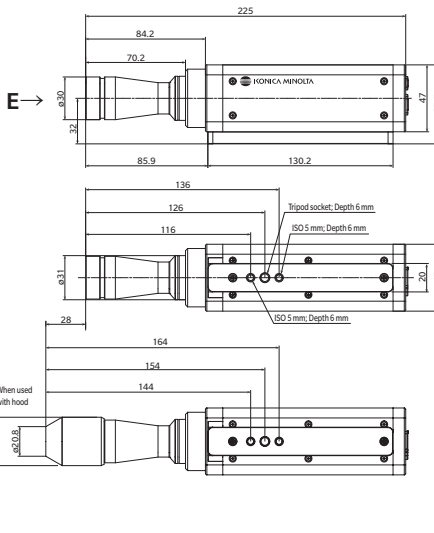
CA-VP427A Ø27 Advanced High Sensitivity Probe



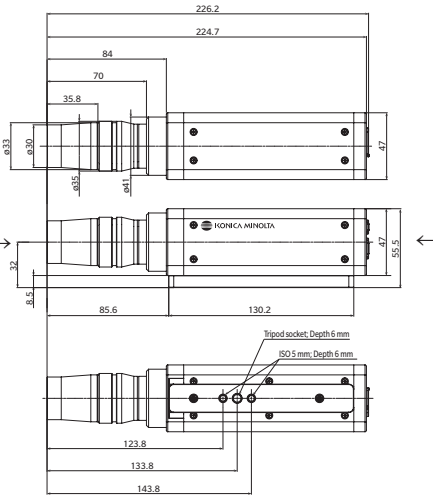
CA-P427 Ø27 Normal Probe
CA-P427H Ø27 High Luminance Probe
CA-P427C Ø27 Normal Probe



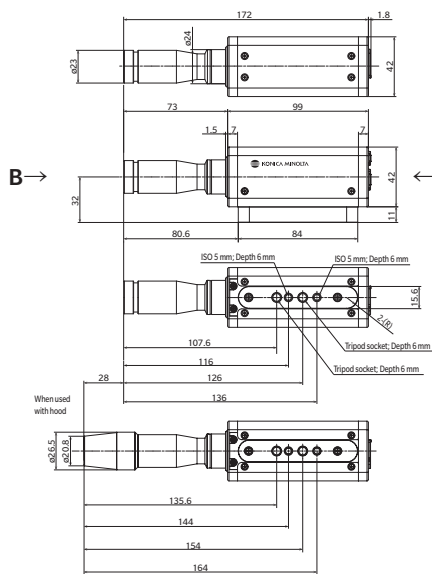
CA-VP410A Ø10 Advanced High Sensitivity Probe
CA-VP410H Ø10 High Sensitivity Probe for high luminance



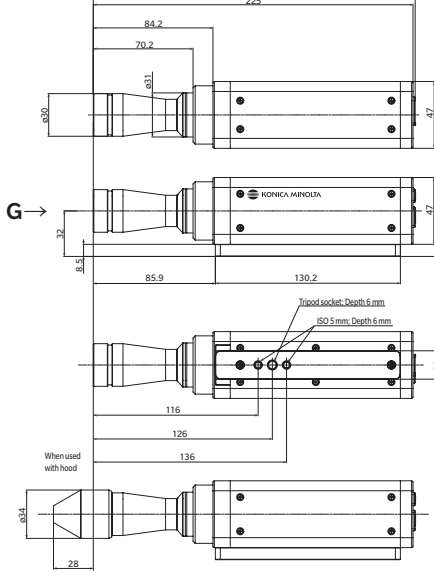
CA-VP410T Ø10 LWD Probe (200 mm)



CA-P410 Ø10 Normal Probe
CA-P410H Ø10 High Luminance Probe



CA-VP404 Ø4 Small Spot Probe



CA-VP402 Ø2 Small Spot Probe

