KONICA MINOLTA

Main Specifications of CA-527/CA-410 Probes

			CA-527 Display Color Analyzer	CA-VP427A Advanced High Sensitivity Probe	CA-P427 Normal Probe	CA-P427H High Luminance Probe	CA-VP410A Advanced High Sensitivity Probe	CA-VP410H High Sensitivity Probe for high luminance	CA-VP410T LWD Probe	CA-P410 Normal Probe	CA-P410H High Luminance Probe
Measurement area			Ø 27 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°	± 2.5°	± 2.5°	± 2.5°	± 8.5°	± 8.5°	± 4°	± 5°	± 5°
Accuracy guaranteed measurement distance			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/m²	0.0003 to 5,000 cd/m²	0.001 to 5,000 cd/m²	0.01 to 30,000 cd/m²	0.0003 to 3,000 cd/m²	0.0006 ~ 6,000 cd/m²	0.004 to 12,000 cd/m²	0.002 to 10,000 cd/m²	0.1 to 30,000 cd/m²
	Accuracy (for white)*1, *3	> 0.0001 cd/m²	± 9 %	---	---	---	---	---	---	---	---
		> 0.0003 cd/m²	---	± 9 %	---	---	± 9 %	---	---	---	---
		> 0.0005 cd/m²	± 3 %	---	---	---	---	±9 % (0.0006 to cd/m²)	---	---	---
		> 0.001 cd/m²	± 2 %	± 4 %	± 9 %	---	± 4 %	± 4 %	± 9 % (0.004 to cd/m²)	± 9 % (0.002 to cd/m²)	---
		> 0.01 cd/m²	± 1.5 %	± 2 %	± 2 %	± 9 %	± 2.5 %	± 2 %	± 9 %	± 2.5 %	---
		> 0.1 cd/m²	± 1.5 %	± 1.5 %	± 1.5 %	± 2 %	± 2 %	± 2 %	± 3 %	± 2 %	± 2.5 %
		> 1 cd/m²	± 1.5 %	± 1.5 %	± 1.5 %	± 1.5 %	± 2 %	± 2 %	± 3 %	± 2 %	± 2 %
		> 10 cd/m²	± 1.5 %	± 1.5 %	± 1.5 %	± 1.5 %	± 1.5 %	± 1.5 %	± 2.5 %	± 1.5 %	± 2 %
		> 100 cd/m²	± 1.5 %	± 1.5 %	± 1.5 %	± 1.5 %	± 1.5 %	± 1.5 %	± 2 %	± 1.5 %	± 1.5 %
	Repeatability (2σ)*1 AUTO	> 0.0001 cd/m²	10 %	---	---	---	---	---	---	---	---
		> 0.0003 cd/m²	---	10 %	---	---	7 %	---	---	---	---
		> 0.0005 cd/m²	2 %	---	---	---	---	7 % (0.0006 to cd/m²)	---	---	---
		> 0.001 cd/m²	1%	4 %	10 %	---	3 %	3 %	10 % (0.004 to cd/m²)	10 % (0.002 to cd/m²)	---
		> 0.01 cd/m²	0.30 %	1 %	1 %	10 %	1 %	0.60 %	5 %	2 %	---
		> 0.1 cd/m²	0.12 %	0.25 %	0.40 %	1 %	0.25 %	0.25 %	0.50 %	0.60 %	2 %
		> 1 cd/m²	0.10 %	0.10 %	0.10 %	0.40 %	0.10 %	0.10 %	0.20 %	0.20 %	0.60 %
		> 10 cd/m²	0.10 %	0.10 %	0.10 %	0.10 %	0.10 %	0.10 %	0.10 %	0.10 %	0.20 %
		> 100 cd/m²	0.10 %	0.10 %	0.10 %	0.10 %	0.10 %	0.10 %	0.10 %	0.10 %	0.10 %
Chromaticity	Accuracy guaranteed luminance range*8		0.001 to 10,000 cd/m²	0.003 to 5,000 cd/m²	0.01 to 5,000 cd/m²	0.1 to 30,000 cd/m²	0.003 to 3,000 cd/m²	0.006 to 6,000 cd/m²	0.04 to 12,000 cd/m²	0.01 to 10,000 cd/m²	0.1 to 30,000 cd/m²
	Accuracy (for white)*1, *3	> 0.001 cd/m²	±0.003	---	---	---	---	---	---	---	---
		> 0.003 cd/m²	± 0.003	± 0.003	---	---	± 0.003	± 0.003	---	---	---
		> 0.01 cd/m²	± 0.002	± 0.002	± 0.003	---	± 0.002	± 0.002	± 0.004 (0.04 to cd/m²)	± 0.006	---
		> 0.1 cd/m²	± 0.002	± 0.002	± 0.002	± 0.003	± 0.002	± 0.002	± 0.004	± 0.002	± 0.006
		> 1 cd/m²	± 0.002	± 0.002	± 0.002	± 0.002	± 0.002	± 0.002	± 0.003	± 0.002	± 0.002
		> 10 cd/m²	± 0.002	± 0.002	± 0.002	± 0.002	± 0.002	± 0.002	± 0.003	± 0.002	± 0.002
		> 100 cd/m²	± 0.002	± 0.002	± 0.002	± 0.002	± 0.002	± 0.002	± 0.002	± 0.002	± 0.002
	At 100 cd/m² (for monochrome)*2	> 100 cd/m²	± 0.003	± 0.003	± 0.003	± 0.003	± 0.003	± 0.003	± 0.003	± 0.003	± 0.003
	Repeatability (2σ)*1 AUTO	> 0.001 cd/m²	0.0030	---	---	---	---	---	---	---	---
		> 0.003 cd/m²	0.0030	0.0030	---	---	0.0020	0.0020	---	---	---
		> 0.01 cd/m²	0.0009	0.0030	0.0035	---	0.0020	0.0020	0.0030 (0.04 to cd/m²)	0.0070	---
		> 0.1 cd/m²	0.0004	0.0008	0.0015	0.0035	0.0008	0.0008	0.0015	0.0020	0.0070
		> 1 cd/m²	0.0002	0.0003	0.0004	0.0015	0.0003	0.0003	0.0005	0.0008	0.0020
		> 10 cd/m²	0.0002	0.0002	0.0003	0.0004	0.0002	0.0002	0.0003	0.0005	0.0008
		> 100 cd/m²	0.0002	0.0002	0.0002	0.0003	0.0002	0.0002	0.0002	0.0003	0.0005
Flicker (Contrast)	Flicker*6	Measurement luminance range*8	0.5 to 10,000 cd/m²	---	5 to 1,500 cd/m²	30 to 9,000 cd/m²	---	---	---	15 to 3,000 cd/m²	90 to 18,000 cd/m²
		Measurement target (Flicker frequency)	0.25 to 65 Hz	---	0.25 to 65 Hz	0.25 to 65 Hz	---	---	---	0.25 to 65 Hz	0.25 to 65 Hz
		Accuracy 30 Hz, AC/DC 10 % sine wave	± 0.3 %	---	± 0.4 %	± 0.4 %	---	---	---	± 0.4 %	± 0.4 %
		Accuracy 60 Hz, AC/DC 10 % sine wave	± 0.3 %	---	± 0.7 %	± 0.7 %	---	---	---	± 0.7 %	± 0.7 %
		Repeatability (2σ) 20-65 Hz, AC/DC 10 % sine wave	0.3 %	---	0.3 %	0.3 %	---	---	---	0.3 %	0.3 %
	XYZ*6	Measurement luminance range*8	0.5 to 10,000 cd/m²	5 to 3,000 cd/m²	5 to 5,000 cd/m²	30 to 30,000 cd/m²	15 to 3,000 cd/m²	30 to 6,000 cd/m²	20 to 12,000 cd/m²	15 to 10,000 cd/m²	90 to 30,000 cd/m²
		Measurement target (Flicker frequency)	0.25 to 200 Hz	0.25 to 200 Hz	0.25 to 200 Hz	0.25 to 200 Hz	0.25 to 200 Hz	0.25 to 200 Hz	0.25 to 200 Hz	0.25 to 200 Hz	0.25 to 200 Hz
		Accuracy 30 Hz, AC/DC 10 % sine wave	± 1.5 %	± 1.1 %	± 1.2 %	± 1.2 %	± 0.4 %	± 0.4 %	± 1.1 %	± 0.7 %	± 0.7 %
		Accuracy 60 Hz, AC/DC 10 % sine wave	± 2.2 %	± 1.7 %	± 1.7 %	± 1.7 %	± 0.7 %	± 0.7 %	± 1.7 %	± 1.1 %	± 1.1 %
		Repeatability (2σ) 20-65 Hz, AC/DC 10 % sine wave	1.6 %	1.6 %	1.7 %	1.7 %	0.3 %	0.3 %	0.016	1.0 %	1.0 %
Flicker (JEITA)	Flicker*6	Measurement luminance range*8	0.5 to 10,000 cd/m²	---	5 to 1,500 cd/m²	30 to 9,000 cd/m²	---	---	---	15 to 3,000 cd/m²	90 to 18,000 cd/m²
		Measurement target (Flicker frequency)	0.42 ~ 65 Hz	---	0.42 to 65 Hz	0.42 to 65 Hz	---	---	---	0.42 to 65 Hz	0.42 to 65 Hz
		Accuracy 30 Hz, AC/DC 4% sine wave	± 0.35 dB	---	± 0.35 dB	± 0.35 dB	---	---	---	± 0.35 dB	± 0.35 dB
		Accuracy 30 Hz, AC/DC 1.2% sine wave	± 0.35 dB	---	± 0.35 dB	---	---	---	---	± 0.35 dB	---
		Repeatability (2σ) 30 Hz, AC/DC 4% sine wave	0.1 dB	---	0.1 dB	0.1 dB	---	---	---	0.1 dB	0.1 dB
		Repeatability (2σ) 30 Hz, AC/DC 1.2% sine wave	0.3 dB	---	0.3 dB	---	---	---	---	0.3 dB	---
	XYZ*6	Measurement luminance range*8	0.5 to 8,500 cd/m²	5 to 3,000 cd/m²	5 to 4,500 cd/m²	30 to 27,000 cd/m²	15 to 2,000 cd/m²	30 to 4,000 cd/m²	20 to 12,000 cd/m²	15 to 8,500 cd/m²	90 to 30,000 cd/m²
		Measurement target (Flicker frequency)*10	0.42 to 200 Hz	0.42 to 200 Hz	0.42 to 200 Hz	0.42 to 200 Hz	0.42 to 200 Hz	0.42 to 200 Hz	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	± 0.35 dB	± 0.35 dB	± 0.35 dB	± 0.35 dB	± 0.35 dB	± 0.35 dB	± 0.35 dB
		Accuracy 30 Hz, AC/DC 1.2% sine wave	± 0.35 dB	± 0.35 dB	± 0.35 dB	---	± 0.35 dB	± 0.35 dB	± 0.35 dB	± 0.35 dB	---
		Repeatability (2σ) 30 Hz, AC/DC 4% sine wave	0.4 dB	0.4 dB	0.4 dB	0.4 dB	0.1 dB	0.1 dB	0.4 dB	0.3 dB	0.3 dB
		Repeatability (2σ) 30 Hz, AC/DC 1.2% sine wave	1.4 dB	1.4 dB	1.5 dB	---	0.3 dB	0.3 dB	1.4 dB	0.9 dB	---
Waveform	Flicker*6	Measurement luminance range*8	0.1 to 10,000 cd/m²	---	---	---	---	---	---	---	---
		Sampling frequency	200 kHz Changeable	---	---	---	---	---	---	---	---
		Repeatability (2σ) Lv:0.1 cd/m², fs:3 kHz, fc:1 kHz	1.8 %	---	---	---	---	---	---	---	---
	XYZ*6	Measurement luminance range*8	0.1 to 10,000 cd/m²	1 to 3,000 cd/m²	1 to 5,000 cd/m²	6 to 30,000 cd/m²	1 to 2,500 cd/m²	2 to 5,000 cd/m²	4 to 12,000 cd/m²	1 to 10,000 cd/m²	6 to 30,000 cd/m²
		Sampling frequency	3 kHz Changeable	3 kHz	3 kHz	3 kHz	3 kHz	3 kHz	3 kHz	3 kHz	3 kHz
		Repeatability (2σ) Lv: 0.1 cd/m²	13 %	---	---	---	---	---	---	---	---
		Repeatability (2σ) Lv: 1 cd/m²	1.4 %	---	---	---	---	---	---	---	---
VRR-Flicker *10*11	Flicker*6	Measurement luminance range*8	0.5 to 10,000 cd/m²	---	---	---	---	---	---	---	---
		Sampling frequency	200 kHz Changeable	---	---	---	---	---	---	---	---
		Measurement Target (Flicker frequency)	0.01 to 100k [Hz]	---	---	---	---	---	---	---	---
		Accuracy 1-120 Hz, AC/DC 10 % sine wave	± 0.3 %	---	---	---	---	---	---	---	---
		Repeatability (2σ) 1-120 Hz, AC/DC 10 % sine wave	0.3 %	---	---	---	---	---	---	---	---
	XYZ*6	Measurement luminance range*8	---	5 to 3,000 cd/m²	5 to 5,000 cd/m²	30 to 30,000 cd/m²	15 to 3,000 cd/m²	30 to 6,000 cd/m²	20 to 12,000 cd/m²	15 to 10,000 cd/m²	90 to 30,000 cd/m²
		Sampling frequency	---	3 kHz	3 kHz	3 kHz	3 kHz	3 kHz	3 kHz	3 kHz	3 kHz
		Measurement Target (Flicker frequency)	---	0.03 to 1.5k [Hz]	0.03 to 1.5k [Hz]	0.03 to 1.5k [Hz]	0.03 to 1.5k [Hz]	0.03 to 1.5k [Hz]	0.03 to 1.5k [Hz]	0.03 to 1.5k [Hz]	0.03 to 1.5k [Hz]
		Accuracy 1-120 Hz, AC/DC 10 % sine wave	---	± 0.22 %	± 0.24 %	± 0.24 %	± 0.08 %	± 0.08 %	± 0.22 %	± 0.14 %	± 0.14 %
		Repeatability (2σ) 1-120 Hz, AC/DC 10 % sine wave	---	0.32 %	0.34 %	0.34 %	0.06 %	0.06 %	0.32 %	0.20 %	0.20 %
Accuracy guaranteed measurement speed*4	Lvxy AUTO		---	0.16 times/sec (> 0.0003 cd/m²)	---	---	0.16 times/sec(> 0.0003 cd/m²)	0.16 times/sec (> 0.0006 cd/m²)	---	---	---
			1times/sec (> 0.0001 cd/m²)	1 times/sec (> 0.01 cd/m²)	1 times/sec (> 0.001 cd/m²)	1 times/sec (> 0.01 cd/m²)	1 times/sec (> 0.01 cd/m²)	1 times/sec (> 0.02 cd/m²)	1 times/sec(> 0.004 cd/m²)	1 times/sec (> 0.002 cd/m²)	1 times/sec (> 0.1 cd/m²)
			5times/sec (> 0.015 cd/m²)	5 times/sec (> 0.15 cd/m²)	5 times/sec (> 0.15 cd/m²)	5 times/sec (> 0.9 cd/m²)	5 times/sec (> 0.15 cd/m²)	5 times/sec (> 0.3 cd/m²)	5 times/sec(> 0.6 cd/m²)	5 times/sec (> 0.15 cd/m²)	5 times/sec (> 0.9 cd/m²)
			20times/sec (> 0.2 cd/m²)	20 times/sec (> 2 cd/m²)	20 times/sec (> 2 cd/m²)	20 times/sec (> 12 cd/m²)	20 times/sec (> 2 cd/m²)	20 times/sec (> 4 cd/m²)	20 times/sec(> 8 cd/m²)	20 times/sec (> 2 cd/m²)	20 times/sec (> 12 cd/m²)
	Flicker (Contrast)		20 times /sec	20 times/sec	20 times/sec	20 times/sec	20 times/sec	20 times/sec	20 times/sec	20 times/sec	20 times/sec
	Flicker (JEITA)		0.5 times/sec (at 1 HzPitch), 2.5 times/sec (at 10 HzPitch)	0.5 times/sec (at 1 HzPitch), 2.5 times/sec (at 10 HzPitch)	0.5 times/sec (at 1 HzPitch), 2.5 times/sec (at 10 HzPitch)	0.5 times/sec (at 1 HzPitch), 2.5 times/sec (at 10 HzPitch)	0.5 times/sec (at 1 HzPitch), 2.5 times/sec (at 10 HzPitch)	0.5 times/sec (at 1 HzPitch), 2.5 times/sec (at 10 HzPitch)	0.5 times/sec(at 1 HzPitch), 2.5 times/sec(at 10 HzPitch)	0.5 times/sec (at 1 HzPitch), 2.5 times/sec (at 10 HzPitch)	0.5 times/sec (at 1 HzPitch), 2.5 times/sec (at 10 HzPitch)
	VRR-Flicker	Sampling frequency 3 kHz	0.7 times/sec (at 1s Obs.)	0.7 times/sec (at 1s Obs.)	0.7 times/sec (at 1s Obs.)	0.7 times/sec (at 1s Obs.)	0.7 times/sec (at 1s Obs.)	0.7 times/sec (at 1s Obs.)	0.7 times/sec (at 1s Obs.)	0.7 times/sec (at 1s Obs.)	0.7 times/sec (at 1s Obs.)
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)	0.5 to 240 Hz (luminance and chromaticity)	0.5 to 240 Hz (luminance and chromaticity), 0.5 to 130 Hz (flicker)	0.5 to 240 Hz (luminance and chromaticity), 0.5 to 130 Hz (flicker)	0.5 to 240 Hz (luminance and chromaticity)	0.5 to 240 Hz (luminance and chromaticity)	0.5 to 240 Hz (luminance and chromaticity)	0.5 to 240 Hz (luminance and chromaticity), 0.5 to 130 Hz (flicker)	0.5 to 240 Hz (luminance and chromaticity), 0.5 to 130 Hz (flicker)
User calibration memory channel			99 channels								
Interface	Communication		USB2.0, RS-232C								
	Trigger*9		IN: 1.8 V /3.3 to 5 V switching Out: 5 V								
Size (mm)			52 x 52x 272	47 x 47 x 190.5	42 x 42 x 139.7	42 x 42 x 139.7	47 x 47 x 226.5	47 x 47 x 226.5	47 x 47 x 226.2	42 x 42 x 173.5	42 x 42 x 173.5
Weight			710 g (including mount)	510 g (including mount)	270 g (including mount)	270 g (including mount)	570 g (including mount)	570 g (including mount)	550 g (including mount)	280 g (including mount)	280 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 (6,500 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 FLAME] synchronization mode using USB with one probe. Measured using a Konica Minolta-designated PC (with PC and probe directly connected, using the supplied measurement software).
*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.
"XYZ" can only be used when no CA-DP40 data processor is connected.
*7: 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 fuctions.
*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 1.8 V 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.

ISO Certifications of KONICA MINOLTA, Inc., Sakai Site

JQA-QMA15888 Design, development, manufacture/ manufacturing management, calibration, and service of measuring instruments — ISO 9001

JQA-E-80027 Design, development, manufacture, service and sales of measuring instruments — ISO 14001

E 9222-AEEG-81 CFCCDK

Main Specifications of CA-527/CA-410 Probes

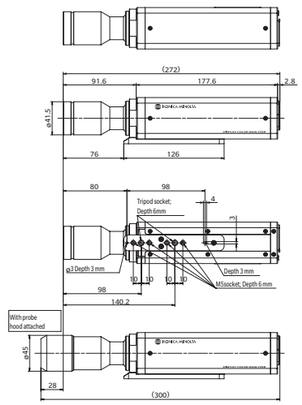
				CA-VP404	CA-VP402	CA-P427C	CA-MP410H
				Small Spot Probe	Small Spot Probe	CIE 170-2: 2015 Supported Probe*7	Mini Probe
							
Measurement area				Ø 4 mm	Ø 2.1 mm	Ø 27 mm	Ø 10 mm
Acceptance angle				±8.5°	±10°	± 2.5°	± 5°
Accuracy guaranteed measurement distance				30 ± 2 mm	28 ± 2 mm	30 ± 10 mm	10 ± 5 mm
Luminance	Accuracy guaranteed range*8			0.004 to 12,000 cd/m²	0.002 to 25,000 cd/m²	0.001 to 5,000 cd/m²	0.1 to 30,000 cd/m²
	Accuracy (for white)*1, *3		> 0.0001 cd/m²	---	---	---	---
			> 0.0003 cd/m²	---	---	---	---
			> 0.0005 cd/m²	---	---	---	---
			> 0.001 cd/m²	± 9 % (0.004 to cd/m²)	± 9 % (0.002 to cd/m²)	± 9 %	---
			> 0.01 cd/m²	± 9 %	± 9 %	± 2 %	---
			> 0.1 cd/m²	± 3 %	± 3 %	± 1.5 %	± 2.5 %
			> 1 cd/m²	± 3 %	± 3 %	± 1.5 %	± 2 %
			> 10 cd/m²	± 2.5 %	± 2.5 %	± 1.5 %	± 2 %
			> 100 cd/m²	± 2 %	± 2 %	± 1.5 %	± 1.5 %
	Repeatability (2σ)*1	AUTO	> 0.0001 cd/m²	---	---	---	---
			> 0.0003 cd/m²	---	---	---	---
			> 0.0005 cd/m²	---	---	---	---
			> 0.001 cd/m²	10 % (0.004 to cd/m²)	10 % (0.002 to cd/m²)	10 %	---
			> 0.01 cd/m²	5 %	10 %	1 %	---
			> 0.1 cd/m²	0.50 %	1 %	0.4 %	2.40 %
			> 1 cd/m²	0.20 %	0.25 %	0.10 %	0.70 %
			> 10 cd/m²	0.10 %	0.10 %	0.10 %	0.25 %
			> 100 cd/m²	0.10 %	0.10 %	0.10 %	0.12 %
Chromaticity	Accuracy guaranteed luminance range*8			0.04 to 12,000 cd/m²	0.02 to 25,000 cd/m²	0.01 to 5,000 cd/m²	0.1 to 30,000 cd/m²
	Accuracy (for white)*1, *3		> 0.001 cd/m²	---	---	---	---
			> 0.003 cd/m²	---	---	---	---
			> 0.01 cd/m²	± 0.004 (0.04 to cd/m²)	± 0.004 (0.02 to cd/m²)	± 0.003	---
			> 0.1 cd/m²	± 0.004	± 0.004	± 0.002	± 0.006
			> 1 cd/m²	± 0.003	± 0.003	± 0.002	± 0.002
			> 10 cd/m²	± 0.003	± 0.003	± 0.002	± 0.002
			> 100 cd/m²	± 0.002	± 0.002	± 0.002	± 0.002
	At 100 cd/m² (for monochrome)*2		> 100 cd/m²	± 0.003	± 0.003	± 0.003	± 0.003
	Repeatability (2σ)*1	AUTO	> 0.001 cd/m²	---	---	---	---
			> 0.003 cd/m²	---	---	---	---
			> 0.01 cd/m²	0.0030 (0.04 to cd/m²)	0.003 (0.02 to cd/m²)	0.0035	---
			> 0.1 cd/m²	0.0015	0.003	0.0015	0.0085
			> 1 cd/m²	0.0005	0.0008	0.0004	0.0025
			> 10 cd/m²	0.0003	0.0003	0.0003	0.0010
			> 100 cd/m²	0.0002	0.0002	0.0002	0.0006
Flicker (Contrast)	Flicker*6	Measurement luminance range*8		---	---	5 to 1,500 cd/m²	90 to 18,000 cd/m²
		Measurement target (Flicker frequency)		---	---	0.25 to 65 Hz	0.25 to 65 Hz
		Accuracy	30 Hz, AC/DC 10 % sine wave	---	---	± 0.4 %	± 0.4 %
			60 Hz, AC/DC 10 % sine wave	---	---	± 0.7 %	± 0.7 %
		Repeatability (2σ)	20-65 Hz, AC/DC 10 % sine wave	---	---	0.3 %	0.3 %
	XYZ*6	Measurement luminance range*8		20 to 12,000 cd/m²	35 to 25,000 cd/m²	5 to 5,000 cd/m²	90 to 30,000 cd/m²
		Measurement target (Flicker frequency)		0.25 to 200 Hz	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 %	± 1.2 %	± 0.9%
			60 Hz, AC/DC 10 % sine wave	± 1.7 %	± 1.7 %	± 1.7 %	± 1.3 %
		Repeatability (2σ)	20-65 Hz, AC/DC 10 % sine wave	1.6 %	1.6 %	1.7 %	1.3 %
Flicker (JEITA)	Flicker*6	Measurement luminance range*8		---	---	5 to 1,500 cd/m²	90 to 18,000 cd/m²
		Measurement target (Flicker frequency)		---	---	0.42 to 65 Hz	0.42 to 65 Hz
		Accuracy	30 Hz, AC/DC 4% sine wave	---	---	± 0.35 dB	± 0.35 dB
			30 Hz, AC/DC 1.2% sine wave	---	---	± 0.35 dB	---
		Repeatability (2σ)	30 Hz, AC/DC 4% sine wave	---	---	0.1 dB	0.1 dB
			30 Hz, AC/DC 1.2% sine wave	---	---	0.3 dB	---
	XYZ*6	Measurement luminance range*8		20 to 12,000 cd/m²	35 to 22,000 cd/m²	5 to 4,500 cd/m²	90 to 30,000 cd/m²
		Measurement target (Flicker frequency)*10		0.42 to 200 Hz	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	± 0.35 dB	± 0.35 dB
			30 Hz, AC/DC 1.2% sine wave	± 0.35 dB	± 0.35 dB	± 0.35 dB	---
		Repeatability (2σ)	30 Hz, AC/DC 4% sine wave	0.4 dB	0.4 dB	0.4 dB	0.3 dB
			30 Hz, AC/DC 1.2% sine wave	1.4 dB	1.4 dB	1.5 dB	---
Waveform	Flicker*6	Measurement luminance range*8		---	---	---	---
		Sampling frequency		---	---	---	---
		Repeatability (2σ)	Lv:0.1 cd/m², fs:3 kHz, fc:1 kHz	---	---	---	---
	XYZ*6	Measurement luminance range*8		4 to 12,000 cd/m²	7 to 25,000 cd/m²	1 to 5,000 cd/m²	6 to 30,000 cd/m²
		Sampling frequency		3 kHz	3kHz	3 kHz	3 kHz
		Repeatability (2σ)	Lv: 0.1 cd/m²	---	---	---	---
			Lv: 1 cd/m²	---	---	---	---
VRR-Flicker *10*11	Flicker*6	Measurement luminance range*8		---	---	---	---
		Sampling frequency		---	---	---	---
		Measurement Target (Flicker frequency)		---	---	---	---
		Accuracy	1-120 Hz, AC/DC 10 % sine wave	---	---	---	---
		Repeatability (2σ)	1-120 Hz, AC/DC 10 % sine wave	---	---	---	---
	XYZ*6	Measurement luminance range*8		20 to 12,000 cd/m²	35 to 25,000 cd/m²	5 to 5,000 cd/m²	90 to 30,000 cd/m²
		Sampling frequency		3 kHz	3 kHz	3 kHz	3 kHz
		Measurement Target (Flicker frequency)		0.03 to 1.5k [Hz]	0.03 to 1.5k [Hz]	0.03 to 1.5k [Hz]	0.03 to 1.5k [Hz]
		Accuracy	1-120 Hz, AC/DC 10 % sine wave	± 0.22 %	± 0.22 %	± 0.24 %	± 0.18 %
		Repeatability (2σ)	1-120 Hz, AC/DC 10 % sine wave	0.32 %	0.32 %	0.34 %	0.26 %
Accuracy guaranteed measurement speed*4	Lvxy	AUTO		---	0.16 times/sec(> 0.002 cd/m²)	---	---
				1 times/sec(> 0.004 cd/m²)	1 times/sec(> 0.05 cd/m²)	1 times/sec (> 0.001 cd/m²)	1 times/sec (> 0.1 cd/m²)
				5 times/sec(> 0.6 cd/m²)	5 times/sec(> 1.5 cd/m²)	5 times/sec (> 0.15 cd/m²)	5 times/sec (> 0.9 cd/m²)
				20 times/sec(> 8 cd/m²)	20 times/sec(> 25 cd/m²)	20 times/sec (> 2 cd/m²)	20 times/sec (> 12 cd/m²)
	Flicker (Contrast)			20 times/sec	20 times/sec	20 times/sec	20 times/sec
	Flicker (JEITA)			0.5 times/sec(at 1 HzPitch), 2.5 times/sec(at 10 HzPitch)	0.5 times/sec(at 1 HzPitch), 2.5 times/sec(at 10 HzPitch)	0.5 times/sec (at 1 HzPitch), 2.5 times/sec (at 10 HzPitch)	0.5 times/sec (at 1 HzPitch), 2.5 times/sec (at 10 HzPitch)
	VRR-Flicker	Sampling frequency 3 kHz		0.7 times/sec (at 1s Obs.)	0.7 times/sec (at 1s Obs.)	0.7 times/sec (at 1s Obs.)	0.7 times/sec (at 1s Obs.)
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)	0.5 to 240 Hz (luminance and chromaticity)	0.5 to 240 Hz (luminance and chromaticity), 0.5 to 130 Hz (flicker)	0.5 to 240 Hz (luminance and chromaticity), 0.5 to 130 Hz (flicker)
User calibration memory channel				99 channels			
Interface	Communication			USB2.0, RS-232C			
	Trigger*9			IN: 1.8 V /3.3 to 5 V switching Out: 5 V			
Size (mm)				47 x 47 x 226.5	47 x 47 x 222.9	42 x 42 x 139.7	42 x 42 x 77
Weight				570 g (including mount)	580 g (including mount)	270 g (including mount)	200 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 (6,500 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 FLAME] 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.
"XYZ" can only be used when no CA-DP40 data processor is connected.
*7: 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 fuctions.
*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 1.8 V 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.

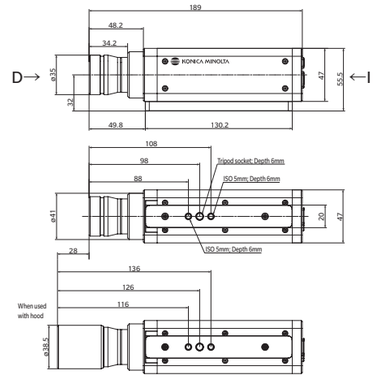
* Unless otherwise specified, specifications are given for conditions established by Konica Minolta.

Probe Dimensions (unit: mm)

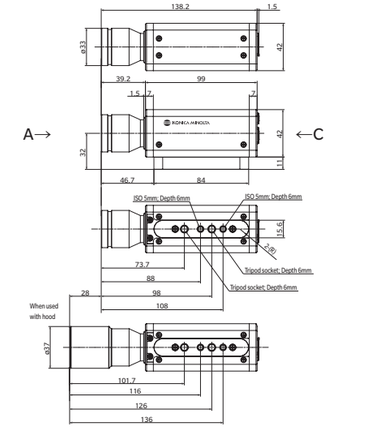
CA-527 Display Color Analyzer



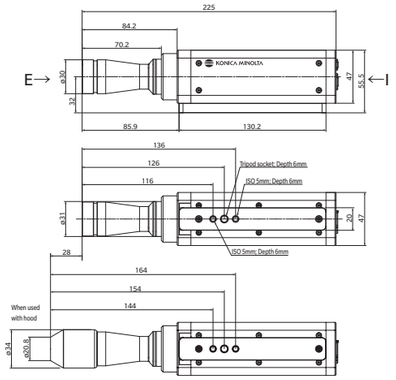
CA-VP427A Ø27 Advanced High Sensitivity Probe



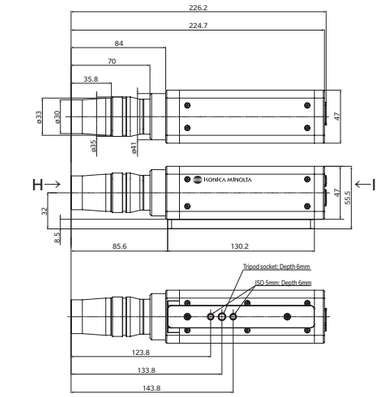
CA-P427 Ø27 Normal Probe
CA-P427H Ø27 High Luminance Probe
CA-P427C Ø27 Normal Probe



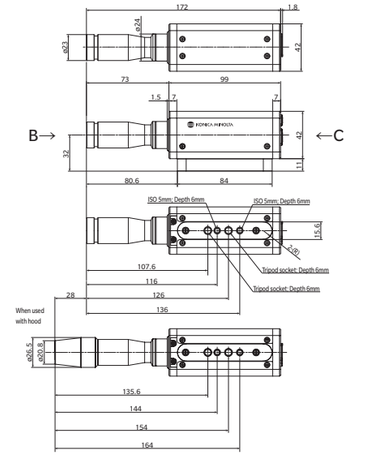
CA-VP410A Ø10 Advanced High Sensitivity Probe
CA-P410H Ø10 High Sensitivity Probe for high luminance



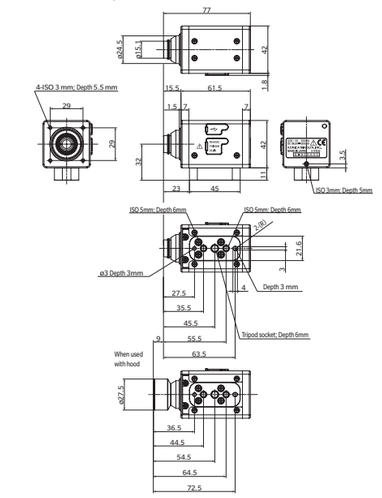
CA-VP410T Ø10 LWD Probe (200 mm)



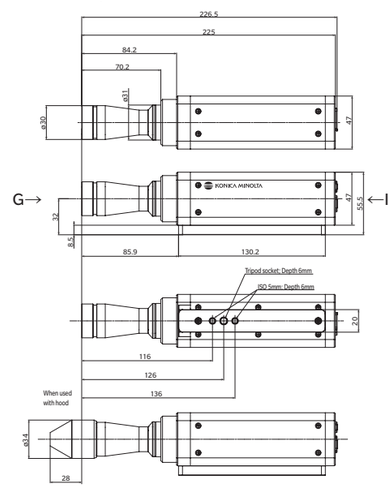
CA-P410 Ø10 Normal Probe
CA-P410H Ø10 High Luminance Probe



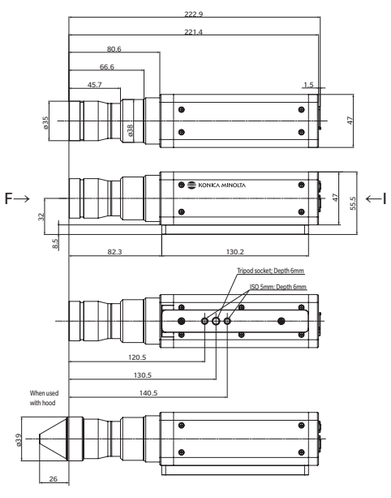
CA-MP410H Ø10 Mini High Luminance Probe

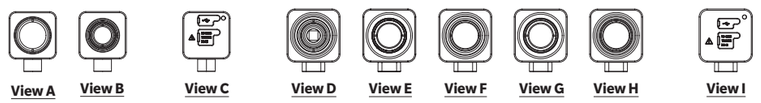


CA-VP404 Ø4 Small Spot Probe



CA-VP402 Ø2 Small Spot Probe





View A View B View C View D View E View F View G View H View I