

## Camera comparison

### CAMERA TYPES

- UHD-4K camera
- UHD-4K Touch camera
- HD-Ultra camera
- HD-Lite camera
- HD-Mini camera without HDS
- HD-Mini camera with HDS
- HD-Autofocus camera
- HD-Pro HDMI camera



MODELS	UHD-4K	UHD-4K Touch	HD-Ultra	HD-Lite	HD-Mini	HD-Mini +HDS	HD-Autofocus	HD-Pro HDMI
<b>Sensor</b>	Sony 4K	Sony 4K	Sony	Sony	Sony	Sony	Sony	Sony
<b>Format</b>	1/1.8", HDTV 4K	1/1.8", HDTV 4K	1/2.8", HDTV 1080p	1/2.8", HDTV 1080p	1/2.8", HDTV 1080p	1/2.8", HDTV 1080p	1/1.9", HDTV 1080p	1/2.8", HDTV 1080p
<b>Resolution*</b>	3840 x 2160 <sup>(1,2)</sup> HDMI 60 fps USB 30 fps	3840 x 2160 <sup>(1,2)</sup> HDMI 30 fps USB 20 fps	3264 x 1836 <sup>(1)</sup> 1920 x 1080 <sup>(2)</sup> HDMI 60 fps USB 30 fps	2592 x 1944 <sup>(1)</sup> 1920 x 1080 <sup>(2)</sup> HDMI 15 fps, USB 15fps	1920 x 1080 <sup>(1,2)</sup> HDMI 60 fps	1920 x 1080 <sup>(1,2)</sup> HDMI 60 fps	1920 x 1080 <sup>(1,2)</sup> HDMI 60 fps WiFi mode 25 fps	3840 x 2160 <sup>(1)</sup> 1920 x 1080 <sup>(2)</sup> HDMI 60 fps, USB 26 fps
<b>Pixel size</b>	2.0 x 2.0 (µm)	2.0 x 2.0 (µm)	2.8 x 2.8 (µm)	2.0 x 2.0 (µm)	2.9 x 2.9 (µm)	2.9 x 2.9 (µm)	3.75 x 3.75 (µm)	1.45 x 1.45 (µm)
<b>Video output</b>	HDMI, USB-2.0, Ethernet, WiFi	HDMI, USB-2.0	HDMI, USB-2.0	HDMI, USB-2.0	HDMI	HDMI	HDMI, WiFi	HDMI, USB-C
<b>Scan mode</b>	Progressive	Progressive	Progressive	Progressive	Progressive	Progressive	Progressive	Progressive
<b>Exposure</b>	Automatic/ manual	Automatic/ manual	Automatic/ manual	Automatic/ manual	Automatic/ manual	Automatic/ manual	Automatic/ manual	Automatic/ manual
<b>White balance</b>	Automatic/ manual/ROI	Automatic/ manual/ROI	Automatic/ manual	Automatic/ manual	Automatic/ manual	Automatic/ manual	Automatic/ manual	Automatic/ manual/ROI
<b>Sensitivity Lux/sec</b>	3541 mV (1/30 s)	505 mV	510 mV	1000 mV	1300 mV	1300 mV	1120 mV (1/30s)	300 mV (1/30s)
<b>Noise</b>	3D algorithm	Standard noise reduction	3D algorithm	3D algorithm	3D algorithm	3D algorithm	3D algorithm	3D algorithm
<b>Color rendering (bits)</b>	36	32	36	24	12	12	24	24
<b>Signal/Noise (db)</b>	40.5	40.5	55	40.5	42	42	50	38
<b>Dynamic (db)</b>	48	48	69	60	69	69	65	66
<b>Interfaces</b>	Digital HDMI, USB-3 Ethernet, WiFi	Digital HDMI, USB-2	Digital HDMI, USB-2	Digital HDMI, USB-2	Digital HDMI	Digital HDMI	Digital HDMI, WiFi	Digital HDMI, USB-C
<b>Storage</b>	32 GB SD card (≤ 128GB) or USB drive <sup>(7)</sup>	32 GB SD card (≤ 128GB) or USB drive <sup>(7)</sup>	16 GB SD card (max. 32 GB)	6 GB SD card (max. 32 GB)	32 GB SD card (max.128 GB)	32 GB SD card (max.128 GB)	32 GB SD card (max. 128 GB)	32 GB SD card (max. 128 GB)
<b>Software</b>	ImageFocus Alpha	ImageFocus Alpha	ImageFocus Plus	ImageFocus Plus	--	--	--	ImageFocus Alpha
<b>Software languages</b>	15 <sup>(6)</sup>	15 <sup>(6)</sup>	13 <sup>(5)</sup>	13 <sup>(5)</sup>	--	--	15 <sup>(6)</sup>	15 <sup>(6)</sup>
<b>Camera buttons</b>	on/off	on/off	on/off	on/off	--	--	on/off	on/off
<b>Mounting</b>	C-mount	C-mount	C-mount	C-mount	C-mount	C-mount	C-mount	C-mount
<b>External power supply</b>	100-240 Vac - 12Vdc/1A	100-240 Vac - 12Vdc/2A	100-240 Vac - 12Vdc/2A	100-240 Vac - 12Vdc/2A	100-240 Vac - 12Vdc/1A	100-240 Vac - 12Vdc/1A	100-240 Vac - 12Vdc/2A	100-240 Vac - 12Vdc/2A
<b>Relative humidity</b>	30 - 80 %	30 - 80 %	45 - 85 %	45 - 85 %	30 - 80 %	30 - 80 %	45 - 85%	30 - 80%
<b>Temperature / Operation / Storage</b>	-10 - 50° C -20 - 60° C	10 - 50° C -20 - 60° C	0 - 60° C -20 - 70° C	0 - 60° C -20 - 70° C	-10 - 50° C -20 - 60° C	-10 - 50° C -20 - 60° C	-10 - 40° C -20° C - 60° C	-10 - 50° C -20° C - 60° C
<b>Product number</b>	VC.3045 VC.3045-HDS <sup>(4)</sup>	VC.3043-HDS Touch <sup>(4)</sup>	VC.3036 VC.3036-HDS <sup>(4)</sup>	VC.3031 VC.3031-HDS <sup>(4)</sup>	VC.3023 --	-- VC.3024-HDS <sup>(4)</sup>	VC.3034 VC.3034-HDS <sup>(4)</sup>	VC.3039 VC.3039-HDS <sup>(4)</sup>

\* Frame rates depend on resolution and output mode and have been determined at optimal conditions

<sup>(1)</sup> capture mode <sup>(2)</sup> live view <sup>(3)</sup> USB-2.0 compatible <sup>(4)</sup> model with attached HD screen, 1080p

<sup>(5)</sup> One language can be selected during initial installation of the ImageFocus Plus software: English, Chinese Simplified, Traditional Chinese, Thai, German, Italian, French, Korean, Japanese, Russian, Polish and Portugese

<sup>(6)</sup> English, Catalan, Indonesian, Polish, Chinese Simplified, Traditional Chinese, Thai, German, Italian, French, Korean, Japanese, Russian, Turkish, Spanish

<sup>(7)</sup> Not included

## PACKAGE CONTENT

MODELS	UHD-4K	UHD-4K Touch	HD-Ultra	HD-Lite	HD-Mini	HD-Mini+HDS	HD-Autofocus	HD-Pro
Compatible	Win 10 and higher Mac OS, Linux	Win 10 and higher Mac OS, Linux	Win 10 and higher Mac OS	Win 10 and higher Mac OS	--	--	--	Win 10 and higher Mac OS, Linux
C-mount with objective	0.5x	0.5x	0.37x	0.45x	0.37x	0.37x	0.5x	0.37x
HDMI & USB cable	•	•	•	•	Only HDMI	Only HDMI	Only HDMI	•
30 and 30.5 mm conversion adapters (stereomicroscopes)	•	•	•	•	•	•	•	•
SD card	32 GB	32 GB	16 GB	8 GB	32 GB	32 GB	32 GB	32 GB
Calibration slide 10mm/100	•	•	•	•	--	--	•	•
External power netadapter	12V 1A	12V 1A	12V 2A	12V 2A	12V 1A	12V 1A	12V 1A	12V 1A
Dimensions (w x d x h)	88 x 78 x 65	88 x 78 x 65	80 x 70 x 90	80 x 70 x 90	51ø x 60	50 x 50 x 60	81 x 65 x 78	81 x 65 x 78
Weight (grams)	480	480	440	280	50	130	500	500
Product number	VC.3045		VC.3036	VC.3031	VC.3023	--	VC.3034	VC.3039
With 11.6" HD screen			VC.3036-HDS	VC.3031-HDS	--			
With 13" HD screen	VC.3045-HDS	VC.3043-HDS			--	VC.3024-HDS	VC.3034-HDS	VC.3039-HDS

## BUILT-IN SOFTWARE FEATURES (HDMI MODE)

MODELS	UHD-4K	UHD-4K Touch	HD-Ultra	HD-Lite	HD-Mini	HD-Mini+HDS	HD-Autofocus	HD-Pro HDMI
Image capturing	3840 x 2160	3840 x 2160	3261 x 1840	2592 x 1944	1920 x 1080	1920 x 1080	1920 x 1080	3840 x 2160
Video recording	3840 x 2160 MP4	3840 x 2160 MP4	1920 x 1080 AVI	1920 x 1080 AVI	1920 x 1080 MP4	1920 x 1080 MP4	1920 x 1080 ASF	1920 x 1080 MP4
Browse saved images	•	•	•	•	•	•	•	•
Browse saved video's	•	•	•	•	•	•	--	•
Mouse driven	•	•	•	•	•	•	•	•
Auto Exposure	•	•	•	•	•	•	•	•
Exposure time	0.04 ~ 1000 ms	0.04 ~ 1000 ms	0.001s ~ 10 s	0.001s ~ 10 s	0.01 ~ 1000 ms	0.01 ~ 1000 ms	0.06 ~ 918 ms	0.04 ~ 1000 ms
Gain	•	•	•	•	•	•	•	•
RGB & white balance	•	•	•	•	•	•	•	•
Gamma	•	•	•	•	•	•	•	•
Sharpness	•	•	•	•	•	•	•	•
Noise reduction	3D algorithm	Standard noise reduction	3D algorithm	3D algorithm	3D algorithm	3D algorithm	3D algorithm	3D algorithm
Saturation & contrast	•	•	•	•	•	•	•	•
Horiz. & vert. flip	•	•	•	•	•	•	•	•
Grids	cross/multi	cross/multi	cross/multi	multi	multi	multi	multi	User defined
Autofocus	--	--	--	--	--	--	•	--
Compare function	•	•	•	•	--	--	•	•
Measurement functions	captured & live images	captured & live images	captured & live images	--	captured & live images	captured & live images	captured & live images	captured & live images
Calibration table	•	•	•	--	•	•	•	•
Line & free curve	•	•	•	--	•	•	•	•
Polygon & rectangle	•	•	•	--	•	•	•	•
Angle	•	•	•	--	•	•	•	•
Circle 3 points	•	•	•	--	•	•	•	•
Circle radius	•	•	•	--	•	•	•	•
Export function	CSV	CSV	CSV, Txt	--	CSV	CSV	CSV	CSV
Languages	10 <sup>(4)</sup>	10 <sup>(4)</sup>	9 <sup>(3)</sup>	9 <sup>(3)</sup>	10 <sup>(4)</sup>	10 <sup>(4)</sup>	10 <sup>(4)</sup>	10 <sup>(4)</sup>

## HDMI mode

<sup>(3)</sup> English, Chinese Simplified, Traditional Chinese, German, Italian, French, Korean, Japanese, Spanish

<sup>(4)</sup> English, Chinese Simplified, Traditional Chinese, Thai, German, Italian, French, Korean, Japanese, Russian

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