

## Video Input/Out Specifications

Monitor Model	PN	Screen Resolution	Display Bit Depth	Format Support	Maximum Support signal	HDMI 1.4 In/Output			HDMI 2.0 In/Output		
						Maximum Support signal	Max Cable length	Inter-connection joints	Maximum Support signal	Max Nauticam HDMI 2.0 Cable length	Inter-connection joints
SmallHD-502B	17920	1920 x 1080	10-Bit	<b>HDMI (8/10/12-Bit)</b> 1080p: 60/59.94/50/30/25/24/23.98 1080PsF: 30/25/24/23.98 1080i: 60/59.94/50 720p: 120/119.88/100/60/59.94/50/30/25/24/23.98 576p: 100/50 480p: 120/119.88/60/59.94 480i: 240/239.76/120/119.88/60/59.94 576i: 200/100/50	1080 60P 10bit	1080 60P 10bit	10m	3 joints Internal cable/bulkhead/monitor cable	N/A	N/A	N/A
SmallHD-502	17906	1920 x 1080	8-Bit	1080P	1080P60	1080 60p/8bit	10m	3 joints Internal cable/bulkhead/monitor cable	N/A	N/A	N/A
Atomos-Ninja V	17922	1920 x 1080	8-Bit+FRC	<b>HDMI (8/10-Bit 4:2:2)</b> DCI 4K: 60/50/30/25/24 UHD 4K: 60/50/30/25/24 1080p: 120/60/50/30/25/24 1080i: 60/50 720p: 60/50	DCI 4K 60p/10bit	UHD 4K 60P/8bit	5m	3 joints Internal cable/bulkhead/monitor cable	DCI 4K 60p /10bit	2 meters	One straight cable
Atomos-Shogun	17909N	1920 x 1200	8-Bit+FRC	<b>HDMI (8/10-Bit 4:2:2)</b> UHD 4K: 24/25/30/50/60 1080p: 24/25/30/50/60/120/240 1080i: 50/60 720p: 50/60 <b>SDI (8/10-Bit 4:2:2)</b> DCI 4K: 24/25/30/50/60 1080p: 24/25/30/50/60/120 1080PsF: 24/25/30 1080i: 50/60 720p: 50/60	DCI 4K 60p/10bit	UHD 4K 60P/8bit	5m	3 joints Internal cable/bulkhead/monitor cable	DCI 4K 60p /10bit	2 meters	One straight cable

Camera Brand	Model	HDMI Connector	Internal record Mode	Max. Internal record	Max. HDMI Output	Housing Cable Support	
						HDMI2.0	HDMI1.4
Panasonic	GH5S	Type A	AVCHD Full HD (1920 x 1080) at 50p/59.94p [28 Mb/s] Full HD (1920 x 1080) at 50i/59.94i [17 to 24 Mb/s] Full HD (1920 x 1080) at 23.976p [24 Mb/s] MP4 4:2:0 10-Bit UHD 4K (3840 x 2160) at 23.976p/25p/29.97p [72 Mb/s] MOV/MP4 4:2:0 8-Bit DCI 4K (4096 x 2160) at 23.976p/24.00p/25p/29.97p [100 Mb/s] DCI 4K (4096 x 2160) at 50p/59.94p [150 Mb/s] UHD 4K (3840 x 2160) at 23.976p/24.00p/25p/29.97p [100 Mb/s] UHD 4K (3840 x 2160) at 50p/59.94p [150 Mb/s] Full HD (1920 x 1080) at 23.976p/24.00p/25p/29.97p/50p/59.94p [100 Mb/s] Full HD (1920 x 1080) at 25p/29.97p [20 Mb/s] Full HD (1920 x 1080) at 23.976p/24.00p [24 Mb/s] Full HD (1920 x 1080) at 50p/59.94p [28 Mb/s] MOV/MP4 4:2:2 10-Bit DCI 4K (4096 x 2160) at 23.976p/24.00p [150 to 400 Mb/s] DCI 4K (4096 x 2160) at 25p/29.97p [150 Mb/s] UHD 4K (3840 x 2160) at 23.976p/24.00p/25p/29.97p [150 to 400 Mb/s]	UHD4K60P 10bit	UHD4K60P 10bit	Yes	Yes
Panasonic	S1R	Type A	MP4/H.264 4:2:0 8-Bit UHD 4K (3840 x 2160) at 59.94p [150 Mb/s] UHD 4K (3840 x 2160) at 23.976p/29.97p [100 Mb/s] Full HD (1920 x 1080) at 59.94p [28 Mb/s] Full HD (1920 x 1080) at 29.97p [20 Mb/s] AVCHD 4:2:0 8-Bit Full HD (1920 x 1080) at 59.94p [28 Mb/s] Full HD (1920 x 1080) at 23.976p [24 Mb/s] Full HD (1920 x 1080) at 59.94i [17 Mb/s] Full HD (1920 x 1080) at 59.94i [24 Mb/s]	UHD4K/60p 8bit	UHD4K/60p 8bit	Yes	Yes

Panasonic	S1H	Type A	<p>MOV/H.265 4:2:0 10-Bit  6K 3:2 (5952 x 3968) at 23.976p/24.00p [200 Mb/s]  5.4K 3:2 (5376 x 3584) at 25p/29.97p [200 Mb/s]  5.9K (5888 x 3312) at 23.976p/24.00p/25p/29.97p [200 Mb/s]  DCI 4K (4096 x 2160) at 47.95p/48.00p/50p/59.94p [200 Mb/s]  UHD 4K (3840 x 2160) at 47.95p/48.00p/50p/59.94p [200 Mb/s]  4K Anamorphic (3328 x 2496) at 47.95p/48.00p/50p [200 Mb/s]  Full HD (1920 x 1080) at 47.95p/48.00p/100p/119.88p [100 to 150 Mb/s]</p> <p>MOV/H.264 4:2:2 10-Bit  DCI 4K (4096 x 2160) at 23.976p/24.00p/25p/29.97p [150 to 400 Mb/s]  UHD 4K (3840 x 2160) at 23.976p/24.00p/25p/29.97p [150 to 400 Mb/s]  4K Anamorphic (3328 x 2496) at 23.976p/24.00p/25p/29.97p [150 to 400 Mb/s]  Full HD (1920 x 1080) at 23.976p/24.00p/25p/29.97p/50i/50p/59.94i/59.94p [50 to 200 Mb/s]</p> <p>MOV/H.264 4:2:0 8-Bit  DCI 4K (4096 x 2160) at 23.976p/24.00p/25p/29.97p/50p/59.94p [100 to 150 Mb/s]  UHD 4K (3840 x 2160) at 23.976p/24.00p/25p/29.97p/50p/59.94p [100 to 150 Mb/s]  4K Anamorphic (3328 x 2496) at 23.976p/24.00p/25p/29.97p/50p</p>	6k/24p 10bit	DCI 4K/60P 10bit	Yes	Yes
Blackmagic	BMPCC4K	Type A	<p><b>ProRes 422HQ:</b>  4096 x 2160 at 23.98/24/25/29.97/30/50/59.94/60 fps (117.88 MB/s)  3840 x 2160 at 23.98/24/25/29.97/30/50/59.94/60 fps (110 Mb/s)  1920 x 1080p at 23.98/24/25/29.97/30/50/59.94/60/120 fps (27.5 MB/s)</p> <p><b>ProRes 422:</b>  4096 x 2160 at 23.98/24/25/29.97/30/50/59.94/60 fps (78.63 MB/s)  3840 x 2160 at 23.98/24/25/29.97/30/50/59.94/60 fps (73.6 MB/s)  1920 x 1080p at 23.98/24/25/29.97/30/50/59.94/60/120 fps (18.4 MB/s)</p> <p><b>ProRes 422LT:</b>  4096 x 2160p at 23.98/24/25/29.97/30/50/59.94/60 fps (54.63 MB/s)  3840 x 2160 at 23.98/24/25/29.97/30/50/59.94/60 fps (51 MB/s)  1920 x 1080p at 23.98/24/25/29.97/30/50/59.94/60/120 fps (12.75 MB/s)</p> <p><b>ProRes 422 Proxy:</b></p>	4KUHD/60p 8bit	1080/60p 10bit	Yes	Yes
Blackmagic	BMPCC6K	Type A	<p><b>Raw Recording</b>  6144 x 3456 at 23.98/24/25/29.97/30/50 fps (49 to 483 MB/s)  6144 x 2560 at 23.98/24/25/29.97/30/50/59.94/60 fps (37 to 359 MB/s)  5744 x 3024 at 23.98/24/25/29.97/50/59.94/60 fps (40 to 395 MB/s)</p> <p><b>Recording Mode:</b>  <b>ProRes 422HQ:</b>  4096 x 2160 at 23.98/24/25/29.97/30/50/59.94/60 fps (24.25 to 117.88 MB/s)  3840 x 2160 at 23.98/24/25/29.97/30/50/59.94/60 fps (22.4 to 110 Mb/s)  1920 x 1080p at 23.98/24/25/29.97/30/50/59.94/60/120 fps (27.5 MB/s)</p> <p><b>ProRes 422:</b>  4096 x 2160 at 23.98/24/25/29.97/30/50/59.94/60 fps (78.63 MB/s)  3840 x 2160 at 23.98/24/25/29.97/30/50/59.94/60 fps (73.6 MB/s)  1920 x 1080p at 23.98/24/25/29.97/30/50/59.94/60/120 fps (18.4 MB/s)</p> <p><b>ProRes 422LT:</b>  4096 x 2160p at 23.98/24/25/29.97/30/50/59.94/60 fps (54.63 MB/s)</p>	6144 x 3456/50p	10 bit 4:2:2 1080P HD video with support for HDR and two channels of embedded audio	Yes	Yes
Z CAM	Z CAM E2C	Type A	<p>H.265/MOV/MP4 10-Bit:  3840 x 2160p at 23.98/24/25/29.97 fps  2880 x 2880 at 23.98/24/25/29.97 fps  1920 x 1080 at 23.98/24/25/29.97/50/59.94 fps</p> <p>H.264/MOV/MP4 8-Bit:  3840 x 2160p at 23.98/24/25/29.97 fps (230 Mb/s)  2880 x 2880p at 23.98/24/25/29.97 fps (230 Mb/s)  1920 x 1080p at 23.98/24/25/29.97/50/59.94 fps (200 Mb/s)</p>	UHD 4K 30p 10bit/8bit	4K @ 60 fps	Yes	Yes

Z CAM	Z CAM E2 S6	Type A	<p>H.265/MOV/MP4 4:2:0 10-Bit:  6244 x 4168p up to 30 fps (300 Mb/s)  6144 x 3240p up to 48 fps (300 Mb/s)  6144 x 2592p up to 75 fps (300 Mb/s)  5760 x 3240p up to 48 fps (300 Mb/s)  5552 x 4164p up to 30 fps (300 Mb/s)  4992 x 4160p up to 30 fps (300 Mb/s)  4096 x 2160p up to 75 fps (300 Mb/s)  4096 x 1728p up to 100 fps (300 Mb/s)  3840 x 2160p up to 75 fps (300 Mb/s)  1920 x 1080p up to 120 fps (300 Mb/s)</p> <p>H.264/MOV/MP4 4:2:0 8-Bit:  6244 x 4168p up to 30 fps (300 Mb/s)  6144 x 3240p up to 48 fps (300 Mb/s)  6144 x 2592p up to 75 fps (300 Mb/s)  5760 x 3240p up to 48 fps (300 Mb/s)  5552 x 4164p up to 30 fps (300 Mb/s)  4992 x 4160p up to 30 fps (300 Mb/s)  4096 x 2160p up to 75 fps (300 Mb/s)  4096 x 1728p up to 120 fps (300 Mb/s)  3840 x 2160p up to 75 fps (300 Mb/s)  3840 x 1620p up to 90 fps (300 Mb/s)</p>	6K 30p 10bit/8bit	C4K @ 60fps 10bit	Yes	N/A
Z CAM	Z CAM E2 F6	Type A	<p>H.265/MOV/MP4 4:2:0 10-Bit:  6244 x 4168p up to 30 fps (300 Mb/s)  6144 x 3240p up to 48 fps (300 Mb/s)  6144 x 2592p up to 60 fps (300 Mb/s)  5760 x 3240p up to 48 fps (300 Mb/s)  5552 x 4164p up to 30 fps (300 Mb/s)  4992 x 4160p up to 30 fps (300 Mb/s)  4096 x 2160p up to 72 fps (300 Mb/s)  4096 x 1728p up to 120 fps (300 Mb/s)  3840 x 2160p up to 72 fps (300 Mb/s)  3840 x 1620p up to 90 fps (300 Mb/s)  1920 x 1080p up to 120 fps (300 Mb/s)</p> <p>H.264/MOV/MP4 4:2:0 8-Bit:  6244 x 4168p up to 30 fps (300 Mb/s)  6144 x 3240p up to 48 fps (300 Mb/s)  6144 x 2592p up to 60 fps (300 Mb/s)  5760 x 3240p up to 48 fps (300 Mb/s)  5552 x 4164p up to 30 fps (300 Mb/s)  4992 x 4160p up to 30 fps (300 Mb/s)  4096 x 2160p up to 72 fps (300 Mb/s)  4096 x 1728p up to 120 fps (300 Mb/s)  3840 x 2160p up to 72 fps (300 Mb/s)  3840 x 1620p up to 90 fps (300 Mb/s)</p>	6K 30p 10bit/8bit	C4K @ 60fps 10bit	Yes	N/A
Z CAM	Z CAM E2 F8	Type A	8192x3456 @30fps (DCI 8K 2.4:1) 7680x4320 @30fps (8K UHD) 6144x3240 @30fps max (DCI 6K)* 5760x3240 @30fps max (6K UHD)* 3840x2160 @30fps max (4K UHD)*	DCI 8K 30p/8bit	C4K @ 60fps 10bit	Yes	N/A

## HDMI 1.4 Related Products

Maximum input: the rate of 4K is limited to 24/30 frames per second, 8 bit color depth  
 Maximum cable length: within 10 meters

- 17904 Nauticam Atomos Shogun Housing for Atomos Shogun and Assassin 10-bit 4K SDI / HDMI Recorder/Monitor/Player (with HDMI 1.4 input)
- 17906 NA-502H housing for Small HD 502 5-inch HD monitor with HDMI 1.4 input support
- 17908 NA-FHD5 Housing for Sony CLM-FHD5 Full HD Monitor
- 17909 Nauticam Atomos Flame Housing (with HDMI 1.4 input) for Atomos Ninja Flame/Shogun Flame/Shogun Inferno 7" 10-bit 4K/HD SDI / HDMI Recorder/Monitor/Player
- 17920 NA-502B-H Housing for SmallHD 502 Bright Monitor (with HDMI 1.4 input support)
- 25028 Socket extension for 25032 HDMI bulkhead with M16 thread
- 25029 Socket extension for HDMI bulkhead with M14 thread
- 25031 Socket extension for HDMI bulkhead with 1/2" thread
- 25032 Custom HDMI bulkhead to use with socket extension
- 25033 Standard HDMI bulkhead with M16 thread
- 25035 HDMI (D-C) cable in 130mm length (for connection from HDMI bulkhead to camera)
- 25036 HDMI (D-C) cable in 190mm length (for connection from HDMI bulkhead to camera)
- 25042 HDMI (D-C) cable in 240mm length (for connection from HDMI bulkhead to camera)
- 25045 HDMI (D-C) cable in 240mm length (to use with 25031, for connection from HDMI bulkhead to camera)
- 25046 HDMI (D-D) cable in 200mm length for NA-RX100V/GH4/A7 (for connection from HDMI bulkhead to camera)
- 25048 HDMI (A-D) cable in 200mm length (for NA-058)
- 25038 HDMI (A-D) 1.4 cable in 750mm length (for connection from monitor housing to HDMI bulkhead)
- 25039 HDMI (A-D) 1.4 cable in 2000mm length (for connection from monitor housing to HDMI bulkhead)
- 25040 HDMI (A-D) 1.4 cable in 5000mm length (for connection from monitor housing to HDMI bulkhead)
- 25047 HDMI (D-D) 1.4 cable in 800mm length (for connection between HDMI bulkheads)
- 25071 HDMI 1.4 cable (A-D) in 0.75m length (for connection from Shogun housing to HDMI bulkhead)
- 25075 HDMI (D-A) 1.4 Cable in 190mm Length for NA-GH5/G9 (for internal connection from HDMI bulkhead to camera)
- 25076 HDMI (D-D) 1.4 Cable in 200mm Length for NA-XT2/XH1/A6400 (for internal connection from HDMI bulkhead to camera)
- 25083 HDMI (D-A) 1.4 Cable in 240mm Length for NA-BMPCII/S1R (for internal connection from HDMI bulkhead to camera)
- 25082 HDMI 1.4 Cable for Ninja V Housing in 0.75m Length (for connection from Ninja V housing to HDMI Bulkhead)
- 25070 HDMI bulkhead with integrated HDMI 1.4 cable and type D connector

## HDMI Versions Comparison

HDMI Version	Max Resolution	Max 4K Frame rate	HDCP 2.2	HDR	WCG	Hybrid Log Gamma	Dynamic Metadata
1.4	4K	30Hz	No	No	No	No	No
2.0	4K	60Hz	Yes	No	No	No	No
2.0a	4K	60Hz	Yes	Yes	Yes	No	No
2.0b	4K	60Hz	Yes	Yes	Yes	Yes	No
2.1	10K	120Hz	Yes	Yes	Yes	Yes	Yes

	HDMI 1.4	HDMI 2.0
<b>Bandwidth</b>	10.2Gbps	18Gbps
<b>4K @ 30Hz</b>	Yes	Yes
<b>4K @ 60Hz</b>	No	Yes
<b>Up to 32 Audio Channels</b>	No	Yes

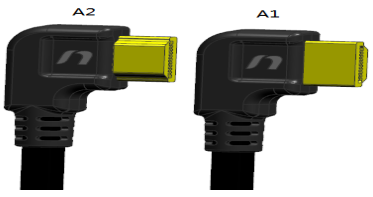




## HDMI 2.0 Cable Compatibility Chart

Maximum input: The current bandwidth capacity for HDMI 2.0 is 18 Gbps, 4K picture at 60 FPS or an 8K picture at 30 FPS

Maximum cable length: within 5 meters

Camera Housing	Monitor Housing	Product NO.	Description	Product Naming system: Thread size-Connector-Orientation-Cable length mm		Colour band on camera side	Cable clamp
				Camera Side	Monitor Side		
NA-XT3	Ninja V/17909N	25077	M24D1R205-M28A1R170 HDMI 2.0 Cable (for NA-T3 to use with Ninja V housing)	M24-Type D1-Right angle-205mm	M28-Type A1-Right angle-170mm	Yellow	Y
NA-BMPCCII	Ninja V/17909N	25078	M28A1R225-M28A1R170 HDMI 2.0 Cable (for NA-BMPCCII/S1R to use with Ninja V housing)	M28-Type A1-Right angle-225mm	M28-Type A1-Right angle-170mm	Blue	N
NA-S1R	Ninja V/17909N	25078	M28A1R225-M28A1R170 HDMI 2.0 Cable (for NA-BMPCCII/S1R to use with Ninja V housing)	M28-Type A1-Right angle-225mm	M28-Type A1-Right angle-170mm	Blue	Y
NA-GH5SV	Ninja V/17909N	25079	M28A2R210-M28A1R170 HDMI 2.0 Cable (for NA-GH5V to use with Ninja V housing)	M28-Type A2-Right angle-210mm	M28-Type A1-Right angle-170mm	Green	N
NA-EM1X	Ninja V/17909N	25084	M24D1R270-M28A1R170 HDMI 2.0 Cable (for NA-EM1X to use with Ninja V housing)	M24-Type D1-Right angle-270mm	M28-Type A1-Right angle-170mm	Yellow	Y
NA-Z7V	Ninja V/17909N	25085	M28C1R200-M28A1R170 in 1m length	M28-Type C1-Right angle-200mm	M28-Type A1-Right angle-170mm	RED	Y
NA-Z7V	Ninja V/17909N	25087	M24D2R200-M28A1R170 HDMI 2.0 Cable	M24-Type D2 -Right angle -200mm	M28-Type A1-Right angle-170mm		

### HDMI Port Diagrams

Camera side Type A1,A2	Camera side Type C1	Camera side Type D1	Monitor side Type A1	Cable clamp
				

### Compatible monitor housings supporting HDMI 2.0 input

17909N Nauticam Atomos Flame Housing (with HDMI 2.0 input) for Atomos Ninja Flame/Shogun Flame/Shogun Inferno 7" 10-bit 4K/HD SDI / HDMI Recorder/Monitor/Player

17922 Nauticam Atomos Ninja V Housing for Atomos Ninja V 5" 4Kp60 4:2:2 10-bit Reorder/Monitor/Player (excl. HDMI 2.0 cable)