Specifications

General

Power: DC 7.28 V (when the battery is used) DC 12 V (when the AC adapter is used)

Power Consumption: 17 W (when the LCD monitor is used) 11.5 W (1080p / 425ALL-I 100M recording, when the LCD monitor is used, no external device connection)

Operating Temperature: 0 °C to 40 °C (32 °F to 104 °F)

Operating Humidity: 10 % to 80 % (no condensation)

Weight: Body: approx. 1.9 kg (4.1 lb) (body only, excluding lens hood, battery, and accessories) Shooting: approx. 2.3 kg (5.07 lb) (including lens hood, battery, and microphone holder)

Dimensions: 180 mm (W) x 173 mm (H) x 311 mm (D) (excluding protrusion and eye cup)

Camera Unit

Pickup Device: 1.0-type (effective size) MOS solid state image sensor

Effective Pixels: 15,030,000 pixel

Lens: Optical image stabilizer lens, optical 20x motorized zoom F value f/2.8 to F4.5

Gain Setting: L/M/H selector switch

Color Temperature Setting: ATW, ATW LOCK, A, B, C

Shutter Speed: When [SYSTEM MODE] = 59.94 Hz
- 25p mode: 1/25.0 sec., 1/50.0 sec., 1/100 sec., 1/200 sec., 1/400 sec.

When [SYSTEM MODE] = 50.00 Hz

When [SYSTEM MODE] = 50.00 Hz

Shutter Speed (Slow Shutter): When [SYSTEM MODE] = 59.94 Hz

When [SYSTEM MODE] = 50.00 Hz

Shutter Speed (Synchro Scan): When [SYSTEM MODE] = 59.94 Hz
- 59.94/59.94p mode: 1/60.0 sec. to 1/7200 sec.
- 29.97p mode: 1/30.0 sec. to 1/7200 sec.
- 23.98p mode: 1/24.0 sec. to 1/7200 sec.

When [SYSTEM MODE] = 50.00 Hz
- 50/50p mode: 1/50.0 sec. to 1/7200 sec.

Shutter Open Angle: 3.0 deg to 180.0 deg to 360.0 deg (in 0.5 deg steps)

VFR Recording Frame Rate:
- When [SYSTEM MODE] = 59.94 Hz
  1, 2, 4, 6, 9, 12, 15, 18, 20, 21, 22, 24, 25, 26, 27, 28, 30, 32, 34, 36, 40, 44, 48, 54, 60 fps
- When [SYSTEM MODE] = 50.00 Hz
  1, 2, 4, 6, 9, 12, 15, 18, 20, 21, 22, 23, 24, 25, 26, 27, 28, 30, 32, 34, 37, 42, 45, 48, 50 fps

Super Slow Recording:
- When [SYSTEM MODE] = 59.94 Hz
  1920 x 1080 (FHD): shooting frame rate 120 fps
- When [SYSTEM MODE] = 50.00 Hz
  1920 x 1080 (FHD): shooting frame rate 100 fps

Sensitivity: When [HIGH SENS.] mode
- F12 (2000x), 3200 K, 89.9 % reflect, 2160/59.94i, 1080/59.94a, 1080/59.94p
- F12 (2000x), 3200 K, 89.9 % reflect, 2160/50.00p, 1080/50.00p

Horizontal Resolution:
- 2000 TV or higher (LHD: center)
- 1000 TV or higher (FHD: center)

I.Zoom:
- x 32 (FHD), x 24 (UHD)

Digital Zoom:
- x 2 / x 5 / x 10

Lens Hood:
- Hood with lens cover

Memory Card Recorder

Recording Media:
- SDXC memory card (4 GB to 32 GB), SDXC memory card (32 GB to 128 GB)
- UHS-I/UHS-II UHS Speed Class 3 supported, Video Speed Class V90 supported

Recording Format (A series, B series)
- Please see page 11 for the "Available Memory Card" table.

Recording Slot:
- microP2/SDXC UHS-II card slot x 2

Recording Pixels:
- 3840 x 2160 (UHD), 1920 x 1080 (FHD), 1280 x 720 (HD), 720 x 480(SD), 720 x 576 (SD)

System Frequency:
- 59.94 Hz/50.00 Hz

Recording File Format:
- MOV (AVC), MOV (HEVC), AVCHD, P2 MXF*
- Please see page 6 for the "Recording Format" table.

Recording Format (A2/NC2/DC2):
- Please see page 11 for the "Recording Time" table.

2 Slot Functions:
- Relay Rec, Simultaneous Rec, Background Rec

Special Recording Functions:
- Pre Rec, Interval Rec, Time Stamp

Digital Video

Quantization:
- MOV: 4:2:2/4:2:0 8 bit/4:2:0/4:2:0 10 bit (HEVC)
- AVCHD: 4:2:0 8 bit
- P2: 4:2:2 10 bit/4:2:0 8 bit (AVC-LongG12)

Video Compression Format:
- MOV: H.264/MPEG-4 AVC High Profile
- H.265/MPEG-H HEVC Main10 Profile
- AVC-LongG12: MPEG-4 AVC/H.264 High Profile

Digital Audio

Recording Audio Signal:
- MOV: 48 kHz/24 bit, 2 ch, Linear PCM
- AVCHD: 48 kHz/16 bit, 2 ch, Dolby Audio™
- P2*: 48 kHz/24 bit, 4 ch, Linear PCM

(in AVC-LongG12, 48kHz/16 bit, 4 ch)

Headroom:
- 12 dB/18 dB/20 dB switchable (menu)

Live Streaming

Video Compression Format:
- H.264/MPEG-4 AVC Main Profile, High Profile

Video Resolution:
- 1920 x 1080 (FHD), 1280 x 720 (HD), 640 x 360, 360 x 180

Streaming Method: Unicast, Multicast

Frame Rate:
- System frequency = 59.94 Hz: 30 fps, 60 fps
- System frequency = 50.00 Hz: 25 fps, 50 fps

Bit Rate:
- 24 Mbps, 20 Mbps, 16 Mbps, 14 Mbps, 8 Mbps, 6 Mbps, 4 Mbps, 3 Mbps, 2 Mbps, 1.5 Mbps, 1 Mbps, 0.7 Mbps, 0.5 Mbps

Audio Compression Format:
- AAC-LC, 48 kHz/16 bit, 2 ch

Network Protocol:
- RTSP/RTMP/RTMPS

* To be supported within 2019.
### Video Output

**SDI OUT:**
- BNC x 1, SDI REC REMOTE supported
  - HD: 0.8 V [p-p], 75 Ω
  - SD: 0.8 V [p-p], 75 Ω
  - Output format: 4:2:2 10 bit
    - 1920 x 1080: 59.94p, 50p, 59.94i, 50i, 29.97p, 25p, 23.98PsF
    - 1280 x 720: 59.94p, 50p
    - 720 x 480: 59.94i
    - 720 x 576: 50i

**HDMI OUT:**
- HDMI x 1, Type A, SDI REC REMOTE supported, VIERA Link not supported
  - Output format: 4:2:2 10 bit
    - 3840 x 2160: 59.94p, 50p, 29.97p, 25p, 23.98p
    - 1920 x 1080: 59.94p, 50p, 59.94i, 50i, 29.97p, 25p, 23.98p
    - 1280 x 720: 59.94p, 50p
    - 720 x 480: 59.94i
    - 720 x 576: 50i

**VIDEO OUT:**
- 3.5 mm diameter mini jack, composite 1.0 V [p-p], 75 Ω

### Audio Input/Output

**Built-in Microphone:**
- Stereo microphone

**Input 1/2:**
- XLR (3-pin) x 2 (INPUT1, INPUT2)
  - Input high impedance, LINE/MIC/MIC+48V (switchable SW)
  - MIC: -40 dBu/-50 dBu/-60 dBu (switchable menu)
  - LINE: +4 dBu/0 dBu (switchable menu)

**SDI OUT:**
- Linear PCM 4 ch

**HDMI OUT:**
- Linear PCM 2 ch

**Headphone:**
- 3.5 mm diameter stereo mini jack x 1

**AV OUT:**
- 3.5 mm diameter stereo mini jack x 1
  - Output level: 600 Ω, 316 mV

**Speaker:**
- 20 mm diameter, round x 1

### Other Input/Output

**TC IN/OUT:**
- BNC x 1, used as the input and output terminals (switchable menu)
  - Input: 1.0 V to 4.0 V [p-p] 10 kΩ
  - Output: 2.0 V ± 0.5 V [p-p] low impedance

**LAN:**
- RJ-45: 1000BASE-T/100BASE-TX/10BASE-T
  - NDI | HX supported*
  - To use this function, an activation keycode from NewTek is required. Keycodes can be purchased from the following website: http://new.tknidi.panasonic

**USB 2.0 HOST:**
- Type-A, 4-pin (5 V, 0.5 A) for Wireless Module (option)

**USB 3.0 DEVICE:**
- USB 3.1 GEN1 Type-C, USB Mass storage function
  - No USB bus power function

**DC IN 12V:**
- DC 12 V EIAJ Type 4

### Monitor/Viewfinder

**LCD Monitor:**
- 3.5 type TFT LCD color monitor (3:2), approx. 1,620,000 dots, Touch panel
  - video display (16: 9) area: approx. 1,370,000 dots

**Viewfinder:**
- 0.39 type OLED (organic EL display), approx. 2,360,000 dots, video display (16: 9) area: approx. 1,770,000 dots

### Included Accessories

- Battery (AG-VBR59), Battery charger (AG-BRD50), AC adaptor, AC cable, Microphone holder kit, Shoulder strap, Eye cup, Lens hood*, Grip belt* and Operating instructions
  - Items marked by an asterisk (*) come already attached to the camera

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*As of June, 2019*