Ak-Hc3500A
Studio Handy Camera
Ak-Hc3500Ap/ Ak-Hc3500Aes (Lemo Connector Model)
Ak-Hc3500Ae (Tajimi Connector Model*)
* This Model Is Not Available In Some Areas.

High Performance HD Camera System with Optical Fiber Transmission Capability

* Build Up Unit Is Not Available In Some Areas.
The AK-HC3500A is an HD camera with optical fiber transmission capability that meets the needs of high-end broadcast work for shooting live relays, producing TV programs, and more. Its 2/3 type 2.2-megapixel 3CCD provides high sensitivity, low noise, and low smear, while pixel-shifting technology ensures high resolution, and a 16-bit A/D processing circuit delivers rich gradation. HD multi-formats, including 24P, 25P and 30P, and filmlike gamma curves allow the AK-HC3500A to handle a wide variety of TV program production tasks. Combined with a Camera Control Unit (CCU), Master Setup Unit (MSU), and Remote Operation Panel (ROP), this camera can be configured into a long-distance optical transmission system with stunning image quality and uncompressed digital signals. A wide range of system options are also available, such as a Build-up Unit and LCD Viewfinder.

### 3CCD with High Sensitivity, Low Noise and Low Smear

The 2/3 type 2.2-megapixel 3CCD enables standard sensitivity of F11 (2,000 lx/50 Hz), F10 (2,000 lx/59.94 Hz),which is one of the highest levels in this camera range. A high S/N ratio of 60 dB (at 59.94 Hz) produces high-quality images with low noise and low smear. Panasonic’s single-channel transfer system and spatial-offset processing technologies also improve signal modulation depth and reduce moire.

### HD Multi-Formats — Including 24p/25p/30p

In addition to 1080/59.94i and 1080/50i, the AK-HC3500A supports 1080/29.97p (over 59.94i), 1080/25p (over 50i) and 1080/23.98p (over 59.94i)* HD formats. This allows it to handle a wide variety of production tasks for series-type and other TV programs.

*The AK-HCU355A enables conversion to 1080/23.98p (over 47.96i).

### New High-Performance DSP Provides 16 bit A/D, 38 bit Processing

HD images are digitized with 74-MHz sampling and 16 bit A/D conversion. Full 38 bit processing within the DSP produces highly detailed, high-quality images.

### Dynamic Range Stretch (DRS)

The DRS function automatically suppresses blocked shadows and blown highlights. A gamma curve and knee slope are estimated to match the contrast of each pixel, and applied in real time. When dark, bright, and intermediate shades are all contained in the same scene, this produces excellent gradation for each shade. The images that result are enhanced by a visually wide dynamic range.

### Five Selectable Gamma Curves

Selectable gamma curves are included in the DSP circuit. The Film Rec mode and Video Rec mode produce the kinds of film tone that you get with Panasonic VARICAM models. There are five modes altogether, including Filmlike 1/2/3. They produce HD images with a film-like quality, natural gradation, and vivid color reproduction.

### Color Correction

The 12-axis color correction function allows precise and independent hue and saturation adjustment of individual colors.
Skin Tone Detail Correction
Separately reducing the sharpness of two skin tones helps tone down wrinkles and dull areas to produce beautiful, naturally textured results when recording people. Since it is possible to apply this function throughout the entire hue phase (360°), sharpness can also be reduced for colors other than skin tones.

Enhanced DTL Signal Processing
Enhanced DTL signal processing ensures superb picture quality with minimal noise in horizontal and vertical directions, as well as in the image’s dark and brightly lit areas.

Color Correction Matrix
The EBU or NTSC preset color correction matrix can be selected.

Designed for Easy Operation and Expandability
The AK-HC3500A incorporates Panasonic's extensive broadcast camera design know-how to provide even easier operation. Convenient features include a backlight on the rear operation panel for improved operation in dark settings and an SD Memory Card slot for easy storage of user settings. A movable optical connector is also provided to reduce stress on the optical cable.

Variable Internal Diameter Lens Mount for Easy Use with a Build-up Unit*
When mounting onto an optional Build-up Unit, a mechanism enlarges the internal diameter of the lens mount. Because the lens and camera can be separately mounted onto or removed from the Build-up Unit, its operation is easier and faster than a conventional model.
*This model is not available in some areas.

Servo Control ND/CC Filters
The following ND/CC motor driven double optical filters are available for shooting in variable lighting conditions.
[CC filter] 3200K, 4300K, 6300K, Cross, Diffusion
[ND filter] CAP, Through, 1/4, 1/16, 1/64

SD Memory Card Slot
Using an SD Memory Card enables storage and retrieval of various camera settings, such as user viewfinder indications.
*SD Memory Cards are sold separately. Panasonic cards with a capacity of 2 GB or lower are recommended. SDXC and SDHC Memory Cards are not compatible.

Movable Optical Cable Connector
The AK-HC3500A can be connected to a Camera Control Unit (CCU) via an optical fiber cable. High-quality images and signals can be transmitted even when the cable length between the camera and the CCU is up to about 2,000 m. Operating convenience is further assured by the movable connector.

System Configuration

RS-422/RS-232C Selectable Data Trunk Line
Two lines of data trunk are provided (selectable from RS-422/RS-232C).

Ergonomic, Low-Profile Design
The ergonomic, low-profile design reduces fatigue when the operator needs to shoulder the camera for long periods. It also facilitates use when mounted on the Build-up Unit, for more efficient operation both indoors and out. When held on the shoulder, the viewfinder is closer to the optical axis, thus reducing parallax. The shoulder pad can be moved in a 24-mm range, to enable more stable shooting.

Other Advanced Digital Functions
• A lens file function (for up to 32 files) to save flare and shading values.
• Various information, including color temperature, is displayed in the viewfinder.
Specifications

As of September, 2013

AK-HC3500A Studio Handy Camera

Power Supply: DC 12 V (during external power supply operation)
AC 220 V (when CCU is connected)

Power Consumption: AK-HC3500AP:
32W (during external power supply operation)
8W (when CCU is connected)
AK-HC3500AE/AK-HC3500AES:
28W (during external power supply operation)
70W (when CCU is connected)

Operating Temperature: -10 °C to 45 °C (14°F to 113°F)
Preheating required at temperatures below 0°C (32°F)

Operating Humidity: Less than 85 %

Storage Temperature: -20 °C to 60 °C (−4°F to 140°F)

Weight: Approx. 4.7 kg (approx. 10.3 lb)

ND Filter: CAP, Through, 1/4, 1/16, 1/64

f/1.4 prism

Color Separation Optical system:
GBR Pickup System

Pickup Device: 2/3 type 2.2 million pixel IT, CCD x 3

Dimensions (W x H x D): 135 mm x 260 mm x 360 mm
(5-5/16 inches x 10-1/4 inches x 14-3/16 inches)

excluding protrusions

Lens mount: Bayonet mount

Operating Humidity: Less than 85 %

Dimensions (W x H x D): 13-3/8 inches x 2-15/16 inches x 10-3/8 inches

excluding protrusions

Dimensions (W x H x D): 340 mm x 75 mm x 264 mm
(13-3/8 inches x 2-15/16 inches x 10-3/8 inches)

Weight: Approx. 3.25 kg (approx. 7.2 lb)

Switch Functions:
Camera selection, MODE ON/OFF (5600 K, Flare OFF)
Gain control, Gamma curve control, Flare control,
Auto black balance, Auto setup)
Monitor selection, Scene files (HEAD, ND filter, CC filter), CALL,
Auto iris, Iris activity, Master pedestal storage,
Master pedestal file call

Iris, Master pedestal

CCU control: RS-422 compliant

Camera (CCU) connection: Control up to 12 cameras

AK-HRPs935A Remote Operation Panel

Power Supply: DC 12 V (DC 10V to 17V) (supplied from CCU)

Power Consumption: Approx. 6 W

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

Operating Humidity: Less than 80 %

Dimensions (WxHxD): 92 mm x 419 mm x 55 mm
(3-5/8 inches x 16-1/2 inches x 2-3/16 inches)

excluding protrusions

Weight: Approx. 1.85 kg (approx. 4.1 lb)

CCU Control: Control signals (camera, CCU control)
RS-422 compliant

Maximum Cable Length: 50 m (164 ft)

AK-HBUL3500* Build-up Unit

Power Supply: AC 220 V, 50Hz/60 Hz

Power Consumption: 20 W (main unit only)
200W (with large lens, viewfinder and maximum load condition of AC outlet)

Operating Temperature: -10 °C to 45 °C (14 °F to 113 °F)

Operating Humidity: Less than 85 %

Dimensions (WxHxD): 300 mm x 417 mm x 510 mm
(11-13/16 inches x 16-1/2 inches x 20-1/16 inches)

Weight: Approx. 14.5 kg (approx. 32.0 lb)

Adjustment Functions: H-POSI, V-POSI, WIDTH, HEIGHT,
4:3 brightness adjustment level

Switch Functions:
AC outlet reset, Viewfinder power, Up tally ON/OFF,
Center maker, Cursor memory 1, Cursor memory 2,
4:3 marker, ND filter selection, Local, CC filter selection,
Menu ON/OFF, Menu JOG, Return A switch,
Return B switch, User, Viewfinder detail,
Monitor output selection, P in P function ON/OFF,
P in P position selection
(functons not available with the AK-HC3500A)

This model is not available in some areas.

Newly added with the AK-HRPs935A:

Menu ON/OFF, Menu JOG, Return A switch,
4:3 marker, Cursor memory 1, Cursor memory 2,
Auto black balance, Auto setup)
Monitor selection, Scene files (HEAD, ND filter, CC filter), CALL,
Auto iris, Iris activity, Master pedestal storage,
Master pedestal file call

Adjustment Functions: H-POSI, V-POSI, WIDTH, HEIGHT,
4:3 brightness adjustment level

Switch Functions:
AC outlet reset, Viewfinder power, Up tally ON/OFF,
Center maker, Cursor memory 1, Cursor memory 2,
4:3 marker, ND filter selection, Local, CC filter selection,
Menu ON/OFF, Menu JOG, Return A switch,
Return B switch, User, Viewfinder detail,
Monitor output selection, P in P function ON/OFF,
P in P position selection
(functons not available with the AK-HC3500A)

Newly added with the AK-HBUL3500:

Menu ON/OFF, Menu JOG, Return A switch,
4:3 marker, Cursor memory 1, Cursor memory 2,
Auto black balance, Auto setup)
Monitor selection, Scene files (HEAD, ND filter, CC filter), CALL,
Auto iris, Iris activity, Master pedestal storage,
Master pedestal file call

Adjustment Functions: H-POSI, V-POSI, WIDTH, HEIGHT,
4:3 brightness adjustment level

Switch Functions:
AC outlet reset, Viewfinder power, Up tally ON/OFF,
Center maker, Cursor memory 1, Cursor memory 2,
4:3 marker, ND filter selection, Local, CC filter selection,
Menu ON/OFF, Menu JOG, Return A switch,
Return B switch, User, Viewfinder detail,
Monitor output selection, P in P function ON/OFF,
P in P position selection
(functons not available with the AK-HC3500A)
Versatile System Components

AK-HCU355A
Camera Control Unit (CCU)

AK-HCU355AP/AK-HCU355AES (LEMO connector model)
AK-HCU355AE (Tajimi connector model*)

*This model is not available in some areas.


- Optical fiber transmission of uncompressed digital signals over a distance of approximately 2,000 m between the camera and camera control unit.*
  * When power is supplied from the CCU.
- Standard video output: HD SDI, SD SDI, SD composite.
- With a tub, 2 units of the CCU can be mounted together in a 3U rack size.
- Text display of BAR ID, output source for color bar images, etc.
- Two prompter inputs are provided as a standard feature. (One input when dual sync is used.)
- HD/SD SDI return input.
- DC (12V) power drive. (When the camera is driven by a DC power supply)
- The large power supply enables 200 VA to be taken from the utility power supply of the Build-up Unit. (The power supplied varies depending on the length of the optical fiber cable.)
- No cables required for virtual control, pan/tilt camera head, or lens control.
- Two lines of data trunk are provided (selectable from RS-422/RS-232C).

[Output signal] 1080/59.94i, 1080/50i, 480/59.94i, 576/50i, 1080/29.97PsF (over 59.94i), 1080/23.98PsF (over 59.94i), 1080/23.98PsF (over 47.96i), 1080/25PsF (over 50i)

AK-MSU935A
Master Setup Unit (MSU)

With a large LCD control panel, the MSU can adjust all of the camera’s parameters, serving up to 12 camera systems.

- Master control of precise camera settings for the entire camera system (up to 12 camera systems)
- Image and waveform monitor are selectable
- Large-scale (16-cm/6.3-inch) LCD display
- SD Memory Card slot for storing/retrieving three user references, eight scene files, and sixteen lens files
  * Optional AC adaptor is required.

AK-HRP935A
Remote Operation Panel (ROP)

The 1/4 rack size remote operation panel can easily adjust camera parameters.

- Full control of camera settings
- 1/4 rack size remote operation panel

Build-up Unit

AK-HBU3500
Build-up Unit

*This model is not available in some areas.

- Large studio lenses can be mounted.
- Camera can be mounted quickly and smoothly
AK-HRP200
Remote Operation Panel (ROP)
This ROP does not have LCD display for camera adjustment.

AK-HVF70G
17.8 cm (7 inch)
LCD Color Viewfinder

AJ-HVF21KG
50.8 mm (2 inches) HD EVF

AJ-CVF100G
25.4 mm (1 inch) HD Color EVF

AJ-MC700P
Microphone Kit

SHAN-TM700
Tripod Adapter

AW-PS550
AC Adaptor

AJ-C10050G
Remote Control Cable
(50 meters / 164 feet)

Dimensions

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Factories of AVC Networks Company have received
ISO14001:2004-the Environmental Management System
 certification. (Except for 3rd party’s peripherals.)