SK-96

Color TV Camera



HITACHI
Hitachi Denshi, Ltd.

Versatile multi-use SK-96 color camera

Requirements for television cameras have changed with an increasing variety of uses and with technical progress in program production. The Hitachi multi-purpose camera, SK-96, meets these new needs. The SK-96 is a fully developed studio camera that produces pictures of excellent quality. The SK-96 may also be used as a two-piece, hand-held camera using a portable accessory package.

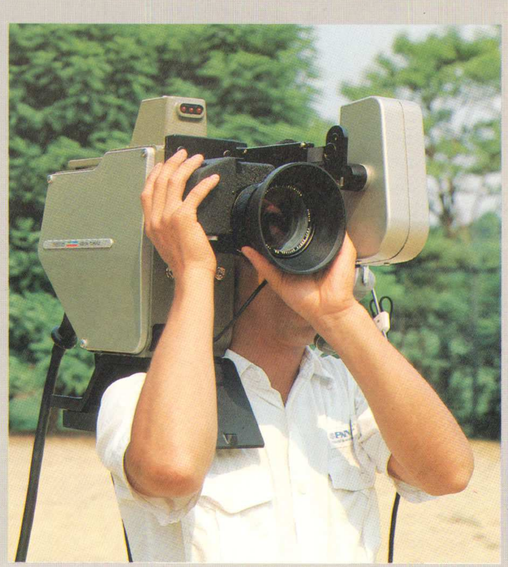




www.tvcameramuseum.org





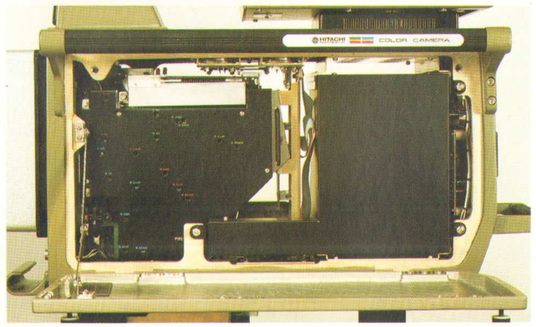


Features

Excellent Picture Quality

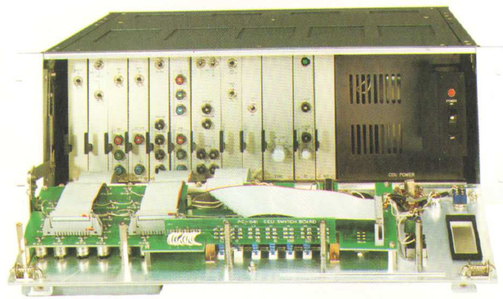
- The 2/3-inch Saticon* (H8397A) tubes and highly efficient F1.4 prism optics combine to assure excellent color reproduction, a resolution of 500 lines, and a signal-to-noise ratio of 51 dB (NTSC)/49 dB (PAL).
- A built-in 2H contour corrector with comb filter assures a superior signal-to-noise ratio and sharp image reproduction.
- A built-in linear matrix circuit facilitates high-fidelity color rendition and inter-camera color matching.
- Standard encoder and a color bar generator are also provided.

(*Trademark)



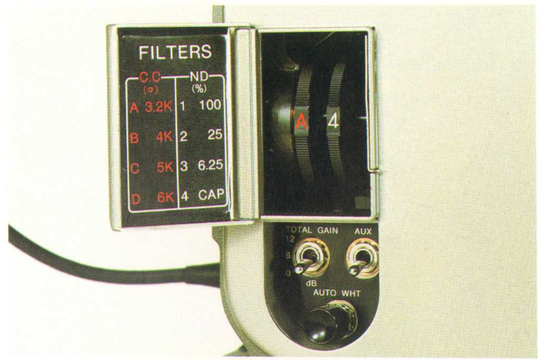
DCU (Digital Command Unit)

- Through use of the optional Digital Command Unit, the camera cable between the head and the CCU can be replaced with a triaxial cable.
- Power and signals can be transmitted simultaneously over a maximum distance of 1,500 meters.
- A camera equipped with the DCU can be controlled at the operation panel of the CCU in the same way as with a camera cable.
- The CCU and DCU may be connected each other with a multi-conductor camera cable.
- R, G, and B signals are transmitted by frequency multiplexing from the camera head.



Other Features

- Automatic white balance, automatic iris, color filters, and ND filters are built into the camera to assure optimum picture quality through simple operation under varying lighting conditions.
- An over-modulation indicator in the viewfinder indicates video levels in excess of 100% – enabling the operator to manually operate the iris.
- A +6 and +12 dB high-gain switch permits operation under extremely low light conditions.
- A built-in sync generator is genlocked to external sync signals if black burst or composite video signals are supplied.
- Extensive use of ICs and LSIs means added reliability and low power consumption.
- The 7-inch viewfinder for studio use includes a tilting mechanism.
- The 1.5-inch viewfinder for portable application is equipped with a magnifying eyepiece and can be positioned to operator requirements for easy viewing.
- Sequential and superimposed waveforms of R, G and B signals can be displayed on a waveform monitor for easy setup.
- The remote control panel may be used for color tone adjustment away from the CCU.





Multiple Applications

- The SK-96 is readily convertible from a studio camera to a hand-held camera. For conversion, the camera head module is easily removed from a studio housing and inserted into a portable housing.
- Ideal for studio or remote locations.
  - The SK-96 includes all of the functions required for a complete studio camera system.
  - 10x zoom lenses are standard, and 22x zoom lenses may also be used.
- Usable as a hand-held camera.
  Designed for proper balance, the camera may be carried for hours without operator fatigue.
  - A built-in microphone amplifier is provided.
  - The viewfinder has a tally located above the cathode ray tube.
- A built-in ABO (Automatic Beam Optimizer) Circuit.
  The Hitachi developed ABO greatly extends dynamic range and reduces comet-tailing.



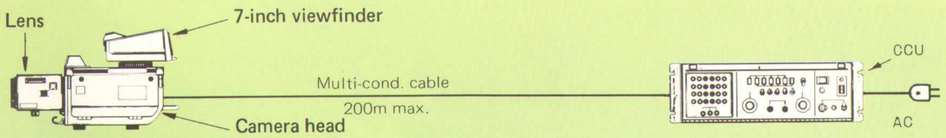
Composition

Component	Type	Studio Use I	Studio Use II	Portable Use
1. Camera head	SK-96	●	●	●
2. Portable housing	PH-96			●
3. CCU	CU-96	●	●	●
4. DCU-1 (CCU side)	DU-96		●	
5. DCU-2 (camera head side)	MU-96		●	
6. 1.5-inch viewfinder	VF151			●
7. 7-inch viewfinder	VF701	●	●	
8. Studio zoom lens (F1.4, 10.5 - 105mm)	A10×10.5 RP-3	●*1	●*1	
9. Field zoom lens (F1.6, 12.5 - 275mm)	A22×12.5 RW	●*1	●*1	
10. Portable zoom lens (F1.9, 10 - 100mm)	A10×10 RS-1			●*2
11. Portable zoom lens (F1.9, 10 - 120mm)	A12×10 RS-1			●*2
12. Portable zoom lens (F2.1, 11 - 154mm)	A14×11 ERS-1			●*2
13. Camera cable, 3m (10 ft.)	C-301-C1		●	
14. Camera cable, 15m (50 ft.)	C-152-C1	●*3		●*3
15. Camera cable, 30m (100 ft.)	C-302-C1	●*3		●*3
16. Camera cable, 100m (300 ft.)	C-103-C1	●*3		●*3
17. Camera cable, 200m (600 ft.)	C-203-C1	●*3		●*3
18. Triaxial cable, 100m (300 ft.)	C-103-X1		●*4	
19. Triaxial cable, 200m (600 ft.)	C-203-X1		●*4	
20. Triaxial cable, 400m (1200ft.)	C-403-X1		●*4	
21. Remote control panel (ROP)	OP-96	▲	▲	
22. Waveform monitor unit	WFM-96	▲	▲	▲
23. Shoulder mount	SP-60			●
24. Portable camera case	CL-96			▲
25. Standard accessories	ACC-96	●	●	●
26. Instruction manual		●	●	●

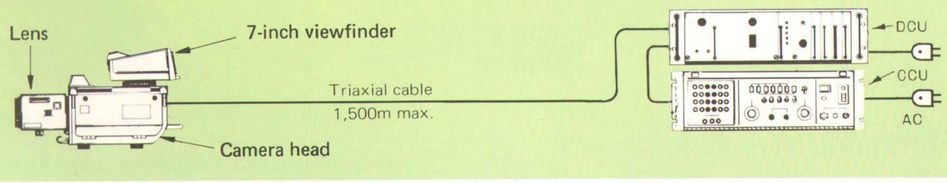
● Basic components
▲ Suggested components
* Select one out of those bearing the same number.

System Composition

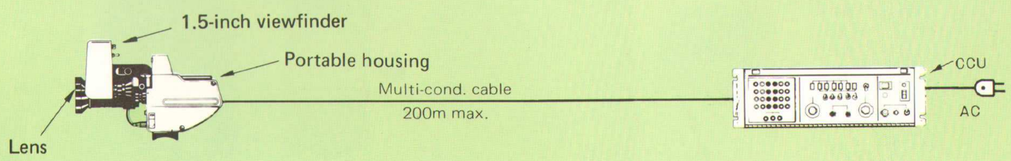
1. Studio Type I



2. Studio Type II

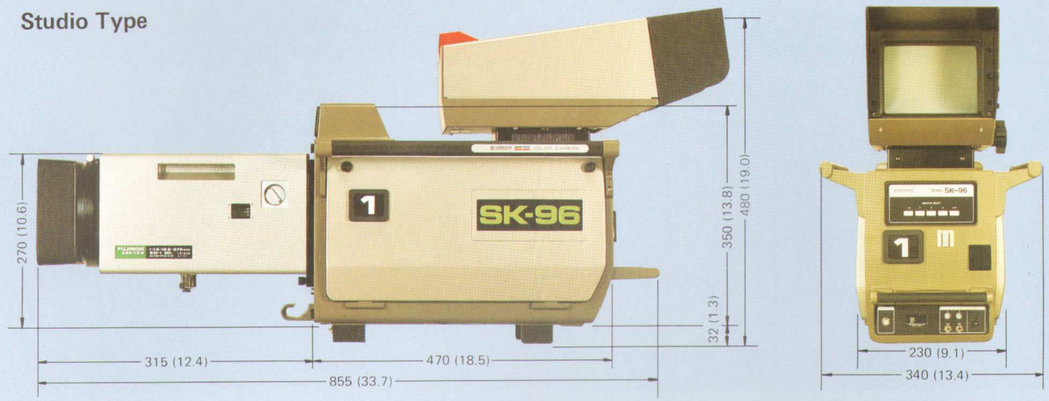


3. Portable Type

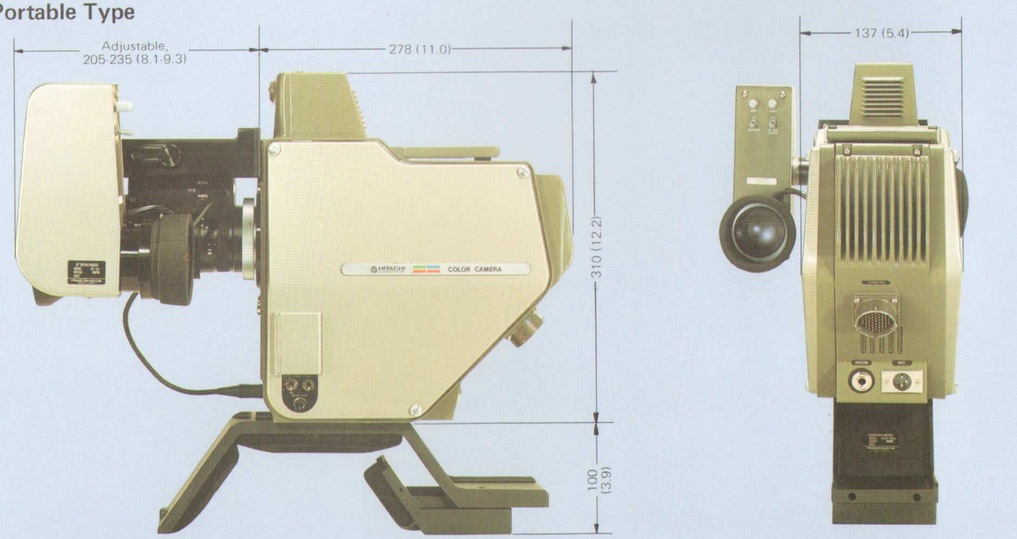


Dimensions

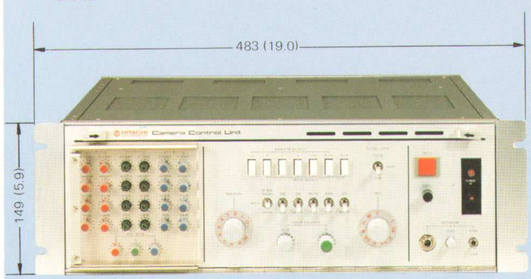
Studio Type



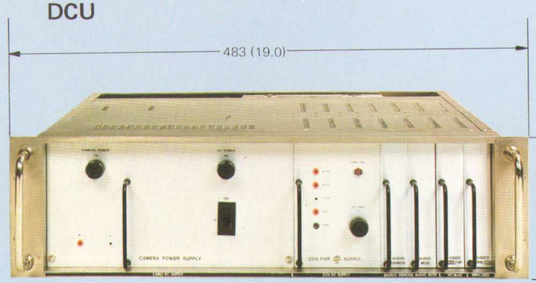
Portable Type



CCU



DCU



Unit: mm (in)

www.tvcameramuseum.org

Specifications

Camera

Pickup tubes:	Three 2/3-inch Saticon (H8397A) tubes
Scan standard:	525/60 fields/s (NTSC) 625/50 fields/s (PAL-B)
Optical system:	Dichroic prism (F1.4)
Input signals	
Genlock:	Black burst; sync 0.3Vp-p, burst 0.3Vp-p, or composite video signal 1.0Vp-p
Aux. (for VF):	Composite video signal 1.0Vp-p
Output signals	
Line 1:	Non-composite 0.7Vp-p or composite 1.0Vp-p
Line 2:	Same as above
Line 3:	Composite 1.0Vp-p
Picture monitor:	R, G, B, –G, Line, Aux. Composite 1.0Vp-p
Waveform monitor:	R, G, B, R-G-B Non-composite 0.7Vp-p Line, Aux. Composite 1.0Vp-p
R, G, B:	Non-composite 0.7Vp-p
Sync:	4Vp-p
Viewfinders	
Studio type:	7-inch CRT
Portable type:	1.5-inch CRT
Power requirements:	100/117/220/240V AC, 50/60 Hz, approx. 200VA
Ambient conditions	
Operating temperature:	–20 to +50°C (–4 to +122°F)
Stability:	Specifications are satisfied without readjustment against temperature variations of up to ±10°C (±18°F) within the above-mentioned temperature range.
Dimensions and weight	
Studio type head (without lens, viewfinder):	230(W) × 382(H) × 470(D)mm; 24kg (9.1 × 15.0 × 18.5 in; 53 lb)
Portable type head (without lens, viewfinder):	137(W) × 310(H) × 278(D)mm; 6.8kg (5.4 × 12.2 × 11.0 in; 15 lb)
Camera control unit:	483(W) × 149(H) × 402(D)mm; 18kg (19 × 5.9 × 15.8 in; 39.7 lb)
Sensitivity:	F2.8, 125 fc (measured on a gray chart of 60% reflectance)
Signal-to-noise ratio:	More than 51 dB NTSC, 49 dB PAL-B (at Y-channel output, gamma OFF, contour OFF, video band-width 4.2 MHz NTSC, 5.0 MHz PAL-B)
Horizontal resolution:	500 lines at center, 400 lines at corners
Registration	
Zone 1 (within center circle of a diameter equal to 80% picture height):	Less than 0.05%
Zone 2 (within center circle of a diameter equal to picture height):	Less than 0.2%
Zone 3 (elsewhere):	Less than 0.3%
Geometric distortion	
Zone 2:	Less than 1.0%
Zone 3:	Less than 1.5%
Maximum length of multi-conductor cable	
Studio type:	200 m (600 ft)
Portable type:	200 m (600 ft)

DCU

Functions:	CCU with a DCU can be operated exactly in the same way as when a multi-conductor cable is used.
Maximum cable length:	1,500 m triaxial cable
Power requirements:	100/117/220/240V AC, 50/60 Hz
Ambient conditions	
Operating temperature:	–20 to +50°C (–4 to +122°F)
Dimensions	
DCU-1:	483(W) × 133(H) × 406(D)mm (19.0 × 5.2 × 16.0 in)
DCU-2:	250(W) × 200(H) × 200(D)mm (9.8 × 7.9 × 7.9 in) (Plugged into the studio housing)

ROP

Control items:	Master pedestal, color balance, lens iris, tally, camera call
Cable length:	15 m (45 ft)
Dimensions:	480(W) × 50(H) × 75(D)mm (18.9 × 2.0 × 3.0 in)

Specifications are subject to change without notice.

Hitachi Denshi, Ltd.
1-23-2, Kanda Suda-cho, Chiyoda-ku, Tokyo 101, Japan Phone: (03) 255-8411 Telex: J24178

- **Hitachi Denshi America, Ltd.**
  - Headquarters and East Coast Office : 175 Crossways Park West, Woodbury, New York 11797, U.S.A. Phone: (516) 921-7200, TWX: (25) 510-221-1899
  - West Coast Office : 21015-21023 So. Figueroa Street, Carson, Calif. 90745, U.S.A. Phone: (213) 328-2110, TWX: (25) 910-349-6952
  - Midwest Office : 1725 North 33rd Ave., Melrose Park, Illinois 60160, U.S.A. Phone: (312) 344-4020, TWX: (25) 910-226-0411
  - Southwest Office : 14169 Proton Road, Dallas, Texas 75240, U.S.A. Phone: (214) 233-7623, TWX: (25) 910-860-5775
  - Southeast Office : 3610 Clearview Parkway, Doraville, Georgia 30340, U.S.A. Phone: (404) 451-9453, TWX: (25) 810-757-4228
  - Central Western Office : 3538 Peoria, Aurora, Colorado 80010, U.S.A. Phone: (303) 344-3156, TWX: (25) 910-932-2993
  - Northwest Office : 1051 Andover Park West, Tukwila, Wash. 98188, U.S.A. Phone: (206) 575-1680, TWX: (25) 910-444-2155
  - Washington D.C. Office : 4720P Boston Way, Lanham, Maryland 20801, U.S.A. Phone: (301) 459-8262
  - Cincinnati Office : 11250 Cornell Park Drive, Suite No. 202, Cincinnati, Ohio 45242, U.S.A. Phone: (513) 891-8091
- **Hitachi Denshi, Ltd. (Canada)**
  - Head Office : 922 Dillingham Road, Pickering, Ontario L1W 1Z6, Canada Phone: (416) 839-5134, Telex: (21) 698-1286
  - Quebec Office : 8100-G Trans-Canada, St-Laurent, Quebec H4S 1M5, Canada Phone: (514) 332-6687, Telex: (21) 582-5739
  - Western Office : 3433-12th St North-East, Calgary, Alberta T2E 6S6, Canada Phone: (403) 276-8508, Telex: (21) 382-5861
- **Hitachi Denshi (Europa) GmbH**
  - Head Office : Weiskircher Straße 88, D-6054 Rodgau 1 (Jügesheim), West Germany Phone: (06106) 3027/8/9, Telex: (41) 417-849
- **Hitachi Denshi (U.K.) Ltd.**
  - Head Office : Lodge House, Lodge Road, Hendon, London NW4 4DQ, United Kingdom Phone: (01) 203-4242 Telex: (51) 27449
  - Leeds Office : Video House, 55 Manor Road, Leeds, LS11, 5PZ, United Kingdom Phone: 0532-30294/5

www.tvcameramuseum.org

DB-E027R Printed in Japan YT-K(H)