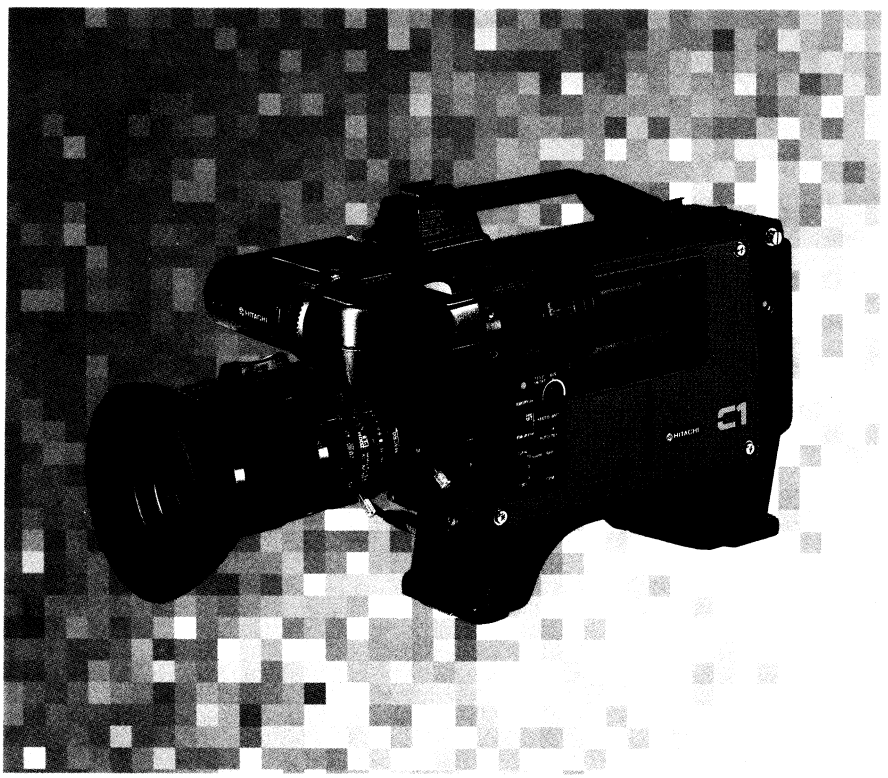
HITACHI

Portable Color Camera FP-C1

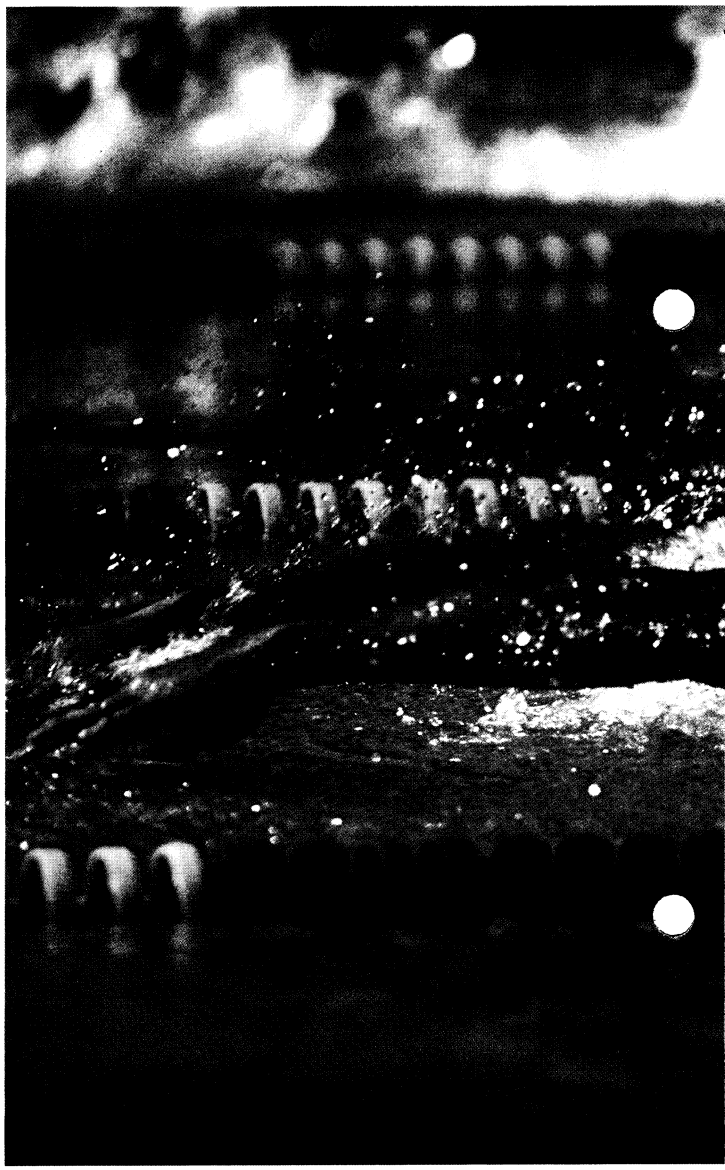


FP-C1

The high performance 3-chip CCD color Camera
provides extremely high resolution
high S/N and high sensitivity
while offering great mobility.

Image is created by sensitivity with your high
scene and capture the moment with the help of

Expectation of viewer
for color images are becoming
more sophisticated,
and they take high guality pictures for granted.
To answer to this image
mobility is imperative to extend
image acceptance as well as
high quality pictures.
The Hitachi FP-C1 is a cost-effective
3-chip CCD color camera
which realizes high performance
and high reliability.
The newly developed
high density 3-chip CCD ensures
high resolusion high S/N
and high sensitivity.
With a wide range
of automatic functions
and correction circuits
which provide higher operability
even an unskilled operator can obtain
a high quality picture easily.
The camera comes
with a wide range of accessories
which open up a whole host
of applications not only as
a portable camera with top-notch mobility,
but also as a studio camera
and a camera for image processing.



FP-C1

sensitivity, shoot a moving, the high performance camera.

High resolution 660 lines and high signal to noise ratio 60dB.

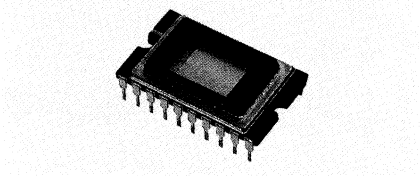
A variety of functions are integrated into a compact

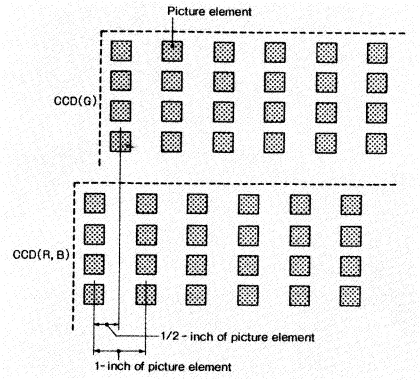
The Hitachi FP-C1 portable color camera has been developed based on the state-of-the-art technology.

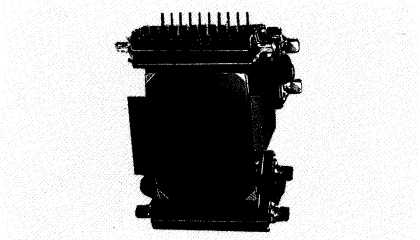
Among many features of the FP-C1, easy operation is of high priority, so that the camera always ensures high picture quality regardless of operating conditions. Various accessories are also available to enhance the versatility of the camera.

■High resolution, high S/N

By employing a newly developed 2/3-inch high density CCD, high horizontal resolution of 660TV lines and high S/N of 60dB have been realized.

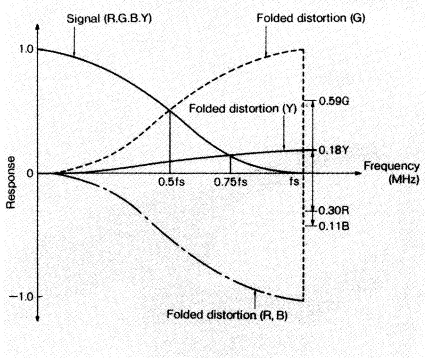






■The moier effect has been reduced

Folded distortion is caused by sampling in the CCD camera. The folded distortion will cause moire to deteriorate picture quality especially when shooting a striped object. To reduce moire, the FP-C1 employs an optimized quartz filter. The spatial offset technology for higher resolution also contributes to reduction of moire.



■High sensitivity

The high sensitivity and low lag solid state imaging device employed in the camera is more sensitive being one lens stop more than conventional three tube cameras, and ensures a high quality pictures even under low illumination.

■IQ encoder system

The camera employs the IQ (UV for PAL) encoder system conforming to the broadcast format.

■Low power consumption

Power consumption is as low as 11w including the viewfinder, which extends the battery life.

■Auto knee

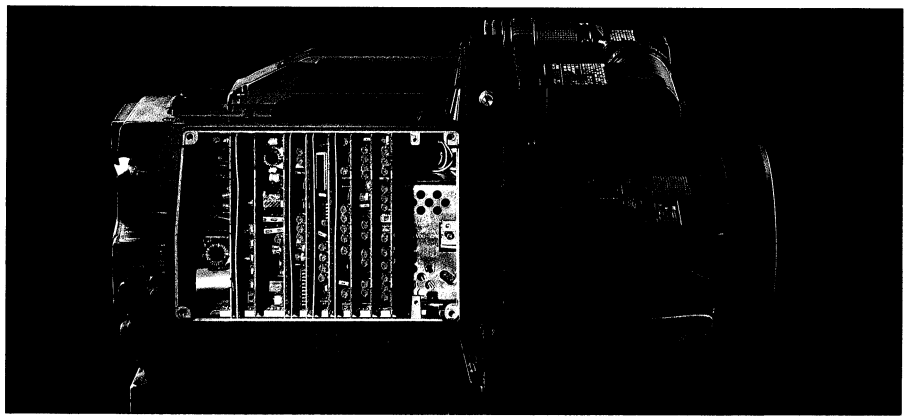
By turning on the auto knee switch, a smooth and natural picture without white suppression can be obtained even for shooting highlighed objects.

■Stability

Since the camera is free from magnetic field interference and microphonics, troublesome registration adjsutment is eliminated.

■Flare compensation

Any flare generated by the prism optics or the solid state imaging device is automatically compensated for to provide a picture quality in which black is even and pure.



■High reliability

Burn free CCD sensor with negligible changes in performance in use, together with a reduction in high voltage and scanning circuts makes the camera highly reliable.

■S-VHS output provided as a standard

The high function encoder which allows Y/C output in addition to composite video output and RGB output is provided as a standard.

■Quick start

A normal picture can be obtained in only three seconds after power on.

■Automatic black level adjustment

By turning on the auto black level switch, the black level goes down automatically to obtain a sharper and better contrasted picture.

■Masking circuit

The built-in presettable masking circuit adjusts a subtle color tone like a flesh color, without impairing white balance.

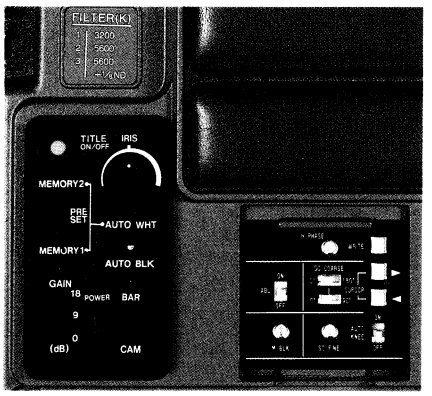
■Auto black balance

The built-in microcomputer automatically adjusts black balance of the sensitivity at 0 dB, 9 dB, and 18 dB. Thus the stable black balance can be obtained even after the sensitivity is switched.

body to meet a wide range of applications.

Two-memory auto white balance

The two-memory auto white balance is employed for the first time in this class of camera.



Memory back-up

The information of auto white, auto black, and title is retained by the memory function for approximately two years (in case of a new battery) even when the camera's power is switched off.

Auto iris

The microcomputer-controlled auto iris circuit provides a natural picture with less hunting. The NAM (Non-Additive Mixing) and weighting functions of the iris control have been added to ensure stable operation even under monochromatic lighting.

Self-diagnosis function

The positions of the optical filter and the white balance memory, and the results of various auto setups are displayed in characters on the viewfinder screen.

Title insertion function

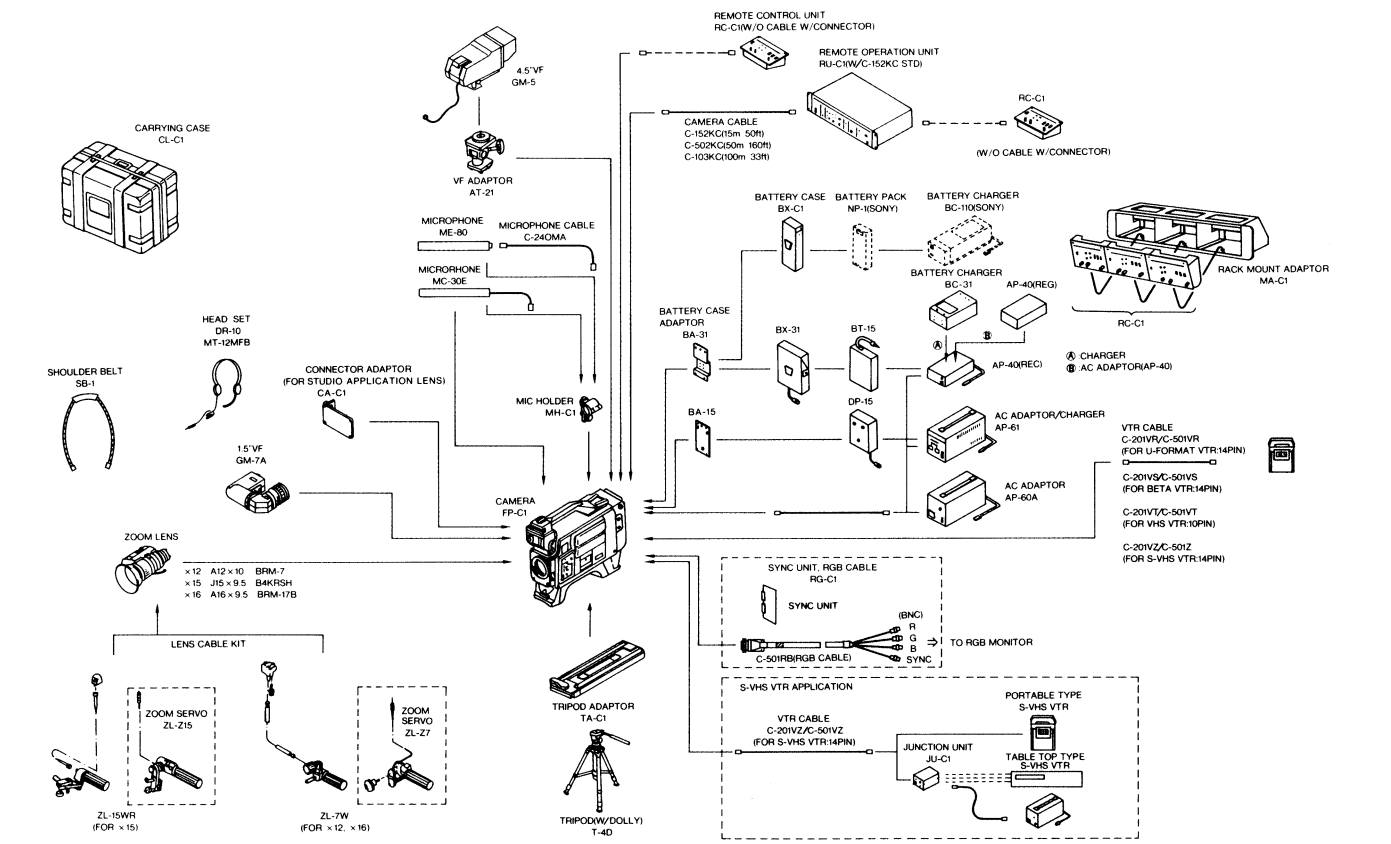
The built-in character generator makes it possible to insert title characters into pictures during shooting.

Cordless type 1.5-inch viewfinder

The 1.5-inch viewfinder can be installed or removed with ease thanks to the cordless type and the bayonet mount.

The direct heating picture tube provides a quick start as well as low power consumption. The large-size lens consisting of two pieces of lenses provides the wide visual field and less distortion. The peaking switch enables the operator to choose the desired picture quality. The front tally can be turned off for secret shooting.

SYSTEM CONFIGURATION



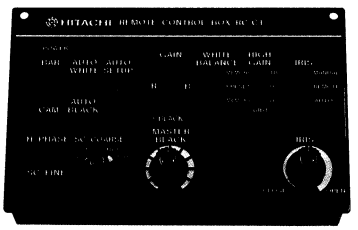
A variety of optional accessories are available.

STANDARD COMPOSITIONS

Equipment	Type	Set I	Set II
Camera	FP-C1	○	○
1.5-inch viewfinder	GM-7A	○	○
12×power zoom lens	A12×10BRM-7	○	
15×power zoom lens	J15×9.5B4KRSH		○
Tripod adaptor	TA-C1	○	○
Carrying case	CL-C1	○	○

OPTIONAL ACCESSORIES

Equipment	Type	Equipment	Type	Equipment	Type
AC adaptor	AP-60A	VTR cable	C-201VZ/501VZ 2m/5m S-VHS	4.5-inch viewfinder	GM-5
AC adaptor charger	AP-61	VTR cable	C-201VR/501VR 2m/5m U-format	VF adaptor	AT-21
Battery pack	DP-15	VTR cable	C-201VS/501VS 2m/5m Beta	Lens cable kit	ZL-15W for 15X
Battery adaptor	BA-15	VTR cable	C-201VT/501VT 2m/5m VHS	Zoom control	ZL-Z15 for 15X
Microphone	MC-30E	Shoulder belt	SB-1	Lens cable kit	ZL-7W for 12X
Microphone	ME-80	Remote operation unit	RU-C1 Supplied with C-152KC	Zoom control	ZL-Z7 for 12X
Microphone cable	C-240MA for ME-80			Camera cable	C-152KC 15m
Microphone holder	MH-C1 for MC-30E/ME-80	Remote control box	RC-C1	Camera cable	C-502KC 50m
SYNC unit	RG-C1 with RGB cable	Mount adaptor	MA-C1	Camera cable	C-103KC 100m



Remote control box, **RC-C1**

The RC-C1 remote control box is useful when controlling the FP-C1 remotely or when using the FP-C1 as an EFP or studio camera.
Three remote control boxes can be mounted on the optional MA-C1 rack mount.
The RC-C1 remote control may be connected direct to the camera head or connected to the RU-C1 in the multi core mode.

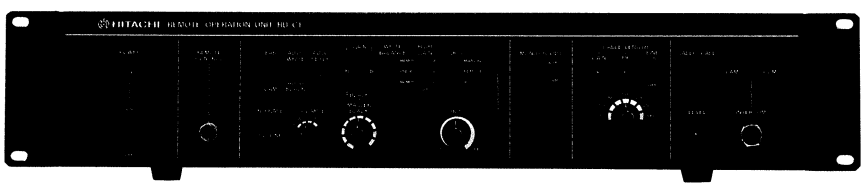
SPECIFICATIONS

Serial data output : 1.5Vp-p/high impedance
Maximum cable length : 200m (HC-5B2 by Hirakawa)
Power requirements : 9V DC
Ambient temperature : 5 to 40°C (41 to 104°F)
Power consumption : 0.3W approx.

Dimensions : 140(W)×88(H)×56.6(D)mm (5.5×3.5×2.2in)
Weight : 0.7kg (1.5lb) approx.
Control items
- R GAIN
- B GAIN
- CAM/BAR selection
- HIGH GAIN (0, +9, +18dB) selection
- MASTER BLACK LEVEL
- R BLACK LEVEL
- B BLACK LEVEL
- WHITE BALANCE (MEMORY 1/PRESET MEMORY 2) selection
- SC PHASE
- H PHASE
- IRIS CONTROL
- IRIS (MANUAL/REMOTE/AUTO) selection
- MON selection
- AUTO WHITE
- AUTO BLACK
- AUTO SETUP

Remote operation unit **RU-C1**

The Hitachi RU-C1 is a remote operation unit used for the FP-C1 color camera. The RU-C1 is used when controlling the FP-C1 at a control room, or from a remote place when the camera is used as an EFP, a studio, or an observation camera.
With the RU-C1, video and control signals, and power are transmitted at the same time by a single camera cable. The maxmum distance between the camera and the RU-C1 is 300 m (1,000 ft).



SPECIFICATIONS

Color system : NTSC, PAL
Output signals
- Line output1 : VBS 1.0Vp-p/75 ohms
- Line output2 : VBS 1.0Vp-p/75 ohms
- MON output : VBS 1.0Vp-p/75 ohms
- RGB output : V0.7Vp-p/75 ohms or only G output VS 1.0Vp-p/75 ohms
- Audio output : O dBm/600 ohms

Input signals
- AUX VIDEO input : VBS 1.0Vp-p/75 ohms or loop-through
- GEN LOCK input : VBS 1.0Vp-p/75 ohms or loop-through
- SERIAL-DATA input : 1.5Vp-p/high impedance
- TALLY INPUT : Contact or voltage (24 V DC) supply
- INTERCOM : 24Vp-p/220 ohms

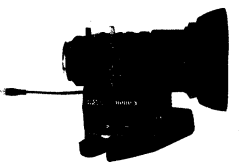
Power requirements : 117/220/240V AC 50/60 Hz
Power consumption : 45W approx.
Maximum cable length : 300m
Ambient temperature : 5 to 40°C (41 to 104°F)
Dimensions : 482(W)×88(H)×302(D)mm (19×3.5×11.9in)
Weight : 7.6kg (16.7 lb) approx.

Control items
- R GAIN
- B GAIN
- CAN/BAR selection
- HIGH GAIN (0, +9, +18dB) selection
- MASTER BLACK LEVEL
- R BLACK LEVEL
- B BLACK LEVEL
- WHITE BALANCE (MEMORY 1/PRESET/MEMORY 2)
- SC PHASE
- H PHASE
- IRIS CONTROL
- IRIS (MANUAL/REMOTE/AUTO) selection
- MON selection
- AUTO WHITE
- AUTO BLACK
- AUTO SETUP
- CALL
- TALLY

ACCESSORIES

12×Power zoom lens, **A12×10BRM-7**

Zoom ratio	: 12×
Focal length	: 10 to 120 mm
F number	: f1.7
Mount	: Bayonet
Filter mounting	: 72mm
Diameter	: 0.75 mm pitches
Weight	: 1.3kg(2.9lb) approx.



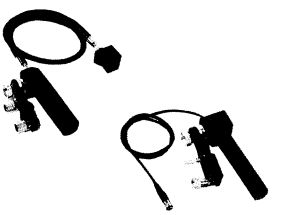
15×Power zoom lens, **J15×9.5B4KRSH**

Zoom ratio	: 15×
Focal length	: 9.5 to 143mm
F number	: f1.8
Mount	: Bayonet
Filter mounting	: 86mm
Diameter	: 1mm pitch
Weight	: 1.4kg(3.0 lb) approx.

1.5-inch viewfinder, **GM-7A**

The GM-7A is a compact and litht-weight viewfinder for an ENG application.

Picture tube	: 1.5-inch
Resolution	: 420 TV lins approx
Power requirements	: 9 V DC, 1 W approx
Weight	: 0.5kg(1.1 lb) approx.



Lens cable kits, **ZL-15W/ZL-7W**

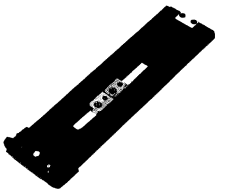
The ZL-15W/ZL-7W are used for zooming and focusing control of the power zoom lens when the camera is used in a studio.

ZL-15W	: For the 15× power zoom lens
ZL-7W	: For the 12× power zoom lens

4.5-inch Viewfinder, **GM-5**

The GM-5 is a high resolution viewfinder for a studio use.

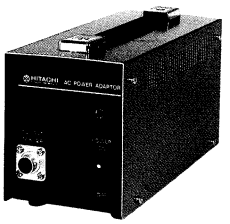
Picture tube	: 4.5-inch
Resolution	: 500TV lines approx.
Power requirements	: 12V DC, 9W approx.
Weight	: 1.5kg(3.3 lb) approx.



Tripod adaptor, **TA-C1**

This is used when attaching the camera to a tripod.

Dimensions	: 90(W)×28(H)×323(D)mm (3.5×1.1×12.7in)
Weight	: 0.7kg(1.5 lb) approx.



AC adaptor, **AP-60A**

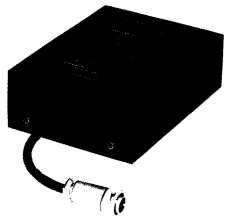
The AP-60A is an AC adaptor, which feeds 12V DC to the FP-C1.

Power requirements	: 117/220/240V AC, 50/60Hz
Output power	: 12V DC 2A
Dimensions	: 100(W)×115(H)×235(D)mm (3.9×4.5×9.2in) approx.
Weight	: 3.7kg(8.1 lb) approx.

AC adaptor charger, **AP-61**

The AP-61 is an AC adaptor charger which can charge the DP-15.

Power requirement	: 117/220/240V AC±10% 50/60Hz
Output power	: 12V 2A
Dimensions	: 100(W)×115(H)×235(D)mm (3.9×4.5×9.2in)
Weight	: 4kg(8.8 lb) approx.



Battery pack, **DP-15**

The DP-15 is used when operating the FP-C1 with the battery. The DP-15 can be installed on the rear of the FP-C1 by using the BA-15 battery adaptor.

Battery	: Ni-Cd
Voltage	: 12V DC
Capacity	: 2 AH/5 HR
Dimensions	: 110(W)×140(H)×46(D)mm (4.3×5.5×1.8in) approx.
Weight	: 1.1kg(2.4 lb) approx.

Microphones, **MC-30E/ME-80**

High performance microphones for the FP-C1

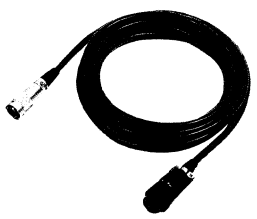
MC-30E

Impedance	: 10kΩ
Dimensions	: 21.5mm in dia 270mm in length (without hood)
Weight	: 175g approx.

ME-80

Impedance	: 200Ω
Dimensions	
Microphone head section	: 22mm in dia
Power supply section	: 19mm in dia
Total length	: 313mm
Weight	: 205g approx.

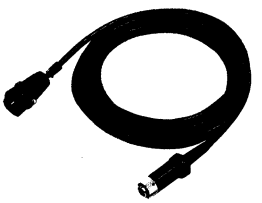
※Mic cable C-240MA is optional.



VTR cable for U-format VTRs

This is used connect the camera to the VTRs. Cables connecting U-format VTRs are available.

For U-format VTRs
5m VTR cable : C-501VR
2m VTR cable : C-201VR
For S-VHS VTRs
5m VTR cable : C-501VZ
2m VTR cable : C-201VZ



VTR cable for VHS VTRs

This is used connect the camera to the VTRs. Cables connecting VHS VTRs are available.

For VHS use VTRs
5m VTR cable : C-501VT
2m VTR cable : C-201VT

SPECIFICATIONS

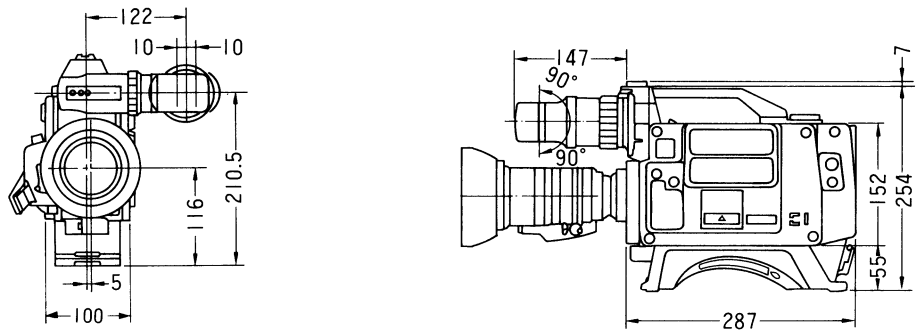
Color system	NTSC, PAL-B
Imaging device	2/3-inch 3-chip imaging device
Pick up system	RGB 3-chip system
Number of effective picture elements	NTSC 574×(H)×499(V) PAL 574×(H)×581(V)
Image area	8.90(H)×6.74(V)mm (equivalent to 2/3-inch tube)
Encoding system	I, Q (NTSC), UV(PAL)
Sync system	Internal or genlock
Horizontal resolution	660 lines at center
Signal-to-noise ratio	NTSC 60 dB (typical) PAL 57dB (typical) (Gamma=1, DTL off, sensitivity 0 dB)
Sensitivity	2000 lux, f5.6
Minimum illumination	23 lux, f1.7 (sensitivity+18dB)
Gamma correction	0.35 to 1.0
Geometric distortion	All zones 0% (excluding lens characteristics)
Optical filter	3200K, 5600k, 5600+1/8ND
Vertical contour correction	2H
Lens mount	Bayonet
Sensitivity selection	0dB, +9dB, +18dB

Input signals	(1) GENLOCK input (BNC or multi-connector) : VBS 1.0 Vp-p ± 3dB or black burst/75Ω (sync : 0.3 ± 0.1 Vp-p, burst 0.3 ± 0.1 Vp-p) (2) VF AUX input (multi-connector) VBS 1.0 Vp-p ± 3dB, 75Ω
Output signals	VIDEO output (BNC) : VBS 1.0 Vp-p/75Ω VTR output (multi-connector) : VBS 1.0 Vp-p/75Ω RGB output (multi-connector) : 0.7 Vp-p/75Ω Y/C output (multi-connector) : Y : VS 1.0 Vp-p/75Ω C : BURST 0.286 Vp-p/75Ω (PAL 0.3Vp-p) AUDIO output (multi-connector) : -20 dBm or -60 dBm
Auto functions	Auto white balance Auto black balance Auto iris Auto black level Self-diagnosis function Auto setup (when using the RU-C1/RC-C1)
Ambient temperature	-10 to + 45° C (14 to 113° F)
Power requirements	12V DC 11W
Dimensions	100(W)×254(H)×287(D)mm (3.9×10×11.3 in)
Weight	3.95kg (8.7 lb)(with viewfinder, without lens)

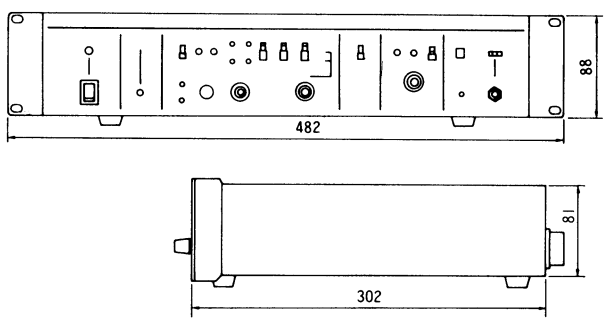
DIMENSIONS

Unit: mm

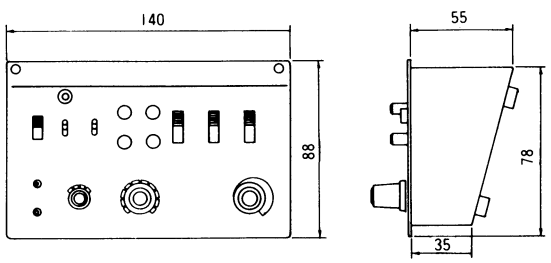
FP-C1



RU-C1



RC-C1



Specifications are subject to change without notice.

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