

HITACHI

DIGITAL



DIGITAL CAMERA

V-21W

V-21

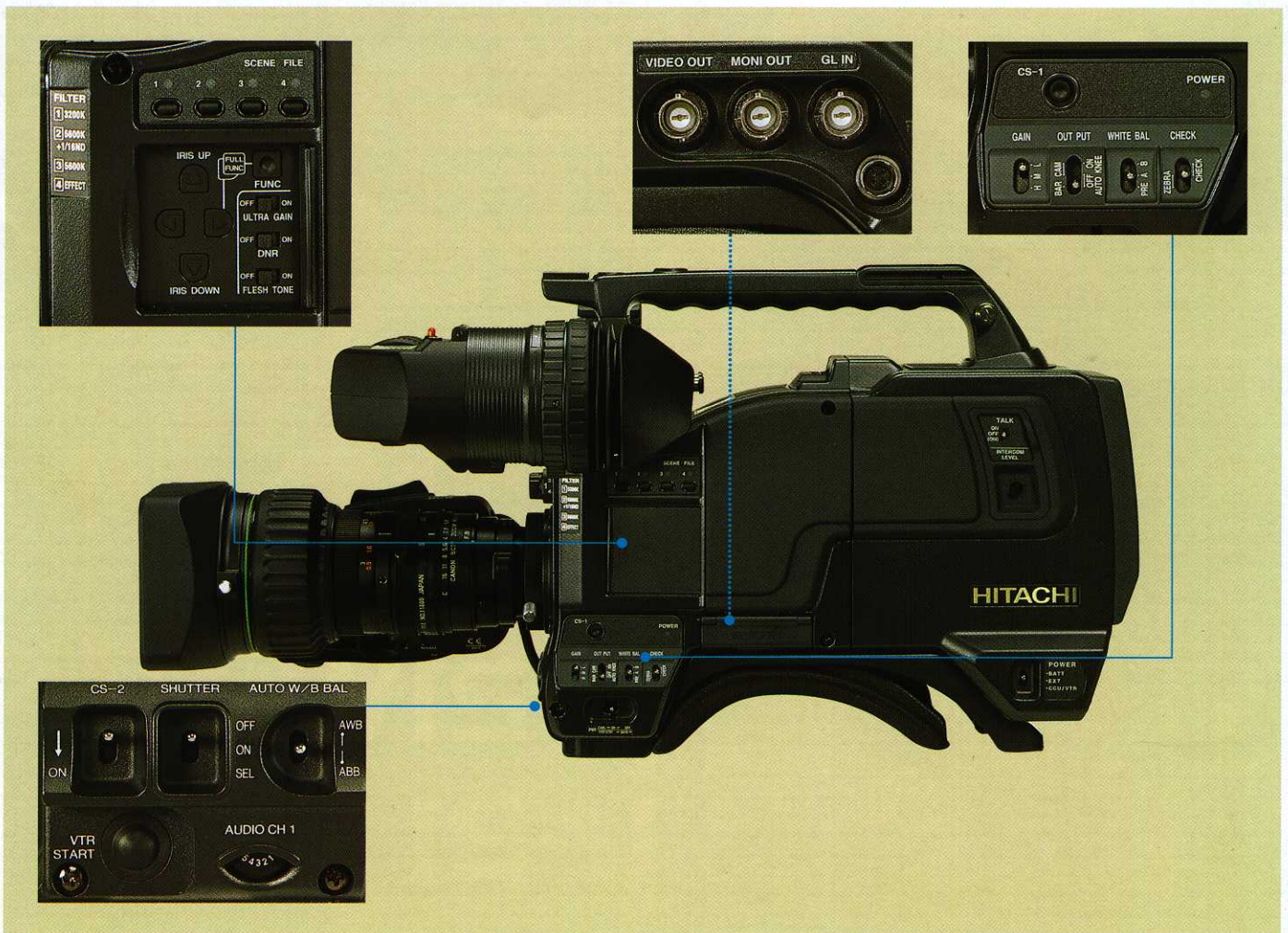
Premier Performance Starring the Hitachi V-21W / V-21 Digital Camera

As the curtain rises on a new digital wide screen era for television, capture the scene with the all-new V-21W digital camera. At the push of a button, the V-21W switches from today's 4:3 aspect ratio to the new 16:9 format required by the new digital television system. With its new 600,000 pixel CCD's, the V-21W provides outstanding performance in both aspect ratios.

The advanced new single-chip DSP provides fully digital video processing and digital encoding. This DSP provides enhanced gradation response and color reproduction accuracy for sharper and cleaner images. The built-in digital noise reduction assures superb low-light operation.

Designed for the demanding needs of field production, the V-21W is built to last with a die cast frame that is lightweight and yet provides great strength. This new design also offers a lower center of gravity for optimum shoulder balance and the lower profile improves the right side visibility for added operator safety.

Use the V-21W today with PAL's 4:3 aspect ratio and with the push of button be ready for tomorrow's wide aspect ratio digital television.



Outstanding Features.

Resolution.

The outstanding 750 H. TV line resolution is due to the new 2/3-inch, 16:9 wide aspect ratio, 600,000 pixel CCD with micro-lens technology and the high performance double sampled digital signal processing.



Switchable 16:9/4:3 and 4:3 only.

The V-21W provides the video professional the freedom to do productions in a 16:9 or 4:3 aspect ratio at the push of a button. The 2/3-inch, 600,000 pixel CCD's and digital switching assure the highest picture quality is preserved in either aspect ratio.

The V-21 operates in a dedicated 4:3 mode and offers maximum performance value for the investment. The 2/3-inch, 620,000 pixel CCD's (4:3 aspect ratio) achieve 900 TV lines of horizontal resolution. In all other aspects, the V-21 offers the same features and specifications as the V-21W.

Next-Generation DSP.

Hitachi's unique DSP technology encompasses the video digital processing and the encoder into a single LSI device. This single chip DSP design reduces the size, power consumption and greatly enhances stability.

The 10 bit A/D converter and 13 to 18 bit DSP processing provide a high S/N ratio and wide dynamic range.



Signal to Noise Ratio.

With the new digital noise reduction and low noise DSP technology, a S/N ratio of 63dB is provided. This new technology assures clear low noise images while operating in the high gain modes.

Sensitivity - F11.0 (2000 lx).

A total of +36dB of gain is available for imaging low light scenes down to 0.5 lx (F1.4). The +36dB gain is a combination of +24dB high gain and low noise +12dB ultra-gain.

Setup card.

A small plug-in setup card (Compact Flash type) stores the user setup information for later recall. The setup card offers operational flexibility by storing and recalling setups optimized for individual scenes.



Versatile CCD Shutter.

Four modes of shutter operation are provided: Five Preset electronic shutter speeds, Lock Scan to image computer monitors without flicker, Auto Electronic Shutter (AES) maintains the video level with a fixed lens f-stop, and CC Frame offers improved vertical resolution.

Digital Processing Improves Image Highlight Quality.

Dyna-Chroma and Auto Knee.

The auto knee provides a wide dynamic range by compressing the video above 100%. Dyna-chroma restores color saturation to scene highlights above 100%.

Automatic Flesh Tone Detail.

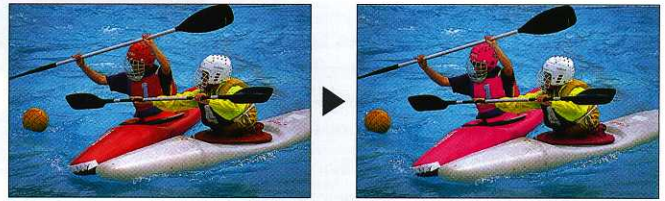
Flesh tone detail smooths and softens facial lines and blemishes without sacrificing overall scene detail. Automatic flesh tone detail provides an easy and fast means to optimize flesh tone detail.

Variable Detail Boost Frequency.

The detail center frequency is user selectable to match the detail signal to the scene.

6-Vector and Linear Matrix.

The 6-vector and linear matrix provide the user a wide latitude in subjective image color control. The linear matrix provides overall color control and the 6-vector color corrector provides independent control of the hue and saturation for each of the three primary and three secondary colors.



Special Gamma.

Adjusts the initial gamma gain to optimize the reproduction of the dark scene components.

Gray Scale Automatic Setup.

This "through the lens" automatic is used in combination with a standard gray scale chart to automatically setup gain, gamma, black and flare. Markers are provided in the viewfinder to aid in the positioning of the gray scale chart and the iris is automatically adjusted to the correct video level.

Automatic shading.

Automatic shading corrects white vertical shading at the push of a button. This automatic provides separate setups to optimize the X1 and X2 lens extender positions.

Extensive User-Friendly Features.

• Quick Focus.

Quick Focus automatically opens the iris then sets the video level with the electronic shutter. With the resulting shallow depth of focus, the exact focus point can be set easily.

• Two User-Programmable Switches (CS-1, CS-2).

The user can assign full auto, quick focus or contrast to either of the two programmable switches for ease of operation.

• Full Auto.

The built-in automatic electronic shutter (AES) and automatic iris maintain the video level even with radically changing light levels. Real-time automatic white balance corrects for color temperature variations do to changing types of lighting conditions.

- Four scene files are provided to store and recall functions such as gain, detail, and gamma.

- A 4-point star filter is included in filter wheel.

- Menu access is provided for iris level (fine adjust) and iris peak/average selection.

- Computer controlled real-time auto-white balance.

- Camera ID, date and time are displayed on the color bar display.

- Audio test tone (1 kHz) is output when color bars are selected.

Viewfinder Displays.

- The viewfinder displays the function tree menus.

- Self diagnostic and check function.

• Status display.

Indicators for zoom and focus (with compatible lenses), iris F-stop, color temperature for auto, white balance and other functions are displayed.

• Two mode zebra.

Menu selection of over-level or between range zebra is provided.

• Battery remaining.

Fuel-gauge for Anton Bauer Digital interactive batteries. Displays percentage of battery power remaining.

High Performance 1.5 inch Viewfinder (GM-9).

- Offers automatic switching between 16:9/4:3 display when the camera aspect ratio is changed.
- The 600 TV line resolution assures easy focus.
- Large aperture lens improves viewfinder viewing.
- Front-back, left-right and tilt positioning is provided for optimum user comfort. The bayonet mount provides a direct connection to the camera eliminating the need of a cable
- Rotates to a perpendicular position for convent carrying.



Advanced Ergonomics.

- New low center of gravity design.
- Main operation switches are grouped forward for easy access.
- Featherweight design (camera head 2.6 kg) is ideal for portable use.
- Adjustable shoulder pad position and non-slip finish provide on-the-shoulder balance, comfort and confidence.

Camera adapter with D1 output for V-21W/V-21 series CA-ZD1

Digital serial output combining with V-21W/V-21 series Camera.

- 10-bit 4 : 2 : 2 Component Serial Digital Interface (D1) SMPTE 259M-C
- EDH (Error Detection and Handling) signal SMPTE RP165

Two D1 output (BNC connector, 26Pin connector)
The 26Pin VTR connector can be switched to provide a D1 or VBS output

(note : can not be connected to RU-Z1 / RU-Z2/RU-Z3)



Studio operation Enhancement.

The optional EA-Z3 Extension Adapter adds (in combination with the RU-Z3) intercom PD/ENG switching, prompter video output, mic 2 input, call, and Aux 1 and 2 switching to a studio system.

RU-Z3 Features

SMPTE26 bayonet connector

The 26 pin bayonet connector is easily attached and detached.

Augmented camera power supply

Approximately 70W of power is available for connecting other equipment. (Although varies with the system configuration, 40 to 50W can be taken from the CA-Z32 camera adaptor.)

Intercom system support

Intercom systems such as RTS, Clearcom and 4 wire are supported, as well as 2 channel systems.

Waveform monitor (WFM) output

Video output for a waveform monitor and control output are provided. The RC-Z3/Z21A or a personal computer can be used for fine color and level adjustment.

Enhanced functions

Two channel microphone outputs and an auxiliary inputs are provided. A prompter input has been added, together with other significant functional enhancements.

Bi-directional communications

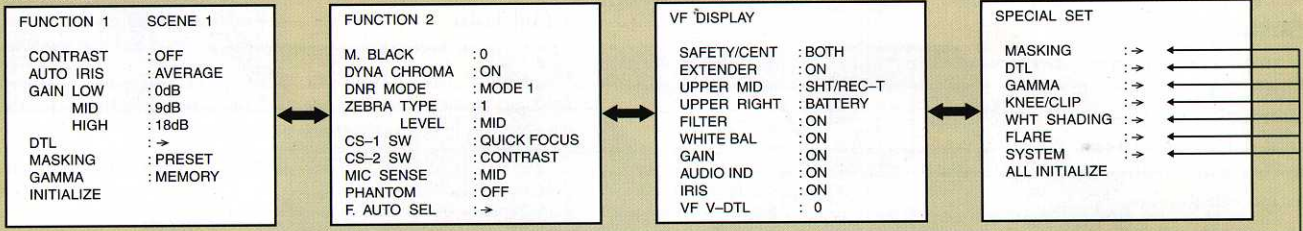
Camera control is advanced by a bi-directional serial control signal communication system.

Serial digital interface (D1)

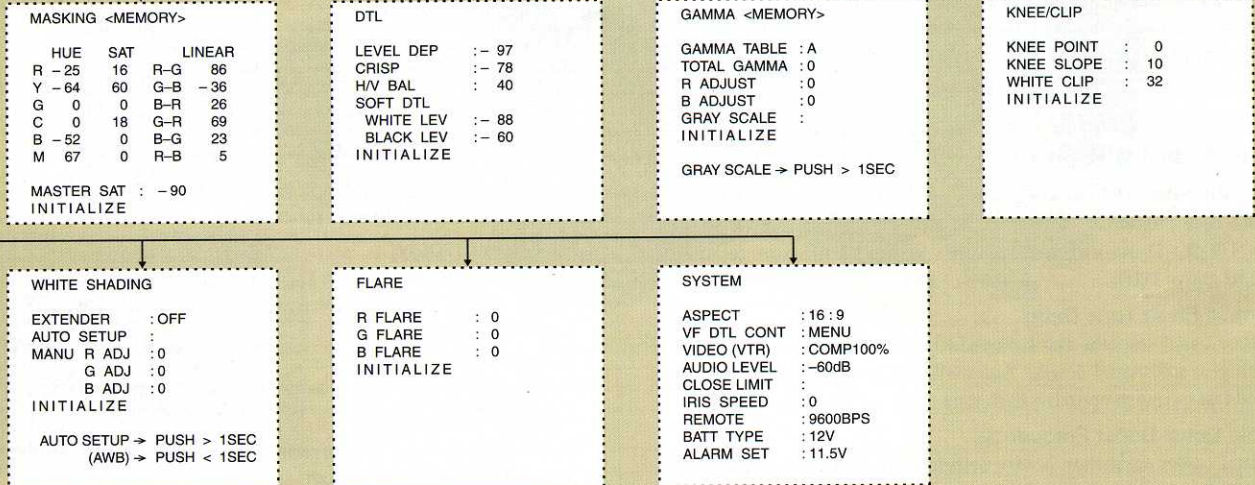
High quality digital component signals can be sent to other digital video equipment with a single coaxial cable. The added EDH (error detection and handling) function is be used for transmission error detection by the receiving equipment.

FUNCTION MENU (V-21W)

Main Menu



Sub Menu



Docks to a Wide Variety of VTR's.

Optional adapters and inner modules offer flexible docking solutions for popular video tape recorders.

Compatible models.

Sony : Betacam SX (DNV-5), Betacam SP (BVV5), DVCAM (DSR-1),
Betacam PRO (PVV-3)

Panasonic : DVCPRO (AJ-D90), MII Promind (AU-45H)

JVC : Digital-S (BR-D40), S-VHS (BR-S422)

Docks to a Wide Variety of VTR's



Control items	Units			
	RU-Z1	RC-Z11	RU-Z2/ RU-Z3	RC-Z3/ Z21A
SC Phase, H Phase adjustment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Cable length adjustment	<input type="checkbox"/>		<input type="checkbox"/>	
Tally / Call	<input type="checkbox"/>		<input type="checkbox"/>	
Intercom Talk ON / OFF			<input type="checkbox"/>	
Intercom Level control	<input type="checkbox"/>		<input type="checkbox"/>	
Intercom COMMON / CAMERA selection	<input type="checkbox"/>		<input type="checkbox"/>	
MONITOR OUT AUX / CAM selection	<input type="checkbox"/>			
R GAIN, B GAIN control	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
R BLACK, B BLACK control	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
IRIS control	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
MASTER BLACK control	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Scene files selection (4 files & 1 PRESET file)	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
BAR / CAM selection	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
A. WHT / A. BLK	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
FUNCTION	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
DTL selection	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
WHITE BALANCE mode selection	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
GAIN selection	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
IRIS mode selection	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
CONTROL (OFF / LOCK / ON) selection	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
SHUTTER ON / OFF	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
CONTRAST ON / OFF				<input type="checkbox"/>
ULTRA GAIN ON / OFF				<input type="checkbox"/>
CHECK	<input type="checkbox"/>	<input type="checkbox"/>		
Lens extender indicator				<input type="checkbox"/>

Suggested System Configurations.

- New 16:9/4:3 switchable studio system: RU-Z3 Camera Base Station, CA-Z32 Camera Adapter, RC-Z3A/RC-Z21A Camera Control Panel, GM-51 5-inch viewfinder.
- Small scale 16:9/4:3 switchable studio system: RU-Z1 Remote Operation Unit, CA-Z31 Camera Adapter, RC-Z11 Camera Control Panel, and GM-51 5-inch viewfinder.

Studio Configurations



ACCESSORIES



CA-Z31
Camera adaptor for RU-Z1



CA-Z32
Camera adaptor for RU-Z2



RU-Z1
Remote operation unit



RU-Z3
Camera base station



HA-Z3D with IM-Z3D
Handle for DNV-5



RC-Z11
Camera control panel



RC-Z3
Camera control panel



RC-Z21A
Camera control panel



EA-Z3
Extension adaptor for CA-Z32



IM-Z3D
Inner module for Betacam



IM-Z3P/IM-Z3S/IM-Z3J
Inner module



QR DP800
Battery mount for ANTON BAUER



MT-12MF
Headset



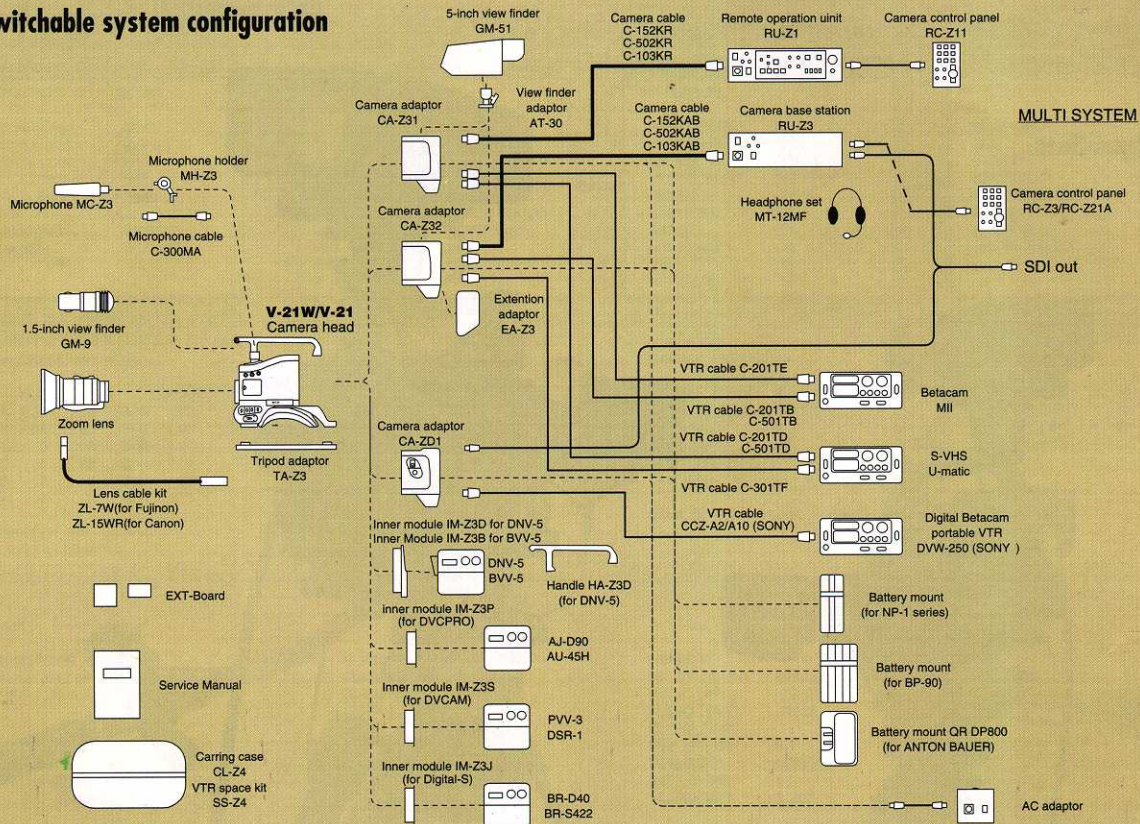
MC-Z3
Microphone



MH-Z3
Microphone holder

V-21W/V-21

Wide switchable system configuration





C-300MA
Microphone cable



GM-9
1.5-inch view finder



GM-51
5-inch view finder



AT-30
View finder adaptor for GM-51, GM-L6



TA-Z3
Tripod adaptor



C-502KAB/C-152KAB/C-103KAB
Camera cable



C-201TE
VTR cable



SB-2
Shoulder belt



*Setup card



A19 x 8.7BRM-24
Zoom lens



Lens cable kit for Fujinon lens



YJ18 x 9BKRS
Zoom lens

*: Preferred accessories for our products.

FLEXIBLE CHOICE OF REMOTE CONTROL UNITS

Camera Control Panel **RC-Z11**



Remote Operation Unit **RU-Z1**



Back

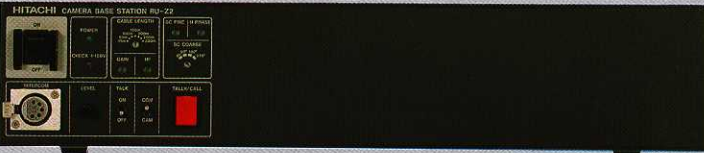
Camera Control Panel **RC-Z3**



RC-Z21A (Joystick Type)



Camera Base Station **RU-Z3**



Back

Note: RU-Z1 has to be operated with RC-Z1/Z-11 and CA-Z31, RU-Z3 has to be operated with RC-Z3/Z21A and CA-Z32.

SPECIFICATIONS : V-21W/V-21 Camera Head

Color System	PAL
Optical system	2/3" f1.4 prism
Pickup system	RGB 3-chip system
Imaging device	CCD equivalent to 2/3" tube (with micro lenses)
Picture elements (pixels)	V-21W Total 1008(H) - 591(V) Effective 936(H) - 575(V)
	V-21 Total 1038(H) - 594(V) Effective 980(H) - 582(V)
Sync system	Internal or genlock
Horizontal resolution	V-21W 750 TV lines (4 : 3), 750 TV lines (6 : 9)
	V-21 900 TV lines (4 : 3)
Signal-to-noise ratio	61dB (Typ), 63dB (DNR ON) (Gamma : 1, DTL : OFF, Gain : 0dB, Y OUT)
Standard sensitivity	F11 at 2000 lx
Minimum sensitivity	0.5 lx F1.4 / 0.8 lx F1.8 (Gain : +24dB, ULTRA-Gain : ON)
Gamma correction	0.35 to 1.0 (ON/OFF switchable)
Geometric distortion	All zones : less than measurement limit (excluding lens)
Registration	All zones : less than 0.05% (excluding lens)
Optical filters	3200K, 5600K +1/16ND, 5600K, 5600K +1/64ND
Vertical contour correction	2H
Lens mount	Bayonet (Backfocus : 48mm in air)
Gain selector	Low : 0dB / -3dB
	mid : +6 / +9 / +12dB
	High : +12 / +18 / +24dB
	Remote mode : -3 to +24dB (in 3dB steps)
DTL controls	DTL LEVEL, DTL FREQ, FLESH TONE, LEVEL DEP, CRISP, H-V BAL, SOFT DTL, etc.
	4 scene files Items: gain, DTL, masking, gamma, electronic shutter, auto iris mode, contrast, etc.
Setup card file	4 (scenes files and other menu items)
ULTRA-Gain function	Gain is increased by approx. +12dB by switching the read-out mode of CCD (Horizontal resolution is lowered)
Electronic shutter	Preset mode 1/60, 1/250, 1/500, 1/1000, 1/2000 CC FRAME
	Lock SCAN mode : 1/51.5 to approx. 1/2000 (in 1H steps); Automatic Electronic Shutter (AES) mode : (up to 4 lens-stops)
Input signals	1. Genlock input (BNC or multi-connector) : VBS 1.0Vp-p (± 3 dB or black burst) / 75 Ω (sync 0.3 ± 0.1 Vp-p, burst : 0.3 ± 0.1 Vp-p)
	2. Viewfinder AUX input (multi-connector) : VBS 1.0Vp-p ± 3 dB / 75 Ω
Output signals	1. Video output (BNC) VBS 1.0Vp-p / 75 Ω
	2. VTR output 1 (multi-connector) VBS 1.0Vp-p / 75 Ω
	3. VTR output 2 (multi-connector) a: Composite signal: VBS 1.0Vp-p / 75 Ω b: Y/C output : Y : 1.0Vp-p / 75 Ω , C : 0.286Vp-p (burst), c: RGB output : RGB : 0.7Vp-p / 75 Ω d: Component output: VS : 1.0Vp-p / 75 Ω R-Y, B-Y : 0.525Vp-p / 75 Ω (BETACAM, 75% color bars),
	4. Monitor output (BNC) VBS 1.0Vp-p / 75 Ω , with characters
	5. Audio output (multi-connector) - 20dBm or - 60dBm

Ambient temperature	Operating: -10 to +45°C Storage: -10 to +60°C
Rated power supply	12 V DC
Power consumption	1.6W approx. (including GM-9, excluding camera adapter)
Dimensions	125(W) x 268(H) x 160(D) mm (excluding camera adapter)
Mass	3.2kg (7.1 lb) approx. (including GM-9 and excluding lens and camera adapter)

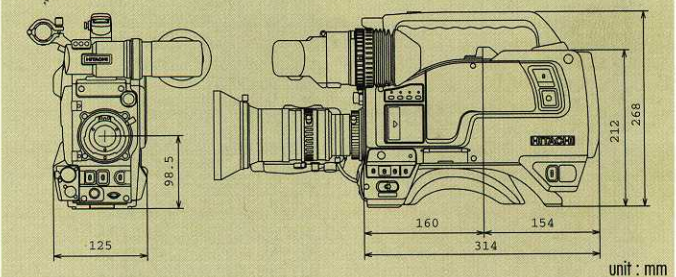
SPECIFICATIONS : GM-9 1.5-inch Viewfinder

Input signal	VS 1.0Vp-p, sync negative
CRT	1.5" B/W
Resolution	600 TV lines approx. (horizontal center)
Aspect ratio	16:9 / 4:3
LED display	TALLY, BATT, SAVE, (!) Warning indicator : out of standard application
Controls	Brightness, Peaking, Contrast, Front tally ON/OFF
Power supply	9V DC
Power consumption	1.4W approx.
Mass	0.6kg (1.3 lb) approx.

SPECIFICATIONS : RU-Z1 and RU-Z3

	RU-Z1	RU-Z3	
OUTPUT signals	LINE 1 / 2	VBS 1.0Vp-p / 75 Ω	
	MON	VBS 1.0Vp-p / 75 Ω	
	RGB	V : 0.7Vp-p / 75 Ω	
AUDIO output	0dB, 600 Ω , one system	0dB, 600 Ω , Mic 1 & Mic 2	
INPUT signals	PROMPT	-	VBS 1.0Vp-p / 75 Ω or loop-through
	AUX VIDEO	VBS 1.0Vp-p / 75 Ω or loop-through	Aux 1 & Aux 2, Rating is same as RU-Z1
	GENLOCK	VBS 1.0Vp-p / 75 Ω or loop-through	
	TALLY	Closure or Voltage (24V)	
	INTERCOM	XLR-5pin Corresponding to dynamic mic	
RS-232C	D-SUB 25pin	-	
Power requirements	230V AC, 50Hz	230V AC, 50Hz	
Power consumption	52W approx.	125W approx.	
Maximum cable length	300m (980 ft approx.)		
Ambient temperature	5 to 40°C (41 to 104°F)		
Dimension	482(W) x 88(H) x 300(D) mm (19.0 x 3.5 x 11.8 in)		
Mass	7.6kg (16.8 lb) approx.	9kg (19.9 lb) approx.	

Dimensions



CAUTION : To ensure safe operation, please read the instruction manual before using this product.

These Specifications are subject to change without notice.

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CERTIFICATE No.
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ISO 9001/BS 5750P11
EN 29001/JIS Z9901