

Digital Camera

Z-4500W

14bit A/D



The Z-4500W incorporates the latest technological advancements for the professional and broadcast markets.

Hitachi has once again elevated the standard by which professional video cameras are judged with the introduction of the Z-4500W.

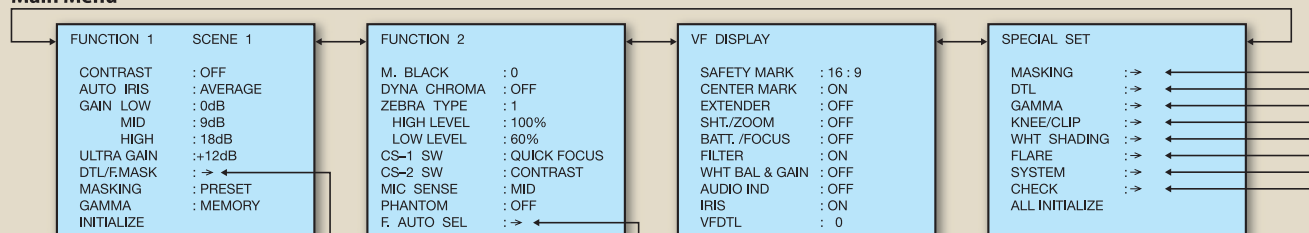
This latest generation of Z-camera has improved performance over previous models by the incorporation of the newest electronic devices and circuit designs. Popular features such as aspect ratio switching have been retained to facilitate TV program production for SDTV in 4:3 and HDTV in 16:9. Pristine picture quality in both aspect ratios is provided by the use of new high-performance CCD imaging devices. These new CCDs bring to reality never before seen performance in the areas of picture quietness, highlight smear suppression and object depth-of-field characteristics. Hitachi's Digital Signal Processing now benefits from an increased dynamic range and resolution offered by the latest generation of 14 bit Analog to Digital converters at the output of the CCD imaging device.

The new ADCs make it possible to eliminate analog pre-processing associated with older devices thereby decreasing the manipulation of the image signal prior to digital processing. Hitachi's latest Digital Signal Processor VLSIC is at the heart of the Z-4500W's upgraded performance. The new DSP offers superior color rendition and reproduction characteristics while offering the highest accuracy in edge definition. This translates to cleaner, sharper images. Also performed in the digital domain within the Z-4500W's DSP device, are video signal encoding and advanced noise reduction for low-light scenes.

The Z-4500W camera is also easily configured for studio use. Three different transmission technologies exist for studio-configured cameras. Our flagship Digital Triax is the only one of its kind in the world that truly offers complete bi-directional digital signal transmission with absolute transparency. Second, our tried and proven FM analog triax is of high-performance, flexibility and long cable length specifications. Last our multicore systems offer pristine picture quality (with optional SDI video outputs) for budget-constrained customers.

FUNCTION MENU Z-4500W

Main Menu



Sub Menu

DTL/F. MASK	SCENE 1
DTL LEVEL	: 0
DTL FREQ	: 4.5MHZ/6MHZ
HI CHROMA	: OFF
FLESH TONE	: 1
AUTO SETUP	: PUSH > 1SEC
LEVEL	: -128
PHASE	: +97 YE-R
WIDTH	: -128
F. MASK HUE	: 0
F. MASK SAT	: 0

Sub Menu

FULL AUTO SEL	
AES	: ON
FAW	: ON

Sub Menu

MASKING <MEMORY>			
HUE	SAT	LINEAR	
R	0	0	R-G 0
Y	0	0	G-B 0
G	0	0	B-R 0
C	0	0	G-R 0
B	0	0	B-G 0
M	0	0	R-B 0
MASTER SAT	: 0		
INITIALIZE			

Sub Menu

WHITE SHADING	
EXTENDER	: OFF
AUTO SETUP	:
MANU R ADJ	: 0
G ADJ	: 0
B ADJ	: 0
INITIALIZE	
AUTO SETUP	:
A. SHAD	: PUSH > 1SEC
A. WHITE	: PUSH < 1SEC

DTL	
LEVEL DEP	: 0
CRISP	: 0
H/V BAL	: 0
SOFT DTL	
WHITE LEV	: 0
BLACK LEV	: 0
KNEE APT	: ON
INITIALIZE	

FLARE	
R FLARE	: 0
G FLARE	: 0
B FLARE	: 0
INITIALIZE	

GAMMA <MEMORY>	
GAMMA TABLE	: A
TOTAL GAMMA	: 0
R ADJUST	: 0
B ADJUST	: 0
GRAY SCALE	:
INITIALIZE	
GRAY SCALE	: → PUSH > 1SEC

SYSTEM	
ASPECT	: 16:9
VF DTL CONT	: MENU
OUTPUT	: COMP100%
AUDIO LEVEL	: -60dB
CLOSE LIMIT	:
IRIS SPEED	: 0
REMOTE	: 9600BPS
BATT TYPE	: 12.0V
ALARM SET	: 11.0V
COMB FILTER	: OFF

KNEE/CLIP	
KNEE POINT	: 0
R KNEE	: 0
B KNEE	: 0
KNEE SLOPE	: 0
R SLOPE	: 0
B SLOPE	: 0
WHITE CLIP	: 0
INITIALIZE	

CHECK	
TEST	: OFF
GAMMA	: ON
DTL	: ON
MASKING	: ON
KNEE	: ON
MONO	: OFF
FULL BLACK	: PUSH > 1SEC

Outstanding Features

High Resolution

An outstanding resolution of 850 TV Lines in 16:9 and 800 TV Lines in 4:3 aspect ratio as well as a low -130dB vertical smear specification are achieved through the use of new 2/3-inch, 16:9 native aspect ratio, 520,000 pixel CCDs.



Switchable Aspect Ratios

The new Z-4500W incorporates 16:9/4:3 aspect ratio switching which provides added flexibility and creative freedom to the most demanding productions. The 16:9 aspect ratio assures the highest picture quality worthy of HDTV up-conversion.

Next-Generation DSP

Hitachi's unique DSP technology encompasses the video digital processing and the encoder into a single LSI device. This single chip 3 million gates 0.18µm DSP design reduces the size, power consumption and greatly enhances stability.

The 14 bit A/D converter and 20 to 30 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 65dB is provided. This new technology assures clear low noise images even when employing high video gain.



Sensitivity - F11(2000 lx)

A total of +42dB of gain is available for imaging low light scenes down to 0.25 lx (f1.4). The +42dB gain is a combination of +24dB high gain, low noise +12dB ultra-gain and +6dB digital 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 100IRE. Dyna-chroma restores color saturation to scene highlights above 100IRE.

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.

User-selectable Detail Frequency

Four steps for detail center frequency can be menu-selected to provide fine to coarse contours around the edges of the objects in the picture.

6-Vector and Linear Matrix

The 6-vector color corrector 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

Special Gamma is a dynamic range expansion of the darkest portions of the picture below the normal gamma point without changing the pedestal or increasing video noise. Optimizes the reproduction of the darkest areas of the picture.

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

• Built in WIDE ID PULSE

The Wide Aspect Ratio ID Pulse to signals monitors and projectors to switch to 16:9 Aspect Ratio automatically when using corresponding monitors.

• 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 easily set by the camera operator.

• 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 due to changing types of lighting conditions.

- Four scene files are provided to store and recall functions such as gain, detail, masking, gamma and other settings.
- A 4-point star filter is included in filter wheel.
- Camera ID, date and time are displayed on the color bar display.
- Audio test tone (1kHz) is output when color bars are selected.

Viewfinder Displays

- The viewfinder displays the function tree menus.

• 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.

• Viewfinder V-Detail

Vertical detail is enhanced in both the 1.5-inch VF (GM-9) and 5-inch VF (VF-508) viewfinders for easy lens focus. Horizontal detail is also provided.

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 convenient carrying.



Advanced Ergonomics

- New low center of gravity design.
- Main operation switches are grouped forward for easy access.
- Lightweight 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 adaptor with D1 output for Z-4500W CA-ZD1

Digital serial output combining with Z-4500W 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, 26 Pin connector)

The 26Pin VTR connector can be switched to provide a D1 or VBS output

(note : can not be used with RU-Z1 / RU-Z3)



FLEXIBLE CHOICE OF REMOTE CONTROL UNITS

Suggested System Configurations

Studio system : RU-Z35 Camera Base Station, CA-Z35 Camera Adaptor, RC-Z3/RC-Z21A/ RC-Z33 Camera Control Panel, and GM-51 5-inch viewfinder.

Studio Operation Enhancement

The optional EA-Z35 Extension Adaptor adds (used with the RU-Z35) intercom channel PD/ENG switching, prompter video output and a call button to alert a video operator by the Camera Base Station or Camera Control Panel.

RC-Z33 Camera Control Panel

The RC-Z33 Camera Control Panel has 11 potentiometers to control the Z-4500W camera.

MP-Z3000 Multi control Panel

MP-Z3000 Multi control Panel provides complete control for up to 12 Z-4500W camera.

Camera Control Panels



RC-Z3



RC-Z21A



RC-Z33



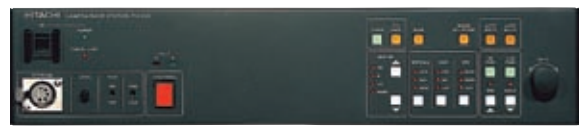
MP-Z3000

Camera Station

RU-Z3 Camera Base Station



RU-Z35 Camera Base Station



TRIAX SYSTEM

TU-Z3A CCU (Triax base station) and CX-Z3A (Triax adaptor)



TU-Z3A



Back



CX-Z3A

High quality video transmission

The wide bandwidth of the Y(10MHz) and Pb/Pr(5MHz) component FM transmission provide high resolution video with a high S/N ratio. A digital comb filter improves cross color artifacts in the video out put.

Digital audio transmission

To provide the highest quality microphone and intercom audio, bi-directional digital transmission is used between the camera head and base station for all audio signal and control data.

Versatile intercom functions

The intercom is RTS/Clear-Com compatible and is selectable for, 2-wire and 4-wire and other intercom systems. At the camera head, the operator can select the PD or ENG intercom channel.

Base station video outputs

The base station provides 3 encoder outputs, 1 set of RGB or Y, PB, PR outputs, 1 pix monitor output and 1 waveform monitor output.

Base station video inputs

2 return video inputs and 1 prompter video input are provided. The return video signal is selected at the camera head.

Digital video interface (optional)

2 D1 serial digital outputs and 2 D1 serial digital inputs for return video are available as options. With this system, cable length up to 1900 meters (14.5mm Fujikura cable) may be used by FM modulation triax system.

AC/DC operation

The base station provides for both AC and DC operation. DC operation allows the triax system to use less costly coaxial cable.

Half rack base station

The compact base station is a half rack width and 4 rack units height. The flexible camera control panel (RC-Z3) can be mounted on the front panel of the base station or mounted in a desktop depending on the application.

TRUNK VIDEO (Optional)

This function optionally provides the ability to send an external video signal source input at the camera head to the CCU via the existing triax cable. The PROMPT RF transmission is reversed by a by Menu-Item selection for instances were a video feed need take advantage of the camera's existing location.

TU-Z3A/CX-Z3A triax system Specification

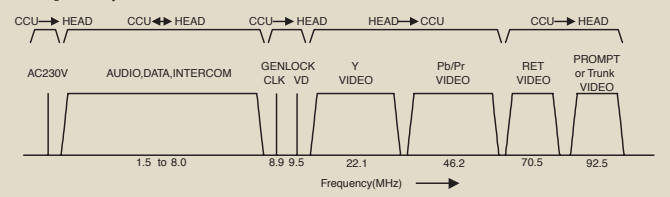
Triax base station (TU-Z3A)	Input signal	Connector type
GEN LOCK	B. B 75 Ω(loop through)	BNC
RET 1,2	VS or VBS 75 Ω(loop through)	BNC
PROMPT	VS or VBS 75 Ω(loop through)	BNC
DIGITAL RET 1,2	D1(Active through) Specify in order	BNC
INTERCOM	4 Wire or 2Wire	D-sub 15pin
PGM		D-sub 15pin
R/G TALLY		D-sub 15pin
REMOTE 1	(switchable)	4pin, D-sub 25pin
REMOTE 2		4pin

Triax base station (TU-Z3A)	Output signal	Connector type
ENCR	VBS	BNC(x3)
Pr or R, Y or G, Pb or B	VS(switchable)	BNC
DIGITAL OUT	D1(option)	BNC(x2)
PIX(R,G,B,ENCR)	VS or VBS	BNC
WFM OUT(R,G,B,ENCR)	VS or VBS	BNC
MIC OUT 1,2		XLR-3pin
INTERCOM	4 Wire or 2Wire	D-sub 15pin
R/G TALLY	Contact	XLR-3pin
W/N CONTROL	Contact	XLR-3pin
TRUNK	VBS Specify in order	BNC

INTERCOM HEAD SET Dynamic MIC XLR-5pin(Female)

Triaxial Cable Cable type	Diameter (mm)	Maker	Maximum cable length(m)	
			W/ PROMPT	W/O PROMPT
4.8/1.0 EFTXF	8.6	FUJIKURA	930	1100
9.6/2.2 EFTXF	14.5	FUJIKURA	1500	1900
9267	9.1	BELDEN	720	910
9232	13.2	BELDEN	1200	1500
1.0S/4.5S	8.5	NK NETWORKS	740	920
1.4S/6.6S	11.0	NK NETWORKS	1100	1400

Frequency allocation



Video band width(Base band)	
Y signal	10 MHz
Pb, Pr signal	5 MHz
RET, PROMPT signal	5 MHz

Power supply voltage	AC117 V 60 Hz
Power consumption	130 W approx. (AC operation, including Z-4500W/GM-51 and AUX POWER OUT 50 W) TU-Z3A :25 W approx. (DC operation) CX-Z3A :33 W approx. (DC operation, including Z-4500W/GM-51)
Ambient Temperature Operating	TU-Z3A 0 to +40 °C CX-Z3A -10 to +45 °C Storage: -20 to +60 °C
Dimensions	TU-Z3A 212(W) x 163(H) x 381(D) mm CX-Z3A 135(W) x 196(H) x 215(D) mm
Mass	TU-Z3A 9.0 kg (19.9 lb) approx CX-Z3A 3.0 kg (6.6 lb) approx.

FULLY DIGITAL TRIAX SYSTEM

TU-SD1 CCU (Digital triax base station) and CX-SD1 (Digital triax adaptor)



TU-SD1



Back



CX-SD1



Back

New Digital Triax system for standard definition represents the pinnacle of technology and our commitment for implementations of advanced, innovative developments in our world-renowned Broadcast and Professional color Television cameras.

Fully digital transmission system

Hitachi's patented fully digital transmission system is superior and uniquely different from other similarly named from competitive manufacturers.

Advanced time division multiplex transmission system

The advanced time division multiplex transmission system delivers a bi-directional digital stream payload that transports camera, return video, microphone, intercom audio and system operation, control data thus avoiding any type of signal-degrading RF modulation or baseband signal pre-equalization.

Long distance transmission

A Belden 9232 13.2-mm-diameter triax cable can be used up to a distance of 700 meters.

Fully digital intercom

A fully digital intercom is provided with 2 independent channels (PD & ENG) with PGM audio mix. Intercom interfaces allow full Clear-Com or RTS, 2 or 4-wire compatibility.

3 encoder outputs

Video signal outputs include 3 encoder outputs, 1 RGB or Y Pb Pr output, and 1 each video monitor and waveform monitor outputs.

2 return video inputs and 1 prompter video input

Video signal inputs include 2 return video inputs and 1 prompter video input. The return video signal can be selected by the camera adaptor rear switch.

(4) D1 serial digital outputs and (2) D1 serial digital inputs

Standard provisions of digital video interfaces include (4) D1 serial digital outputs and (2) D1 serial digital inputs for return video.

Compact triax base station

The compact triax base station is of half-rack width and (3) rack units (RU) in height. A standard 19-inch EIA rack-mount is optionally available.

Future-proof design

Hitachi's Digital Triax is of a compact, modular, future-proof design that provide our customers with the added flexibility of optionally converting the system to operate with specific Hitachi HDTV camera models.

TU-SD1/CX-SD1 digital triax system Specification

Digital Triax base station (TU-SD1)	Input signal	Connector type	Digital Triax Adaptor (CX-SD1)	Input signal	Connector type	Diameter (mm)	Maker	Maximum cable length with PROMPT (m)
GEN LOCK	B-BST	BNC	CAMERA HEAD			Triaxial Cable		
RET 1	VS or VBS	BNC	VIDEO SIGNAL (Y, Pb, Pr)	Each 10 bit digital signal		9.6/2.2 EFTXF	14.5	FUJIKURA
RET 2	VS or VBS	BNC	Control signal	1.5 Vp-p asynchronous		9267	9.1	BELDEN
PROMPT	VS or VBS	BNC	MIC-1 input	-20 dBm		9232	13.2	BELDEN
DIGITAL RET 1	D1	BNC	DC-IN	DC 12 V (DC +10.5 V to +17 V)	XLR-4 pin (male)	1.05/4.55	8.5	NK NETWORKS
DIGITAL RET 2	D1	BNC	MIC input	-70 dBm to +4 dBm	XLR-3 pin (female)	1.45/6.65	11.0	NK NETWORKS
INTERCOM (HEAD SET)	-70 dBm	XLR-5 pin	INTERCOM-1 (HEAD SET)	-70 dBm	XLR-5 pin (female)	Coaxial Cable (With power provided at the camera head)		
COMMUNICATION			INTERCOM-2 (HEAD SET)	-70 dBm	XLR-5 pin (female)	5C-2V	7.5	—
INTERCOM	4 Wire: 0 dBm 600Ω 2 Wire: 0 dBu or -15 dBu 200Ω	D-sub 25 pin	VF AUX		6 pin	7C-2V	10.2	—
PGM	0 dBm/600Ω		TRACKER	INTERCOM Receive: 0dBu RS-232C	20 pin	Power supply voltage		
R/G TALLY	Power supply or contact supply					AC 117 V 60Hz or AC 230 V 50Hz		
REMOTE 1	1.5 Vp-p asynchronous or RS-232C (switchable)	4 pin D-sub 9 pin	Digital Triax Adaptor (CX-SD1)	Output signal	Connector type	Power consumption		
REMOTE 2	1.5 Vp-p asynchronous	4 pin	CAMERA HEAD			AC operation mode: Approx. 230 V (VF-509, AUX POWER OUT 100W)		
Digital Triax base station (TU-SD1)	Output signal	Connector type	AUX VIDEO	VS or VBS		Ambient temperature		
ENCR	VBS	BNC (3 channels)	GEN LOCK	B-BST		TU-SD1: 0 to +40°C CX-SD1: -10 to +45°C		
Pr or R	V (switchable)	BNC	Control signal	1.5 Vp-p asynchronous		Dimensions		
Y or G	VS / V (switchable)	BNC	RET VIDEO	VS or VBS	BNC	TU-SD1: 212 (W) x 124 (H) x 381 (D) mm CX-SD1: 135 (W) x 196 (H) x 215 (D) mm		
Pb or B	V (switchable)	BNC	PROMPT VIDEO	VS or VBS	BNC	Mass		
DIGITAL OUT	D1	BNC (4 channels)	INTERCOM-1 (HEAD SET)	Standard: 0dBu Max.: +15 dB or more	XLR-5 pin (female)	TU-SD1: Approx. 9 kg CX-SD1: Approx. 3 kg		
PIX (R, G, B, ENCR)	VS or VBS	BNC	INTERCOM-2 (HEAD SET)	Standard: 0dBu Max.: +15 dB or more	XLR-5 pin (female)			
WF OUT (R, G, B, ENCR)	VS or VBS	BNC	SCRIPT	DC 12 V / 0.3 A				
MIC OUT 1	0 dBm / 600Ω	XLR-3 pin	AC 230V	AC 230 V (100 VA)	5 pin			
MIC OUT 2	0 dBm / 600Ω	XLR-3 pin	TRACKER	INTERCOM Talk: 0dBu PGM: -20 dBu R/G TALLY RS-232C	20 pin			
INTERCOM (HEAD SET)	Standard: 0 dBu Max.: +15 dB or more	XLR-5 pin (female)	DIGITAL OUT	D1	BNC			
COMMUNICATION INTERCOM	4 Wire: 0 dBm 600Ω 2 Wire: 0 dBu or -15 dBu 200 Ω	D-sub 25 pin						
TALLY OUT								
R/G TALLY	Contact supply	D-sub 9 pin						
W/N CONTROL	Contact supply							
REMOTE 1	1.5 Vp-p asynchronous or RS-232C (switchable)	4 pin D-sub 9 pin						
REMOTE 2	1.5 Vp-p asynchronous	4 pin						

ACCESSORIES



CA-Z32
Camera adaptor for RU-Z3



CA-Z35
Camera adaptor for RU-Z35



EA-Z3
Extension adaptor for CA-Z32



EA-Z35
Extension Adaptor for CA-Z35



MH-Z3
Microphone holder



C-300MA
Microphone cable



GM-9
1.5-inch view finder



VF-509
5-inch view finder



AT-30
View finder adaptor for VF-509



MT-12MF
Headset



TA-Z3
Tripod adaptor



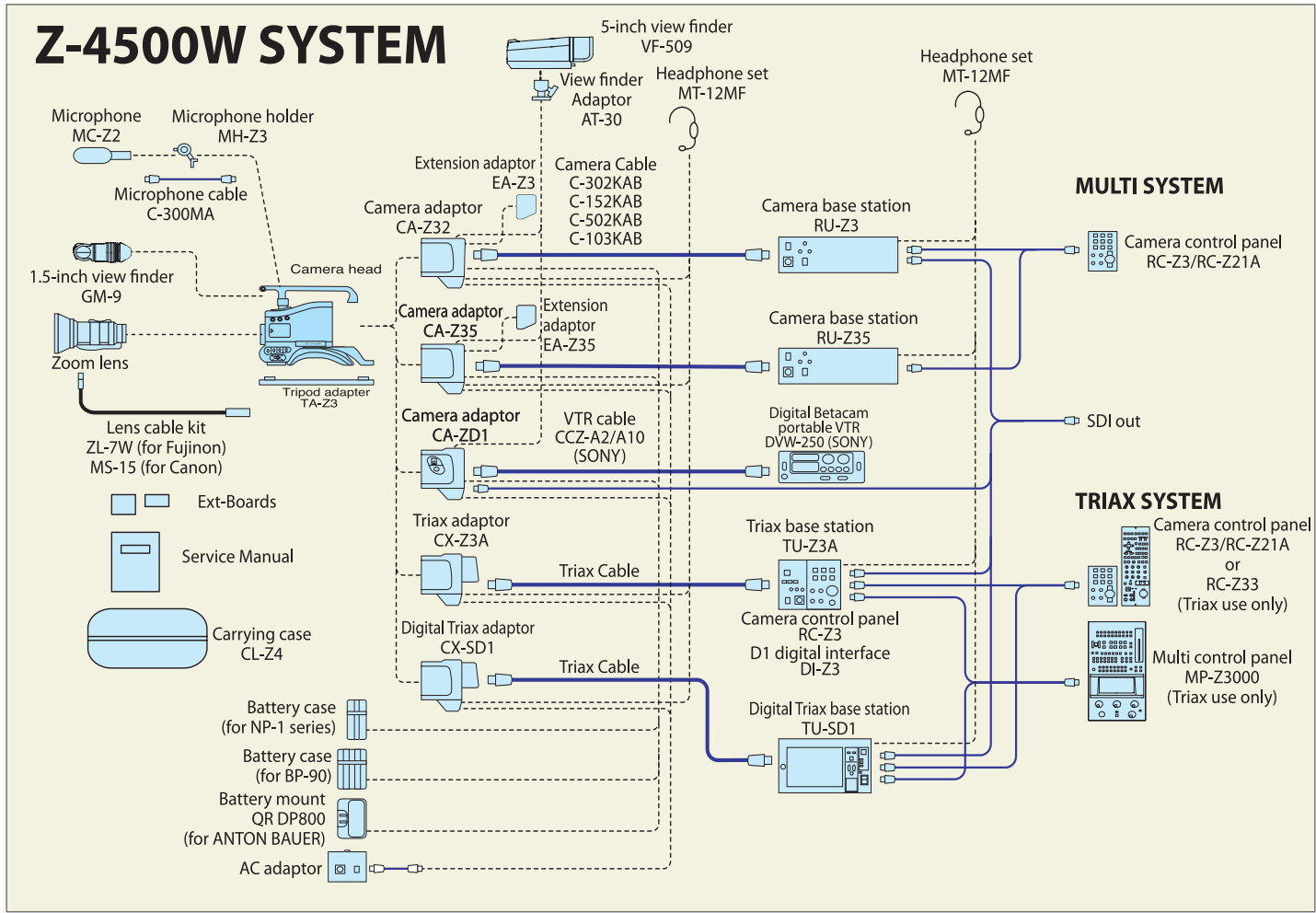
C-502KAB/C-302KAB/C-152KAB/C-103KAB
Camera cable



A20 x 8.6BRM-SD
Zoom lens



YJ20 x 8.5B4KRS
Zoom lens



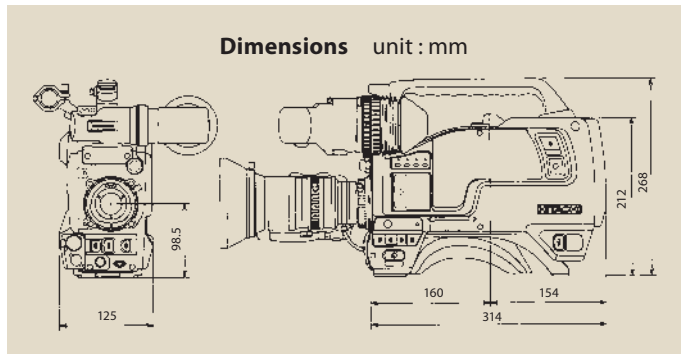
SPECIFICATIONS : Z-4500W Camera Head

Color System	NTSC
Optical system	2/3" F1.4 prism
Pickup system	RGB 3 IT- CCD, 2/3" Image format
Imaging size	16 : 9 9.6 x 5.4mm 4 : 3 8.8 x 6.6mm
Picture elements (pixels)	Total 1020(H) x 505(V) Effective 966(H) x 492(V)
Smear level	-130dB (typical)
Sync system	Internal or genlock
Horizontal resolution	850 TV lines (4 : 3), 800 TV lines (16 : 9)
Signal-to-noise ratio	65dB (typical) (Gamma : 1, DTL : OFF, Gain : 0dB, Y OUT)
Standard sensitivity	F11 at 2000 lx
Minimum illumination	0.25 lx F1.4 / 0.42 lx F1.8 (Gain : +24dB, ULTRA-Gain, digital 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, cross filter
Vertical detail correction	2H
DTL controls	DTL LEVEL, DTL FREQ, FLESH TONE, LEVEL DEP, CRISP, H-V BAL, SOFT DTL, etc.
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 (3dB steps)
ULTRA-Gain function	Gain is increased by approx. +12dB by switching the read-out mode of CCD (Horizontal resolution is lowered)
Digital-Gain function	Gain is increased +6dB by Internal processing of DSP
Scene file	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)
Electronic shutter	Preset mode 1/100, 1/250, 1/500, 1/1000, 1/2000 CC FRAME Lock SCAN mode : approx 1/61 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 \pm 0.1Vp-p, burst : 0.3 \pm 0.1Vp-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 : 0.714Vp-p / 75 Ω d: Component output: VS : 1.0Vp-p / 75 Ω R-Y, B-Y : 0.7Vp-p / 75 Ω (BETACAM, 75% color bars), 0.525Vp-p / 75 Ω (MII, 75% color bars)
Ambient temperature	Operating: -10 to +45°C (+14 to +113F) Storage: -20 to +60°C (-4 to +140F)
Power requirement	12 V DC (+10.5VDC to +17VDC)
Power consumption	14.5W approx. (excluding GM-9, camera adaptor)
Dimensions	125(W)x268(H)x160(D)mm (excluding camera adaptor)
Mass	2.6kg (5.7 lb) approx. (excluding GM-9, lens and camera adaptor)

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.



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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