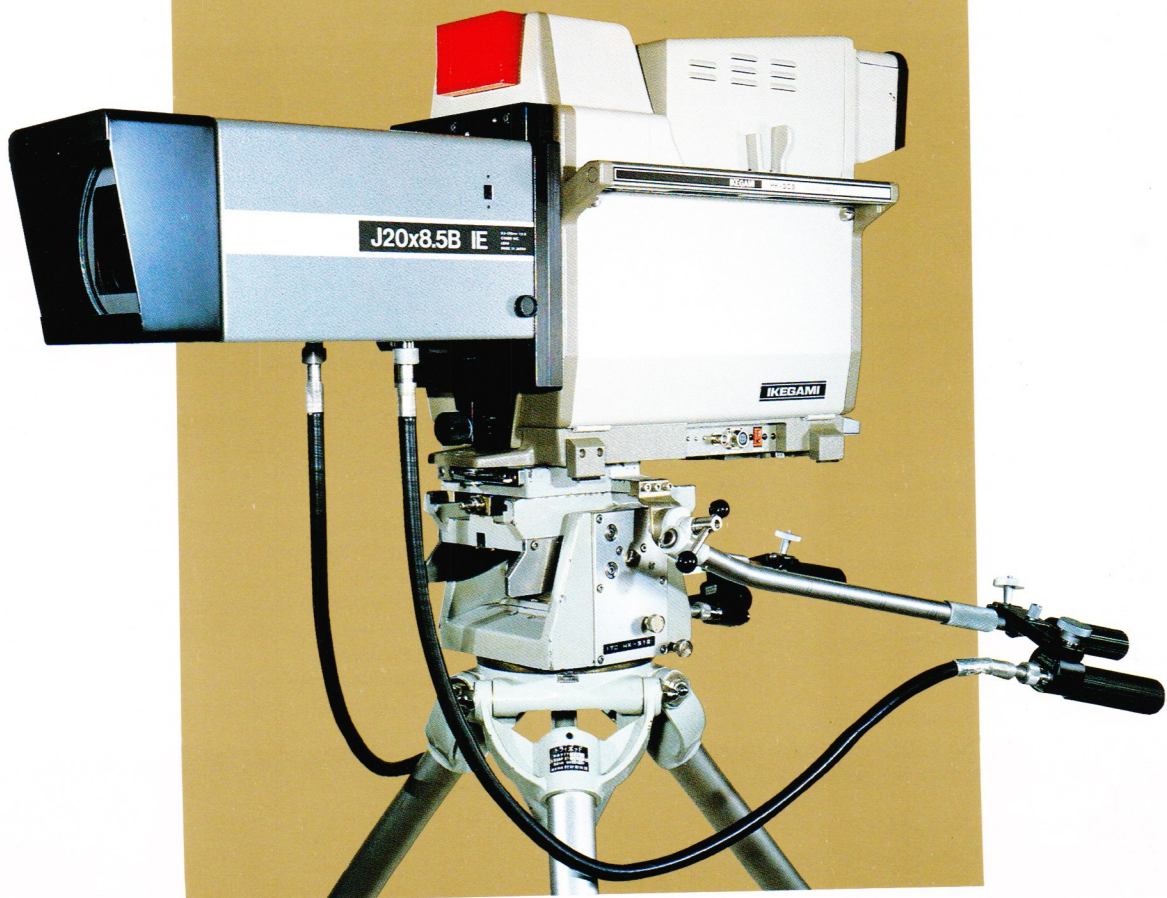


Ikegami

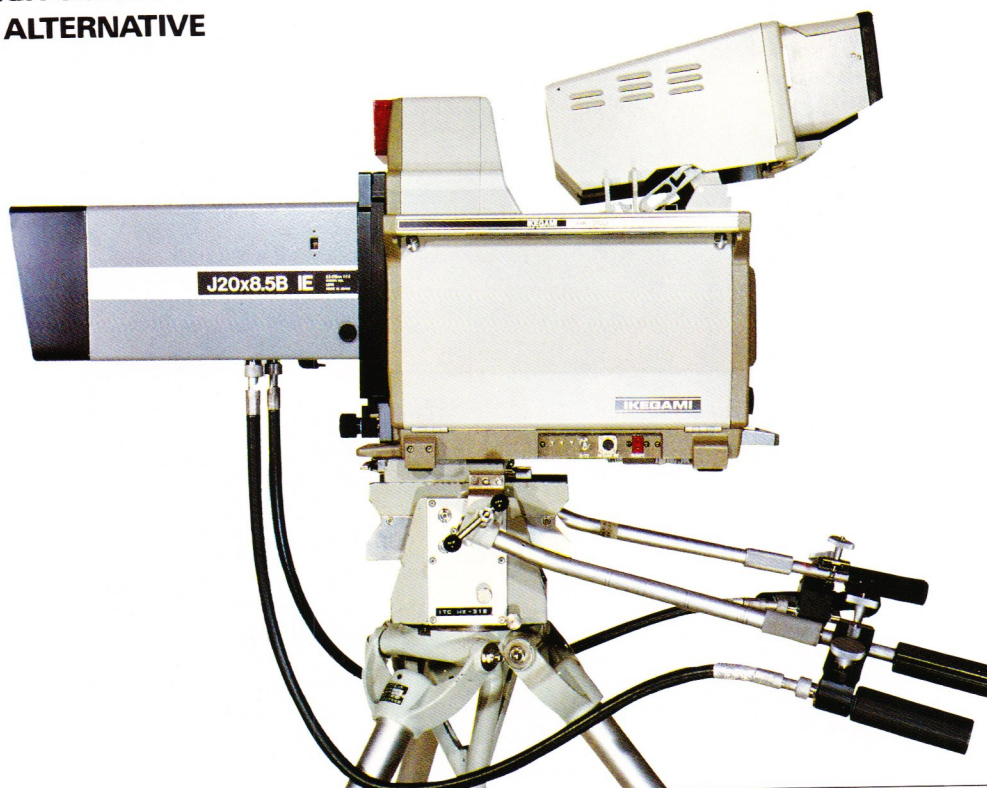
HK-302

THE COMPACT HIGH QUALITY
COST EFFECTIVE ALTERNATIVE



Ikegami HK-302

**THE COMPACT HIGH QUALITY
COST EFFECTIVE ALTERNATIVE**



The Ikegami HK-302 is the modern color television camera for video program originators who demand network compatible performance from a product available within strict budget limitations. Costly features such as computer based automatic set-up control and triax camera cable capability have been avoided to assure a modest price; but excellent performance, high reliability and superb stability, typical of all Ikegami broadcast television products, is provided in the HK-302.

PERFORMANCE FEATURES

OPTICAL SYSTEM

The color-separation prism is tops in efficiency and performance. We've mounted the yoke assemblies directly on the optical block to prevent any mechanical registration errors. Bias light can be introduced through the prism if not available from the pick-up tubes. An IR filter assures correct colorimetry with extended red PbO's.

PICKUP TUBES

Low Capacity Diode-Gun Plumbicons (XQ-3427), operated in the high voltage mode, are used to provide high resolution (typical 50% modulation depth at 400 TVL) at the best possible S/N ratio.

DYNAMIC BEAM FOCUS (DBF)

Reduces beam landing errors, resulting in improved corner focus and resolution.

DYNAMIC BEAM STRETCH (DBS)

Dynamic Beam Stretch (DBS) discharges spectral highlights, which minimizes comet-tailing.

GEOMETRY CORRECTOR

Secondary Deflection Registration Controls (barrel, pincushion and trapezoid waveforms) are employed, in addition to the normal size, centering, linearity and skew controls, to assure optimum corner registration.

ELECTROMAGNETIC BEAM ALIGNMENT

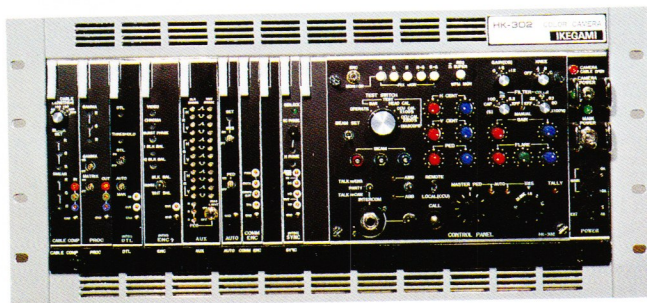
Electromagnetic beam alignment is provided, to reduce shading and simplify R/G/B tube registration.

VIDEO CIRCUITRY

The video circuitry for the HK-302 includes the following:

- * Video frequency equalization, to compensate for degradation of video response as a function of camera cable length. Provided in six (6) steps to 300 meters. Separate equalization is provided for the return viewfinder channel.
- * R/G/B gamma compensation, to compensate for the non-linear response of display tubes. Continuously variable to assure camera-to-camera matching of colorimetry. (ON and OFF (gamma = 1) switch available).
- * Horizontal and vertical detail correction, to enhance picture sharpness. Includes 2-H delay for the vertical correction component and balanced correction for the horizontal component. Noise suppressor and threshold circuits are included to maintain a high S/N ratio. Correction signal is mixed into the individual R/G/B channels to result in optimum picture sharpness.
- * Adjustable video matrix, to permit colorimetry match to specific customer preference. Six (6) vector control. (ON and OFF (uncorrected colorimetry) switch available).
- * Amplitude modulated (white) shading in addition to black shading, to produce a flat field. Compensates for bias light shading and other problems.
- * Level suppression (knee control) to suppress scene highlights so that a wide contrast range can be accommodated. Four (4) preset positions provided.
- * Flare compensation, to correct for the increase of black level as the lens iris is opened (due to variation of scattered light on the face-plate of the pick-up tube).
- * +6dB/+12dB added video gain, to permit operation at reduced illumination levels.

CAMERA CONTROL UNIT



AUTOMATIC FEATURES

Automatics are provided to simplify camera operation and reduce video operator's required attention:

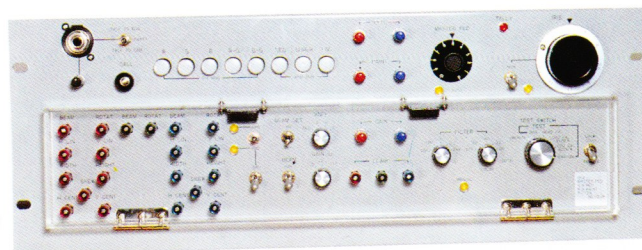
- * **Auto Iris** continuously and rapidly corrects the lens opening to compensate for changes in scene illumination level (Auto Iris can be disabled if manual operation of iris is desired).
- * **Auto White Balance** corrects individual R/G/B video amplifier gain to compensate for changes in scene color temperature illumination.
- * **Auto Black Balance** corrects individual R/G/B video amplifier black level to compensate for variations due to dark current drift.
- * **Auto Pedestal Circuit** corrects the variation in black level due to the contrast degradation of foggy or hazy scenes and pedestal drift.
- * **Auto Detail Level Control** maintains a constant level of contour correction with changes in scene content (Auto Detail can be disabled if fixed correction is desired).
- * **Auto H. Delay Compensation** corrects pulse timing with changes in camera cable length.
- * **Auto Highlight Compression** (optional) to permit accommodation of scenes with very wide contrast range without increase in noise or loss of detail in the low light level areas.

SYSTEM INTERFACE CONVENIENCES

The HK-302 is provided with all the facilities necessary to interface it to a studio system —

- * GEN LOCK to the following different bridging signals is possible:
 - a) NTSC Color Composite (VBS) Signal
 - b) Black Burst/Sync (BBS) Signal
 - c) Composite Sync (S) and Sub-Carrier (SC) Signals
- * Horizontal Delay and Sub-Carrier Phase Controls are provided to time the CCU to the system.
- * Sync Waveform in accordance with EIA standard RS-170A to permit correct color framing.
- * Both Horizontal and Vertical Blanking Pulse Widths are adjustable to correct systems performance to meet FCC requirements.
- * Intercom System has separate Production and Engineering channels; interface to either 2-wire or 4-wire external intercom systems is possible. Individual volume controls available.
- * A video channel from the CCU to the Camera Head is available for a video prompter.
- * AC power is available at the Camera Head for utility use (soldering iron, oscilloscope, etc.) or to power a video prompter.
- * A video channel from the CCU to the Camera Head is provided for a Return signal for the Viewfinder (bridging input).
- * Two (2) composite (VBS) or non-composite (VB) and one (1) non-composite (VB) video output signals are available from the CCU.

OPERATION PANEL (OPTION)



- * Individual R/G/B video output signals are available from the CCU.
- * The Program Input audio signal, inserted at the CCU, can be mixed into the intercom audio (CUE).
- * A Program Audio line permits routing of the commentator audio from the Camera Head to the CCU via the camera cable, as an optional function.

MAINTENANCE CONVENIENCES

To simplify camera and external equipment check-out, the HK-302 is provided with the following:

- * For monitoring purposes, the CCU provides PXM (picture monitor) video output signals, WFM (waveform monitor) video output signals and the necessary keying signals for a type 528 (or equivalent) waveform monitor. Negative green is available at the PXM for precise registration.
- * For precision pick-up tube alignment, a synchronized focus wobble circuit is employed for the beam alignment procedure.
- * For accurate raster positioning, deflection overscan is available.
- * To simplify rapid video amplifier set-up, four types of calibrated test pulses are provided:
 - a) Pre-amp set
 - b) Gain set
 - c) Gamma set
 - d) Reference pulse

The video circuits can be checked with the pick-up tubes turned off or removed.

- * For encoder adjustment and color monitor set-up, a split-field color bar generator is provided.

ELECTRONIC VIEWFINDER

The HK-302 employs a tiltable 6-inch electronic viewfinder, providing high resolution and high brightness. The video signal to the viewfinder is equalized as a function of camera cable length, and selector switches on the camera head permit display of R, G, B, -G and Return signals.

Viewfinder operational controls are Contrast, Brightness and Peaking. A viewfinder hood to shield the CRT screen from ambient light is available.

Specifications

Rating

Input signal

External sync :

VBS: 1Vp-p, positive
BBS: 0.45Vp-p, negative
or
[SYNC: 4Vp-p, negative
SC: 2Vp-p, sine wave, 75Ω
VBS: 1Vp-p, positive, 75Ω
DC: +24V or contact closure

RET video:

Tally:

Spare video channel for

QTV signal:

Output signal

Composite TV signal :

VB/VBS: 0.7V/1.0Vp-p, positive,
75Ω, 2 outputs

VB: 0.7Vp-p, positive, 75Ω
1 output

PM signal:

VS: 1Vp-p, positive, 75Ω,
1 output

WFM signal:

VS: 1Vp-p, positive, 75Ω
1 output

Intercom

2-wire and 4-wire types programmable
intercom of 0 dBm, 600Ω

Program sound

0 dBm, 600Ω

Power supply

100/117/220/240 VAC, 50Hz or
60Hz, approx. 230VA

Utility AC power output is provided
on side of camera head. 2A of power
is available and it can be used for
QTV monitor.

Ambient temperature

Camera head: $-20^{\circ}\text{C} \sim +50^{\circ}\text{C}$
($-4^{\circ}\text{F} \sim +122^{\circ}\text{F}$)
CCU: $0^{\circ}\text{C} \sim +40^{\circ}\text{C}$
($+32^{\circ}\text{F} \sim +104^{\circ}\text{F}$)

Weight

Camera head: approx. 26 kg
(including VF)

CCU: approx. 26 kg

Pick-up tube

2/3 inch Low capacity diode gun
Plumbicons® XQ-3427

Zoom lens

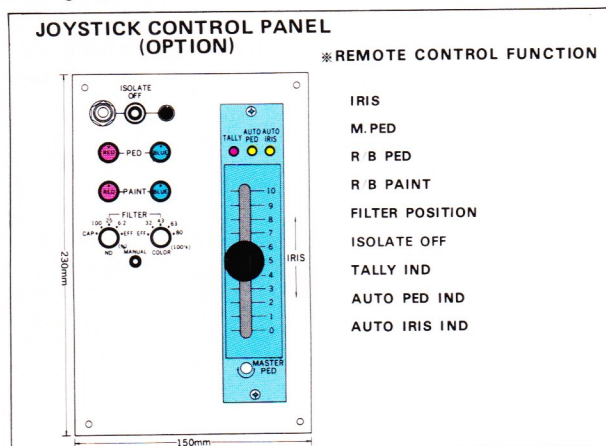
2/3" Zoom lens: 2/3" ENG lens;
2/3" EFP lens; 1" Zoom lens

Optical filter

ND	CAP	0	0.6	1.2	EFFECT
Color	EFFECT	3200°K	4300°K	6300°K	8000°K

Bias light

Built into prism.



Performance

Overall characteristics (28 conductor cable)

Frequency characteristic

Less than 60Hz:

60Hz to 4.5MHz:

4.5MHz to 6MHz:

More than 6MHz:

Waveform distortion

Shall be as follows based on 100KHz.

Drooping characteristic

$\pm 0.5\text{dB}$

+1dB, -2dB

Dropping characteristic

Frequency	60Hz	15 and 250kHz
Rise	—	within 0.1μS
Overshoot	—	within 5%
Sag	within 2%	within 1%

Ring of a 6MHz repetitive frequency shall be excluded.

57dB

(Using LOW-C Diode gun plumbicons®)

With cable comp, matrix, gamma,
DTL all off. Band width: 4.5MHz)

400 TV lines, 50%

(Using LOW-C Diode gun plumbicons®)

S/N ratio

Resolution

Registration

Zone 1

Zone 2

Zone 3

Deflection distortion

All picture area

Sensitivity

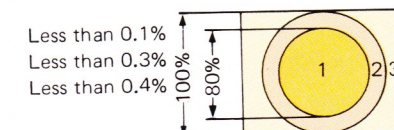
Stability

Power voltage variation

Tally voltage variation

Input signal variation

Ambient temperature



Less than 1.5%

2000 lux, F 4.5

Stable operation shall be offered in a
range of $\pm 10\%$ of the rated value of
AC input voltage.

Stable operation shall be offered in
ranges of 24V, +2V and -4V.

SYNC: Stable operation shall be
offered in a range of 4V
 $\pm 2\text{Vp-p}$.

SC: Stable operation shall be
offered in a range of 2V
 $\pm 1\text{Vp-p}$.

Specified performances shall be satis-
fied with specified adjusting values
30 minutes after preheat without any
adjustment at an ambient tempera-
ture from 0 to 40°C when the tem-
perature is changed $\pm 10^{\circ}\text{C}$ in a range
which does not exceed the said tem-
perature range.

All specifications are subject to change without prior notice.

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