

OPERATING INSTRUCTIONS

Model ITC-21A COMPACT DC TV CAMERA HEAD



ITC **IKEGAMI**

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PRELIMINARIES :

Please note that the ICT-21A camera system is a finely adjusted precision piece of equipment. To be assured of trouble-free operation, full performance capability and a long service life, we strongly recommend that you check these instructions completely before attempting to assemble, install or operate the camera.

Careful handling of the camera and accessories should be practiced at all times, avoiding unnecessary physical shocks and similar rough handling.

A point to be emphasized is the importance of protecting the sensitive surface of the camera tube from direct exposure to bright light sources, whether the camera is switched on or not.

The camera should always be set up in a well-ventilated area, and shielded from heat sources, high powered lights, and especially strong magnetic fields (such as power transformers), which may cause picture swing or distortion. Excessive moisture-, gas-, or salt-laden atmospheres should be avoided as much as possible, since circuitry components and connector contacts may be adversely affected.

This camera system is a solid-state, modular unit using mainly low-voltage circuitry at non-hazardous energy levels. Main power supply voltage is present in certain parts of the interior, such parts are not accessible in normal use, but while carrying out maintenance or repair, EXTREME CARE should be taken. Mains voltages can be LETHAL !

OUTDOOR USE WARNING

TO PREVENT FIRE OR ELECTRIC SHOCK, DO NOT
EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

INTRODUCTION :

The ITC-21A is a 2-piece camera, comprising separate power box and camera head unit. The power and signal connections between the two units are carried in a conventional, single-core coaxial lead, so that installation, setup and after service are greatly simplified.

- * Small, lightweight camera head :
Employing a 2/3-inch camera tube, and requiring only 3.6 watts of power, at 12 volts DC, the camera head is extremely compact to handle and install.
- * One-cable connection :
Cable length of up to 200 meters of type 3C2V (RG59/U), or up to 700 meters of type 7C2V (RG11/U), can be accommodated. A switch is provided on the power unit for selection of the cable compensation required for the best picture quality.
- * Convenient setup :
The camera head incorporates beam adjustment, electric and mechanical focus controls, and an additional video output connector for checking the picture at the camera head location. A mode selector switch in the camera head allows operation by an independent 12VDC supply, for which a separate connector is provided. A safety diode assures protection against reverse polarity connection.
- * High quality picture :
A built-in IC sync pulse generator provides precise 2:1 interlace scanning, assuring high picture quality and stability. The standard C-mount lens configuration accepts a wide range of fixed focus and zoom lenses, so that a wide scope of applications can be accommodated.
- * Minimized servicing :
Automatic sensitivity control and gain control circuits (ASC and AGC) ensure a constant video output over a light dynamic range of 15,000:1 or more.
Automatic beam-current control provides compensation for tube aging, generally eliminating the need for adjusting throughout the life of the tube.
- * Easy installation :
Installation is facilitated, by the provision of mounting holes (threaded) on both top and bottom of the camera. And a 3-position selector switch for cable-length compensation which allows cable length of up to 200, 500 and 700 meters to be used without any difficulties because of different cable length. Thus the camera head can be installed in a

remote location, since once it is set up satisfactorily it needs virtually no attention.

* Various optional versions available :

Note that variation versions of this camera are available as follows;

■ LOW LIGHT LEVEL VERSION

Where drastic extremes of light variation are encountered a high sensitivity camera tube can be installed to replace the standard vidicon camera tube for day-night surveillance. A simple modification for automatic lens iris control and high sensitivity camera tube is made to expand ALC range to an extremely wide range of 600,000:1 (with NEWVICON & ES lens).

■ LOW VOLTAGE (DC) VERSION (Camera head only)

A 12VDC powered version is available as the camera head requires only DC power, at 12 volts. A mode selector switch inside the camera head allows operation by an independent 12 volt DC power supply, for which a separate connector is provided.

■ ALL-WEATHER OUTDOOR VERSION (Model OD-21A series)

An outdoor camera with a tough, integral housing of lightweight, rust-free ABS plastic is available. A cold weather version with heater is also available in OD-21A series.

■ COMPACT SIZE AC ADAPTOR

High performance AC adaptors VFK-1250B1 and WFK-1250B1 are available.

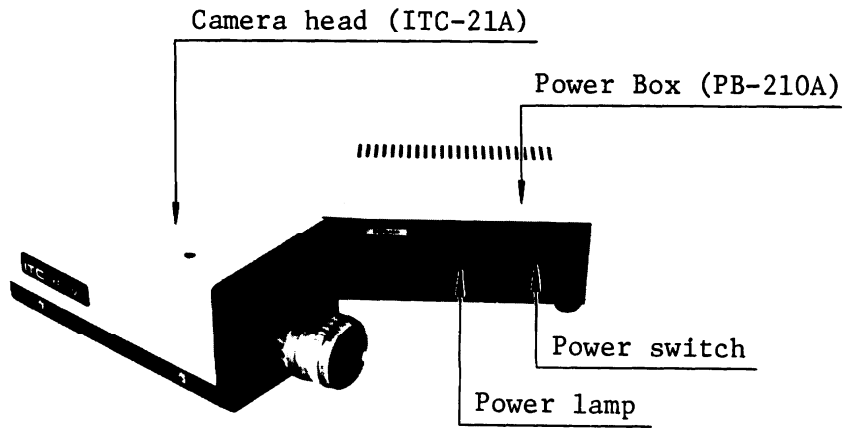
	<u>INPUT</u>	<u>OUTPUT</u>
VFK-1250B1	120VAC 60Hz	12VDC 400mA
WFK-1250B1	220VAC 50Hz	12VDC 400mA

CARE IN HANDLING :

- * Always handle the camera carefully, and avoid physical shock, etc., as much as possible.
- * To avoid particles settling on the vidicon tube (inner) target surface, which reduces picture quality, the camera should never be handled or stored with the lens opening facing downward.
- * Do not allow strong light (sunlight, etc.) to shine directly into the lens. Damage to the camera tube may result, even if the camera is not switched on. When installing, give careful consideration to the changing sunlight direction through the day and seasons.
- * When installing, keep the camera (also monitor, etc.) away from direct heat sources, and ensure that ventilation is adequate.
- * Excessive moisture-, gas-, or salt-laden atmospheres should be avoided as much as possible, since circuitry components and connector contacts may be adversely affected.
- * In connecting the coaxial connectors of the power box PB-210A, take care to avoid accidentally connecting the monitor to the camera head connector. The DC voltage present on the latter may damage the monitor input circuit.

FUNCTION LOCATIONS :

[FRONT VIEW]



[REAR VIEW]

Power lamp (camera head)

Power switch (camera head)

Electric focus adjustment

Beam adjustment

12VDC power input (for independent camera head operation)

Coaxial connector

(1) DC IN/VIDEO OUT in the case with PB-210A

(2) VIDEO OUTPUT only in the case of independent camera head operation

Distance selector for cable compensation

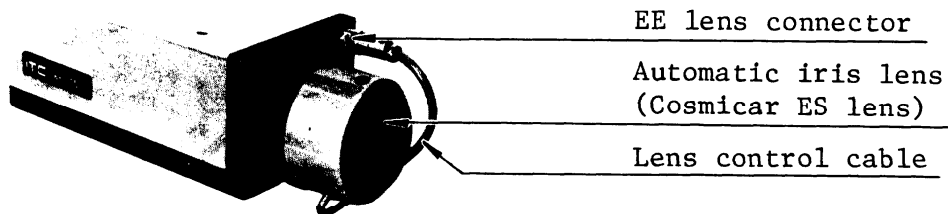
Power fuse

Power cord (for AC mains)

Video output coaxial connector

Coaxial connector to camera head for DC power supply and video signal reception

[LOW LIGHT VERSION]

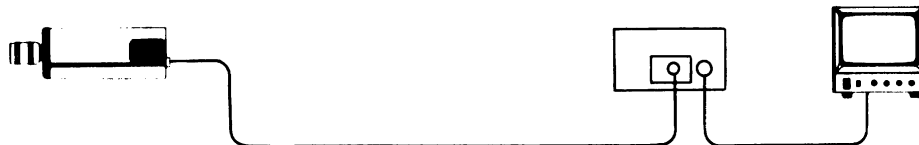


CAMERA SETUP AND CONNECTIONS :

- * Make sure that the camera is installed securely, in a stable condition.
- * If the lens is an automatic iris control type, plug in the control cable to the camera lens connector on the front panel.
- * Make sure the coaxial cable is connected between the ITC-21A camera head, the PB-210A power box and the picture monitor. And make certain that all connectors are properly and fully mated, and the locking rings are securely tightened. In connecting the coaxial connectors of the PB-210A power box, take care to avoid accidentally connecting the picture monitor to the camera head connector. The DC voltage present on the latter may damage the monitor input circuitry.
- * Set the monitor termination switch to 75 ohm if one monitor is to be used.
- * After switching on the monitor and setting up the raster brightness, switch on the camera power. The pilot lamp will light, and the picture should appear and stabilize after 20~30 seconds warmup.

Model ITC-21A
Camera Head

Model PB-210A Monitor

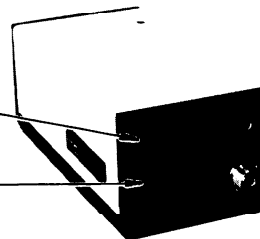


* Beam adjustment

To obtain the correct beam setting, turn the control counter-clockwise until the picture becomes white saturated. In the adjustment, set the aperture to F:2.8 lens stop, and view an object of normal illumination around 800 lux. Then, advance the control setting to the minimum setting that gives a good image, with the brightest part showing clear, moderate contrast. A higher setting will cause impaired focus and distortion of the picture.

Electric focus adjustment
(screwdriver control)

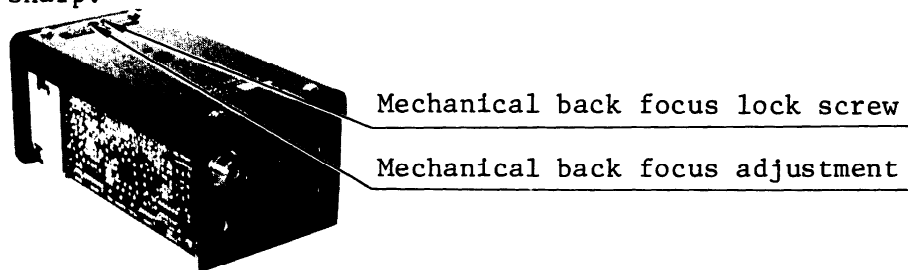
Beam adjustment
(screwdriver control)



CAMERA HEAD REAR SIDE

* Focus adjustment

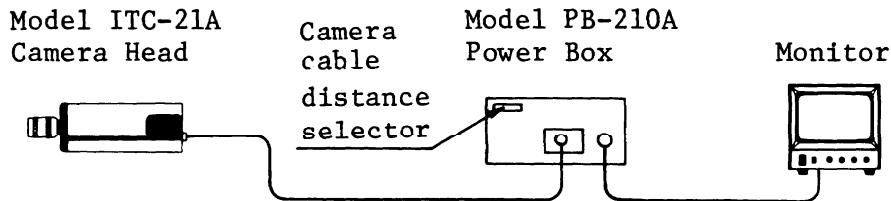
Normally, adjustment of the lens focus ring will produce the required image sharpness. If this does not suffice, adjust the electric focus control on the rear of the camera. If further adjustment is necessary (due to the use of a different lens, etc.), adjust the mechanical back focus. This is a screwdriver adjustment. Set the lens focus ring to ∞ . Then, view an object at least 20 meters away from the camera, and set the mechanical focus adjustment to give a sharp image. Next, view an object at close-up distance, with lens ring set to minimum distance, and adjust the mechanical focus to give a sharp image (e.g., for a standard 16mm lens, the object distance should be not less than 12cm). Finally, recheck that the focus for a distance object is still sharp.



CAMERA HEAD BOTTOM

* System connection 1

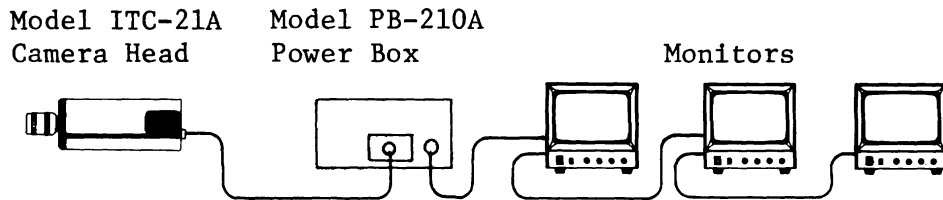
One camera and one monitor using PB-210A power box.



Switch on the monitor 75 ohm termination switch. Set the internal/external sync switch of the monitor to internal (if equipped).

* System connection 2

One camera and several monitors using PB-210A.



Switch off the 75 ohm termination switches of all monitors except the last one in the train, which should be switched on. Note that if the switch of the last monitor is left off,

and that of an intermediate monitor is left on, the high impedance effected for the subsequent monitors will give impaired resolution and ghost images, etc.

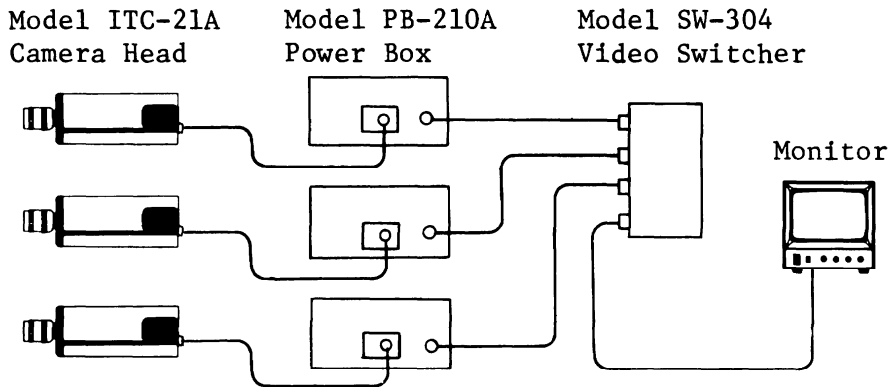
If the termination switches are left on at two or more monitors, damage to the camera may result, and in addition, the video level will be reduced to 1/2 or 1/3 of its proper value, plus ghost images, etc., will be caused.

Set the internal/external sync switches of all monitors to internal (if equipped).

Install the 75 ohm coaxial cable from the camera output connector to the input connector of the first monitor, and so on. Note that on some monitors the connectors are not marked to distinguish between input and output; in these cases either connector can be used for either purpose.

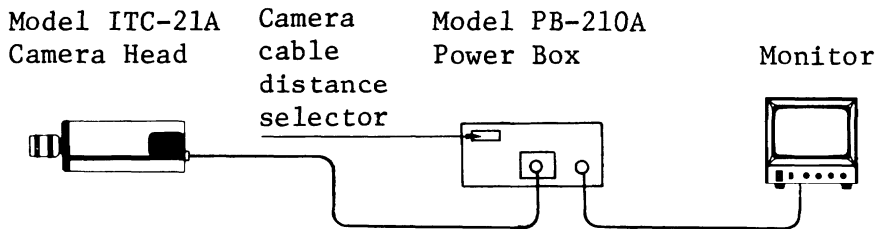
* System connection 3

Several cameras and one monitor.



* System connection 4

Cable length compensation in long distance transmission. Refer to the table below for the correct setting of the distance switch on the power box, depending on the length and type of cable used.



Distance switch setting

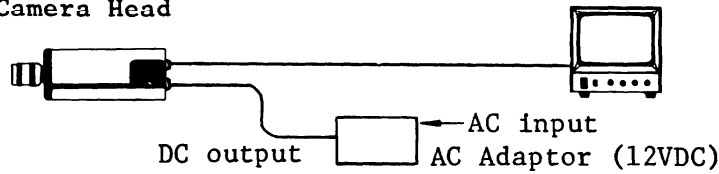
DISTANCE SW CABLE	1	2	3
3C-2V (RG-59/U)	10m (33 ft)	100m (330 ft)	200m (660 ft)
5C-2V (RG-6/U)	25m (82 ft)	250m (820 ft)	500m (1640 ft)
7C-2V (RG-11/U)	35m (115 ft)	350m (1150 ft)	700m (2300 ft)

*** System connection 5**

Camera head independent operation.

Model ITC-21A
Camera Head

Monitor

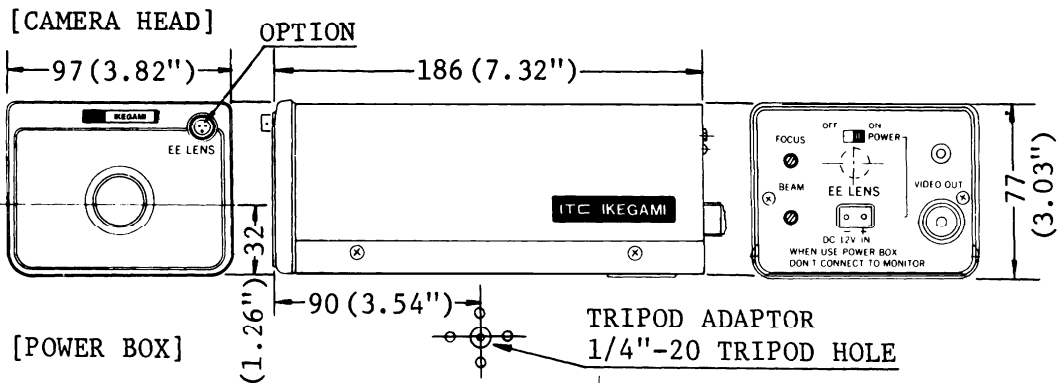


Set the mode selector switch inside the camera to DC-12V, and connect the supply to the 12VDC IN connector on the camera head rear panel. A safety diode is incorporated to protect the camera head from damage due to reverse polarity wiring.

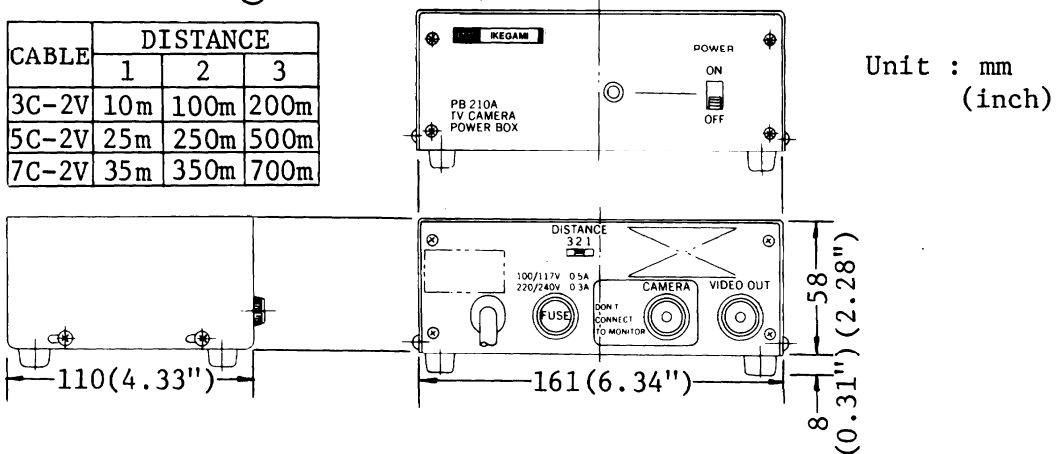
ADJUSTMENT :

All controls inside the camera are factory set and locked at the optimum position, and do not normally require resetting. So, it is strongly recommended not to touch the controls unless absolutely necessary, and the adjustment should only be attempted by a qualified technician.

DIMENSIONS :



CABLE	DISTANCE		
	1	2	3
3C-2V	10m	100m	200m
5C-2V	25m	250m	500m
7C-2V	35m	350m	700m



SPECIFICATIONS :

- CAMERA TUBE : 2/3" static focus, magnetic deflection type tube.
 (1) Standard: Separate mesh vidicon, 20PE20 or S4097
 (2) Optional: High-sensitive Newvicon, S4092 or equivalent
- SCANNING SYSTEM : 2:1 interlace scanning system
- SCANNING FREQUENCY : Horizontal 15.75KHz or 15.625KHz
 Vertical 60Hz or 50Hz
- SYNC SYSTEM : Internal sync system with built-in Sync generator
- VIDEO OUTPUT SIGNAL : (1) Camera head or power box (Video output).....
 1.0V(p-p) VS composite, 75 ohm impedance
 (2) Camera head - Test monitor output...
 1.0V(p-p) VS composite, high impedance
- HORIZONTAL RESOLUTION : 550 lines or better at center
- SIGNAL-TO-NOISE RATIO : 40dB (p-p/rms) or better
- SENSITIVITY : (1) Faceplate illumination.....
 Minimum 0.5 lux with 20PE20 or S4097 vidicon (or minimum 0.08 lux with optional Newvicon tube)
 (2) Scene illumination [F:1.4 lens stop, 89.9% reflectance object].....
 Minimum 6.0 lux with 20PE20 or S4097 vidicon (or minimum 1.0 lux with optional Newvicon tube)
- AUTOMATIC LIGHT CONTROL: 15,000 : 1 or more (ASC + AGC)
- AUTOMATIC GAIN CONTROL : 10 : 1 or more
- MAXIMUM CABLE LENGTH : [Between camera head and power box]
- | Coaxial Cable | Max. Extendable Length |
|----------------|------------------------|
| 3C2V (RG-59/U) | 200 meters (660 ft) |
| 5C2V (RG-6/U) | 500 meters (1640 ft) |
| 7C2V (RG-11/U) | 700 meters (2,300 ft) |
- LENS MOUNT : Standard cinema mount (C-mount)
- TRIPOD MOUNT : 1/4" threaded holes x 2 (on top and bottom of the head)
- POWER REQUIREMENT : (1) 100, 110, 120 VAC, 60Hz or 50Hz (on PB-210A power box)
 (2) 200, 220, 240 VAC, 50Hz or 60Hz (on PB-210A power box)
 (3) 12 VDC (on external DC input of camera head)
- POWER CONSUMPTION : (1) AC operation with power box.....
 17 watts approx.
 (2) DC operation with power box.....
 12 watts approx.
 (3) Camera head independent.....
 3.6 watts approx.

ENVIRONMENTAL TEMPERATURE: $-10^{\circ}\text{C} \sim +50^{\circ}\text{C}$

DIMENSIONS (WHD) : (1) Camera head 97mm x 77mm x 186 mm
(2) Power box 161mm x 58mm x 110mm

WEIGHT (NET) : (1) Camera head 1.2Kg approx.
(2) Power box 1.6Kg approx.

Remarks: The design and specifications are subject to change without notice for improvement.



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PRODUCT OF UTSUNOMIYA CCTV DIV.

PRINTED IN JAPAN