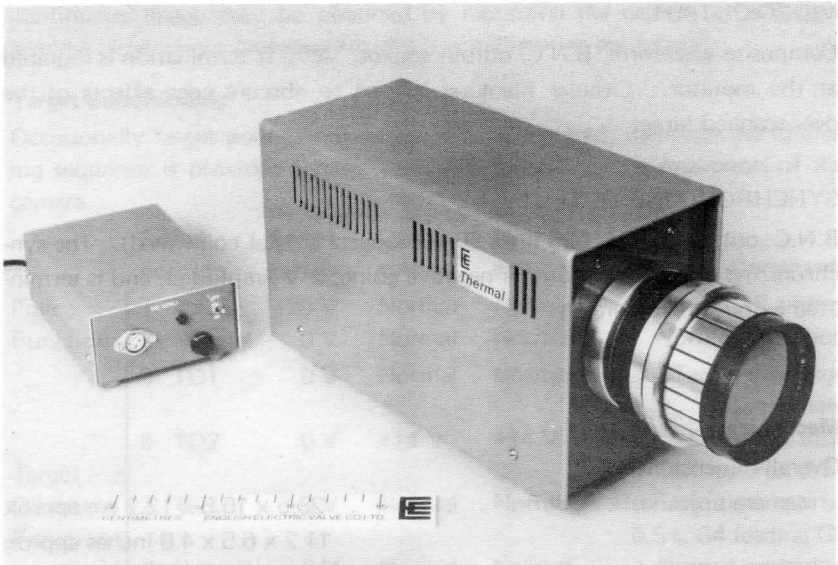


P4200

PYROELECTRIC VIDICON CAMERA

INTRODUCTION

The camera is designed to meet the operating requirements of the P8092 pyroelectric vidicon. The equipment comprises a camera unit and a separate mains driven power supply. The camera incorporates a shutter and the lens panel can be arranged to accept any required lens.



GENERAL DATA

Electrical

POWER REQUIREMENTS

Battery operation	20 to 30 V d.c. (24 V nominal) at 0.7 A. A 1A fuse is located on the power control sub-unit in the camera.
Mains operation	The mains-driven power supply unit provides the necessary low voltage with an input of 240 V $\pm$ 10 %, 50 Hz. This unit is separately fused (500 mA). A power unit for operation on 115 V, 60 Hz is also available.

VIDEO OUTPUT

Composite waveform, B.N.C. output socket. A 75 Ω termination is required at the monitor. Circular blanking is used to obscure edge effects of the over-scanned target.

SYNCHRONIZING OUTPUT

B.N.C. output socket, 625 lines 50 Hz (quartz crystal controlled). The synchronizing output waveform is negative going, 2 V amplitude, and is terminated within the camera.

Mechanical

Overall dimensions:

camera unit	28.5 x 16.5 x 12.2 cm approx 11.2 x 6.5 x 4.8 inches approx
mains power unit	17 x 6 x 10 cm approx 6.7 x 2.4 x 3.9 inches approx

Net weight:

camera unit	2.9 kg (6.4 lb) approx
mains power unit	1.0 kg (2.2 lb) approx

OPERATION

General

The output signal is proportional to the rate of change of the temperature of the pyroelectric target and decays within about 10 seconds of exposure. To obtain a continuous signal from a stationary object a shutter in the camera is used to repeatedly re-expose the target at a selected rate. Alternatively, the image (or camera) may be continuously moved or panned.

The shutter is housed in the front of the camera; it is synchronous in rate and phase with the camera scanning beam. The images obtained from the pyroelectric vidicon are alternately inverted in polarity, and are synchronously re-inverted and balanced in the video channel to give continuous positive images. Shading correction circuits aid balance between the signals and minimize flicker.

A facility is provided which locks the shutter in the open position, when the stationary camera will only detect moving objects. For stationary objects, a continuous image may be obtained by mounting the camera on a panner giving a target image crossing rate of a few millimetres per second.

☆ Target Conditioning

Occasionally target poling or discharge may be required, therefore the following sequence is provided by the **Function Switch** on the rear panel of the camera.

	Switch position	Target voltage	Grid 3 voltage	Grid 4 voltage	Comments
Pole Function	1 Pole	-70 V	Normal	Normal	C.P.S. poling
	2 Normal	0 V	Normal	Normal	Normal operation
Target Discharge Function	3 TD1	0 V	Normal	Normal	Target discharge intermediate
	4 TD2	0 V	+14 V	+14 V	Discharge time approx 0.1 s
	3 TD1	0 V	Normal	Normal	Recharge time approx 0.5 s, G4 leading G3
	2 Normal	0 V	Normal	Normal	Normal operation

Line Flyback Gas Pedestal

In order to improve readout efficiency an automatic circuit detects and regulates the ion pedestal within the tube by controlling the beam current during line flyback.

☆ Indicates a change.

Circular Blanking

Circular blanking is added to the video waveform to mask any unwanted bright video signal produced at the edges as the target is overscanned. The required masking is achieved by the adjustment of the 'Size' control.

Overlay

When the thermal signal is required to overlay a picture from a second camera the two systems must be synchronized. An optional genlock sync. generator is available for the purpose.

OPERATING FACILITIES

Controls

External controls are provided for black level, gain, grid 1 voltage and poling. Pre-set internal controls are available to set grid 3, grid 4, target and grid 1 voltages for the poling sequence. Focus current, alignment, scan linearity, scan amplitude, shift, and circular blanking controls are also provided. A negative-going video output can be selected.

☆ Electrode Supplies

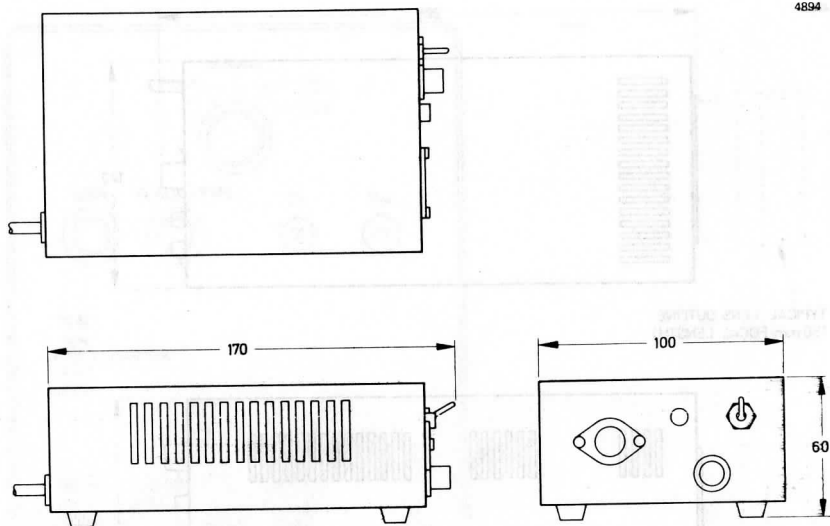
- 1) Grid 2, fixed voltage 200 V
- 2) Grid 3, +175 to +300 V (A catching diode prevents grid 3 becoming positive with respect to grid 4).
- 3) Grid 4, +175 to +300 V
- 4) Grid 1, 0 to -150 V
- 5) Target: CPS pole, -70 V (see poling sequence).
CPS normal, 0 V.

☆ Indicates a change.

OUTLINE OF MAINS POWER SUPPLY

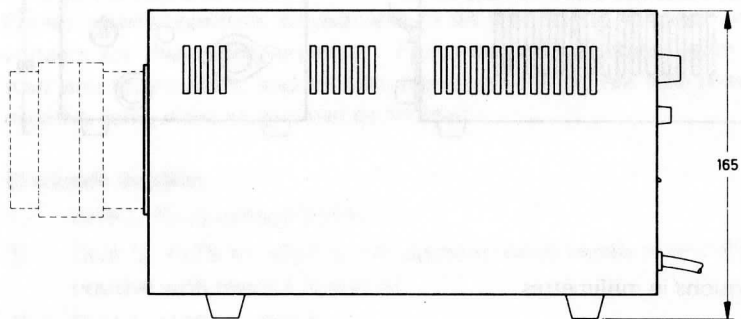
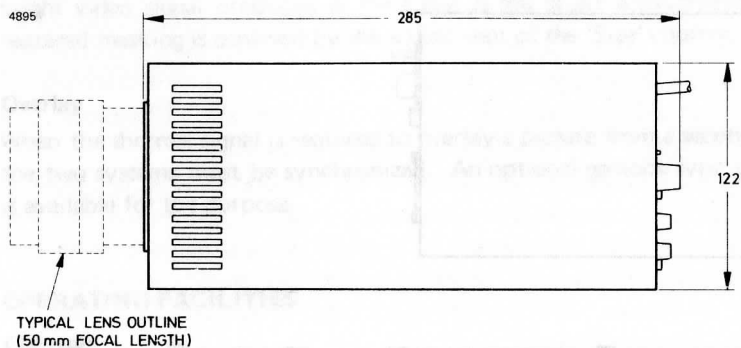
OUTLINE OF CAMERA

4894



All dimensions in millimetres

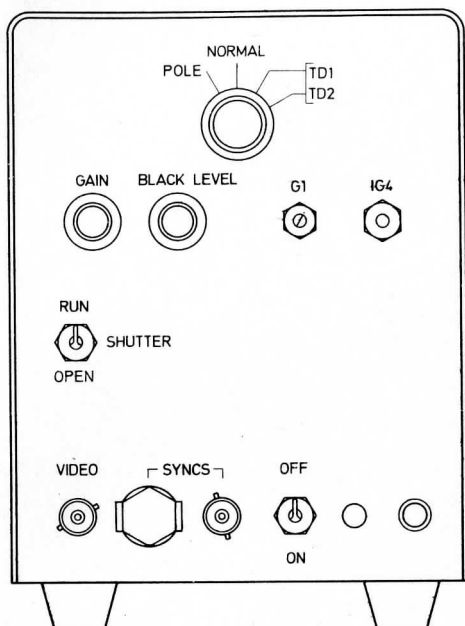
OUTLINE OF CAMERA



All dimensions in millimetres

VIEW ON REAR PANEL OF CAMERA

4896A



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P4200, page 7

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