PHILIPS

Plumbicon Camera

Type LDM 42

High-performance monochrome channel for Broadcast use

Separate Mesh Plumbicon* tube gives compact camera with good light sensitivity

Integral 10:1 zoom lens

Tilting detachable Viewfinder with 7 in. tube

Solid-State modular construction

Joystick remote control panel

The monochrome Plumbicon camera channel has been designed to comply with the requirements of Broadcasting Television. It is suitable for both studio and outside broadcast applications.

The choice of the Plumbicon tube has resulted in a camera combining good light sensitivity and compactness, with a size and weight small enough to enable the less expensive types of camera mounting to be employed.

The camera contains an integral 10:1 zoom lens specially computed for the Plumbicon format. Zooming is manually controlled by a capstan on the right side of the camera body, while optical focus is adjusted by rotating the grip of the panning handle fitted at the left.

In keeping with modern practice the cameraman is left free to concentrate on the composition of the picture, while the electrical quality is supervised by the control operator. The lens iris is servo-controlled from the joystick remote control panel.

**Registered Trade Mark*

Pye TVT Limited

The Broadcast Company of Philips

By mounting the lens within the camera body, the overall length has been reduced, and balancing improved.

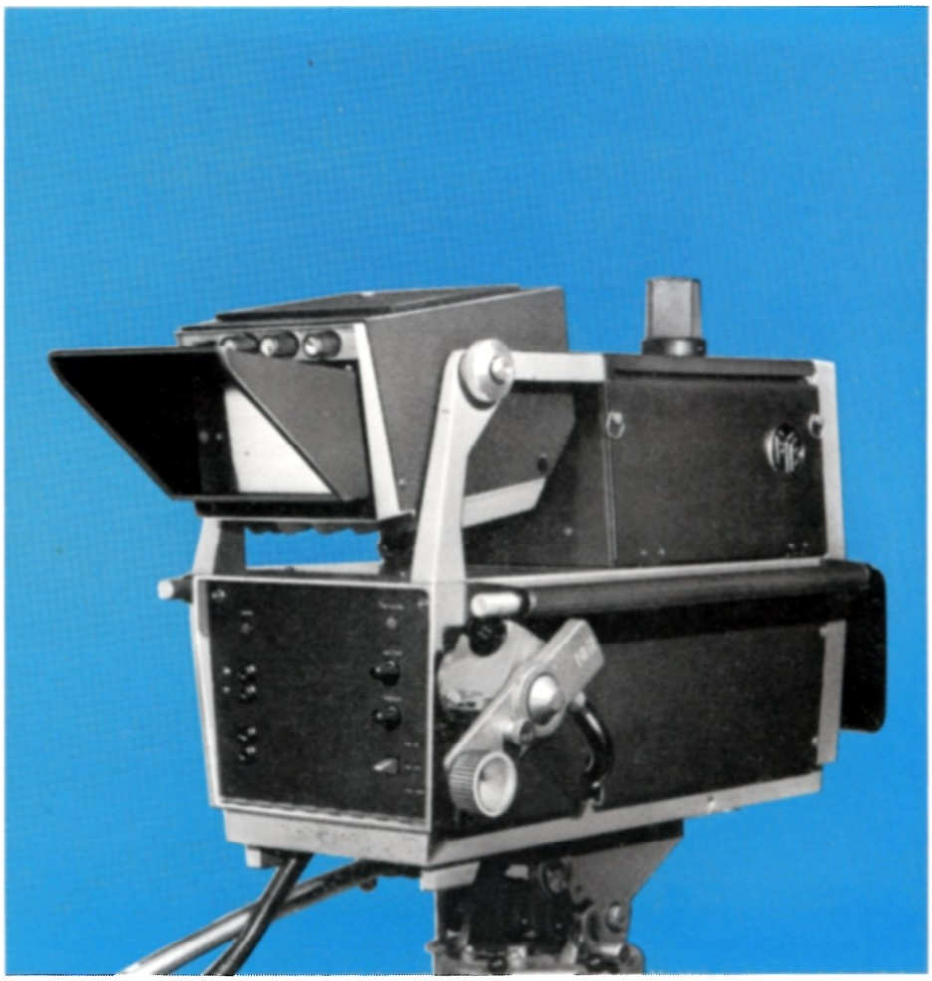
The viewfinder screen and the front of the lens are both at a similar distance from the point of rotation thereby making the camera especially convenient for use in small studios.

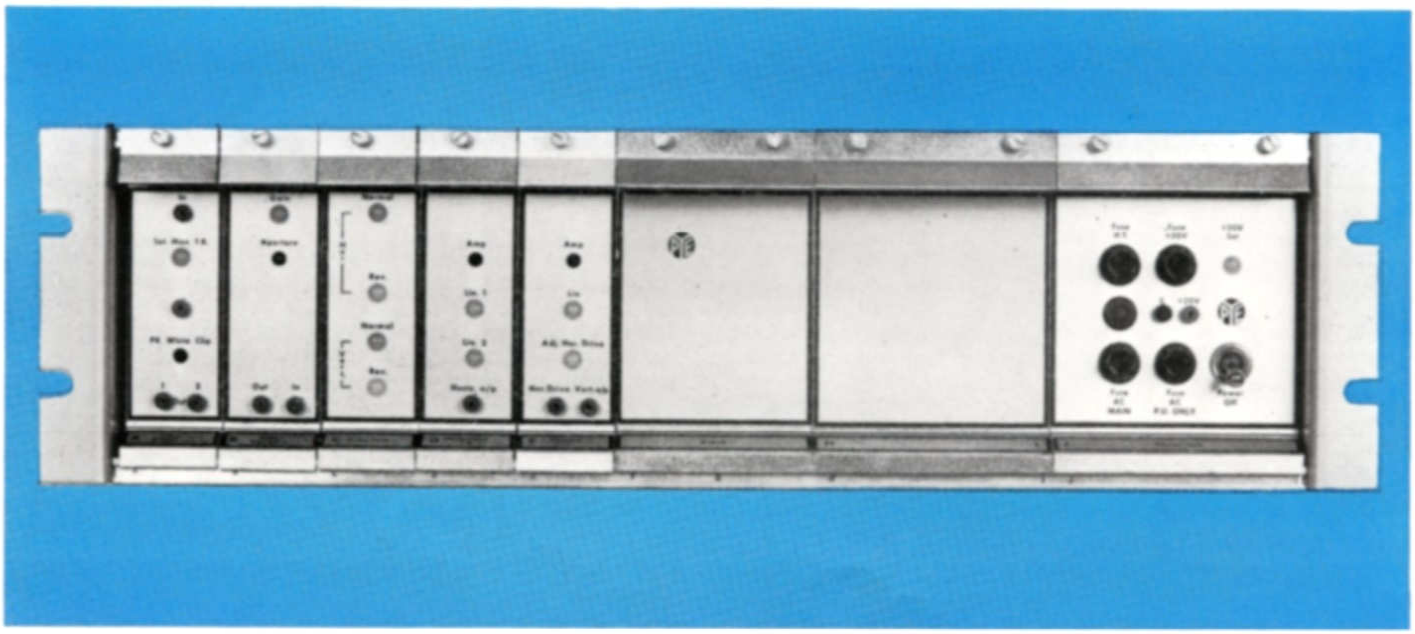
An optional manually controlled filter turret may be fitted when the camera is used for outside broadcasts. This enables a selection of six filters to be interposed between the lens and the camera tube.

A tilting detachable viewfinder with 7 in. tube is provided giving pictures of high brightness to which a variable degree of detail emphasis may be added to facilitate optical focusing. Either a simple viewfinder hood or visor may be employed.

Comprehensive cueing and talkback facilities are included. The cameraman has two channels with individual volume controls; he hears producer's instructions in one ear and a mixture of engineering talkback and programme sound in the other. The headset incorporates a microphone for return talkback. Facilities are also fitted to enable the cameraman to call control, and to be called by lamps on the rear of the camera and inside the viewfinder hood.

The camera cable may be supplied in any length up to a maximum of 300m. (1,000 ft).





CONTROL UNITS

The control equipment comprises a small camera control unit which is rack mounted and a joystick remote control panel.

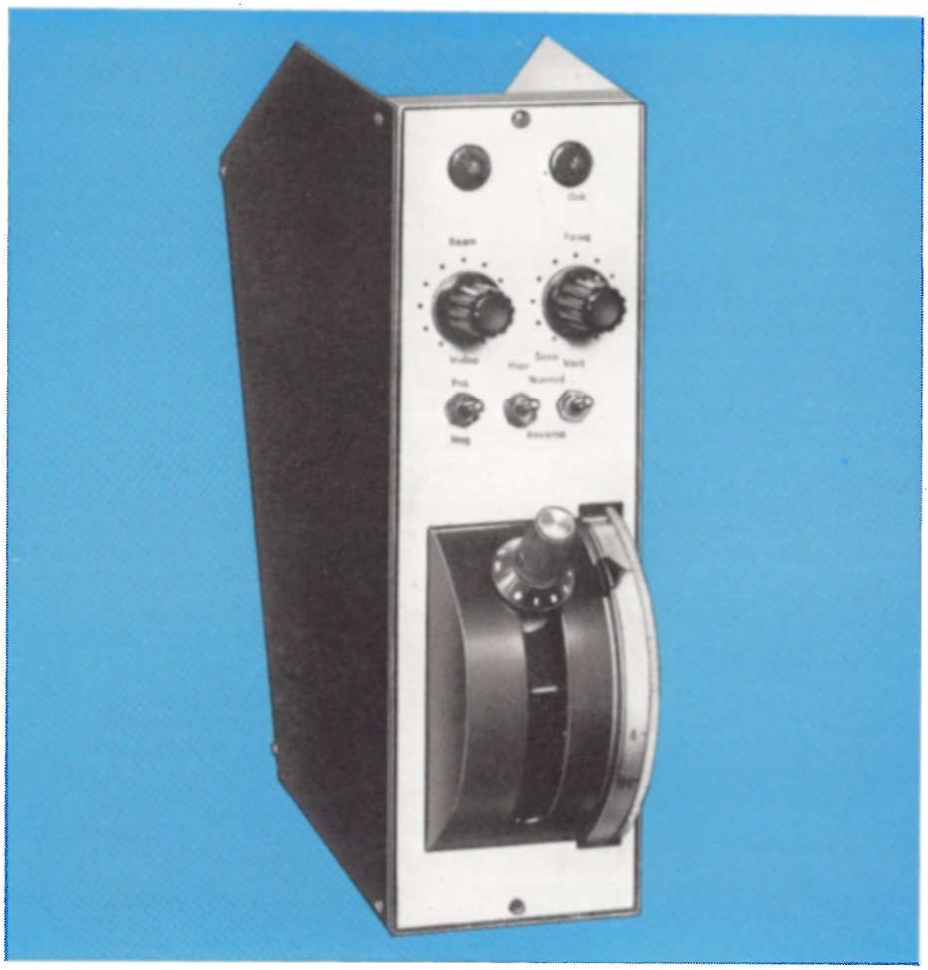
The CCU contains only preset controls which require infrequent attention, all normal operational adjustments are grouped on the remote control panel which may be installed in any convenient position.

The CCU incorporates circuits giving aperture correction, gamma correction and peak white clipping, circuits for reversing the polarity of the video signal, and reversing both the horizontal and vertical scan.

The channel is constructed using plug-in printed modules, and is fully solid state using silicon transistors.

The remote control panel is fitted with a novel arrangement which gives control of the full range of lens iris and vernier adjustment. An end-to-end movement of the joystick knob provides the fine adjustment over two stops, while rotation of the adjacent edgewheel can be made. Rotation of the joystick knob controls the picture black level.

The remote control panel also has two knobs adjusting the camera tube beam and focus, and three switches for reversing video polarity, and the directions of either or both scans. Two lamps indicate when the channel is switched on, and when its output has been selected for transmission.



TECHNICAL DATA

Systems
Versions are available for:
625 lines 50 frames
or 525 lines 60 frames.
Using external synchronising pulses.

CAMERA

Frequency Response:
± 0·5 dB, 15 kHz, to 6·5 MHz.

Low Frequency Response:
<2% tilt on 50 Hz square wave.

Signal to Noise Ratio:
>46 dB unweighted p.p. signal to r.m.s. noise for a channel of 5 MHz bandwidth, and 300 nano-amps signal current.

Gain:
Adjusted to give 0·7 V p.p. video output for a Plumbicon signal current of 300 nano-amps.

Amplitude Linearity:
Non-linearity less than 2%. Differential gain distortion less than 5% for any duty cycle (Gamma circuit inoperative).

Aperture Correction:
Continually adjustable cosine law corrector, with cross-over frequencies matched against roll-off characteristics of average Plumbicon tube in camera yoke. Approximately 10 dB boost at 6·5 MHz.

Gamma Corrections:
Continuously variable from 1·0 to 0·4.

Polarity:
Positive or negative video switched from the control panel. An internal control is provided to match negative lift.

White Clipper:
Adjustable 70% to 130% of peak white.

Hum and Spurious Signals:
55 dB below 1·0 V p.p. output.

Outputs:
Two outputs of 1·0 V p.p. composite, or one output composite, and one of 0·7 V p.p. non-composite, white positive into 75 ohms.

Picture Geometry and Linearity:
Within ± 1% within a central circular portion of the raster having a diameter equal to picture height. Within ± 2% in the remaining areas.

Scan Amplitude Range:
Horizontal and vertical: ± 10% of normal amplitude.

Scan Centering Range:
Horizontal and vertical: approximately ± 10% of width and height from mid-position.

Scan Stability:
Within ± 1% of picture width and height for a 5% change in power supply voltage after a 15-minute stabilising period.

Scan Direction:
Horizontal and vertical independently reversible from the control panel.

Plumbicon Tube:
Separate Mesh XQ1020.

Camera Cable
BICC T.1854 fitted with Cannon MS 3106F-28-21 bayonet type connectors. Maximum length 300 m (1,000 ft).

Power Supply
200–250 Volts a.c. 47–63 Hz.
150 VA approximately (excluding utility output).
100–125 V available on request.

System Waveforms
Negative going complete sync, complete blanking. Horizontal drive, and vertical drive, between 1·5 and 5·0 V p.p. into 75 ohms with bridging-out connectors.

VIEWFINDER

Picture Sources:
(a) The camera picture.
(b) An external video signal (1·0 V p.p. composite into 75 ohms).
(c) A mixture of (a) and (b). Switchable by a key on the viewfinder.

Amplifier Gain:
Sufficient to modulate tube to give high-lights of 200 ft lamberts and 6 dB of gain in reserve, controllable down to zero by viewfinder contrast control.

Detail Emphasis:
Continuously variable boost up to 10 dB.

Black Reference:
By line clamping.

Display Size:
120 mm × 90 mm ($4\frac{7}{8}$ in × $3\frac{5}{8}$ in).

Scanning Geometry and Linearity:
Within ± 1% within a central circular portion of the raster having a diameter equal to picture height. Within ± 2% in the remaining areas.

Scanning Amplitude Range:
Horizontal and vertical: ± 10% of normal amplitude.

Scanning Centering Range:
Horizontal and vertical: approximately ± 10% of width and height from mid position.

Scanning Stability:
Within ± 1% of picture width and height for a 5% change in power supply voltage after a 15-minute stabilising period.

OPTICAL

Lens:
Rank Taylor Hobson Varotal XXII 10:1 21–210 mm, *f*/2·9 zoom lens with mechanical control of zoom and focus, and servo control of iris.

Filters:
A 6-position manually controlled filter turret operating between the lens and the pick-up tube can be supplied as an optional extra. The positions are cap, 1% transmission, 3% transmission, clear and 2 spare positions.

DIMENSIONS AND WEIGHTS

Camera:
Length: 832 mm ($32\frac{3}{4}$ in) including lens and viewfinder.
Height: 524 mm ($20\frac{5}{8}$ in) over cue lamp.
Width: 460 mm (18 in) over handles and zoom controls.
Weight: 36 kg (79 lb) approximately.

Camera Control Unit:
Width: 480 mm (19 in).
Height: 136 mm ($5\frac{1}{4}$ in).
Depth: 460 mm (18 in).
Weight: 13·6 kg (39 lb).

Remote Control Panel:
Width: 70 mm ($2\frac{3}{4}$ in).
Height: 222 mm ($8\frac{3}{4}$ in).
Depth: 89 mm ($3\frac{1}{2}$ in) behind panel excluding connectors + 76 mm (3 in) over joystick control.
Weight: 0·91 kg (2 lb).

ORDERING INFORMATION

Camera Head, including Wedge Support Plate, Wedge Plate, Viewfinder Hood and CUG Lamp with numeral	LDM 0042/05
Camera Control Unit, rack mounted	LDM 0043/06
Remote Control Panel	LDM 0044/03
Remote Control Cable (length as required)	8213 330 48000
Camera Cable (length as required)	8213 332 03000
Headset for Cameraman	3900 460 10490
Viewfinder Visor	3900 142 76980
Weatherproof Camera Cover	3913 401 50580
Cue Card Holder	3900 142 74770
Cue Card Illuminator (240 V)	3913 446 53250
Cue Card Illuminator (Battery)	3900 142 29060
Filter Turret Assembly (for OB use)	3913 406 51350
Set of Servicing Accessories	LDM 1635/01

Specification details subject to change without notice

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