



Colour Camera

Type LDK 2/10



Economy

Studio quality

Self-contained camera

Wide application

Plumbicon* or vidicon camera tubes

Optional accessories

The LDK 2/10 is an economic colour television camera providing studio-quality pictures. It is primarily designed for use in local and regional stations and commercial studios, but will also find application as an announcer camera and caption scanning camera in the more sophisticated broadcast studios. The camera provides a standard PAL, PAL-M or NTSC coded composite colour signal as well as a set of RGB primary colour signals. It is a self-contained, partly modular design employing one inch Plumbicon or vidicon camera tubes and an electronic viewfinder with CRT of 170 mm screen diagonal. The camera lens can be selected from a range of four zoom lenses in versions with manual, motorised or servo control provisions.

Design details

The basic camera comprising the pick-up section and the video processing and deflection circuits, is designed to take modular encoder and genlock units, which plug into the camera rear. By simply exchanging modules, the camera can thus be equipped for PAL, PAL-M or NTSC operation. Of the four module positions, the double position at left is taken by a cable connector module for linking up with the remote control panels via the interconnection unit. The next position houses the encoder module, and the remaining two the genlock modules, one of which contains the sub-carrier generator and the other the sync pulse generator. The camera cable has a diameter of 17 mm, a standard length of 50 m, an optional

length of 15 m, and a maximum length of 300 m. It should be noted, however, that for broadcast applications additional cable correction provisions must be made.

The system-dependant encoder module is available in versions for operation in accordance with the PAL, PAL-M or NTSC system. The module is fitted with a front panel CVBS output socket.

Genlocking is to the studio reference signal, which may be a CVBS or 'colour black' signal. The reference signal is applied to the interconnection unit which can be mounted in a suitable rack. In the event of a reference being absent, the camera generator system will free-run.

*Registered trade mark for television camera tubes.



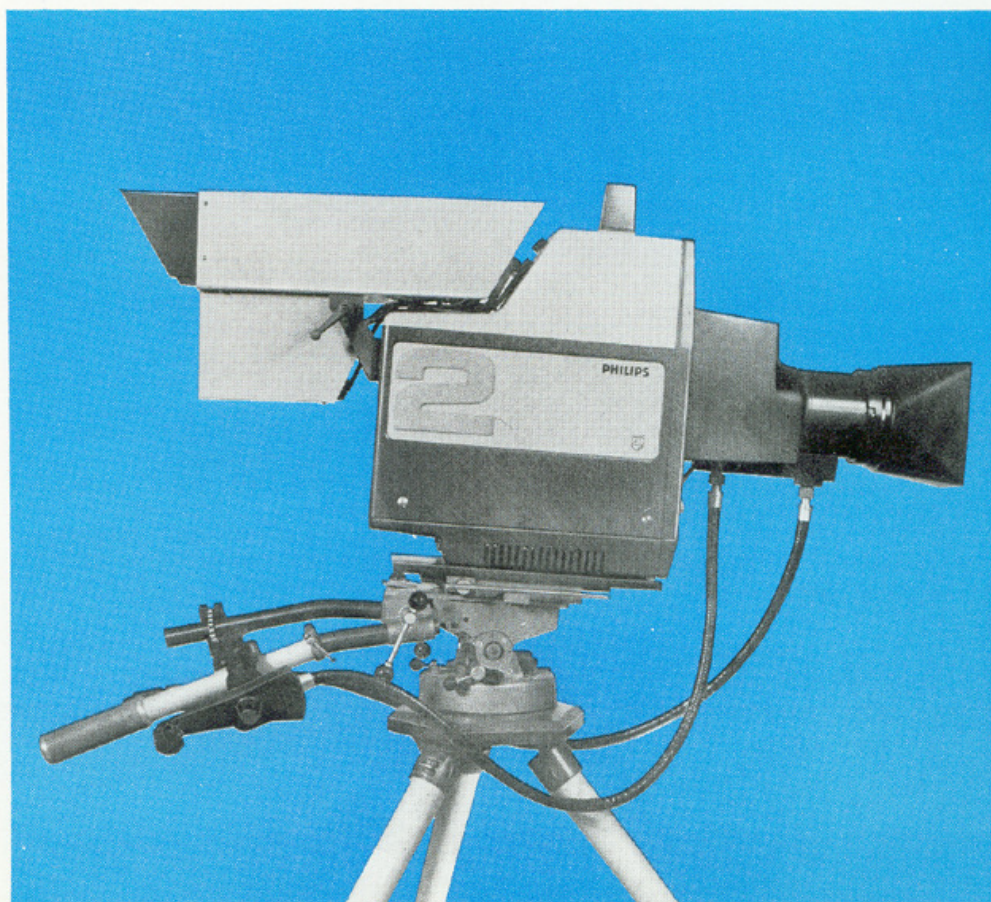
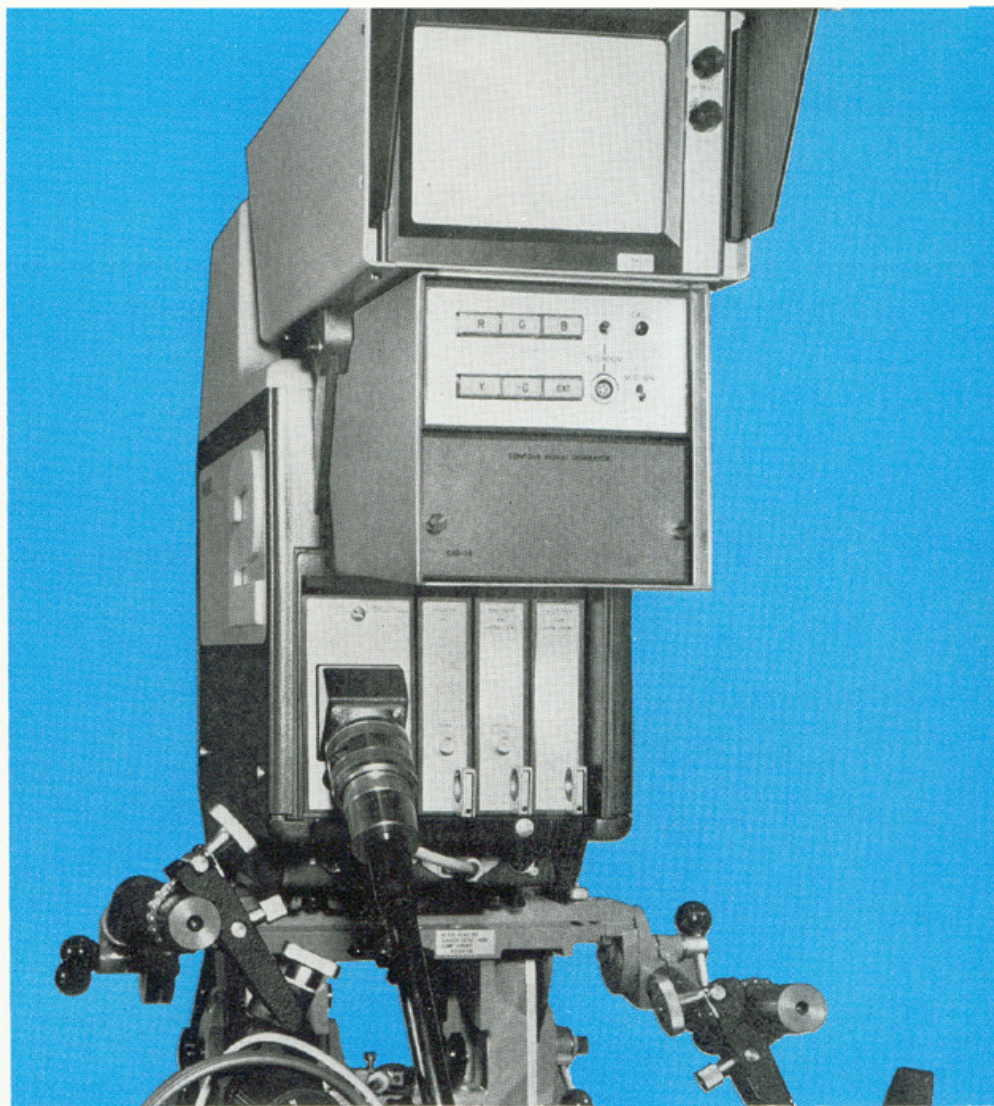
PYE TVT

The tiltable viewfinder and associated video switching and audio unit which is mounted together with the contour enhancer underneath the viewfinder, can easily be removed if required. The video switching and audio unit is equipped with R, G, B, Y, -G, and EXT signal selectors for viewfinder display. The Y signal is contour corrected.

The unit also includes a CCU call button, microphone on/off switch, Headset volume control and intercom socket. Camera 'on air' indicator at the viewfinder is effected by illuminating the R signal selector on the V.S.U. The camera pick-up section comprising the prismatic colour-splitting system and the three deflection coil assemblies with camera tubes, is incorporated into one machined, magnesium cast block, to ensure optimum registration accuracy and stability. The deflection coil triplets are computer-selected for close matching. The first signal pre-amplifier in each camera channel, a FET transistor, is mounted as close as possible to the signal electrode of the tube, for minimum capacitance and for preventing the pick-up of spurious signals.

The video processing and deflection circuits are mounted on hingeable printed boards, which provide full access to all circuit components as well as to the camera interior. The processing amplifier channels include dark-current compensation, linear matrixing (with bypass) and gamma correction stages. The linear matrix board is laid out in such a way that the matrix stage can be adapted to local studio requirements. The deflection circuits include an overscan selector, to facilitate camera line-up. The horizontal and vertical centering potentiometers are external controls on the camera. Test facilities provided in the camera include selection of test sawtooth and colour bar signals.

The camera is connected via the camera cable to the interconnection unit. This unit, which is designed to fit into a 480 mm (19") rack together with three others, if required, provides the following facilities: Power on/off, Colour bar selection, On Air/Cam Call, Sub-carrier Phase, Horizontal phase and intercom volume. On the rear of the unit are fitted BNC connectors for the colour sync (black burst) and external viewfinder input signals, CVBS and RGB output signals. Multiway connectors are also provided for intercom, communications, AC mains and remote control panels.



The remote control facilities are accommodated by two panels:

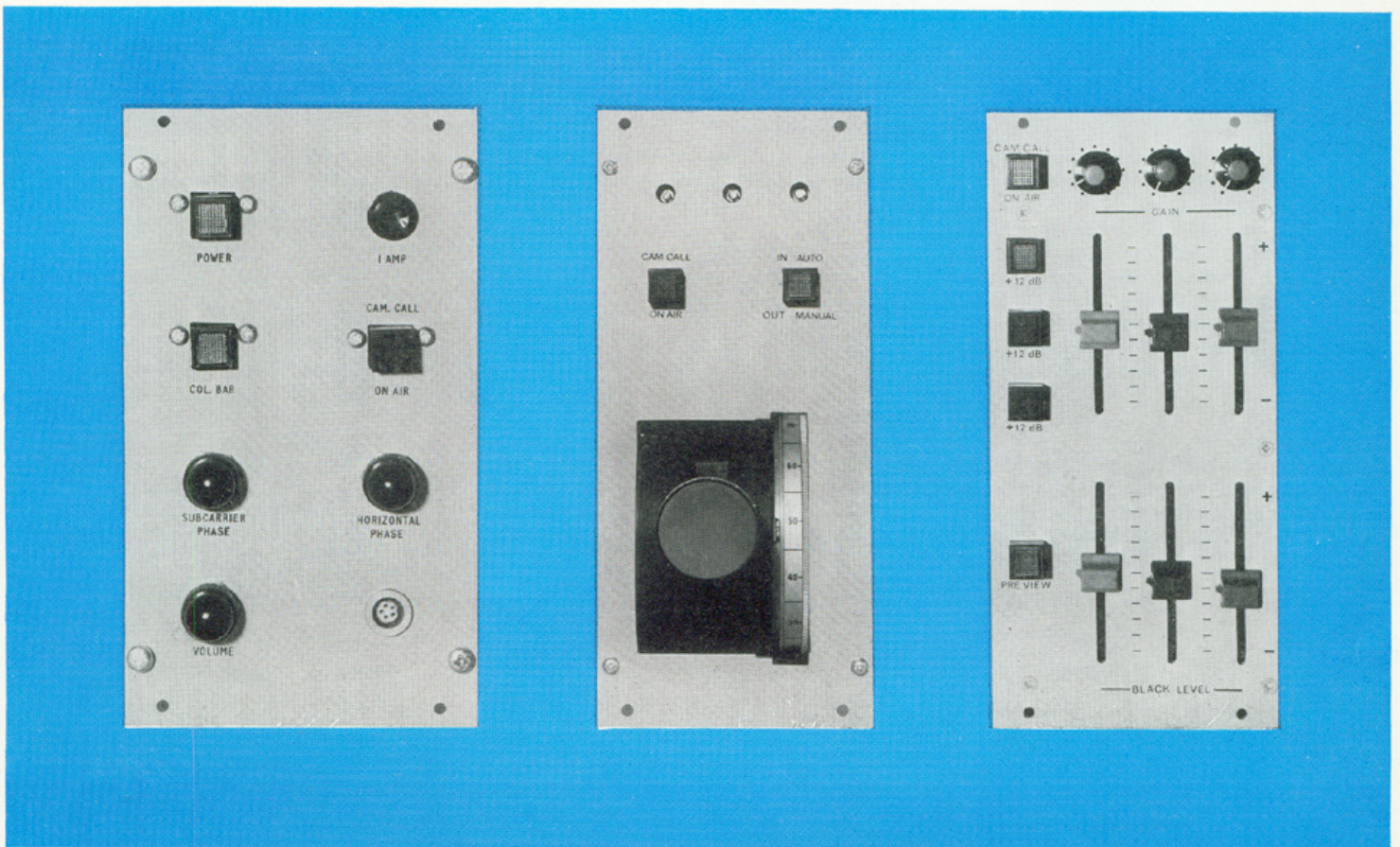
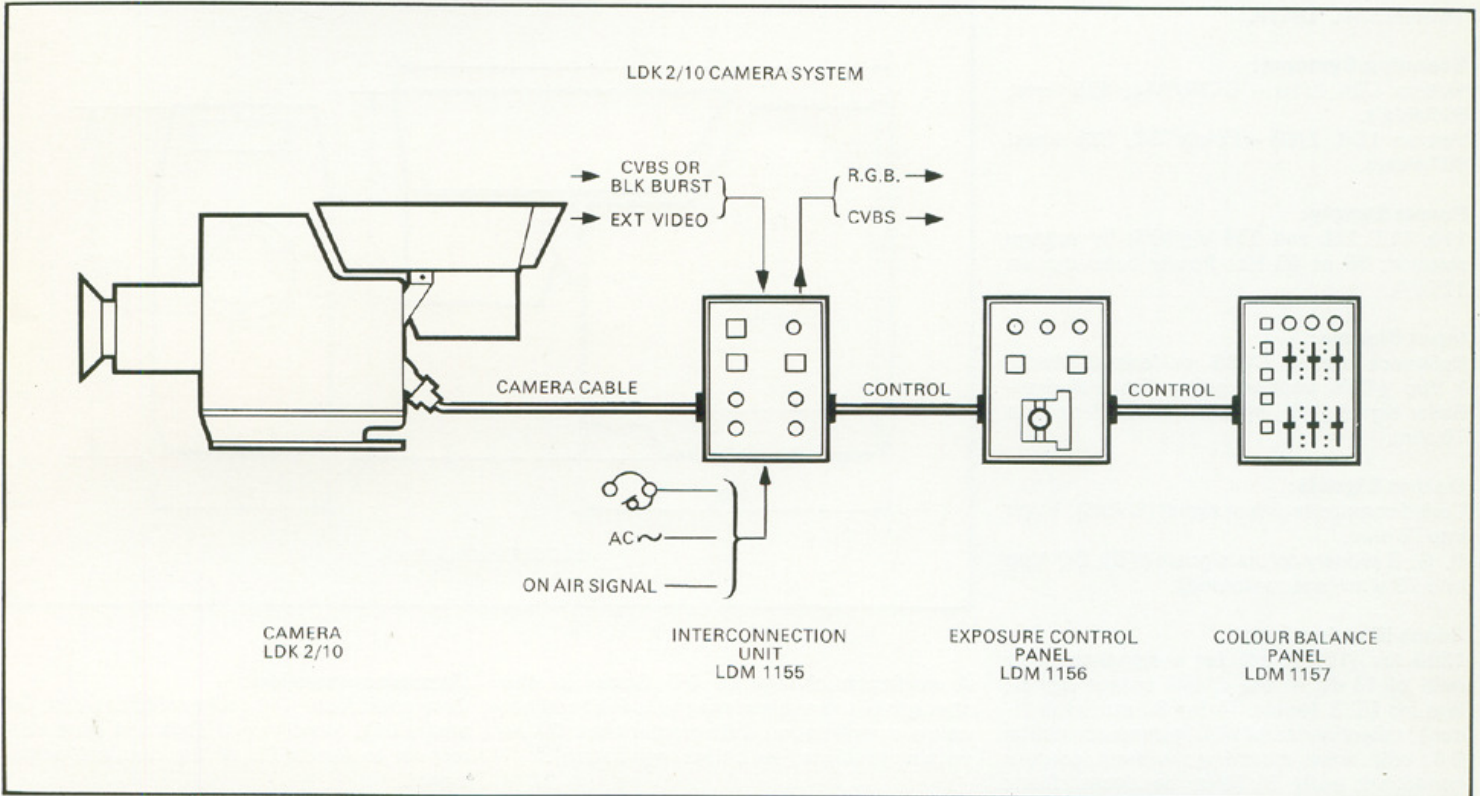
(1) *Exposure Control Panel*

This is a monoknob joystick unit for the control of camera iris and black level. It also incorporates a Preview override switch, Combined Cam Call/On Air switch and an iris auto/manual switch. Also provided are RGB screwdriver preset gain range controls.

(2) *Colour Balance Panel*

This is fitted with six sliders for the fine adjustment of RGB black level and gains, a coarse gain control and a +12 dB switch is provided for each channel. Combined Cam Call/On Air and preview selector buttons are

also provided. If colour balancing facilities are not required, a shorting plug must be connected to the Operational Control Panel. The camera optional accessories include a wedge plate for mounting the camera and an adjusting plate to enable balancing of the camera under different lens/loading conditions.



Ordering Information:

Colour Camera	LDK 2/10	8926 000 21001
Camera Interconnection Unit	LDM1155/01	8928 115 50101
Exposure Control Panel	LDM1156/01	8928 115 60101
Colour Balance Panel	LDM1157/01	8928 115 70101
Camera Adjusting Plate		3922 406 52350
Camera Wedge Plate	417/1A	8213 268 81004
Camera Cable 50 m	LDH8108/01	8925 810 80101
Camera Cable 15 m	LDH8108/00	8925 810 80001

TECHNICAL DATA

Scanning Systems:

Version LDK 2/10 – CCIR/PAL, 625 lines, 50 fields/s.

Version LDK 2/60 – EIA/NTSC, 525 lines, 60 fields/s.

Power Supply:

110, 117, 220 and 234 V \pm 10%, by voltage selector; 50 or 60 Hz; Power consumption 125 VA.

Input Signals:

Reference signal, CVBS or 'colour black', 1 V_{pp} \pm 50%, positive going. External viewfinder signal (VB), synchronous, 1 V_{pp} into 75 ohm.

Output Signals:

Coded composite colour signal (CVBS), 1 V_{pp} into 75 ohm.

R, G, B primary colour signals (VB), 0.7 V_{pp} into 75 ohm (not contoured).

Scene Illumination:

1250 lux (125 ft cd) for a signal-to-noise ratio of 43 dB in the CVBS output signal; lens iris f/2.8 (equiv. f4 for 30 mm plumbicon); reflection factor 60%; gamma correction 0.6; with linear matrixing; without contour correction; with 5 MHz bandpass filter; measured at 45% of nominal level.

250 lux (25 ft cd) for acceptable pictures, at lens iris f/2.8.

Resolution:

30% modulation depth at 5 MHz without contour correction.

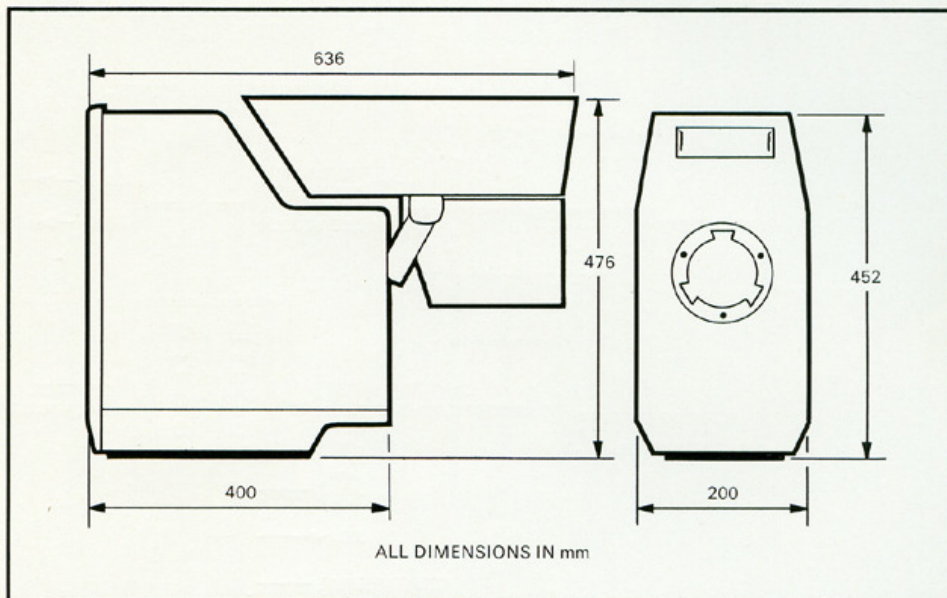
Colour Registration:

Deviations of Red or Blue in any direction with respect to Green. Within an ellipse with axes 0.9 of the picture height and width, deviations will be no more than the distance equal to a horizontal scanning time of 60 ns. Within a circle of a diameter equal to the picture width, deviations will be no more than 80 ns.

Outside this circle, deviations will be no more than 150 ns.

Registration drift:

Deviations of Red or Blue in any direction with respect to Green. Variations of the ambient temperature of the camera of up to 10°C within the ambient temperature range of 0 to +45°C will not cause mutual picture shifts larger than 100 ns.



A maximum change of 0.5 Gauss in the strength of the external magnetic field will not cause a registration shift greater than 60 ns within the ellipse (see colour registration).

Geometry error:

Maximum 1% within the circle with diameter equal to the picture height. Maximum 2% outside this circle.

Gain Control:

On the remote control panels each channel is provided with a 2 dB fader, a 10 dB potentiometer and a 12 dB switch.

Frequency Response:

\pm 1 dB up to 5 MHz.
-4 dB at 7 MHz; measured at the encoder CVBS output, without contour correction, without notch filter.

Contour correction:

Horizontal and vertical contour signals are derived from the linear Green signal and added to the Y signal in the encoder and the Y signal for display on the camera viewfinder. Controls are provided for the adjustment of contour signal amplitude, contour level suppression and cored noise suppression.

Gamma correction:

Correction factor 0.6 (adjustable between 0.4 and 0.65). Matching of Red and Blue with respect to Green 2% of the nominal output signal.

Black-level adjustment:

Master control from +30% to -45% of the nominal output signal.
Individual control from +10% to -10% of the nominal output signal.

White clipping:

In each channel, at 105% of the nominal output signal level.

Automatic Iris control:

Acting on the peak or average value of the largest of the three colour signals (adjustable to any value in between).

Permissible ambient temperature:

From 0 to +45°C; tropicalised design.

Dimensions:

see dimensional sketches.

Weight:

Camera without lens approximately 25kg.

Specification details subject to change without notice