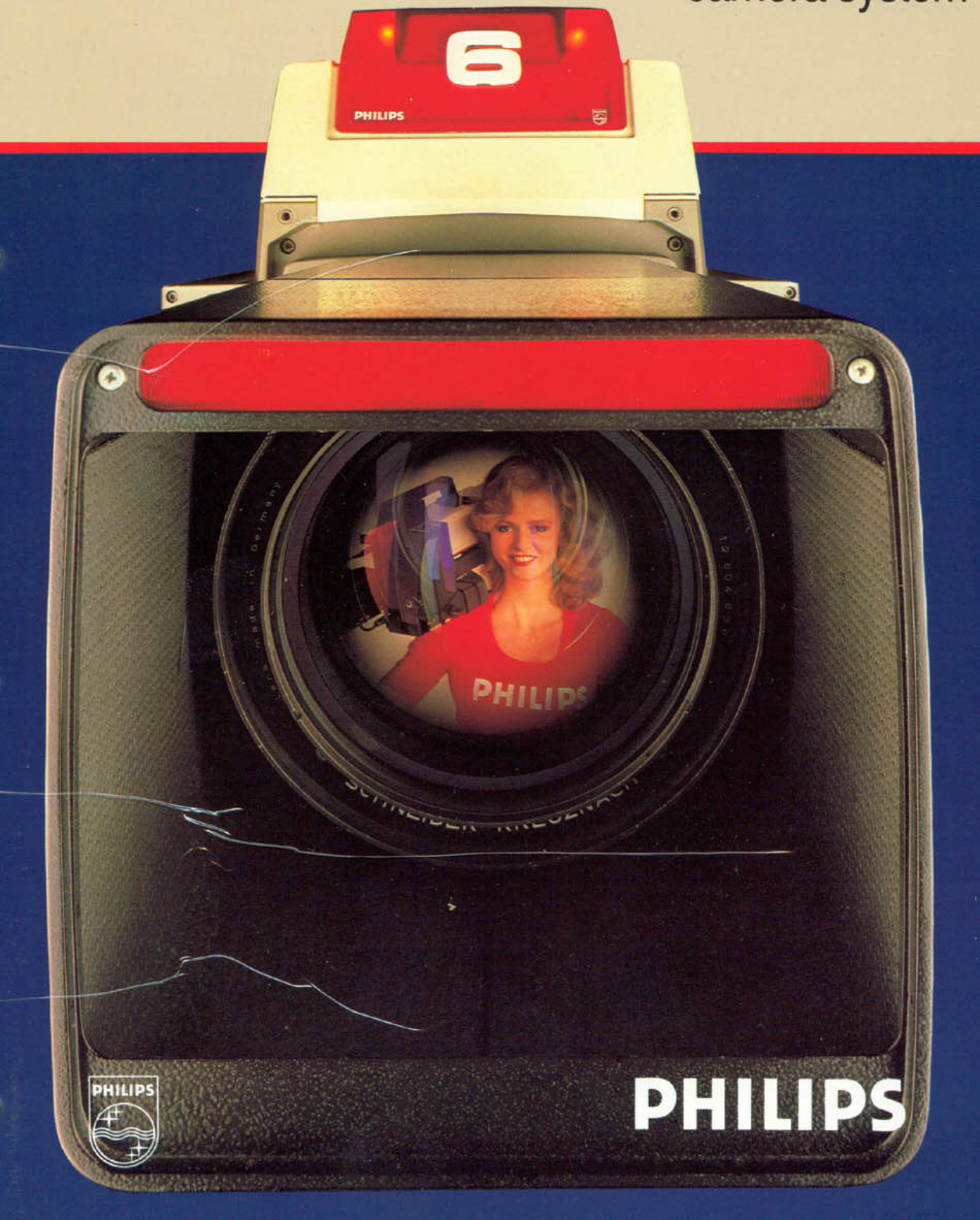
Philips LDK614

Triax portable production camera system



The five-star perfect portable partner to the LDK6

LDK 614

The introduction of the Philips LDK6 computer-controlled television camera system was a giant leap forward in concept and design for studio and OB cameras, bringing the benefits of the microprocessor to the television producer, engineer and cameraman.

Now to match those high standards comes the perfect portable partner–of five star quality–the Philips LDK614. Rugged yet lightweight, equally at home in the studio or OB van, the computer-assisted LDK614 operates via the standard LDK6 control units or a separate control panel.

Exceptional picture quality

At the heart of the LDK614 portable camera is an LOC (low output capacitance) diode gun Plumbicon* tube with specially matched FETs. That is the basis for the LDK614 broadcast picture quality that every programme producer wants.

The higher order scan correction circuits assure very precise colour registration and in-band and out-of-band contour correction circuits ensure brilliant pictures. There is perfect colour matching with the LDK6. Extensive automatic features are incorporated too for quality–without effort. There is centering, black balance, white balance, dynamic beam control and flare compensation to help maintain the highest standards at all times.

Minimum cost of ownership

The LDK614 comes to you as the best of portable cameras. Yet it's certainly not the most expensive. Cost of ownership is an important factor which has not been neglected. Triax again plays its part. It is lightweight, easier to use and less expensive than multicore (yet still a match in quality). Automation makes the LDK614 quick to set up. Stability means no service downtime. And its multi-function capability (which includes a single unit ENG mode) means that it can do many different jobs–in the studio or OB van–and so obviate the need for additional cameras.

*Registered trade mark for television camera tubes

Reliability built-in

Reliable triax operation is an integral part of the LDK614–backed by Philips 10 years of experience with triax cameras. The digital control system and advanced LSI circuitry are solid state and housed in a rugged but lightweight camera frame. The camera can play many different roles, but interchangeability of the main units and optional extras can be completed quickly and easily– without camera readjustment. LDK614 cameras are all individually cycled through severe tests including temperature and vibration to ensure perfect operation under the most rigorous of conditions.

State-of-the-art

The perfect portable partner for one of the world's most technically perfect cameras must be able to match it. The LDK614 does just that–with its own microprocessor control, LSIs and micro-miniature components. It can also make use of most of the computer control systems of the LDK6. (Read about them overleaf).

Naturally you can use it by itself, but with the LDK6 the LDK614 becomes an integral part of what is probably the most sophisticated camera system in the world.

The compact design, rugged, weatherproof casing and wide range of accessories make the LDK614 the perfect partner to the LDK6 wherever it is used.

Unrivalled operational flexibility

The LDK614 has been designed for ease of handling so that it is equally at home in a hand-held or fixed mode. ENG use is straightforward too– simply dismantle the triax cable. There's a 1½" high-resolution viewfinder or an alternative 5" for studio/EFP use.

There are 6 operational memories for storing special camera settings.

To further enhance the production capability, there is an optional full bandwidth RGB output for chromakey, matting or other special effects.

LDK614 - The intelligent production partner for the LDK6

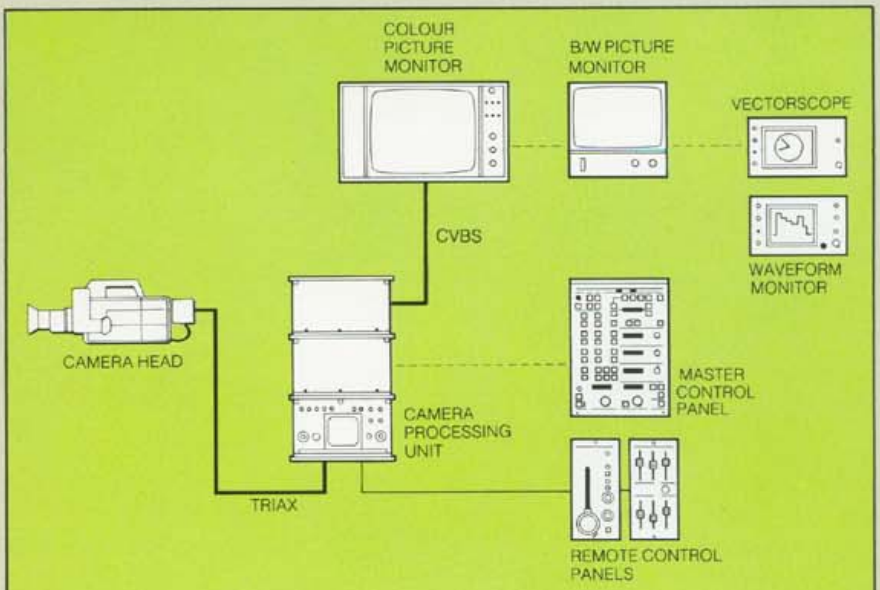
The ideal partnership

The LDK614 has been designed as the perfect portable partner for the LDK6. In addition to use on its own, it can interface with the very wide range of facilities and microprocessor technology of the LDK6 to enhance its performance and capability even further.

Master Control Panel

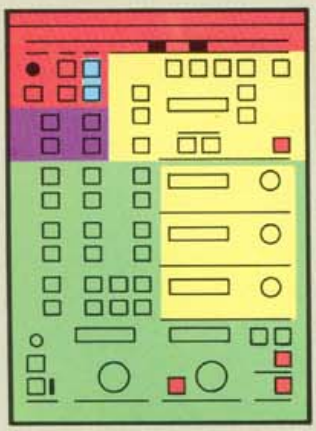
The Master Control Panel (MCP) acts as the "surveillance centre" of the control system, and is not linked to any particular camera chain. However, once a specific chain is selected, the MCP immediately has access to a number of setting-up and monitoring facilities of the LDK614. An electronic LOCK freezes all panel settings to avoid accidental disturbance, and a button which enables local control is provided. This overrides other operational controls at other stations within a selected camera chain. The Control Assignment Panel can be used in conjunction with the MCP, delegating it to a selected camera in a multi-camera configuration.

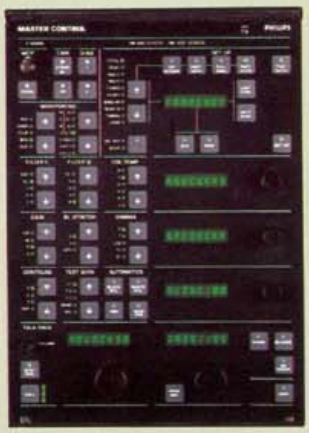
The MCP can also be used as a setting-up aid. It can be divided into several discrete areas (see diagram), providing the engineer with selective control of the system.



Single-camera configuration

This diagram demonstrates a simple configuration, with the camera head linked to the camera processing unit by a triax cable. This in turn is linked to the remote control unit. The camera processing unit also has provision for connection of the master control panel, monitors, etc.





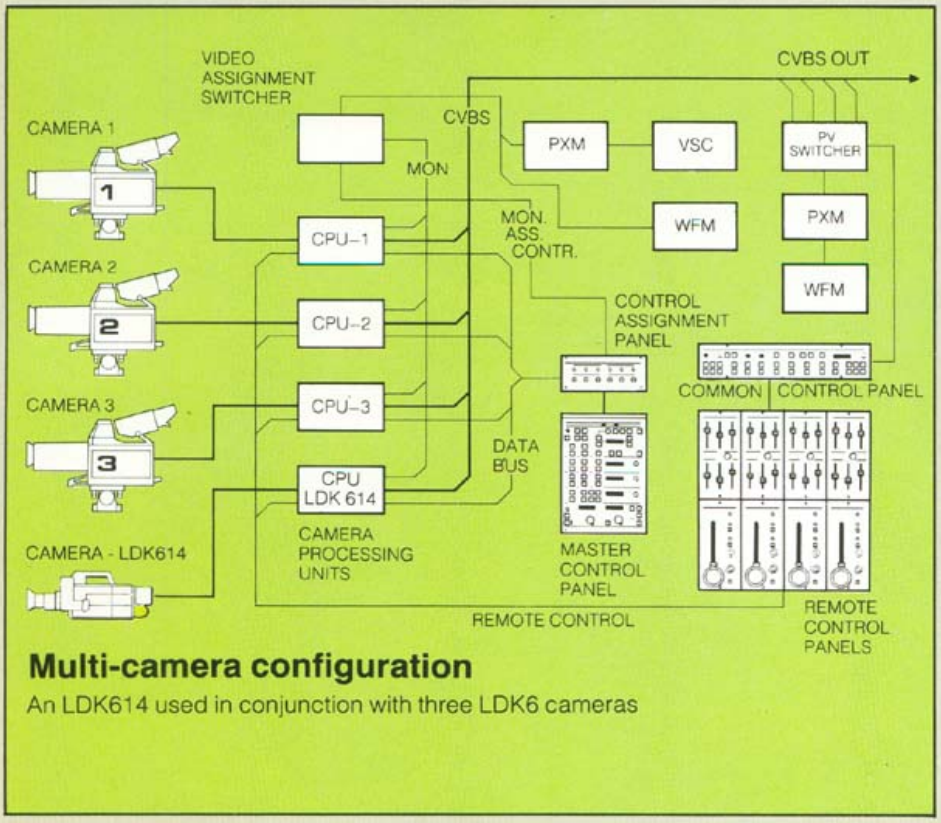
- 1 Select status
- 2 Diagnostics
- 3 Monitor
- 4 Operation
- 5 Set-up

If the Master Control Panel is switched to a LDK614 system, the display in section 5 will show 'portable' to inform the operator.

1 Status selection of operational controls. This area governs camera mode, system control, operation and setting-up.
2 Diagnostics for LDK6 operation.
3 Monitoring area. This enables switching of overlayed video signals to waveform and picture monitors.
4 Operational control area, which provides the technician with access to the functions normally operated from the Common Control and Remote Controls Panels. Three assignable digi-pots and readouts (via status feedback system) enable RGB gain and black level adjustments. Controls are also provided for master black and manual iris, with associated visual setting displays.
5 Setting-up functions are carried out from this area. Access is possible to some analogue operations. These can be manually operated.

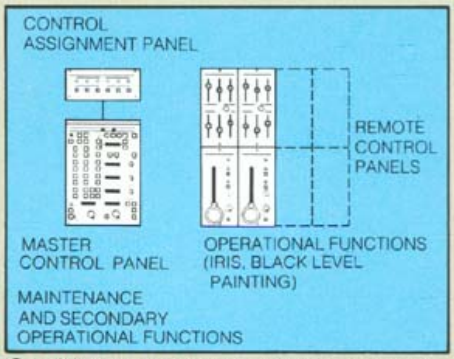
Control Assignment Panel

This panel is used to delegate the MCP to any selected camera in a multi-camera configuration. With the standard panel, any one of up to six cameras can be selected. If a non-selected camera wishes to communicate with the MCP, this will be indicated by the related call lamp.

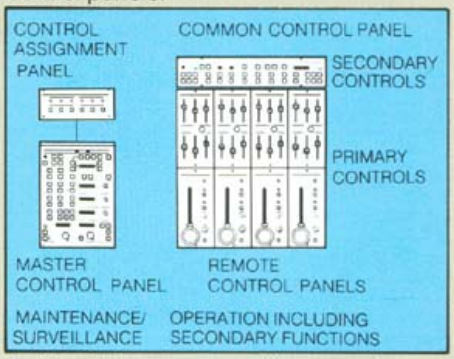


Multi-camera configuration

An LDK614 used in conjunction with three LDK6 cameras



Combined maintenance and operational control panels.

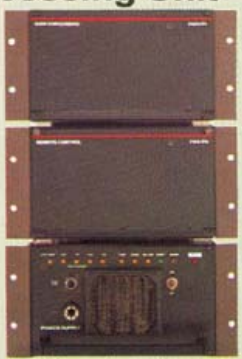


Split maintenance surveillance and operational control panels.

Common Control Panel

The panel provides secondary (when not "on-air") operational controls. It enables centralised access for up to six chains, with assignment being made by the MATCH buttons on the Remote Control Panels. Switching of cameras from standby to operational modes can also be carried out. Store and recall facilities are also provided which enable control settings for six different groups of operational settings to be retained for each camera. This means that 36 operational memories are available, in a six camera configuration.

Camera Processing Unit



The CPU, with its incorporated triax circuitry is the "black box" of the system. Its compact size (just half the width of a 19" rack), enables a logical left to right system layout, making it ideal for situations such as OB vans, where space is at a premium.

Remote Control Panels

Primary operational controls are located on these panels–iris and master black level are on the mono-knob panel, while red, green and blue individual gains and black level controls are on the painting control panels. Their design permits the panels to be co-sited or used in separate locations, depending on the station's operational procedures.

LDK614 The self-contained camera system

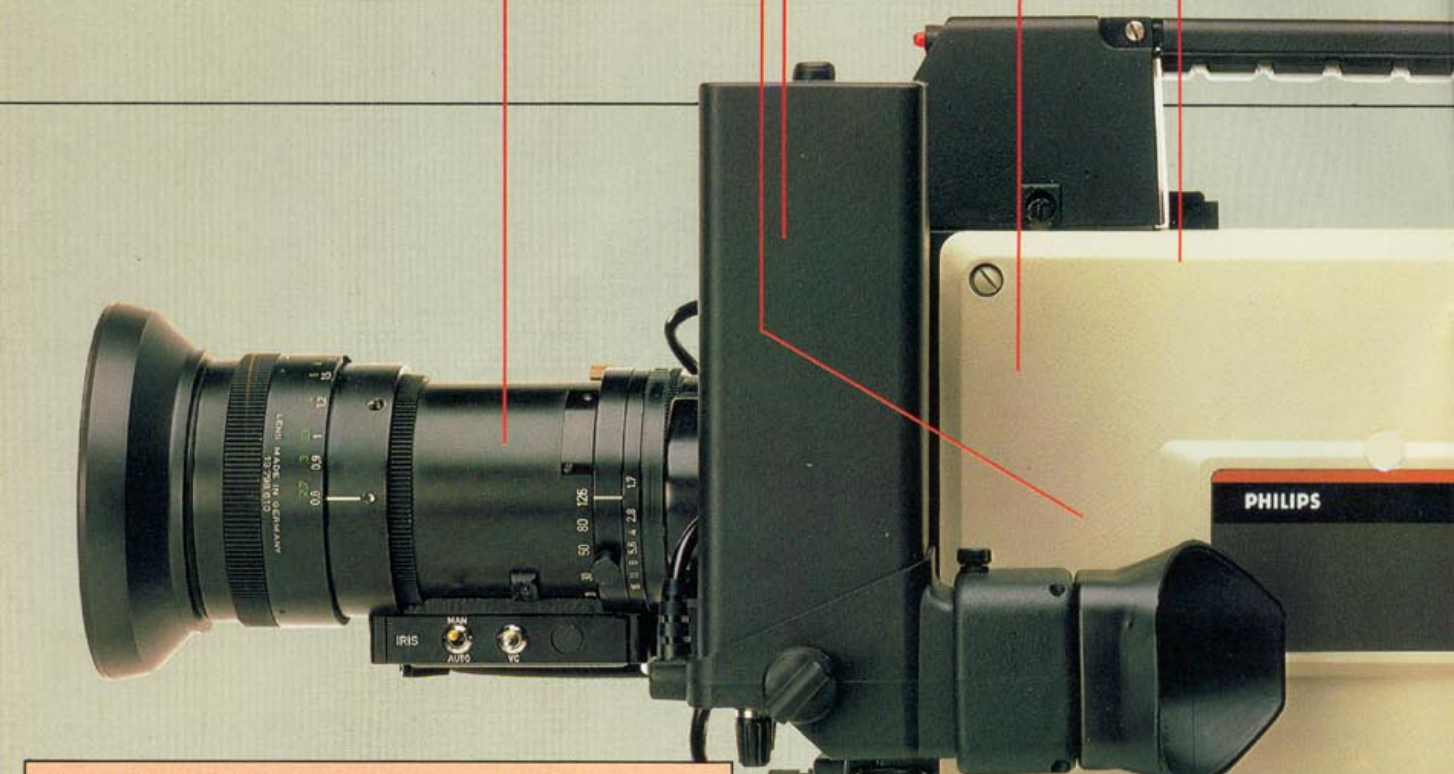
Automatic iris
(closing in stand-by)
Momentary iris

High sensitivity

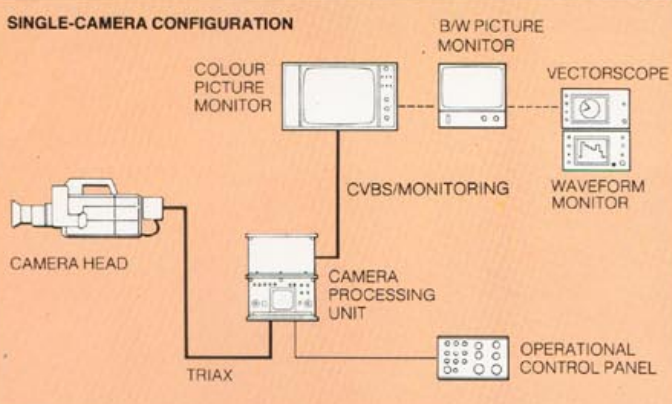
High resolution
1.5 inch viewfinder
or alternative 5 inch
studio/EFP viewfinder

Rugged
Lightweight
Weatherproof

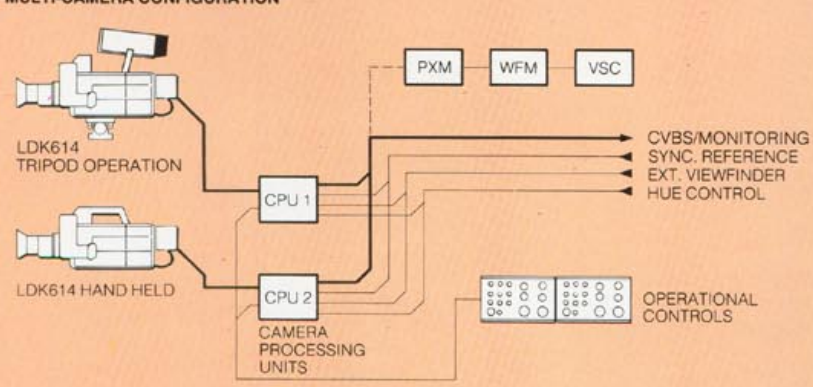
FET's matched to LC ode
gun tubes – signal to noise
ratio 57/55 dB



SINGLE-CAMERA CONFIGURATION



MULTI-CAMERA CONFIGURATION



ENG APPLICATION

The camera, if disconnected from its triax cable can be used as an ENG camera powered from either an integral battery, or battery belt or an A.C. Supply Unit.

D. ic beam control.
High order scan correction.

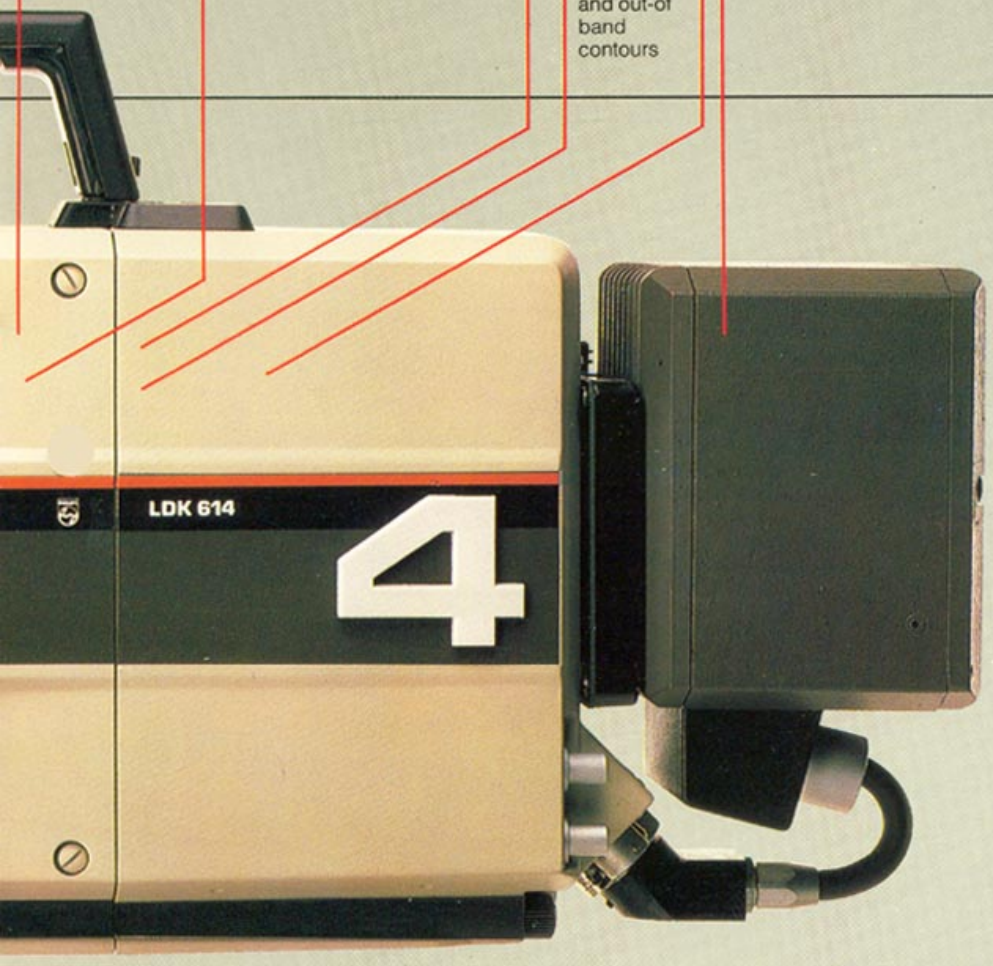
Low output capacitance (LOC) diode gun plumbicon tubes 700 TV lines limiting resolution

All systems standards

Contour processor with in-band and out-of band contours

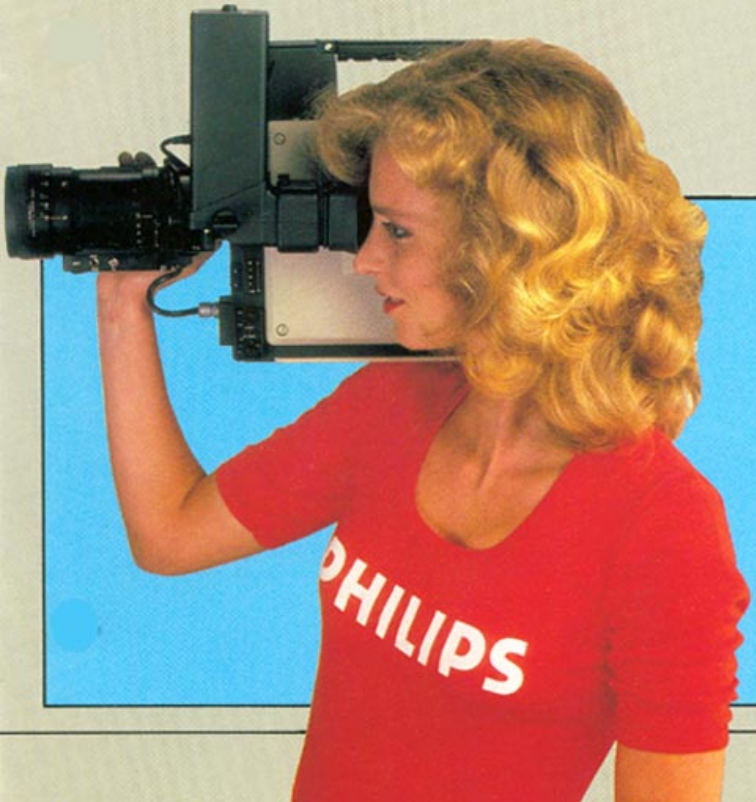
High RF immunity

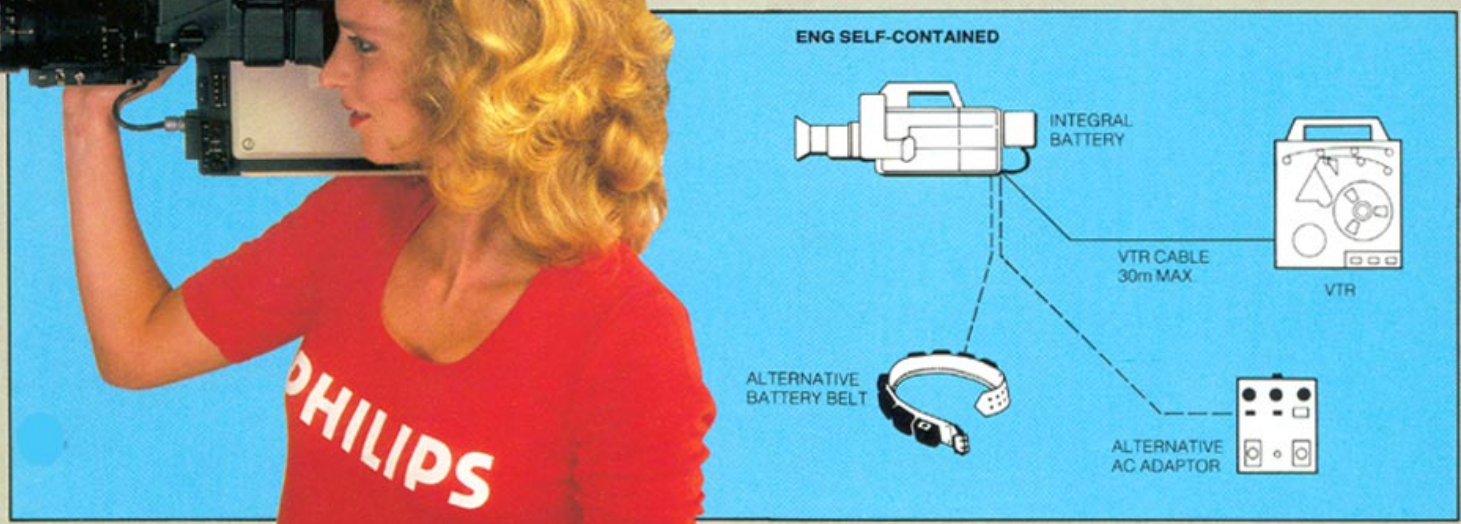
Triax interface unit



Camera Processing Unit
The CPU with its integral triax circuitry is the 'black box' of the system. Its compact size, half 19 inch rack is particularly suitable for OB Vans.

Operational Control Panel
Camera call
Intercom
Power on/off
Colour bars selector
Contours–extra/normal
On Air indicator
Black stretch on/off
Gain 0dB; +6dB or +12dB
Red and Blue, White and Black painting controls
Master Black Level
Iris control and Auto Iris selector





Technical Data

LDK614

Systems
PAL, PAL-M, NTSC, SECAM

Power Supply
A.C. 47–63Hz, 90–132V and 189–264V.

Power Consumption
95W

Input Signals
Reference signal CVBS or Blackburst.
1V p–p into 75 ohm looped through
External viewfinder in synchronism with the reference
1V p–p into 75 ohm looped through.
HUE control.

Output Signals
3×CVBS 1V p–p into 75 ohm switchable to MONITORING.
1×full bandwidth KEY from camera head with adjustable HUE.
Optional: R, G, B outputs 0.7V p–p into 75 ohm with multicore cable system.

Scene Illumination
1000 lux (95ft cd.) for a typical signal to noise ratio of 55dB PAL or 57dB NTSC in the Y channel at the camera head. Lens iris f3.0, reflection factor 90% with linear matrix, without contour and gamma correction, encoder notch filter in and colour temp 3000°K and 0dB gain.

Contour Correction
Horizontal in band and edge of band contour correction: Positive and negative. In band and edge of band contours can be separately controlled.
The responsé can be adjusted for 100% at 400 TV lines
Level dependency and noise coring circuits are incorporated

Colour Registration
Deviations of Red or Blue in any direction with respect to Green.
In a circle of 0.8 of picture height:
40nSec (Zone 1).
In a circle of picture width:
80nSec (Zone 2)
Rest of picture
160nSec (Zone 3)

Geometry Error
Maximum 1.5% not including lens errors.

Gain Control
Master Selector set for 0, +6 and +12dB or on request for 0, +9 and +18dB.
Individual controls for ±3dB in Red or Blue.

Optical Filter Wheel
Five position filter wheel containing
— Cap
— clear
— 85B
— 85B + ND 0.9
— ND 0.6

Gamma Correction
Camera set for 0.5.
Optional: 0.45.

Black Level Adjustment
Master black level between −50% and +20% of nominal white level.
Individual control for adjustment RED and BLUE ±15% of nominal white level.

Resolution
Limiting resolution equal to or greater than 700 TV lines
Typical resolution depth 50% at 400 TV lines.

Lenses
A wide range of manually and servo controlled lenses are available.

Warm-up Time
Full picture quality will be obtained from standby in two seconds

Permissible Ambient Temperature Range
−20°C to +45°C

Cable lengths
With 8mm Ø Triax Cable; Max 650m
With 11 and 14mm Ø Triax Cable; Max 1000m
With 14mm Ø Triax Cable; Max 1500m (optional)

Weights

Camera Head	6.9kg
VF 1.5"	0.5kg
VF 5"	3.0kg

Specification details subject to change without notice.

PHILIPS

Printed in England by Penvan colour print 583 CP3