



Vidicon Camera Channel V 321 Series

THE V 321-series camera channel has been designed to meet the growing need for a fully automatic, ultra reliable equipment capable of withstanding considerable mechanical shock and extreme climatic conditions. The development of this camera channel represents a completely new approach to professional closed-circuit television.

The equipment has been designed to meet the many airborne, marine, military and heavy industrial applications of television where it is essential to combine high electrical performance, low power consumption and a picture quality far higher than that hitherto obtained in normal television practice.

Features

Automatic sensitivity over extreme ranges of illumination.

Automatic black-level control.

'High flux' vidicon focusing.

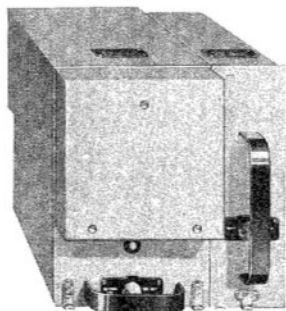
Extremely high definition.

Meets Inter-Services Specification K 114 and similar national specifications.

Solid-state circuits.

Sealed, water-proof, stainless-steel camera case.

Operates on all conventional scanning standards.



Camera Control Unit
Type V 3217.

9305



9302

The camera.

Mains or battery operation.

Provision for inter-com. between camera and control unit.

Wide range of accessories.

EQUIPMENT

The camera

The camera is cylindrical in shape and 3.5 in. (9 cm) in diameter. This diameter is the minimum compatible with high performance, using a 1 in. vidicon.

When used in tropical sunlight a lightweight glass-fibre sun shield is available, and when equipped with a waterproof lens cover the camera will operate in bad weather at maximum efficiency without additional protection.

The remote focus unit and lens filters fit within the basic camera housing.

Camera control units

Three camera control units are available in the V 321 Series.

(a) *V 3215 Control Unit* is a free-standing, ruggedized, air-tight unit. The circuit modules are mechanically clamped to the frame, ensuring complete reliability under vibration and acceleration. The unit meets Inter-Service K 114 Categories A, E and F.

(b) *V 3216 Control Unit* is a rack-mounted unit to fit a standard 19 in. (48 cm) rack.

The circuit modules are plug-in units accessible from the front. This provides for maximum ease of maintenance.

(c) *V 3217 Control Unit* is a rack-mounted airborne unit similar to the V 3215 Control Unit but engineered to ARINC Specification 404.

With all three units the only exposed control is an on/off switch. Additional accessory control switches may also be fitted but no external electronic controls are provided, since the equipment automatically adjusts itself for the prevailing lighting conditions.

A feature of the V 321-Series equipment is the 'high-flux' mode of vidicon operation. This unique feature, which provides a very much more sharply focused beam, is achieved by using magnetic and electrical focusing fields approximately twice as powerful as those normally employed. This gives higher horizontal and vertical resolution and an improved signal to noise ratio since less aperture correction is required.

Data Summary

Scanning standards:

(A) 405/50	} 2:1, 3:1 or random interlace
525/60	
625/50	
819/50	
875/60	

(B) Standards between 99 and 1024 lines interlaced or random to special order.

Sensitivity (with P 831 or 7263A vidicon):

	<i>Normal light level</i>	<i>Low light level</i>
Scene highlight brightness	50 ft lamberts	2 ft lamberts
Lens aperture	T2.8	T2
Signal current	0.3 μ A	0.1 μ A
Dark current	0.02 μ A	0.2 μ A
Signal/noise ratio (no aperture correction)	40 dB approx.	30 dB approx.
Signal/noise ratio (with 6 dB aperture correction)	37 dB approx.	27 dB approx.

Picture geometry: The maximum displacement of any picture point from the ideal is less than 1% of picture height or width. Positional hum is less than 0.1% of picture height or width.

Video output: 1.5 V p-p composite into 75 Ω or 1 V p-p video only into 75 Ω .

Valves and transistors:

Camera: 1 in. vidicon either short 5.125 in. ruggedized or standard 6.25 in. with or without side pip. Magnetic focus and deflection.

First video amplifier, 7586 Nuvistor, thereafter 8 transistors of CV 7000 series or electrical equivalents.

Control unit: 88 transistors of CV 7000 series or electrical equivalents.

Sync. pulse generator: 42 transistors of CV 7000 series or electrical equivalents.

Resolution: Using a P 831, 7263A or equivalent vidicon scanned at 625/50 2:1 interlaced, and a Marconi No.1 resolution

chart having a highlight brightness of 100 ft Lamberts and a 30 mm Vidital lens at T4, the limiting horizontal resolution, in Zone 1 is not less than 750 lines per picture height, i.e. 1000 picture points per line. The performance reduces to 650 lines per picture height at the outer limit of Zone 2.

Dimensions and power supplies:

	Length	Diameter	Weight
Camera	14.5 in. (36.5 cm)	3.5 in. (8.8 cm)	9.5 lb. (4.3 kg)

V 3215 control unit

	Width	Depth	Height	Weight
	8 in. (20.5 cm)	16 in. (41 cm)	10.5 in. (26.7 cm)	30 lb (13.6 kg)

V 3216 control unit

	Width	Depth	Height	Weight
	19 in. (48.5 cm)	12 in. (30.5 cm)	7 in. (17.8 cm)	33 lb (15 kg)

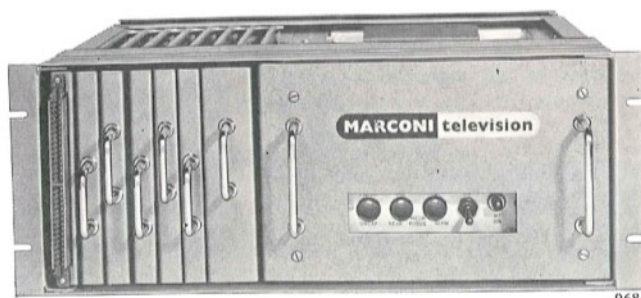
Power supplies: 100/125 V, 200/250 V, 48/62 c/s, 380/420 c/s. 22/30 V, 80/100 V d.c. Power consumption approx. 55 VA.

Camera finish: Stainless steel case with black anodized end plates.

Control units finish: Oyster hammer enamel.



Camera Control Unit Type V 3215.



Camera Control Unit Type V 3216.

Marconi

The Marconi Company Limited
 Closed-circuit Television Division, Basildon, Essex
 Telephone: Basildon 22822 · Telex: 1964
 Telegrams: Expanse Basildon Telex



Accessories for V 321-series Camera Channel



Camera front showing the V 4033 Sun Shutter.

Remote focus Type V 4012

Provides motor drive for focus control.
Fits inside rear end on camera case.
Takes power from camera control unit *via* camera cable.

Sun Shutter Type V 4033 and Filter Unit Type V 4034

Inserts opaque blade (sun shutter) between lens and vidicon.
Sun shutter protects vidicon from sun in outdoor applications.
Filter unit uses one or two neutral-density filters to extend the range of the automatic sensitivity.
Both facilities can be either manually or automatically controlled.
Fits within camera case.
Takes power from camera control unit *via* camera cable.

Sun Shield Type V 4202

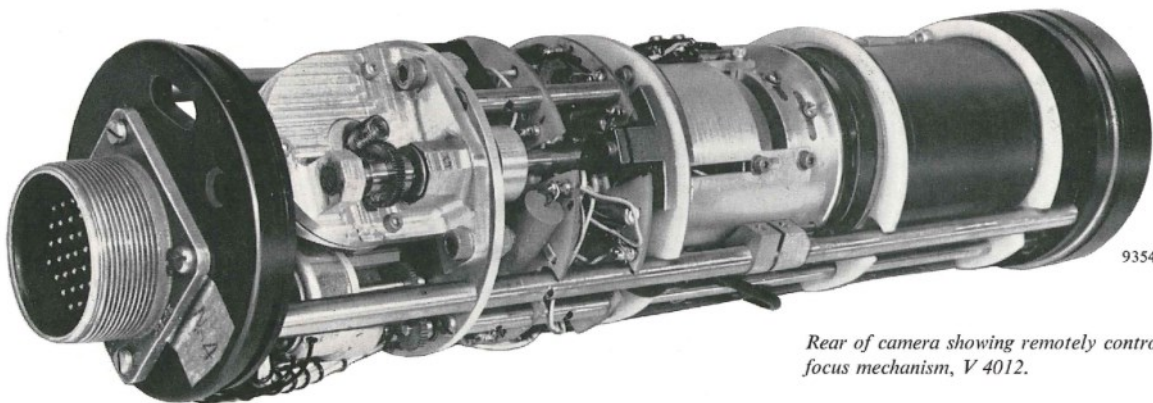
Glass-fibre shield.
Provides protection from direct sunlight when camera is in exposed position.

Waterproof lens cover Type V 4281

Protects lens from water and dust.
Proof against immersion in water to 5 ft (1.5 m) depth.
Can be used as filter holder if required.

Zoom Lens Type V 4024

Similar to zoom lens used with V 3020 camera, but with other mounting arrangements.
Can be provided with waterproof cover, V 4282.



Rear of camera showing remotely controlled focus mechanism, V 4012.



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V 4281 Waterproof Lens Cover.

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