

Sentinel Camera Chain



High Definition Closed-Circuit Industrial Television

FEATURES

High Definition

Flexibility of Design

Simple to operate

Auto/Manual Sensitivity Control

Reliability in Continuous Operation

Interlaced Scanning

**Based upon K114E & DEF5000 Specifications
where applicable to television**

The Pye 'Sentinel' is a high definition camera chain used for closed-circuit industrial television. The basic equipment comprises three units — a camera head with attachment, camera control unit and camera control panel — and requires only a viewing monitor to complete the closed-circuit link. An auxiliary unit is available with facilities for the production of negative polarity pictures, or for aperture correction. With controls kept to a minimum the 'Sentinel' camera is very simple to operate, and is completely reliable under conditions of continuous operation.

An outstanding feature in the design of the equipment is its extreme flexibility. Installations using a number of camera head units may be planned and a range of protective housings is available to ensure safe, efficient operation under all industrial conditions.

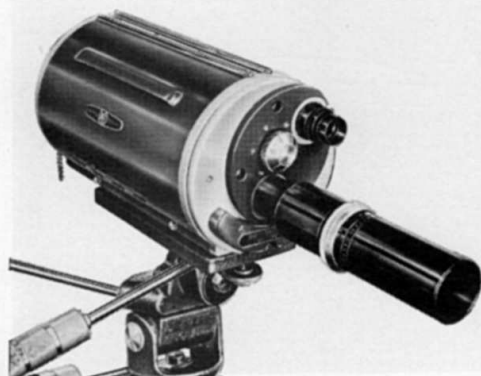
A wide range of applications is possible with standard attachments detailed overleaf.



CAMERA CHAIN

Camera Head

(Type 2096)



This extremely compact camera head uses a sensitive photo-conductive camera tube to achieve the high definition required.

It can be adapted to a variety of user requirements by means of interchangeable front attachments. These include remote control of optical focus, lens change (illustrated), lens iris and zoom lens. Remote control of camera panning and tilting is catered for and these units are standard accessories.

The camera head may be located up to 1000 ft (300 m) from the camera control unit, all power and control circuits being carried by a single multi-way cable.

Camera Control Unit

Portable

Type 2383 (405 Lines)

Type 2384 (525/625 Lines)

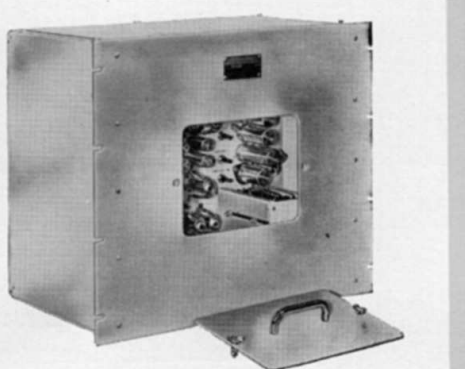


Camera Control Unit

Rack Mounting

Type 2385 (405 Lines)

Type 2386 (525/625 Lines)



Camera control units are supplied for 525/625 or 405 line systems and are available as portable or rack-mounting equipments. The rack-mounting version is suitable for use with standard 19 inch (48 cm) racks.

All equipments have automatic control of light sensitivity which ensures constant picture brightness over a wide range of light intensity. Manual control may be selected by the operator as required.

Accurate interlaced scanning provided by a binary type timing generator contributes to the good resolution obtained.

The output from the unit is a 1 volt peak-to-peak composite video waveform suitable for standard monitors situated up to 2000 ft (728 m) away. Greater distances can be covered with the use of extra equipment.

Camera Control Panel

(Type 2387)



All operational controls for the camera are situated on the camera control panel which is normally placed conveniently near the viewing monitor.

The panel can be either rack or wall mounted, or fitted on a stand for desk or bench use.

Connection to the control unit is by a single multi-way cable which may be up to 3000 ft (1 km) long.

Video Monitor

(Type 191)



Though not part of the camera chain, the monitor forms an integral part of the closed-circuit system.

A wide range of Pye Video Monitors, varying in screen size from 8½ inches (21.5 cm) to 27 inches (68.5 cm) is available to suit all types of installation.

The monitor illustrated, Type 191, is a 19 inch (48 cm) display unit with push button selection of six channels.

CAMERA HEAD ATTACHMENTS

Lens Plate Attachment, Type 2079, is suitable for use when it is possible to operate the focus control manually, or when the camera is installed to observe a scene which is static. Any focal length lens may be used.

Focusing is effected by a knurled thumb-wheel at the rear of the camera. A locking device secures the focus position against vibration.



**Manual
Focus**
(Type 2079)

Remote Focus Attachment, Type 2080, enables the operator to control the optical focus of the camera from a remote viewing point. A key switch on the camera control panel operates a reversible a.c. motor working through a reduction gearbox to focus the lens. Limit switches prevent overrunning. The unit is suitable for use with any 16 mm 'C' mount lens.

**Remote
Focus**
(Type 2080)



Remote Lens Change and Focus Attachment, Type 2081, provides for either of two lenses to be remotely focused. A second key switch on the camera control panel enables the operator to select the lens required, which may then be focused as in Type 2080. Any 16 mm 'C' mount lenses may be used.

A manually-operated version of this attachment (Type 2084) is also available.

**Remote
Lens Change
and Focus**
(Type 2081)



Remote Iris and Focus Attachment, Type 2082, provides for remote optical focus as before, but also for the remote adjustment of the lens iris or aperture to provide for changing light intensities. Lenses of various focal lengths can be fitted and the unit may be used with or without automatic sensitivity control.

This attachment is particularly useful when the object to be viewed varies in brightness, or in outdoor viewing where light intensities vary considerably.

**Remote
Iris and
Focus**
(Type 2082)



Remote Zoom and Focus Attachment, Type 2083, is used when it is necessary to provide a continuously variable field of view. Separate motors and gearboxes are used to drive the zoom and focus controls of an Angenieux 20-80 mm (0.79-3.15 in) f/2.2 zoom lens.

Variation of viewing angle is obtained over the range 9°-36° and the range time between limits is 12-15 seconds.

Zoom and focus are remotely-controlled by the two key switches on the camera control panel.

**Remote
Zoom and
Focus**
(Type 2083)



ABRIDGED SPECIFICATION

GENERAL

Scanning Standards	Separate models for :— (a) 625 lines 50 fields interlaced (Industrial Television Preferred Standard), or 525 lines 60 fields interlaced and, (b) 405 lines 50 fields interlaced.
Bandwidth	± 1 dB to 6 Mc/s and not more than -3 dB at 7.5 Mc/s.
Picture Resolution	Exceeding 800 picture points at centre of picture, to full 625 line transmission standards.
Picture Geometry	No part of the picture will depart by more than $\pm 2\%$ from a rectangle averaged over the picture.
Scanning Linearity	Less than $\pm 2\%$ departure from the ideal.
Light Sensitivity	Good quality pictures are obtained at normal industrial lighting levels, i.e. 50 ft. candles (500 lux) and upwards. Satisfactory pictures may be obtained at 10–15 ft. candles (100–150 lux) using a lens aperture of $f/1.9$.
Operating Temperature	Maximum ambient temperature of 40°C . Camera temperature should not fall below 0°C .
Picture Quality	A satisfactory image of good gradation, and free from spurious ringing, streaking or shading effects is obtained.
Power Supply	85–135 V or 170–250 V a.c. at 47–63 c/s depending on standard used. Permissible voltage variation $\pm 10\%$.
Power Consumption	190 W.

CAMERA HEAD UNIT

Pick-Up Tube	Staticon Types C932, C933
Spectral Response	Similar to panchromatic film. Suitable for daylight or artificial light.
Lens Mounting	Standard 16 mm 'C' type (1 in. dia. 32 t.p.i. fixing; rear focal register 0.69 in.).
Connectors	37-way plug : Cannon, Type MS3102R-28-21P 8-way socket : Cannon, Type MS3102R-20-7S
Part Number	(Less Front plate attachment) 842096
Dimensions	5 in. dia. \times 10 in. long (12.7 \times 25.4 cm) overall (Excl. lens).
Weight	With average (Remote Focus) attachment : 7 lb (3.1 kg).

CAMERA CONTROL UNIT

Output Signal	1 Volt p-p composite video signal of 70/30 picture/sync ratio (white positive) into 75 ohms.
Connectors	37-way plug : Cannon, Type MS3102R-28-21PW 37-way socket : Cannon, Type MS3102R-28-21S Video Output : Films & Equipments, Type SO-239
Part Number	Portable 405-line ... 842383 525/625-line ... 842384 Rack-Mounting 405-line ... 842385 525/625-line ... 842386
Dimensions	Portable Type : 19 in. long \times 6½ in. wide \times 16 in. high (48.5 \times 16.5 \times 40.7 cm) overall. Rack Mounting Type : Fits standard 19 in. (48 cm) rack 15½ in. (40 cm) high \times 14 in. (35.5 cm) deep behind fixing surface.
Weight	Portable Type : 34 lb (15.3 kg). Rack Mounting Type : 48 lb (22 kg).

CAMERA CONTROL PANEL

Connectors	37-way socket : Cannon, Type MS3102R-28-21SW 8-way socket : Cannon, Type MS3102R-20-7S Power Input : Films and Equipments, Type EP-4-14S
Part Number	842387
Dimensions	9 in. long \times 6 in. deep \times 5½ in. high (23 \times 15.2 \times 14 cm) overall.
Weight	5½ lb (2.5 kg)

PACKING DETAILS

Container	Standard Size : 24 in. \times 23 in. \times 21 in. (61 \times 58.5 \times 53.5 cm). Pick-up tube packed separately.
Weight	Dependent upon composition of equipment. Example : 'Sentinel' chain with portable C.C.U. and light duty pan and tilt = 140 lb (63 kg) approx.

Specification details subject to change without notice.

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