Norelco®

PC-100A DIGITALLY CONTROLLED THREE-PLUMBICON* COLOR TELEVISION CAMERA



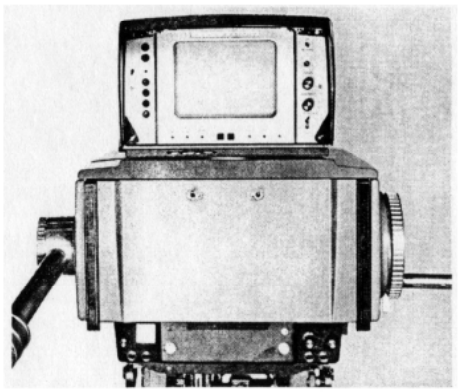
The PC-100A digitally controlled television camera is a completely new Plumbicon* color camera constituting the most significant advance in camera technology since the introduction of the Philips Plumbicon tube itself.

Modern design techniques and modular system layout have been used to achieve high stability, reliability and flexibility in operation. Its new, compact, low-silhouette design is based on experience gained in the development and refinement of more than 1000 three-Plumbicon color cameras . . . *plus* the utilization of digital control techniques that bring an entirely new dimension of positive performance and economy to color television.

FEATURES

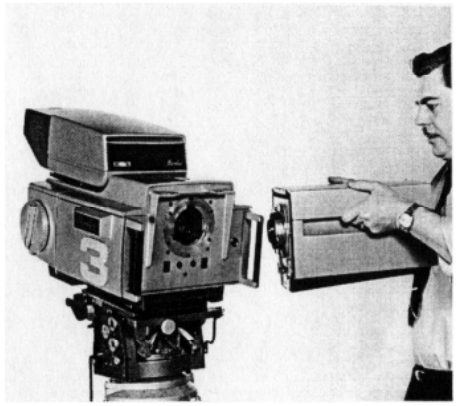
- **Lightweight, low-profile camera head.**
- **Three new one-inch Plumbicons — separate mesh, low target capacity and anti-comet tail gun.**
- **Triaxial camera cable — automatic compensation up to one mile.**
- **Video processing with contours — matrixing and encoding in camera head.**
- **Integral lens design mounts easily — has internal drive mechanism.**
- **Magnesium castings withstand most severe operational environment.**
- **Efficient color splitter prism and linear matrixing for optimum colorimetry.**
- **Chroma Keying.**
- **Transportable modular control unit with interlocked control panel for ease of set-up.**
- **Multiplexed Video and Digital control — video, audio, control and power multiplexed in lightweight triaxial camera cable.**
- **Viewfinder is removable, tiltable and rotatable.**

*Reg. T.M. N.V. Philips of Holland



The Camera

The camera head casting is made of strong, lightweight magnesium. Hinged covers are provided for easy access to the interior components. Precision integral lens mounting design includes internal mechanical drive shafts which automatically couple to internal shafts in the camera body. High quality zoom lenses available include fully servo-controlled lenses with zoom shot box, as well as lenses with manually controlled focus and zoom and servo-controlled iris. Range extenders for these lenses are available. A remotely controlled, motor-driven, filter wheel and two slide filters are provided between lens and color beam splitter for color and neutral density correction. The "on-air" tally light can be seen from all angles as well as looking directly into the lens.



The color beam splitter is the well known patented prism block. Linear matrixing is included to allow the use of a more efficient beam splitter prism. A new one-inch separate mesh Plumbicon tube is used. The Plumbicon provides a minimum of 35% modulation at 400 lines to fully serve all professional broadcast applications. Other features, such as low target capacity, ceramic centering ring, and an anti-comet tail gun have been added. The low target capacity contributes largely to a 49 dB signal to noise through the preamplifier. The anti-comet tail gun increases the dynamic range of the Plumbicon tubes to at least two orders of magnitude. Highlights of 20 to 30 foot candles on the surface of the tubes can be handled without "blooming." The anti-comet tail gun effectively imparts a light level saturation "knee" characteristic to the transfer curve. The deflection coil assembly is efficiently shielded by a spun mu-metal housing to eliminate the influence of external magnetic fields. Computer matched yoke triplets give the ultimate in registration accuracy.

The complete yoke assemblies are fixed into position in the RGB casting and factory aligned by fixing the yoke shell to the front housing. The yokes can be easily removed for servicing and replaced with only the normal line-up procedure. The "spider" casting provides long-term optical stability. Yoke rotation and focus is accomplished by separate knurled shafts.

Particular care has been given to the stability of the electronic circuitry. Since the video processing circuitry is in the camera head, the effects of temperature variations on long camera cable does not influence the camera performance. With the exception of some presets, the camera does not contain any set-up controls, so that the complete line-up of the camera chain can be carried out by the control operator.

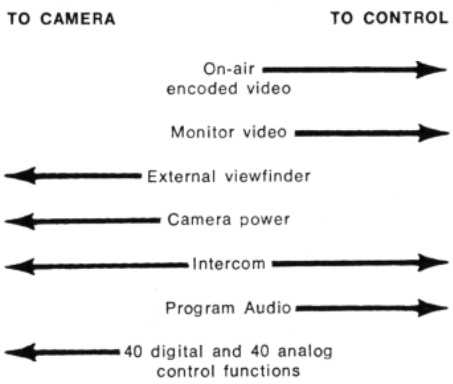
Light, economical Triaxial Cable

The triaxial cable used between the camera and its control system weighs one-tenth that of standard color cable. Its cost is proportionately *even less*. But the big savings month after month, is in reduced installation and cable maintenance cost.

Multiplex Control System

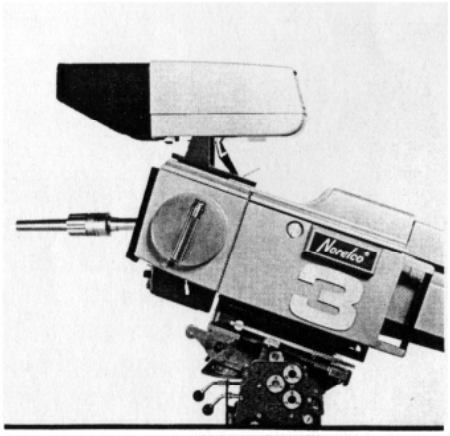
Information is transferred between the camera and the control system multiplexing three channels of information through the cable. These channels include a video channel for sending encoded video from the camera to the control location, a monitor channel fo rsending monitor signals from various points in the video processing chain to the control location and a tele-command channel for transmitting all control registration and set-up signals from the control system to the camera. In addition to these three channels, the 100 volt dc power is supplied to the camera through the triaxial cable. A maximum length of one mile of triaxial cable can be used. With the addition of repeaters the length can be extended beyond one mile, with local camera power.

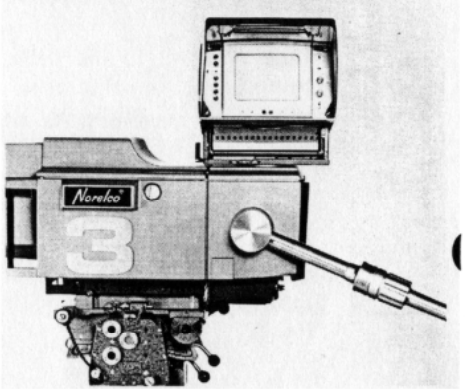
Signals Multiplexed on Triaxial Cable



Electronic Viewfinder

The electronic viewfinder uses a 7″ rectangular picture tube. It is tiltable, rotatable and removable. It provides a brilliant and sharply focused picture. Any combination of either RGB minus G or Y and external video signals can be selected for display. An electronic zoom indicator is superimposed on the top of the picture.







Camera Control System

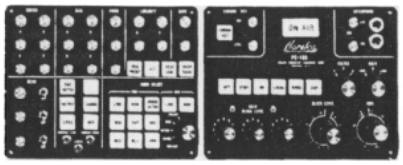
The camera control system features a high degree of operational flexibility. It is separated into three major sub-assemblies; the registration and operating panel, the camera control unit, and the D.C. Power Supply for the camera. These sub-assemblies can be accommodated either in a standard 19″ rack or in a 19″ transit case.

Camera Control Unit

The camera control unit consists of a 7″ high rack which houses a two level card bin. Coaxial and multi-pin connectors are mounted on the rear panel. The circuitry includes the cable drive demodulators, audio modulators and the analog to digital converters.

Cable D.C. Supply

The Cable D.C. Supply consists of a 3½″ high rack-mounted unit which can be located either at the Camera Control System or at the Camera Head location.



Registration and Operating Panel

The registration and operating panels are half rack width units mounted in a frame assembly which can be mounted in a 19″ rack cabinet. To aid in the set-up of the camera, switches and associated lamps are interlocked to reduce the number of manual operations required.

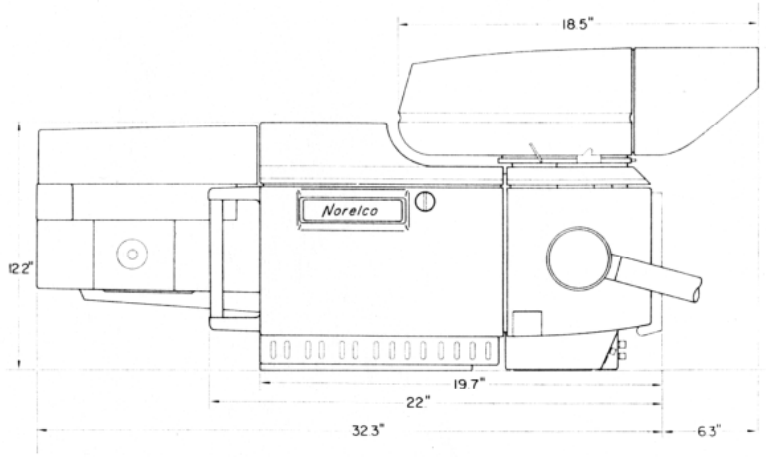
For example, a Registration Pre-set push-button is provided to switch matrix and contours to "off" and encoder input signals to the waveform monitor. At the same time it also switches minus green video to the picture monitor.

PC-100A TECHNICAL SPECIFICATIONS

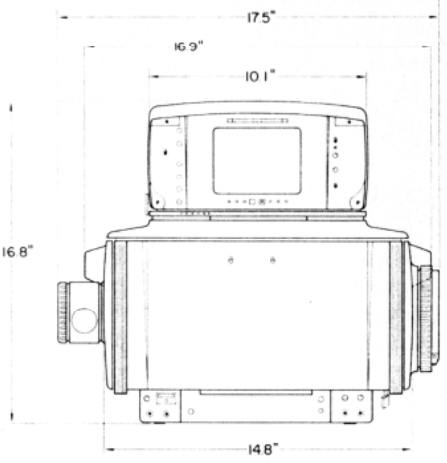
Scanning:	EIA 525 lines, 60 fields/sec.
Inputs — Pulse & Video (Loop-thru)	
Sync & Blanking	−0.75 to −4.0v pp
Subcarrier	2.0 to 4v pp
Crosshatch	0.7v pp
External V.F. Video	1.0v pp composite
Key Video	External Video to Chroma Key circuitry 1.0v composite
Outputs	
Line Video	Three independent encoded, 1.0v composite across 75 ohms.
Waveform Monitor	Video, Stair & Relay
Picture Monitor	Video
Spares	Four provided.
Sensitivity	Color reproduction holds below 10 ft. candles incident illumination; 125-250 ft. candles scene illumination for studio quality pictures, 50 ft. candles recommended minimum.
Horizontal Resolution	Limiting resolution of each color channel is 700 lines.
Registration Accuracy (Deviations of Red or Blue in any direction with respect to Green)	In a circle in the center of the scanned area with a diameter equal to 0.8 of picture height (Zone 1) horizontal and vertical deviation will be no more than the distance equal to a horizontal scanning time of 25 ns. Within a cricle having a diameter equal to picture width (Zone 2) deviation will be no more than 50 ns. Elsewhere (Zone 3), no greater than 100 ns.
Picture Geometry	Maximum horizontal and vertical geometric distortion is 0.5% of picture height in Zone 1. In Zone 2, maximum distortion is 1.5% of picture height; elsewhere 2% maximum for the camera system including zoom lens.
Video Processing	All video processing done in camera head including Matrix, Contour, Chroma Key and NTSC Encoder.
Signal-to-Noise (Peak signals to RMS noise)	49 dB at pre-amp output at a signal current of 300 nano-amperes and a bandwidth of 4.2 MHz.
Gain Control	Master selector for −6 dB; 0 dB; and +6 dB.
Colorimetry	A wide-skirt, high-efficiency color beam splitting prism coupled with fixed linear matrix.
Optical Trimming	Remotely controlled color filter wheel. A ¼ λ filter is permanently mounted at entrance window, plus plug-in neutral density or polarization filters.
Black Level Adjustment	Master control for adjustment between ±40% of the nominal white level. Individual control for adjustment between −15% and +15% of the nominal white level.
Intercom	Engineering and Production channels with independent level controls; also Program Cue audio.
Test Signals & Monitoring	Built in test signals and performance monitoring facilities provided, include Pre-amp Test Saw, Encoder VIT Signal, Color Bar Generator.
Camera Cable	Triaxial low-loss field type up to 1 mile. Lightweight type up to ½ mile. Automatic compensation.
Lens	Standard lens. 10 x 14. f/1.8 14-140 mm. Servo Iris, manual zoom and focus. 3 function servo. 8 other lenses optional.
A.C. Input	115/230 VAC, ±15%; 50-60 Hz.
Power Consumption	500 watts, Camera chain less monitors.
Stability	No further set-up adjustments required after 30 minutes warm-up over an 8 hour period with temperature variation of ±10°C over an ambient temperature range of −20°C to +45°C.
Dimensions & Weights	See Page 4.
Order Number	9800-1000

Mechanical Dimensions and Weights PC-100A Digitally Controlled Color Television Camera

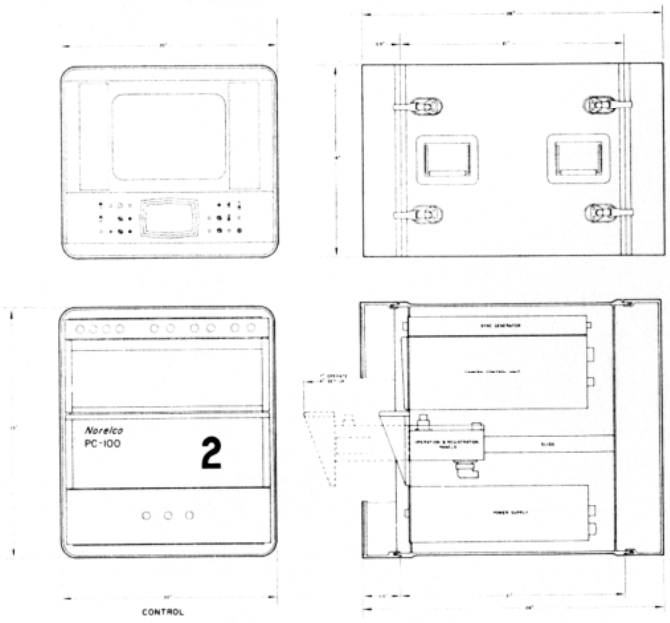
Camera - Side View



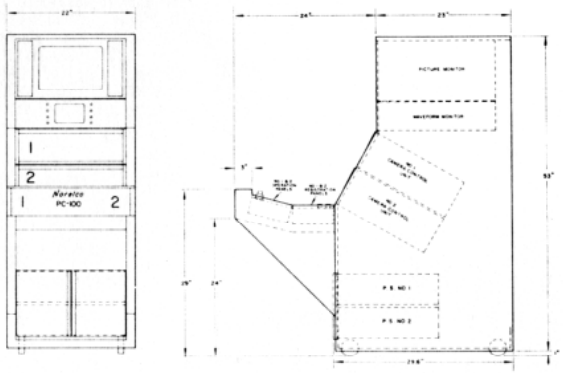
Camera - Rear View



Camera Control - Mobile



Camera Control - Studio



WEIGHTS

Camera Head (Less Viewfinder & Lens)	.75 lbs.
Viewfinder	20 lbs.
Lens (Angenieux 14-140 mm)	30 lbs.
Camera Control Unit	46 lbs.
Power Supply (Camera D.C.)	47 lbs.
Control Panels (Operation & Registration)	8 lbs.
Studio Console (Includes Waveform Monitor & Picture Monitor)	266 lbs.
Portable Cases:	
a. Control Unit (Includes C.C.U. operations & registration panels & Power supply)	186 lbs.
b. Monitor Unit	135 lbs.

Norelco®
PHILIPS BROADCAST EQUIPMENT CORP.
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