The CEI 310. The most complete field production system you can buy.

The 310 is a totally modular, American made, broadcast quality color television camera system. The 310's components are so well designed and separated that its configuration can be instantly changed to meet the need of the moment: an extremely portable IF camera, a studio systems camera, a studio self-contained camera.

The 310 is the result of the brand new design concepts founded on the latest state of the technology. The camera head (a mere 8 lbs) contains a highly efficient prism optical assembly with bias light and four-position filter wheel. High-gain, low-noise pre-amplifiers help deliver an SN ratio of 52dB or better. The camera head can be operated up to 500 feet from its electronic unit. A remote control system extends operation an additional 2000 feet.

The 310 gives you full system capability and it can be quickly color matched to any other camera. Yet with all this versatility, the 310 costs less than any comparable system. It produces a picture comparable in quality to that of the most expensive broadcast camera you can buy.

The 310 automatically operates on a wide variety of AC or DC power sources. With available adapters, the 310 can be used in a film chain unit and for medical applications including microsurgery, pathology, endoscopy, and gross surgery.

The 310 electronics unit. It's everything you want and then some.

The 310 offers virtually all of the camera electronics. This design results in the minimum size and weight of the camera head while providing COMPLETE control of the BVI, Function Modal system provides high flexibility in service, servicing, and upgrading to meet the maximum in anti-robustness.

The 310 design philosophy consists of a small number of circuit boards which mount the controls as an integral unit Minnesota wiring, connectors, size, and weight. The rugged EU is designed to be equal to home occupying only 3½" in your studio rackmount or benchtop. The board is operating in the world. A separate DC adapter automatically corrects for voltage and air system, from 10 to 25 volts DC.

Board 1: The studyable front panel features an instrument scale which shows horizontal, vertical, and total gain. The board provides an audible signal during the test process. A 200-foot cable allows the board to be used in a wide range of applications. The gain and balance controls allow selection of recorded output, external waveform level, or independent superimposition of red or blue with green. A clipper control circuit indicates blanking in areas of the picture which exceed 100%. Beams are on and off as well as black burst and blue. The board can be performed on a plug-in basis for the 310. Among the options are test pattern, horizontal and vertical linearity, and yoke control. Automatic adjustments for size and shape, and horizontal and vertical blanking are included. A three-position switch allows selection of audio, test burst, and test pattern. A four-position switch allows selection of audio, black burst, and white burst. The 310 systems can operate stand-alone in their own separate input or output. The 310 can be used in a complete transparent reference or as a fully self-contained unit, even with many varying finishes. A complete transparent reference or as a fully self-contained unit, even with many varying finishes.
The Remote Control Panel (below) remotes production controls up to 2000 feet from the EU. Controls include paint (red and blue trim), joystick iris and black level, TC volume, TC isolate, black stretch on/off, black stretch control, tally/call, and horizontal and vertical centering. Illuminated indicators include power, operate, sync lock, tally/call, black stretch, and TC isolate.

**SPECIFICATIONS**

**Sensitivity/signal-to-noise**
A -52dB S/N ratio in encoded luminance channel, gamma at unity, no aperture correction, and a 4.2MHz bandwidth will be achieved at an aperture of f/1.7, 80 foot candles, 3200°K illumination incident on a 60% reflective white.

**Maximum sensitivity**
Minimum incident light for full output with lens at f/1.4 and +12dB gain inserted is 6 foot candles.

**Resolution/modulation depth**
Correctable to 100% response at 500 TVL. Limiting resolution 600 TVL.

**Registration accuracy**
Zone 1: Circle equal to 0.8 picture height, 0.1%.
Zone 2: Circle equal to picture width, 0.2%.
Zone 3: Elsewhere, 0.3%

**Geometry**
Distortion less than +1% excluding lens distortions.

**Aperture correction**
H and V enhancement: detail signal from green channel output. Coring with adjustable threshold and V and H coring depth. V and H contour amplitude individually adjustable.

**Gamma correction**
Switchable: Unity, .45, and preset position variable from .35 to unity.

**Shading provisions**
Multiplicative H and V sawtooth and parabola white level shading. Individual R, G, and B flare correction, plus bias light shading.

**Color standards**
NTSC, PAL-I/B, PAL-M, SECAM.

**Scans**
EIA: 525/60. CCIR: 625/50.

**System power**
AC: 95/250V, 48 to 63 Hz, 90VA (with 3" VF)
DC: 12V at 7.2A (with 3" VF) (With 8" VF add 18W)

**Inputs**
IV p-p black burst or composite color video for gen lock.

**Outputs**
Two composite encoded video.

**Pickup tubes**
Three 3½" Saticon* or Plumbicon** tubes

**Cable length**
Camera head to Electronics Unit: to 600'
Electronics Unit to System Integration Unit: to 2500'
Electronics Unit to Remote Control Panel: to 2000'

**Optical system**
Bias lighted, high index glass prism with R, G, and B split. F 1.1 stop, and output trim filters. Built-in filter wheel with cap, 85, 85B, 86ND and clear glass elements.

**Intercom**
Comprehensive intercom system with AGC on microphones, provision for program sound for camera man and at electronics unit. Interface to 2 or 4 wire systems.

**Viewfinders**
3" high brightness, flat face tube with sun shade, optional ocular adapter. 8" high brightness, flat face tube with studio adapter.

**Audio**
One microphone level input at camera head.
One microphone level input at Electronics Unit.
Two microphone outputs at Electronics Unit.

**Environmental**
Ambient temperature range: -15°C to +45°C.
Storage: -30°C to +50°C.
Altitude: to 10,000 feet.
Relative humidity: to 90%, non-condensing.

**Physical**
Camera head: 4¾" × 6¾" × 9½", 8 lbs.
Electronics Unit: 5" × 13" × 14.5", 19.5 lbs.

* TM Hitachi
**TM N. V. Philips