

LTC 0600 Series Digital Color Cameras

INITIAL TECHNICAL DATA

- 1/2-inch Format CCD Imager
- High Resolution
- High sensitivity and dynamic range
- Digital Signal Processor
- Backlight compensation
- Automatic picture enhancement
- Auto detection of fitted lens type



The LTC 0600 Series of High Performance Digital CCD Color Cameras are designed to provide the best possible image under the most difficult light conditions.

Together with its superb sensitivity and dynamic range, the many automatic functions and system options guarantee an unsurpassable result in the majority of applications with minimum installation effort.

Where adjustments are necessary, dedicated push buttons on the side of the camera are used for the most common functions with feedback information displayed on the monitor screen.

For the set-up of more complicated parameters, the camera can be configured from a PC and accessed remotely through the remote control system. These settings are stored in the camera in non-volatile memory.

Up to three different configuration possibilities can be saved and recalled by the operator or by an automatic switch function.

Remote set up gives the ultimate comfort and result as the multi-camera system can be optimized from the actual control room.

To ensure that the camera gives the best possible image under the most difficult of conditions, special features include:

- **Video:** The picture produced by the camera is dynamically optimized in relation to the contents of the scene. This is achieved by the smart application of the following interrelated automatic functions:

automatic contouring: The camera monitors the sharpness of the picture. If the picture would become fuzzy e.g. due to a fully opened lens iris, the camera enhances the sharpness automatically.

automatic black-level: The camera monitors the levels of black in the image. If the image would become shrouded by fog or lens glare, picture contrast will be enhanced by the camera automatically.

smart backlight compensation:

Backlight compensation is programmable to operate over various areas of the picture. Combined with the very high dynamic range of the camera it provides the best possible pictures in back lit situations.

automatic light control:

Automatic light control is centrally monitored in the camera. The camera automatically selects one of the automatic controls (Gain, Iris or Shutter) to produce the best possible picture, e.g. if the lens iris is at its minimum aperture and the light level from the scene still would be too high the camera compensates with additional shutter control.

automatic white balance: Extensive color analysis and a sophisticated set of fuzzy logic provide the best possible control of the camera's automatic white balance.

- **Text In Picture:** A 24-character text can be added in the picture. A total of three character strings can be stored, one for each mode. The character set includes many international symbols.

- **Programmable modes:** The camera can store three different set-up preferences. These include most video functions and the text information in the picture. Programming is possible via the RS232 input on the camera. A software program is available for programming of the camera direct from a PC or via the remote control system.

The three programming modes can be called-up by the operator through the remote control system. Alternatively the camera can switch over to another mode by closing an input contact on the camera.

- **Lenses:** A lens detection wizard automatically sets the camera up for the installed lens type; manual iris, dc-iris or video-iris. The camera provides an indicator for the proper adjustment of video iris lenses. Backfocus adjustment covers the whole range of CS and C mounts.

- **Video outputs:** A composite color video signal is available on a BNC. An additional balanced output is available, balanced video or Y/C video output.
- **Power:** The cameras can be supplied in two power versions, one for Low voltage DC/AC supply. The other versions as mains supplied cameras. The input voltage range is very wide, which compensates for voltage drops over long cables.
- **Synchronization:** The camera can be synchronized from either external CVBS, external V-pulse, linelock or internal X-tal. The selection is automatically set by the synchronization signals connected to it. Phase adjustment is possible direct on the camera or via remote control.
- **Mounting:** Easily mounted from top or bottom.

SPECIFICATIONS

ELECTRICAL

Model No.	Rated Voltage	Nominal power	Color system
LTC 0600/10	11-36 VDC 12-28 VAC	4W 4W	PAL PAL
LTC 0600/20	11-36 VDC 12-28 VAC	4W 4W	NTSC NTSC
LTC 0600/50	230 VAC, 50 Hz	4W	PAL
LTC 0600/60	120 VAC, 60 Hz	4W	NTSC

Imager: Interline transfer CCD 1/2-inch image format.

Active Picture Elements: NTSC Models: 768 H x 492 V.
PAL B Models: 752 H x 582 V.

Sensitivity:

		Usable Picture	Full Video
Scene illumination ¹⁾	fc	0.037	0.15
	lx	0.37	1.5
Imager illumination	fc	0.005	0.02
	lx	0.05	0.2

¹⁾ for f/1.2 lens, 89% scene reflectance and 18 dB AGC and 40 dB signal to noise ratio.

Horizontal Resolution: 480 TVL.

CTF: ≥ 50% at 4 MHz.

Signal-to-Noise: 50 dB at 2.5 lux (0.25 fc) sensor illumination. (Unified weighting filter per CCIR Recommendation 567).

AGC: 18 dB, (24 dB selectable).

Shutter speeds:

Automatic: up to 1/100,000 sec.
Manual: Flickerless, 1/50 or 1/60, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000 and 1/10 000.

White Balance: Auto sensing (Thru the lens):
Auto tracking: 2700 K to 10,000 K.
Auto store: 2700 K to 10,000 K.
Correction: Red-Blue and Green-Magenta.

Contouring: Horizontal and vertical symmetric, selectable: automatic, manual adjust and OFF.

Gamma: adjustable 0.25 to 1 in steps of 0.05.

Auto Black: automatic cancellation of veiling glare up to 30% of the video signal.

Compression: adjustable and OFF.

Video output:

Output 1 on a BNC, isolated from mechanical earth:

Signal level: 1 Vpp into 75 ohms.

Output 2 on a 4-pole mini DIN, for a balanced (symmetrical) video output or Y/C output

Balanced video output:

Signal level: 2 Vpp into 150 Ohms.

Unbalance: < -20 dB at 5 MHz.

S-Video output:

Y-Level: 1 Vpp.

C-Level: 300 mVpp burst.

Impedance: 75 ohms.

Synchronization:

Line-Lock (AC supply only): Synchronizes camera to power line zero crossing for roll-free vertical interval switching.

Vertical phase delay can be externally adjusted (continuously) to allow vertical synchronization in multiphase power installations.

Crystal-Lock (When DC-supply or L/L off): Internal crystal reference is standard on all models.

V-lock: Synchronizes the camera to an external V drive signal for roll-free vertical interval switching. Vertical phase delay can be externally adjusted.

Gen lock: Synchronizes the camera to an external composite video or synchronization drive signal for the synchronization of the camera's horizontal and vertical frequency and phase (no subcarrier lock).

Serial input/output: RS232.

Speed: 1200, 2400 or 4800 baud.

Connector: Sub D, 9-pole.

User input: Switch to Mode3.

Active low or active high, selectable.

Lens:

DC-iris: Control & Drive 40 mA max.

Video-iris: 9-10 Vdc 40 mA max.

Video level: 1.0 Vpp.

Controls

Push-buttons: Mode selection.
Video level.
Backlight compensation.
White balance.
Linelock.
Phase (linelock or H phase).
+ & - for selected function.

Automatic functions: AGC.
Electronic shutter.
Contour.
Black level.
Backlight detection.
White balance.

MECHANICAL

Connectors:

- Video Output: BNC.
- Gen Lock or V-lock: BNC.
- Balanced video output: 4-pin mini DIN.
- RS232 serial input: 9-pin Sub D.
- Video/DC-iris connector: 4-pin EIAJ.

Power:

LTC -/10 & -/20: Screw terminals.

LTC -/50: 2-wire power cord with Euro plug.

LTC -/60: 2-wire power cord with polarized plug.

Power supply input terminals are isolated from video output terminals.

Camera mounting: Top and Bottom, 1/4" 20 UNC.

Lens mounting: C and CS.

Lens weight: 1.5 kg (3.3 lb) bottom mounting, 0.5 kg (1.1 lb) top mounting.

Dimensions: 65 x 70 x 149 mm (HxWxD*) (2.56 x 2.75 x 5.87 inch). *including connectors.

Weight: 0.6 kg (1.32 lb).

ENVIRONMENTAL

Temperature range:

Operating: -10 to 55°C (14 to 131 °F).

Storage: -40 to 70°C (-40 to 158 °F).

Operating Humidity: 5% to 93% non-condensing.

Shock: 880 m/s²

Vibration: 10 m/s²

Free fall: 0.5 meter, 6 attitudes.

Electro Magnetic Compatibility:

Emission: EN 50081-1.

FCC Ch 15 Class B.

Immunity: EN 50130-4.

Safety:

/10 and /50: EN 60950.

/20 and /60: UL 6500 and

cUL CAN/CSA -E65 - 94.

Accessories

LTC 0650/00: Configuration software for Windows 3.x, Windows 95/NT.

Power Transformers and Power Supplies:

Model No.	Rated Input	Rated Output
TC1323	120 VAC, 60 Hz	24 VAC, 10 VA
TC1334	120 VAC, 60 Hz	24 VAC, 30 VA
TC120PS	120 VAC, 50/60 Hz	15 VDC, 9 VA
TC220PS	220-240 VAC, 50/60 Hz	15 VDC, 9 VA
TC220PSX-24	220-240 VAC, 50/60 Hz	24 VAC, 20 VA
LDH 4466/11	230 VAC, 50 Hz	18 VAC, 10 VA



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