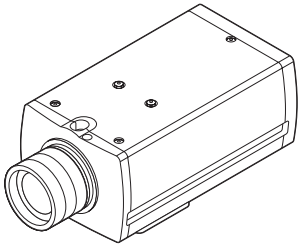
Monochrome Camera

LTC0330/11
LTC0330/21
LTC0350/11
LTC0350/21

LTC0330/51
LTC0330/61
LTC0350/51
LTC0350/61



User manual

To obtain the best results from your new camera, read these instructions carefully before use; retain the manual for future reference.

Features

- The camera can be supplied with either DC or AC power supply.
- Automatic camera frequency synchronization to local mains, when AC powered.
- 3 iris control options:
  - *Electronic iris control* (shutter speed control) for manual and fixed iris lenses.
  - *DC iris control* with level potentiometer for optimal adjustment.
  - *Active iris control* for all types of active auto iris lenses.
- Switchable DC/Video iris control via a standard 4-pin connector.
- Switchable back-light compensation; improves the image quality for backlighting subjects.
- Userfriendly back-focus adjustment; rotating the complete lens is no longer required.

3122 165 21721

Warnings

Warning: To prevent fire or shock hazard, do not expose camera or monitor to rain or moisture.

The lightning flash with arrowhead symbol, within a triangle, is intended to alert the user to the presence of uninsulated dangerous voltage within the product's enclosure; that may be of sufficient magnitude to constitute a risk of electric shock to persons.

To reduce the risk of electric shock, do not remove cover (or back). No user serviceable parts inside. Refer servicing to qualified service personnel.

The exclamation mark within a triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Important safety instructions

Read Instructions: All safety and operating instructions should be read before the product is operated.

Retain Instructions: The safety and operating instructions should be retained for future reference.

Head Warnings: All warnings on the product and in the operating instructions should be adhered to.

Follow Instructions: All operating and user instructions should be followed.

Cleaning: Unplug this product from the outlet before cleaning.

Water & Moisture: Do not use this product near water - e.g. a bath tub, wash bowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool.

Power Sources: This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company.

Power Cord Protection: Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed on or against them. Pay particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.

Lightning: For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet.

Object & Liquid Entry: Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

Servicing: Do not attempt to service this product yourself as removing covers expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

Damage requiring service: Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

a) When the power supply cord or plug is damaged
b) If liquid has been spilled or objects have fallen into the product
c) If the product has been exposed to rain or water
d) If the product does not operate normally by following the instructions
e) If the product has been dropped or damaged in any way
f) When the product exhibits a distinct change in performance this indicates a need for service.

Replacement Parts: When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

Safety Check: Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

Heat: The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

FCC statement

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

1. this device may not cause harmful interference, and
2. this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.
This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the distance between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Any unauthorized modification to this equipment could result in the revocation of the authorization to operate the equipment.

Lenses

The camera is provided with a standard CS-mount. Therefore, a wide range of lenses can be used. For example:

- fixed iris lenses
- manual iris lenses
- DC auto-iris lenses
- active auto-iris lenses

Notes

1. For indoor use, you can use a fixed iris lens. For outdoor applications, a DC or active auto-iris lens is recommended.
2. Try to avoid bright light sources in the camera's field of view when you use a fixed iris lens. They may cause smear in the picture.
   When you use a DC or active auto-iris lens, the smear will be reduced.
3. When you use a DC or active iris lens, it is recommended to set the Auto Electronic Shutter (AES switch; 8) to the 'OFF' position.
4. When an C/CS-mount adapter (optional) is used, C-mount lenses can also be applied.

Installation (Figure 1, 2 & 3)

① Use this screw hole to mount the camera. Maximum allowed length of the screw is 8mm. The screw block can be mounted on the top or bottom side of the camera.
Note: Take care to use the original screws (M2 x 6), when mounting the screwblock on the top side.

② The camera is equipped with a standard CS-mount. For C-mount lenses, an optional C to CS adapter-ring must be used.

③ Back-focus locking screw (must be released before setting the focus with the back-focus adjustment screw).

④ Back-focus adjustment screw (see back-focus adjustment).

⑤ Power input/Terminal block.
Low voltage camera
Power input rating:
- CCIR: 12 - 24 V~(AC) or 12 - 30 V⎓ (DC) + 10%, - 10%
- EIA: 12 - 28 V~(AC) or 12 - 36 V⎓ (DC) + 10%, - 10%

Recommended operating voltage:
- **12 V⎓ (DC) or 24 V~(AC)**

Terminals:

a: positive (+) wire for DC, any supply wire for AC
b: negative (-) wire for DC, other supply wire for AC
c: mechanical ground (differential voltage between any supply wire and mechanical ground should be less then 50 V)

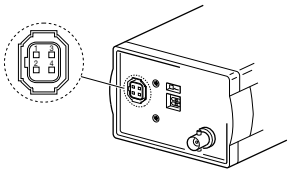
For a EIA camera use class 2 type of wiring and a power supply compliant with UL1492. For a CCIR camera, use a power supply that meets the requirements for SELV circuit, according to EN 60065 or EN 60742 only.

Mains voltage camera

Connect the camera to a power voltage of 100-240V~ 50/60 Hz.
The camera electronics are galvanically insulated from the camera power supply, to make a system with more then one camera unsusceptible to ground loop problems.

Synchronization of more cameras can be obtained by connecting them to an AC power supply. The cameras will be locked to the local AC power frequency. (When a DC power source is used, the cameras will be internally locked.)

⑥ Iris control connector
Connect a DC iris lens (passive iris lens) or a Video iris lens (active iris lens) via the 4 pin plug to this connector.



Pin configuration:

For DC iris:	*For Video iris:*
1: damping coil -	1: not used
2: damping coil +	2: video
3: drive coil +	3: +12V
4: drive coil -	4: ground

Set the AES switch 8 to 'OFF' when a DC or Video iris lens is used.

⑦ Iris level adjustment
To adjust the brightness of the image when a DC iris lens is used.

⑧ AES and BLC switches
- **AES** (Automatic Electronic Shutter control);
  Set this switch to '**ON**' when a manual or fixed iris lens is used.
- **BLC** (BackLight Compensation);
  Set this switch to '**ON**' in a scene where backlighting results in a dark centre of the image.

⑨ V-phase adjustment (only functional when the camera is AC-powered)
When more cameras are connected to different AC power groups and share the same monitor, video recorder, etc., AC phase differences may occur. If so, the video picture will be unsynchronized for a short period (rolling picture) each time you switch the monitor to another camera.
By means of the V-phase adjustment (range: 0 to 300°), you can synchronize the cameras.

⑩ CVBS output
Video signal output (75 Ohm impedance)

⑪ IRIS switch
- Set this switch to **'DC'** when using a DC iris lens
- Set this switch to **'VIDEO'** when using a Video iris lens
- Set the AES switch ⑧ to **'OFF'** when a DC or Video iris lens is used.

Back-focus adjustment

- Make sure that the iris is fully open.
- Adjust the focus ring of the lens (if applicable) to the object distance.
- Unlock the back-focus mechanism by releasing screw ③ approx. fi turn.
- Adjust the back-focus distance by rotating screw ④ until the image is sharp.
- Lock the back-focus mechanism, using screw ③.

Technical specifications

	Low voltage				Mains voltage			
	Medium resolution		High resolution		Medium resolution		High resolution	
Type	LTC 0330/11	LTC 0330/21	LTC 0350/11	LTC 0350/21	LTC 0330/51	LTC 0330/61	LTC 0350/51	LTC 0350/61
TV standard	PAL	NTSC	PAL	NTSC	PAL	NTSC	PAL	NTSC
Imaging device	1/3" IT CCD							
Active pixels (HxV)	512x582	512x492	752x582	768x492	512x582	512x492	752x582	768x492
Lens mount	CS-mount (C-mount using optional adapter ring)							
Hor. resolution (TVL)	380		560		380		560	
Min. illumination	< 0.1 lux							
S/N	> 48dB							
Back light compensation	Selectable on/off							
Iris control	Electronic/Active video iris/DC iris with level adjustment							
Video output (75Ω)	1 V_{pp}							
Power supply	12-28 V~(AC); 12-36 V ⎓ (DC) + 10%,-10% polarity independent, with mechanical ground				100-240 V~(AC) + 10% - 15% lead without ground			
Power consumption	< 2.0W							
Synchronization	Internal or line lock when AC-powered (V-phase adjustable)							
Dimensions (WxHxD)	48 x 49 x 119 mm							
Controls	DC iris level (low-high), V-phase adjustment for line lock							
Operating temperature	-20 to 50°C							
Weight	451 g (excl. lens)				577 g (excl. lens)			
Tripod mount	Top and bottom, 1/4" -20 UNC							
Switches	Electronic iris on/off - DC/video, Back light compensation on/off							

All data subject to change without notice.

Fig. 1

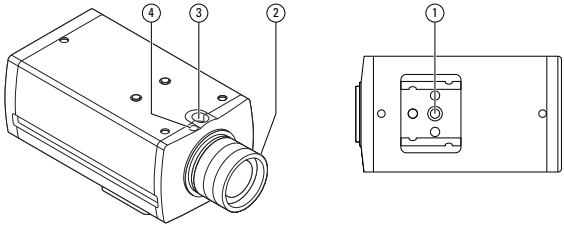
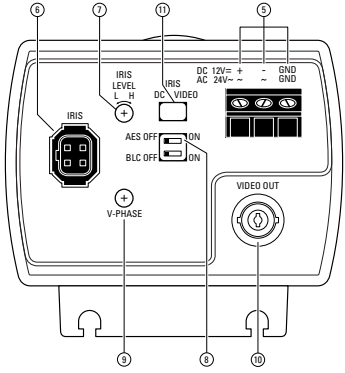
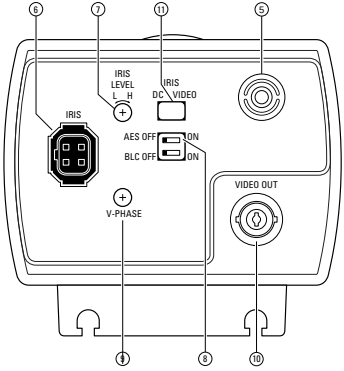


Fig. 2



Low Voltage Camera

Fig. 3



Mains Voltage Camera