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User's Guide

3922 496 30131
version 2

LDK 6200
HDTV High Speed Camera

Declaration of Conformity

We, Thomson Broadcast Solutions B.V., Kapittelweg 10, 4827 HG Breda, The Netherlands, declare under our sole responsibility that this product is in compliance with the following standards:

EN60065 : Safety
EN55103-1 : EMC (Emission)
EN55103-2 : EMC (Immunity)

following the provisions of:

a. the Safety Directives 73/23//EEC and 93/68/EEC
b. the EMC Directives 89/336/EEC and 93/68/EEC

FCC Class A Statement

This product generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause interference to radio communications.
It has been tested and found to comply with the limits for a class A digital device pursuant to part 15 of the FCC rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment.
Operation of this product in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Copyright

LDK 6200
High Definition, High Speed Camera
Operator's Manual

Contents

About this Manual

This operator's manual is part of a complete documentation set for the camera system which also includes the CPU user's guide and a Service Manual.

Purpose of this manual

The purpose of this manual is to present a detailed description of how to operate the LDK 6200 HDHS camera head equipped with an LDK 5462 TriaxHDHS adapter connected to an LDK 4506 CPU. It provides the information necessary to use the camera in different configurations and with various attachments. With this manual it is possible to discover all the operating features of the camera and so use it to its full potential. The manual should be used together with the camera to explore and learn about the many sophisticated control functions available.

Intended audience

This operator's manual can be used by inexperienced camera operators who are new to Thomson cameras as well as those who have previous experience of operating cameras. The guide is so designed that it can be used as an introduction to those who are new to the camera, as a simple procedural guide to those who wish to set-up and start shooting immediately, and as a reference work to be consulted as required during the long life of the camera.

Structure of this manual

The manual is divided into six sections and an appendix:

Section 1: Introduction

This section outlines the technology used in the LDK 6200 HDHS camera and how this translates into a practical, useable camera. It lists the main features of the camera and also the precautions that must be taken into account when using it.

Section 2: Assembling the Units

Section 2 provides information on the physical assembly of the camera and on how accessories can be used to expand the camera's range. The mounting of accessories and packing for transport is also explained.

Section 3: Configurations

The LDK 6200 HDHS is a HD multi-standard, multi-format camera and this section describes the various ways that it can be used. Information on the cables, control panels and the control bus is also provided as is information on the main video and audio signal paths through the system.

Section 4: Location of Controls and Functions

This section shows the physical location of the controls and connectors on the camera. These are grouped according to their function so as to provide a quick reference guide to the operation of a particular aspect of the camera.

Section 5: Shooting

This section contains information on the practical use of the camera using the viewfinder display and the switches to control the camera.

Section 6: Operating the Menu System

Because the LDK 6200 HDHS offers such a wide range of functions, this section describes the structure of the control system.

Appendix

The appendix contains a list of the menu functions available on the camera.

Section 1

Introduction

This section outlines the technology used in the LDK 6200 HDHS camera and how this translates into a practical, useable camera. It lists the main features of the camera and also the precautions that must be taken into account when using it.

Contents

The LDK 6200 HDHS is a high definition multi-standard, multi-format digital camera head using 2/3-inch HD-DPM+™ sensors. The camera head is combined with the TriaxHDHS adapter and HDHS CPU. This flexible camera is equally at home in the studio or out on location.

HD Sensors
The camera head uses HD-DPM+™ CCD sensors which offer superior performance and ultimate flexibility. Native wide screen pictures in the high-definition formats 1080i and 720p are produced at the touch of a button. This unique native multi-format capability is realized with innovative 9.2 million pixel 2/3" CCD sensors. These allow vertically grouping of different numbers of pixels on the sensors themselves. There is no need for HDTV format conversion during digital signal processing which would lead to quality degradation.

These sensors have a high dynamic range and high linear sensitivity across all camera lens apertures. They are based on Frame Transfer technology, which ensures that there is neither lag nor smear.

Digital Processing
The advanced digital processing of the camera is based on 12-bit A/D conversion and 22-bit internal processing. Two DSPs combine all major camera functions in the digital domain, including knee, gamma, contour, matrix and colour correction.

The intelligent continuous automatics facility provides automatic control of black levels and black shading. Each sensor provides black reference signals that are used to monitor temperature changes. This means that continuous automatic correction is applied without operator intervention.

The digital contour processing uses full amplitude video RGB signals via an extended dynamic range contour circuit.

Colorimetry is selected by means of a variable 6-point digital matrix or via preset matrices. Digital gamma circuits provide a wide range of standardized gamma curves and enable soft contrast in black scenes to be enhanced, together with hard contrast and saturated colour in bright scenes. The matrix and gamma sequence is software programmable for precise colour matching.

Film-like characteristics
The pivoting knee circuit adapts both the knee point and the compression ratio according to the highlight content of the picture to emulate the softly limiting S-shaped transfer characteristics of film. Digital True Colour Knee circuitry maintains the correct hue for compressed highlights, reproducing colours faithfully, even overexposed skin tones.

Digital contrast circuitry provides a black stretch function for more detail in black areas and a black press function for improving the contrast impression by simulating the S-curve of film.

Focus assist
With HDTV, focusing is even more critical than before. The LDK 6200 HDHS has special patented focusing aids. A unique viewfinder zoom function enlarges the viewfinder image instantly after a simple press-button action, thus providing improved means for focusing. A patented crawler circuitry adds motion in the viewfinder to objects in sharp focus.

SuperXPander
The SuperXPander large lens adapter together with the optional 7-inch HD high resolution viewfinder turns the portable triax camera into a full-featured studio camera for studio and EFP situations.

Advanced TriaxHDHS Features
TriaxHDHS, which is a further development of the Emmy Award winning triax transmission system, makes the camera compatible with industry standard triax cables. This allows the reuse of existing, reliable and valuable cable inventories.

TriaxHDHS allows video transmission and remote control of cameras up to a distance of 2640 ft (800 meters) and beyond, using industry standard 14mm triax cables. It is based on 4:2:2 transmission (Y/Cr/Cb components).

The double side band modulation technique used in combination with Y/Cr/Cb transmission ensures linearity, resolution and an optimal signal-to-noise ratio over the maximum cable length. Bandwidth efficient channel combining and equalization techniques minimize cross-talk and interference. Teleprompter and viewfinder signals maintain high performance with relatively long cable lengths.

The communication facilities provide for two-wire or four-wire high quality intercom signals. Full camera control is provided via a C2IP Ethernet-based control network.

The TriaxHDHS adapter is equipped with a rotary triax connector which provides freedom of movement during portable use of the camera and protects the connector from being damaged in near-floor conditions.

TriaxHDHS CPU
The TriaxHDHS CPU, besides high definition outputs, optionally offers simultaneous high-end SDTV outputs. This facilitates a gradual and managed transition from SDTV to HDTV.

Features

- Ultimate flexibility with HD-DPM+ ™ CCD sensors, offering native switchability between the interlaced 1080i and true progressive 720p high definition broadcast formats.
- The CCDs have 9.2 million pixels, with 1920 (H) x 4320 (V) effective picture elements.
- The following acquisition formats are available:
  1080i at 59.94 Hz; 1080i at 50 Hz
  1080i at 119.88 Hz; 1080i at 100 Hz
  720p at 59.94 Hz; 720p at 50Hz
  720p at 119.88 Hz; 720p at 100Hz
- Frame Transfer technology ensures no smear.
- 12-bit A-to-D and more than 22 bit digital processing with unique software programmable video path.
- Superior all digital highlight handling with a wide dynamic range.
- Unique circuitry for pivoting knee and True Colour Knee.
- Wide range of presets and variable 6-point digital matrix assure accurate colour matching.
- Fluorescent light matrix.
- Digital gamma with unique standard preset values and highest accuracy.
- Digital contour with an extensive range of parameters.
- Advanced contour correction includes two automatic skin settings.
- Intelligent Continuous Automatics black levels, black shading and video levels - no set-up time required.
- Digital contrast with standard black stretch and black press.
- International standard 2/3-inch lens interface.
- Optical servo-controlled four-position neutral density filter wheel.
- Optical servo-controlled effect filter wheel with soft focus, four-point star and six-point star filters.
- Electronic colour filter can be used for creating a special look (warm / cold) of a scene, or for a smooth colour temperature control around the white balance setting.
- Integral zoom control in handgrip makes awkward ground-level shots easy.
- Smart card for personal settings and security.
- Owner card for setting user levels, and for copying and storing control settings.
- Protected, easy-to-operate controls and switches with read-out of all settings.
- Viewfinder status read-out of primary camera functions.
- Clean scan feature allows capture of computer and other monitor pictures.
- Digital RS 232 interface to PC.
- Script board facilities.

TriaxHD adapter

- TriaxHDHS allows video transmission and remote control of cameras up to a distance of 2640 ft (800 meters) and beyond, using industry standard 14mm triax cables
- Full camera control via the C2IP Ethernet-based network.
- Two-wire or four-wire intercom to international standards.
- High-end simultaneous SDTV outputs (both digital as well as analog) on the HD Base Station for a gradual and managed transition from SDTV to HDTV.

Optional

- 2-inch Viewfinder, additionally optional wide angle ocular and microphone kit for portable use of the camera system in studio and EFP situations.
- SuperXPander and optional 7-inch Viewfinder for use as a full-featured studio camera in studio and EFP situations.
- Script board.
- Tripod adapter plate.
- Smart-Touch™ for instant access to predefined shooting characteristics.
- A robust flight-case for a secure transport of your camera.

Specifications LDK 6200 and LDK 5462

General data

Power requirements	triax powered or 12V dc
Power consumption	45 W (Head + Triax Adaptor + VF)
Operating temperatures	-20 to +40°C (-4 to +113°F)
Storage temperatures	-20 to +60°C (-4 to +140°F)
Weight (approx.)	4.4 kg (9.7 lbs) incl. 2-inch VF and Multi-Purpose adapter
Dimensions	197 x 117 x 349 (H x W x L in mm.)
TriaxHD cable length	Y/C transmission over 800 m. (2,640 ft.) with 14 mm. cable
Viewfinder CRT	2" or 7" monochrome
2" Viewfinder resolution	>600 TV lines (centre)
7" Viewfinder resolution	>800 TV lines (centre)

LDK 6200 Camera Head

Pick-up device	3 x 2/3" Philips HD-DPM+™ CCDs, 1080i/ 720p switchable OR 3 x 2/3" Philips HD-FT CCDs,1080i or 720p
Picture elements	9.2 million pixels 1920 (H) x 4320 (V) effective
HDTV Aspect Ratio	16:9
Temporal frequency	59.94Hz, 50Hz, 119.88Hz, 100Hz.
Smear	No vertical smear
Optical system	F1.4 prism system
Optical filters	
1st Wheel	Clear, 1/4 ND, 1/16 ND. 1/64 ND
2nd Wheel	Clear, 4-point star, 6-point star, soft-focus
Electronic filters	3200K, 4700K, 5600K, 7200K, FL, 2AWB presets, Continues Auto White, Colour Filter
Digital quantization	12 bits A to D
Digital signal processing	>22-bits
Sensitivity	2000 lux (186 ft cd) at F7.0 (typical, 1080i mode)
Gain	-6dB to +12dB in 3dB steps (user definable presets)
S/N ratio	52 dB in Y (typical)
Modulation depth	40% at 27 MHz
Exposure control	Down to 1/1000 sec.
Clean scanning	101.7 to 250 Hz (at 50 Hz temp. freq.) 121.6 to 300 Hz (at 59.94 Hz temp. freq.)

Connectors

Front microphone In.	1x XLR 3, balanced, +48V, CH1 on HD Base Station
Viewfinder out	20-pin
Lens out	12-pin
Control bus	9-pin, RS232 compatible
Docking connector	160-pin

Supplied Accessories

1x User's Guide
1x Owner card
2x User card
1x Rain cover
1x Shoulder strap
1x IR Remote control

These typical specifications are valid for PAL and NTSC systems are subject to change without notice

Triax adapter LDK 5462

Connectors

TriaxHD	Trilock, Fischer, ARD or Lemo
Video CVBS Out	BNC 1x, 1.0 Vpp; 75 Ohm;
Monitor Out	BNC 1x, Y-signal of viewfinder or external video, 1 Vpp; 75 Ohm
Teleprompter Out	BNC 1x, 1 Vpp; 75 Ohm
Rear microphone In (2x)	2x XLR-3 female, balanced, +48V selectable
DC 12Volts In	XLR-4 male
DC Out 1	12 Volts, 1.5 A, 4 pins Fischer (DC and Tally)
Scriptlight	12 Volts, 0.25A, 3 pin Fischer
Tracker	11 pins (Comm. / Signalling)
Auxilary/ Data	11 pins (Private date)
Intercom	1x XLR-5 female or Tuchel, with channels for ENG/PROD/PROG

Specifications LDK 4506

LDK 4506/00	HDHS CPU
General	
Dimensions (WxHxD)	438 (19" rack) x 88(2U) x 510mm (17.2 x 3.5 x 20.1 inch)
Operating temperature	-20 °C to +50 °C (-4 °F to 122 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to 158 °F)
Operating humidity	Max. 90% (non condensing)
Shock resistance	Max.10G (transport), Max. 2G (operating)
Altitude	Max. 50,000 ft
Weight	17.0 kg. (37.5 lbs.) fully equipped with options
Transmission	
Typical. cable length	800 m. (2,640 ft) (14 mm./0.55" triax cable)
Connectors	
Teleprompter in	BNC 1x (and loop-through output), 1.0Vp-p, 75 Ohm
Reference in	BNC 1x (and loop-through output), 1.0Vp-p,75? D tri-level sync or SD Black Burst
HD-SDI out	BNC 3x, 0.8Vp-p, 75 Ohm, SMPTE 292M, 1080i or 720p at 59.94 or 50Hz
Text out	BNC 1x, 1.0Vp-p, 75 W(VBS)
Composite video out	BNC 1x, 1.0Vp-p, 75 W(CVBS, w/ or w/o text, for viewing purposes)
Signalling in/out	D-sub 15-pin, male Preview, Green tally (call), dry contact, Yellow tally (ISO), dry contact Red tally (on-air), dry contact Remote audio level control (22-64dB), DC
Auxiliary in/out	D-sub 9-pin, female An0, 0-5Vdc in, output on camera head An1, 0-5Vdc in, 16:9 < 0.8 Vdc in, 4:3 > 2.4Vdc i n Private data in/ out, 2.4kB TTL (RS-232)
RS-232	D-sub 9-pin, male (RXD, TXD, DTR, DSR, RTS, CTS)
Control data	4- pin, male (2-wire camera control bus)
Ethernet	RJ-45 connector C2IP camera control
OPTIONAL MODULES	
Power	
LDK 4510/10	AC/DC power module for studio and portable camera heads
Power requirement	AC 115V/230V +/- 15%, 47 to 63Hz
Power connector	IEC type, 3-pin male
Power consumption	470VA or 270 Watts max. with studio camera head; 360VA or 210Watts max. with port. camera head
Utility power	150VA or 150Watts max. on studio camera head; 80VA or 80Watts max. on port. camera head
HDTV Triax	
LDK 4522/10	TriaxHD Module Fischer triax connector
LDK 4522/20	TriaxHD Module Tri-Lock triax connector
LDK 4522/30	TriaxHD Module ARD triax connector
LDK 4522/40	TriaxHD Module Lemo 4 triax connector
LDK 4522/50	TriaxHD Module Lemo BBC triax connector
LDK 4522/60	TriaxHD Module Lemo 3 triax connector
External Video	
LDK 4530/10	External video board analog
Analog out	BNC 2x, 1.0Vp-p, 75 Ohm (loop-through) (C)VBS
LDK 4530/40	External video board digitial/analog (switchable)
SDI out	BNC 2x, 0.8Vp-p, 75 Ohm, SMPTE 259M, ITU-R, BT.601 OR
Analog out	BNC 2x, 1.0Vp-p, 75 Ohm (loop-through) (C)VBS
Video output	
LDK 4531/20	SDTV output for HD module
SDI out	BNC 3x, 0.8Vp-p, 75 Ohm, SMPTE 259M, ITU-R, BT.601
Analog out	BNC 3x, R, G, B or Y, Pr, Pb, or 3x CVBS (menu selection): RGB out: 3x 0.7Vp-p (+/- 1%), 75 Ohm Y, Pr, Pb: 3x 0.7Vp-p (+/- 1%), 75 Ohm CVBS out: 3x 1.0Vp- p (+/- 1%), 75 Ohm Frequency response 0.1 to 5.75MHz (+0.5dB/ -1dB) K factor less than 2%
Audio & Intercom	
LDK 4540/10	2 ch. audio & 2/4-wire intercom
Audio out	XLR- 3 2x, 0/+6dBu (+/-1.5dB, max. 18dBu, 600 W, Gain Max. 70dB)
Frequency response	40Hz to 15kHz, (+1/-3dB, 1kHz, -10dBu output level)
Distortion	Less than 0.5% (100Hz/ 1kHz, +6dBu out, 600 W)
S/N ratio	58dB (unweighted RMS)
Intercom in/out	D- sub 15- pin, female (program in, production in/out, engineering in/out in: 0 or 6dBu (max. 6 or 12dBu), 9kW, out: 0 or 6dBu (+/ -2dB, max 12dBu), 600W
Frequency response	150Hz to 6kHz (1kHz, -10dBu output level)
Distortion	Less than 2% (1kHz, +12dBu level)
Engineering intercom	
LDK 4541/10	XLR-5 (female) engineering intercom module
LDK 4541/20	Tuchel 6- pin engineering intercom module
LDK 4541/30	Tuchel 5- pin engineering intercom module
LDK 4541/40	XLR-7 (female) engineering intercom module (6dBu, +/- 2dB, max 12dBu, 25-400 Ohm)
Frequency response	150Hz to 6kHz, +/- 3dB (0dB, 1kHz, -10dBu output level)
S/N ratio	46dB (unweighted RMS)
Phantom power	+12Vdc (+/ -1V), menu selectable
Monitoring	
LDK 4560/20	Monitoring HD module (with WFM, PXM and analog HDTV out)
PXM video out	BNC 1x, 1.0Vp-p, 75 Ohm, SMPTE 274M or SMPTE 296M (depending on acquisition format); R, G, B or Y (menu selection) with HD tri-level SYNC
WFM video out	BNC 1x, 1.0Vp-p, 75 Ohm, SMPTE 274M or SMPTE 296M (depending on acquisition format); R, G, B or Y (menu selection) with HD tri-level sync.
Analog HDTV out	VGA-type D-connector, 15-pin, female, with R, G, B, H-sync and V-sync
Frequency response	0.1 to 30MHz (+0.5dB/- 1dB)

Smart Card

Three smart cards are delivered with each camera. These comprise of two user cards and one owner card.

The owner's smart card has three functions:
- As an access control device to the security settings of the camera.
- As a storage device for four scene files.
- As a storage device for two operator files.

The owner card is unique to every camera. Owner card and camera must have the same serial number.

The user smart card has two functions:
- As a storage device for four scene files.
- As a storage device for two operator files.

Access control

The owner card is used to set the user level. There are four user levels present in the camera. These restrict access, in varying degrees, to the operational controls. The Appendix indicates which functions are available at each user level. (The owner card also gives access to a service level.)

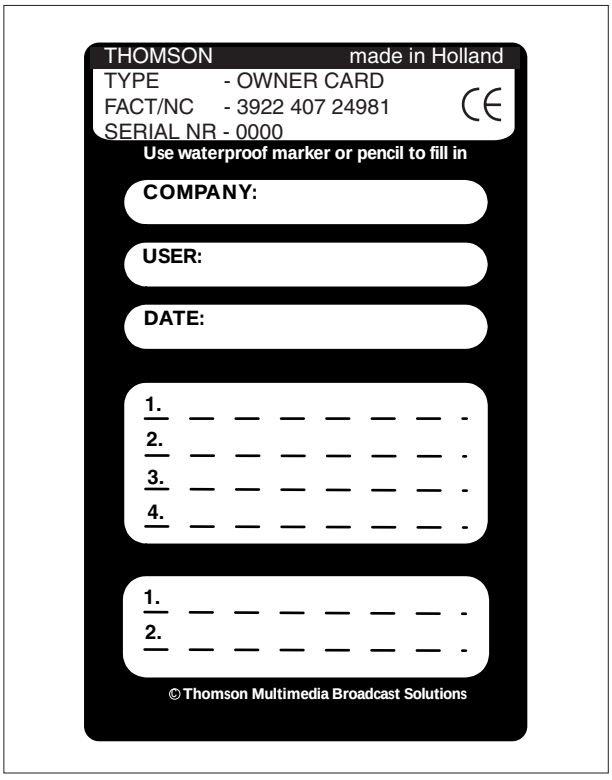
Scene files

Both the user card and the owner card allow four different scene files to be stored on the card. The recall and storage of a scene file is carried out via the Files menu of the menu system. A scene file contains information relating to the video settings.

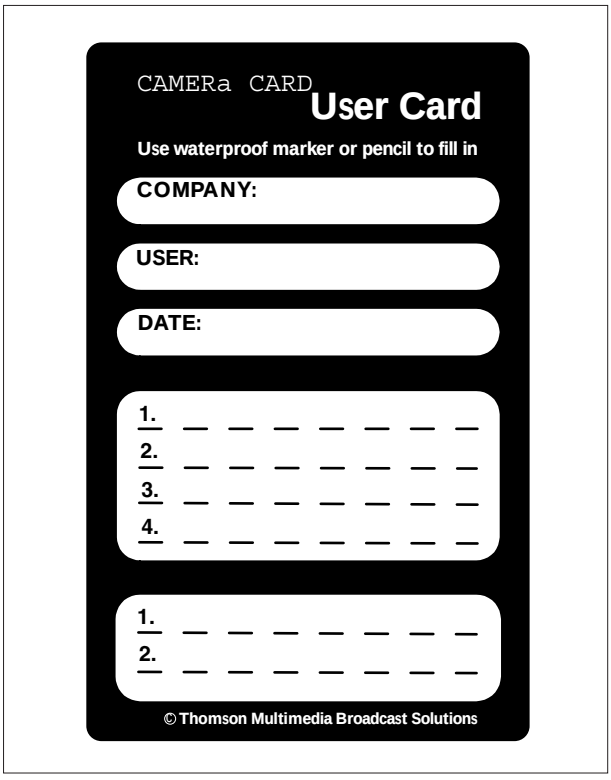
Operator files

Both the user card and the owner card allow two different operator files to be stored on the card. The recall and storage of a operator file is carried out via the Files menu of the menu system. An operator file contains information relating to the set-up of general camera preferences.

Note: Only use an original Thomson Multimedia Broadcast Solutions camera card. Store the owner card in a safe place.



Owner card



User card

Important Precautions

To ensure continual high performance from the camera take the following precautions into consideration:

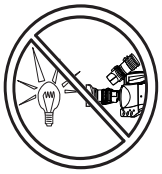
Avoid very damp places. If the environment is wet or damp a rain cover must be used to protect the unit.

Do not subject the unit to severe shocks or vibration.

Do not expose the camera to extremes of temperature.

Do not leave the unit in direct sunlight or close to heating appliances for extended periods.

Do not allow sunlight to shine into the viewfinder.



Avoid extreme highlights as these can cause various kinds of optical reflections.

WARNINGS

If the unit is in a wet or damp environment, a rain cover must be used to protect it for personal safety reasons (EN60065). The rain cover supplied with the unit protects it according to safety specification EN60529 up to level IPX2 (spraying water).

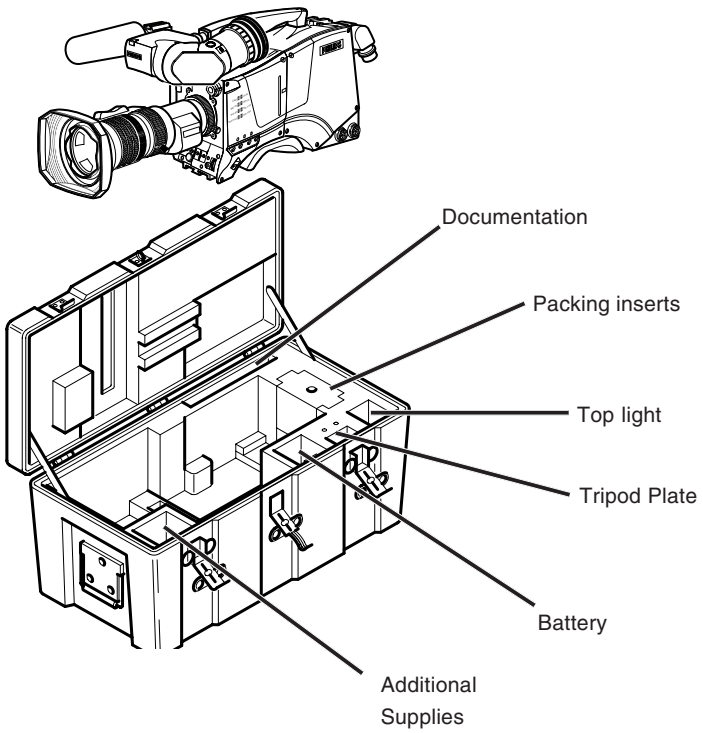
Section 2

Assembling the Units

Section 2 provides information on the physical assembly of the camera and on how accessories can be used to expand the possibilities of the camera. The mounting of accessories and packing for transport are also explained.

Contents

Transport Case

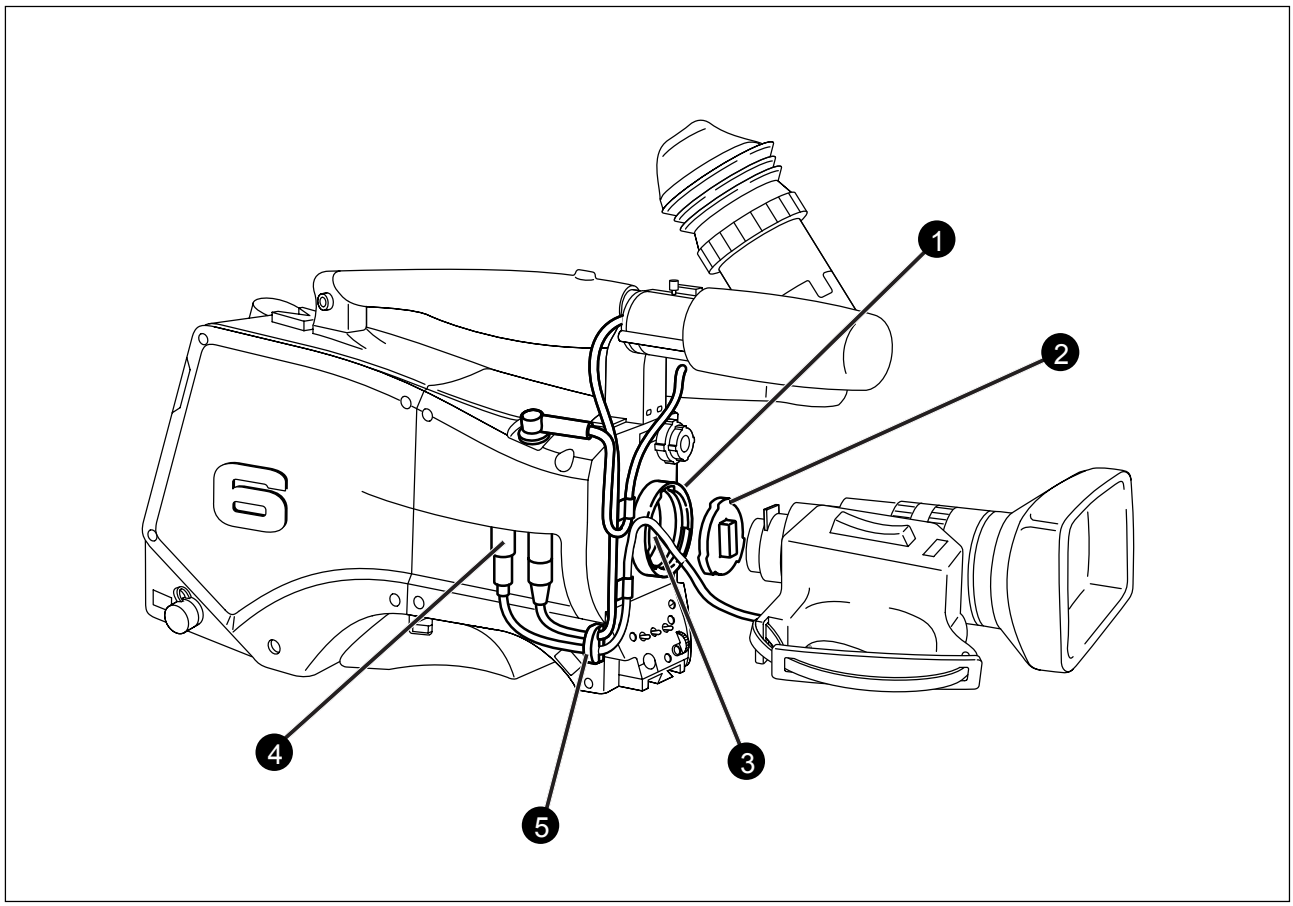


It is important to protect your camera against damage when transporting it. To do this, a transport case (LDK 5020/00) is optionally available for the camera, lens, viewfinder and some accessories.

The camera is packed in the transport case as shown in the figure above. This ensures that the camera is not damaged during transport.

Turn the 2-inch viewfinder downwards so that it does not protrude above the top of the camera.

Several foam packing inserts are provided to enable different configurations of the camera to be packed securely. These inserts are used to support the rear of the camera. Make sure you use the correct foam insert for your particular configuration.



To attach a lens to the camera head proceed as follows:

a. Ensure that the lens locking ring **(1)** is in the unlocked position - turned counterclockwise.
b. Remove the dust protection cap **(2)**.
c. Slot the lens into the lens mount **(3)**.
d. Turn the lens locking ring **(1)** clockwise to lock the lens in place.
e. Connect the lens cable to the lens connector **(4)** at the right side of the camera.
f. Place the lens cable into the bottom clip at the front of the camera and clip **(5)** located at the side. (Pull and twist clip **(5)** to open it.)

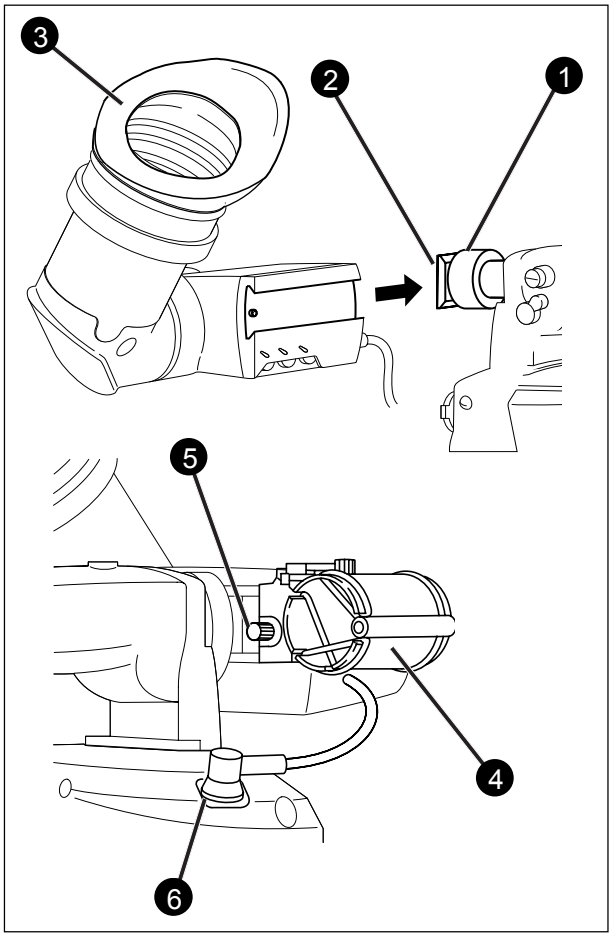
CAUTION

Do not attach a lens weighing more than 5 kg to the camera without a support.

When a new lens is fitted to the camera it may be necessary to carry out some adjustments to optimize its use, for example, back focus or shading. For more information about these adjustments refer to Section 5 and to the lens manufacturer's documentation.

Note: Always mount the dust protection cap when the lens is not connected to the camera.

Mounting the viewfinder and microphone holder



To mount the 2-inch viewfinder proceed as follows:

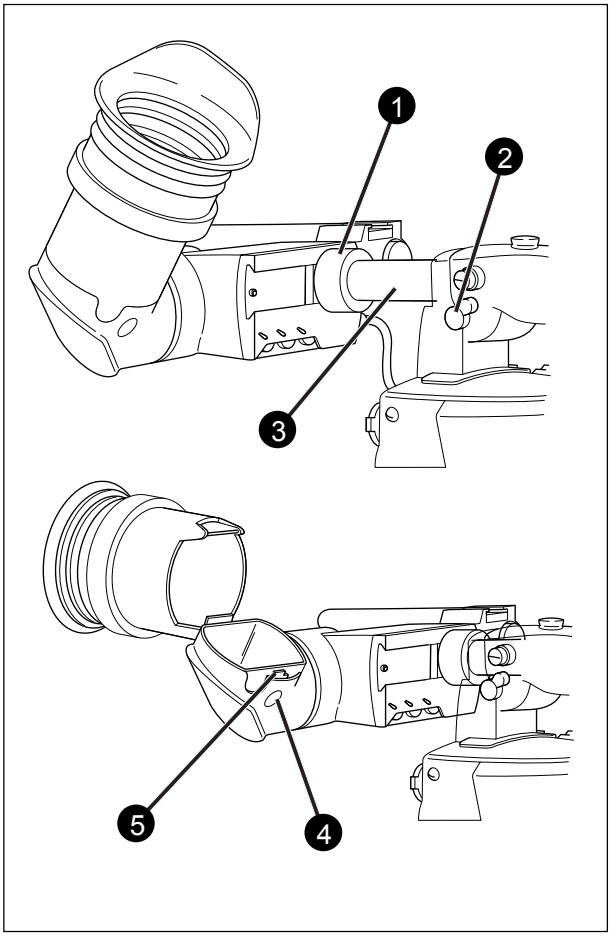
a. Loosen locking ring **(1)** of viewfinder support bracket **(2)** at the front of the camera handle. (As seen from the rear of the camera, turning the locking ring counterclockwise moves it towards the handle.)
b. Slide the viewfinder onto the viewfinder support bracket.
c. Tighten the locking ring **(1)** by turning it clockwise (as seen from rear) so that the viewfinder is mounted securely to the support.
d. Connect the viewfinder cable to the viewfinder connector socket **(6)** at the top right of the camera.
e. Slide the microphone holder **(4)** onto the viewfinder and secure with the knurled screw **(5)**.

CAUTION

Always fit the microphone holder **(4)** as it functions as a safety stop for the viewfinder.

f. To improve the comfort of the skin contact when using the viewfinder, fit the optional eye piece cover (3922 405 00461) to the rubber eyepiece **(3)**.

Positioning the viewfinder



The horizontal position of the viewfinder can be adjusted as follows to suit your requirements:

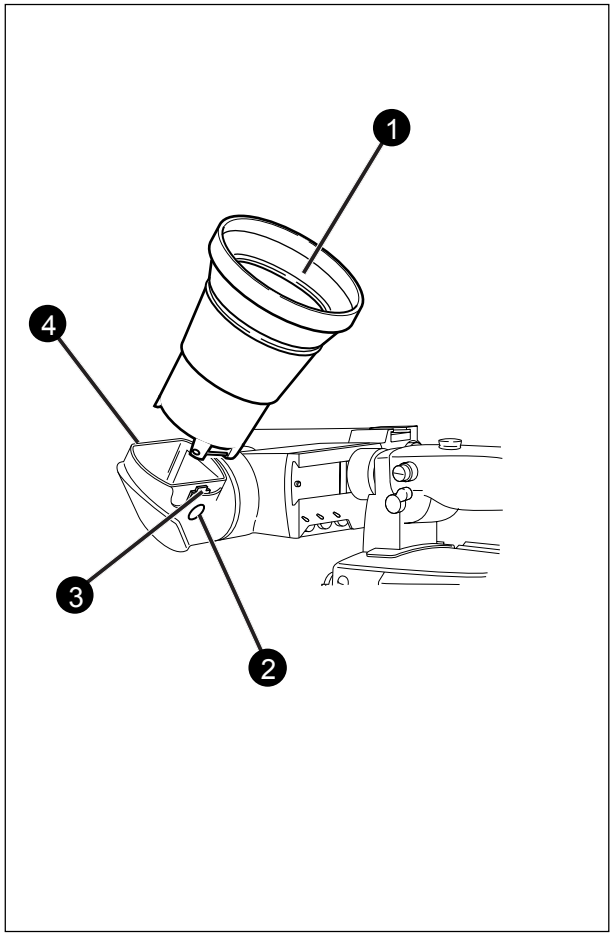
a. Loosen the locking ring **(1)**. (As seen from the rear of the camera, turning the locking ring counterclockwise moves it towards the handle.)
b. Slide the viewfinder horizontally along the rail to the desired position.
c. Tighten the locking ring **(1)** by turning clockwise.

The dioptre hood and eyepiece of the viewfinder can be rotated vertically.

The viewfinder can be positioned backwards and forwards along the camera axis. Loosen the support bracket round bar retaining lever **(2)** and slide the round bar **(3)** forwards or backwards. When the desired position is reached tighten the support bracket round bar retaining lever **(2)** again.

To use the viewfinder at a distance press the button **(4)** below or above the eyepiece tube and swing it free of the associated clip **(5)**. The display can now be seen from further away.

Wide angle eyepiece

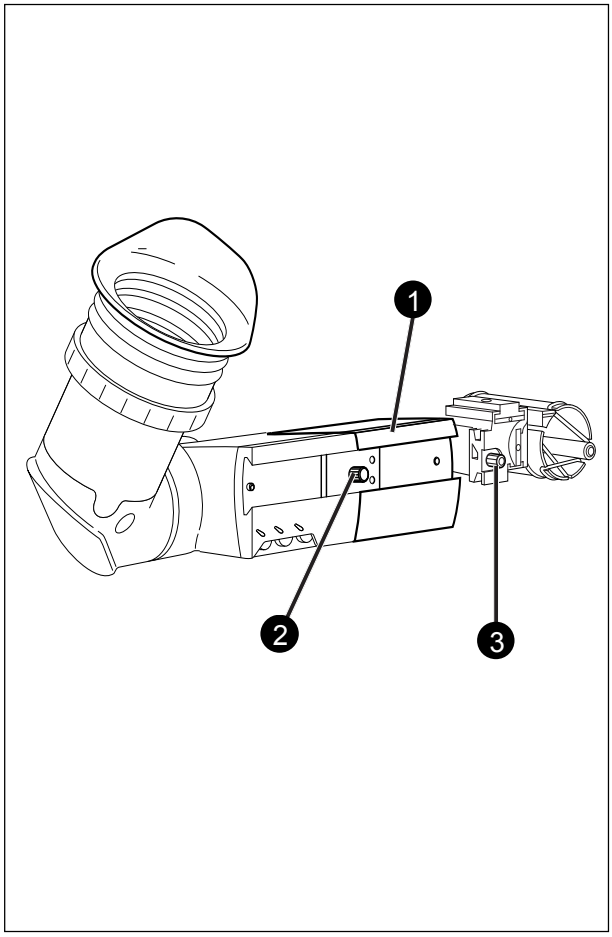


If you regularly use the viewfinder at a distance, for example, when you use the camera in the hand-held position, it is recommended that you fit the optionally available wide angle eyepiece (LDK 5390/00).

To fit the wide angle eyepiece proceed as follows:

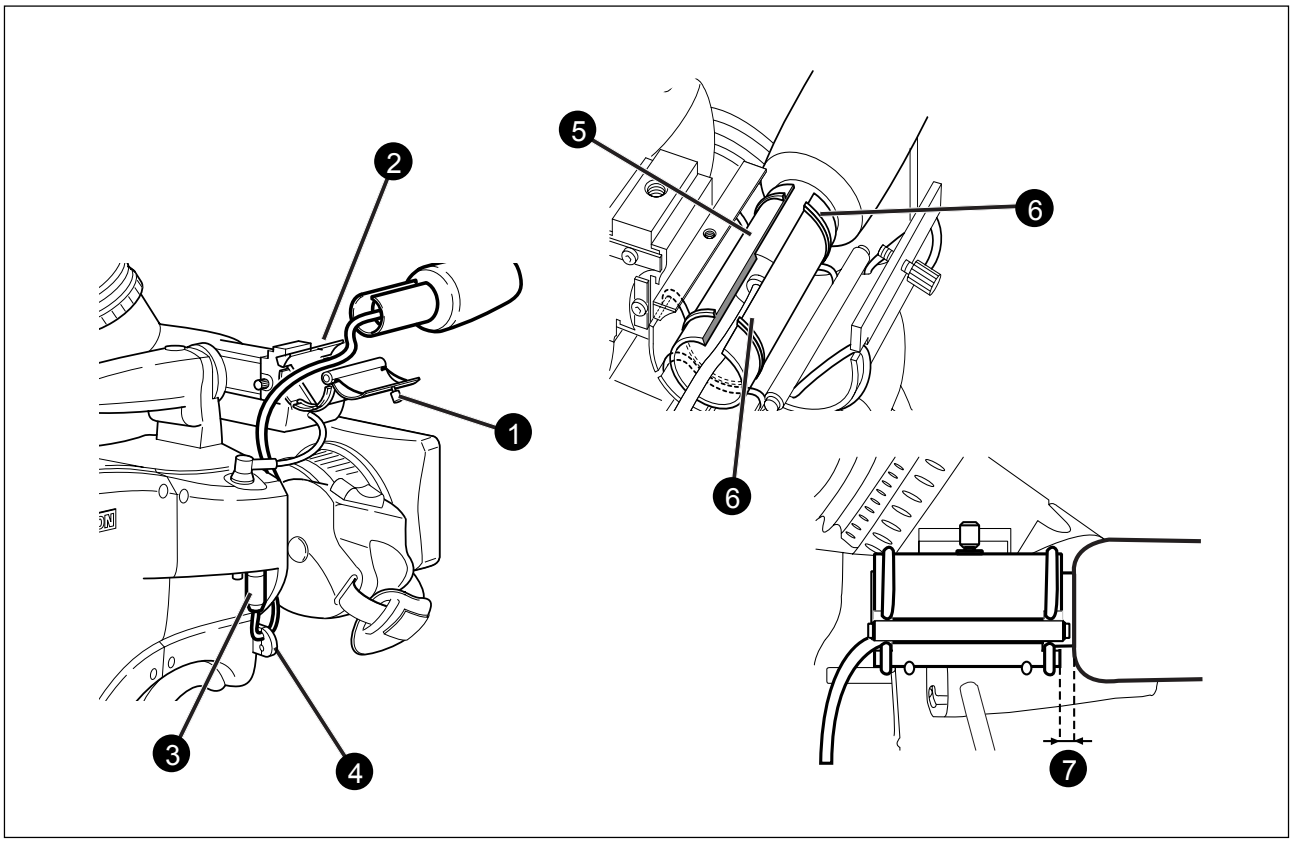
a. Hold the eyepiece **(1)** securely.
b. Press the button **(2)** below the eyepiece tube and swing it free of the button clip **(3)**.
c. Press the button **(4)** above the eyepiece tube and remove the eyepiece.
d. Fit the wide angle eyepiece **(1)** to the two clips **(3)** ensuring that they both click into place.

Left eye adapter



A left eye adapter is optionally available (LDK 5390/10) to allow the viewfinder to be used with the left eye.

Before mounting the viewfinder onto the camera, attach the left eye adapter **(1)** to the viewfinder and secure it using the screw **(2)**. Do not forget to mount the microphone support bracket **(3)** at the end of the left eye adapter.



To attach the optional microphone (AJ MC700) to the camera proceed as follows:

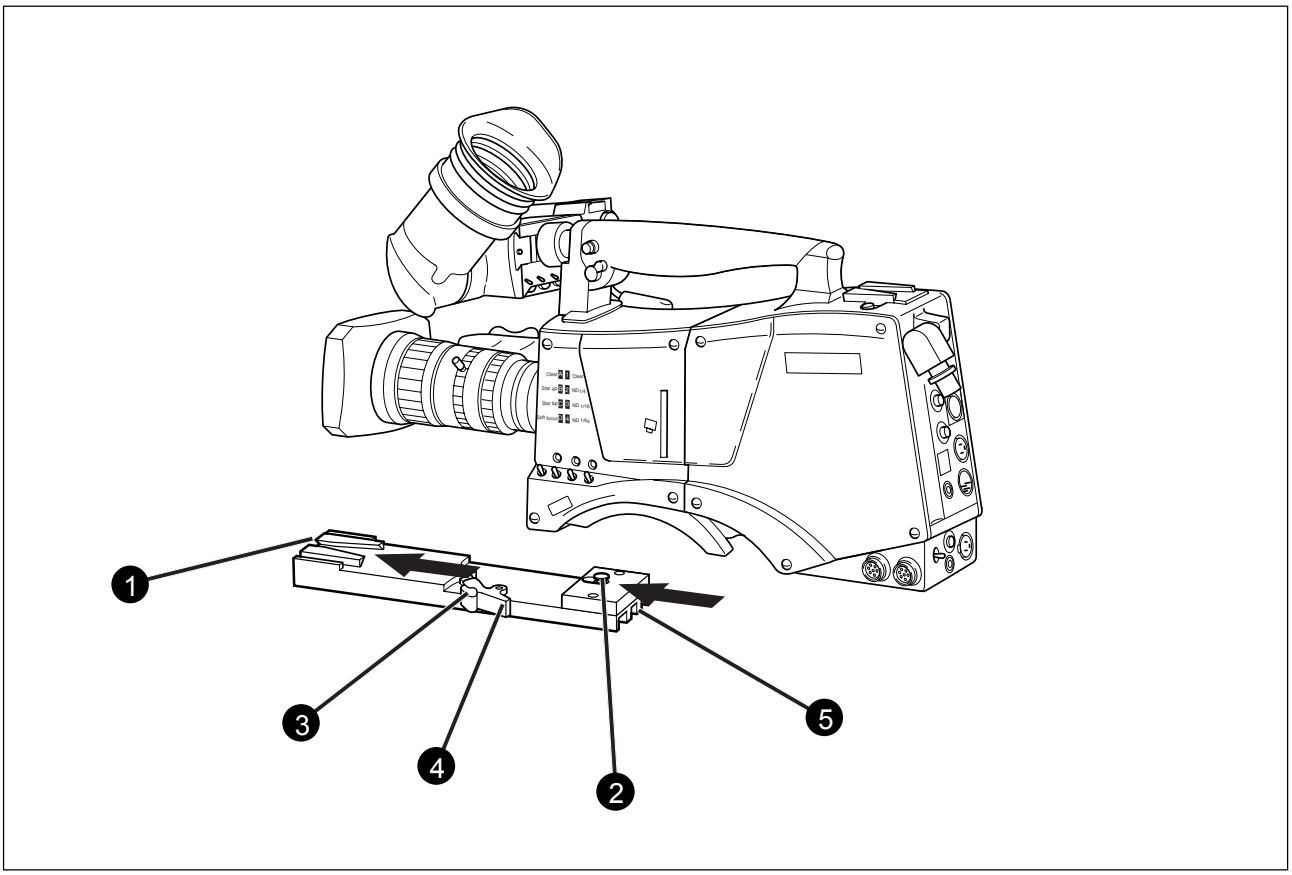
a. Open the microphone holder by unscrewing the knurled screw **(1)** of the microphone support bracket **(2)** on the viewfinder and open.
b. Slide the microphone into the split tube until the microphone shoulder reaches the mark **(5)** in the tube.
c. Place the tube with the microphone into the holder with the split facing upwards.
d. Ensure that the rubber supports at the back and front of the holder fit into the rims **(6)**around the tube.
e. Close the holder and tighten the knurled screw at the top.
f. Connect the microphone cable to audio connector **(3)** (mic) on the right side of the camera.
g. Place the microphone cable into the top clip at the front of the camera and into clip **(4)** at the side of the camera.(Pull and twist clip **(4)** to open it.)

Other microphones with a diameter of 21mm can also be used, however, ensure that the phantom power and the sensitivity of the input that match that type of microphone are correctly selected in the camera systems menu. Refer to Section 6 for more information on selecting the audio inputs and controlling the audio level.

Note:

- When longer microphones are used, it is not necessary to place them in the split tube.
- For optimum operation, the microphone should be mounted as straight as possible.
- Don't allow the wind hood to touch the holder **(7)** as this reduces the damping effect.
- By placing the split facing upwards, the microphone cable does not touch the holder thus avoiding mechanical pick-up.
- The microphone can also be connected to the rear of the Triax adapter where a switch selects the input. Refer to Section 4 for more information on connecting the microphone to the rear connector.

Tripod Adapter Plate



To mount the camera on a tripod, the tripod plate (LDK 5031/00 is delivered as standard) must first be attached to the tripod.

Follow the tripod manufacturer's instructions to mount the wedge plate supplied with the tripod and the tripod adapter plate firmly onto the tripod.

To attach the camera to the tripod adapter plate proceed as follows:

a. Slide the camera horizontally along the tripod adapter plate from back to front ensuring that the front of the camera engages the V-slot **(1)** at the front of the tripod adapter plate, and that the slot on the bottom of the camera engages the stud **(2)** at the rear of the tripod adapter plate.
b. Firmly push the camera forward until it clicks into place.

CAUTION

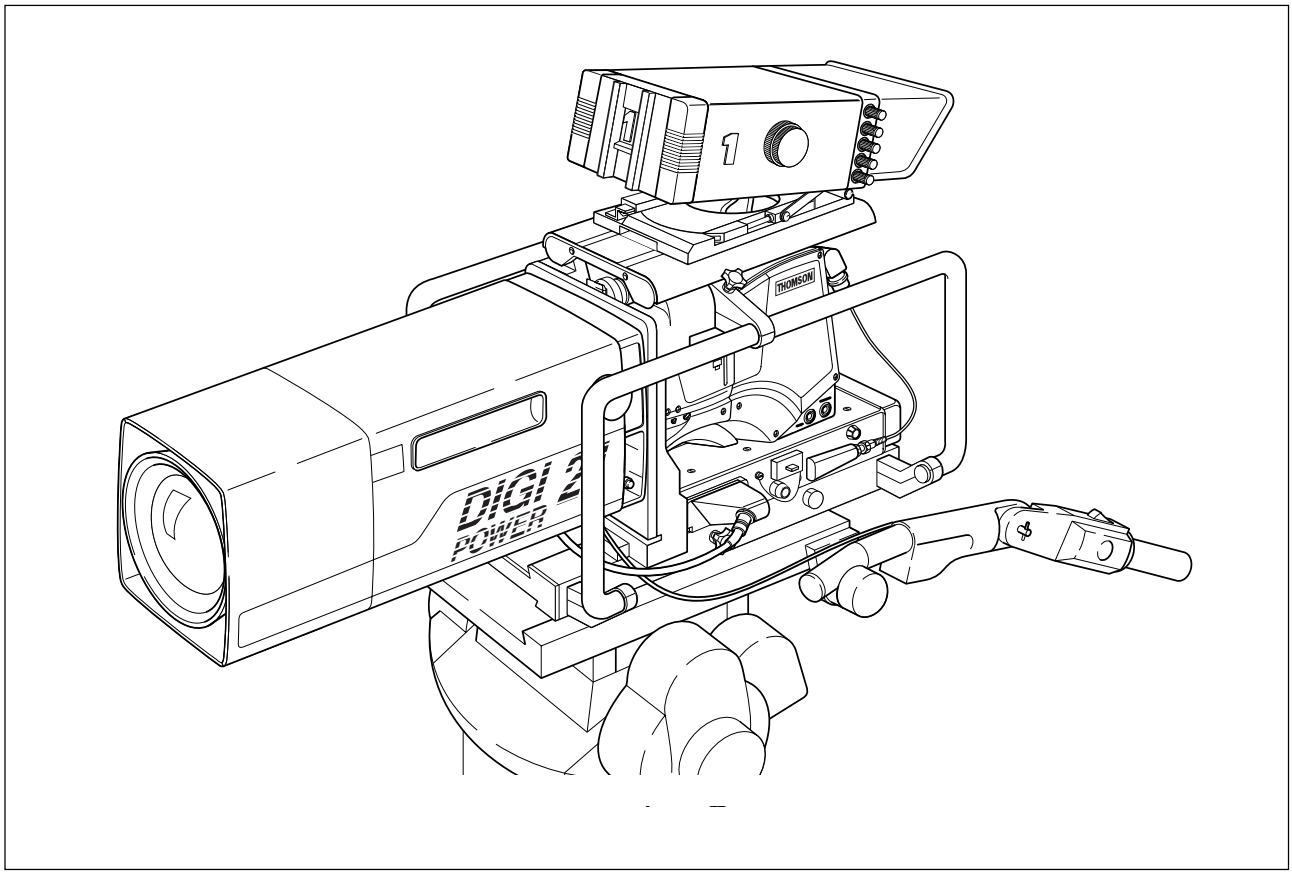
Failure to attach the camera to the tripod adapter plate in the correct manner could result in an unsecured camera. Ensure that the rear stud **(2)** is engaged and that the camera clicks into place.

To remove the camera from the tripod proceed as follows:

a Press the red locking lever **(3)** against release handle **(4)** on the tripod adapter plate and hold.
b. Ensure that you have a firm hold of the camera.
c. Pull the release handle **(4)** forward.
d. Move the camera backwards and up. The camera is now free from the tripod adapter plate.

When the camera is mounted on the tripod tighten this locking lever **(5)** to ensure that the stud **(2)** at the rear of the plate is locked firmly in place.

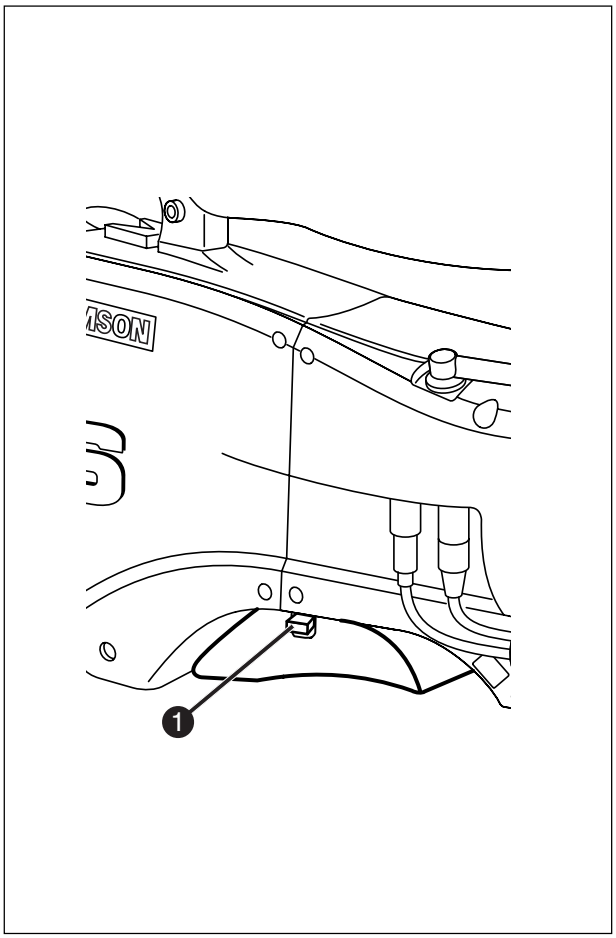
When removing the camera first open the locking lever **(5)** to free the rear stud **(2)**.



The optional SuperXpander (LDK 4482) for the LDK 6000 mkII extends the camera's use in studio and EFP situations. This adapter allows larger studio lenses and a 7-inch viewfinder to be used with the camera. Additional facilities provided include a utility power outlet and a rear control panel.

Refer to the User's Guide of the SuperXpander for more information on mounting the camera and other units to the SuperXpander as well as information on the additional functions of the SuperXpander.

Shoulder Pad



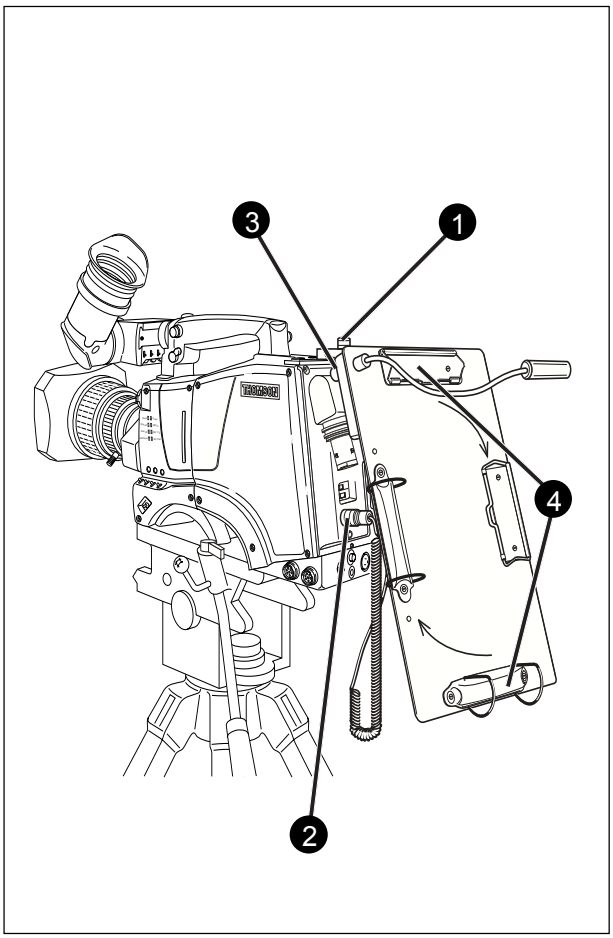
To change the position the shoulder pad press and hold lever **(1)**. The shoulder pad can now be moved backwards and forwards along the axis of the camera. Adjust the shoulder pad when all units have been mounted so that the best balanced position can be obtained.

Rain and Off-use Cover

The rain and off-use cover LDK 5021must be used when the camera system is in a wet or damp environment. This protection is necessary for personal safety reasons. The cover can also be used indoors to protect the camera when it is used in dusty environments. It can also be useful if the camera is being put into storage. For more information on how to put on the cover refer to the User's Guide which is supplied with it.

Note: When the camera is used with the LDK 4482 SuperXPander the LDK 6989/00 optional rain and off-use cover is available.

Script board



To mount the optional Script board (LDK 6985/21) onto the camera proceed as follows:

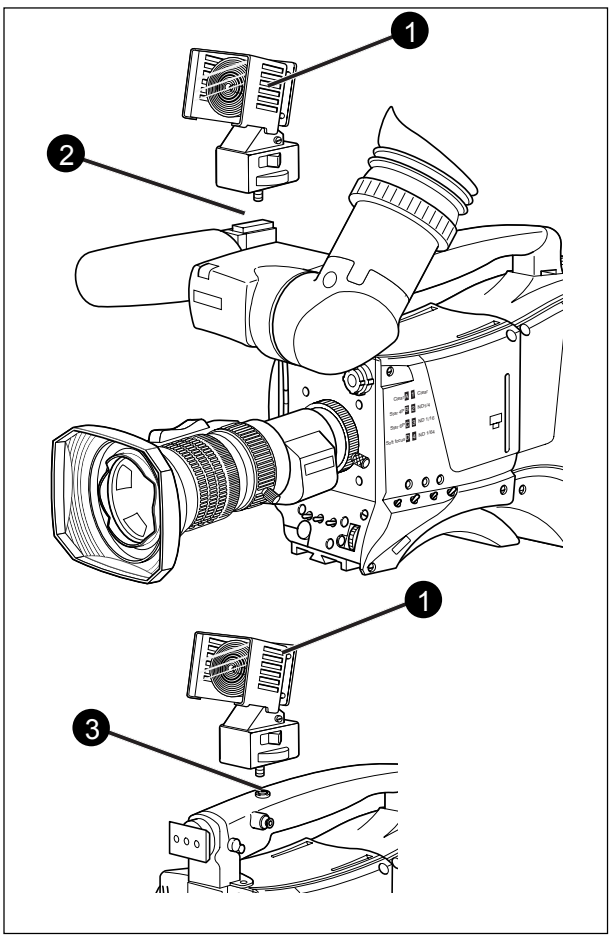
a. Secure the Script board to the top-rear of the camera with the quick mount adapter **(1)**.
b. Connect Script board light cable to the script light connector **(2)** at the rear of the camera.

CAUTION

Ensure that the script light does not use more than 3W of power.

The script light is switched on and off, and the intensity is varied with the knob **(3)** at the rear of the Script board. The retaining rings and clip **(4)** can be screwed onto the right or left side if required.

Top Light



To mount a top light **(1)** onto the camera, proceed as follows:

a. Screw the top light **(1)** into either the WW1/4”-20 screw hole **(2)** located on the carrying handle or the screw hole **(3)** on the top of the microphone holder.
b. Power the top light according to the instructions delivered with the light.

Section 3

Configurations

The LDK 6200 HDHS camera is a multi-role camera and this section describes how it can be used on location or in a studio environment. Information is also provided on the signal paths through the camera system.

Contents

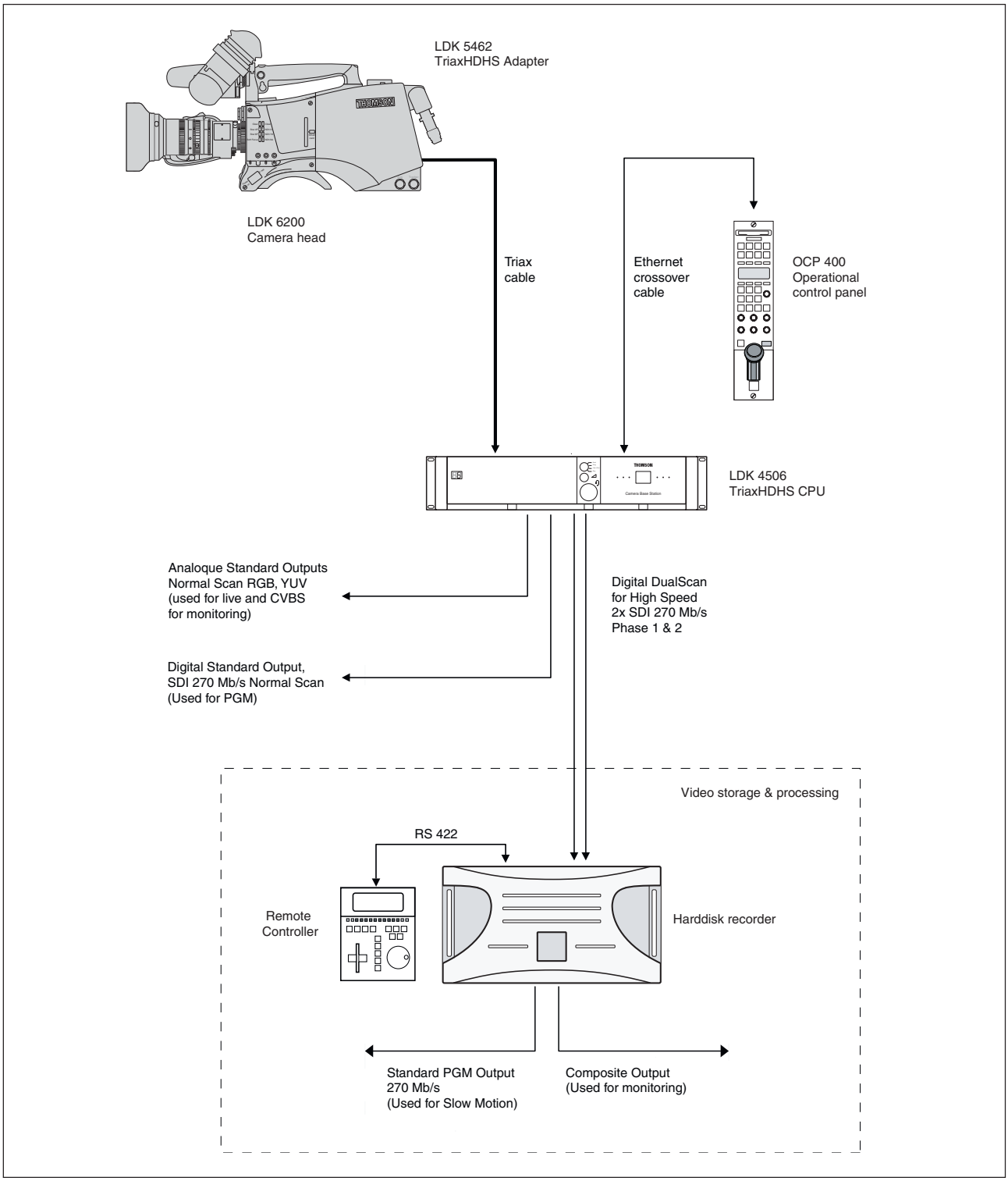
the camera is connected to LDK 4506 CPU via a Triax cable which can have a maximum length of 800 m (2,640ft.) with 14mm cable. The CPU provides the power supply for the camera via the Triax cable. The CPU receives its power from the AC mains supply. The Triax cable carries Y, R-Y, and B-Y video signals, two audio signals and intercom signals from the camera head to the CPU. It also carries external video signals and intercom signals from the CPU to the camera.

Control Systems

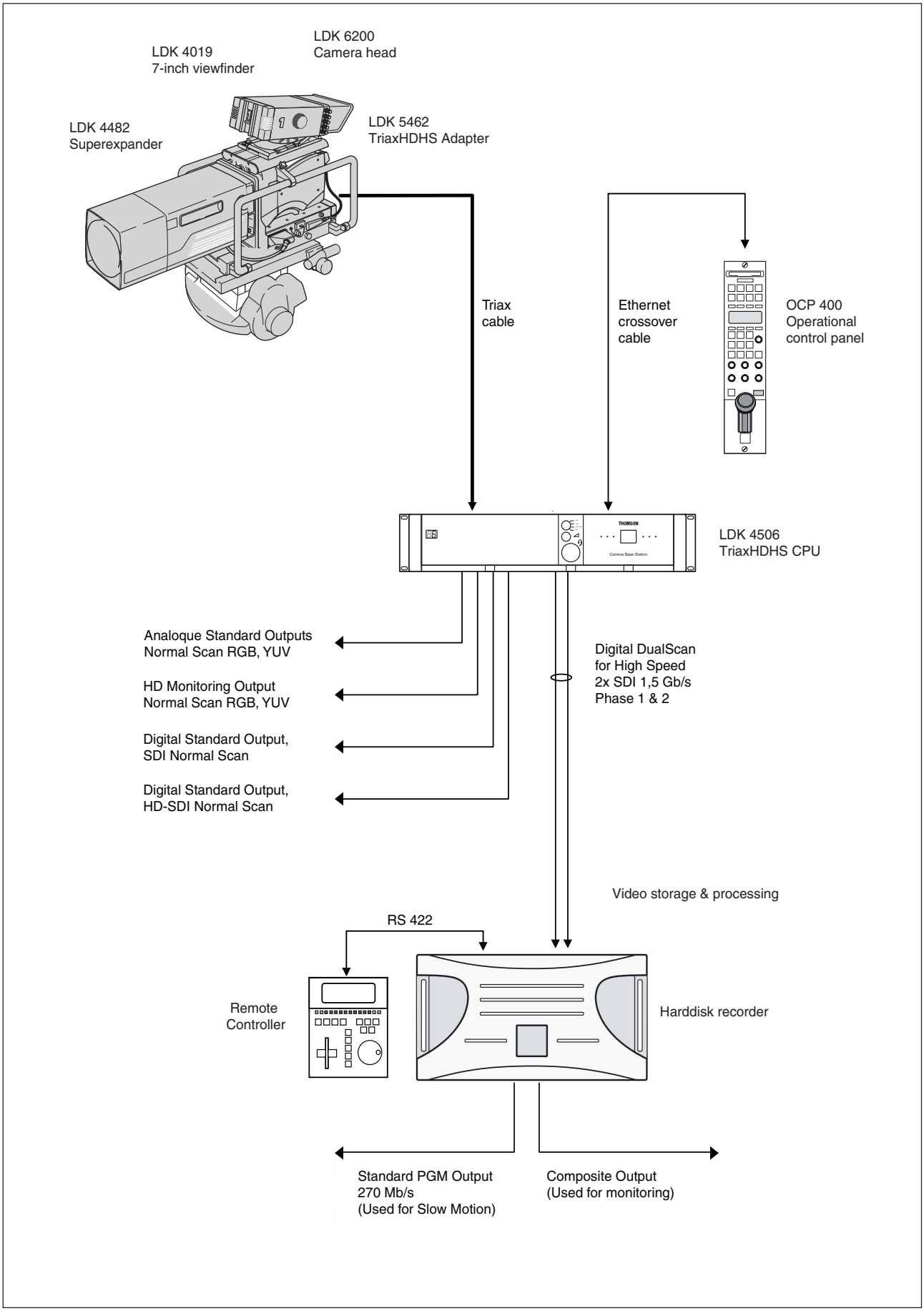
The camera can be controlled by control panels of the C2IP Ethernet network system (OCP 400, MCP 400).

The control panels are connected to the CPU via the Ethernet connector (C2IP). The data communication between camera and CPU is carried over the Triax cable.

LDK 6200 + TriaxHDHS adapter (C2IP control)



LDK 6200 + TriaxHDHS adapter + SuperXpander (C2IP control)



Mixed Configurations

The LDK6200 HDHS camera system is designed to operate as a high speed HD system but at the same time it is fully compatible with all Grassvalley HD camera components. This makes it possible to use LDK6200 system components in a HD camera setup.

Mixing HD and HDHS

Only if all components (camera head, adapter and base station) are High Speed-enabled and running in High Speed mode the system will operate as a HDHS system. All other combinations result in standard HD operation and will generate a warning in the viewfinder and/or in the colour bar of the base station. The table below show all possible combinations.

LDK 6200 camera head configurations:

Head + Adapter	Cam. Operation	Base station	Diag.[1)]	VF message	BS Colour Bar Msg:
LDK6200 + LDK5462	**CAM_LDK6200**	**LDK4506**	**HDHS**	**-**	See note [2)]
LDK6200 + LDK5460	CAM_LDK6000	LDK4506	HD	-	"non HDHS camera!"
LDK6200 + LDK5462	CAM_LDK6200	LDK4502	HD	"non HDHS system parts"	-
LDK6200 + LDK5460	CAM_LDK6000	LDK4502	HD	"non HDHS system parts"	-

Note1: In the viewfinder menu go to DIAGNOSTICS > SYSTEM STATUS submenu to see the current system status.

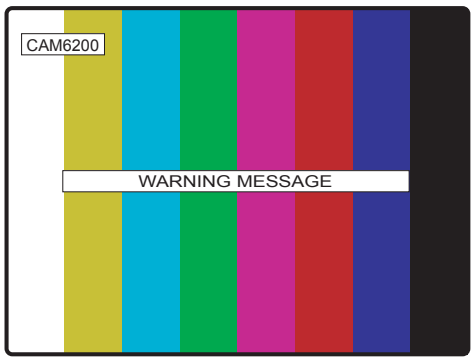
Note2: When a High Speed system is NOT running in High Speed mode, the warning "Warning: non-highspeed mode" will appear in the colour bar message of the LDK4506 base station.

LDK 6000 camera head configurations:

Head + Adapter	Cam. Operation	Base station	Diag.	VF message	BS Colour Bar Msg:
LDK6000 + LDK5462	CAM_LDK6000	LDK4506	HD	-	"non HDHS camera!"
LDK6000 + LDK5460	CAM_LDK6000	LDK4506	HD	-	"non HDHS camera!"
LDK6000 + LDK5462	CAM_LDK6000	LDK4502	HD	-	-
LDK6000 + LDK5460	CAM_LDK6000	LDK4502	HD	-	-

Note: The warning message in the viewfinder menu blinks during powering up for about 30 seconds and then disappears.

Note: The warning message in the colourbar in the base station is displayed until the colourbar is switched off.



Base Station Colour bar screen

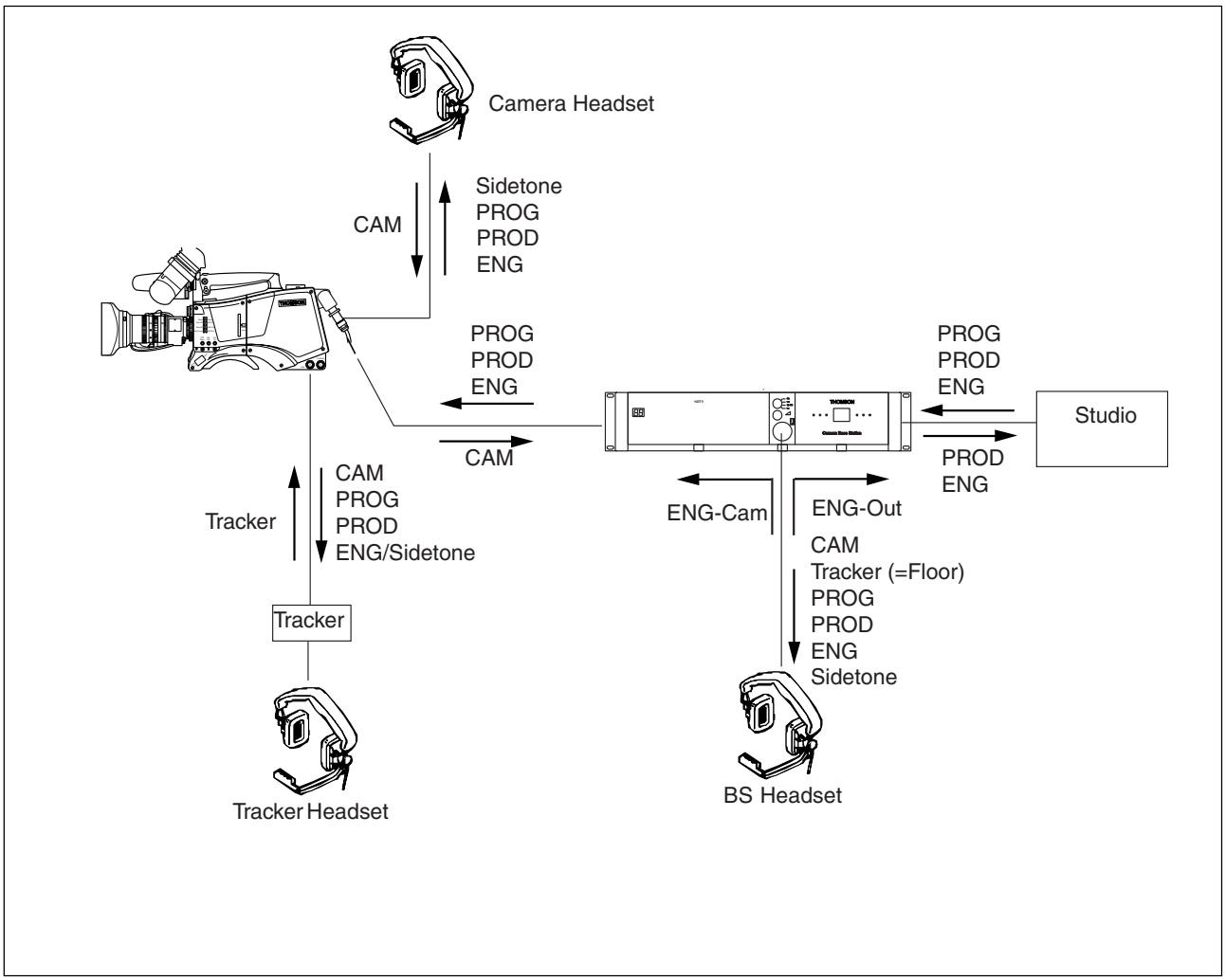
Private Data
A private data channel is also available between the camera and the CPU. This is a two-way serial channel operating at 2400 B/s with TTL level. This channel can be used for digital data links. For detailed information refer to the CPU's User's Guide.

Analogue Ch0-Ch1
Two analogue control channels are available from the CPU to the camera. These provide a control voltage from 0V to +5V that can be used for pan control for example. For more information on these channels refer to the CPU's User's Guide.

Note: If the analogue Ch1 is used to externally switch the Aspect Ratio, Ch 1 is not available for analoque signals from the CPU to the camera.

The back panel of the LDK 5462 TriaxHDHS adapter has two connectors for audio microphones. The signals applied to these connectors are amplified and passed to the multiplexer/transmitter section of the camera which sends them to the CPU via the Triax cable. The amplification factor of the audio microphone signals can be selected via the systems menu, the CPU or the Master Control Panel.

Phantom power is available for the audio microphones. The default value is +48V (refer to Section 4 "Audio" for information on changing this value).



Two intercom headsets can be connected to the LDK 5462 TriaxHDHS adapter; one for the cameraman and one for the tracker.

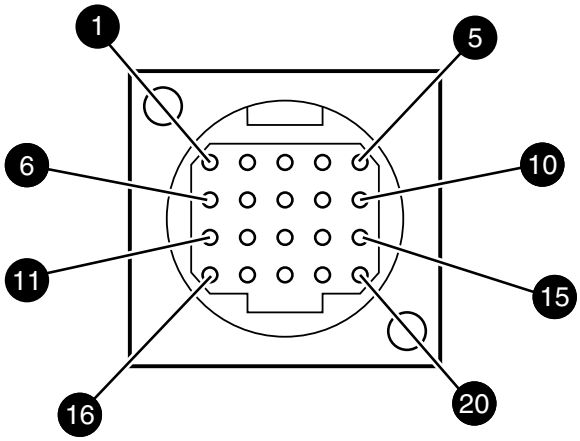
There are three intercom channels from the CPU to the camera. These carry the production, engineering and the programme intercom signals. Two intercom channels from the camera to the CPU carry the tracker and camera intercom microphone signals. The camera intercom microphone signal can be routed to engineering to production via the intercom routing switch on the back panel of the adapter.

The tracker headphones receives the camera microphone, production and programme intercom signals and if selected in the systems menu the tracker microphone sidetone or engineering intercom signal.

The engineering , production and programme intercom signal from the CPU, the tracker microphone and the camera microphone sidetone are all available for the camera headset. The volume of these signals can be adjusted and switched to either the right or left side of the headset.

Camera connectors

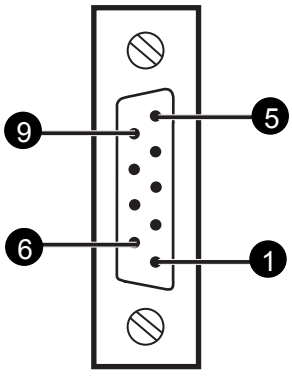
Viewfinder connector



1. -80V
2. n.c.
3. GND
4. INTN-D
5. vf ext video
6. n.c.
7. vf video ret
8. SDA-D
9. SCL-D
10. vf ext video ret
11. GND
12. vf video
13. Pb vf ret
14. Pr vf ret
15. GND
16. +batt
17. +batt
18. Pb vf
19. Pr vf
20. shield

20-pin female; panel view

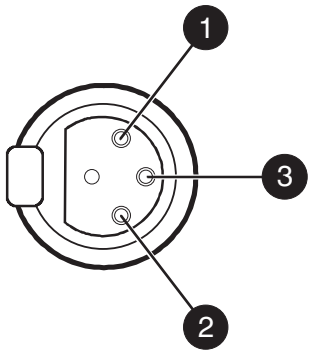
RS232 connector



1. SPARE
2. RS-RXD
3. RS-TXD
4. RS-DTR
5. RS-DGND
6. RS-DSR
7. RS-RTS
8. RS-CTS
9. +12V

9-pin female; panel view

Audio microphone connector

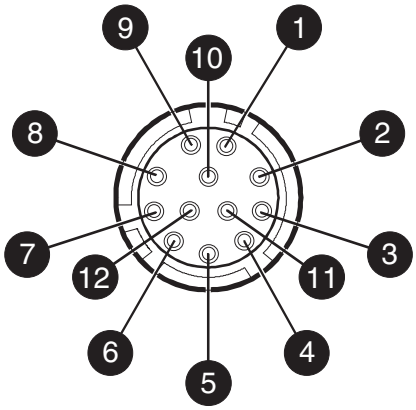


1. Audio Screen
2. Audio In
3. Audio Return

Microphone impedance >200 ohm
Sensitivity remote controlled via base station:
range: -70 to -28 dBm
Signal at pin 2 of audio input is in phase with signal at pin 2 of audio output on Base station

XLR 3-pin female

Lens connector



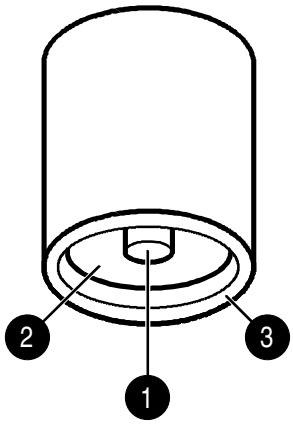
1. Ext. Video On/Off
2. VTR Trigger Switch
3. - Batt
4. Momentary Iris
5. IrisControl
6. + Batt
7. Iris Follow
8. Lens Servo
9. Range Extender
10. Zoom Follow
11. TXD (RS-232)
12. RXD (RS-232)

Hirose 12-pin female; panel view

Panel Connector	Type	Part number	Cable part number
Viewfinder	20-pin Hirose female	5322 214 12544	5322 320 12159 male
Lens	12-pin Hirose female	5322 265 10389	5322 265 41208 male
Audio Mic	3-pin XLR female	5322 267 40523	--
Rs 232	9-pin male	--	--

Triax HDHS adapter connectors

Triax connector



3-pin; panel view

Fischer
1. Inner pin: Signals + power
2. Inner shield: Return
3. Outer shield: Camera housing

part number 2432 020 00009

Trilock
1. Inner pin: Signals + power
2. Inner shield: Return
3. Outer shield: Camera housing

part number 3922 040 02682

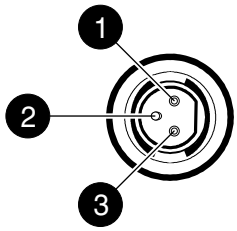
ARD
1. Inner pin: Signals + power
2. Inner shield: Return
3. Outer shield: Camera housing

part number 3922 040 01492

LEMO
1. Inner pin: Signals + power
2. Inner shield: Return
3. Outer shield: Camera housing

part number 3922 040 02541

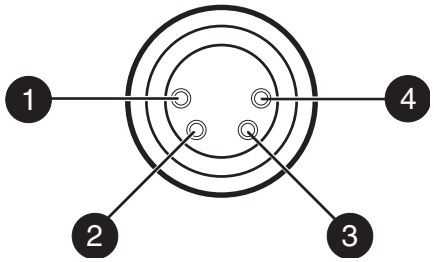
Script light connector



Fischer 3-pole female; panel view

1. +12V (Maximum Dissipation 3W)
2. Power Return
3. Shield

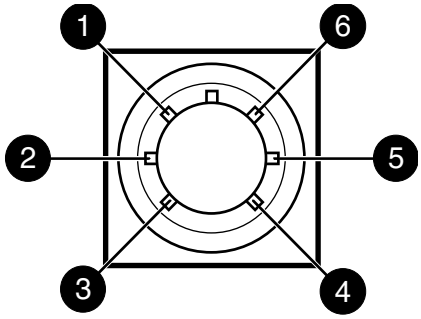
Power input connector



XLR4-pin male; panel view

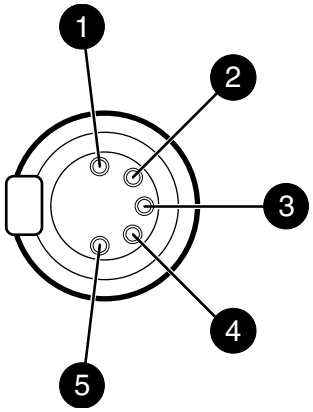
1. Gnd
2. n.c.
3. n.c.
4. +10,5V.....17V

Camera headset connector



Tuchel 6-pin female; panel view

1. Telephone left
2. Not connected
3. Microphone
4. Microphone return
5. Telephone right
6. Telephone return

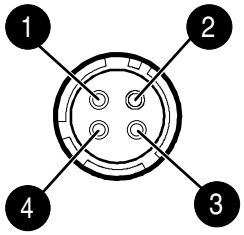


XLR 5-pin female; panel view

1. Microphone return
2. Microphone
3. Telephone return
4. Telephone left
5. Telephone right

- Microphone level -58dBm/-20dBm switchable
- Microphone impedance 200 ohm
- Telephone level +6dBm nominal
- Telephone output impedance <10 ohm

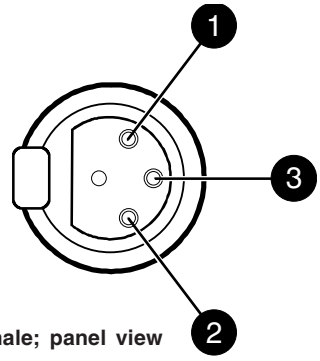
Power output connector



Hirose 4-pin male; panel view

1. Gnd
2. On air
3. n.c.
4. +12 Vdc (max. 18W)

Audio microphone connectors

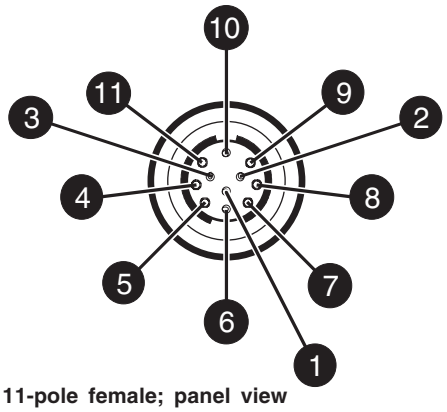


XLR 3-pin female; panel view

1. Audio Screen
2. Audio In
3. Audio Return

- Microphone impedance > 200 ohm
- Sensitivity remote controlled via base station:
  range: -70 to -28 dBm
  maximum input = -6 dBm
- Signal at pin 2 of audio input is in phase with signal at pin 2 of audio output on Base Station

Auxiliary connector

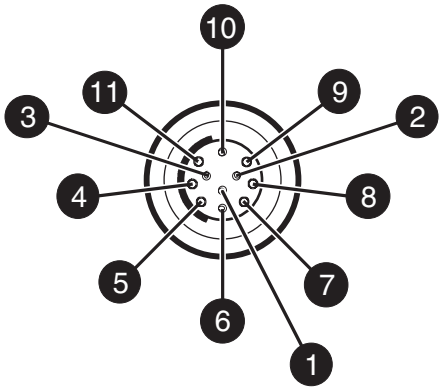


Fischer 11-pole female; panel view

1. +5VL
2. 0VL
3. AN0
4. AN1
5. Spare
6. On-air
7. Private Data Camera - CPU
8. Ground
9. Private Data CPU - Camera
10. Ground
11. Shield

Shield of cable directly to the connector housing.

Tracker communication connector



Fischer 11-pole female; panel view

1. On-air signal return
2. Tracker microphone return
3. Tracker microphone input
4. Production tracker
5. Sidetone/engineering tracker
6. Intercom return
7. Program sound tracker
8. Cameraman microphone
9. Tally control tracker
   (Cmos level, R out = 1k)
10. +12V; I max. = 100mA
11. +12V return

- Microphone level -58dBu/-20dBu switchable
- Microphone impedance 200 ohm
- Telephone level + 6dBu
- Telephone output impedance <10 ohm

Shield of cable directly to the connector housing.

Connector numbers

Panel Connector	Type	Part number	Cable part number
Triax	3-pin Fischer female	5322 218 11775	LDK 8200/**
Triax	3-pin Trilock	5322 218 11778	--
Triax	3-pin ARD	5322 218 11776	--
Triax	3-pin Lemo	5322 218 11774	--
Headset	6-pin Tuchel female	5322 265 11108	--
Headset	5-pin XLR female	5322 265 11107	--
Ext video/Tp	2-pin Coax female	5322 204 10303	--

* /02 is 2 m
/05 is 5 m
/10 is 10 m

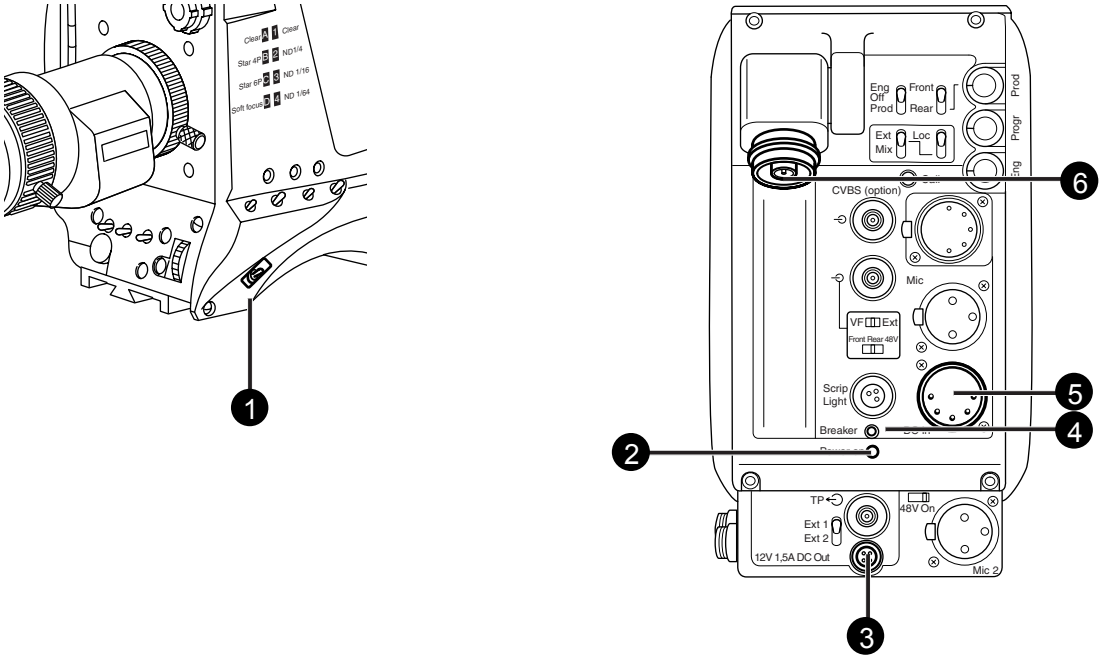
** /00 for 8 mm cable
/10 for 11 mm cable
/20 for 14 mm cable

Section 4

Location of Controls and Functions

This section shows the physical location of the controls and connectors on the camera. These are grouped according to their function so as to provide a quick reference guide to the operation of a particular aspect of the camera. The controls and connectors are shown for the camera head and the TriaxHDHS.

Contents



1 Power switch

The power switch has two positions:

On : Power to camera is switched on.

Off : Power to camera is switched off.

When you switch off the power, the access rights that were obtained by the use of the PIN code are disabled and the camera starts at the assigned user level when switched on again.

2 Power on indicator

The power on indicator lights when power is supplied to the camera and the camera power switch is on.

3 DC and Tally output socket

This socket supplies +12Vdc (±0.25V) when the camera is in the Triax mode (maximum current 1.5A). The socket also provides access to an internal tally switch. When the camera is on-air the contact of the internal relay is closed.

4 Circuit breaker button (BREAKER)

If excessive current flows in the camera the circuit breaker trips and shuts off power to all the units. If this happens check the units for faults and if necessary take corrective action before pressing the circuit breaker button to reset the power.

5 DC input socket

This socket accepts a DC supply voltage of 12V Nominal (11V to 17V) for powering the camera in stand-alone mode for service purposes. Maximum power consumption 23W.

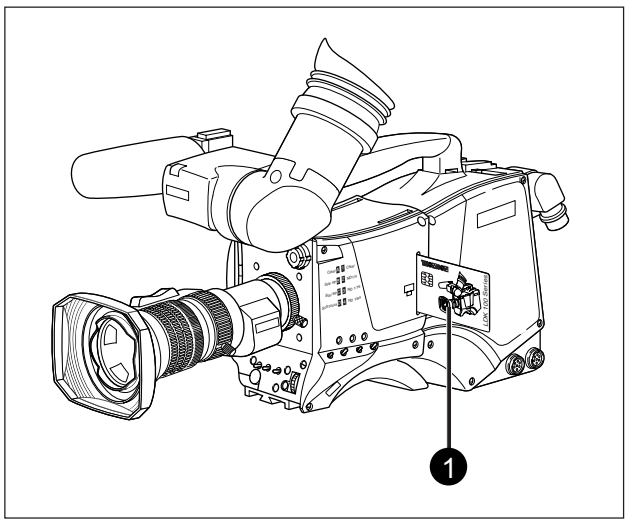
CAUTION

▶ The input voltage must not exceed 17 Vdc.

6 Triax cable socket

The triax cable is connected to this socket. The power supply for the camera is normally supplied from the Base Station via the triax cable.

The triax cable also carries all the video, audio/intercom and control signals between the camera and the Base Station.



1 Smart card slot

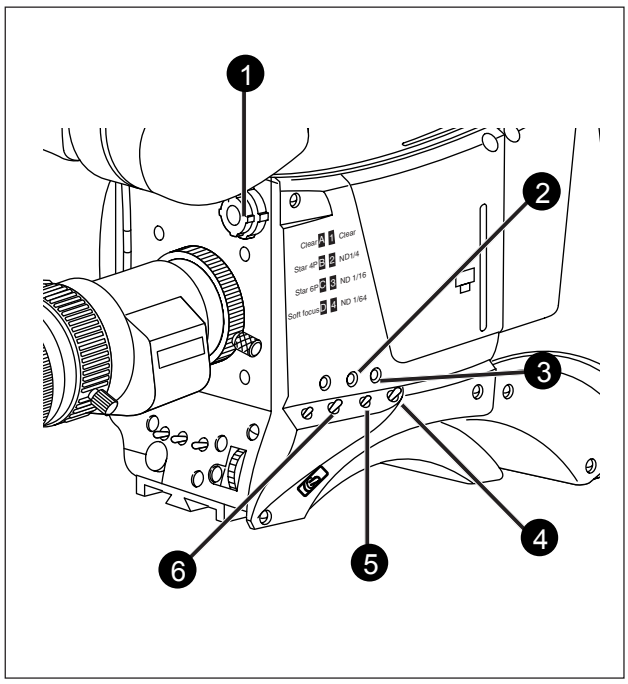
Insert your smart card into this slot with the chip on the card facing the front of the camera. Push the card home until it fits snugly.

There are two types of card; an owner card and a user card. Both cards store operator files and scene files.

The owner card can be used to change the user level of the camera. The user level determines which set of controls and functions can be changed by the camera operator. Refer to Section 6 for more information on the smart card.

A smart card is not required for normal operation of the camera.

Note: Only use an original camera card.
Store the owner card in a safe place.



1 Filter switches

Rotate these two switches to move the optical filter wheels.

The outer (bigger) filter switch has four positions:

1 : Clear
2 : ND 1/4 filter (2 stops)
3 : ND 1/16 filter (4 stops)
4 : ND 1/64 filter (6 stops)

The inner (smaller) filter switch has four positions:

1 : Clear
2 : 4-point star
3 : 6-point star
4 : Soft focus

The status of the filter wheels is displayed in the viewfinder for a few seconds.
The ND/RE indicator in the 2-inch viewfinder lights when an ND (Neutral Density) filter is selected.

Note: No optical colour filters are needed with this camera as the colour balance range is sufficient to measure temperatures from 2.5K to 20K.

2 Extended Iris button

When this button is pressed once the current value of the automatic extended iris function. Press the button twice in quick succession to switch between on and off.

This function automatically regulates the video signal level by adjusting the iris opening, the gain level and the exposure time to suit the ambient lighting conditions. When extended iris is on, the non-standard indicator (!) in the 2-inch viewfinder lights, and gain and exposure controls are blocked.

3 Std Scene File button

The standard scene file button is a momentary button which, when pressed for two seconds, recalls the standard scene file video values. These values do not take effect immediately if the camera is on air; they take effect when the camera goes off air.
Refer to the Appendix for the default values of the factory defined standard scene file. Refer to Section 6 to find out how to define and assign a standard customer scene file.

4 Black Stretch switch

This switch when set to the On position, starts the black stretch function. This function gives more detail in the dark areas of the picture. Set the switch to Off to switch off the function. When black stretch is switched on the non-standard indicator (!) in the viewfinder lights.

5 Colour Temp. switch (White Bal.)

This up/down scroll selection switch allows a choice between three preset colour temperatures:

- 3200K (3.2K) - for studio lighting conditions
- 5600K (5.6K) - for outdoors, clouded conditions
- 7500K (7.5K) - for outdoors, clear blue skies

three memory positions:

- FL- memory position for fluorescent light
- AW1 - memory position 1
- AW2 - memory position 2

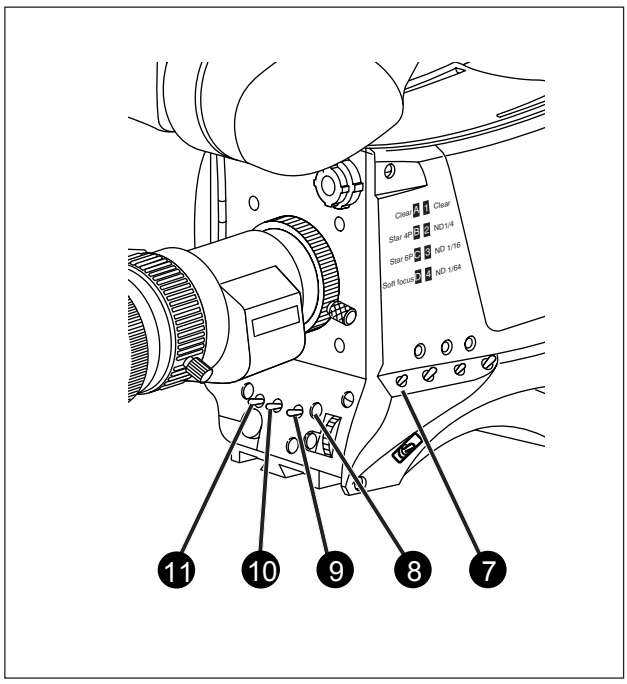
and an automatic continuous white position:

- AWC - continuous measurement (2.5K to 20K)

The memory positions can be filled with measured values using the automatic white balance switch at the front. Indicators in the 2-inch viewfinder light to show which position is selected. None of these indicators light when AWC is selected, but the non-standard indicator (!) lights.

6 Colour Bars switch (Bars)

The Bars switch turns the colour bar test signal on and off. The lens iris closes automatically when the colour bars are switched on.



7 Gain selection switch

This up/down scroll selection switch gives a choice of five master gain settings. The values for these settings, except 0 dB, can be set in the Install menu of the camera systems menu (refer to Section 6). The indicators in the 2-inch viewfinder light as follows:

-	Gain is - (-3, -6dB)
+	Gain is + (+3, +6, +9dB)
++	Gain is ++ (+6, +9, +12dB)
+ and ++	Gain is +++ (+12dB)

Note: Reduce crispening (peaking) in the viewfinder when using the +++ position.

8 Clean Scan button

When shooting computer monitors with higher frame frequencies than the camera use the Clean Scan function to avoid horizontal bars in the picture.

Press the Clean Scan button for two seconds to directly access the variable exposure (clean scan) function. Use the rotary control to change the value and so remove the noise bar. When you are finished shooting the monitor press the Clean Scan button for two seconds to switch off the Clean Scan function.

When the Clean Scan function is on, the non-standard indicator in the viewfinder lights. Refer to Section 5 for more information on shooting screens.

9 White Balance switch

This momentary switch is used to start the automatic white balance process. The camera, when pointed at a white area in the centre of the picture, measures and stores a colour temperature setting in the FL, AW1 or AW2 memory position. The white balance switch only operates if the colour temperature is set to the FL, AW1 or AW2 position. Refer to Section 5 for more information on how to use the automatic white balance.

Note:
Black balance is not necessary with this camera because of the continuous automatic black control circuits.

10 Exposure Time switch

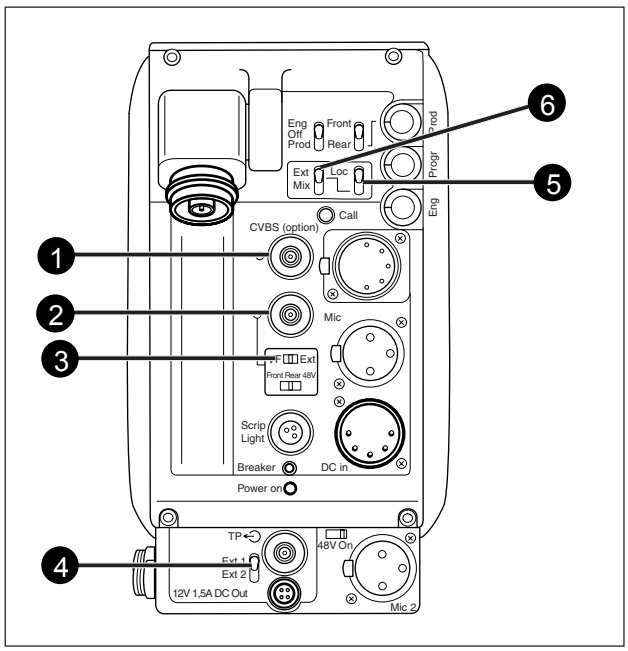
This up/down momentary switch gives a choice of eight exposure time settings. These are:

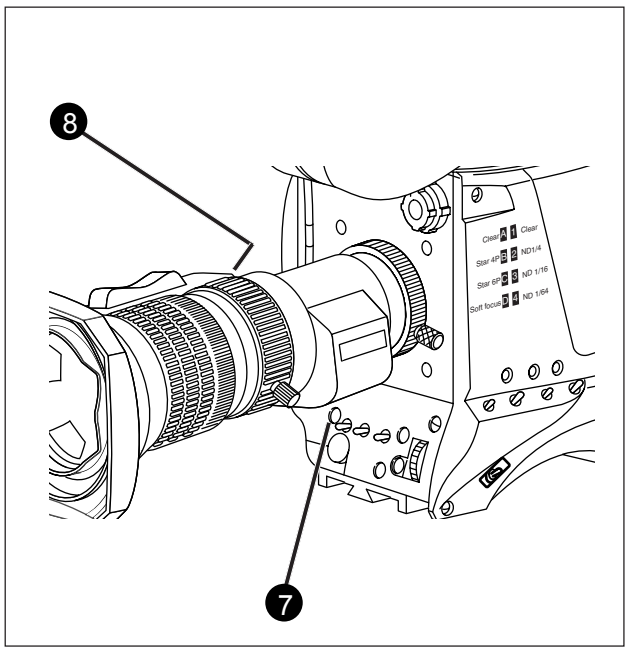
Nom.	- nominal setting
Var.	- enables the exposure to be varied
Crt	- for shooting sync-locked monitors
Film	- enables the exposure to be varied with running shutter.
1/200	- for fast moving objects
1/500	- for fast moving objects
1/1000	- for fast moving objects
50 Hz	- shooting with 50Hz lighting (adjustable)
60 Hz	- shooting with 60Hz lighting (adjustable)

If an exposure time other than nominal is selected, the non-standard indicator (!) in the viewfinder lights.

11 Vertical Shift switch (V-Shift)

Sometimes when shooting TV screens or monitors with the same display frequency as the camera, a horizontal black bar is seen in the viewfinder because the camera is blanking while the TV is not.
The V-Shift switch shifts the camera blanking. It is spring-loaded with a central rest position. Holding the switch in the + or - position moves the bar up or down so that it is no longer visible in the viewfinder. This function is only available when the camera is used in the stand-alone mode and is not active when the camera is genlocked or on-air.





1 CVBS output connector

This BNC connector provides a 1 Vpp CVBS viewing output signal with the same frame frequency.

Note: When the camera is running in High Speed mode the viewing output is not available. A colourbar signal will be generated instead.

2 Viewfinder / External video output connector

This BNC connector carries the viewfinder signal or the external video signal from the Base Station depending on the positon of switch (3).

3 Video output selection switch

This switch determines whether the viewfinder signal from the camera or the external video signal from the Base Station is available at connector (2).

4 External signal selection switch

This switch selects either the EXT1 or EXT 2 signal for display in the viewfinder when the viewfinder signal selection switch (6) is in the EXT position.

5 Viewfinder selection switch

This switch is used to select the camera Y signal or an external signal - set with (6) - for display in the viewfinder. The Ret. button on the lens also selects this signal in parallel with this switch.

Note: This switch is disabled when the SuperXPander is used.

6 External signal selection switch

This switch is not used in this camera.

7 VTR button (camera)

The function of this button is set in the Install menu. It can be used to:

- switch the intercom microphone of the headset to the production intercom channel.
- control the viewfinder zoom function.
- select the EXT 1 signal to display in the viewfinder.
- select the EXT 2 signal to display in the viewfinder.

The method of controlling the viewfinder zoom function is also selected in theInstall menu. If set to MOM, zoom is only active while the button is pressed. If set to ALT, the button acts as a switch.

8 VTR button (lens)

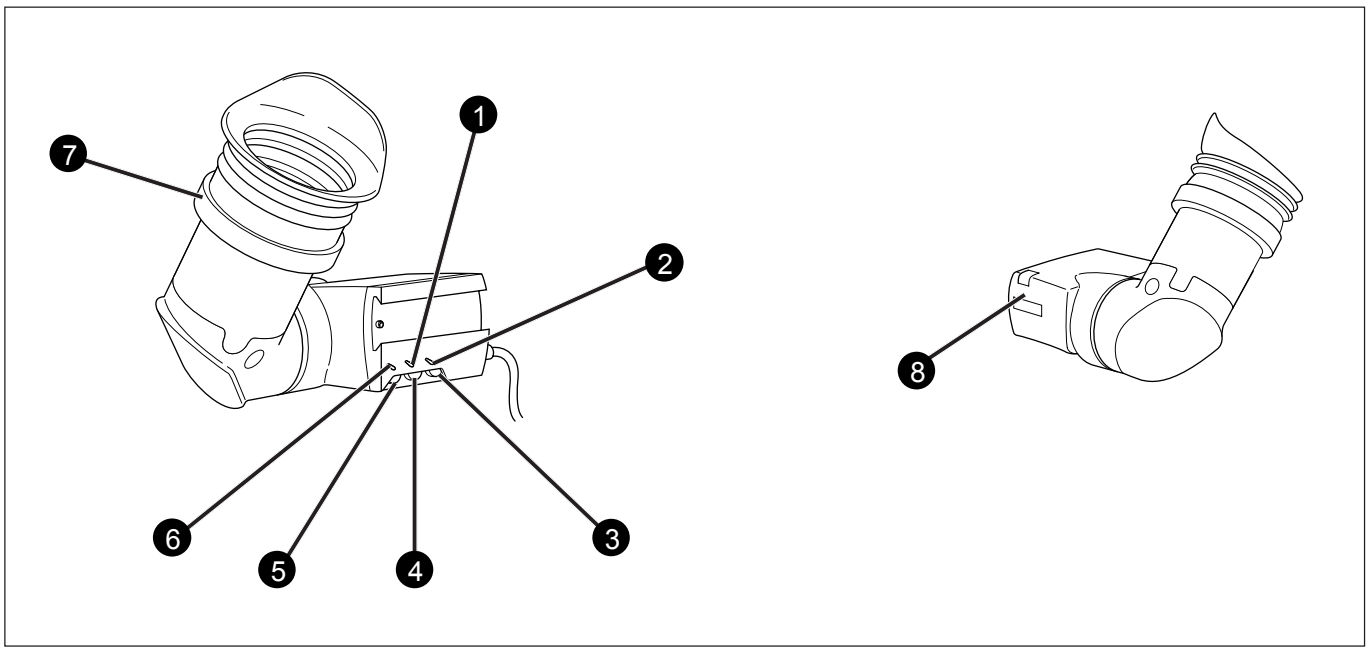
The function of this button is also set in the Install menu. This button can operate independently of the VTR button on the camera. It can be used to:

- switch the intercom microphone of the headset to the production intercom channel.
- control the viewfinder zoom function.
- select the EXT 1 signal to display in the viewfinder.
- select the EXT 2 signal to display in the viewfinder.

The method of controlling the viewfinder zoom function is also selected in theInstall menu. If set to MOM, zoom is only active while the button is pressed. If set to ALT, the button acts as a switch.

Note: When the camera is used with a large lens adapter, the function of the RET 2 switch on a zoom control can be set in the Install menu. The RET2 switch can then be used either to select EXT 2 for display in the viewfinder or to switch the viewfinder zoom function. (RET1 is selectable at the rear of the Triax adapter.)

Viewfinder



1 Zebra switch

This switch disables (OFF position) or enables the zebra pattern in the viewfinder which indicates high video levels. Values for the zebra function are selected in the VF menu. (The zebra pattern is switched off when the skin view is on.)

2 Option switch

This switch is included on the viewfinder to allow future features to be incorporated.

3 Brightness control

Use this rotary control to adjust the brightness of the viewfinder display to suit your needs.

4 Contrast control

Use this rotary control to adjust the contrast of the viewfinder display to suit your needs.

5 Crispening control

This rotary control adjusts the sharpness of the picture displayed in the viewfinder. Reduce the crispening for a better picture when the gain is set to +++.

6 Tally switch

The tally switch is used to control the tally indicator at the front of the viewfinder.

When this switch is set to the ON position, the tally indicator light when the camera is on-air.
When this switch is set to the OFF position, the tally indicator does not light when the camera is on-air.
The tally swith does not control the tally indicator at the rear of the carrying handle.

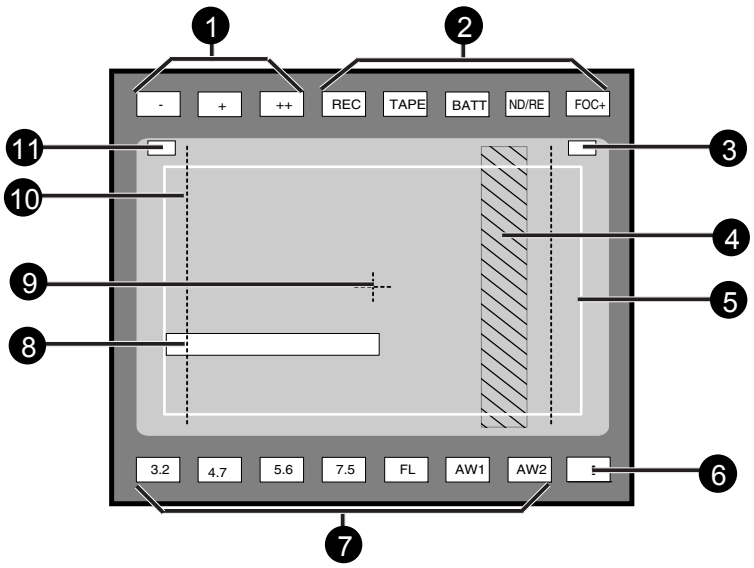
7 Dioptre

The dioptre of the viewfinder can be adjusted to suit your eyesight by turning the dioptre ring. The range of the dioptre is +1 to -3.

8 Tally indicators (red)

The red tally indicators at the front of the viewfinder and at the rear of the carrying handle light to indicate that the camera is on-air. The tally indicator at the front of the viewfinder does not light when the camera is on-air if the tally switch is set to the OFF position.

Viewfinder Indicators



1 Gain indicators

The gain indicators in the viewfinder light as follows:

-	Gain is - (-3, -6dB)
+	Gain is + (+3, +6, +9dB)
++	Gain is ++ (+6, +9, +12dB)
+ and ++	Gain is +++ (+12dB))

2 Top indicators

REC lights when the camera is on-air.

TAPE lights when the studio ISO signal is received.

BATT lights if the supply voltage is less than 11V.

ND/RE lights when an ND optical filter or the lens range extender is selected.

FOC+ lights when the focus assist function is on.

3 Iris indication

Indicates the value of the iris opening (when enabled in the VF menu).

4 Zebra pattern

This diagonal line pattern warns the operator that the area affected has risen above a predetermined level of the full scale video exposure value. Level and contrast are selected in the VF menu.

5 Safe area marker

The safe area marker indicates an area that represents 80% of the whole viewfinder picture area. This is the minimum area seen on a TV-set.

6 Non standard indicator

The non-standard video settings indicator (!) lights when exposure is not set to nominal. It also lights when black stretch or extended iris is on and if AWC or FL is selected with the Colour Temperature selector.

7 White Balance indicators

The white balance indicators light as follows:

3,2	- preset temperature of 3200K is selected
4,7	- preset temperature of 4700K is selected
5,6	- preset temperature of 5600K is selected
7,5	- preset temperature of 7500K is selected
FL	- memory for fluorescent light is selected
AW1	- memory 1 is selected
AW2	- memory 2 is selected

None of these indicators light if AWC is selected.

8 Message box

The display time of this information message box is set by the Info time item of the VF menu.

9 Centre marker

This cross marks the centre of the picture.

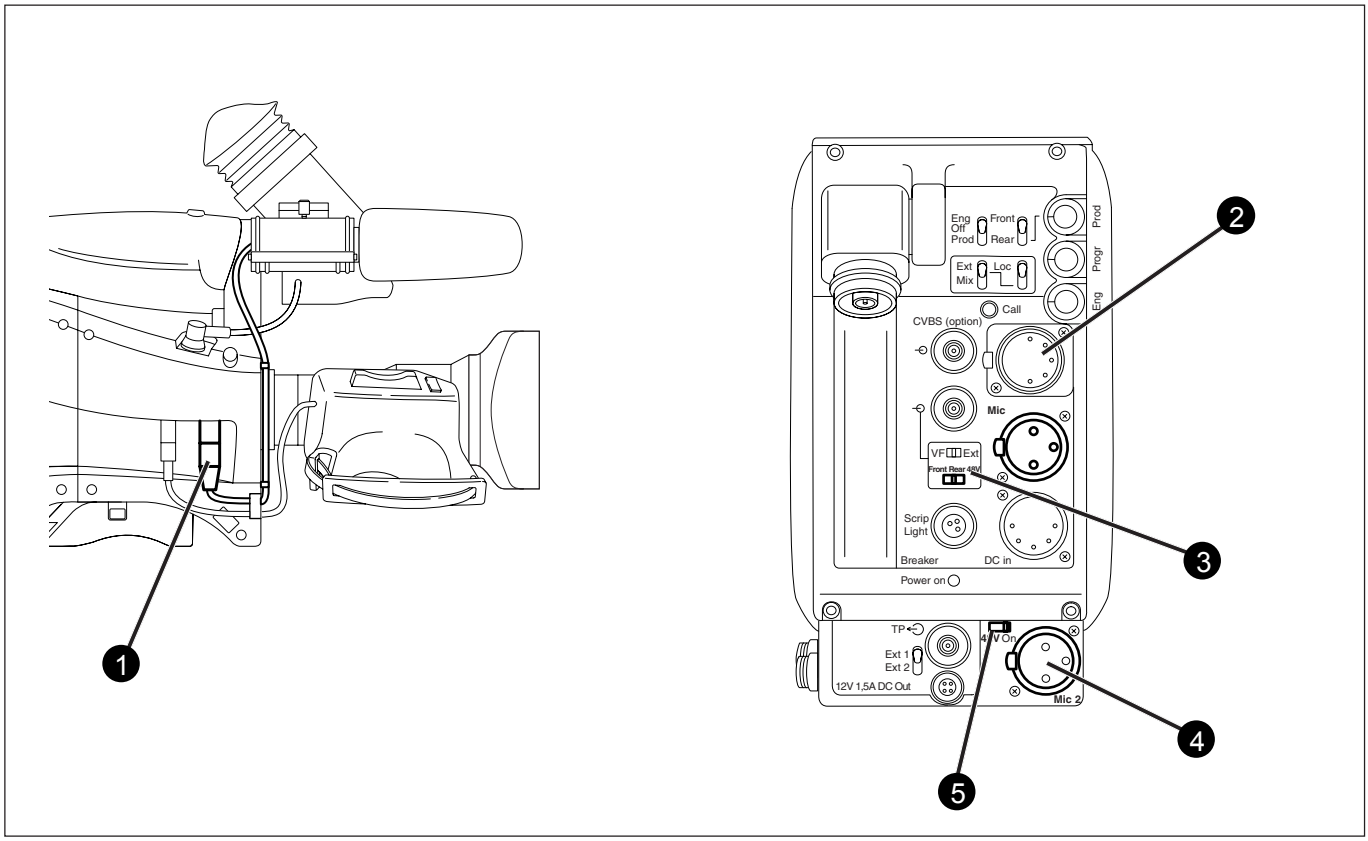
10 Cadre marker

These dotted white lines or a shaded area show the limits of a 4:3 picture, or the limits of a 14:9 picture.

11 Zoom indication

Indicates the degree to which the lens has been zoomed in or out if this feature is supported by the lens. It shows 50 if not supported.

Note: If the viewfinder zoom function is in use, many of the viewfinder markers are switched off to improve the clarity of the display. The FOC+ indicator in the viewfinder flashes when the viewfinder zoom function is active.



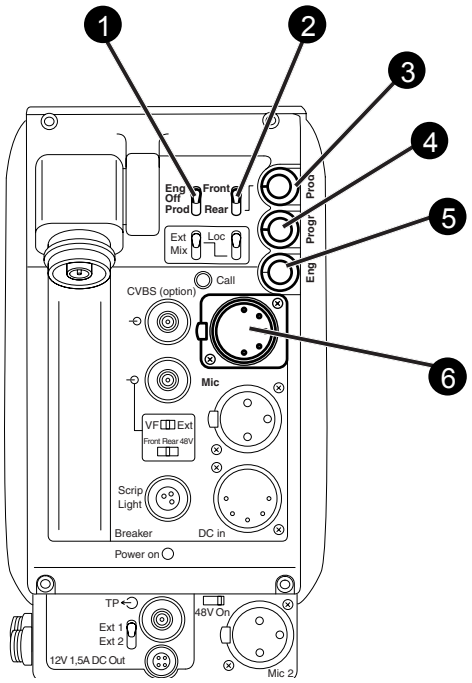
1 Audio microphone connector front
Balanced input connector for a high quality microphone. A phantom power supply (48V) for the microphone is provided from this socket. The gain of this audio channel can also be controlled.

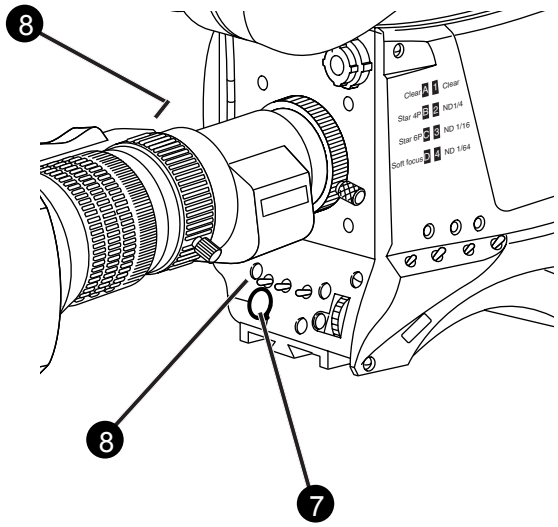
2 Audio microphone connector rear
Balanced input connector for a high quality microphone.

3 Audio microphone switch
A 3-position switch that selects the audio microphone connector at the front or the connector at the rear. The third position selects the rear connector with a phantom power supply (48V).

4 Audio microphone 2 connector rear
Balanced input connector for a second high quality microphone.

5 Microphone 2 phantom power switch
A 2-position switch that selects a phantom power supply (48V) for the second audio microphone.





1 Intercom routing switch
A 3-position switch that routes the camera operator intercom microphone signal to engineering (ENG) or production (PROD), or turns off the intercom. The momentary VTR switch at the front of the camera, or on the lens can be used to route the cameraman's intercom microphone signal to production, regardless of the position of this switch.

2 Headset Production vol. control selection
A 2-position switch for the production intercom which selects control of the volume at the front of the camera **(7)** or control of the volume at the rear **(3)**.

3 Headset Production volume control
This control varies the volume of the production intercom signal to the camera operator's headset when the selection switch **(2)** is in the REAR position.

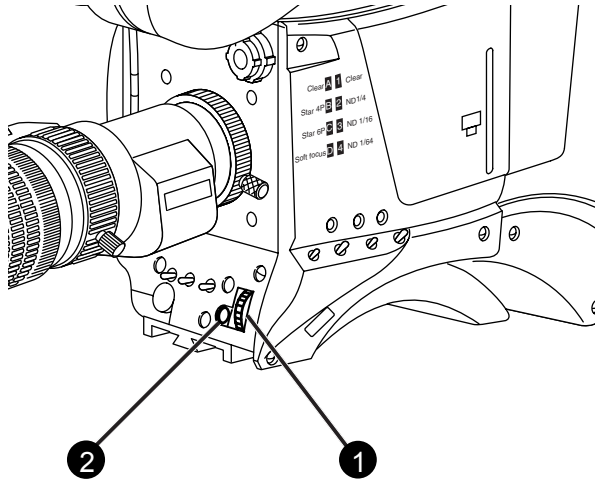
4 Headset Programme volume control
This control varies the volume of the programme intercom signal to the cameraman's headset.

5 Headset Engineering volume control
This control varies the volume of the engineering intercom signal to the cameraman's headset.

6 Cameraman intercom connector
Headsets with dynamic or electrete type microphones can be connected to this socket.

7 Headset Production volume control
This control varies the volume of the production intercom signal to the camera operator's headset when the selection switch **(2)** is in the FRONT position.

8 VTR button (camera or lens)
These buttons can be used to switch the intercom microphone of the headset to the production intercom channel.
The function of these button is set in the Install menu.



The system menus are displayed in the viewfinder. There are two controls at the front of the camera that allow you to navigate through these menus.

The functions handled by the system menus are divided into eight different menus that are listed in the main menu as follows:

VF >>
Lens >>
Video >>
Install >>
Files >>
Security >>
Diagnostics >>
Service >>

(Some of these items may not appear if the user level is not set to 3.)

Each of these menus gives you access to a particular group of functions.

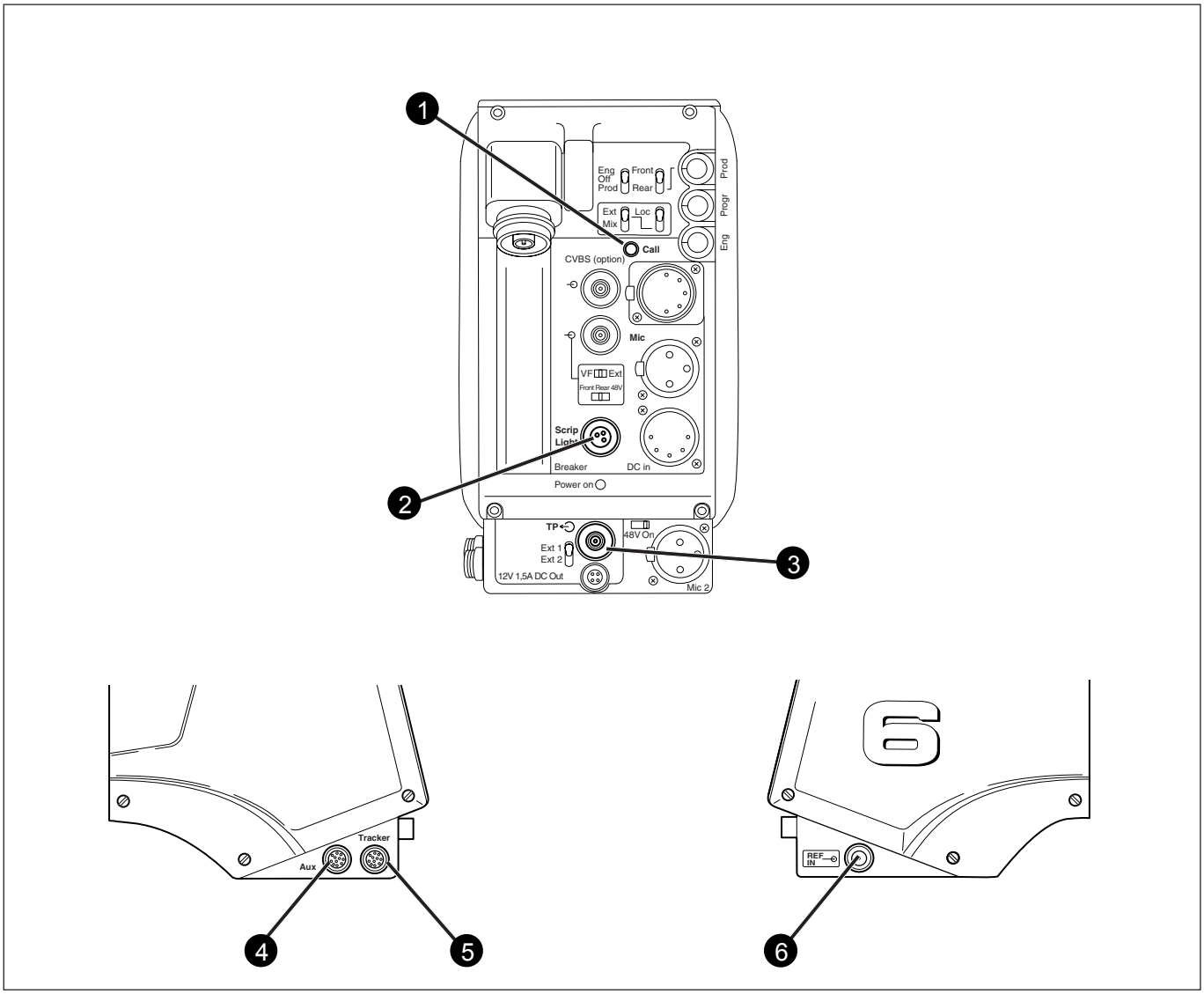
1 System Menu Rotary control

This rotary control is used to move through the various menus of the control system. It is also used to vary the value of some functions.

2 System Menu Select switch

This switch, when pressed, selects the particular menu that is pointed out by the cursor in the viewfinder menu display. It is also used to set an on/off function or to select a value from a list.

More information on using the system menus is contained in Section 6.



1 Call button
Pressing this momentary button sends a signal to the control panels calling for attention.

2 Script Light connector
A 3-pole socket which supplies +12 Vdc for a script light (maximum dissipation 0.25A). The optional script board (LDK 6985/15) is connected to this socket.

3 Teleprompter output socket
This BNC conector supplies the 1Vpp teleprompter signal applied to the base station.

4 Aux connector
This 11-pole female socket provides analogue control signals and facilities for the connection of a private data channel (see installation manual).

5 Tracker connector
This 11-pole female socket provides full intercom and signalling facilities for the dolly or crane driver (see installation manual).

6 Reference input socket
This BNC conector is used to supply a 0,6 Vpp HD tri-level reference signal to the camera for genlocking.

Section 5

Shooting

This section contains information on the practical use of the camera using the viewfinder display and the switches at the front to control the camera.

Contents

The camera is operated via the viewfinder text display and the control system switches on the front panel. You have great detail and selection at your disposal when changing all the functions that are available in the camera. Refer to Section 6 - Operating the Menu System - for an explanation of the use of the menu selection structure and the viewfinder text display.

This section describes the operational functions that are available when using the camera via the viewfinder display and the switches at the front. These offer a convenient way of accessing the menu system which provides full control of the camera.

There are a number of steps that must be carried out before satisfactory shots can be obtained:

a. The camera must be set up and powered.
b. The standard settings must be recalled.
c. Adjustments must be made for ambient lighting.

Physical set-up and power supply

Attach lens, viewfinder, microphone and any other accessories to the camera as described in Section 2 - Assembling the Units.

Connect the triax cable to the triax connector and the camera operator's headset to the headset socket on the rear panel of the camera. Connect the audio microphone to either the audio socket on the right side of the camera or the socket on the rear. The camera is powered by the base station via the triax cable. Set the power switch on the left side of the camera to the on position.

Operator preferences

With the owner card or the PIN code set the user level. The recommended minimum user level is 1. Setting the camcorder to level 0 is too restrictive for normal circumstances. For full control set the level to 3.

Video acquisition modes

In the Install menu choose the video mode you wish to use for acquisition. The table below shows the output signals available for each mode.

Viewfinder preferences

Set up the viewfinder according to your own preferences; select markers, message boxes and on-screen display times.

Lens preferences

Set up the lens according to the manufacturer's instructions. Select the lens type from two predefined settings; standard or wide angle. Choose and, if necessary, adjust the iris parameters to suit the lens and your personal preferences.

Video preferences

The camera is now ready for use, however, the ambient conditions must now be taken into account and the appropriate adjustments made on the camera:

a. Recall the standards settings.
b. Switch off the colour bar (when on).
c. Select the gain.
d. Select a neutral density optical filter if required.
e. Set a preset colour temperature or carry out the automatic white balance procedure.
f. Select the correct exposure time.

Note: The number of functions available depends on the user level that has been set. Refer to Section 6 for more information on setting the user level.

Acquisition format	HDTV output	SDTV output	Viewfinder indication
1080i at 59.94 Hz	1080i59.94	525i59.94 (NTSC)	1080i59
1080i at 50 Hz	1080i50	625i50 (PAL)	1080i50
1080i at 119.88 Hz	1080i119.88	525i59.94 (NTSC)	1080i119
1080i at 100 Hz	1080i100	625i50 (PAL)	1080i100
720p at 59.94 Hz	720p59.94	525i59.94 (NTSC)	720p59
720p at 50 Hz	720p50	625i50 (PAL)	720p50
720p at 119.88 Hz	720p119.88	525i59.94 (NTSC)	720p119
720p at 100 Hz	720p100	625i50 (PAL)	720p100

Colour Bar

The left side panel also contains a button for switching on the colour bar test signal. The colour bar is a standard test signal which is used to set up and check the camera before use.

When the colour bar is selected the following functions are temporarily set to the values listed below:

Black stretch	:	Off
White limiter	:	Off
Zebra	:	Off
Safe area (VF)	:	Off
Cadre (VF)	:	Off

Optical filter selection

A neutral density filter and a special effect filter can be placed in the path of the optical signal to modify the incoming light. The filters are selected via the filter switches at the top-front of the camera. These filters can be used, for example, to control depth of field.

The camera does not need colour optical filters to be able to white balance correctly. The range of the auto-white balance is so wide (from 2.5K to 20K) that there is never any need to use colour filters to obtain the correct white.

Gain selection

Depending on the available light levels it may be necessary to adjust the gain of the camera. The gain is selected via the Gain up/down switch on the left side panel. When this switch is pressed initially, the current value of the gain in dB is displayed in the viewfinder.

A new value is chosen by scrolling up or down through the five preset values (-, 0, +, ++ and +++). The actual dB value of these gain steps can be set in the install menu.

The -, + and ++ indicators at the top of the 2-inch viewfinder show which preset is selected.

Colour temperature selection

For true colour reproduction the ambient lighting conditions must be compensated for by selecting a value for the colour temperature. The standard file setting is 3200K (normally used for tungsten light). Two other reference colour temperatures are available; 5600K (for outdoors, clouded conditions) and 7500K (for outdoors, clear blue skies).

Three similar memory positions (FL, AW1 and AW2) are available to store the results of the auto-white measurement process. The FL position is recommended for shooting with fluorescent light.

A continuous automatic white balance position (AWC) is also available. This function continuously measures the white balance and adjusts accordingly. It can be used when a constant colour balance is required under changing lighting temperatures (sunsets, indoors/outdoors use). When AWC is selected none of the colour temperature indicators in the 2-inch viewfinder light.

The colour temperature is selected via the up/down scroll switch (White Bal.) at the left-front side of the camera. The viewfinder displays the current value. A new value is chosen by scrolling up or down through the available values.The colour temperatures are shown in the following order:

White balance : 3200K
White balance : 5600K
White balance : 7500K
White balance : FL
White balance : AW1
White balance : AW2
White balance : AWC

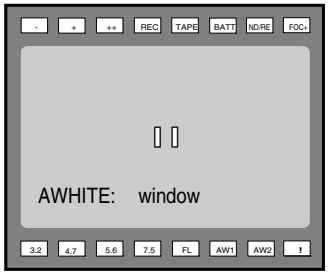
The viewfinder displays the selected value and the actual measured colour temperature. The range of the auto-white balance is from 2.5K to 20K.

In the auto-white positions an electronic colour filter can be adjusted in the system Video menu. This varies the colour balance to obtain warmer or colder colour effects. When an automatic white balance process is performed, the electronic colour filter is reset to its default value.

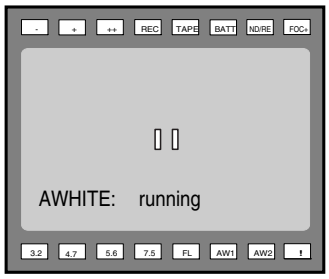
Auto-White Balance

If the reference colour temperatures do not match your lighting conditions carry out the auto-white procedure as follows:

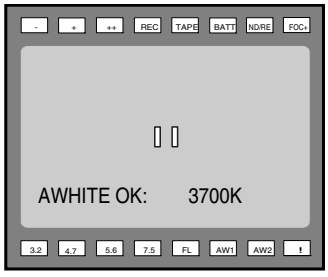
a. Use the colour temperature switch to select one of the memory positions FL, AW1 or AW2 in which to store the measured colour temperature value.
b. Press once on the white balance switch at the front of the camera to start the automatic white balance procedure. The following appears in the viewfinder:



c. Point the camera so that the reference white surface is between the two small white boxes.
d. Press the white balance button again to start the measurement procedure. A message indicating that the process is runnning appears.



e. When the process is completed (within a few seconds) the OK message and the measured temperature appear in the viewfinder.



The measured colour temperature is now stored in the selected memory position and can be recalled as required. The camera is now ready for use.

Note: During the auto-white measurement process iris is set to Auto and 90% and the knee is turned off.

Sometimes when shooting TVs or computer monitors a horizontal bar can be seen across those screens in the viewfinder. There are two ways of removing the noise bar from the picture depending on the frame frequency of the display. For displays with the same frame frequency as the camera, for example TV sets, use the V-shift facility. For displays with a higher frame frequency, for example computer monitors, use the Clean Scan facility.

Clean Scan

Carry out the Clean Scan function as follows:

a. press the Clean Scan button at the front of the camera for about two seconds to directly access the variable exposure (clean scan) function. The Clean Scan submenu appears in the viewfinder.
b. Use the rotary control to change the value and so remove the horizontal black bar.
c. If a more accurate adjustment is required set the Cl. Scan item to Extended.

Note: Set the Clean Scan mode to Normal if a smear effect occurs.

d. Set the Unit item to the preferred read out - Hz or mSec.

When you are finished shooting the monitor press the Clean Scan button for two seconds to switch off the Clean Scan function. (Exposure Time returns to its previous non-variable setting).

The ranges are:

from 101.7 to 250 Hz for 50Hz video mode
from 121.6 to 300 Hz for 60Hz video mode

V-Shift

The vertical shift switch (V-Shift) at the front of the camera is used for displays with the same frame frequency as the camera, for example TV sets. It is an up/down type switch. Pressing the switch moves the black bar up or down so that it is no longer visible in the viewfinder. This function is only active when the camera is not genlocked and when it is not on-air.

When shooting DLP type plasma screens colour shifts may occur due to the nature of the picture build-up. To avoid this, switch on the V-Shift function in the *Install/Timing* menu and adjust the V-Shift level until the colour shift disappears.

If the frame frequencies of camera and monitor are different use the clean scan function.

CRT Exposure

A third possibility can arise when shooting a monitor whose synchronization is locked to the camera's. Stripes might be visible in the picture of the monitor. (This is more usual with 16:9 cameras.) To remove these disturbing line pairing effects between monitor and camera lines, select the CRT option with the Exposure time switch.

Exposure Time

The exposure time values of 1/200, 1/500 and 1/1000 of a second are used to capture fast moving objects so that these can be played back sharply in slow motion. The value selected depends on the speed of the moving object.

Note: Increasing the exposure speed lowers the camera sensitivity proportionally.

The exposure selection also includes lighting control positions which can be used when shooting with lighting that is operating at a different frequency to the camera. There are two position 50 Hz and 60 Hz. Each of these positions can be varied further in a range from -10 to +10.

To reduce flicker select the frequency closest to the frequency of the lights and then vary the lighting control in the system Install menu to obtain the best result.

Focussing

To assist with focussing through the viewfinder, a viewfinder zoom function is available which enlarges the centre of the viewfinder image. In the install menu you can choose a button to control this function:

- The VTR button on the camera,
- The VTR button on the lens,
- The RET switch on a zoom control when the camera is used with a large lens adapter.

The way these buttons operate when in the zoom mode can also be selected in the Install menu.

A crawler function (that can be switched on or off in the VF menu) adds motion in the viewfinder to objects in sharp focus.

Section 6

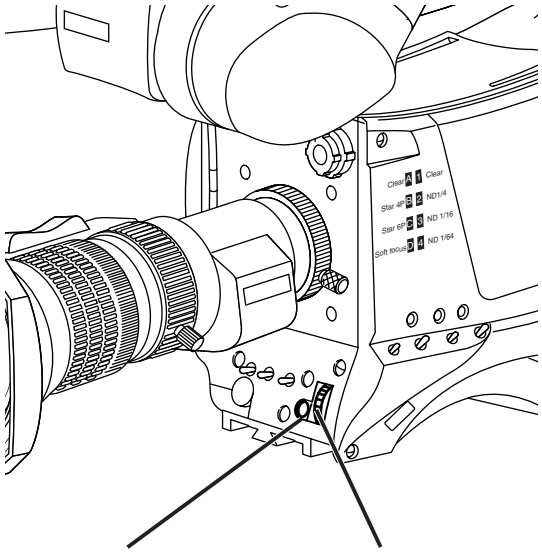
Using the Menu System

Because the camera offers such a wide range of functions, this section describes the structure of the control system. It contains procedures for controlling the menu system and explains how to program the menu system for your personal preferences. The menu structure and the methods of function selection are also explained.

Contents

Operationally, the camera is very easy to use. However, because of the large number of functions available and the large number of set-up options, it may require some time for you to become familiar with them all. We recommend that you spend time using the various controls and displays in order to discover the wide range of possibilities.

Read the instructions in this section carefully but also feel free to examine the various menus in detail. In this way you will learn quickly to intuitively operate the camera.

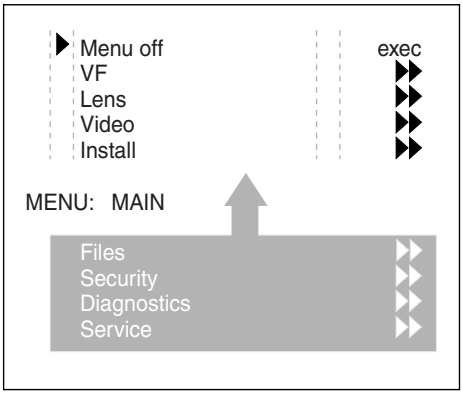


The system functions of the camera are grouped into menus and sub-menus. The systems menu is viewed in the viewfinder and navigated by means of the Rotary control and the Select button which are both located at the front of the camera.

Entering the Systems menu

Press the Select button after the camera is switched on, the message **Menu off** appears in the viewfinder. Press the Select button again while this text is showing, the MAIN menu appears in the viewfinder.

The MAIN menu screen shows five items. The name of the menu is shown below these. Four more items are hidden but



become visible when you scroll down using the rotary control. (Some of these items may not appear if the user level is not set to 3.)

A cursor shows your position in the menu. The Rotary control moves the cursor up and down.

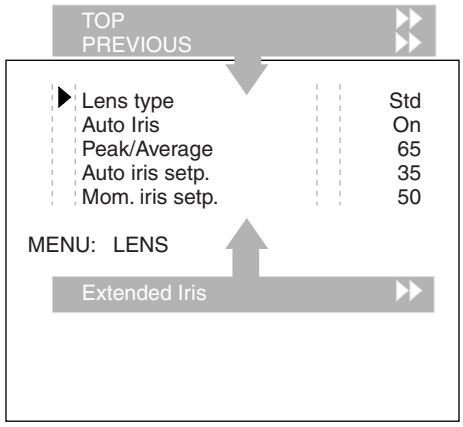
Finding your way

Use the Rotary control to move the cursor through the menu items. If a double arrow (>>) is visible, then pressing the Select button brings you one level lower in the menu system. Only five items are visible in each menu. Scroll up or down to see any additional items.

When you first enter a menu (other than the MAIN menu) the cursor is positioned next to the first item.

The TOP and PREVIOUS entries are not immediately visible but are located above the first item. Use the Rotary control to scroll up to them.

- Select TOP to bring you back to the MAIN menu.
- Select PREVIOUS to go back to the menu that you were in before the current one.



The LENS menu above shows the items displayed when you first enter the menu and the other items that are available by scrolling up or down with the Rotary control.

Leaving the Systems Menu

If you are deep within the menu structure, follow these steps to leave:

a. If necessary move the cursor to the leftmost column with the Select button.
b. Scroll upwards with the Rotary control until the cursor points to TOP (this is the MAIN menu).
c. Press the Select button. The cursor now points to the Menu off item of the MAIN menu.
d. Press the Select button to leave the System menu.

This is the recommended way of leaving the System menu.

If you do not use the menu it disappears after a few seconds. (This delay can be programmed in the VF menu.) However, when you press the Select button again you enter the System menu at the last position of the cursor and not at the top of MAIN menu.

To prevent confusion the next time you enter the System menu, it is advisable to leave the System menu by returning to the MAIN menu (TOP) and selecting Menu off.

Making changes

To find out where you have to go to change a function, consult the appendix to discover under which menu group or sub-group the function you want to change is located.

If the cursor points to an item (and there are no double arrows to indicate a sub-menu) then the item pointed to has a value. The value can be:

- a toggle value (only two values)
- a list value (more than two values)
- an analogue value (variable from 00 to 99)
- or unavailable (---).

If the value is unavailable it cannot be changed. This is indicated by three dashes (---). This can occur, for example, when a function is switched off. The analogue values associated with that function are then unavailable.

If there are only two values associated with the function, then pressing the Select button toggles between these two values.

If a value is displayed next to a function that is one of several possible values, then pressing the Select button places the cursor in a list menu indicating the value currently selected. Use the Rotary control to point to a new value. Press the Select button to return the cursor to the function list.

If an analogue value is displayed next to a function name, then pressing the Select button places the cursor in front of the value and the Rotary control is used to change the analogue value. Press the Select button to return the cursor to the function list.

Undoing changes

If you make changes to the video settings in the Systems menu and you decide not to keep them, use the Std. File button at the side of the camera to recall a standard set of values for the video parameters.

Menu Structure

Access to the functions on these menus is determined by the user level that has been set. The menus are as follows:

Main (top) menu

The top menu gives access to the other menus.

VF menu

This menu contains the functions which determine how items in the viewfinder are displayed.

Lens menu

The functions contained under this menu control various aspects of the lens.

Video menu

The video menu contains those functions which affect the picture quality.

Install menu

This menu contains the functions that are used to set up the general configuration of the camera. It also contains controls to customize those switches that are directly operated on the camera.

Files menu

This menu allows values to be stored in scene and operator files, and allows these files to be recalled as required.

Security menu

The security menu is used by the camera owner to set user levels and to control access to the camera, or to store the customer (scene and operator) default files.

Diagnostic menu

The diagnostic menu is designed to provide information on the current status of the camera.

Service menu

The advanced service menu is available to service engineers for carrying out adjustments and calibrations to the camera (see Technical Manual).

Security Menu for Owner's Access
The Security menu provides restricted access to special set-up and security features of the camera.

Access to this menu requires the owner's unique smart card for the camera or the PIN code that has been set for the camera.

Note: An owner card is linked to the serial number of the camera and is unique to that camera. It cannot be used as an owner card for another camera.

Inserting the owner card into the camera gives direct access to the security menu. If you select the Security menu without this card inserted, you must enter the correct PIN code to gain access to the Security menu.

User Levels
The installed user level function in the Security menu restricts access, in varying degrees, to the operational controls of the camera. There are four user levels: user0, user1, user2 and user3.

The purpose of the user levels is to restrict the set of functions which can be changed by whoever is using the camera. In this way a more centralized and uniform control can be achieved and the danger of the camera operator accidentally changing critical functions while shooting is reduced.

User level 0 is a special protection level which locks most of the operational controls of the camera. Use this level to ensure that a camera that has been set-up is not tampered with. User level 0 is not normally used for operational purposes.

The appendix indicates which functions are available at each user level.

Run Hours
This sub-menu allows the date and time to be set and allows the running time of the camera to be viewed for the last 30 days.

PIN Code
The PIN code of the camera can be viewed and changed in the Security menu.

The camera's PIN code when it leaves the factory is set to 0000. It is strongly advised that this code be changed by the owner on receipt of the camera. This ensures added protection against unaurthorised access to the Security menu.

Standard customer file
The green button on the side of the camera recalls the standard scene file. This file contains standard parameters for the picture performance.

A standard operator's file can be recalled via the Files menu. This file contains parameters for the set-up of the camera.

A customer standard file can be defined for the standard scene file and for the standard operator's file.

The contents of the customer files for both these standard files is stored via the security menu. The selection of a factory defined or a customer defined file for use as a standard file is also made in this menu.

Files Menu Features

A user of the LDK 6000 mkII camera can have access to 15 different files. This number can be extended by using additional scene file smart cards. The Files menu is used to recall and store these files. There are two types of file:

* scene files
* operator files.

A scene file contains values related to the picture performance. The operator file contains values related to the set-up of the camera (viewfinder, lens and installation parameters).
The appendix indicates the functions that are stored in the scene file and those functions that are stored in an operator file.

Scene files

Four scene files are stored in the camera itself (SCAM1,SCAM2, SCAM3 and SCAM4). Another four scene files can be stored on the smart card (SCARD1, SCARD2, SCARD3 and SCARD4).
A STANDARD scene file (preselected as either factory or customer defined) is stored in the camera.

Note: The standard customer scene file is stored via the Security menu, not the Files menu. The decision to use the factory defined file or the customer defined file as the standard file is also made in this menu.

The Files menu enables the scene files to be stored and recalled using the store and recall entries of the menu system. If the message NOK is displayed then the old values are restored. If the camera is on-air when a scene file is recalled then the recalled values do not become active until the camera goes off air.

Operator files

The Files menu also allows the recall of the opererator file stored in the camera (OCAM1) or one of the two operator files (OCARD1 and OCARD2) stored on the smart card. These files contain information for setting up the non-video configuration of the camera.
A STANDARD operator files (factory or customer defined) is stored in the camera.

Note: The standard customer operator file is stored via the Security menu, not the Files menu. The decision to use the factory defined file or the customer defined file as the standard file is also made in this menu.

Install Menu Features

Gain

The gain can be selected in five steps: -, 0, +, ++ and +++. The actual value of the gain in dB can be assigned to these symbols. This is done in the Install menu.

Disable camera

The disable camera function is a protection function which prevents unathorised interference with the camera and provides an additional level of security. Setting disable camera to ON is similar to using User level 0 to protect the settings of the camera.

Appendix

Contents

The appendix contains two types of table listing the contents of the menu system. A list of abbreviations is also included.

The System Menu tables present the functions ordered in the logical divisions of the menu system itself with additional information in the columns:

- User level column
  The User level column indicates the functions that are available with different user levels.

- Values column
  All available choices are listed for a function.

- Blocked if column
  Lists the conditions that block the function.

- Default column
  The default column lists the values of the functions when a camera is delivered.

- Files column
  The File column indicates where the value of the function is stored; in the operator file or in the scene file or not at all.

The second table "List of Systems Menu Functions" contains an alphabetical list of the System menu functions. This table is used to find the menu path to a function and assists in navigating to that function.

List of System Menu Functions

Function	Path in Menu
Adaptor	
12nc	Diagnostics
Type	Diagnostics
Version	Diagnostics
Software Status	Diagnostics
Aspect Ratio select	Install \ Asp Ratio
Aspect Ratio source	Install \ Asp Ratio
Audio	
Gain	Install \ Audio
HP filter	Install \ Audio
Bar switch	VF
Auto Iris switch	Lens
Auto Iris setpoint	Lens
Auto White speed	Install \ Auto White
Auto White gain	Install \ Auto White
Base Station	Diagnostics \ Communication
Black	
Dynamic Black	Video \ Black
level	Video \ Black \ Master
level Blue	Video \ Black \ more
level Green	Video \ Black \ more
level Red	Video \ Black \ more
Stretch level	Video \ Black
Calibrations	Service
Camera	
12nc	Diagnostics
Boot version	Diagnostics
FPGA	Diagnostics
Matching	Files \ Standard Files
Mic. Gain	Install
Mic. Phantom	Install
Software Status	Diagnostics
Version	Diagnostics
Communication	Diagnostics
Contour	
Auto Skin select	Video \ Skin
Coarse/Fine level	Video \ Contour \ more
level	Video \ Contour
level Depend	Video \ Contour \ more
Knee Contour switch	Video
Noise Slicer	Video \ Contour \ more
Skin Contour	Video \ Skin
Skin Contour level	Video \ Skin
Skin Contour param.	Video \ Skin \ more
Skin Contour select	Video \ Skin
Skin Contour view	Video \ Skin

Function	Path in Menu
Soft Contour level	Video \ Soft \ Contour
Soft Contour switch	Video \ Soft \ Contour
Source select	Video \ Contour
Vertical level	Video \ Contour \ more
VF Contour	VF \ VF Contour
Creative settings	Files \ Standard Files
Customer Standard file	
store Scene file	Security \ Customer files
store Oper. file	Security \ Customer files
store VTR file	Security \ Customer files
Green Button select	Security \ Green Button
Disable Camera	Install
Dynamic black	Video \ Black
Exposure time lighting	Install \ Exposure
Exposure time var	Install \ Exposure
Extended Iris param.	Lens \ Extended Iris
File Attributes	Files
Filter Settings Colour	Video \ Colour filter
Flare switch	Video \ Flare
Flare parameters	Video \ Flare
Front Power	Diagnostics
Gain	
Blue	Video \ Gain
Green	Video \ Gain
Red	Video \ Gain
level presets	Install \ Gain \ Preset
Gamma	
Curve select	Video \ Gamma \ more
level Blue	Video \ Gamma
level Green	Video \ Gamma
level Master	Video \ Gamma
level Red	Video \ Gamma
switch	Video \ Gamma \ more
Green Button settings	Security
Installed User Level	Security
Intercom side tone	Install
Iris	
Peak/Average level	Lens
Set Point level	Lens
IR receiver switch	Install

Function	Path in Menu
Knee	
Contour switch	Video \ Knee Contour
Master point	Video \ Knee
Master slope	Video \ Knee
select source	Video \ Knee
parameters	Video \ Knee \ more
switch	Video \ Knee
Leaking Pixel Control	Service
Lens	
Extended iris	Lens
Time speed	Lens
Auto Iris switch	Lens
Auto Iris Setpoint	Lens
Extended Iris	Lens
Manufacturer	Lens
mom. Iris Setpoint	Lens
Iris Peak/Average	Lens
Type	Lens
Lighting conditions	Files \ Standard Files
Marker	VF
Marker Type	VF
Matrix select	Video \ Matrix
Matrix parameters	Video \ Matrix
Master black	Video \ Black
MCP	Diagnostics \ Communication
OCP	Diagnostics \ Communication
On Air lamp switch	Install \ On Air Lamp
Operator file recall	Files \ Recall oper. file
Operator file store	Files \ Oper. file
PIN code	Security
Quick Smart Touch	Install \ Quick Smart Touch
Recall Scene file	Files
Recall Oper. file	Files
Run Hours settings	Security
Rotary speed	VF
Sawtooth switch	Service
Scene file recall switch	Files \ Recall Scenefile
Scene file store switch	Files \ Store Scenefile
Skin Contour	Video \ Skin

Function	Path in Menu
Sensor Type	Diagnostics
Sensor Voltage	Diagnostics
Shading parameters	Video \ Shading
Shading switch	Video \ Shading
Shutter Run	Diagnostics
Shutter phase	Service
Standard files	Files
Standard Settings	Files \ Standard Files
Store Scene file	Files
Store oper. file	Files
Soft Contour	Video \ Soft Contour
Software status	Diagnostics
Tally Light switch	Install
Tolerance	Service \ Calib. Params
User level select	Security \ Installed level
VF	
4:3 Area type	VF
Audio Bar switch	VF
Contour level	VF \ VF Contour
Contour switch	VF \ VF Contour
Centre Cross switch	VF
Focus ind. switch	VF
Iris Indicator switch	VF
Info time	VF
Menu time	VF
Rotary speed	VF
Safe Area switch	VF
Text Display time	VF
Zebra switch	VF
Zebra parameters	VF
Zoom ind. switch	VF
ViPr Test select	Service
Video mode	Install
White Limit switch	Video \ White Limit
White Limit Master	Video \ White Limit
Zebra	
Contrast	VF \ Zebra
level	VF \ Zebra
mode	VF \ Zebra
switch	VF \ Zebra
Zoom	Install

List of Abbreviations

Abbreviation	Meaning
adap	adapter
agc	automatic gain control
awb	automatic white balance
bal	balance
cam	camera
ch	channel
cont	contour
ctemp	colour temperature
ctl	control track longitudinal
cus	customer
df	drop frame
dyn	dynamic
exec	execute
exp	exposure
ext	external
ext	extended
flt	filter
fr	front
frm	frame
f-run	free run
hd	head
hr	hour
ind	indicator
info	information
interv	interview
intv	interview
ir	infra-red
lvl	level
man	manual
max	maximum
mic	microphone
min	minute
min	minimum
mom	momentary
mon	monitor
nam	non-additive mix
nd	neutral density
ndf	no drop frame

Abbreviation	Meaning
ocam	camera operator file
ocard	smart card operator file
op	operation
oper	operator
outp	output
ovl	overload
pin	personal indentification number
r/w	read/write
re	rear
repl	replay
r-run	record run
rst	reset
sawt	sawtooth
scam	camera scene file
scard	smart card scene file
sec	second
sel	select
srch	search
st	stereo
std	standard
str	stretch
tc	time code
tm	timer
ub	user bits
unbal	unbalanced
und	underload
var	variable
ver	version
vert	vertical
vf	viewfinder
wa	wide angle
wh	white
wrn	warning
wrx	wireless receiver

Main Menu							
Menu text		User	Values	Default ENG	Default Triax	Blocked if	File
VF	>>	0					
Lens	>>	0					
Video	>>	2					
Install	>>	0					
Files	>>	1					
Security	>>	0					
Diagnostics	>>	2					
Service	>>	3					

VF Menu						
Menu text	**User**	**Values**	**Default ENG**	**Default Triax**	**Blocked if**	**File**
VF mon	2	Y,R,G,B,-G	Y	Y	-	oper
VF Contour >>						
VF Contour	2	On, Off	On	On	-	oper
Level	2	0..99	50	50	VF cont. Is Off	oper
Focus Assist	0	On,Off	Off	Off	-	oper
Zebra >>						
Zebra	3	On,Off	Off	Off	-	oper
Zebra mode	3	Level, band (-5..5)	Level	Level	Zebra is Off	oper
Zebra level (%)	3	0..99	90	90	Zebra is Off	oper
Zebra contrast	3	0..99	15	15	Zebra is Off	oper
Centre Cross	0	On,Off	Off	Off	-	oper
Audio Bar	0	On,Off	Off	Off	Triax	oper
Iris Ind.	0	On,Off	Off	Off	SuperXPander	oper
Focus Ind.	0	On,Off	Off	Off	No SuperXPander	oper
Zoom Ind.	0	On,Off	Off	Off	-	oper
Box DownRight	0	Fltr,Off	Off	Off	-	oper
Safe area	0	On,Off	Off	Off		oper
Safe area type	0	16:9,15:9,14:9,4:3	16:9	16:9	Safe area is Off	oper
Marker	0	On, Off	Off	Off	-	oper
Marker type	0	15:9, 14:9, 4:3	4:3	4:3	Marker is Off	oper
Marker style	0	Dot,Shad, Both	Dot	Dot	Marker is Off	oper
Marker shading	0	Shad, Black	Shad	Shaf	Marker is Off or Marker style is Dot	oper
Ind. White	2	0..99	70	70	-	oper
Ind. Black	2	0..99	30	30	-	oper
Display	2	On,Time	Time	Time	-	oper
Menu Time	3	0..10 sec.	10	10	Display is On	oper
Info Time	3	0..20 sec.	5	5	-	oper
Rotary Speed	3	0..10	5	5	-	oper
EXT AspectRatio	0	4:3,16:9	4:3	4:3	-	oper
INT AspectRatio	0	4:3,16:9	16:9	16:9	-	oper

Lens Menu						
Menu text	**User**	**Values**	**Default ENG**	**Default Triax**	**Blocked if**	**File**
Lens Type	0	Std,WA	STD	STD	-	oper
Auto Iris	0	On, Off	On	Off	SuperXPander	
Peak/Average	3	0..99	65	65	Auto Iris Off	scene
AutoIris Setpoint	3	0..99	35	35	-	scene
Mom. Iris Setpoint	3	0..99	50	50	-	scene
Manufacturer	0	Ang,Fuj,Ang,Can,Other	Fuj	Fuj	-	-
RE Iris comp.	0	On,Off	Off	Off	-	scene
Extended iris >>	3					
GainSpeed	S	0..99	5	5	-	oper
ExpTimeSpeed	S	0..99	4	4	-	oper
Min Iris	3	F5.6,F8,F11.0,F16	F16.0	F16.0	-	oper
Max Iris	3	F1.4,F2,F2.8,F4,F5.6	F2.0	F2.0	-	oper
Min exp time	3	1/100, 1/200, 1/500	1/500	1/500	-	oper
Max Gain (dB)	3	0..15 (steps of 3)	15dB	15dB	-	oper
Autoiris const >>	3					
Iris gain	3	5..10	5	5	Auto Iris Off	-
Iris threshold	S	0..255	1650	160	Auto Iris Off	-

Video Menu						
Menu text	**User**	**Values**	**Default ENG**	**Default Triax**	**Blocked if**	**File**
Colour Temp >>	2					
Colour Filter	2	0..99	50	50	Col.temp = 3k2,5k6,7k2	scene
Col.temp level	2	2000..21000	3200	3200	Col.temp = FL,AWC	scene
Contour Level	2	0..99	75	30	Contour is Off	scene
Contour >>	3					
Contour	S	Off, On	On	On	-	scene
Level	3	0..99	75	50	Contour is Off	scene
Source Select >>	3	Y,R,G,RG	R+G	R+G	-	scene
<more> >>						
vert cont	3	0..99	50	50	Contour is Off	scene
coarse/fine	3	0..99	5	5	Contour is Off; Video Mode is HIGH SPEED	scene
Level	S	0..99	75	30	Contour is Off	scene
Level dep.	S	0..99	40	40	Contour is Off	scene
noise slicer	S	0..99	10	10	Contour is Off	scene
Soft Contour >>						
Soft Contour	2	Off, On	On	On	-	scene
Level	2	0..99	70	70	Soft Contour is Off	scene
Knee Contour	3	Off, 1,2,3,4	3	Off		scene
Skin >>						
Skin	2	Off, 1, 2, 1+2	Off	Off	-	scene
Auto	2	Off, On	Off	Off	Skin = Off or 1+2	-
View	2	Off, On	Off	Off	Skin = Off	
Skin Level	2	0..99	15	50	Skin = Off	scene
<more> >>						
width1 Red	3	0..99	24	50	Skin <> 1	scene
width1 Blue	3	0..99	44	50	Skin <> 1	scene
color1 Red	3	0..99	38	50	Skin <> 1	scene
color1 Blue	3	0..99	11	50	Skin <> 1	scene
width2 Red	3	0..99	13	50	Skin <> 2	scene
width2 Blue	3	0..99	14	50	Skin <> 2	scene
color2 Red	3	0..99	37	50	Skin <> 2	scene
color2 Blue	3	0..99	6	50	Skin <> 2	scene
Flare >>						
Flare	S	Off, On	On	On	-	scene
Red	S	0..99	10	10	Flare = Off	scene
Green	S	0..99	15	15	Flare = Off	scene
Blue	S	0..99	25	25	Flare = Off	scene
Black >>						
Dyn. Black	2	Off, On	-	-	-	-
Black strech	3	0..99	99	99	Blk str = Off	scene
Master	2	0..99	50	50	-	scene
<more> >>						
Red	3	0..99	50	50	-	scene
Green	3	0..99	50	50	-	scene
Blue	3	0..99	50	50	-	scene
Master	3	0..99	50	50	-	scene

Video Menu (continued)						
Menu text	**User**	**Values**	**Default ENG**	**Default Triax**	**Blocked if**	**File**
Gain >>						
Red	2	0..99	50	50	-	scene
Green	2	0..99	50	50	-	scene
Blue	2	0..99	50	50	-	scene
Range	2	3dB, 6dB	3dB	3dB	-	oper
MasterGain (dB)	2	-6.0..12dB (..18dB)	0dB	0dB	-	scene
Knee	2	Off, Auto, Var	Auto	Off	-	scene
Knee >>						
Knee	2	Off, Var	Auto	Off	-	scene
Knee Type	3	Y, NAM	Y	Y	-	scene
Slope M	3	0..99	60	60	knee <> var	scene
Point M	3	0..99	50	50	knee <> var	scene
<more> >>						
Knee Limit	S	0..99	99	99	knee <> var	scene
Desat	S	Off, On	On	On	knee=off	scene
Desat Level	S	0..99	50	50	desat = off	scene
Auto Point	S	0..99	30	30	knee <> auto	scene
Auto Ref	S	0..99	30	30	knee <> auto	scene
Gamma	2	Nom, Low, Pre	Nom	Nom		scene
Gamma >>	3					
Gamma	3	Nom, Low, Pre	Nom	Nom	-	scene
Master	3	0..99	76	76	gamma <> Pre	scene
Red	3	0..99	76	76	gamma <> Pre	scene
Green	3	0..99	76	76	gamma <> Pre	scene
Blue	3	0..99	76	76	gamma <> Pre	scene
<more> >>	S					
Curve	S	BBC04, BBC05, BBC06, ARD, 6xARD, CCIR, RAI	BBC04	ARD	-	scene
Gamma	S	Gamma,Lin	gamma	gamma	-	scene
Matrix						
Matrix >>						
Matrix	3	EBU, RAI, BBC ,B/W, SKIN, 1:1,CFL,VAR1, VAR2	Skin	Skin	-	scene
R..G	S	0..99	50	50	Matrix <> Var	scene
G..R	S	0..99	50	50	Matrix <> Var	scene
R..B	S	0..99	50	50	Matrix <> Var	scene
B..R	S	0..99	50	50	Matrix <> Var	scene
G..B	S	0..99	50	50	Matrix <> Var	scene
B..G	S	0..99	50	50	Matrix <> Var	scene
Matrix / Gamma	S	G/M, M/G	G/M	G/M	-	scene
White Limit >>	S					
White Limit	S	Off, On	On	On	-	scene
Master	S	0..99	80	80	Wh.Limit = Off	scene

Video Menu (continued)						
Menu text	**User**	**Values**	**Default ENG**	**Default Triax**	**Blocked if**	**File**
Shading						
Shading	S	Off, On	On	On	-	scene
H saw red	S	0..99	50	50	Shading = Off	-
H saw green	S	0..99	50	50	Shading = Off	-
H saw blue	S	0..99	50	50	Shading = Off	-
H par red	S	0..99	0	0	Shading = Off	-
H par green	S	0..99	0	0	Shading = Off	-
H par blue	S	0..99	0	0	Shading = Off	-
V saw red	S	0..99	50	50	Shading = Off	-
V saw green	S	0..99	50	50	Shading = Off	-
V saw blue	S	0..99	50	50	Shading = Off	-
V par red	S	0..99	0	0	Shading = Off	-
V par green	S	0..99	0	0	Shading = Off	-
V par blue	S	0..99	0	0	Shading = Off	-
Saturation	0	0..99	50	50	-	scene

Install Menu (LDK5462)						
Menu text	**User**	**Values**	**Default ENG**	**Default Triax**	**Blocked if**	**File**
Video Mode	3	1080i59, 720p59...	Default VM	Default VM	Not Available	-
TV System	2	PAL, NTSC	NTSC	NTSC	-	-
HD Aspect Ratio	2	16:9, Wide	16:9	16:9	-	-
Disable Camera	0	Off, On	-	Off	Not availalbe in ENG mode	-
IR receiver	0	Off, On	Off	Off	-	oper
OnAir Lamp	0	Off, On	On	On	VF <> 7"	oper
OnAir Handgrip	0	On, Switch	Switch	-	(Only for ENG)	-
Intercom >>						
Side tone	1	0…99	50	50	-	oper
Cam. Mic	1	On,Off,Switch	Off	Off	Cam. Mic is On	oper
Cam. Mic Gain	1	0dB,40dB	40dB	40dB	-	oper
Cam. Mic Power	1	On,Off	Off	Off	-	oper
Cam. Production	1	Off,Left,Right,Both	-	Both	-	oper
Cam. Engeneering	1	Off,Left,Right,Both	-	Both	-	oper
Cam. Program	1	Off,Left,Right,Both	-	Both	-	oper
Cam. Track	1	Off,Left,Right,Both	-	Off	-	oper
Cam. Track level	1	0…99	-	50	-	oper
Track Mic To	1	Off,Cam,Eng,Prod,All	-	Off	-	oper
Track Mic Gain	1	0dB,40dB	-	40dB	-	oper
Track Mic Power	1	On,Off	-	Off	-	oper
Track Source	1	Side,Eng	-	Side	-	oper
Cam. Mic To	1	CH1,CH2	-	CH1	-	oper
Audio >>						
Audio 1 Gain	1	-22,-28,-34,-40,-46,-52, -58,-64	-64	-64	-	oper
Audio 1 HPF	1	On,Off	Off	Off	-	oper
Audio 2 Gain	1	-22,-28,-34,-40,-46,-52, -58,-64	-64	-64	-	oper
Audio 2 HPF	1	On,Off	Off	Off	-	oper
Notch	3	Off, On	Off	Off	-	oper
Exposure >>						
Lighting	1	-10..+10	0	0	Exp.<> 50,60Hz	scene
Clean Scan >>	1					
Cl.Scan Mode	1	Normal,Extended	Normal	Normal	-	scene
Value	1	See section 5 'Shooting Screens'	-	-	-	scene
Units	1	Hz, mSec	mSec	mSec	-	scene
Gain preset >>						
Gain -	2	-3, -6	-3dB	-3dB	-	oper
Gain +	2	3,6,9	3dB	3dB	-	oper
Gain ++	2	6,9,12	6dB	6dB	-	oper
Gain +++	2	12,15	12dB	12dB	-	oper
Autowhite >>					Coltemp<>AW	
Awb speed	S	0..99	4	4	-	oper
Awb gain	S	0..99	10	10	-	oper

Install Menu (LDK5462) continued						
Menu text	**User**	**Values**	**Default ENG**	**Default Triax**	**Blocked if**	**File**
Timing						
H.Phase	0	0..99	50	50	-	oper
V-shift	0	Off, On	Off	Off	-	oper
V-shift level	0	0..99	-	-	V-shift is Off	oper
Quick Smart Touch	1	On, Off	On	On	not installed	-
Private Data	0	Off,C->B,B->C,B<->C	C->B	C->B	-	oper
Fan operation >>						
Head fan	3	Off, On	On	On	-	-
Adaptor fan	3	Off, On	On	On	-	-

Files Menu						
Menu text	**User**	**Values**	**Default ENG**	**Default Triax**	**Blocked if**	**File**
Store scenefile >>						
File select	2	SCAM1..4, SCARD 1..4	-	-	-	-
Store	2	Exec	-	-	-	-
Recall scenefile >>	1					
File select	1	STANDARD, SCAM1..4, SCARD 1..4	-	-	-	-
Recall	1	Exec	-	-	-	-
Store oper. file >>						
File select	1	OCAM 1, OCARD 1..2	-	-	-	-
Store	1	Exec	-	-	-	-
Recall oper. file >>						
File select	1	STANDARD, OCAM 1, OCARD 1..2	-	-	-	-
Recall	1	Exec	-	-	-	-
Attributes >>						
File select	2	available files	-	-	-	-
File name	2		-	-	-	-
Attribute	2	R/W, R	R/W	R/W	no card	-
Standard files >>					not installed	
Standard settings	2	Exec	-	-	-	-
Lighting			-	-	-	-
Night	2	Exec	-	-	-	-
Fluorescent	2	Exec	-	-	-	-
Extreme contrast	2	Exec	-	-	-	-
Creative			-	-	-	-
Sport warm colour	2	Exec	-	-	-	-
Sport interview	2	Exec	-	-	-	-
HI film	2	Exec	-	-	-	-
HI film + skin	2	Exec	-	-	-	-
LO Film	2	Exec	-	-	-	-
LO film + skin	2	Exec	-	-	-	-
Sepia film	2	Exec	-	-	-	-
Matching			-	-	-	-
LDK9x + LDK10	2	Exec	-	-	-	-
DVW-xxx	2	Exec	-	-	-	-
HL-xxx	2	Exec	-	-	-	-
Standard settings	2	Exec	-	-	-	-

Security Menu						
Menu text	**User**	**Values**	**Default ENG**	**Default Triax**	**Blocked if**	**File**
Installed Level	2	user0..user3	user3	user3		-
Run Hours >>						
Days ago	2	0 ... 30	0	0		-
Set Time >>						
Hour	2	0 … 23	-	-		-
Minute	2	0 … 59	-	-		-
Set Date >>			-	-		-
Year	2	0 … 99	-	-		-
Month	2	1 … 12	-	-		-
Day	2	1 … 31	0	0		-
PIN code >>			-	-		
Four digits	0	0000 … 9999	0000	0000		-
Customer files >>			-	-		-
Store cust. Scene	0	Exec				
Store cust. Oper	0	Exec				
Green Button >>			-	-		-
Standard	0	Factory,Customer	Factory	Factory		
Scene file	0	On,Off	On	On		
Operator file	0	On,Off	On	On		

Diagnostics Menu						
Menu text	**User**	**Values**	**Default ENG**	**Default Triax**	**Blocked if**	**File**
Communication >>					-	-
Base Station	2	Ok, NotOk	-	-	-	-
OCP	2	Ok, NotOk	-	-	-	-
MCP	2	Ok, NotOk	-	-	-	-
Adaptor Type	2	Triax, SDI, DVCPRO, [..]	-	-	-	-
Sensor Type	2	IT, ITW, FT, DPM	-	-	-	-
Sensor Voltage	2	Ok, NotOk	-	-	-	-
Shutter Run	2	Run, Stop	-	-	-	-
Front Power	2	Ok, NotOk	-	-	-	-
Y Carrier	2	Ok, NotOk	-	-	-	-
Camera 12nc	2	last 4 digits of 11nc	-	-	-	-
Camera Status	2	2 digits	-	-	-	-
Adapter 12nc	2	last 4 digits of 11nc	-	-	-	-
Adapter Status	2	2 digits	-	-	-	-
PPG Status	2	0..255	-	-	-	-
DVP Status	2	0..255	-	-	-	-
Cam. Temp >>					-	-
Head temp C	0	-55..128	-	-	-	-
Head temp F	0	-67..262	-	-	-	-
Head fan	0	Off, Low, Mid, High, Max	-	-	no fan installed	-
Adaptor temp C	0	-55..128	-	-	-	-
Adaptor temp F	0	-67..262	-	-	-	-
Adapter fan	0	Off, Low, Mid, High, Max	-	-	no fan installed	-
PCB Status >>					-	-
Board	2	DVP, SyncM, PPG, SeDa, LSP, RCB, PrePr, FSP, DaCam, FrDri, DacEn, FWDir	-	-	-	-
Board 12NC	2		-	-	-	-
Board Status	2		-	-	-	-
Firmw 12nc	2		-	-	-	-
Firmw Status	2		-	-	-	-
System status >>					-	-
System	0	SD, HD, HDHS, INVALID	-	-	-	-
Head HW	0	SD, HD, HDHS, INVALID	-	-	-	-
Head SW	0	SD, HD, HDHS, INVALID	-	-	-	-
Adaptor	0	SD, HD, HDHS, INVALID	-	-	-	-
Camera	0	SD, HD, HDHS, INVALID	-	-	-	-
Base station	0	SD, HD, HDHS, INVALID	-	-	-	-

Service Menu						
Menu text	**User**	**Values**	**Default ENG**	**Default Triax**	**Blocked if**	**File**
Sawtooth	3	Off, On	Off	Off	-	-
Sawt Select	3	PrPr, Asic	PrPr	PrPr	-	-
Scaler >>			-	-	-	-
Encoder		Off,On	Off	Off	-	
SDI	3	Off,On	Off	Off	-	
Encoder Colourbar	3	Off,On	Off	Off	-	
EPLD Test	3	Off,Sawt,Bars	Off	Off	-	
Chroma	0	Off, On	On	On	-	-

LDK 4506 HDHS CPU

User's Guide

Contents

About This Manual

Service policy
This CPU is a sophisticated unit containing state-of-the-art electronic components which are designed to provide long-life operation without the need for maintenance. With this in mind, the service policy of Thomson Broadcast Solutions endeavours to ensure that help will be quickly on hand in the unlikely event of anything going wrong. The guiding principles of the Thomson Multimedia Broadcast Solutions first line maintenance philosophy are speed and cost effectiveness. First line maintenance is dedicated to keeping your CPU operational, despite a fault, by module replacement and the replacement of minor mechanical parts by the user.

Purpose of this manual
The provision of correct information is the first step in ensuring the operational integrity of the CPU. Information on the operation of the CPU is contained in Section 3 of the manual.

This User's Guide is an integral part of the service policy. It ensures that you will be able to operate, install and set-up your CPU to meet the requirements of your environment. The information on the installation of the CPU is contained in Section 2 of the manual. The remaining sections of the manual provide first line service information so that suitably qualified service personnel can detect and repair faults, normally by module replacement.

Because of the complexity of some of the components, second line service can only be carried out at the specially equipped service centres and information concerning second line maintenance is not supplied
in this manual.

Intended audience
The manual is intended as a guide to those with a working knowledge of camera systems and installation techniques. The first line detection and repair of faults requires a general knowledge of test and measurement techniques.

Structure of this manual
The manual is divided into five different sections:

Section 1: Safety Instructions
Outlines the safety precautions that must be taken when using the CPU.

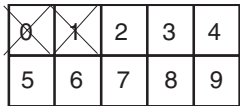
Section 2: Installation
Gives instructions on the integration of the CPU into the operating environment and the customization of certain functions.

Section 3: Operating instructions
Explains how to program the menu system for your personal preferences. The menu structure and the methods of function selection are also explained. An appendix to this section lists all the menu functions.

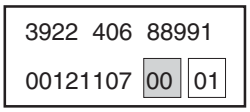
Section 4: Replacements
Gives information on the replacement of components at first line level.

Section 5: Diagnostics
Gives a guide to diagnostic messages and procedures for fault-finding.

Identification and Status
To indicate the status of a drawing, a box with the numbers 0 to 9 is shown in the bottom-right of the drawing. The number that is crossed-out is the status number of the drawing. For example, in the illustration below, the status is 1.



A sticker is used on the units themselves to identify them and to indicate their status. For example, in the illustration below, the top line is the 12-digit number that identifies the unit type.



The first four digits of the number on the second line represent a date code (year, week); the next four digits represent the serial number for that week.

The number in the grey area indicates the status of the unit. The last two digits represent the number that will be given to the next status. However, if these two digits are contained in a box, then this is the current status. For example, in the illustration above, the current status of the unit is 01.

Section 1

Safety Instructions

This section outlines the precautions that must be taken into account when using the HDHS CPU.

Contents

Safety Summary

This informaton is intended as a guide for trained and qualified personnel who are aware of the dangers involved in handling potentially hazardous electrical/electronic equipment. It is not intended to contain a complete list of all safety precautions which should be observed by personnel in using this or other electronic equipment.

The installation, maintenance and service of this equipment involves risks both to personnel and equipment and must be performed only by qualified personnel exercising due care.

Personnel engaged in the installation, operation, maintenance or servicing of this equipment are urged to become familiar with First Aid theory and practises.

During installation and operation of this equipment, local building safety and fire protection standards must be observed.

Before connecting the equipment to the power supply of the installation, the proper functioning of the protective earth lead of the installation needs to be verified.

Whenever it is likely that safe operation is impaired, the apparatus must be made inoperative and secured against any unintended operation. The appropriate servicing authority must then be informed. For example, safety is likely to be impaired if the apparatus fails to perform the intended function or shows visible damage.

This product has been designed and tested according to EN60065.

Cautions and Warnings

When performing service, be sure to read and comply with the warning and caution notices appearing in the manuals. Warnings indicate danger that requires correct procedures or practices to prevent death or injury to personnel. Cautions indicate procedures or practices that should be followed to prevent damage or destruction to equipment or property.

WARNING

THE CURRENT AND VOLTAGES PRESENT IN THIS EQUIPMENT ARE DANGEROUS. ALL PERSONNEL MUST AT ALL TIMES FOLLOW THE SAFETY REGULATIONS.

ALWAYS DISCONNECT POWER BEFORE REMOVING COVERS OR PANELS.

ALWAYS DISCHARGE HIGH VOLTAGE POINTS BEFORE SERVICING.

NEVER MAKE INTERNAL ADJUSTMENTS, PERFORM MAINTENANCE OR SERVICE WHEN ALONE OR WHEN FATIGUED.

IN CASE OF AN EMERGENCY ENSURE THAT THE POWER IS DISCONNECTED.

ANY INTERRUPTION OF THE PROTECTION CONDUCTOR INSIDE OR OUTSIDE THE APPARATUS, OR DISCONNECTION OF THE PROTECTIVE EARTH TERMINAL, IS LIKELY TO MAKE THE APPARATUS DANGEROUS. INTENTIONAL INTERRUPTION IS PROHIBITED.

FOR SAFETY REASONS THE CPU MUST BE MOUNTED IN A 19-inch RACK WHICH HAS SAFETY COVERS ACCORDING TO IEC65.

WHEN TWO CPUs ARE MOUNTED ABOVE EACH OTHER THE MINIMUM DISTANCE BETWEEN THEM MUST BE 50MM OR THE RACK MUST BE FORCE-AIR COOLED.

USE ONLY FUSES OF THE TYPE AND RATING SPECIFIED.

CAUTION

To prevent risk of overheating, ventilate the product correctly.

Connect the product only to a power source with the specified voltage rating.

Never connect the Triax cable from a camera to a CPU of a different family; never connect the LDK family to the TTV family.

Do not allow system ground currents to exceed 1.5A in the outer shield of the triax cable or 0.2A in other cable shields.

It is strickly prohibited to short circuit the inner and outer shields of a triax cable used to connect a camera to a CPU

Symbol	Colour	Explanation
	Red	High voltage terminal at which a voltage, with respect to an other terminal, exists or may be adjusted to 1000V or more.
	Yellow/Black	Live part.
	Yellow/Black	This marking indicates that the operator must refer to an explanation in the Instruction Manual, or that a specific component must be replaced by the component specified in the documentation for safety reasons.
	White/Black	Protective earth (ground) terminal.

Cathode ray tubes

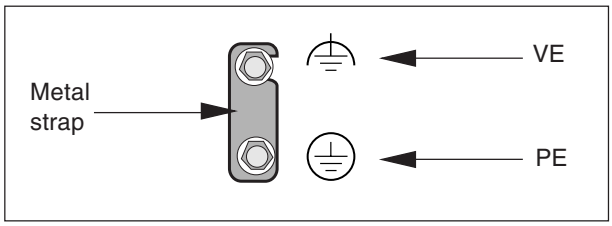
Components marked ⚠ on the circuit diagram are critical for safety and include those specified to comply with X-ray emission standards for units using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

When servicing units that use cathode ray tubes (CRTs), the cathode ray tubes themselves, the high voltage circuits and related circuits are specifically chosen so that they comply with recognized codes pertaining to X-ray emission.

Consequently, when servicing, replace the cathode ray tubes and other parts with specified parts only. Do not attempt to modify these circuits as any unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

Handle the cathode ray tube only when wearing shatterproof goggles and after discharging the high voltage completely.

The rear of a CPU has two separate screw terminals for protective earth ⏚ (PE) and video earth (VE).



These are normally connected by a metal strap. The protective earth terminal is internally connected to the protective earth conductor of the power cable. If required, the central earth connection wire of the studio can be connected to terminal PE.

In normal circumstances the connection between the protective earth and the video earth should not be broken.

The metal strap may be removed only if the studio (or OB van) is equipped with separate protective and video earth systems. Under these circumstances the video earth terminal must be connected to the central functional earth potential (video earth) of the studio. This earth potential should have functional protective and noiseless earth (FPE) qualities as stated in the VDE regulation 0800/part2. A low impedance interconnection of both earth conductors must be provided at the central studio earthing point.

WARNING

THE UNIT MUST ALWAYS BE CONNECTED TO PROTECTIVE EARTH.

Mains Lead Wiring for UK Users

The wires in the mains lead are coloured in accordance with the following code:

GREEN AND YELLOW	-	EARTH
BLUE	-	NEUTRAL
BROWN	-	LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:

- The wire coloured GREEN AND YELLOW must be connected to the terminal on the plug marked with the letter E or by the safety earth symbol ⏚ or coloured GREEN or GREEN AND YELLOW.
- The wire coloured BROWN must be connected to the terminal marked with the letter L or coloured RED.
- The wire coloured BLUE must be connected to the terminal marked with the letter N or coloured BLACK.

Ensure that your equipment is connected correctly - if you are in any doubt consult a qualified electrician.

Section 2

Installation

This section provides information which is relevant when the CPU is to be used for the first time. Packing and unpacking instructions together with information on the integration of the CPU into your studio system are provided. The procedures for the customization of certain hardware functions and connector information is also provided.

Contents

Unpacking/Transport/Storage

Unpacking

Inspect the shipping container for evidence of damage immediately after receipt. If the shipping container or cushioning material is damaged, it should be kept until the contents of the shipment have been checked for completeness and the units have been checked mechanically and electrically.

The shipping container should be placed upright and opened from the top.

Remove the cushioning material and lift out the contents.

The contents of the shipment should be checked against the packing list. If the contents are incomplete, if there is mechanical damage or defect, or if the units do not perform correctly when unpacked, notify your Thomson Multimedia Broadcast Solutions sales or service centre within eight days. If the shipping container shows signs of damage or stress, notify the carrier as well.

Transport

If a unit is being returned to Thomson Multimedia Broadcast Solutions for servicing, try to use the containers and materials of the original packaging. Attach a tag indicating the type of service required, return address, model number, full serial number and the return number which will be supplied by your Thomson Multimedia Broadcast Solutions service centre.

If the original packing can no longer be used, the following general instructions should be used for repacking with commercially available materials:

a. Wrap unit in heavy paper or plastic.

b. Use strong shipping container.

c. Use a layer of shock-absorbing material around all sides of the unit to provide firm cushioning and prevent movement inside container.

d. Seal shipping container securely.

e. Mark shipping container FRAGILE to ensure careful handling.

Storage

The unit may be stored (non-operating condition) in environments within the following limits:

Temperature:	-40°C to +70°C
Humidity:	Max. 90% (non condensing)
Altitude:	max. 50.0000 feet

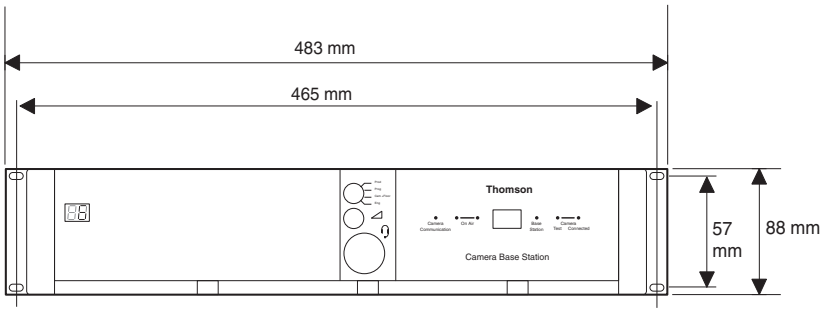
When stored, the unit should be protected from temperarure extremes which may cause condensation, and should also be protected from high levels of dust.

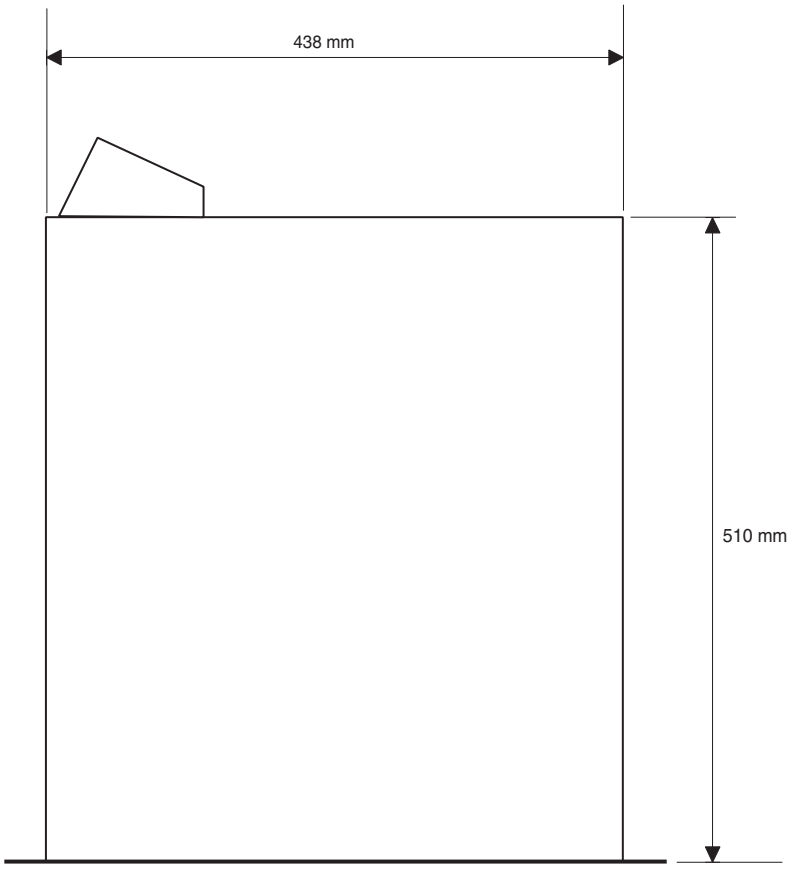
Dimensions

Dimensions:

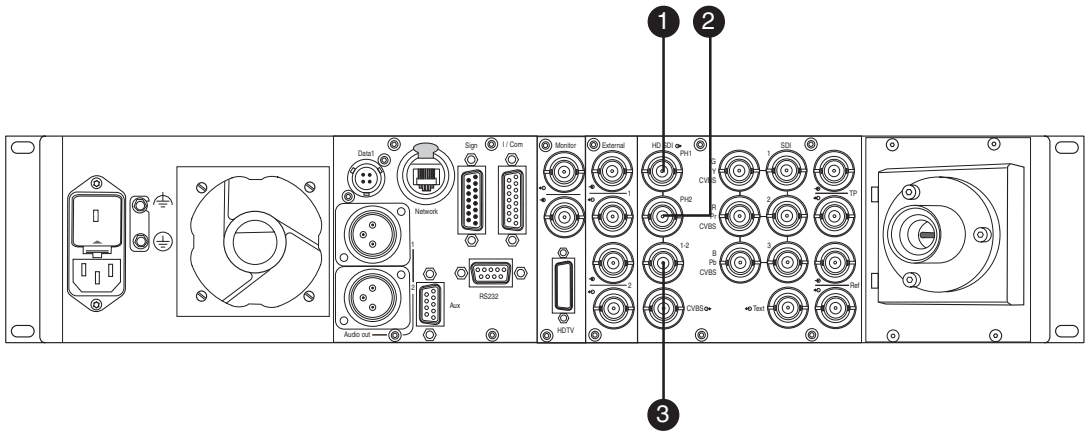
Width:	438 mm
Height:	88 mm
Depth:	510 mm max. (excluding triax connector + cable)

Weight: approx. 17kg.





Connectors and Cables



The HS Phase 1 and HS Phase 2 connectors provide dual phase HD serial digital video signal that is suitable for a multi-channel disk recorder for slow motion playback:

1 HS Phase 1 Digital OUTPUT

Odd fields/frames at 1.5 Gbps. BNC 75 Ohm compliant with SMPTE 292M.

2 HS Phase 2 Digital OUTPUT

Even fields/frames at 1.5 Gbps. BNC 75 Ohm compliant with SMPTE 292M.

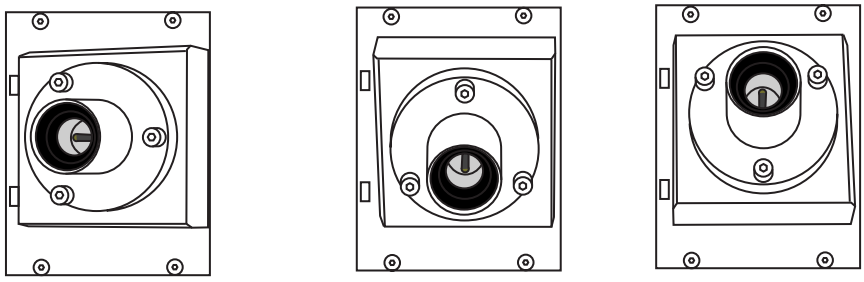
3 HD-SDI

Combined HD signal at 1.5 Gbps. BNC 75 Ohm compliant with SMPTE 292M.

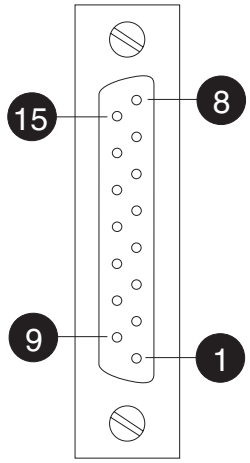
note: In normal speed video mode (LDK 6000 compatible) these three BNC outputs carry the same standard HD digital video signal.

Triax connector orientation

The triax connector can be mounted to suit your cable run.



Intercom Connector (I/Com) - Panel View



X374	**15-pin female**
Panel part number	2411 022 06239
Cable part number	2411 022 05168

15-pin female, shielded cable

1. Prod. out (4-wire out, 2-wire in/out)
2. Prod. in (4-wire only)
3. Prod. in shield (4-wire only)
4. ENG in (4-wire only)
5. ENG out (4-wire out, 2-wire in/out)
6. Progr. in (4-wire only)
7. Progr. in shield (4-wire only)
8. Housing
9. prod. out return (4-wire out, 2-wire in/out)
10. prod. in return (4-wire only)
11. ENG in shield (4-wire only)
12. ENG in return (4-wire only)
13. ENG out return (4-wire out, 2-wire in/out)
14. Progr. in return (4-wire only)
15. Housing

Shield of cable to the pin marked housing.

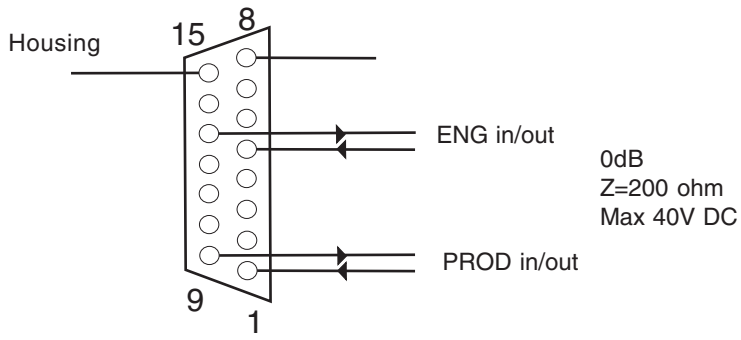
4-wire:

Output signals: level +6dBu or 0dBu selectable output impedance 50 ohm (max), symmetrical

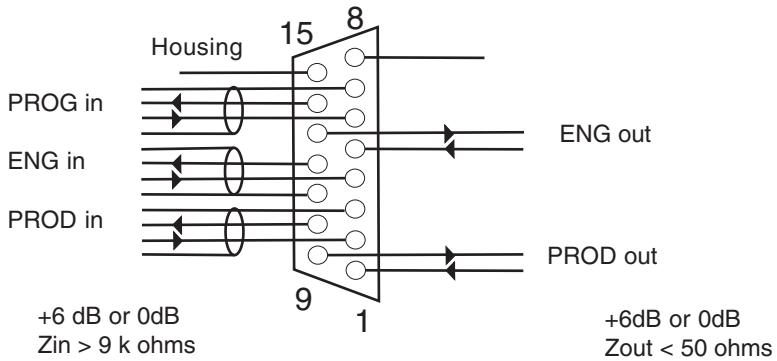
Input signals: level +6dBu or 0dBu selectable impedance 9 Kohm (min), symmetrical

2-wire: level 0dBu
load impedance: 200 ohm
maximum DC level = 40 V

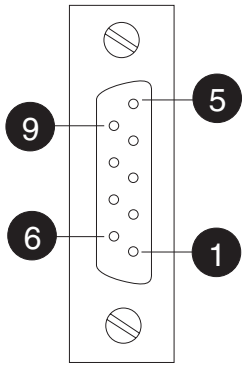
2 - Wire configuration



4 - Wire configuration



RS232 Connector (RS232) - Panel View

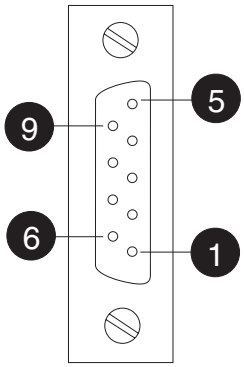


1. SPARE
2. RS-RXD - Receive Data
3. RS-TXD - Transmit Data
4. RS-DTR - Data Terminal Ready
5. RS-DGND - Signal Ground
6. RS-DSR - Data bSet Ready
7. RS-RTS - Request To Send
8. RS-CTS - Clear To Send
9. +12V

X7 Data Board 9-pin male
X379 Signal Connector Board

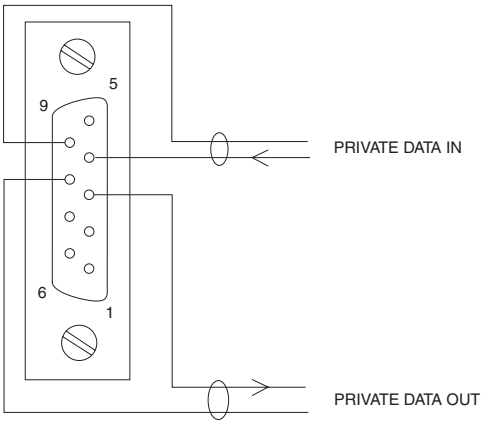
Panel part number 2422 025 12962
Serial Interface Cable 4822 872 03413

Auxiliary Connector (Aux) - Panel View



X371 **9-pin female**

Panel part number 2411 022 06238
Cable part number 2411 022 05284



9-pin female, shielded cable

1. +5V
2. AN 0
3. PRIVATE DATA OUT
4. PRIVATE DATA IN
5. Housing (Shield of cable to this pin)
6. GND
7. AN 1
8. PRIVATE DATA OUT RET
9. PRIVATE DATA IN RET

Shield of cable directly to the connector housing.

AUX (private data BS - CAM)

: "0"= 0V +/- 0.5V

: "1"= 5V +/- 0.5V

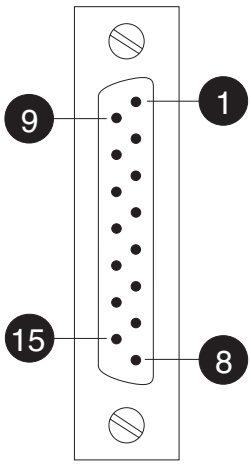
Rout = 150 ohm

Baudrate typ 2400 bits/sec

max 4800 bits/sec

Duty cycle difference between input and output is max 5%

Signalling Connector (Sign) - Panel View



X 370 15-pin male; panel view

Panel part number 2411 022 05292
Cable part number 2411 022 06157

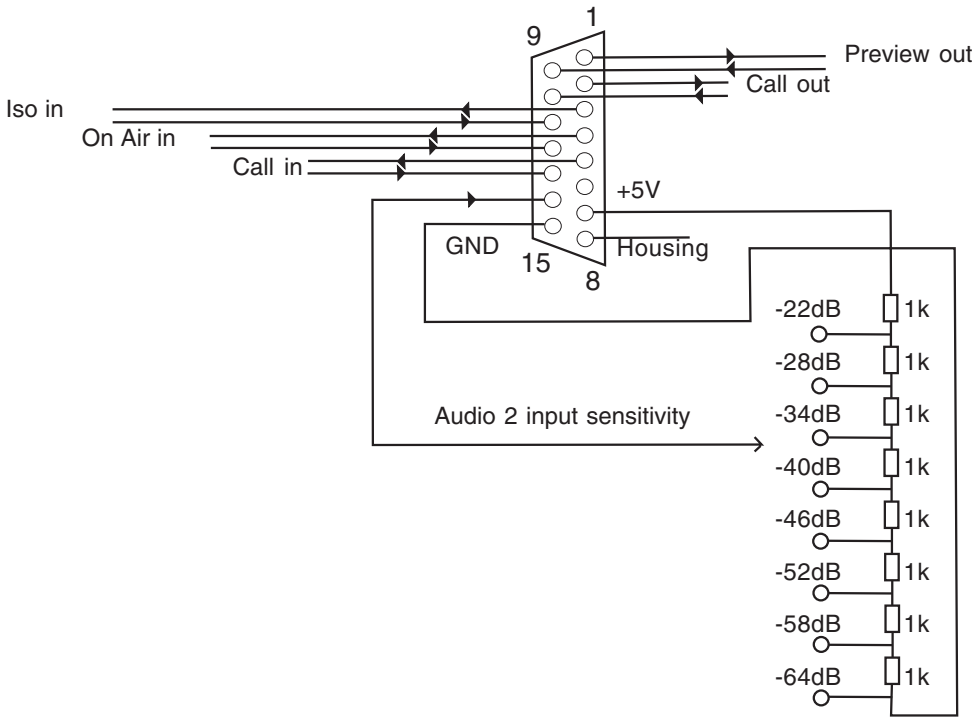
15-pin male, shielded cable

1. Prev. out ext. (relay contact < 10 ohm)
2. Call out ext. (relay contact < 10 ohm)
3. Iso in ext. (dry contact)
4. On-Air in ext (dry contact)
5. Call in ext. (dry contact)
6. Audio 1 level (analogue input voltage 0V to +5V, see figure below)

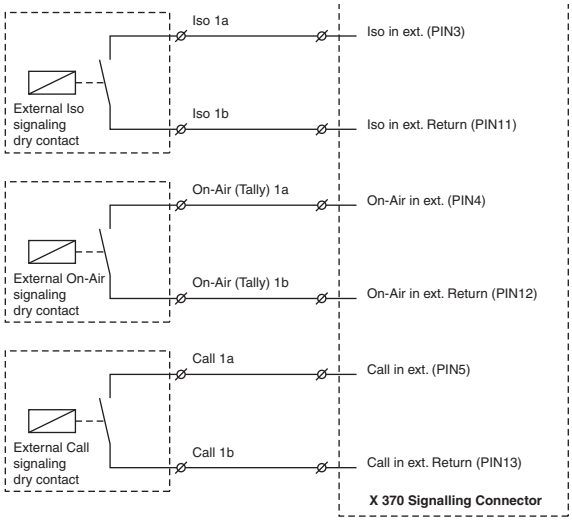
   - 64 dB ------ 0V
   - 58 dB ------ +0.7V
   - 52 dB ------ +1.3V
   - 46 dB ------ +1.9V
   - 40 dB ------ +2.5V
   - 34 dB ------ +3.1V
   - 28 dB ------ +3.7V
   - 22 dB ------ +4.3V

7. +5 Vdc; OCP
8. Housing
9. Prev. out ext. return
10. Call out ext. return
11. Iso in ext. return
12. On-Air in ext. return
13. Call in ext. return
14. Audio 2 level (see pin 6)
15. GND

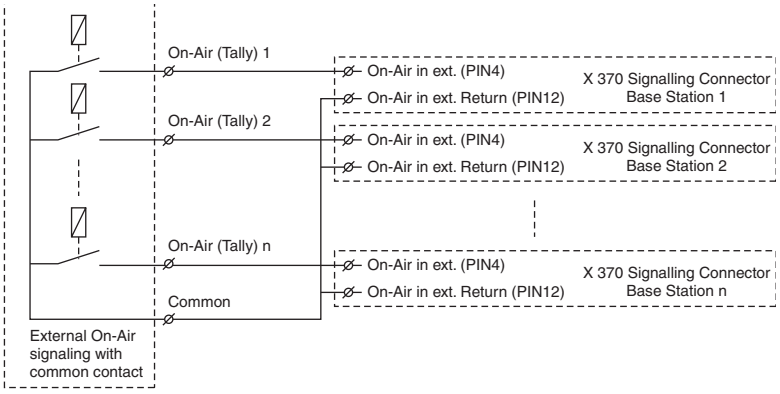
Shield of cable to the pin marked housing.



When the Iso, On-Air or Call signal is provided by a dry contact, connect the outputs to the signalling connector as shown in this figure.

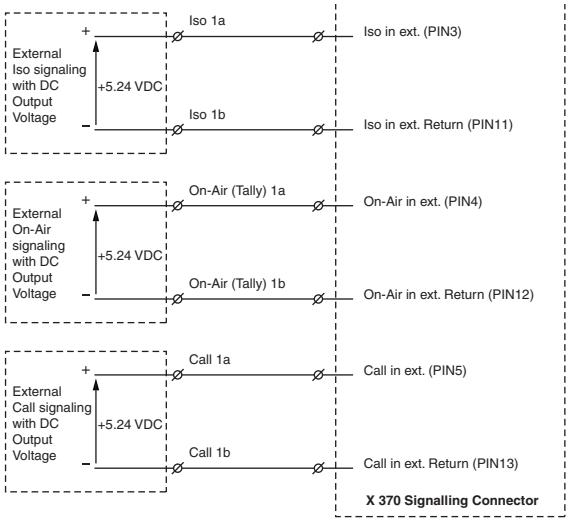


When the Iso, On-Air or Call signal is provided by a dry contact with a common return connector connect the outputs to the signalling connector as shown in this figure.

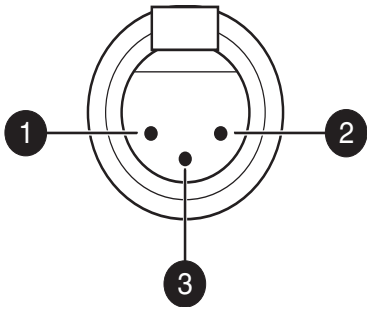


When the Iso, On-Air or Call signal is provided by a DC output voltage connect the outputs to the signalling connector as shown in this figure.

Notes: The Iso, On-Air and Call signal is off if the input voltage is 5..24 VDC. The Iso, On-Air and Call signal is on if the input voltage is 0VDC. The X370 Signalling inputs are not galvanically separated. We recommend using dry contacts and when these are not available using galvanically separated DC voltage outputs.



Audio Connector - Panel View



1. shield
2. Audio +
3. Audio -

Microphone impedance >200 ohm

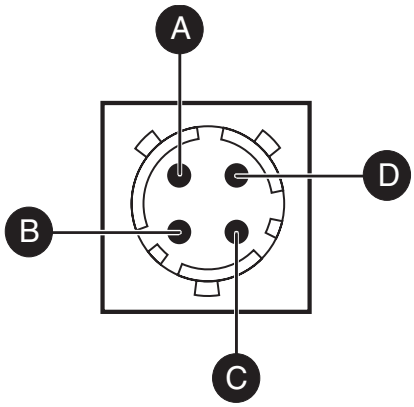
Sensitivity remote controlled via CPU:

range: -64 to -22 dBu.

Shield of cable directly to the connector housing.

X338/X339	**XLR 3-pin male**
Panel part number	2422 026 02985
Cable part number	2432 026 00185

Data Connector - Panel View



4-pin male, shielded cable

A. Data

B. Data not

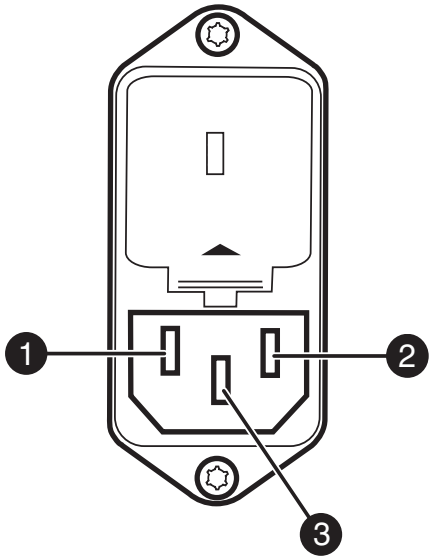
C. Not connected

D. Shield

Shield of cable to the pin marked housing.

X368 / X378	**4-pin male**
Panel part number	2411 020 11367
Cable part number	2411 020 12025

Mains Input Connector - Panel View



Eurostyle 3-pin male

1. Neutral
2. Line
3. Earth

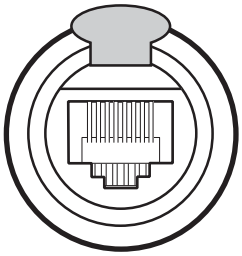
Mains input voltage: 230 Vac or 115 Vac

Fuses: 4AT 10AT

Mains frequency: 47 to 63 Hz

Power consumption: 320 Watt

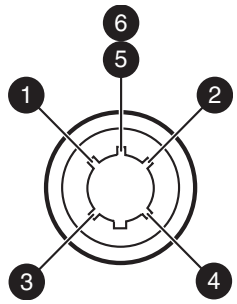
Ethernet Connector - Panel View



8-pin Standard Ethernet RJ-45 connector

X378 **Neutrik RJ-45**

Headset Connectors - Panel View



X574 **Tuchel 5-pin female**
Panel part number
Cable part number

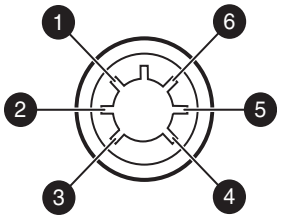
Headset Connector

Tuchel 5-pin female

1. Telephone left
2. Telephone return
3. Microphone
4. Microphone return

5/6. Telephone right

Shield of cable directly to the connector housing.

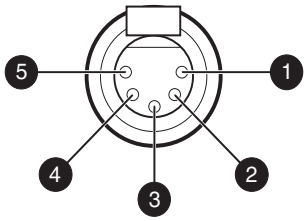


X574 **Tuchel 6-pin female**
Panel part number
Cable part number

Tuchel 6-pin female

1. Telephone left
2. Telephone return
3. Microphone
4. Microphone return
5. Telephone right
6. Telephone return

Shield of cable directly to the connector housing.



X574 **XLR 5-pin female**
Panel part number 2422 026
Cable part number

XLR 5-pin female

1. Microphone return
2. Microphone
3. Telephone return
4. Telephone left
5. Telephone right

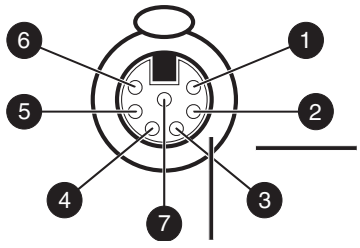
Microphone level -64dBu

Microphone impedance 200 ohm

Telephone level +6dBm nominal

Telephone output impedance <50 ohm

Shield of cable directly to the connector housing.

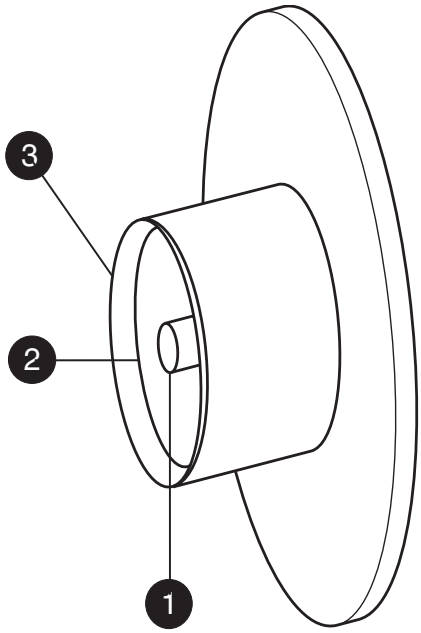


X574 **XLR 7-pin female**
Panel part number 3922 494 16571
Cable part number

XLR 7-pin female

1. not connected
2. Return
3. ENG Telephone right
4. Return
5. ENG Telephone left
6. Return
7. ENG Microphone

Triax Connectors - Panel View



X540	**Fischer male**
Panel part number	3922 407 30531
X540	**Trilock female**
Panel part number	3922 407 30551
X540	**ARD female**
Panel part number	3922 407 30571
X540	**LEMO 3 female**
Panel part number	3922 407 30631
X540	**LEMO 4 female**
Panel part number	3922 407 30591
X540	**LEMO BBC male**
Panel part number	3922 407 30611

The panel partnumbers are the connectors including the assembly.

Triax Connectors

Fischer

1. Inner pin:	Signals + power
2. Inner shield:	Return
3. Outer shield:	CPU housing

Trilock

1. Inner pin:	Signals + power
2. Inner shield:	Return
3. Outer shield:	CPU housing

ARD

1. Inner pin:	Signals + power
2. Inner shield:	Return
3. Outer shield:	CPU housing

Lemo 3

1. Inner pin:	Signals + power
2. Inner shield:	Return
3. Outer shield:	CPU housing

Lemo 4

1. Inner pin:	Signals + power
2. Inner shield:	Return
3. Outer shield:	CPU housing

Lemo BBC

1. Inner pin:	Signals + power
2. Inner shield:	Return
3. Outer shield:	CPU housing

Intercom

The intercom functions available are determined by the configuration of the CPU. The Headset board and the Audio/Intercom board are optional. This results in four possible configurations:

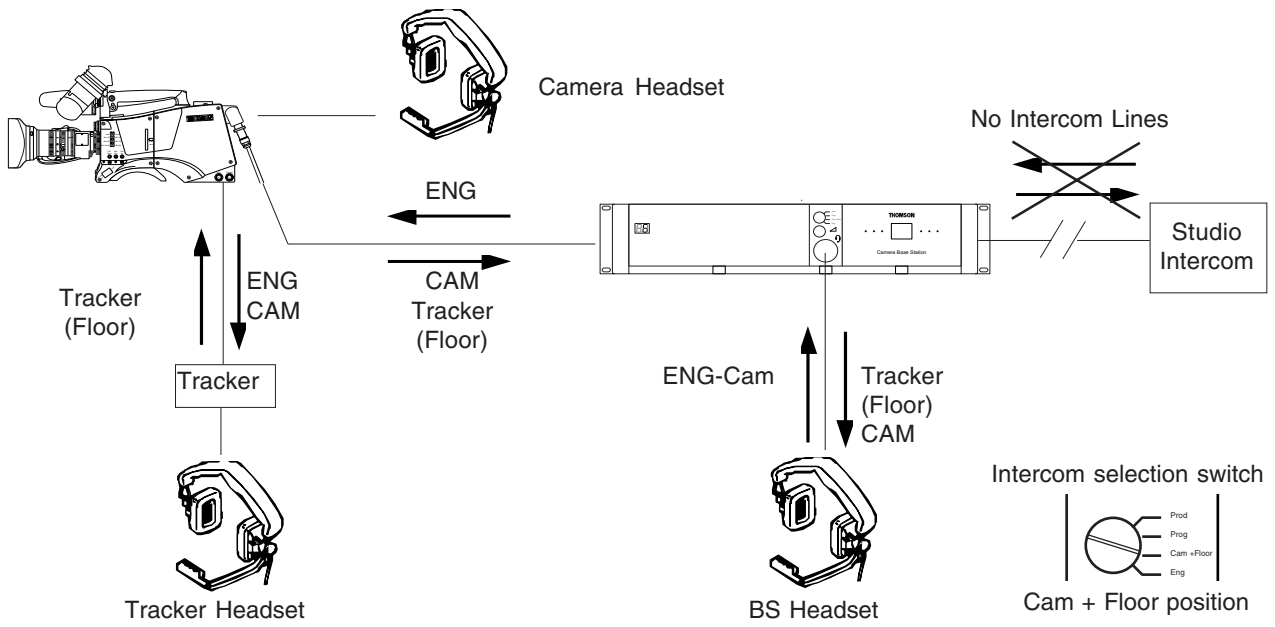
1. Headset board present - Audio/Intercom board absent
2. Headset board absent - Audio/Intercom board present
3. Both boards present
4. Both boards absent

If both boards are absent then there are no intercom facilities available. The other configurations are shown in the figures below.

Depending on your camera configuration, consult the cross-reference tables to see which menu positions should be used for both camera and CPU menus for routing the intercom signals.

Headset board present - Audio/Intercom board absent in CPU

1. Headset board present - Audio/Intercom board absent



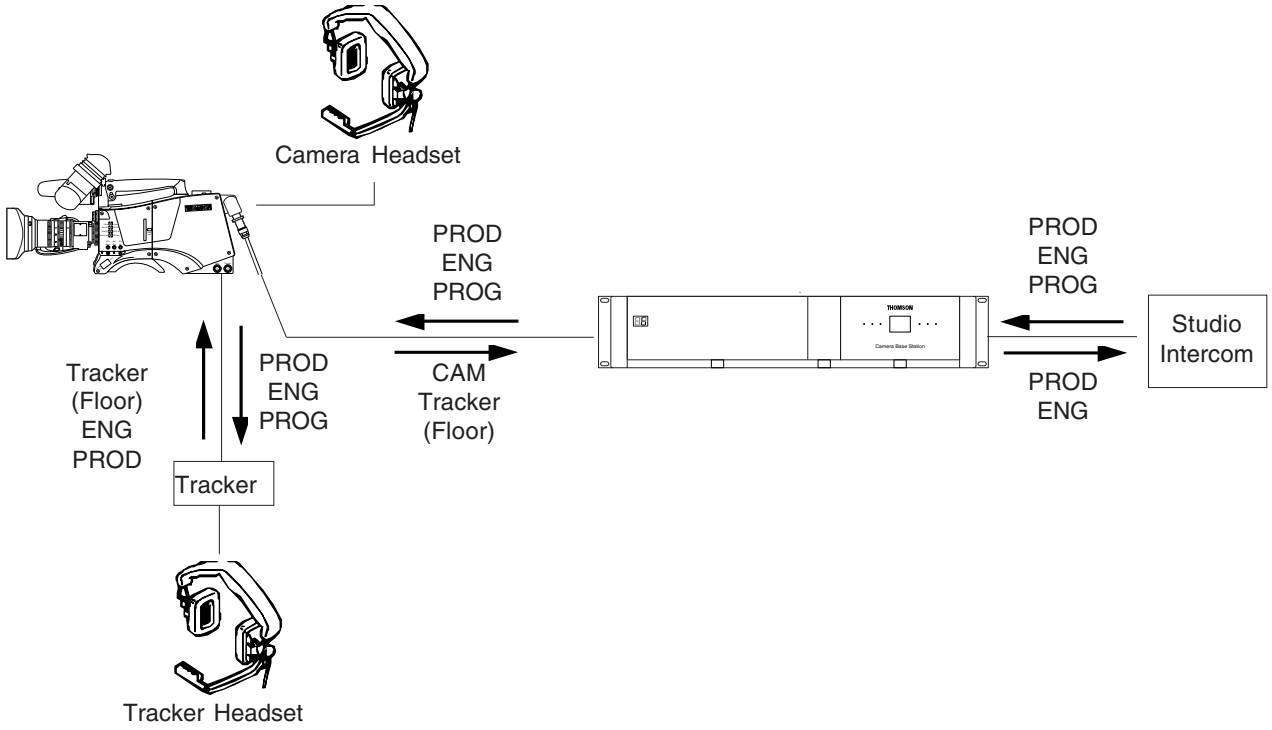
Headset board present - Audio/Intercom board absent in CPU

FROM \ TO	Tracker Headset	Camera Headset	BS Headset
Tracker Mic (Phantom Power !)	Tracker Output = ENG Channel Camera system menu: Install \ Intercom \ Track mic to ≠ Off Install \ Intercom \ Track Source = Side	Camera system menu: Install \ Intercom \ Track mic to ≠ Off Install \ Intercom \ Cam track ≠ Off Install \ Intercom \ Cam level > 0	Camera system menu: Install \ Intercom \ Track mic to ≠ Off BS system menu: Audio/Intercom \ ENG headset \ Tracker to headset = On Audio/Intercom \ ENG headset \ Tracker volume > 0 BS front: Intercom selection switch = Cam + Floor
Camera Mic (Phantom Power !)	**CAM Channel** Tracker Output = Camera Channel Cam Mic = On* Camera system menu: Install \ Intercom \ Cam Mic to = CH1 **ENG Channel** Tracker Output = ENG Channel Camera system menu: Install \ Intercom \ Track Source = Side Install \ Intercom \ Cam Mic to = Ch2	Camera system menu: Install \ Intercom \ Cam Mic = On Install \ Intercom \ Side tone > 0	Camera system menu: Install \ Intercom \ Cam mic to = CH1 *(If = CH2, then monitoring via floor)* BS system menu: Audio/Intercom \ ENG headset \ Cam to headset = On Audio/Intercom \ ENG headset \ Cam volume > 0 Audio/Intercom \ ENG headset \ Floor to headset = On BS front: Intercom selection switch = Cam + Floor
BS Headset Mic (Phantom Power !)	Tracker Output = ENG Channel Camera system menu: Install \ Intercom \ Track Source = ENG BS system menu: Audio/Intercom \ ENG Headset \ Mic to ENG-Cam = On	Camera system menu: Install \ Intercom \ Cam engineering ≠ Off BS system menu: Audio/Intercom \ ENG Headset \ Mic to ENG-Cam = On	BS system menu: Audio/Intercom \ ENG headset \ Side tone > 0

* Other ways to switch on camera microphone:
- Camera: Start button = On
- Camera: Intercom Routing Switch = ENG or PROD

Audio/Intercom board present - Headset board absent in CPU

2. Headset board absent - Audio/Intercom board present



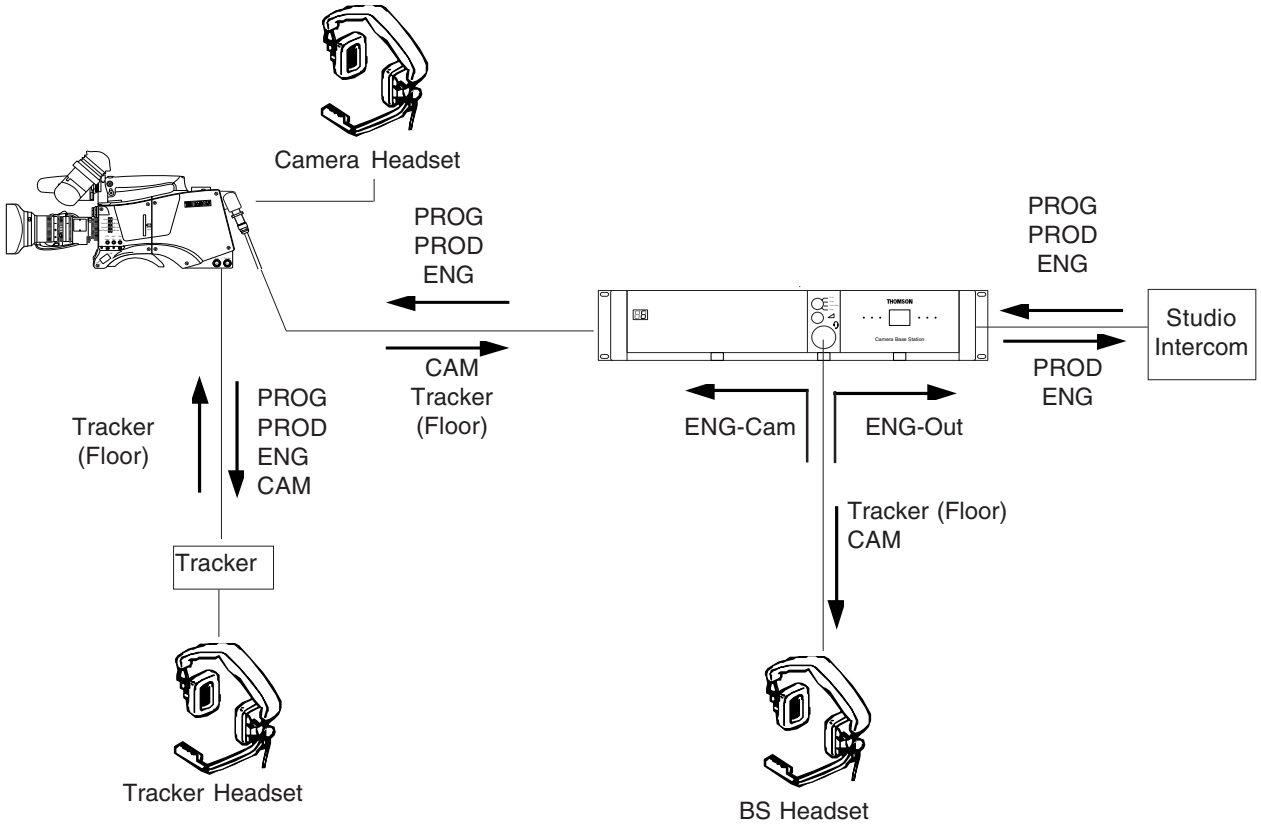
Audio/Intercom board present - Headset board absent in CPU

FROM \ TO	Tracker Headset	Camera Headset	Studio PROD	Studio ENG
Tracker Mic (Phantom Power !)	Tracker box = ENG Channel Camera system menu: Install \ Intercom \ Trackmic to ≠ Off Install \ Intercom \ Track Source = Side **CAM Channel**	Camera system menu: Install \ Intercom \ Trackmic to ≠ Off Install \ Intercom \ Camtrack ≠ Off Install \ Intercom \ Camlevel > 0 Camera system menu:	Camera system menu: Install \ Intercom \ Trackmic to = All or Prod BS system menu: Audio/Intercom \ Intercom \ Isolate \ Isolate = Syst	Camera system menu: Install \ Intercom \ Trackmic to = All or ENG BS system menu: Audio/Intercom \ Intercom \ Isolate \ Isolate = Syst
Camera Mic (Phantom Power !)	Tracker box = Camera Channel Cam Mic = On * Camera system menu: Install \ Intercom \ CamMic to = CH1 **ENG Channel** Tracker box = ENG Channel Camera system menu: Install \ Intercom \ Track Source = Side Install \ Intercom \ CamMic to = Ch2 Tracker box = PROD Channel	Install \ Intercom \ CamMic = On Install \ Intercom \ Sidetone > 0 Camera system menu:	BS system menu: Audio/Intercom \ Intercom \ Isolate \ Isolate = Syst Camera intercom routing switch = Prod (or camera start button = on) Not available	BS system menu: Audio/Intercom \ Intercom \ Isolate \ Isolate = Syst Camera intercom routing switch = ENG
Studio PROD	Tracker box = ENG Channel Camera system menu:	Install \ Intercom \ Camproduction ≠ Off Camera system menu:	Not available	Not available
Studio ENG	Install \ Intercom \ Track Source = ENG Tracker box = PROG Channel	Install \ Intercom \ Camengineering ≠ Off Camera system menu:	Not available	Not available
Studio PROG		Install \ Intercom \ Camprogram ≠ Off		Not available

* Other ways to switch on camera microphone:
- Camera: Start button = On
- Camera: Intercom Routing Switch = ENG or PROD

Audio/Intercom board and Headset board present in CPU

3. Headset board present - Audio/Intercom board present

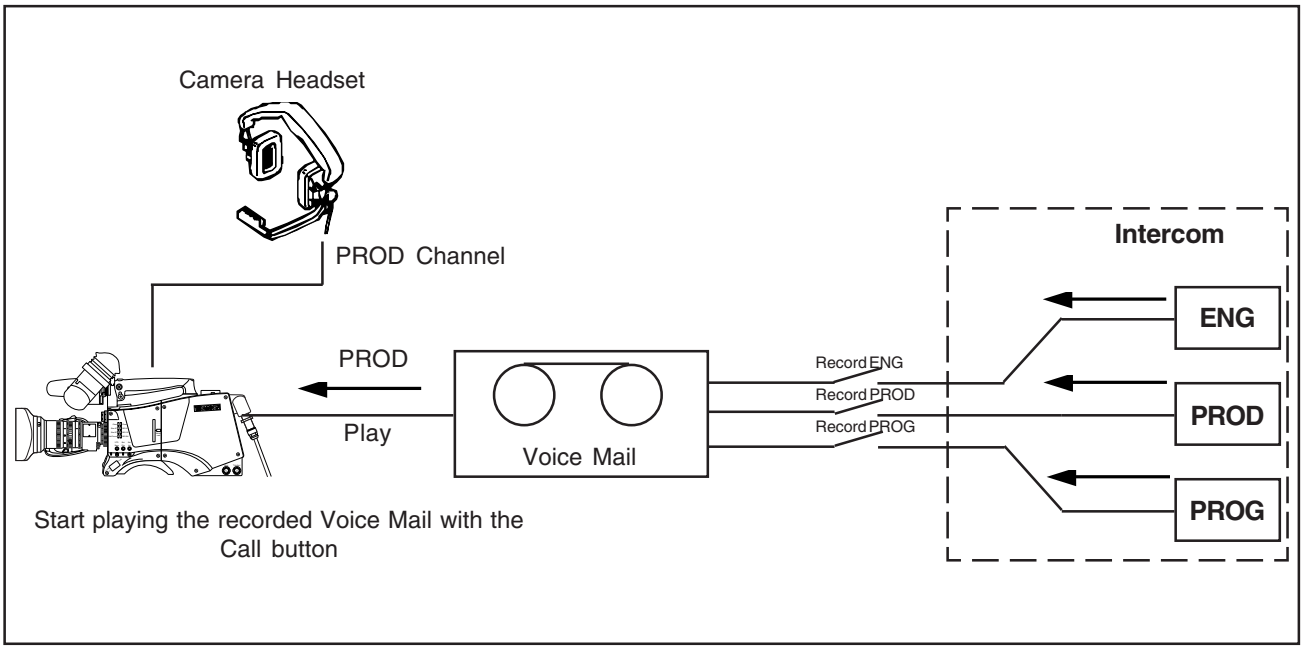


Audio/Intercom board and Headset board present in CPU

FROM \ TO	Tracker Headset	Camera Headset	BS Headset	Studio PROD	Studio ENG
Tracker Mic (Phantom Power !)	Tracker box = ENG Channel Camera system menu: Install \ Intercom \ Trackmic to ≠ Off Install \ Intercom \ Track Source = Side	Camera system menu: Install \ Intercom \ Trackmic to ≠ Off Install \ Intercom \ Cam track ≠ Off Install \ Intercom \ Cam level > 0	Camera system menu: Install \ Intercom \ Trackmic to ≠ Off BS system menu: Audio/Intercom \ ENG headset \ Tracker to headset = On Audio/Intercom \ ENG headset \ Tracker volume > 0 BS front: Intercom selection switch = Cam + Floor	Camera system menu: Install \ Intercom \ Trackmic to = All (or Prod) BS system menu: Audio/Intercom \ Isolate \ Isolate ≠ Isol	Camera system menu: Install \ Intercom \ Trackmic to = All (or Eng) BS system menu: Audio/Intercom \ Isolate \ Isolate ≠ Isol
Camera Mic (Phantom Power !)	**CAM Channel** Tracker box = Camera Channel Cam Mic = On* Camera system menu: Install \ Intercom \ CamMic to = CH1 **ENG Channel** Tracker box = ENG Channel Camera system menu: Install \ Intercom \ Track Source = Side Install \ Intercom \ CamMic to = Ch2	Camera system menu: Install \ Intercom \ CamMic = On Install \ Intercom \ Sidetone > 0	Camera system menu: Install \ Intercom \ Cammic to = CH1 *(If = CH2, then monitoring via floor)* BS system menu: Audio/Intercom \ ENG headset \ Cam to headset = On Audio/Intercom \ ENG headset \ Cam volume > 0 Audio/Intercom \ ENG headset \ Floor to headset = On BS front: Intercom selection switch = Cam + Floor	BS system menu: Audio/Intercom \ Isolate \ Isolate ≠ Isol Camera intercom routing switch = PROD Not available	BS system menu: Audio/Intercom \ Isolate \ Isolate ≠ Isol Camera intercom routing switch = ENG BS system menu:
BS Headset Mic (Phantom Power !)	Tracker box = ENG Channel Camera system menu: Install \ Intercom \ Track Source = ENG BS system menu: Audio/Intercom \ ENG Headset \ Mic to ENG-Cam = On	Camera system menu: Install \ Intercom \ Cam Engineering ≠ Off BS system menu: Audio/Intercom \ ENG Headset \ Mic to ENG-Cam = On	BS system menu: Audio/Intercom \ ENG headset \ Sidetone > 0	Not available	Audio/Intercom \ Isolate \ Isolate ≠ Isol Audio/Intercom \ ENG Headset \ Mic Eng-Out = On Not available
Studio PROD	Tracker box = PROD Channel	Camera system menu: Install \ Intercom \ Cam Production ≠ Off	BS front: Intercom selection switch = PROD	Not available	Not available
Studio ENG	Tracker box = ENG Channel	Camera system menu: Install \ Intercom \ Cam Engineering ≠ Off	BS front: Intercom selection switch = ENG	Not available	Not available
Studio PROG	Tracker box = PROG Channel	Camera system menu: Install \ Intercom \ Cam Program ≠ Off	BS front: Intercom selection switch = PROG		

* Other ways to switch on camera microphone:
- Camera: Start button = On
- Camera: Intercom Routing Switch = ENG or PROD

Voice Mail



Voice Mail is an intercom message storage function.

Note: Voice mail is only available if the CPU menu item *Audio/Intercom \ Intercom \ Call* is set to Voice.

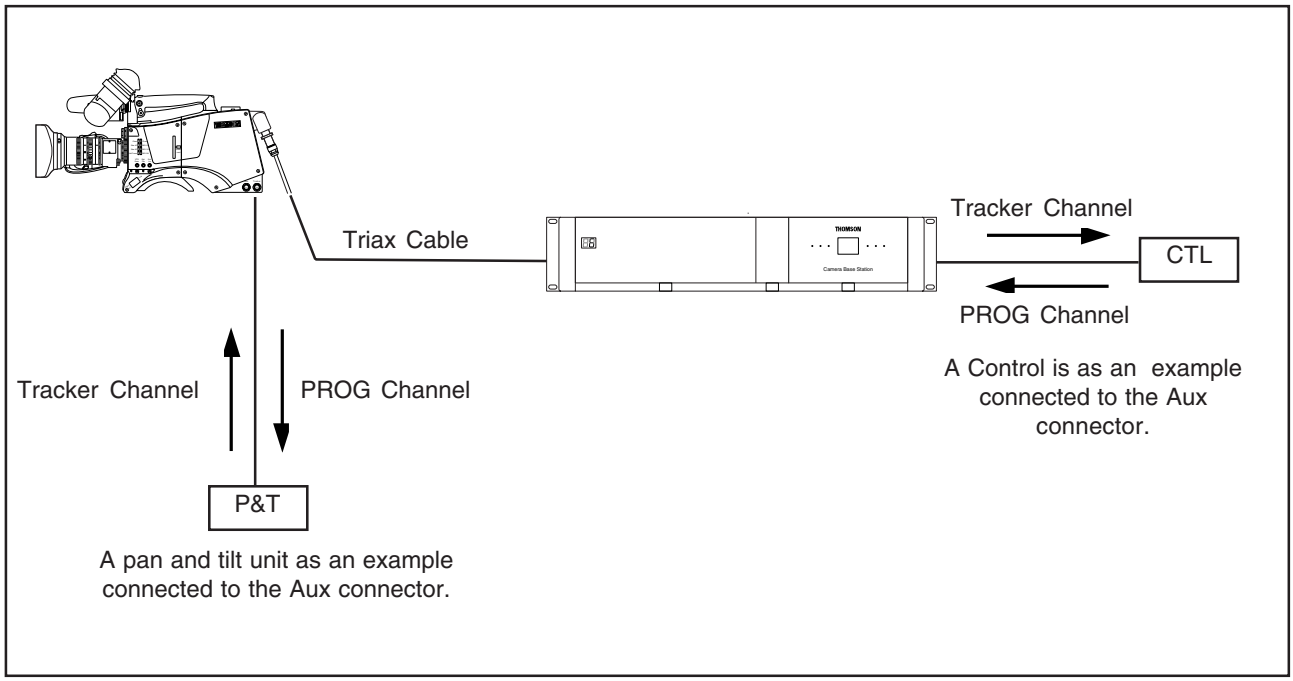
Recording
Recording starts automatically at the start of a message. A new message erases the previous recorded message. The maximum message length is 16 seconds. Longer messages are recorded in a retroloop. Only the last 16 seconds are available for playback.

Select the intercom channels to be recorded via the CPU menu items *Audio/Intercom \ Intercom \ Voice mail \ Record ENG, PROD and PROG*.

Note: The voice mail box can only contain one message. If voice mail recording starts from an other intercom channel the previous message is erased.

Listening to the message
Push the camera call button to start playing out the recorded voice mail to the camera headset. Push the call button again to stop playing the voice mail message.

Private Data



Private data channels can be used for the transmission of serial data via the triax cable. For example, electronic scriptboard or character data for a video display unit can be transmitted to the camera.

The tracker microphone intercom channel is used for the data channel from camera head to CPU. The program intercom channel is used for the data channel from CPU to camera head. The input and output signals are available on the auxiliary connectors of the camera and CPU (for camera see the connectors and cables section). If a channel is used for private data, then of course the original functions are no longer available.

To select the function of the CPU to camera channel set the CPU menu item *Audio/Intercom* \ *Private Data* \ *PROG Channel* to Priva.

To select the function of the Camera to CPU channel set the CPU menu item *Audio/Intercom* \ *Private Data* \ *Tracker Channel* to Priva.

Remember that the propagation-delay times are different for different triax cable lengths, especially if a return signal is involved. At maximum lengths of 2400 metres the total delay is at least 25 µsec. and can be more than 30 µsec, depending on the type of triax cable.

Data signal specifications
Baudrate: 2400
Input level: TLL, possible RS232
Input impedance: 100Kohm
Output impedance: ~300 ohm
Max load: ~1Kohm

MCP Available

When no MCP is available it might occur that some functions are in an undesirable position, for example, a lock on the upper part of the OCP. To prevent this happening, set the CPU menu item *System \ MCP Available* to No when an MCP is not available.

The functions affected by this setting and their state are as follows (if the item value is set to MCP Available = No):

Variable black stretch (Yes/No)	Yes
Variable gamma (Yes/No)	Yes
Variable Flare (Yes/No)	Yes
Saturation (Yes/No)	Yes
White clipper (Yes/No)	Yes
Knee slope (Yes/No)	Yes
Knee point (Yes/No)	Yes
Iris(Normal/Reverse)	Normal
OCP lock (Upper/Total)	Total
Intercom (System/Isolate)	System
Audio (External/MCP)	External
Aspect Ratio (External/MCP)	External
Aspect Ratio (4:3/16:9)	4:3
Autolight (Yes/No)	Yes

Control bus

The CPU can be connected to an Ethernet control network (**C2IP**).

The IP address and other options for the Ethernet connection can be set up in the *System* menu. These items can also be set up remotely using a network configuration tool such as NetConfig.

Section 3

Operating Instructions

This section describes the structure of the camera CPU control system. This section explains how to control and program the menu system and how to set up the menu system to suit your personal preferences. The menu structure and the methods of function selection are also explained. The appendix shows the contents of the menu system.

Contents

The flexible design of the CPU means that it can be integrated into a variety of configurations in studios or OB vans. To made full use of its extensive functionality it provides many facilities for setting it up. Once set up, operation is vitually transparent.

We recommend that you spend time using the various controls and displays in order to fully discover the wide range of features. Read the instructions in this section carefully but also feel free to examine the various menus in detail. In this way you will learn quickly to intuitively use the system.

Simple set-up

The Rotary/Push button behind the left front cover can be used to control some basic set-up functions. It can also be used to navigate through the menu system.

Menu System

The menu system is used for setting up and configuring the CPU. As there are a large number of functions and set-up options available, it may require some time for you to become familiar with them all.

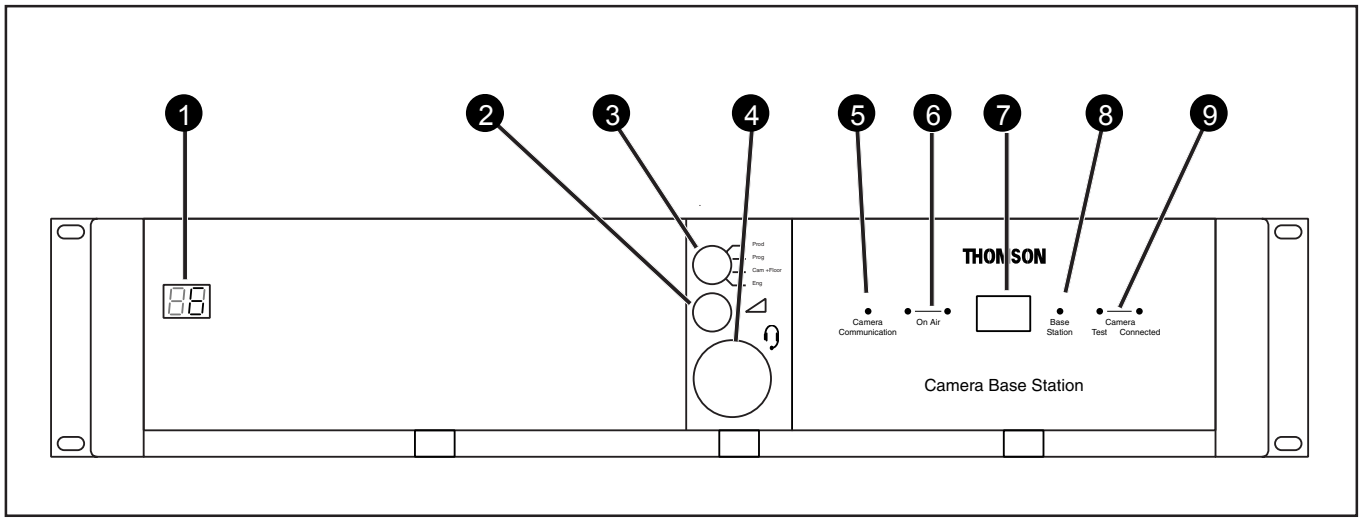
OCP menu control

Although the Rotary/Push button can be used to navigate through the menu system, it is more convenient to use the OCP connected to the CPU. (Refer to the OCP user guide to find out how to do this.)

Viewing the menu

The System Menu video signal is available on the Text output of the CPU. The System Menu text can also be superimposed on the CVBS output if desired.

Front panel



1 Display

During normal operation the display shows the number of the camera connected to the CPU.

When the set-up control (located behind the left front cover) is activated, the display shows a two letter code to identify the set-up function (see Set-Up).

The display can be switched on or off via the CPU menu system.

2 Intercom volume control

Adjusts the volume of the selected intercom channel being monitored on the connector below.

3 Intercom selection switch

Use this switch to select the intercom channel that is monitored on the connector below.

4 Intercom connector

Connect a headset to this connector to monitor the selected intercom channel.

5 Camera Communication

This green LED lights when the communications between Camera and CPU are OK.

6 On Air and ISO indicators

The red LED lights when the Camera is On Air.
If the Camera is selected as ISO Camera the yellow LED lights.

7 Power Switch

Switches the power supply to the CPU on and off. A built-in light lights to indicate that the power is ON.

8 CPU

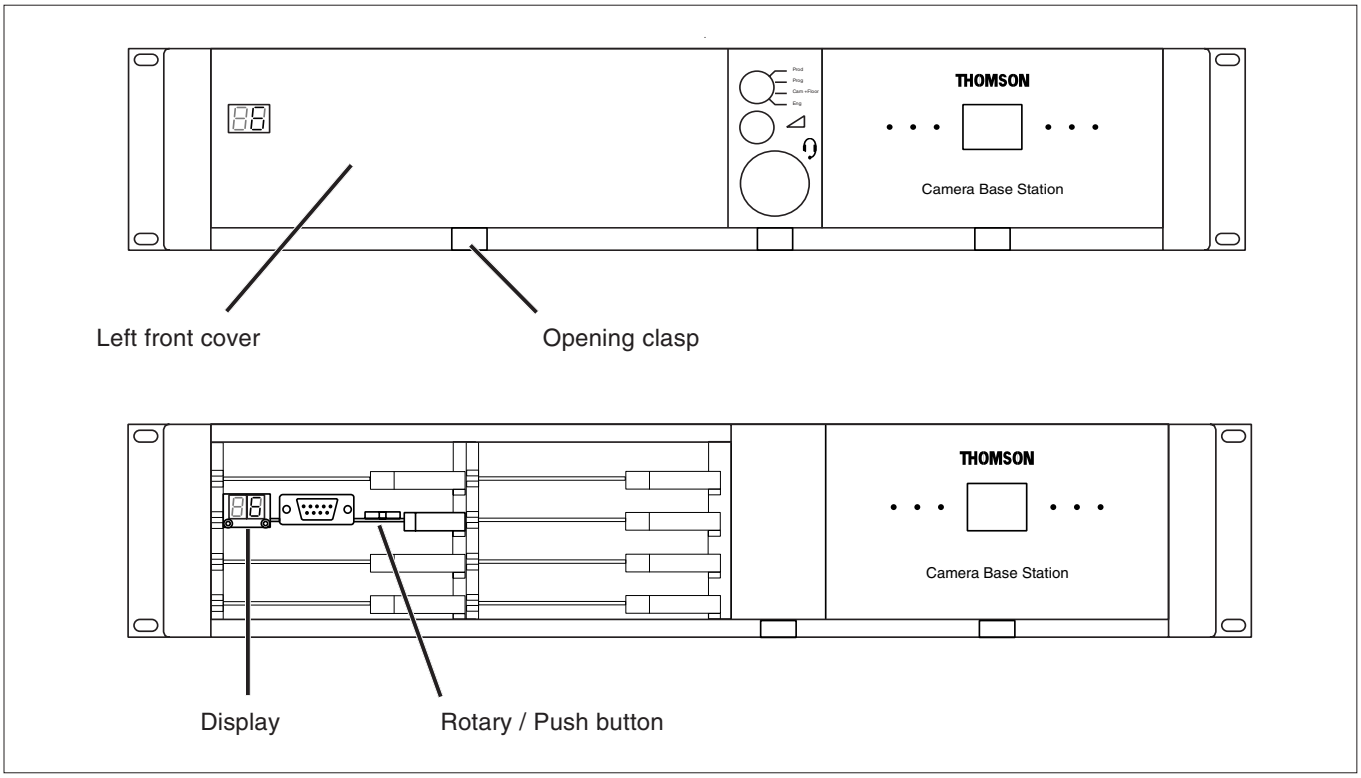
This green LED lights when the CPU is operationally ready.

9 Camera indicators

This bicolour TEST LED lights red or yellow to indicate the Camera and Triax status:

- Red lights continuously – Triax short circuit.
- Red flashes – Triax open circuit.
- Yellow – Camera power switched off with the Operational or Master Control Panel.

This green CONNECTED LED lights when the Camera is connected and the Camera power switch is On.



Set-up items

There are four items that can be accessed via the set-up Rotary/Push button on the Data Board:

- Camera number (CA)
- Subcarrier adjustment (SC)
- H-phase (HP)
- System menu (NN)

Remove the left front cover to access the Rotary/Push button on the Data Board.

Rotate the button to the left or right to select the required item. The display shows the abbreviation of the current item.

Camera Number (CA)

When CA is displayed, push the Rotary/Push button to enter the selection mode. Rotate the button to the left or right to select an available camera number. Push the Rotary/Push button to set the new camera number. The CPU automatically resets and the new camera number is shown in the display.

Subcarrier (SC)

When SC is displayed, push the Rotary/Push button to enter the Subcarrier adjustment mode. Rotate the button to the left or right to shift the Subcarrier phase. If you continue to rotate the button, the shift change occurs in bigger steps. Push the Rotary/Push button to leave the Subcarrier adjustment mode.

H-Phase (HP)

When HP is displayed, push the Rotary/Push button to enter the H-Phase adjustment mode. Rotate the button to the left or right to shift the H-Phase. If you continue to rotate the button, the shift change occurs in bigger steps. Push the Rotary/Push button to leave the H-Phase adjustment mode.

System Menu (NN)

When NN is displayed, push the Rotary/Push button twice to enter the System Menu. The Rotary/Push button can be used to navigate through the menu system, however, it is more convenient to use the OCP connected to the CPU. (Refer to the OCP user guide to find out how to do this.)

The System Menu video signal is available on the Text output of the CPU. The System Menu text can also be superimposed on the CVBS and the Monitor output if desired.

Entering the Systems menu

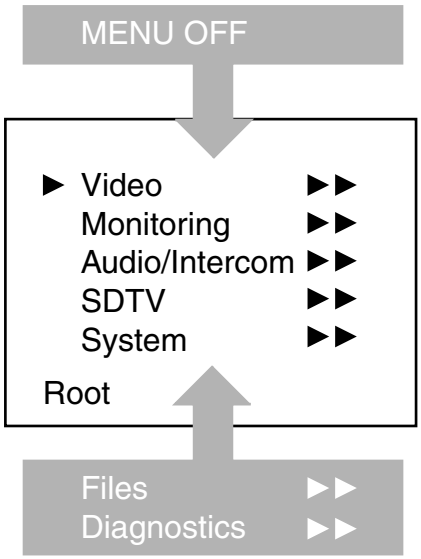
The system functions of the CPU are grouped into menus and sub-menus. Rotate the Rotary/Push button to the left or right to select the Systems Menu. The display shows the abbreviation NN. Push the Rotary/Push button twice to enter. The Main menu appears on the monitor.

Note:

Navigating the system menu is also possible with the LDK4628 and LDK4629 Operational Control Panels. Refer to their respective User's Guide for information on how to do this.

The main menu screen shows five items and the name of the menu. One more item is hidden but becomes visible when you scroll down.

A cursor shows your position in the menu. The Rotary/Push button moves the cursor up and down.



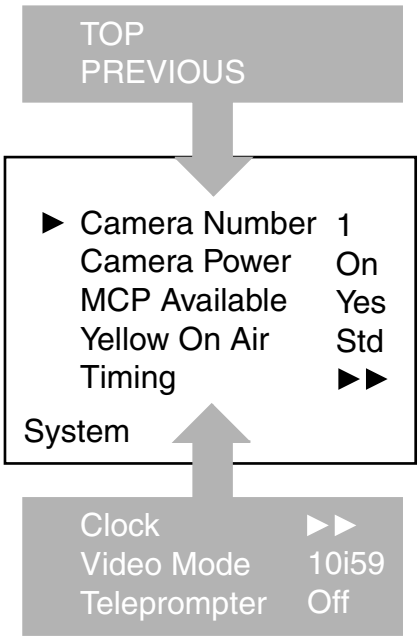
Finding your way

Use the Rotary/Push button to move the cursor through the menu items. If a double arrow (>>) is visible, then pressing the Rotary/Push button brings you one level lower in the menu system. Only five items are visible in each menu. Scroll up or down to see any additional items.

When you first enter a menu (other than the main menu) the cursor is positioned next to the first item.

The TOP and PREVIOUS entries are not immediately visible but are located above the first item. Use the Rotary control to scroll up to them.

- Select TOP to bring you back to the MAIN menu.
- Select PREVIOUS to go back to the menu that you were in before the current one.



The SYSTEM menu above shows the items displayed when you first enter the menu and the other items that are available by scrolling up or down with the Rotary control.

Leaving the Systems Menu

If you are deep within the menu structure, follow these steps to leave:

a. If necessary move the cursor to the left most column with the Rotary/Push button.
b. Scroll upwards until the cursor points to TOP (this is the main menu).
c. Press the Rotary/Push button. The cursor now points to the Menu off item of the MAIN menu.
d. Press the Rotary/Push button to leave the system menu.

This is the recommended way of leaving the system menu.

The menu system disappears after a few seconds when you stop navigating. (This delay can be programmed in the *MONITORING / MENU* menu.) However, when you enter the system menu again you enter at the last position of the cursor and not at the top of main menu.

To prevent confusion the next time you enter the system menu, it is advisable to leave the system menu by returning to the main menu (TOP) and selecting *MENU OFF*.

Making changes

To find out where to change a function, consult the List of System Menu Functions at the end of this section to find out under which menu group or subgroup the function is located.

If the cursor points to an item (and there are no double arrows to indicate a sub-menu) then the item pointed to has a value. The value can be:

- a toggle value (only two values)
- a list value (more than two values)
- an analogue value (variable from 00 to 99)

or unavailable (---).

If the value is unavailable it cannot be changed. This is indicated by three dashes (---). This can occur, for example, when a function is switched off. The analogue values associated with that function are then unavailable.

If there are only two values associated with the function, then pressing the Rotary/Push button toggles between these two values.

If a value is displayed next to a function that is one of several possible values, then pressing the Rotary/Push button places the cursor in a list menu indicating the value currently selected. Use the Rotary/Push button to point to a new value. Press the Rotary/Push button to return the cursor to the function list.

If an analogue value is displayed next to a function name, then pressing the Rotary/Push button places the cursor in front of the value and the Rotary/Push button is used to change the analogue value. Press the Rotary/Push button to return the cursor to the function list.

Undoing changes

If you make changes to the settings in the Systems menu and you decide not to keep them, use the Recall File function to recall a standard or stored set of values for the parameters. These files are available in the FILES menu.

Menu Structure

Access to the functions on these menus is determined by the user level that has been set. The menus are as follows:

Main (top) menu

The top menu gives access to the other menus.

Video menu

The video menu contains those functions which affect the picture quality.

Monitoring menu

This menu contains the functions which determine how items in the video monitor are displayed.

Audio/Intercom menu

The functions contained under this menu control various aspects of audio and intercom.

SDTV menu

The SDTV menu contains the functions that are used to set up the SDTV output settings.

System menu

This menu contains the functions that are used to set up the general configuration and for carrying out adjustments and calibrations of the CPU.

Files menu

This menu allows values to be stored in System and operator files, and allows these files to be recalled as required.

Diagnostic menu

The diagnostic menu is designed to provide information on the current status of the CPU.

User Levels

The menu items are divided into two user levels. The operator level "O" is default accessible. Menu items with user level Install "I" are only accessible if the menu level is set to Install.

To enter the Install level proceed as follows:

a. Enter the menu.
b. Navigate to the *Monitoring* \ *Menu* \ *Menu level* Item.
c. Set the Menu level to Inst.

The purpose of the user levels is to restrict the set of functions which can be changed by whoever is using the CPU. In this way a the danger of the operator accidentally changing critical functions while shooting is reduced.

The system Menu Structure paragraph of this section indicates which functions are available at each user level.

Section 4

Replacements

This section gives information on the procedures to follow when replacing printed circuit boards and mechanical components at first line level.

Contents

Introduction

The instructions given in this section are restricted to those modules which can be replaced at the first line service level. These modules include:

- The printed circuit boards
- The connector boards
- The front panels

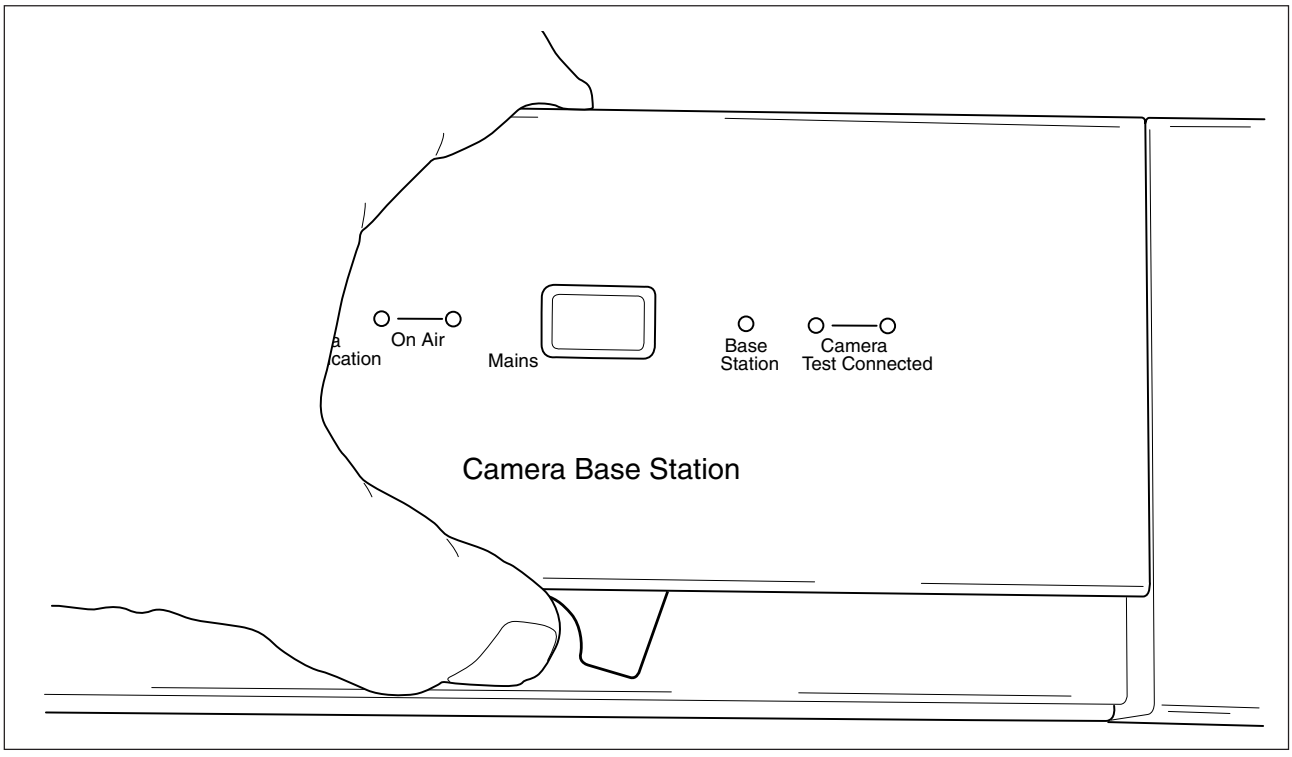
After a printed circuit board has been replaced it is sometimes necessary to carry out adjustments to match the new boards to your CPU and so maintain the performance levels. The relevant adjustment procedures are given in Section 4.

The procedures for removing the modules should be followed in reverse order when remounting the units.

Power

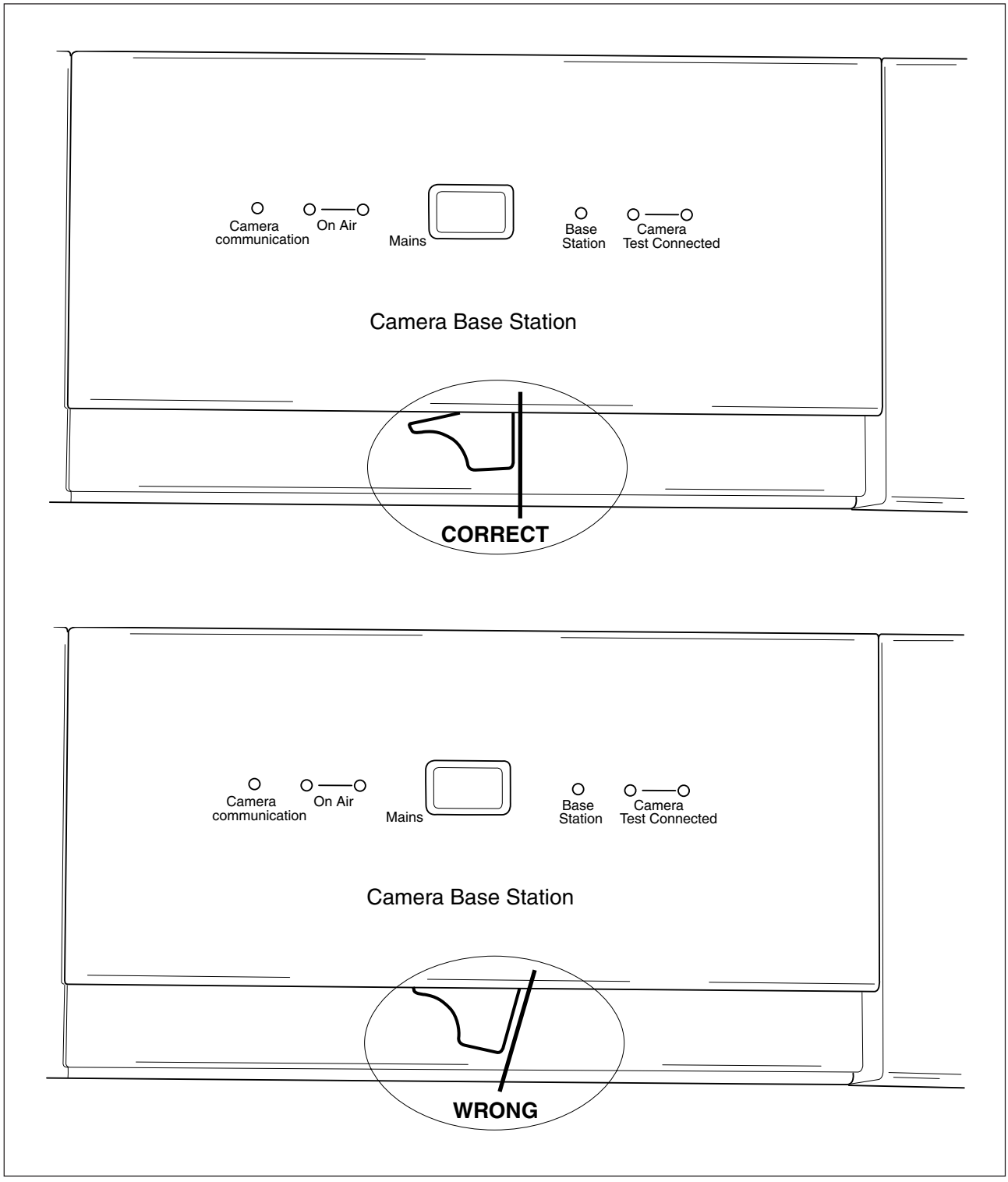
Removing the Power Unit

Remove the screw at the rear of the power unit. With your thumb push up the lever, as shown on the picture below, and pull the Power Unit out of the CPU.



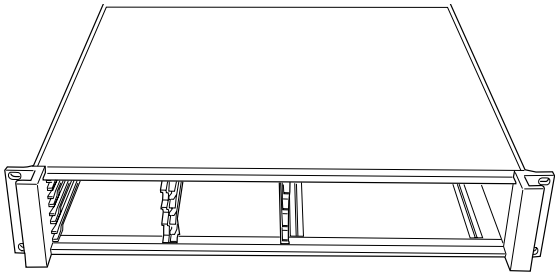
Locking the Power Unit

Put the Power Unit in the leading and push the Power in the CPU till the locking clicks.
Check if the Power Unit is correct locked.
The correct and wrong locking positions are shown in the pictures below.

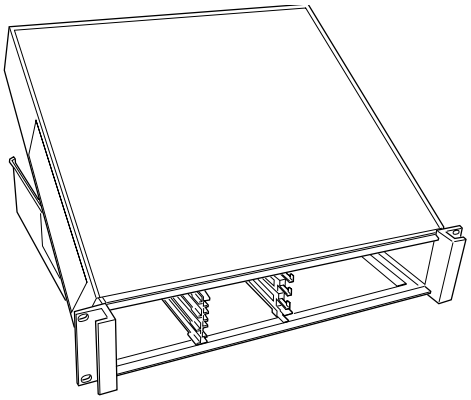


Opening The CPU

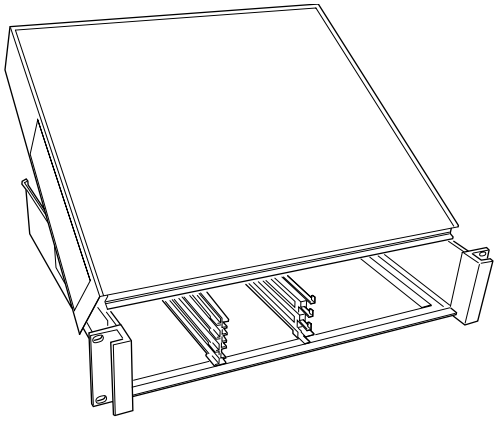
House with top mounted



To remove top, bend both sides outwords and lift backside as shown onthe picture

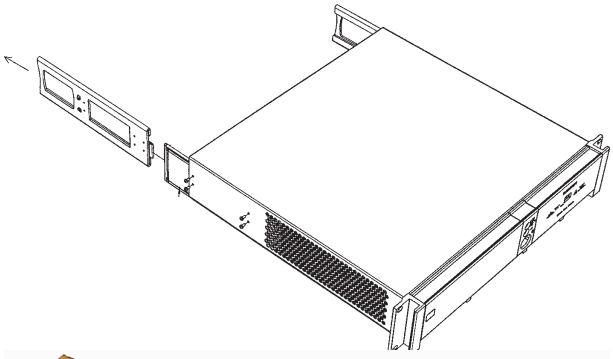


Slide top backwords and lift from house

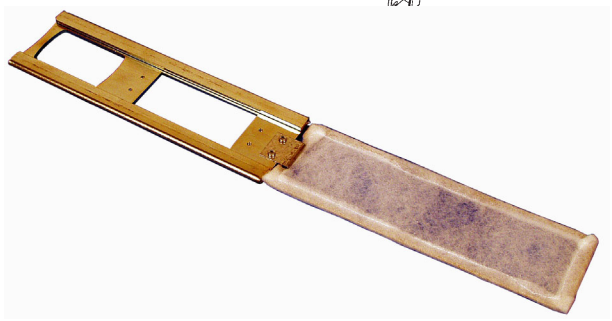


Replacing Dust Filters

Side-inlet

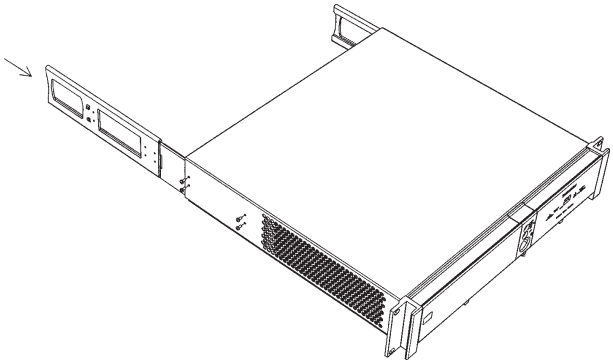


1. Remove 4 screws.
2. Slide back support with dust filter out of CPU.



3. Remove dust filter.

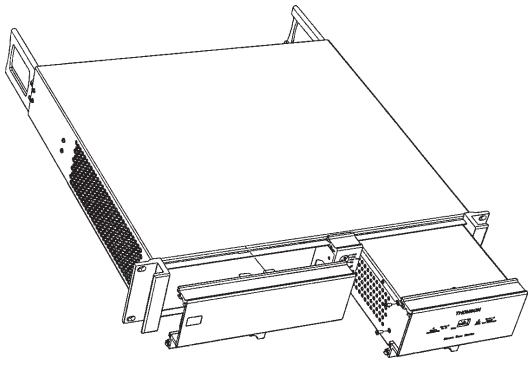
4. Connect clean dust filter to back support



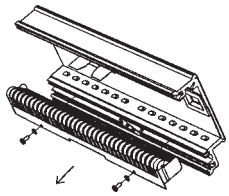
5. Slide back support with dust filter into CPU
6. Fix back support with 4 screws

Front-inlet

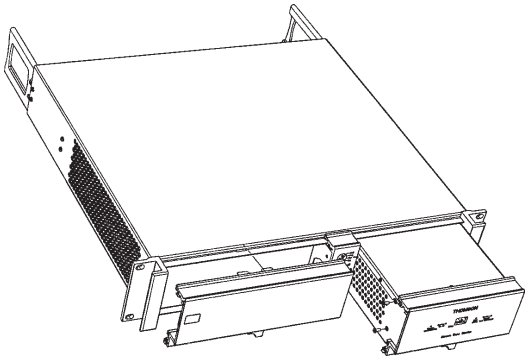
1. Remove PCB frontplate.



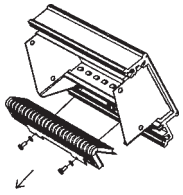
2. Remove dust filter.
3. Place clean dust filter
4. Place PCB frontplate back



5. Remove frontplate power supply



6. Remove dust filter
7. Place clean dust filter
8. Place front plate power supply back



Section 5

Diagnostics

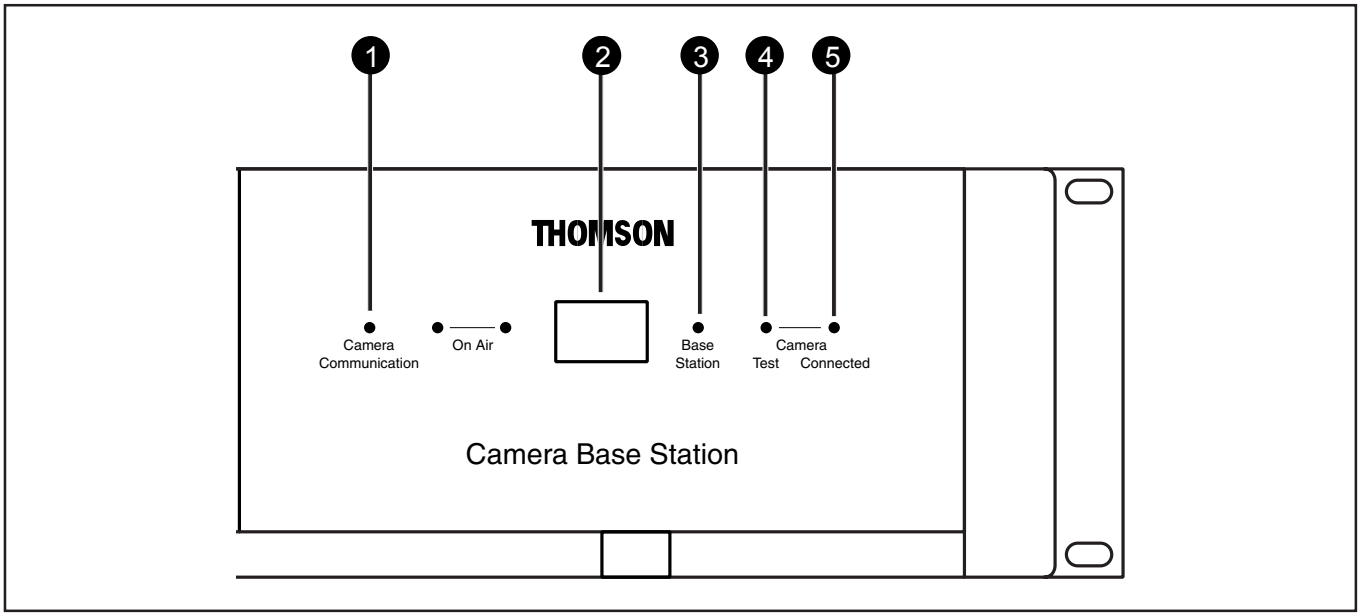
This section contains an explanation of the internal diagnostic system of the CPU. The diagnostic messages and the block diagrams are a useful help when fault finding.

Contents

Diagnostic LED Indications

LED Test

When the power to the CPU is switched on camera communication and on-air LEDs light sequentially. If a LED does not light during start-up that LED is probally defective.



1 Camera Communication

This green LED lights when the communications between Camera and CPU are OK.

2 Power Switch and indicator

Switches the power supply to the CPU on and off. A built-in light lights to indicate that power is being supplied to the CPU.

3 CPU

This green LED lights when the local power supplies to the CPU are present.

4 Camera indicator - Test

This bicolour TEST LED lights red or yellow to indicate the Camera and Triax status:

- Red lights continuously – Triax short circuit.
- Red flashes – Triax open circuit.
- Yellow – Camera power switched off with the Operational or Master Control Panel.

5 Camera indicator - Conected

This green CONNECTED LED lights when the Camera is connected and the Camera power is not switched off by the MCP, OCP or CPU menu.

Diagnostic indicators for camera power

Communication	Test	Connected	
off	off	green	Camera power switched off by the camera power switch.
off	yellow	off	Camera power switched off by the MCP, OCP or CPU menu.

Camera test LED (4) flashes red

A red flashing camera test LED (4) indicates an open triax connection (no camera is connected). Other indicators of this condition are:

OCP: Triax LED Flashes red
MCP: *DIAGNOSE \ TRIAX - OPEN*
Menu: *Diagnostics \ Communications \ Camera Connected -No*

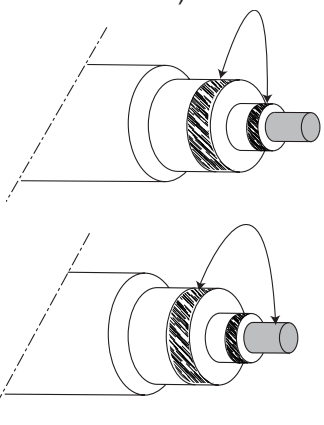
Camera test LED (4) lights continuously (red)

A continuously lighting red camera test LED (4) indicates a short circuit in the triax connection (or an interrupted inner core). Other indicators of this condition are:

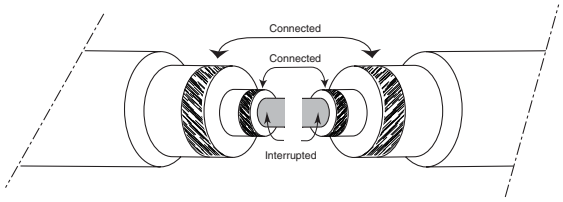
OCP: Triax LED red (continuously)
MCP: *DIAGNOSE \ TRIAX - SHORT*
Menu: *Diagnostics \ Board Diagnostics \ Power board \ Triax Status -TSHRT, COPEN or CSHRT (The interpretation of these messages is shown below)*

COPEN

Indicates a connection between outer and inner shield or between core and outer shield (when a camera is not connected).

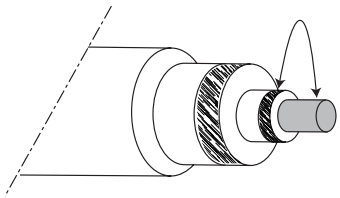


It also indicates an interruped inner core when both shields are connected correctly (when a camera is connected).



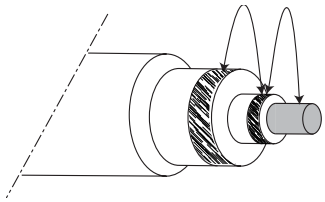
CSHRT

Indicates a short circuit between the core and the inner shield.



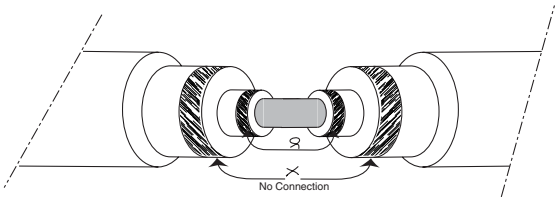
TSHRT

Indicates a short circuit between the inner shield, the outer shield and the core.



SOPEN

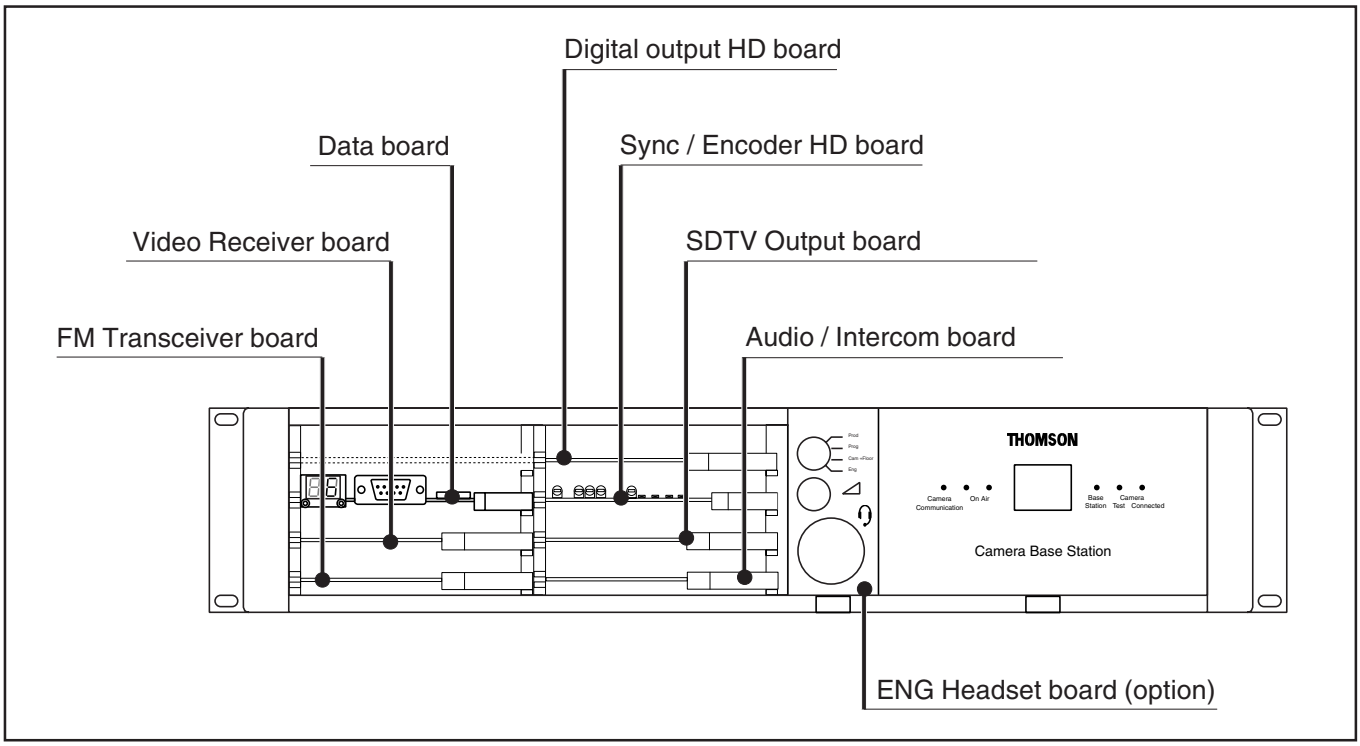
Indicates an open connection in the outer shield of the Triax cable or connector(s).

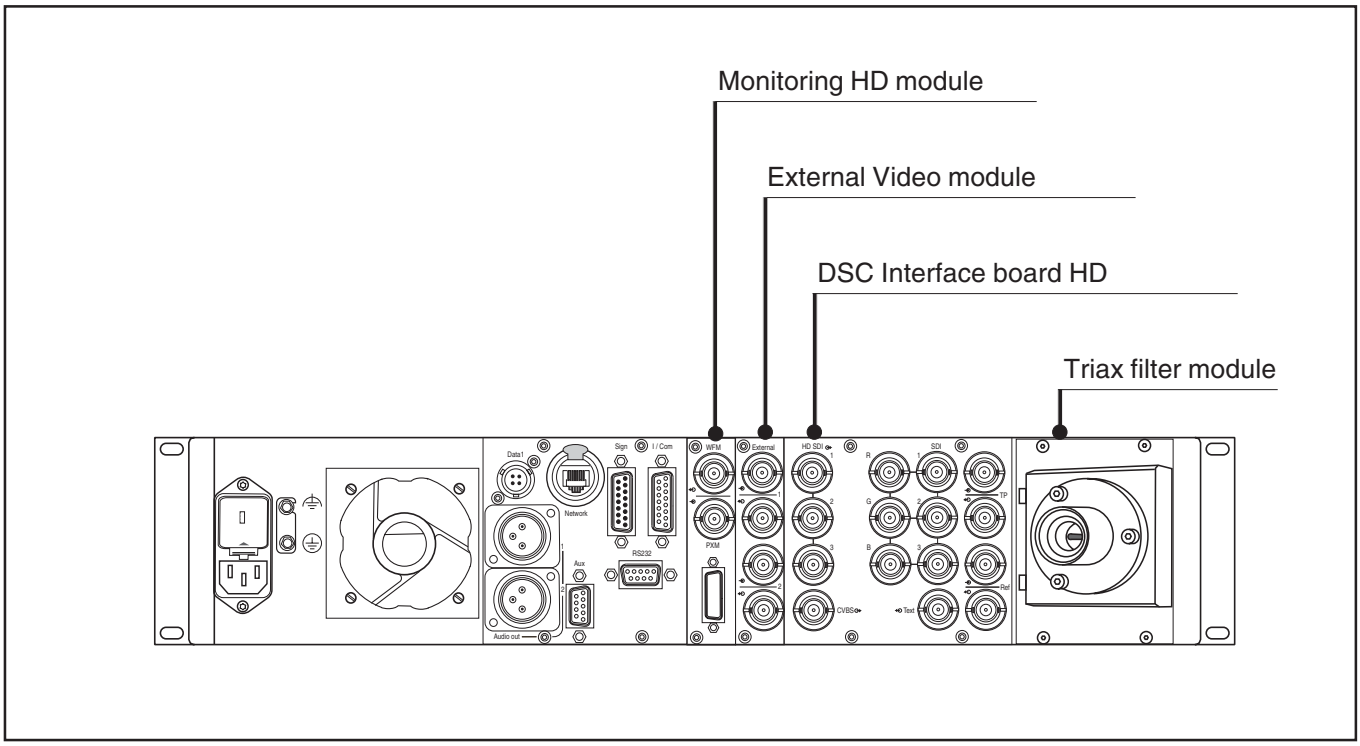


Precautions to avoid Triax problems

- Only use triax cable (with three conductors).
- Ensure that triax connectors (camera, CPU and extension cables) fit snugly into each other.
- Verify that there is no interruption in all three conductors of the triax cable before deploying (including extension triax cables).

Board identification





Sync/Encoder HD board status

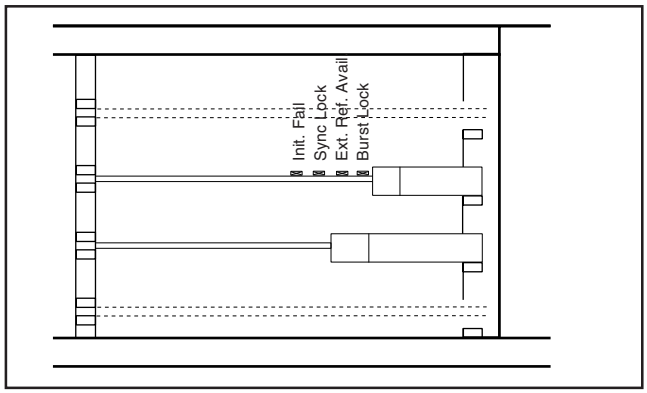
LED indicators on the Sync/Encoder board show the status of the board and the signal locking:

Init. Fail:
- lights (red) if there is a configuration or initialisation error or if the bus clock or video sync pulses are missing.

Sync Lock:
- lights (green) if the Hor. and Vert. lock is OK.

Ext. Ref. Avail.:
- lights (green) if an external sync. signal is present.

Burst Lock:
- lights (green) if the subcarrier/H-phase lock is OK.



Appendix 3

Menu System

Contents

System Menu Structure

The system Menu tables present the functions ordered in the logical divisions of the menu system itself with additional information in the columns:

- User level column
  The User level column indicates the functions that are available with different user levels.

- Values column
  All available choices are listed for a function.

- Blocked if column
  Lists the conditions that block the function.

- Default column
  The default column lists the values of the functions when a camera is delivered.

- Files column
  The File column indicates where the value of the function is stored; in the operator file or in the system file or not at all.

- Comments column
  The Comments column list information about the function.

MAIN Menu			
Menu text	**User**		**Comments**
<Menu Off>	**O**	**I**	
Video >>	**O**	**I**	
Monitoring >>	**O**	**I**	
Audio/Intercom >>	**O**	**I**	
SDTV >>	**O**	**I**	
System >>	**O**	**I**	
Files >>	**O**	**I**	
Diagnostics >>	**O**	**I**	

VIDEO Menu							
Menu text	**User**		**Values**	**Default**	**Blocked if**	**File**	**Comments**
Colour Bar >>							
Colour Bar	**O**	**I**	On,Off	Off	-	Scene	-
Colour Bar Type		**I**	SMPTE,Full	SMPTE	-	System	Change white bar level in colour bar
Ext Black Clamp		**I**	0..99	50		System	

MONITORING Menu							
Menu text	**User**		**Values**	**Default**	**Blocked if**	**File**	**Comments**
Monitoring Source	**O**	**I**	R,G,B,Y	Y	-	Scene	Select signal on Monitoring output
Menu >>							
Display	**O**	**I**	On,Time	Time	-	Operator	Time out superimposed menu text on or off
Menu Time	**O**	**I**	5...99	10	-	Operator	Time out duration superimposed menu text
Menu Level	**O**	**I**	Oper,Inst	Inst	-	-	Set menu level to Operator or Install level
Statusbar >>							
Studio >>							
Studio	**O**	**I**	On,Off	Off	-	Operator	Display studio name in Statusbar
Name	**O**	**I**	*[String]*	-	-	-	Edit studio name
Operator >>							
Operator	**O**	**I**	On,Off	Off	-	Operator	Display camera operator name in statusbar
Name	**O**	**I**	*[String]*	-	-	-	Edit camera operator name
Camera Number	**O**	**I**	On,Off	Off	-	Operator	Display camera number in statusbar

AUDIO/INTERCOM Menu							
Menu text	**User**		**Values**	**Default**	**Blocked if**	**File**	**Comments**
Audio >>							
Audio Level 1		**I**	0dB,6dB	6dB	-	System	Studio audio system level input 1
Audio Level 2		**I**	0dB,6dB	6dB	-	System	Studio audio system level input 2
Intercom >>							
Private Data >>							Consult Section "Private Data" for detailed information
Tracker Channel		**I**	Inter,Priva	Inter		System	Private data channel from Camera to Base Station *
Prog Channel		**I**	Inter,Priva	Inter	-	System	Private data channel from Base Station to Camera *
Isolate >>							No Intercom communication from Camera to Base Station (Studio)
Source	**O**	**I**	Local,Rmote	Local	-	Operator	Local = Setting available in Base Station Menu, Rmote = Setting available with MCP
Isolate		**I**	Isol,Syst	Syst	Source=Rmote	Install	Isol = Isolate, Syst = Isolate is off
ENG >>							
Wire Mode		I	2 wire,4 wire	4 wire	-	System	Standard studio intercom system setting
Side Tone	O	I	0..99	50	-	Operator	-
level	O	I	0dB,6dB	6dB	ENG Wire Mode=2	Operator	Standard studio intercom system setting
In Ref Level		I	0..99	50	-	System	Input intercom level signal from studio
Out Ref Level	O	I	0..99	50	-	Operator	Output intercom level to studio
PROD >>							
Wire Mode		I	2 wire,4 wire	4 wire	-	System	Standard studio intercom system setting
Side Tone		I	0..99	50	-	System	-
Level	O	I	0dB,6dB	6dB	PROD Wire Mode=2	Operator	Standard studio intercom system setting
In Ref Level		I	0..99	50	-	System	Input intercom level signal from studio
Out Ref Level		I	0..99	50	-	System	Output intercom level to studio
PROG >>							
Wire Mode		I	2 wire,4 wire	4 wire	-	System	Standard studio intercom system setting
Level	O	I	0dB,6dB	6dB	PROG Wire Mode=2	Operator	Standard studio intercom system setting
In Ref Level		I	0..99	50	-	System	Input intercom level signal from studio
ENG Headset >>							Settings for the optional headset module
Phantom Power	O	I	On,Off	Off	-	Operator	12V DC Phantom power
Mic Level	O	I	0dB,20dB	20dB	-	Operator	Headset microphone sensitivity
Side Tone	O	I	0..99	50	-	Operator	Headset side ton level
Mic to Headset		I	On,Off	On	ENG Wire Mode=2	System	Side tone on/off
CAM to Headset	O	I	On,Off	On	-	Operator	Camera ENG channel to headset
CAM Volume	O	I	0..99	50	-	Operator	Camera ENG channel to headset level
Tracker to Headset	O	I	On,Off	On	-	Operator	Tracker ENG channel to headset

AUDIO/INTERCOM Menu (Continued)							
Menu text	**User**		**Values**	**Default**	**Blocked if**	**File**	**Comments**
Tracker Volume	O	I	0..99	50	-	Operator	Tracker ENG channel to headset level
Mic Eng-Out	O	I	On,Off	On	-	Operator	Headset to basestation ENG output
Mic to Eng-Cam	O	I	On,Off	On	-	Operator	Headset to camera ENG channel
Call		I	Call,Voice	Call	-	Operator	Set to Voice if Voice Mail functionallity is required. (The Call function is still available if Call is set to Voice)
Voice Mail >>							See Section 3 "Voice Mail"
Record ENG	O	I	On,Off	On	Call is not Voice	Operator	Intercom messages from the ENG channel to the camera are recorded.
Record PROD	O	I	On,Off	On	call is not Voice	Operator	Intercom messages from the PROD channel to the camera are recorded.
Record PROG	O	I	On,Off	On	call is not Voice	Operator	Intercom messages from the PROG channel to the camera are recorded.

SDTV Menu							
Menu text	**User**		**Values**	**Default**	**Blocked if**	**File**	**Comments**
Chroma >>							
Chroma	**O**	**I**	On,Off	On	-	Operator	Add colour information to the CVBS signals
Level		**I**	0..99	50	-	System	-
Contour >>							SDTV contour settings
Contour	**O**	**I**	On,Off	On	-	Scene	-
Source	**O**	**I**	G,R,Y,AVG	Y	-	Scene	-
Level	**O**	**I**	0..99	50	-	Scene	-
Vertical Level	**O**	**I**	0..99	50	-	Scene	-
Noise Slicer	**O**	**I**	0..99	6	-	Scene	-
Course/fine	**O**	**I**	0..99	25	-	Scene	-
Level Dependence	**O**	**I**	0..99	50	-	Scene	-
Soft Contour	**O**	**I**	On,Off	On	-	Scene	-
Soft Contour Level	**O**	**I**	0..99	70	-	Scene	-
Skin Contour >>							SDTV skin contour settings
Skin Contour	**O**	**I**	Off, 1, 2, 1+2	Off	-	-	-
Skin level	**O**	**I**	0..99	50	-	-	-
Skin View	**O**	**I**	On,Off	Off	-	-	-
Skin 1 Window R	**O**	**I**	0..99	50	-	-	-
Skin 1 Window B	**O**	**I**	0..99	50	-	-	-
Skin 1 Color R	**O**	**I**	0..99	50	-	-	-
Skin 1 Color B	**O**	**I**	0..99	50	-	-	-
Skin 2 Window R	**O**	**I**	0..99	50	-	-	-
Skin 2 Window B	**O**	**I**	0..99	50	-	-	-
Skin 2 Color R	**O**	**I**	0..99	50	-	-	-
Skin 2 Color B	**O**	**I**	0..99	50	-	-	-
Notch >>							
Notch		**I**	On,Off	Off	-	Scene	Suppress visible distortion in hatch patterns
Level		**I**	0..99	50	-	Scene	-
Video Output		**I**	GRB,YPrPb,CVBS, Off	CVBS	-	Scene	Select signal type at the Options outputs
Aspect Ratio			16:9, 4:3	16:9	-	-	SDTV Aspect Ratio
Letterbox			Off, 16:9	Off	-	-	-
External Video >>							
SDI Amplitude Ext 1		**I**	0..99	50	-	System	-
SDI Amplitude Ext 2		**I**	0..99	50	-	System	-

SYSTEM Menu							
Menu text	**User**		**Values**	**Default**	**Blocked if**	**File**	**Comments**
Camera Number	**O**	**I**	1..99	99	-	-	Set camera number
Control Mode	**O**	**I**	C2IP, S9000	C2IP	-	-	Select control bus type
IP Address >>							
IP Config Mode	**O**	**I**	Man, Auto	Auto	-	-	Manual or auto IP assignment
IP Digit 1	**O**	**I**	1 . . 250	169	-	-	IP address part 1
IP Digit 2	**O**	**I**	1 . . 255	254	-	-	IP address part 2
IP Digit 3	**O**	**I**	1 . . 255	1	-	-	IP address part 3
IP Digit 4	**O**	**I**	1 . . 254	1	-	-	IP address part 4
Subnet Mask	**O**	**I**	0 . .31	24	-	-	Subnet mask
Apply IP Settings	**O**	**I**	Exec.	-	-	-	Confirm IP address
Ethernet >>							
Ethernet speed	**O**	**I**	100Mb, 10Mb, Auto	10Mb	-	-	Select speed
Ethernet duplex	**O**	**I**	Full, Half, Auto	Auto	-	-	Select duplex mode
Camera Power	**O**	**I**	On,Off	On	-	Operator	Switch the power to the camera
MCP Available		**I**	Yes,No	Yes	-	Operator	See Section "No MCP Available"
Tally >>							
Yellow On Air	**O**	**I**	Std,Indep	Std	-	System	Standard or independent mode
Yellow In	**O**	**I**	SW, DC	SW	-	-	Software or voltage control
On Air In	**O**	**I**	SW, DC	SW	-	-	Software or voltage control
External Video >>							
External video source		**I**	CVBS, SDI	SDI	-	System	Select external source type
SDI Chroma Ext1		**I**	On,Off	On	-	System	
SDI Chroma Ext2		**I**	On,Off	On	-	System	
Timing							
H Phase Course	**O**	**I**	0..99	50	No ext. Ref.	System	No external reference signal at the reference input connector.
H Phase Fine	**O**	**I**	0..99	50	No ext. Ref.	System	See comments H Phase Course
Subcarrier Course	**O**	**I**	0,90,180,270	180	No ext. Ref.	System	See comments H Phase Course
Subcarrier Fine	**O**	**I**	0..99	50	No ext. Ref.	System	See comments H Phase Course
Subc H Phase Course		**I**	0,90,180,270	180	Ext. Ref	System	External reference present
Subc H Phase Fine		**I**	0..99	50	Ext. Ref	System	External reference present
Clock >>							
Day		**I**	1..31	1	-	-	-
Month		**I**	Jan,Feb..Dec	Jan	-	-	-
Year		**I**	0..99	0	-	-	-
Hour		**I**	0..23	0	-	-	-
Minute		**I**	0..59	0	-	-	-
Video Mode		**I**	1080i50, 1080i59, 1080PSF23, 1080PSF24, 1080PSF25, 1080PSF29, 1080i59-23, 720P50, 720P59, 720P59-23, 720P50-25, 720P59-29	1080i59	-	-	Select video mode
TV System		**I**	PAL, NTSC	NTSC	-	-	
Teleprompter		**I**	On,Off	Off	-	System	-
OCP Contour Mode		**I**	SDTV, HDTV	HDTV	-	System	-

FILES Menu						
Menu text	**User**		**Values**	**Default**	**Blocked if**	**Comments**
User Operator Files >>						The "File" column of a menu item indicated with "Operator" is stored in a Operator file.
Operator File	**O**	**I**	O_BS1..O_BS4	BS1		Select Operator file
Recall	**O**	**I**	exec	-		Recall Operator file
Store	**O**	**I**	exec	-		Store Operator file
Std. Operator Files >>						Standard Operator files
Operator File	**O**	**I**	CUST,FACT	CUST		Set the standard Operator file to customer or to factory.
Recall	**O**	**I**	exec	-		Recall standard Operator file
Store		**I**	exec	-	Std. Operator fille=FACT	Store standard customer Operator file. It is not possible to overwrite the factory file
User System Files >>						The "File" column of a menu item indicated with "System" is stored in a System file.
System File		**I**	S_BS1..S_BS4	-		Select System file
Recall		**I**	exec	-		Recall System file
Store		**I**	exec	-		Store System file
Std. System Files >>						Standard System files
System File		**I**	CUST,FACT	CUST		Set the standard System file to customer or to factory.
Recall		**I**	exec	-		Recall standard System file
Store		**I**	exec	-	Std. System file=FACT	Store standard customer System file. It is not possible to overwrite the factory file

DIAGNOSTICS Menu							
Menu text	**User**		**Values**	**Default**	**Blocked if**	**File**	**Comments**
Board ID >>							
Power Board	O	I				-	-
HP/LP Board	O	I				-	-
Sync/Encoder Board	O	I				-	-
Data Board	O	I				-	-
Video Receiver Board	O	I				-	-
Front End Board	O	I				-	-
Audio/Intercom Board	O	I				-	-
External Video Board	O	I				-	-
Monitoring Board	O	I				-	
FM Transceiver Board	O	I				-	
Aux Receiver Board	O	I				-	
DSC Interface Board	O	I				-	-
ENG Headset Board	O	I				-	
Local Power Board	O	I				-	
Digital Output Board	O	I				-	
SDTV Output Board	O	I				-	
A/D Convertor Board	O	I				-	
Board Diagnostics >>							
Power Board >>						-	
Triax Status	O	I	DCPWR..ACODC	-	-	-	See "Triax Status Indications"
Local Power Status	O	I	Ok,NotOK	-	-	-	-
Power Overheated	O	I	Yes,No	-	-	-	-
Fan	O	I	Ok,NotOK	-	-	-	-
Sync/Encoder Board >>			Yes,No				
Reference Available	O	I	Yes,No	-	-	-	-
Generator Lock	O	I	Yes,No	-	-	-	-
Burst Lock	O	I	Yes,No	-	-	-	-
Sync lock	O	I	Yes,No	-	-	-	-
Data Board >>							
Boot Software Id	O	I	0..9999	-	-	-	-
Base Station 12NC	O	I	0..9999	-	-	-	-
Base Station Status	O	I		-	-	-	-
Eth MAC	O	I		-	-	-	-
Eth Link Type	O	I		-	-	-	-
Eth Link State	O	I		-	-	-	-
Aux Receiver Board >>							
Carrier Detected	O	I	Yes,No	-	-	-	-
Audio/Intercom Board >>							
Self test	O	I	exec	-	-	-	-
ENG Test Tone Intern	O	I	Run,OK,Error	-	-	-	-
PROD Test Tone Intern	O	I	Run,OK,Error	-	-	-	-
PROG Test Tone Intern	O	I	Run,OK,Error				
ENG Test Tone Studio	O	I	Run,OK,Error	-	-	-	-
PROD Test Tone Studio	O	I	Run,OK,Error	-	-	-	-
ENG Headset Board >>							
Self test	O	I	exec	-	-	-	-
Test Intern	O	I	exec	-	-	-	-
Test Studio	O	I	Run,OK,Error	-	-	-	-
Test Tone Mic.BS	O	I	Run,OK,Error	-	-	-	-
Test Tone Tr/Flr.Mic	O	I	Run,OK,Error				
Test Tone Cam.Mic	O	I	Run,OK,Error	-	-	-	-
Ext Video Input Board >>							
Carrier Eq Ext1	O	I	Yes,No	-	-	-	-
Carrier Rcve Ext1	O	I	Yes,No	-	-	-	-
SDI Lock Ext1	O	I	Yes,No	-	-	-	-
SDI TVsystem Ext1	O	I	625, 525	-	-	-	-
Carrier Eq Ext2	O	I	Yes,No	-	-	-	-
Carrier Rcve Ext2	O	I	Yes,No	-	-	-	-
SDI Lock Ext2	O	I	Yes,No	-	-	-	-
SDI TVsystem Ext2	O	I	625, 525	-	-	-	-
BS Tvsystem	O	I	PAL, NTSC	-	-	-	-
Communications Diag. >>							
Camera Connected	O	I	Yes,No	-	-	-	-
OCP Connected	O	I	Yes,No	-	-	-	-
MCP Connected	O	I	Yes,No	-	-	-	-

List of Abbreviations

Abbreviation	Meaning
adap	adapter
agc	automatic gain control
awb	automatic white balance
bal	balance
cam	camera
ch	channel
cont	contour
ctemp	colour temperature
ctl	control track longitudinal
cus	customer
df	drop frame
dyn	dynamic
exec	execute
exp	exposure
ext	external
ext	extended
flt	filter
fr	front
frm	frame
f-run	free run
hd	head
hr	hour
ind	indicator
info	information
interv	interview
intv	interview
ir	infra-red
lvl	level
man	manual
max	maximum
mic	microphone
min	minute
min	minimum
mom	momentary
mon	monitor
nam	non-additive mix

Abbreviation	Meaning
nd	neutral density
ndf	no drop frame
ocam	camera operator file
ocard	smart card operator file
op	operation
oper	operator
outp	output
ovl	overload
pin number	personal indentification
r/w	read/write
re	rear
repl	replay
r-run	record run
rst	reset
sawt	sawtooth
scam	camera scene file
scard	smart card scene file
sec	second
sel	select
srch	search
st	stereo
std	standard
str	stretch
tc	time code
tm	timer
ub	user bits
unbal	unbalanced
und	underload
var	variable
ver	version
vert	vertical
vf	viewfinder
wa	wide angle
wh	white
wrn	warning
wrx	wireless receiver