User's Guide

LDK 4502/4503/4506

HDTV camera base station

Declaration of Conformity

We, Grass Valley Nederland 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 Low Voltage directive 2006/95/EC
b. the EMC directive 2004/108/EC

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

Trademarks

Website

Visit the Grass Valley public website to download the latest user's guide updates and additional information about your broadcast product:

www.thomsongrassvalley.com

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End-of-life product recycling

Grass Valley's innovation and excellence in product design also extends to the programs we've established to manage the recycling of our products. Grass Valley has developed a comprehensive end-of-life product take back program for recycle or disposal of end-of-life products. Our program meets the requirements of the European Union's WEEE Directive and in the United States from the Environmental Protection Agency, individual state or local agencies.

Grass Valley's end-of-life product take back program assures proper disposal by use of Best Available Technology. This program accepts any Grass Valley branded equipment. Upon request, a Certificate of Recycling or a Certificate of Destruction, depending on the ultimate disposition of the product, can be sent to the requester.

Grass Valley will be responsible for all costs associated with recycling and disposal, including freight, however you are responsible for the removal of the equipment from your facility and packing the equipment ready for pickup.

For further information on the Grass Valley product take back system please contact Grass Valley at + 800 80 80 20 20 or +33 1 48 25 20 20 from most other countries. In the US and Canada please call 800-547-8949 or 530-478-4148. Ask to be connected to the EH&S Department. In addition, information concerning the program can be found at:

www.thomsongrassvalley.com/environment

Important information

Read these instructions carefully and retain them for future reference.

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, verify the proper functioning of the protective earth lead.

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.

Any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

Cautions and Warnings

Read and comply with the warning and caution notices that appear in the manual.

– 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.

Warnings

⚠ To prevent fire or shock hazard, do not expose the unit to rain or moisture. 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).

⚠ To avoid electrical shock, do not remove covers or panels. Refer servicing to qualified personnel only.

⚠ In case of an emergency ensure that the power is disconnected.

⚠ Use only fuses of the type and rating specified.

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

⚠ The Base Station must always be connected to protective earth. Do not interrupt the protection conductor inside or outside the unit. Do not disconnect the protective earth terminal. Intentional interruption is prohibited and is likely to make the unit dangerous.

⚠ To prevent risk of overheating, ventilate the units correctly.

⚠ For safety reasons the Base Station must be mounted in a 19-inch rack which has safety covers according to IEC65. When two Base Stations are mounted above each other, the minimum distance between them must be 50mm or the rack must be force-air cooled.

Triax cable systems

⚠ Only connect a Triax cable from the same LDK camera family to the unit.

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

⚠ To avoid excessive earth currents in a Triax system, galvanically separate the power earth connection of equipment connected to the camera from the camera earth.

⚠ It is strictly prohibited to short circuit the inner and outer shields of a Triax cable used to connect a camera to a base station.

Galvanic separation

Because of the nature of Triax systems, with long distances between camera and Base Station, the risk of earth currents flowing is greater. These earth currents can result in damage to the equipment.

For example, a monitor connected directly to the CVBS output of the camera is powered locally. The earthing point of the monitor's power supply can be at a different potential with respect to the earthing point of the Base Station. If the power earth of the monitor is also the video earth, then this earth potential is transferred to the camera via the shield of the BNC connector. The difference in earth potential between the camera and the Base Station results in an earth current in the Triax system.

To prevent earth currents from flowing in the Triax system, we recommend galvanic separation of earthed equipment connected to the camera. This separation can be achieved by using an isolation transformer between the local power outlet and the equipment connected to the camera. Alternatively, use equipment that has a double insulation and therefore does not require an earth connection.

Fiber optic transmission units

```
CLASS 1
LASER PRODUCT
LASER KLASSE 1
PRODUKT
```
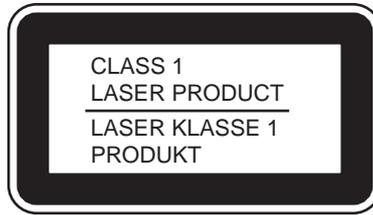
The CLASS 1 LASER PRODUCT label is located on top of the fiber optic connector on the rear panel.

Laser safety statement (Europe)

fiber optic transmission units are classified as a "CLASS 1 Laser Product" according to EN 60825-1, Safety of Laser products. Class 1 laser products are considered safe and do not result in biological hazard if used according to the instructions.

Laser safety statement (US)

fiber optic transmission units are classified as a "CLASS 1 Laser Product" according to 21CFR 1040.10 of the US Food and Drug Administration (FDA) Center for Devices and Radiological Health.

⚠ Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

⚠ To ensure proper use of this product, please read this instruction manual carefully and retain for future reference. Should the unit ever require maintenance, contact an authorized service location.

fiber optic cable precautions

fiber optic cables and connectors are easily damaged; take the following percautions into account:

– Do not bend the cable beyond the minimum permissible bend range specified for the cable.

– Avoid kinks in the cable.

– Avoid subjecting the cable to a high tension force (even momentarily).

– Do not twist the cable when connecting it to equipment.

– Insert connectors straight and fully into their corresponding sockets.

– In fiber optic cable systems always put the dust caps on cable and panel connectors immediately after disconnecting a cable. Keep the dust caps clean.

Base Station earthing

The rear of the unit 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. In normal circumstances the connection between the protective earth and the video earth should **not** be broken. If required, the central earth connection wire of the studio can be connected to terminal PE in accordance with VDE regulation 0800/part2.

Only if the studio (or OB van) is equipped with separate protective and video earth systems may the metal strap be removed. 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.

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.

- Do not allow LASER beams to shine into the lens as this could damage the CCD sensors.

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

- Be careful when connecting and disconnecting Triax cables.

    - Do not mix Triax units from different types of camera systems (HD with SD, RGB Triax with digital Triax).

    - Make connections swiftly and firmly to avoid false error messages.

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.

Chapter 1

Introduction

1.1 Technology

The HDTV Camera Base Station is the perfect interface between your HDTV camera and the rest of your system. The heavy-duty base station provides state-of-the-art technology in a compact package. The high level of modularity guarantees ideal matching with any type of application; you can use the system in a studio or for mobile field production, for HDTV or for SDTV production. Optional modules can be inserted or removed at any time, making it possible to change the configuration on a day-to-day basis.

The Base Station is only 2U high yet offers full broadcast functionality and quality.The low height means that rack space is saved. Its low power consumption and efficient internal cooling eliminate the need for space between adjacent units. Sliding rails are additionally available for easy access to the back panel. The wings on either side of the back panel protect all connectors from damage, including the Triax connector. The Triax connector itself can easily be mounted at different angles to suit all mounting requirements.

Operational controls

You can access the Base Station menu, which contains all operational settings, from an Operational Control Panel. In addition to the operational menu, the installation and service menus can be activated from the Base Station by pressing a switch behind the front panel. The Base Station is compatible with all existing control system components.

1.1.1 TriaxHD Features

The advanced TriaxHD transmission system, which is a further development of the Emmy Award winning Triax transmission system, makes the base station and camera compatible with industry standard Triax cables. This allows the reuse of existing, reliable and valuable cable inventories. TriaxHD offers video transmission and remote control of cameras up to a distance of 1,200 m (4,000 ft) and beyond, using standard 14 mm (0.55 in) Triax cables.

The TriaxHD system is based on 30MHz full-bandwidth 4:2:2 transmission (Y/Cr/Cb components). The double sideband 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.

1.1.2   HD fiber features

The HD fiber system allows video transmission and remote control of cameras up to a distance of 4,000 m (13,000 ft) and beyond, using industry standard fiber optic cable. It is based on 30MHz full-bandwidth 4:2:2 transmission (Y/Cr/Cb components).

The double sideband 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.

1.1.3   Modular construction

The modular concept makes it easy to expand the functionality by simply adding new modules. Quick exchange of the modules for servicing or the ability to swap modules between Base Stations is another benefit.

The external video input module provides two analog video inputs and loop-through analog outputs. The signal can be PAL or NTSC, and does not need to be clamped. It can also be non-synchronized. The external video input module can be replaced in future by a digital one.

HDTV and simultaneous high-end SDTV

Besides standard high-definition outputs, the Base Station can be optionally equipped with simultaneous high-end SDTV outputs. This offers ultimate flexibility: produce in SDTV one day, and in HDTV the next, or do both simultaneously. Having both SDTV and HDTV outputs facilitates a gradual and managed transition from STDV to HDTV. Three 1.5 Gb/s HD-SDI outputs are available on the Base Station. The high quality SDTV Module adds three 270 Mb/s SDI and three analog outputs (these can be programmed to be either R, G, B, or Y, Pr, Pb or three CVBS outputs).

Monitoring

Monitoring in the analog HD video domain requires the monitoring module. The outputs on this module provide four switchable signals (R, G, B and Y), which are simultaneously available on a WFM and PXM connector. The switching is done in the digital video domain and can be controlled from an OCP or MCP. The PXM output can be used for analog picture monitoring, and the WFM output for monitoring on a waveform monitor. An additional conventional VGA connector, which is also provided by this module, contains R, G, B, H-sync, and V-sync signals for relative low-cost analog HD monitoring using an appropriate computer monitor. For monitoring in the SD video domain, one of the SDI outputs or analog outputs of the High Quality SDTV module can be used.

Audio and intercom

The audio and advanced intercom module provides 4-channel intercom and 2-channel audio from the camera. The high-quality audio from the camera head is passed to the different outputs via balanced line drivers on the module for clean transparent sound. The gain levels can be remotely controlled.

In the installation menu of the Base Station, a choice is provided between a 4-wire or a 2-wire intercom system. An intercom channel can be assigned as a data channel for private data. A 1kHz test-tone generator and voicemail extend the functionality even further. The voicemail stores messages from a combination of sources like Program, Production or Engineering for the camera operator. By adding the engineering intercom module, a 5-channel full-featured intercom is possible.

The engineering intercom module provides a 2-channel intercom between camera operator and engineering. The module fits into the front of the unit and facilitates the plugging in of a headset and level adjustment for both ear muffs. It is ideal for a simple intercom facility in a standalone mode of operation, or to expand the 4-channel advanced intercom to a 5-channel intercom.

1.2   Features

- Low height: only 2U high, 19-inch rack unit.

- Flexible due to its modular construction.

- Teleprompter, color bar, digital HDTV outputs standard on board.

- The digital transmission backbone and power module meet the most demanding broadcasting needs.

- Heavy-duty concept with low power consumption, ideal for Outside Broadcast (OB) vans.

- TriaxHD version (LDK 4502) and TriaxHDHS (LDK 4506) allow video transmission and remote control of cameras up to a distance of 1,200 m (4,000 ft) and beyond, using industry standard 14 mm (0.55 in) Triax cables.

- Fiber optic version (LDK 4503) allows video transmission and remote control of cameras up to a distance of 4,000 m (13,000 ft) and beyond.

- Full camera control via the C2IP Ethernet-based network (compatible with legacy Series 9000 camera control system).

- Two-wire or four-wire intercom compatible with international standards.

- HDTV and simultaneous high-quality SDTV outputs (optional).

- High-end simultaneous SDTV outputs (both digital as well as analog) for a gradual and managed transition from SDTV to HDTV.

1.3   Packing/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 sales or service centre within eight days. If the shipping container shows signs of damage or stress, notify the carrier as well.

If a unit is being returned to 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 service centre. If the original packing can no longer be used, the following general instructions should be used for repacking with commercially available materials:

1. Wrap unit in heavy paper or plastic.

2. Use strong shipping container.

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

4. Seal shipping container securely.

5. Mark shipping container FRAGILE to ensure careful handling.

Chapter 2

Installation

2.1 Configurations

2.1.1 Cameras and Base Stations with C2IP network

Triax systems

Each camera head with a Triax adapter is connected to a Base Station using a Triax cable. The maximum length of cable that can be used without significant degradation of the video signal is 1,200 m (4,000 ft) for a 14 mm Triax cable. The power supply is applied to the Base Station and via the Triax cable to the camera.

Fiber systems

Each camera head with a fiber adapter is connected to a Base Station using a hybrid fiber optic cable. The maximum length of cable that can be used without significant degradation of the video signal is 4,000m (13,000 ft). The power supply is applied to the Base Station and via the cable to the camera.

Ethernet

The Base Stations are each connected to a network hub or router via an Ethernet cable (straight through, not cross-over). The OCP 400 operational control panels and, if required the MCP 400 Master Control Panel, are also connected to the Ethernet network via a hub or router.

☞ **Note**

An OCP 400 operational control panel can also be connected directly to the Base Station using a cross-over Ethernet cable.

If required, a series 9000 OCP can be connected directly to a Base Station using a 2-wire bus cable. In this situation no loop-through is available and the camera number must be set to 1.

2.1.2 Camera with Triax adapter and SuperXpander

An LDK 8000 camera head can be mounted in the LDK 4488 SuperXpander (or in the LDK 4489 Xpander). This enables large box lenses to be used with the camera. The LDK 4021 7-inch HDTV viewfinder can be mounted on the SuperXpander.

The camera with the TriaxHD adapter connects to the SuperXpander via a flying lead. The power supply for the camera is supplied via this lead. The SuperXpander is connected to a TriaxHD Base Station using a Triax cable. This configuration can be powered either:

– from the Base Station via the Triax cable, or

– locally with the mains power supply connected directly to the SuperXpander.

2.2 Control bus

The Base Station can be connected to either:

• an Ethernet control network (C2IP)

or

• a two-wire Series 9000 control bus (S9000).

One of these options can be selected in the `SYSTEM/CONTROL MODE` menu item. The Base Station is delivered with the default value set to C2IP, so only the Ethernet control bus is active.

If you use control panels of the Series 9000 system, then you must change the value of the System / Control Mode menu item to S9000 so that you can connect these panels to the 4-pin Data connector at the rear of the unit.

(To loop-through Series 9000 control panels use the special connector cable provided.)

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.

☞ Note

Even if you have selected the C2IP control bus, then you can still connect a single OCP from the Series 9000 system to the 4-pin Data connector at the rear of the unit. However, you may not connect more than one device as this leads to unreliable operation.

2.3 Power supply

⚠ Caution

Connect the Base Station only to a power source with the specified voltage rating. Use only fuses of the type and rating specified.

The Base Station must always be connected to protective earth. Do not interrupt the protection conductor inside or outside the unit. Do not disconnect the protective earth terminal. Intentional interruption is prohibited and is likely to make the unit dangerous.

Before connecting your unit to the power supply check the fuse type (230 or 115) on the IEC power connector at the rear of the Base Station.

If the fuse type shown corresponds to your power supply voltage, connect the power supply for the Base Station to the IEC connector at the rear.

If the fuse type does *not* correspond to your power supply voltage you must change the fuses before connecting the supply as follows:

1. Insert a small screwdriver into the slot above the pins of the IEC connector and unclip the fuse holder unit.

2. Insert you finger under the indication unit and pull it out.

3. Rotate the indication unit 180° so that the correct indication for you voltage supply is displayed at the back of the Base Station (230 or 115).

4. Slide the indication unit securely back into its slot.

5. Insert the appropriate fuses into the alternative fuse holder which is delivered separately with the Base Station (4AT fuses into the 230 fuse holder; 10AT fuses into the 115 fuse holder). The type of fuse holder is marked on the holder.

6. Slide the fuse holder securly back into the IEC connector until it clips into place.

7. Check again that you have used the correct fuses and that the corresponding indication is shown.

8. Connect the power supply for the Base Station to the IEC connector at the rear.

Figure 2-1. Base Station fuses
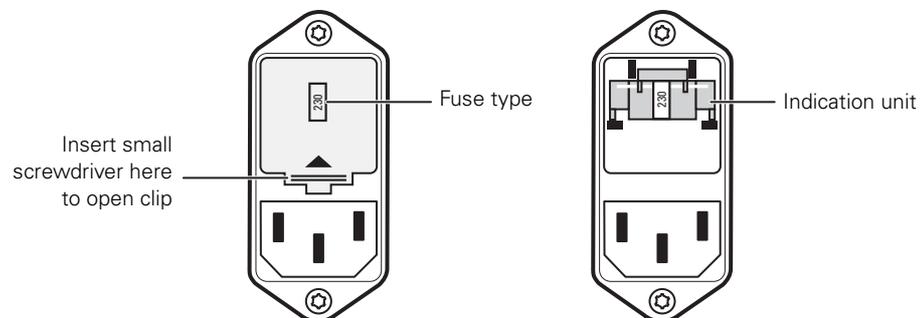

Function	Value
Mains input voltage	230 Vac or 115 Vac
Fuses	4AT (230 Vac) or 10AT (115 Vac)
Mains frequency	47 to 63 Hz
Power consumption	270 Watt (470 VA)

2.3.1 Base Station earthing

The rear of the unit has two separate screw terminals for protective earth ⏚ (PE) and video earth ⏚ (VE). These are normally connected by a metal strap.

Figure 2-2. Base Station earthing

The protective earth terminal is internally connected to the protective earth conductor of the power cable. In normal circumstances the connection between the protective earth and the video earth should **not** be broken. If required, the central earth connection wire of the studio can be connected to terminal PE in accordance with VDE regulation 0800/part2.

Only if the studio (or OB van) is equipped with separate protective and video earth systems may the metal strap be removed. 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.

2.4 Connecting the studio intercom system

Connect the studio intercom system to the rear of the Base Station. The wiring of the panel connector is shown below for two-wire and four-wire systems.

Figure 2-3. Intercom connection (two-wire system)
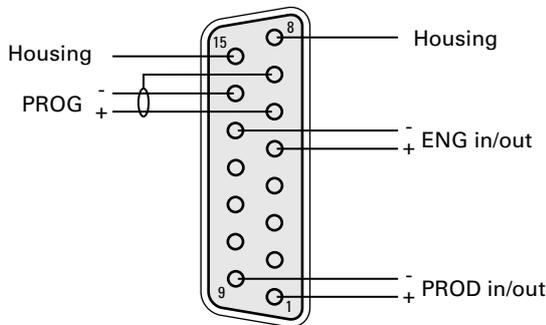
Figure 2-4. Intercom connection (four-wire system)
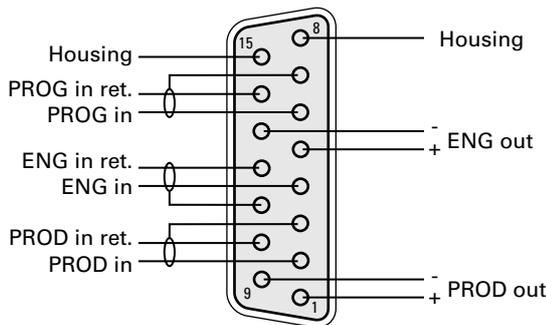
Function	Value
2-wire	
Signal level	0 dBu
Load impedance	200 Ω
DC level	40 VDC (max.)
4-wire	
Output signal level	+6 dBu or 0 dBu selectable
Output impedance	50 Ω (max.), symmetrical
Input signal level	+6 dBu or 0 dBu selectable
Impedance	9 KΩ (min.), symmetrical

2.5 Connecting the studio signalling

Connect the studio signalling system to the rear of the Base Station. The wiring of the panel connector is shown.

Figure 2-5. Signalling connection
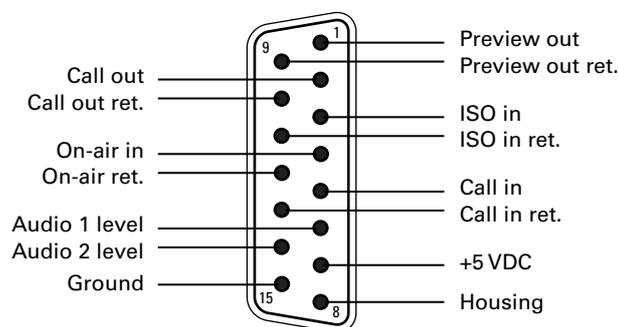
2.5.1 Call, On-air and Iso signals

There are four connection methods for the Call, On-air and Iso (On-air yellow) signalling functions:

1. Dry contact

2. Common ground

3. Voltage level Send lead

4. Open / voltage level Send lead

A selection in the SYSTEM/SIGNALLING menu allows you to make the state of the function (on or off) correspond to a particular input signal. There are two leads for each connection - Send and Return.

Function	Send pin	Return pin
Call	2	10
Iso	3	11
On-air	4	12

The following tables show the selectable states for each of the four connection methods. The states are Open/High (OH); High/Open (HO); Low/High (LH) or High/Low (HL).

Menu setting	Input shorted	Input open
LH	Function ON	Function OFF
HL	Function OFF	Function ON

* a common return (not ground!) can be used for the three functions.

Figure 2-6. Dry contact signalling
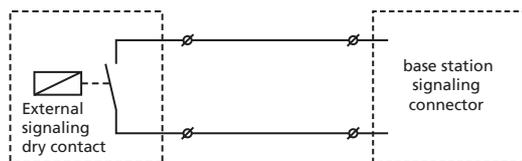
Menu setting	Input grounded	Input open
LH	Function ON	Function OFF
HL	Function OFF	Function ON

* use either Send or Return only, do not mix.

Figure 2-7. Common ground signalling
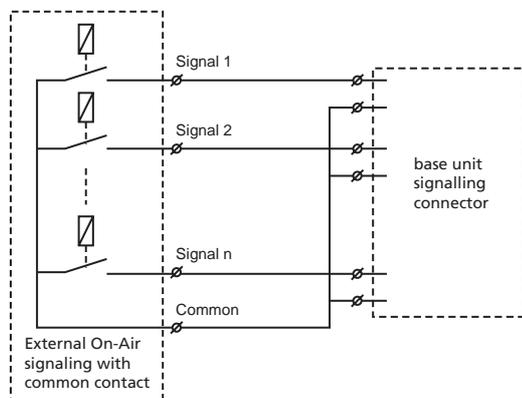
Menu setting	Input 0 to 2.5V	Input 4 to 24V
LH	Function ON	Function OFF
HL	Function OFF	Function ON

* isolated from ground.

Menu setting	Input open	Input 4 to 24V
OH	Function ON	Function OFF
HO	Function OFF	Function ON

* isolated from ground.

Figure 2-8. Voltage level signalling
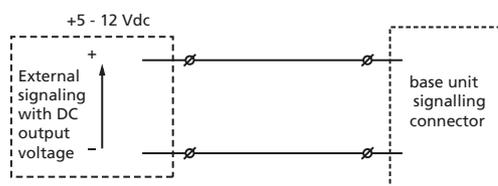
2.5.2 Audio level

Apply a DC voltage to pins 6 and 14 of the signalling connector to control the levels of audio channels 1 and 2 respectively, as shown in the figure below.

Figure 2-9. Audio level control
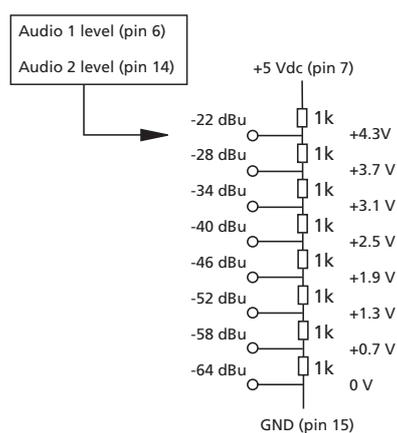
2.6   Auxiliary connections

2.6.1   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 or pan and tilt data can be transmitted to the camera.

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

Figure 2-10. Private data on auxiliary connector

Private date in

Private data out
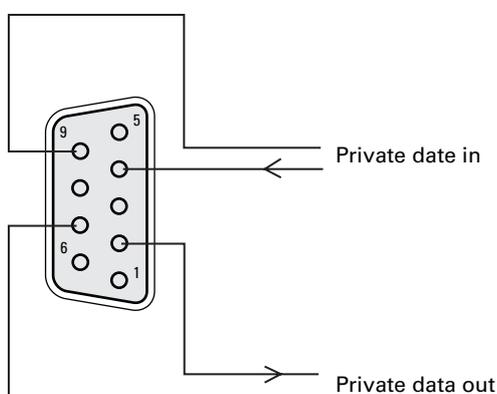
To select the function of the Base Station to camera channel set the Base Station menu item AUDIO\INTERCOM\INTERCOM\PRIVATE DATA\PROG Channel to Priva.

To select the function of the Camera to Base Station channel set the Base Station menu item AUDIO\INTERCOM\INTERCOM\PRIVATE DATA\TRACKER CHANNEL to PRIVATE.

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 μs and can be more than 30 μs depending on the type of Triax cable.

The duty cycle difference between input and output is max. 5%.

Function	Value
Baudrate	2400 bits/sec typical; 4800 bits/sec max.
Input level	TTL, possible RS232 ("0"= 0V +/- 0.5V; "1"= 5V +/- 0.5V)
Input impedance	100 KΩ
Output impedance	150 Ω
Max load	~1 KΩ

2.7   Base Station connectors

Figure 2-1. Base Station connector location
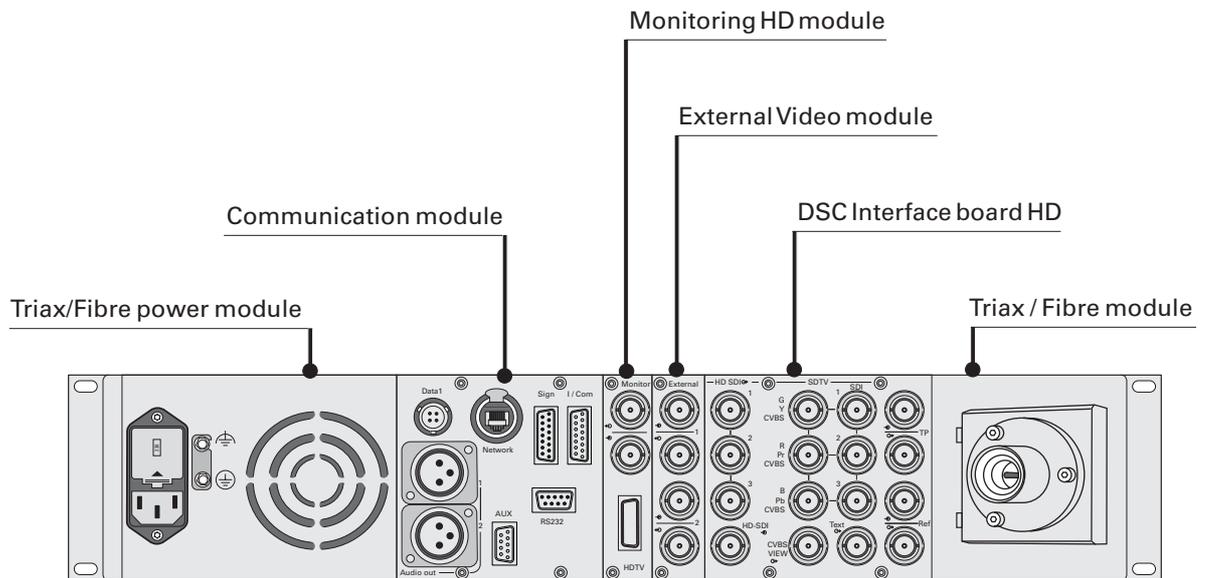
⚠ **Caution**

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

2.7.1   Triax/fiber module

Figure 2-11. Triax connector
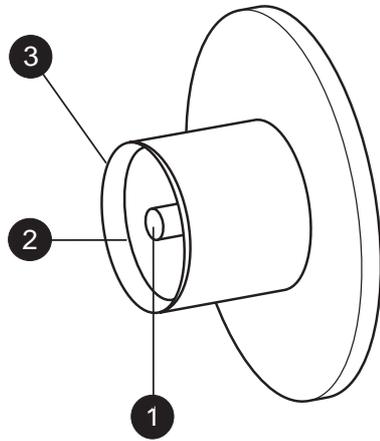
panel view (X540)

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

Fischer male: Panel part number3922 407 30531

Trilock female: Panel part number3922 407 30551

ARD female: Panel part number3922 407 30571

X540LEMO 3 female: Panel part number3922 407 30631

LEMO 4 female: Panel part number3922 407 30591

LEMO BBC male: Panel part number3922 407 30611

The panel part numbers are the connectors including the assembly.

Triax connector orientation

The Triax connector can be mounted to suit your cable run.
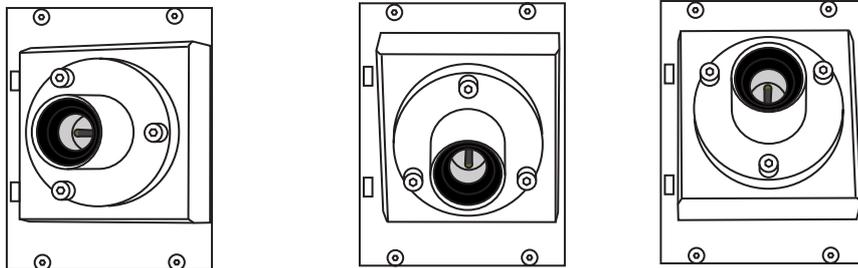
Figure 2-12. Hybrid fiber connector
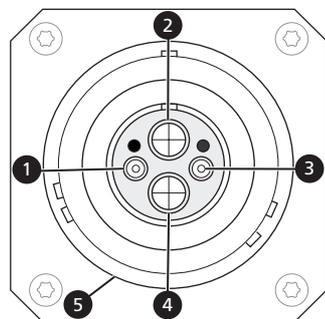
LEMO; panel view (X540)

1. Power
2. fiber A
3. Return
4. fiber B
5. Shield

Shield of cable directly to the connector housing.

2.7.2   DSC Interface board HD

Figure 2-13. BNC connectors
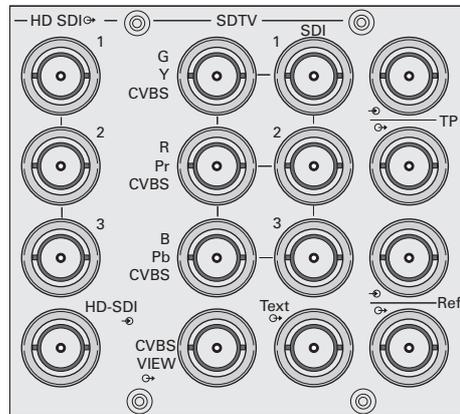
Text	Signal
HD-SDI 1	Standard HD-SDI output signal
HD-SDI 2	Standard HD-SDI output signal
HD-SDI 3	Standard HD-SDI output signal
HD-SDI (in)	Standard HD-SDI input signal
G, Y, CVBS	Selectable green, luminance or CVBS signal
R, Pr, CVBS	Selectable red, component or CVBS signal
B, Pb, CVBS	Selectable blue, component or CVBS signal
CVBS VIEW	Viewfinder CVBS signal
SDI 1	Standard SD-SDI output signal
SDI 2	Standard SD-SDI output signal
SDI 3	Standard SD-SDI output signal
Text	Viewfinder text output signal
TP (in)	Teleprompter input signal
TP (out)	Teleprompter looped-through signal
REF (in)	Reference input signal
REF (out)	Reference looped-through signal

Figure 2-14. High-speed camera BNC connectors
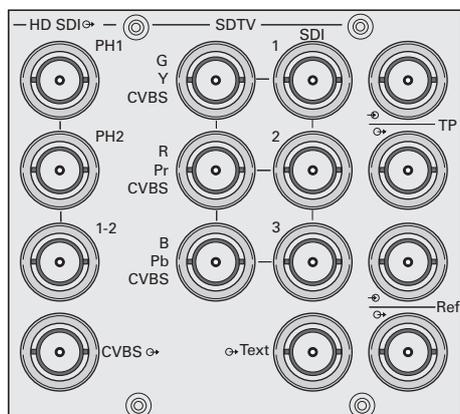
Text	Signal
HD-SDI PH1	HD-SDI Phase 1 output signal. Odd fields/frames at 1.5 Gbps compliant with SMPTE 292M.
HD-SDI PH2	HD-SDI Phase 1 output signal. Even fields/frames at 1.5 Gbps compliant with SMPTE 292M.
HD-SDI 1+2	Standard HD-SDI output signal. Phase 1 and phase 2 combined signal at 1.5 Gbps compliant with SMPTE 292M.
CVBS	CVBS output signal
G, Y, CVBS	Selectable green, luminance or CVBS signal
R, Pr, CVBS	Selectable red, component or CVBS signal
B, Pb, CVBS	Selectable blue, component or CVBS signal
SDI 1	Standard SD-SDI output signal
SDI 2	Standard SD-SDI output signal
SDI 3	Standard SD-SDI output signal
Text	Viewfinder text output signal
TP (in)	Teleprompter input signal
TP (out)	Teleprompter looped-through signal
REF (in)	Reference input signal
REF (out)	Reference looped-through signal

☞ Note

In normal speed video mode BNC outputs PH1, PH2 and 1+2 carry the same standard HD-SDI digital video signal.

2.7.3   External video board

Figure 2-15. External video board BNC connectors
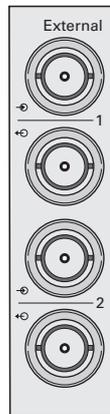
Text	Signal
External 1	External 1 input signal
	External 1 looped-through signal
External 2	External 2 input signal
	External 2 looped-through signal

2.7.4   Monitoring board

Figure 2-16. Monitoring board BNC connectors

Text	Signal
Monitor	Monitoring output signal
	Monitoring looped-through signal
VGA	Standard VGA output signal

2.7.5   Communication module connectors

Figure 2-17. Communication module connector location

Data connector
Ethernet connector
Audio output connectors

Signalling connector
Intercom connector
RS232 connector
Auxiliary connector
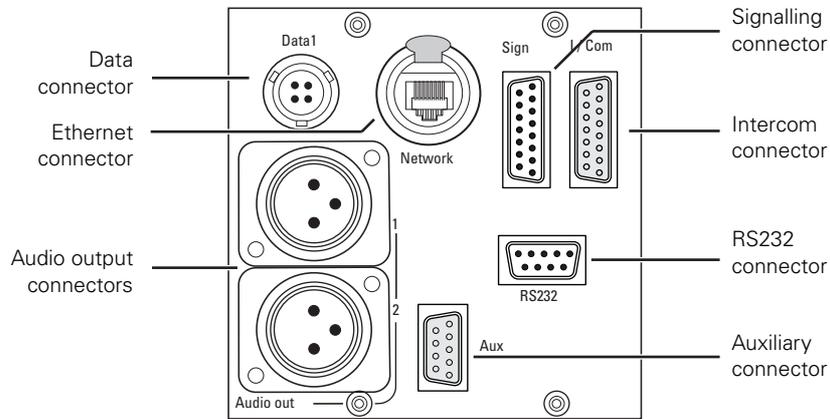
Figure 2-18. Signalling connector
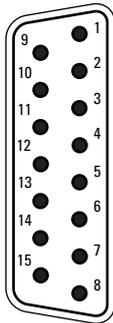
SubD 15-pin male; panel view (X 370)

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

1. Prev. out ext. (relay contact < 10 Ω)
2. Call out ext. (relay contact < 10 Ω)
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 0 to +5V, see below)
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.

Figure 2-19. Intercom connector
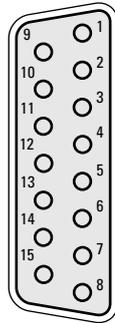
SubD 15-pin female; panel view (X12)

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.

Figure 2-20. RS232 serial connector
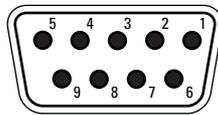
SubD 9-pin male; panel view

X7 Data board, X379 Signal conn. board

Panel part number: 2422 025 12962
Serial interface cable: 4822 872 03413

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

Figure 2-21. Auxiliary connector
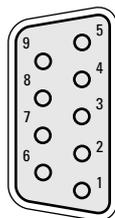
SubD 9-pin female; panel view (X371)

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

1. +5V
2. AN 0 (0 to +5 VDC input)
3. Private data out
4. Private data in
5. Housing (Shield of cable to this pin)
6. Ground
7. AN 1 (0 to +5 VDC input)
8. Private data out return
9. Private data in retreturn

Shield of cable directly to the connector housing.

Figure 2-22. Audio out connectors
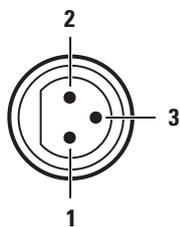
XLR 3-pin male; panel view

1. Audio screen
2. Audio out
3. Audio return

Sensitivity range: -64 dBu to -22 dBu

Signal at pin 2 of audio output is in phase with signal at pin 2 of audio input.

Figure 2-23. Ethernet connector (C2IP)
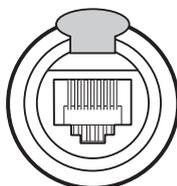
Neutrik RJ-45; panel view (X378)

8-pin standard Ethernet RJ-45 connector

Figure 2-24. Data connector (S9000 only)
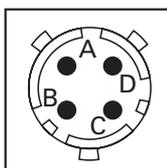
4-pin male; panel view (X368 / X3784)

Panel part number: 2411 020 11367

Cable part number: 2411 020 12025

A. Data
B. Data not
C. Not connected
D. Shield

Shield of cable to the pin marked housing.

2.7.6   Power connector

Figure 2-25. Power connector

1. Neutral
2. Line
3. Earth

Mains input voltage: 230 VAC or 115 VAC

Fuses: 4AT (230Vac) or 10AT (115 Vac)

Mains frequency: 47 to 63 Hz

Power consumption: 270 Watt (470 VA)
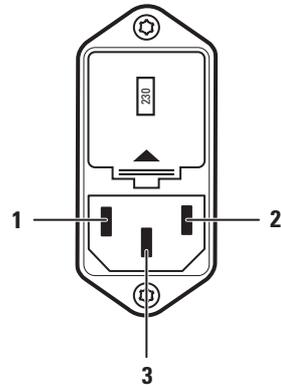
IEC style 3-pin male; panel view

2.7.7   Front headset connector

Figure 2-26. Headset connector

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

Microphone level -64 dBu

Microphone impedance 200 Ω

Telephone level +6dBm nominal

Telephone output impedance < 50 Ω

Shield of cable directly to the connector housing.
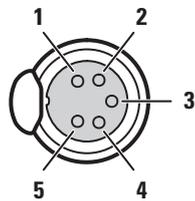
XLR 5-pin female; panel view (X574)

Chapter 3

Configurations

3.1 Single camera

A camera head with the LDK 5860 TriaxHD adapter is connected to a TriaxHD Base Station using a Triax cable. The maximum length of cable that can be used without significant degradation of the video signal is 1,200 m (4,000 ft.) for a 14 mm Triax cable.

The power supply is applied to the Base Station and via the Triax cable to the camera. An OCP 400 operational control panel can be connected directly to the Base Station using a cross-over Ethernet cable.

Figure 3-1. Camera in TriaxHD mode
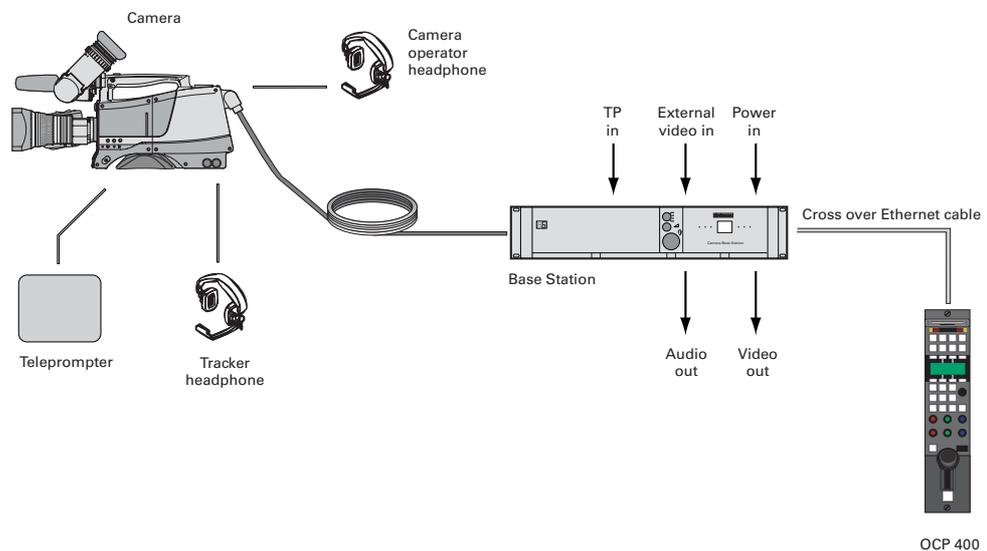
3.2 Multiple cameras in C2IP network

The Base Stations are each connected to a network hub or router via an Ethernet cable (straight through, not cross-over). The OCP 400 operational control panels and, if required the MCP 400 Master Control Panel, are also connected to the Ethernet network via a hub or router.

Figure 3-2. Multiple HD cameras with C2IP network control
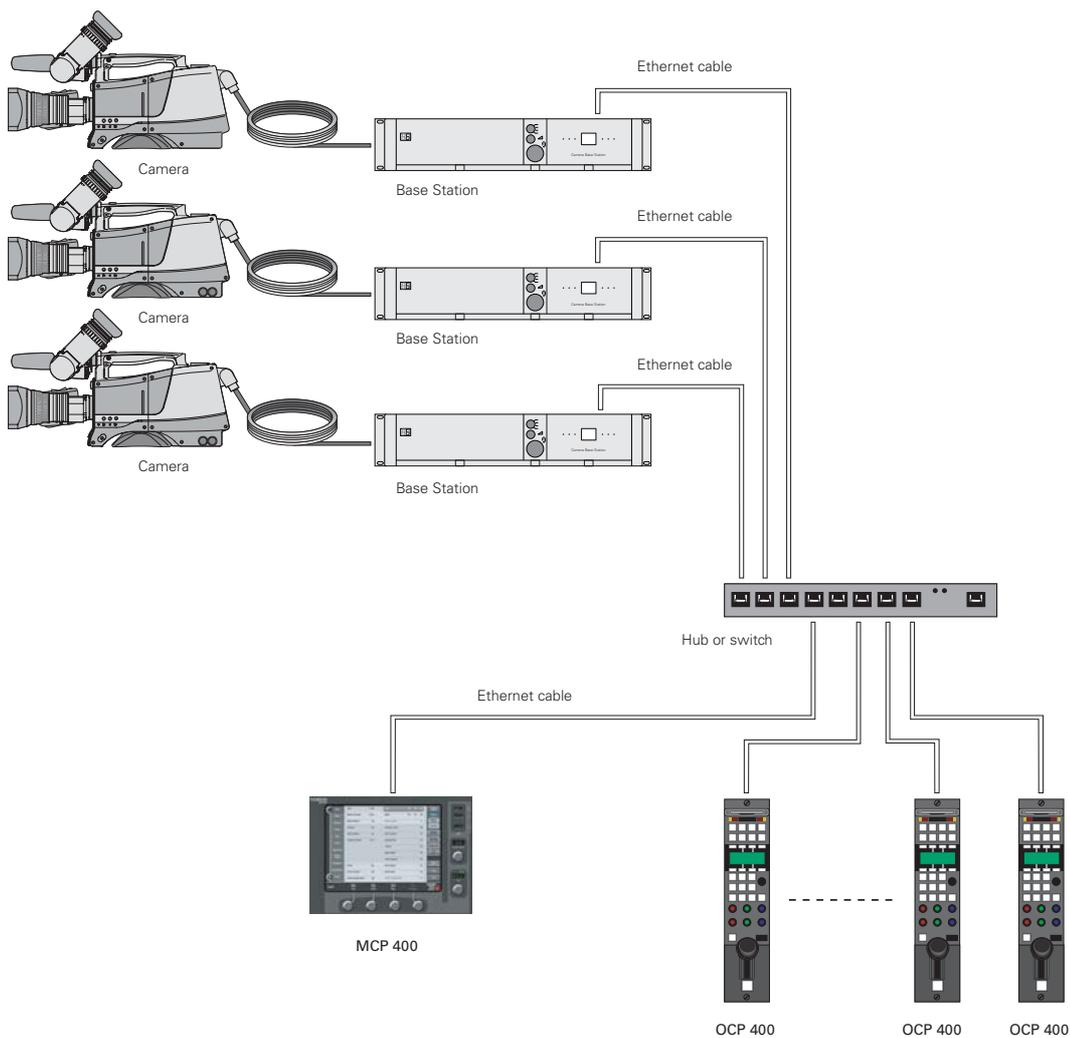
3.3 Camera and SuperXpander

A camera head with the LDK 5860 TriaxHD adapter can be mounted in the LDK 4488 SuperXpander (or in the LDK 4489 Xpander). This enables large box lenses to be used with the camera. The LDK 4021 7-inch HDTV viewfinder can be mounted on the SuperXpander.

The camera with the TriaxHD adapter connects to the SuperXpander via a flying lead. The power supply for the camera is supplied via this lead. The SuperXpander is connected to a TriaxHD Base Station using a Triax cable. This configuration can be powered either:

– from the Base Station via the Triax cable, or

– locally with the mains power supply connected directly to the SuperXpander.

The maximum length of triax cable that can be used without significant degradation of the video signal is 1,200 m (4,000 ft.) for a 14 mm Triax cable when the configuation is powered locally.

To control the configuration an OCP 400 operational control panel can be connected directly to the Base Station using a cross-over Ethernet cable. The Base Station is powered by a mains power supply.

Figure 3-3. Camera with SuperXpander and TriaxHD adapter
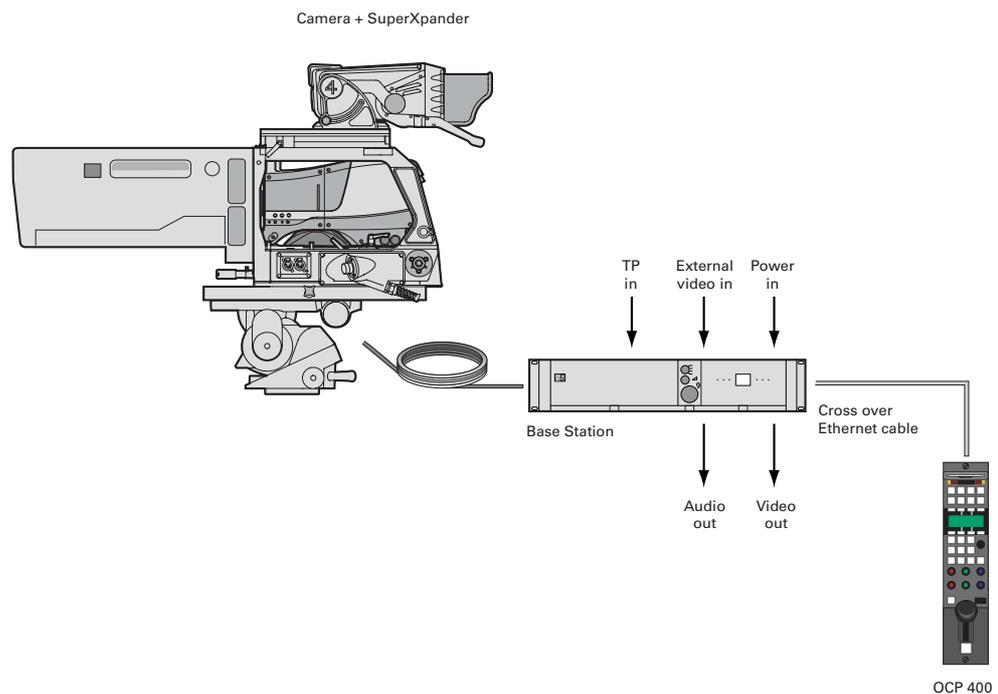
3.4 SportCam with high-speed Base Station

To obtain a high-speed output, the SportCam must be connected to the high-speed TriaxHD Base Station (LDK 4506). The connection between the SportCam and the Base Station uses the same Triax cable as the other configurations and operational control uses the same C2IP network and units. The high-speed TriaxHD Base Station supplies a dual-phase high-speed HD signal for a recording system.

Figure 3-4. SportCam with SuperXpander and high-speed TriaxHD Base Station.
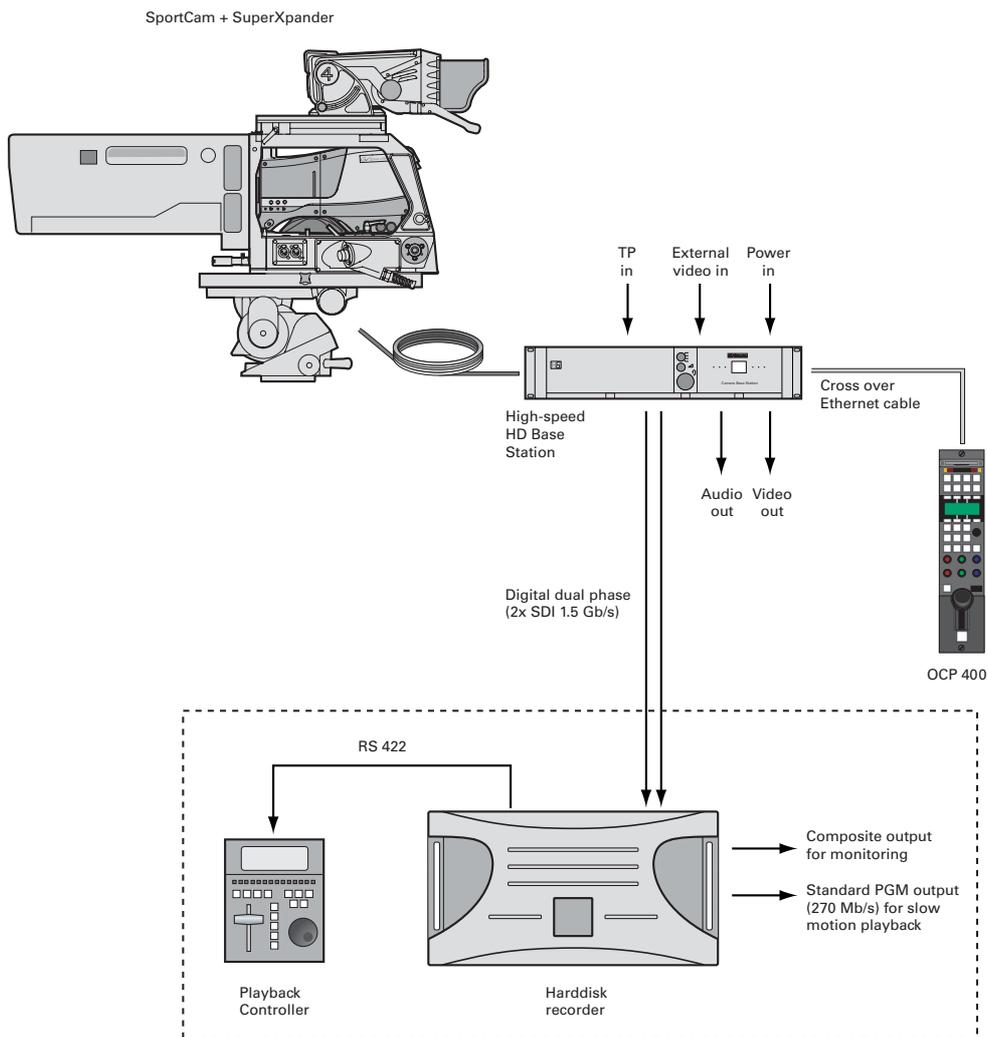
The BNC output connectors PH1 and PH2 on the rear of the high-speed base station provide dual phase serial digital video signals. These odd and even field signals are suitable for a high-speed recording system.

3.5   Triax cable lengths

The approximate maximum cable lengths between a Base Station and a camera are given in the table below. The signal degrades gradually when these lengths are exceeded. Reduce these lengths by 20% when a teleprompter signal is sent to the camera.

The maximum length is given for cables of the highest quality. The quality of some cables and the interconnections can adversely affect this maximum length.

Cable diameter	Maximum length
8 mm (0.33 in)	500 m (1,600 ft)
11 mm (0.43 in)	700 m (2,300 ft)
14 mm (0.55 in)	1,200 m (4,000 ft)

☞   Note

The maximum cable length for 8 mm (0.33 in) Triax is adversely influenced by the power consumption of the camera.

LDK 4502/4503/4506 HDTV camera base station User's Guide (v3.5)

Chapter 4

Using the Base Station

4.1   Base Station controls and indicators

Figure 4-1. Base Station controls

Control or indicator	Description
Display	During normal operation the display shows the number of the camera connected to the Base Station. 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 Base Station menu system.
Intercom volume control	Adjusts the volume of the selected intercom channel being monitored on the connector below.
Intercom selection switch	Use this switch to select the intercom channel that is monitored on the connector below.
Intercom connector	Connect a headset to this connector to monitor the selected intercom channel.
Camera communication indicator	This green LED lights when the communications between Camera and Base Station are OK.
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.

Control or indicator	Description
Power switch	Switches the power supply to the Base Station on and off. A built-in light lights to indicate that the power is On.
Base Station indicator	This green LED lights when the Base Station is operationally ready.
Camera indicators	This bi-colour 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 OCP or MCP (polling). This green CONNECTED LED lights when the Camera is connected and the Camera power switch is On.

4.2 Setting up the Base Station

The Base Station is set up using either:

1. The Rotary/Push button behind the front cover of the Base Station or

2. An OCP attached to the Base Station

Figure 4-2. Base Station set up controls

Left front cover   Open clasp   Intercom connector

Display   Rotary / Push button
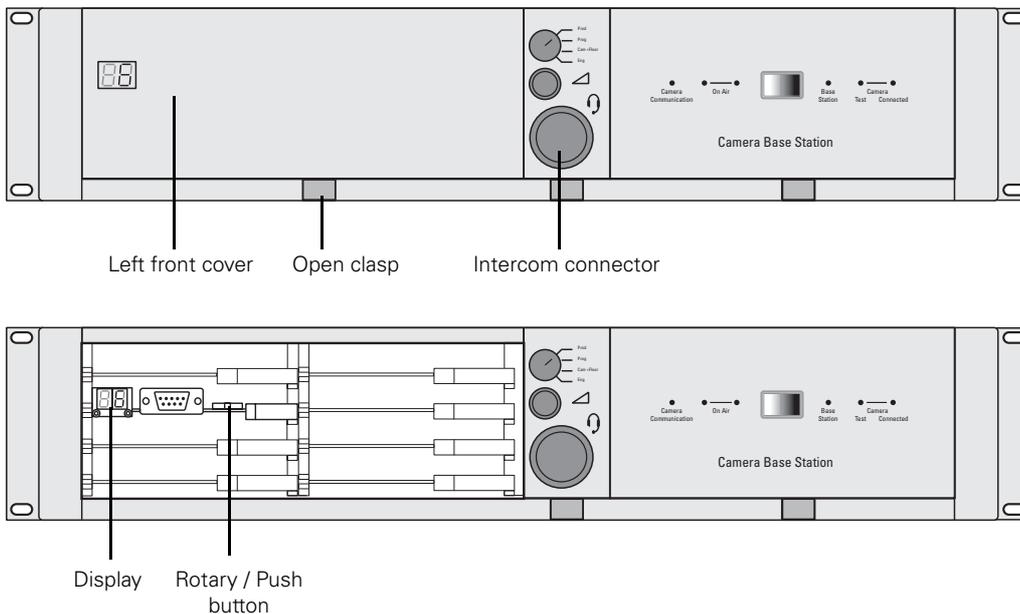
4.2.1   Set-up items

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 Base Station 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 Base Station.

4.3   Using an OCP 400 to set up the Base Station

An OCP can be used to set up the base station instead of the Rotary/Push button.

1.   Push the **Setup Menu** button on the OCP to open the menu.

2.   Push the selection button to choose the BS submenu.
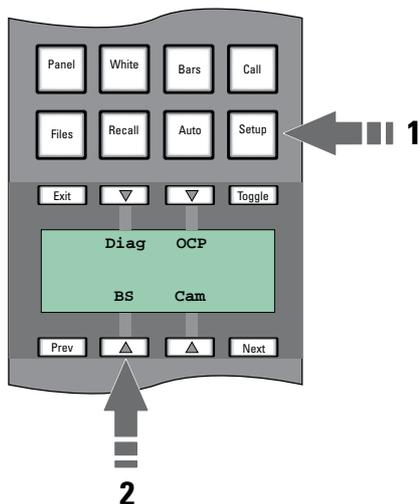
The BS submenu appears. Use the **Next** button to view subsequent pages.

Table 4-3. Base Station set-up menu

Menu	Selections	Function	Level	Possible values
BS	MONITORING	Picture monitor selection	S	CVBS, R,G,B, Y, EXT1, EXT2, Y/EXT1, Y/EXT2
	-			
	-			
	MENU	BS internal menu enable	S	
Next	H PHASE	Adjustment H-Phase	B	0..99
	SC COARSE	Adjustment SC-Phase coarse	B	0, 90, 180, 270
	-			
	SC FINE	Adjustment SC-Phase fine	B	0..99
Next	NOTCH LVL	Notch Depth	B	0..99
	NOTCH	Notch function	B	On, Off
	-			
	-			

Select the **MENU** item of the BS menu to access the internal menu of the Base Station. The internal menu appears on the Base Station Text output and CVBS output (if switched on).

Table 4-4. Base Station internal menu

Menu	Selections	Function	Level
BS internal menu	UP*	UP menu	S
	-		
	DOWN*	DOWN menu	S
	SELECT	Select item	S

* Or use the rotary contol on the OCP to move up or down through the menu.

4.4   Using the Base Station system menu

The menu system is used for configuring the base station. 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.

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

4.4.1   Entering the system menu

Use the Rotary/Push button behind the left front cover to control some basic set-up functions and to navigate through the menu system. The system functions of the base station 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.

Figure 4-5. Main menu
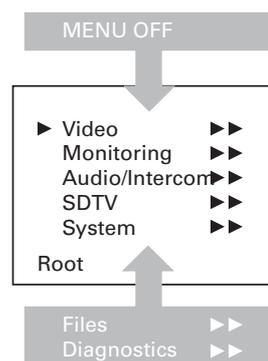
The main menu screen shows five items and the name of the menu. One more item is hidden but becomes visible when you scroll down. A cursor shows your position in the menu. The Rotary/Push button moves the cursor up and down.

4.4.2   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.

Figure 4-6. System menu

```
      TOP
      PREVIOUS


   ► Camera Number  1
     Camera Power   On
     MCP Available  Yes
     Yellow On Air  Std
     Timing         ►►
   System

     Clock          ►►
     Video Mode     10i59
     Teleprompter   Off
```
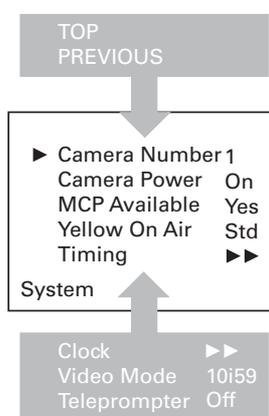
The SYSTEM menu above shows the items displayed when you first enter the menu and the other items that are available by scrolling up or down with the Rotary control.

4.4.3   Leaving the Systems Menu

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

• If necessary move the cursor to the left most column with the Rotary/Push button.

• Scroll upwards until the cursor points to TOP (this is the main menu).

• Press the Rotary/Push button. The cursor now points to the Menu off item of the MAIN menu.

• 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.

4.4.4   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.

4.4.5 Using the Recall File to undo 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.

4.4.6 Base Station menu structure

Access to the functions on these menus is determined by the user level that has been set. The menus are as follows (refer to Chapter 6 for more details):

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

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

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 Base Station.

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 Base Station.

4.4.7 Base Station user levels

The menu items are divided into two user levels. The operator level Op. (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:

1. Enter the menu.

2. Navigate to the Monitoring \ Menu \ Menu level Item.

3. 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 Base Station. 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.

4.4.8 Video menu - Special features

Auto lighting

The Auto Lighting item of the the video menu compensates for variations in the frequency of the power supply used for gas discharge lamps (fluorescent or HMI lighting).

The frequency of power supply generators can vary from the nominal value. This variation affects the lighting which in turn affects the colour balance. If camera system and lighting are supplied by the same power source, then the base station auto lighting function can automatically adjust the exposure to follow the variations and maintain a constant colour balance. This correction only works when the camera exposure time is set to the 50Hz or 60Hz position.

Gain adjustment

The Gain Adjustments item of the the video menu is a special item. It combines menu items from various other menus to help you when you are adjusting the gain. It should only be used when carrying out the gain adjustments on the Sync/Encoder board in conjunction with the procedure given.

4.4.9 MCP availability

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 Base Station 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)

Function	State
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

4.5   Intercom set up

Our Triax camera systems offer extensive intercom facilities between cameraman, tracker (floorman), Base Station and studio. To help you set up and operate the intercom system, the following controls are available:

- Base Station menu system

- Camera head menu system

- Base Station front panel selection switch (optional)

- Camera head adapter rear panel

- Camera head switches

When setting up a system it is usually more convenient to use an OCP400 to select your preferences in both the Base Station and camera head menu systems.

☞ Note

For a fully-featured intercom system, the Base Station must be fitted with a BS Audio/Intercom module and a BS Headset module, both of which are optionally available. If either of these modules is absent from your system then the associated features outlined below are obviously not available.

4.5.1   Base Station - studio interface set-up

A four-wire or a two-wire studio system can be connected to the Base Station. In the Base Station `AUDIO/INTERCOM` menu, select the Wire Mode for engineering (ENG), production (PROD) and programming (PROG). By default these values are set to four-wire.

Isolate

The isolate function completely disconnects the Base Station intercom from the studio system. The function can be switched locally or remotely via an OCP.

Levels

In the four-wire mode the menu gives you a choice of either a 0dBu or a +6dBu signal level. In the two-wire mode this level is set to 0dBu.

- Set the input and output intercom levels for the PROD and ENG channels. The range is 00 to 99; default is 50.

- Set the input level for the PROG channel.

- Set the levels for the sidetone in a two-wire system in this menu.

4.5.2 Base Station headset set-up

☞ Note

The headset facilities are only available on Base Stations fitted with the BS Headset module which is optionally available.

A headset connected to the front of the Base Station is set-up via the `AUDIO/INTERCOM` menu of the Base Station using the ENG Headset submenu. In this menu you can select a 12 VDC phantom supply for the headset microphone and set the microphone level to 0 dB or +20 db.

The cameraman microphone signal and the tracker (floor) microphone signal can be individually switched on for the headset and the levels for each can be set. You can switch on a sidetone from the Base Station microphone and set its level.

The Base Station microphone signal is added to the ENG channel. Use the MIC ENG-OUT function in the menu to send it to the studio engineering channel. Use the MICTOENG-CAM function to send it to the camera.

Operation

The signal to the headset is controlled with a switch in the front of the Base Station which selects the intercom signal to be heard in the Base Station headset. The choices are:

- PROD (production)

- PROG (programming)

- CAM+FLOOR (cameraman and tracker)

- ENG (engineering)

If CAM+FLOOR is selected, the signal that is heard depends on the values set in the ENG Headset submenu for the CAMERAMIC and TRACKERMIC signals in the `AUDIO/INTERCOM` menu of the Base Station.

☞ Note

If you have selected to operate a bi-directional private data channel between the Base Station and the camera in the `AUDIO/INTERCOM` menu of the Base Station, then the tracker microphone signal is not available in the Base Station and the Program signal is not available in the camera.

4.5.3   Voice mail

Voice Mail is an intercom message storage function.

☞ Note

Voice mail is only available if the Base Station 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 Base Station 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.

Chapter 5

Diagnostics

5.1 Base Station diagnostic indicators

Figure 5-1. Base Station indicators
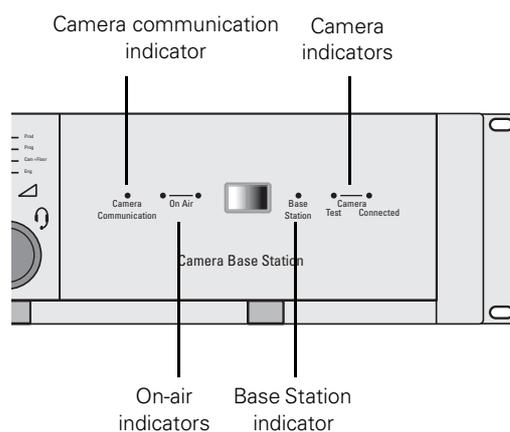
5.1.1 Camera communication indicator

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

5.1.2 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.

5.1.3 Base Station indicator

This green LED lights when the Base Station is operationally ready.

5.1.4   Camera indicators

The bi-colour **Test** LED lights red or yellow to indicate the Camera and Triax status:

- Red lights continuously – Triax short circuit OR an interrupted core. Other indicators of this condition are:

    - OCP: Triax LED red (continuously)

    - MCP: DIAGNOSE \ Triax - SHORT

    - Menu: Diagnostics \ Board Diagnostics \ Power board \ Triax Status

    - The interpretation of these messages is given below.

- Red flashes – Triax open circuit (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

- Yellow – Camera power switched off with the Operational or Master Control Panel.

The green **Connected** LED lights when the Camera is connected and the Camera power is not switched off by the MCP, OCP or Base Station menu.

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

5.2 Triax diagnostic indications

The Camera **TEST** LED lights red during these fault conditions.

General precautions to avoid Triax problems

- Only use Triax cable (with three conductors).

- Ensure that all Triax connectors (camera, base station 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).

- When using Triax connectors be sure to always make swift and firm connections to avoid unintended fault conditions.

- Verify that there is no shortcircuit between the outer and inner shield or core.

5.2.1 Core Open

Figure 5-2. Fault conditions for Core_Open message
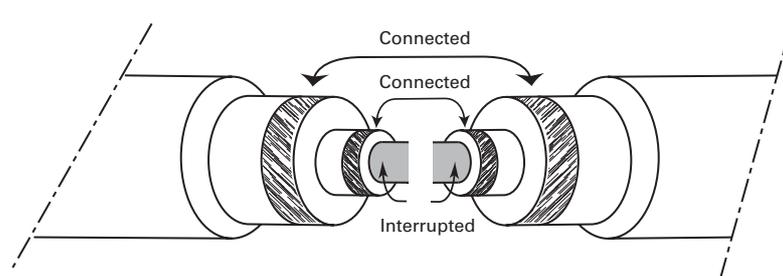
1. Indicates an interrupted core when both shields are connected correctly while the camera is connected.
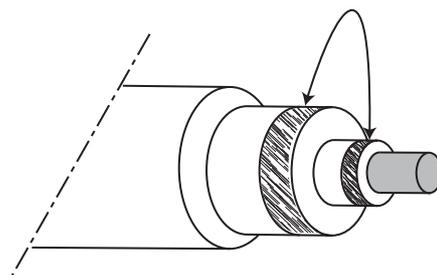
2. Indicates a short circuit between the outer and inner shield while the camera is NOT connected.

Base Station diagnostic message: `DIAGNOSTICS/BOARD DIAGNOSTICS/POWER BOARD/ TRIAX STATUS >> COPEN`

5.2.2   Core Short

Figure 5-3. Fault conditions for Core_Short message
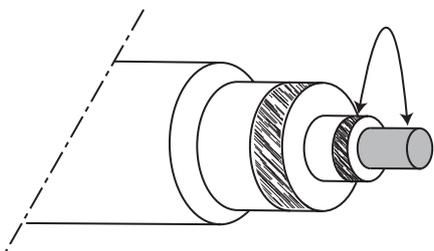
Indicates a short circuit between the core and the inner shield while the camera is NOT connected.
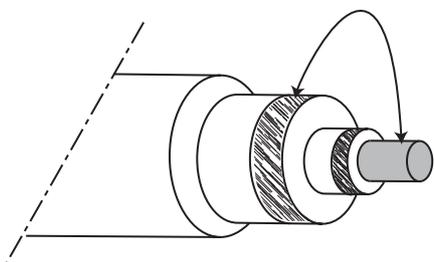
Indicates a short circuit between the core and the outer shield while the camera is NOT connected.

Base station diagnostic message:`DIAGNOSTICS/BOARD DIAGNOSTICS/POWER BOARD/ TRIAX STATUS >> CSHRT`

5.2.3   Shield Open

Figure 5-4. Fault conditions for Shield_Open message

No Connection
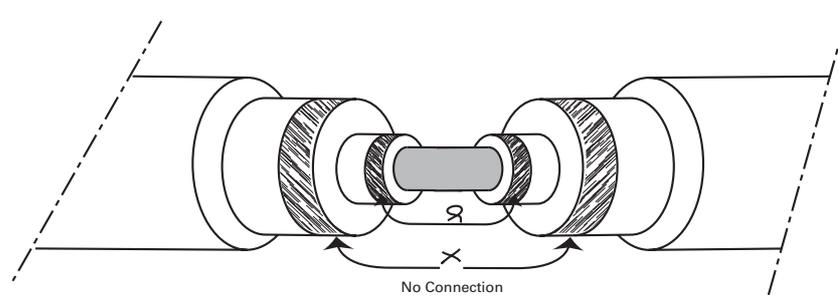
Indicates an interrupted outer shield.

Base station diagnostic message:`DIAGNOSTICS/BOARD DIAGNOSTICS/POWER BOARD/`
`TRIAX STATUS >> SOPEN`

5.2.4   Total Short

Figure 5-5. Fault conditions for Total_Short message
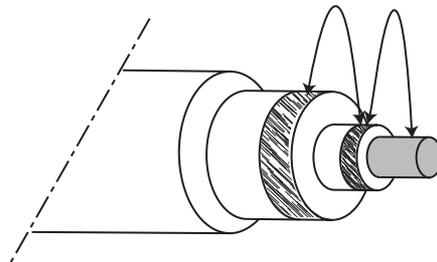
Indicates a short circuit between the inner shield, the outer shield and the core.

Base station diagnostic message:`DIAGNOSTICS/BOARD DIAGNOSTICS/POWER BOARD/`
`TRIAX STATUS >> TSHRT`

5.3 Sync/Encoder HD board status

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

Figure 5-6. Sync/Encoder HD board
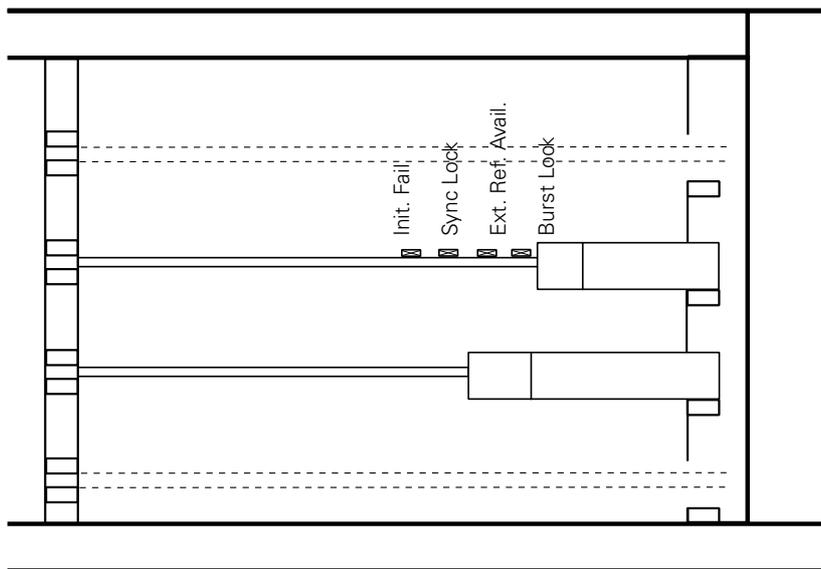
Init. Fail: - lights (red) if there is a configuration or initialisation error or if the bus clock or video sync pulses are missing.

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.

Chapter 6

Preventative maintenance

6.1   Module locations

Figure 6-1. Base Station modules
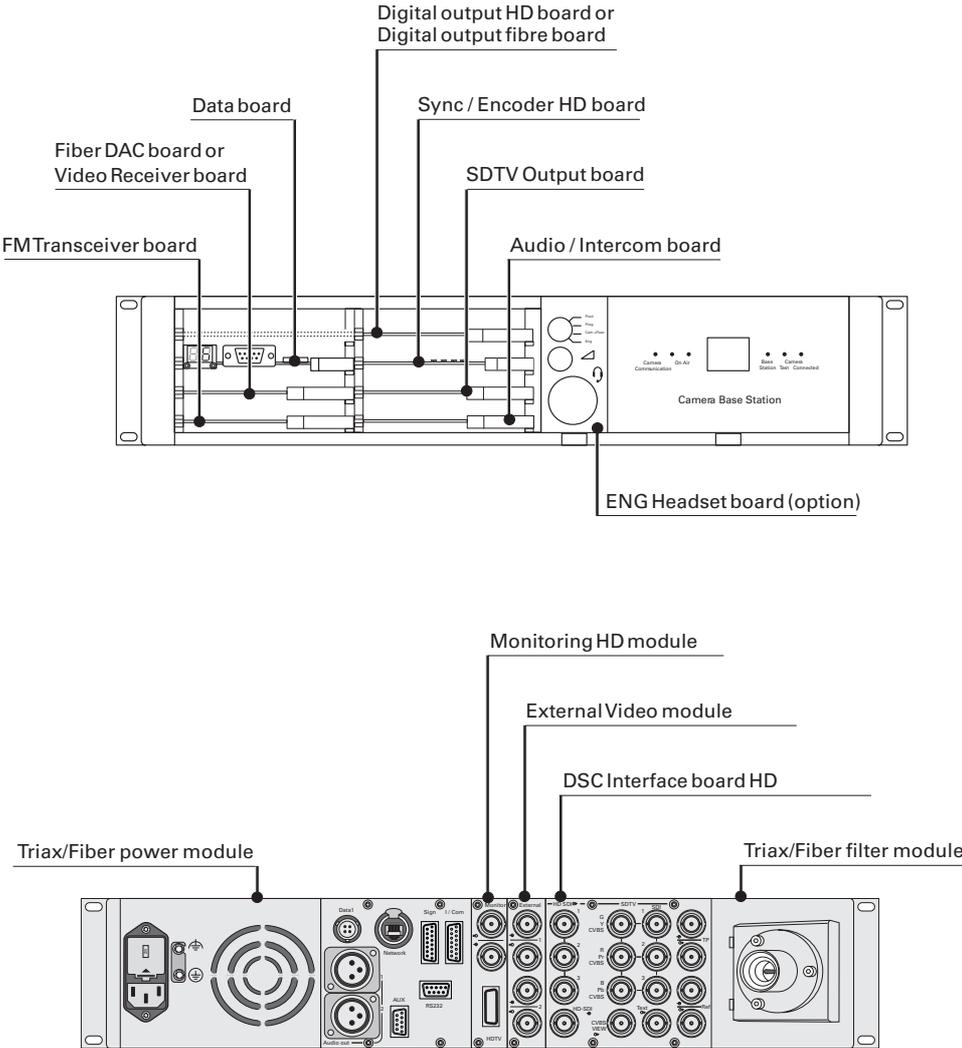
6.2   Replacements

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

• Power unit

• Dust filters

6.3   Power unit

Removing the Power Unit

• Remove the screw at the rear of the Power Unit.

• With your thumb push up the lever, as shown below, and pull the Power Unit out of the Base Station.

Figure 6-2. Removing the Power Unit
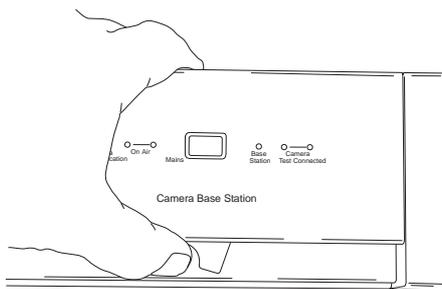
Installing the Power Unit

• Put the Power Unit into the guides and push until the lock clicks.

• Check that the Power Unit is correctly locked.

• Tighten the screw at the rear of the Power Unit.

The correct and incorrect locking positions are shown below:

Figure 6-3. Installing the Power Unit
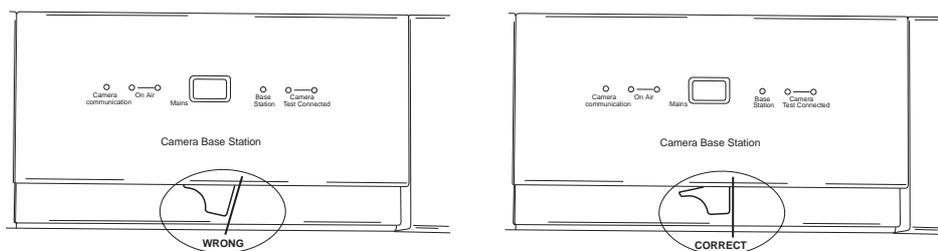
6.3.1   Replacing dust filters

Side-inlet

1.   Remove 4 screws.

2.   Slide back support with dust filter out of base station.

3.   Remove dust filter.

4.   Place clean dust filter in back support.

5.   Slide back support with dust filter into base station.

6.   Fix support with 4 screws.

Figure 6-4. Replacing side dust filters
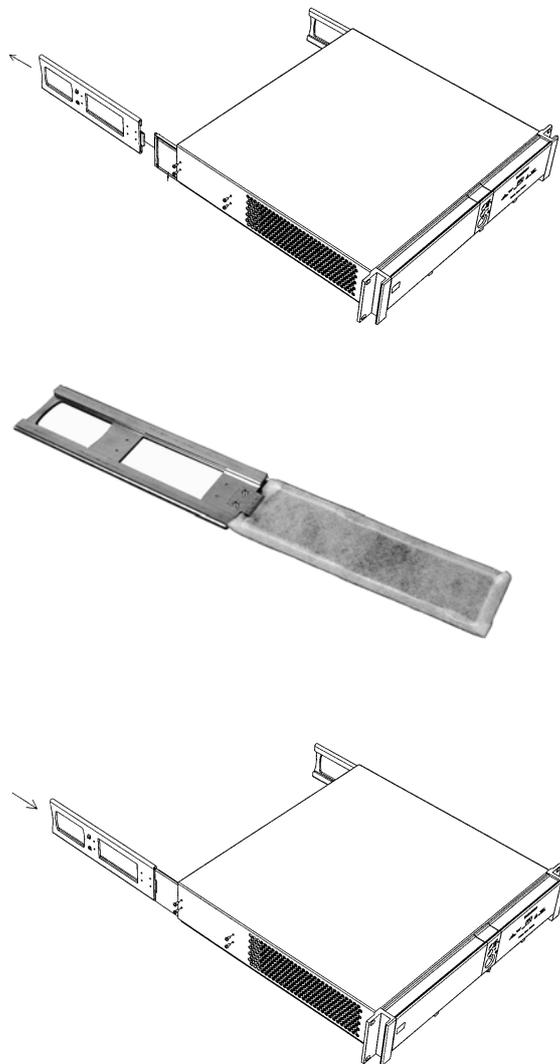
Front-inlet

1. Remove PCB front cover.

2. Remove dust filter.

3. Place clean dust filter.

4. Put back PCB front cover.

5. Remove front cover Power Unit.

6. Remove dust filter.

7. Place clean dust filter.

8. Return front cover Power Unit to its position.

Figure 6-5. Replacing front dust filters

PCB front cover

Power Unit cover
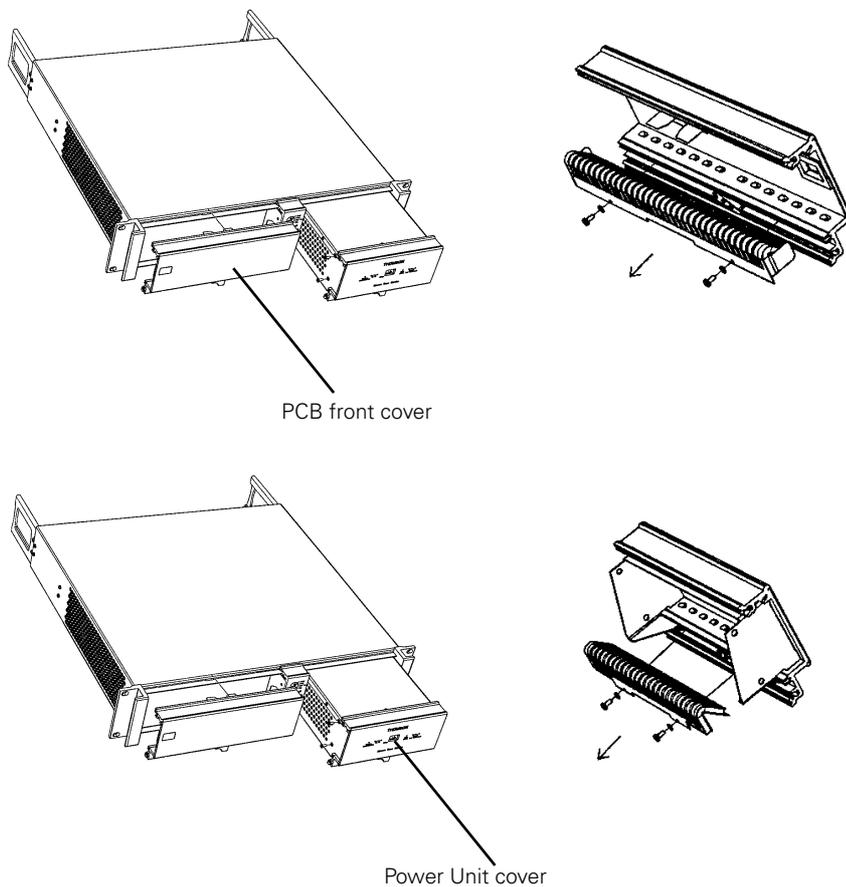
Chapter 7

Specifications

7.1   Specifications

Item	Value
General	
Dimensions (W x H x D)	438 x 88 x 510 mm (17.2 x 3.5 x 20.1 in)
Weight (approx.)	17 kg (37.5 lbs) fully equipped
Operating temperatures	0 to +50 °C (+32 to +122 °F)
Storage temperatures	-40 to +70 °C (-40 to +158 °F)
Operating humidity	Max. 90% relative humidity (non condensing)
Altitude	Max. 15,000 m (50,000 ft)
Shock resistance	Max. 10G (transport), max. 2G (operating)
Power	
Power requirements	115 VAC / 230 VAC +/- 15%, 47 to 63Hz
Power consumption	270 W (470 VA) max. fully equipped
Power connection	IEC type, 3-pin male
Transmission (Triax)	
Typical cable length	1,200 m (4,000 ft) using 14 mm (0.55 in) Triax cable
Bandwidth	30/15/15 MHz, Y/Cr/Cb
Transmission (Fiber)	
Typical cable length	4,000 m (13,000 ft) using SMPTE311M hybrid fiber cable
Bandwidth	30/15/15 MHz, Y/Cr/Cb
Video inputs	
Teleprompter	BNC (loop-through), 1.0 Vpp, 75 Ω
Reference	BNC (loop-through), 1.0 Vpp, 75 Ω HD tri-level sync or SD Black Burst
Video outputs	
HD-SDI	3x BNC, 0.8 Vpp, 75 Ω, SMPTE 292M, 1080i or 720p at 59.94 or 50Hz
Text out	BNC, 1.0 Vpp, 75 Ω VBS (monochrome)

Item	Value
Composite video	BNC, 1.0 Vpp, 75 Ω CVBS (for viewing purposes)
External control connections	
C2IP camera control	Ethernet RJ-45 connector
Series 9000 camera control	4-pin, male (2-wire camera control bus)
Serial RS-232	D-sub 9-pin, male
Functional connections	
Signalling in/out	D-sub 15-pin, male
Auxiliary in/out	D-sub 9-pin, female

Item	Value
LDK 4530/10 External video input module	2x BNC, 1.0 Vpp, 75 Ω (loop-through) (C)VBS.
LDK 4531/20 SDTV output HD module	3x BNC SDI out, 0.8 Vpp, 75 W, SMPTE 259M, ITU-R, BT.601 3x BNC analog out, R, G, B or Y, Pr, Pb, or 3x CVBS (menu selection): - RGB out: 3x 0.7 Vpp (+/- 1%), 75 Ω - Y, Pr, Pb: 3x 0.7 Vpp (+/- 1%), 75 Ω - CVBS out: 3x 1.0 Vp p (+/- 1%), 75 Ω Frequency response 0.1 to 5.75 MHz (+0.5 dB/-1 dB) K-factor less than 2%
LDK 4540/10 2 channel audio & 2/4-wire intercom module	Audio out 2x XLR-3, 0/+6 dBu (+/-1.5 dB, max. 18 dBu, 600 W, max. gain 70 dB) Frequency response 40 Hz to 15 kHz, (+1/-3 dB, 1 kHz, -10 dBu output level) Distortion Less than 0.5% (100 Hz/ 1 kHz, +6 dBu out, 600 Ω) S/N ratio 58 dB (unweighted RMS) Intercom in/out D- sub 15- pin, female (program in, production in/out, engineering in/out input: 0 or 6 dBu (max. 6 or 12 dBu), 9 Ω, output: 0 or 6 dBu (+/ -2dB, max 12 dBu), 600 Ω Frequency response 150 Hz to 6 kHz (1 kHz, -10 dBu output level) Distortion less than 2% (1 kHz, +12 dBu level)
LDK 4541/10 Engineering intercom module	6 dBu, +/- 2 dB, max 12dBu, 25 to 400 Ω Frequency response 150 Hz to 6 kHz, +/- 3 dB (0 dB, 1 kHz, -10 dBu output level) S/N ratio 46 dB (unweighted RMS) Phantom power +12 VDC (+/ -1 V), menu selectable
LDK 4560/20 Monitoring HD module	PXM video out BNC 1x 1.0 Vpp, 75 Ω, 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, 1.0 Vpp, 75 Ω, 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 30 MHz (+0.5 dB/- 1 dB)

7.2   Dimensions

Figure 7-1. Dimensions
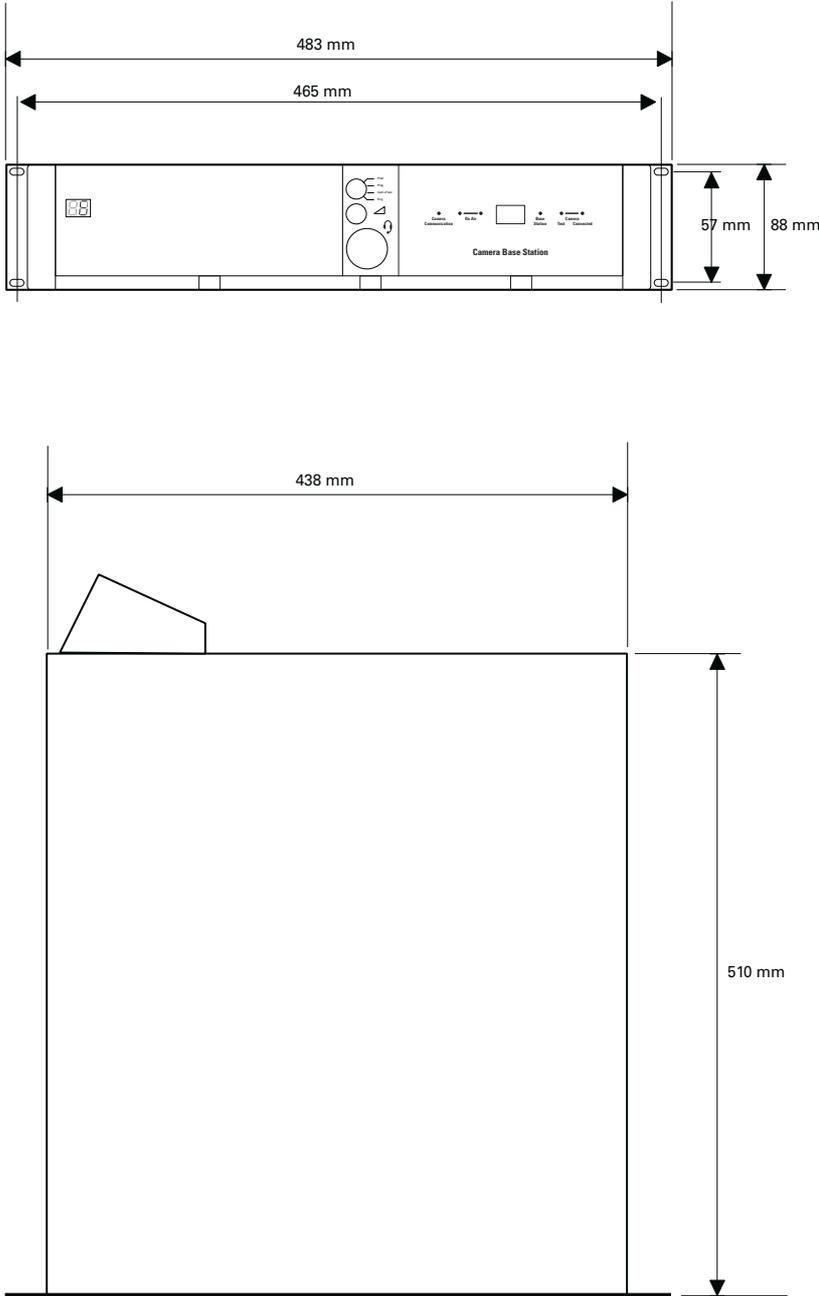
Chapter 8

Menu structure and contents

8.1 Menu structure

The structure of the main menus and their submenus are shown on the following pages. The first column shows the user level: Install ("I") or Operator ("O"). You only see menu functions whose user level is equal to or less than the user level set on your unit. Where appropriate, the default value of the function in the standard factory file is shown after the function.

8.1.1 Top menu structure

Video menu	>>
Monitoring menu	>>
Audio/Intercom m.	>>
SDTV menu	>>
System menu	>>
Files menu	>>
Diagnostics menu	>>

8.1.2   Video menu structure

```
 | Colour Bar        >          O | Colour Bar       Off
 I | Ext Black Clamp   50         I | Colour Bar Type  SMP
 O | Combine           Field
```

8.1.3   Monitoring menu structure

```
O | Monitoring Source  Y         O | Display          Time
O | Menu               >         O | Menu Time        10
O | Status bar         >         O | Menu Level       Oper.
                                 O | Service Mode     -


                                 O | Studio           >         O | Studio      Off
                                 O | Operator         >         O | Name        -
                                 O | Camrea number    Off
                                 O | Cable length     Off        O | Operator    Off
                                 O | HD out text      >          O | Name        -


                                                                 O | Warning Y-pos    14
                                                                 O | CamName Y-pos    1
```

8.1.4 Audio/Intercom menu structure

	Audio	
O	Intercom	

I	Audio Level 1	6dB
I	Audio Level 2	6dB

	Private Data	
	Test	
	Isolate	
	Eng	
	Prod	
	Prog	
	Eng Headset	
	Call	Call
	Voice Mail	

I	Tracker Channel	Inter
I	Prog Channel	Inter

-	Cam Routing	-
-	Tracker Routing	-

O	Source	Local
I	Isolate	Syst

I	Wire Mode	4wire
O	Side Tone	50
O	Level	6dB
I	In Ref Level	50
I	Out Ref Level	50

I	Wire Mode	4wire
O	Side Tone	50
O	Level	6dB
I	In Ref Level	50
I	Out Ref Level	50

I	Wire Mode	4wire
O	Level	50
I	In Ref Level	6dB

O	Phantom Power	Off
O	Mic Level	20dB
O	Side Tone	50
O	Mic to Headset	On
O	Cam to Headset	On
O	Cam Volume	50
O	Tracker to Headset	On
O	Tracker Volume	50
O	Mic Eng-Out	On
O	Mic to Eng-Cam	On

O	Record Eng	On
O	Record Prod	On
O	Record Prog	On

8.1.5   SDTV menu structure

Chroma	
Contour	
Skin Contour	
Notch	
Video Output	CVBS
Aspect Ratio	16:9
Letterbox	Off
Extern Video	

O	Chroma	
I	Level	

O	Contour	On
O	Source	Y
O	Level	10
O	Vertical Level	50
O	Noise Slicer	6
O	Coarse/Fine	25
O	Level Depend.	25
O	Soft Contour	On
O	Soft Cont. Level	70

O	Skin Contour	Off
O	Skin Level	50
O	Skin View	Off
O	Skin WIndow R	50
O	Skin Window B	50
O	Skin1 Color R	50
O	Skin1 Color B	50
O	Skin2 Window R	50
O	Skin2 Window B	50
O	Skin2 Color R	50
O	Skin2 Color B	50

I	Notch	Off
I	Level	50

I	SDI Amplitd Ext1	50
I	SDI Amplitd Ext2	50

8.1.6 System menu structure

	Cable	
O	Camera Number	99
O	Control Mode	C2IP
	IP Address	
	Ethernet	
O	Camera Power	On
I	MCP Available	Yes
	Signalling inputs	
	Extern Video	
	Timing	
	Clock	
I	Video Mode	mode
I	TV System	NTSC
I	Teleprompter	Off
I	OCP Cont. Mode	HD

O	% Max.Spec.Att.	128
O	Size	8mm
O	Rem. Length (m)	5
O	Rem. Length (ft)	5
O	Curr. Atten. (dB)	0
O	Length Unit	km
O	Remaining Lngth	0

O	IP Config Mode	Auto
O	IP digit 1	169
O	IP digit 2	254
O	IP digit 3	1
O	IP digit 4	1
O	Subnet Mask	24
O	Apply IP settings	busy

I	Ethernet Speed	10Mb
I	Ethernet Duplex	Auto

O	Yellow On Air	Std
O	Yellow On/Off	Lo/Hi
O	On Air On/Off	Lo/Hi
O	Call On/Off	Lo/Hi

I	Ext. Video Source	SDI
I	SDI Chroma Ext1	Off
I	SDI Chroma Ext2	Off

O	H Phase Coarse	50
O	H Phase Fine	50
O	Subcarrier Coarse	180
O	Subcarrier Fine	50
I	Subc H Ph. Coars.	180
I	Subc H. Ph. Fine	50

I	Day	-
I	Month	-
I	Year	-
I	Hour	-
I	Minute	-

8.1.7   Files menu structure

```
┌─────────────────────────┐        ┌───┬─────────────────────────┐
│ User Oper. Files         │        │ O │ Operator File    obs1   │
│ Std. Oper. Files         │────────│ O │ Recall           exec   │
│ User System Files        │        │ O │ Store            exec   │
│ Std. System Files        │        └───┴─────────────────────────┘
└─────────────────────────┘
                                     ┌───┬─────────────────────────┐
                                     │ O │ Operator File    CUST   │
                                     │ O │ Recall           exec   │
                                     │ I │ Store            exec   │
                                     └───┴─────────────────────────┘

                                     ┌───┬─────────────────────────┐
                                     │ I │ System File      sbs1   │
                                     │ I │ Recall           exec   │
                                     │ I │ Store            exec   │
                                     └───┴─────────────────────────┘

                                     ┌───┬─────────────────────────┐
                                     │ I │ System File      CUST   │
                                     │ I │ Recall           exec   │
                                     │ I │ Store            exec   │
                                     └───┴─────────────────────────┘
```

8.1.8   Diagnostics menu structure

	Board ID
	Board Diagnostics
	Transm. Diag.
	Comm. Diag.

	<Info Board 1>	-
	...	
	<Info Board n>	-

	Power Board
	Sync Enc. Board
	Data Board
	Audio/Iintercom
	Eng Headset
	Ext Video Input

O	Triax Status	tshrt
O	Fiber Status	tshrt
O	Local Power St.	NtOK
O	Power Overheatd	Yes
O	Fan	OK

O	Ref. Available	None
O	Burst Lock	No
O	Sync Lock	No

O	Transm. System	Unkn
O	Carrier Detected	No
O	HDSDI Lock	Off
O	Analog Carr. Det.	Off
O	AGC Out Ok	Off

O	Firmware Status	-
O	Boot Software ID	0
O	Base Station 12nc	3307
O	Base Station St.	-
O	Eth. MAC	-
O	Eth. Link Type	Unk.
O	Eth. Link State	Disc.

O	Cam Connected	No
O	OCP Connected	No
O	MCP Connected	No
O	C2IP Panels	0

O	Self Test	exec
O	Eng T. Tone Int.	-
O	Prod T. Tone Int.	-
O	Prog T. Tone Int.	-
O	Eng T. Tone Stu.	-
O	Prod T. Tone Stu	-

O	Self Test	exec
O	Test Intern	-
O	Test Studio	-
O	Test Tone Mic. BS	Off
O	Test Tone Tr/Fr Mi	Off
O	Test Tone Cam Mi	Off

O	Carrier Eq. Ext1	No
O	Carrier Rcve Ext1	No
O	SDI Lock Ext1	No
O	SDI TV Sys Ext1	625
O	Carrier Eq. Ext1	No
O	Carrier Rcve Ext1	No
O	SDI Lock Ext1	No

8.2   Menu contents

All items in the table are visible at the install user level. However, if an item is not relevant it is not shown.

The *Oper* in the Level column indicates that this item is visible at the Operator user level; the *Inst*all indicates that this item is visible at the Install user level.

The *Scene* in the File column indicates that the value of this item is stored in the Scene file; the *Sys* indicates that the value of this item is stored in the System file; the *Oper* indicates that the value of this item is stored in the Operator file.

In the Values column, the default values of the item are shown in **bold**.

8.2.1   Video menu

Menu item	Values	Description	Level	File
Colour Bar				
Colour Bar	On, **Off**		Oper	Scene
Colour Bar Type	**SMPTE**, Fulle	Changes the colour bar type (only HDTV out)	Install	Sys
Ext Black Clamp	0..99 **(50)**		Install	Sys
Combine	**Field**, 2-line, 4-line		Oper	Scene

8.2.2   Monitoring menu

Menu item			Values	Description	Level	File
Ext Black Clamp			R, G, B, **Y**	Selects signal on monitoring HDTV analog output.	Oper	Scene
Menu						
	Display		On, **Time**	Selects the menu display to be permanently on or to disappear after set time.	Oper	Oper
	Menu Time		5..99 **(10)**	Sets the length of time the menu is displayed when the Display mode is set to Time.	Oper	Oper
	Menu Level		Oper, **Inst**, Serv	Sets the user access level for the menu.	Oper	-
	Service Mode		Exec	Are you sure? (Y/N)	Oper	-
Status bar						
	Studio					
		Studio	On, **Off**	Shows the studio name in the status bar.	Oper	Oper
		Name	<studio name>	Edit the studio name string value.	Oper	-
	Operator					
		Studio	On, **Off**	Shows the operato's name in the status bar.	Oper	Oper
		Name	<studio name>	Edit the operator's name string value.	Oper	-
	Camera number		On, **Off**	Shows the camera number in the status bar.	Oper	Oper
	Cable length		**Off**, Perc, Length, Atten	Shows the cable length in percentage used, length left or attenuation.	Oper	Oper
	HD Out Text					
		Warning Y-pos	1..14 **(14)**	Sets the vertical position of the warning text.	Oper.	-
		CamName Y-pos	1..14 **(1)**	Sets the vertical position of the camera name.	Oper.	-

8.2.3 Audio/intercom menu

Menu item			Values	Description	Level	File
Audio						
	Audio Level 1		0dB, **6dB**	Selects studio audio attenuation for input 1.	Install	Sys
	Audio Level 2		0dB, **6dB**	Selects studio audio attenuation for input 2.	Install	Sys
Intercom						
	Private Data					
		Tracker Channel	**Inter**, Priva	Private data channel from camera to base station.	Install	Sys
		PROG channel	**Inter**, Priva	Private data channel from base station to camera.	Install	Sys
	Isolate					
		Source	**Local**, Rmote	Local = settings are available in the base station menu; Rmote = settings are available in the MCP	Oper	Oper
		Isolate	Isol, **Syst**	Isol = Isolate PRGM and PROD intercom to camera head with EGNG available; Syst = isolate is off	Install	Install
	ENG					
		Wire Mode	2wire, **4wire**	Selects studio intercom wiring mode.	Install	Sys
		Side Tone	0..99 **(50)**	Sets side tone (headset feedback) volume level.	Oper	Oper
		Level	0dB, **6dB**	Selects intercom channel attenuation.	Oper	Oper
		In Ref Level	0..99 **(50)**	Sets input reference level.	Install	Sys
		Out Ref Level	0..99 **(50)**	Sets output reference level.	Install	Oper
	PROD					
		Wire Mode	2wire, **4wire**	Selects studio intercom wiring mode.	Install	Sys
		Side Tone	0..99 **(50)**	Sets side tone (feedback) volume level.	Oper	Oper
		Level	0dB, **6dB**	Selects intercom channel attenuation.	Oper	Oper
		In Ref Level	0..99 **(50)**	Sets input reference level.	Install	Sys
		Out Ref Level	0..99 **(50)**	Sets output reference level.	Install	Oper
	PROG					
		Wire Mode	2wire, **4wire**	Selects studio intercom wiring mode.	Install	Sys
		Level	0dB, **6dB**	Selects intercom channel attenuation.	Oper	Oper
		In Ref Level	0..99 **(50)**	Sets input reference level.	Install	Sys
	ENG Headset					
		Phantom Power	On, **Off**	Turns microphone phantom power (+12 VDC) on or off.	Oper	Oper
		Mic Level	0dB, **20dB**	Sets headset microphone sensitivity level.	Oper	Oper
		Side Tone	0..99 **(50)**	Sets headset side tone (feedback) level.	Oper	Oper
		Mic to Headset	**On**, Off	Turns headset side tone on or off.	Oper	Oper

Menu item			Values	Description	Level	File
		Cam to Headset	**On**, Off	Turns camera ENG channel to headset routing on or off.	Oper	Oper
		Cam Volume	0..99 **(50)**	Sets camera ENG channel to headset level.	Oper	Oper
		Tracker to Headset	**On**, Off	Tracker ENG channel to headset.	Oper	Oper
		Tracker Volume	0..99 **(50)**	Sets tracker ENG channel to headset level.	Oper	Oper
		Mic ENG-Out	**On**, Off	Headset to base station ENG output	Oper	Oper
		Mic to ENG-Cam	**On**, Off	Headset to camera ENG channel	Oper	Oper
	Call		**Call**, Voice	Selects action for the Call function.	Oper	Oper
	Voice Mail					
		Record ENG	**On**, Off	When turned on, intercom messages from the ENG channel are recorded.	Oper	Oper
		Record PROD	**On**, Off	When turned on, intercom messages from the PROD channel are recorded.	Oper	Oper
		Record PROG	**On**, Off	When turned on, intercom messages from the PROG channel are recorded.	Oper	Oper

8.2.4   SDTV menu

Menu item		Values	Description	Level	File
Chroma					
	Chroma	**On**, Off	Turns chroma in CVBS signal on or off.	Oper	Oper
	Level	0..99 **(50)**	Sets chroma level in CVBS signal.	Install	Syst
Contour					
	Contour	**On**, Off	Turns contour on or off.	Oper	Scene
	Source	G, R, **Y**, R+G	Selects the source to be used for contour generation.	Oper	Scene
	Level	0..99 **(10)**	Sets contour level.	Oper	Scene
	Vertical Level	0..99 **(50)**	Sets the level of the vertical component in the contour signal.	Oper	Scene
	Noise Slicer	0..99 **(6)**	Sets the level of the noise slicer.	Oper	Scene
	Coarse/Fine	0..99 **(25)**	Sets the coarseness of the contour (0 = very fine)	Oper	Scene
	Level Dependence	0..99 **(25)**	Sets the dependency level for the noise slicer.	Oper	Scene
	Soft Contour	**On**, Off	Turns soft contour on or off. This function reduces the amount of contour added for large transitions.	Oper	Scene
	Soft Contoru Level	0..99 **(70)**	Sets the upper limit level for soft contour.	Oper	Scene
Skin Contour					
	Skin Contour	**Off**, 1, 2, 1+2	Turns skin contour off or on and selects the skin contour gate to use.	Oper	
	Skin Level	0..99 **(50)**	Sets skin contour level.	Oper	
	Skin View	On, **Off**	Turns skin view mode on or off.	Oper	
	Skin1 Window R	0..99 **(50)**	Sets hue window for skin gate 1 (Red)	Oper	
	Skin1 Window B	0..99 **(50)**	Sets hue window for skin gate 1 (Blue)	Oper	
	Skin1 Color R	0..99 **(50)**	Color tone for skin gate 1 (Red)	Oper	
	Skin1 Color B	0..99 **(50)**	Color tone for skin gate 1 (Blue)	Oper	
	Skin2 Window R	0..99 **(50)**	Sets hue window for skin gate 2 (Red)	Oper	
	Skin2 Window B	0..99 **(50)**	Sets hue window for skin gate 2 (Blue)	Oper	
	Skin2 Color R	0..99 **(50)**	Color tone for skin gate 2 (Red)	Oper	
	Skin2 Color B	0..99 **(50)**	Color tone for skin gate 2 (Blue)	Oper	
Notch					
	Notch	On, **Off**	Turns notch filter on the CVBS outputs on or off.	Install	Scene
	Level	0..99 **(50)**	Sets notch filter level on the CVBS outputs.	Install	Scene
Video Output		GRB, YPrPb, **CVBS**, Off	Select signal type for the Options outputs	Install	Scene
Aspect Ratio		**16:9**, 4:3	Selects aspect ratio for SDTV signal.	Install	
Letterbox		**Off**, 16:9	Selects letterbox function (only when aspect ratio = 4:3)	Install	

Menu item	Values	Description	Level	File
Extern Video				
SDI Amplitude Ext1	0..99 **(50)**	Sets SDI signal amplitude for external video input 1 (only when the LDK4530/10 External Video module is installed.)	Install	Syst
SDI Amplitude Ext2	0..99 **(50)**	Sets SDI signal amplitude for external video input 2 (only when the LDK4530/10 External Video module is installed.)	Install	Syst

8.2.5   System menu

Menu item	Values	Description	Level	File
Cable				
% of Max.Spec.Att.	0..255 (**128**)	Show the percentage of attenuation that is occuring with respect to the maximum specified value.	Oper	
Size	**8mm**, 11mm, 14mm, 3/8", 1/2", 5/8"	Selects the diameter of Triax cable in use.	Oper	Sys
Remaining length (m)	0..5000 (**5**)	Shows the length of Triax cable that still can be attached (in metres.)	Oper	
Remaining length (ft)	0..5000 (**5**)	Shows the length of Triax cable that still can be attached (in feet.)	Oper	
Cur Attenuation (dB)	0..18 (**0**)	Shows the present cable attenuation in dB.	Oper	
Length Unit	**km**, miles	Selects the unit to be used with the Remaining Length item.	Oper	
Remaining Length	0..50 (**0**)	Shiws the remaining length of the Triax cable in km or miles.	Oper	
Camera Number	1..99 (**99**)	Selects the camera number.	Oper	
Camera Mode	**C2IP**, S9000	Selects the type of control network.	Oper	
IP Address				
IP Config Mode	Man, **Auto**	Selects manual or automatic IP configuration mode.	Oper	
IP digit 1	1..250 (**69**)	Select IP address digit 1 (for manual IP configuration mode.)	Oper	
IP digit 2	0..255 (**254**)	Select IP address digit 2 (for manual IP configuration mode.)	Oper	
IP digit 3	0..255 (**1**)	Select IP address digit 3 (for manual IP configuration mode.)	Oper	
IP digit 4	1..254 (**1**)	Select IP address digit 4 (for manual IP configuration mode.)	Oper	
Subnet Mask	0..31 (**24**)	Select the subnet mask value (for manual IP configuration mode.)	Oper	
Apply IP Settings	**exec** > busy > exec	Select Exec to apply the new manually set IP settings.	Oper	
Ethernet				
Ethernet Speeds	100Mb, **10Mb**, Auto	Selects the Ethernet network speed.	Install	
Ethernet Duplex	Full, Half, **Auto**	Selects the Ethernet duplex mode.	Install	
Camera power	**On**, Off	Turns the power the camera on or off	Oper	Oper
MCP Available	**Yes**, No	*Refer to the user's guide MCP not available section!*	Install	Oper
Signalling inputs				

Menu item	Values	Description	Level	File
Yellow On Air	**Standard**, Independent	Standard: use to switch off the yellow on-air signal (ISO) when a red on-air tally signal is active. Independent: use to leave the yellow on-air signal (ISO) unchanged when a red on-air tally signal is active.	Oper	
Yellow On/Off	**Low/High**, High/Low, Open/High, High/Open	Selects switching behaviour for the yellow on-air (ISO) signalling inputs.	Oper	
On Air On/Off	**Low/High**, High/Low, Open/High, High/Open	Selects switching behaviour for the red on-air (Tally) signalling inputs.	Oper	
Extern Video				
Extern Video Source	CVBS, **SDI**	Selects type of Video Input (only when the LDK4530/10 External Video module is installed.)	Install	Sys
SDI Chroma Ext1	On, **Off**	Turns chroma on Video Input 1 on or off (only when the LDK4530/10 External Video module is installed.)	Install	Sys
SDI Chroma Ext2	On, **Off**	Turns chroma on Video Input 2 on or off (only when the LDK4530/10 External Video module is installed.)	Install	Sys
Timing				
H Phase Coarse	0..99 (**50**)		Oper	Sys
H Phase Fine	0..99 (**50**)		Oper	Sys
Subcarrier Coarse	0, 90, **180**, 270		Oper	Sys
Subcarrier Fine	0..99 (**50**)		Oper	Sys
Subc H Phase Coarse	0, 90, **180**, 270		Install	Sys
Subc H Phase Fine	0..99 (**50**)		Install	Sys
Clock				
Day	1..31	Selects value for day.	Install	
Month	January .. December	Selects value for month.	Install	
Year	0..99	Selects value for year.	Install	
Hour	0..23	Selects value for hour.	Install	
Minute	0..59	Selects value for minute.	Install	
Video Mode	1080I50, **1080I59**, 720P50, 720P59, 1080PSF23, 1080PSF24, 1080PSF25, 1080PSF29, 1080I59-23, 720P59-23, 720P50-25, 720P59-29	Selects a video mode for the Base Station test signal when no camera is connected. Note: when a camera is connected, the Base Station automatically identifies and switches to the video mode of the camera.	Install	
TV system	PAL, **NTSC**	Selects a TV system for the Base Station CVBS output signal.	Install	
Teleprompter	On, **Off**	Turns teleprompter channel on or off.	Install	Sys
OCP Contour Mode	SDTV, **HDTV**	Selects OCP Contour Mode.	Install	Sys

8.2.6   Files menu

Menu item	Values	Description	Level	File
User Operator Files				
Operator File	**O_BS1**, O_BS2, O_BS3, O_BS4	Selects Operator file to use.	Oper	
Recall	**exec** > run > exec	Recalls selected Operator file.	Oper	
Store	**exec** > run > exec	Stores selected Operator file.	Install	
User System Files				
System File	**S_BS1**, S_BS2, S_BS3, S_BS4	Selects System file to use.	Install	
Recall	**exec** > run > exec	Recalls selected System file.	Install	
Store	**exec** > run > exec	Stores selected System file.	Install	
Std. System Files				
System File	**Cust**, Fact	Selects standard system file to use: Cust(omer) or Fact(ory).	Install	
Recall	**exec** > run > exec	Recalls selected standard system file.	Install	
Store	**exec** > run > exec	Stores selected standard system file.	Install	

8.2.7 Diagnostics menu

Menu item			Values	Description	Level	File
Board ID						
	Power Board		<12nc>, <status>,<date>	Shows 12nc, status and production date.	Oper	
	Power Fiber Board		<12nc>, <status>,<date>	Shows 12nc, status and production date.	Oper	
	HP/LP Board		<12nc>, <status>,<date>	Shows 12nc, status and production date.	Oper	
	Analog Tx/Rx Board		<12nc>, <status>,<date>	Shows 12nc, status and production date.	Oper	
	Sync/Enc Board		<12nc>, <status>,<date>	Shows 12nc, status and production date.	Oper	
	Sync/Enc Fiber Board		<12nc>, <status>,<date>	Shows 12nc, status and production date.	Oper	
	Data Board		<12nc>, <status>,<date>	Shows 12nc, status and production date.	Oper	
	Video Rec Board		<12nc>, <status>,<date>	Shows 12nc, status and production date.	Oper	
	Fiber DAC Board		<12nc>, <status>,<date>	Shows 12nc, status and production date.	Oper	
	Front End Board		<12nc>, <status>,<date>	Shows 12nc, status and production date.	Oper	
	Digital Rx Board		<12nc>, <status>,<date>	Shows 12nc, status and production date.	Oper	
	Audio/Intercom Board		<12nc>, <status>,<date>	Shows 12nc, status and production date.	Oper	
	Ext Video Input Board		<12nc>, <status>,<date>	Shows 12nc, status and production date.	Oper	
	DSC Input Board		<12nc>, <status>,<date>	Shows 12nc, status and production date.	Oper	
	Monitoring Board		<12nc>, <status>,<date>	Shows 12nc, status and production date.	Oper	
	FM Transc Board		<12nc>, <status>,<date>	Shows 12nc, status and production date.	Oper	
	Aux Rec Board		<12nc>, <status>,<date>	Shows 12nc, status and production date.	Oper	
	Optical Connect Board		<12nc>, <status>,<date>	Shows 12nc, status and production date.	Oper	
	DSC Interf Board		<12nc>, <status>,<date>	Shows 12nc, status and production date.	Oper	
	ENG Headset Board		<12nc>, <status>,<date>	Shows 12nc, status and production date.	Oper	
	Local Power Board		<12nc>, <status>,<date>	Shows 12nc, status and production date.	Oper	
	Digital Output Board		<12nc>, <status>,<date>	Shows 12nc, status and production date.	Oper	
	Dig Out Board HS		<12nc>, <status>,<date>	Shows 12nc, status and production date.	Oper	
	SDTV Output Board		<12nc>, <status>,<date>	Shows 12nc, status and production date.	Oper	
	HQ SDTV Output Board		<12nc>, <status>,<date>	Shows 12nc, status and production date.	Oper	
	A/D Convertor Board		<12nc>, <status>,<date>	Shows 12nc, status and production date.	Oper	
Board Diagnostics						
	Power Board					
		Triax Status	DCPWR, **TSHRT**, ACPWR, COPEN, SOPEN, CSHRT, NOCAM, ERROR, OVRLD, ACODC, PWOFF, UKNOW	Refer to the Diagnostics section in this user's guide for a description of the Triax Status.	Oper	
		Fiber Status	CAMON, TSHRT, POPEN, SOPEN, PSHRT, NOCAM, ERROR, OVRLD, PWOFF, UKNOW	Refer to the Diagnostics section in this user's guide for a description of the Fiber Status.	Oper	
		Local Power Status	**Ok**, NotOK	Shows status of the power board.	Oper	

Menu item	Values	Description	Level	File
Power Overheated	Yes, **No**		Oper	
Fan	**Ok**, NotOK		Oper	
Sync/Encoder Board				
Reference Available	**None**, SDTV, HDTV		Oper	
Burst Lock	Yes, **No**		Oper	
Sync Lock	Yes, **No**		Oper	
Data Board				
Firmware Status	\<status\>		Oper	
Boot Software Id	\<id\>		Oper	
Base Station 12NC	\<12nc\>		Oper	
Base Station Status	\<status\>		Oper	
Eth MAC	\<MAC address\>	Shows the Ethernet MAC address of the network adapter.	Oper	
Eth Link Type	**Unknown**, 10Mb/Half, 10Mb/Full, 100Mb/Half, 100Mb/Full	Shows the Ethernet link type to the C2IP network.	Oper	
Audio/Intercom Board				
Self test	**exec** > run	Select exec to run the diagnostic self test.	Oper	
ENG Test Tone Intern	**run** > ok (error)		Oper	
PROD Test Tone Intern	**run** > ok (error)		Oper	
PROG Test Tone Intern	**run** > ok (error)		Oper	
ENG Test Tone Studio	**run** > ok (error)		Oper	
PROD Test Tone Studio	**run** > ok (error)		Oper	
ENG Headset Board				
Self test	**exec** > run	Select exec to run the diagnostic self test.	Oper	
Test Intern	**run** > ok (error)		Oper	
Test Studio	**run** > ok (error)		Oper	
Test Tome Mic.BS	On, **Off**		Oper	
Test Tone Tr/Flr.Mic	On, **Off**		Oper	
Test Tone Cam.Mic	On, **Off**		Oper	
Ext Video Input Board				
Carrier Eq Ext1	**Yes**, No		Oper	
Carrier Rcve Ext1	**Yes**, No		Oper	
SDI Lock Ext1	**Yes**, No		Oper	
SDI TV system Ext1	**625**. 525		Oper	
Carrier Eq Ext2	**Yes**, No		Oper	
Carrier Rcve Ext2	**Yes**, No		Oper	
SDI Lock Ext2	**Yes**, No		Oper	
SDI TV system Ext2	**625**. 525		Oper	
BS TV system	**PAL**, NTSC		Oper	

Menu item			Values	Description	Level	File
	Transmission Diag.					
		Transmission System	Fiber, Triax, **Unkno**		Oper	
		Carrier Detected	Yes, **No**		Oper	
		HDSDI LOCK	On, **Off**		Oper	
		Analog Carrier det.	On, **Off**		Oper	
		AGC Out OK	On, **Off**		Oper	
	Communications Diag.					
		Camera Connected	Yes, **No**		Oper	
		OCP Connected	Yes, **No**		Oper	
		MCP Connected	Yes, **No**		Oper	
		C2IP panels	0..10 **(0)**		Oper	

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