

# CHALCO ELEVEN LTD

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## HYPER DIGITAL CE05-DV-15M

REGISTERED: ABERDEEN, SCOTLAND REGISTRATION NUMBER: 115425

## **1.0 GENERAL**

The Hyper Digital CE05-DV-15M offers Commercial/Naval Divers and Underwater Investigators a new level of technology in their search for high quality underwater video footage along with data collection in Dive Control. The System offers a 15" LCD screen along with GPS, (all overlays are optional). Digital video recording is on to 400Gb Hard Drive, DVD, PCI and an SD Card. To complement the DVD recording, the Camera used needs to be true digital processing which allows the user to interrogate its image in detail. The DVD has a 400Gb hard drive built in to the machine. Just from a press of a button the machine starts recording video information along with audio on to its hard drive with time, date and name of dive. This is inserted throughout the digital information. The viewer can view this while recording and burn a DVD simultaneously. If, however, the user would like to transfer some pictures on to their computer, they can do this by inserting a card and recording still or clips and inserting it in to their computer instantly.

Stand-alone 400Gb hard drive can record approximately one month of video and audio.

All facilities of the Hyper Digital CE05 Systems are included with the level of engineering upgraded to satisfy military and naval standards. The System offers greater versatility than ever before for professional or military applications. The System is compatible with any of the Hyper Digital range of high resolution, fixed or optical zoom, wide angle lens.

On initial power-up, the DVD Recorder will need to be switched on. Then wait for approximately 2 minutes until the System has set itself up. Make sure that the Monitor on the top left hand corner reads S-Video. The screen will go black with a blue box indicating no signal.

### **The Total System**

- a) 1 off 15" LCD Colour Monitor
- b) 1 off DVD Recorder with 400G
- c) 1 off CC620ZX1SS Divers Hat Mount Camera
- d) 1 off CC-12-50L Divers Hat Mount Light
- e) 1 off 'Y' Splice
- f) 1 off Remote Controls
- g) 1 Set Operating Manuals
- h) 1 off European 220V AC Power Lead
- i) 1 off 150M Umbilicals CE1C/9-100UC

The CE05 shown above is an example. The only difference in the Camera proposed is that this is a fixed-focus from 5" to infinity, therefore, it does not require zoom and focus buttons, nor will it have the on/off switch for the still camera or the picture.

The System will come in a heavy duty Flight Case and have all the other features.

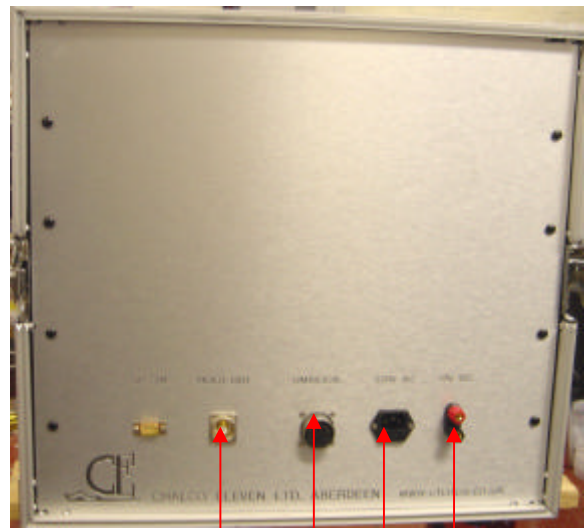
## 2.0 OPERATING CONTROLS

FRONT



On/Off / Tel Wid Ner Far | Still Pic  
Light/Dimmer DVD Recorder Camera LCD Monitor

BACK



Umbilical  
Video O/P AC Power 12VDC

### On/Off Switch

The Power On/Off Switch is situated bottom left of the Unit. When pressed, will illuminate and AC power is connected; this will apply voltage to the CE05 and the rest of the System.

After Switch-on, switch on DVD also. The On/Off switch for the DVD is directly under the power source. The System will take approximately 2 minutes to set up. For all other controls, see relevant Operating Manuals.

### Light Switch / Dimmer

The Light On/Off Switch/Dimmer is situated next to the Power On/Off switch. When rotated clockwise (L), this will illuminate the Lights to low intensity. If rotated clockwise again (m) this will illuminate the Lights to medium intensity and if rotated clockwise again (h) this will illuminate the Lights to highest intensity. If Switch is set fully anti-clockwise (off), this will switch off the Lights completely.

### DVD Recorder

There is a DVD Recorder with a 400Gb hard drive which records all the incoming video signal. Once switched, must be set to A4. It takes approximately 2 minutes to do its set-up procedure before the Record button can be pressed to record video.

For all other operations, please read the Operating Manual prior to operation.

## **2.0 SPECIFICATIONS**

### **CAMERA CONTROLLER**

SUPPLY VOLTAGE :	220V AC 50/60 Hz
OUTPUT VOLTAGE CAMERA :	15V-19V DC
OUTPUT VOLTAGE LIGHT :	20V-26V DC
INPUT SIGNAL :	Composite Video 75 $\Omega$
OUTPUT SIGNAL :	Composite Video 75 $\Omega$
OPERATING TEMPERATURE :	-5°C to +50°C

### **CAMERA**

OPERATING VOLTAGE :	15V-19V DC
OUTPUT SIGNAL :	Composite Video 75 $\Omega$
OPERATING DEPTH :	1500 ft
OPERATING TEMPERATURE :	-5°C to +50°C
SIZE :	90mm Diameter x 175mm long excluding interconnect socket

### **LIGHT**

OPERATING VOLTAGE :	12V DC
OPERATING CURRENT :	5.1A at full intensity
BEAM ANGLE :	Wide
OPERATING DEPTH :	1500 ft
OPERATING TEMPERATURE :	-5°C to +90°C
SIZE :	180L x 45H x 30Dmm excluding interconnect socket

## 5.0 BLOCK DIAGRAMS



1 x 150M UMBILICAL



1 x "Y" SPLICE



CAMERA / LIGHT



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## DIVERS HAT MOUNT CAMERA CC620ZX1SS



The CC620ZX1SS is a high resolution Digital Colour Camera (underwater use), manufactured from Stainless Steel 316. The Camera has a depth rating of 1500ft and is designed for harsh and unpredictable low light MSW. The CC620ZX1SS is equipped with a specially developed circuitry by Chalco Eleven known as the electric eye.

The CC620ZX1SS's inbuilt electronic eye will monitor light levels and automatically adjust to the environment. The Camera will work down to 4 Lux producing clear, sharp colour images. The Camera decides which light wavelength is the strongest and uses that to illuminate its image. Below 4 lux the Camera will turn to monochrome producing high resolution images and as soon as the light level increases it will revert to colour.

The maximum sensitivity of the CC620ZX1SS is 850nm wavelength. Due to its digital processing and the high scanning rate, the Camera is ideal for viewing objects in motion which is suitable for ROVs and mounting on the Divers Hat or hand held as an Inspection Camera. Blurring is totally eliminated. The CC620ZX1SS will produce high resolution colour pictures (greater than 450 TVL) even at very low light levels. The Camera is provided with a wide angle lens enabling the user to view a very large area with a single Camera without having to adjust any controls. Focusing is automatically corrected.

It should be noted that due to the very high performance of the CC620ZX1SS (a high resolution Digital Processing Colour Camera), a high resolution Colour Monitor (greater than 450 TVL) is required to match the performance of the Camera. The CC620ZX1SS comes in a PAL format although NTSC is optional.

The Camera is generally used with a CE Underwater Hat Mount Dichroic Light System as illustrated above. This enhances the underwater visibility and replaces colours that are quickly lost due to the depth of water and the absence of natural light. The CC620ZX1SS is fitted with a 75? coax line driver that can deliver signals up to 600M of Cable (twisted pair is optional).

The intensity of the Underwater Light is adjustable from the control panel and can be adjusted from 0-100% providing good general lighting for most types of work. The Underwater Light is fitted with a tungsten halogen 50 watt filament to complement the Camera and produces a beam angle greater than 120°.

### CAMERA SPECIFICATIONS

1/4" ExView DSPCCD Chip

Better than 450 TV Lines

Electrical Auto Iris

Automatic White Balance Control

Colour and Monochrome

Auto Focus

15 - 24V AC/DC @ 250mA (Camera)

Total Pixels 795H x 596V

Automatic Gain Control

Lens Angle 45°

Composite Video 1V p-p

65mm D x 90mm L excluding connector (Camera)

50mm D x 90mm L excluding connector (Light)

Working Depth of 1500ft MSW

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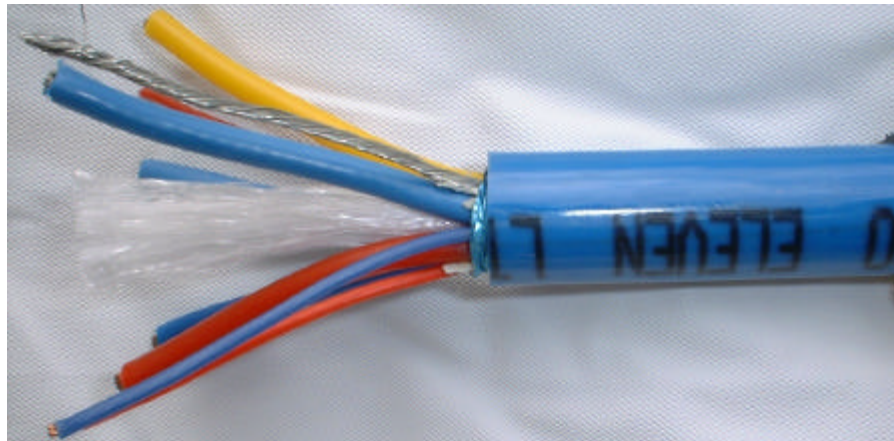
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## SUB-SEA CABLES



**DESCRIPTION :** SUB-SEA CAMERAS TELEMETRY CABLE CE2C/8-100UC 2.00MM  
BLUE POLYURETHANE SHEATHED 13MM OUTSIDE DIAMETER

### Physical Detail

2 x 75? Low Loss Mini Coax  
3 x 1.5mm<sup>2</sup> Copper Conductors  
2 x 0.5mm<sup>2</sup> Copper Conductors  
2 x 0.22mm<sup>2</sup> Copper Conductors  
1 x 1mm<sup>2</sup> Overall Screen

Inner Cable voids filled with water blocking silicon rubber/glass micro-spheres compound.  
If the outer sheath is cut, the compound stops the water from travelling up the Cable.

### Mechanical Properties

Outer Sheath	Blue Polyurethane
Final Outside Diameter	13mm
Outer thickness of sheath	2.0mm
Weight of Cable in air	220kg/km
Weight of Cable in seawater	85kg/km
Minimum static bend radius	85mm
Minimum dynamic bend radius	130mm
Maximum continuous length	5000 metres
Assuming seawater density of	1026kg/m <sup>3</sup>

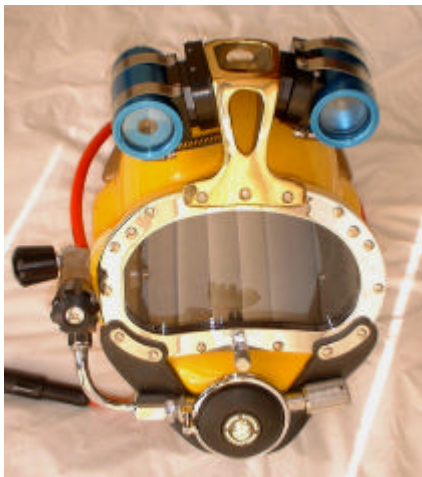


## The Hand Held Bracketry

The Hand Held Bracketry allows the Diver to release the Camera quickly and easily via push of a button from the Helmet on to the Hand-Held Bracketry along with the Light. The Low Light Digital Camera and the wide angle of the Light illuminates the objects in front of the Diver. The Camera is focused from 5 inches to infinity with a viewing angle greater than 45°. With its digital zoom, the user can magnify by x 2 via touch of a button. The Light operates from 24V using a bio-pin tungsten halogen filament that produces clear, whiter, crisper, brighter more natural light. An average output of just below 1,000 luminance to illuminate objects for the Digital Camera.



Hand held and hat mount quick release Bracketry machined from high grade aluminium, anodised black, held by stainless steel securing bolts. Allows the Light and Camera to be securely fastened to the Hat Light or the Hand-Held Bracketry.



Bracketry for mounting Camera and Light along with quick release on to the Diver's Helmet. Manufactured from brass, secured via existing stainless steel fasteners. Very low maintenance. Will fit virtually any Kirby Morgan style Helmet. Acts as a carrying handle for the Helmets.



Hand-Held Bracketry manufactured from 10mm polycarbonate, over coated with a foam grip, secured by stainless steel bolts. Fitted with male and female quick release to accept any CE Camera and Light.

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## VIDEO OVERLAY TMCC-3000



The Video Overlay TMCC-3000 is used to create video overlays on real-time or as part of an edit suite to overlay text in various fonts and background colours on to a VCR or on to a video information. There are various effects like transition, duration, scroll and crawl incorporated within the Unit. Real-time and date display features can be added to your real video pages and you can choose and define your own colours. Large blocks of text can be moved or copied without any typing. Pages may be played in many ways such as manually, backwards, automatically, repeating, etc. Play projects automatically at a specified date and time, which can be added to transparent background patterns and colours.

Video Overlay can also be used, once connected, as part of an editing suite. However, this will not affect the original Overlays previously recorded. A page of titles can be created and recorded immediately. Then create the next page and record, but generally, it is more efficient to create a sequence of pages ahead of time. As production is recorded, you

trigger (play) each page at the appropriate moment, displaying the page designed for that point in the production. Blank pages are added to the sequence anywhere the production calls for untitled video to be displayed.

These are just a few of the many things that the Video Overlay is capable of doing.

### **PROJECT**

The memory of Video Overlay TMCC-3000 can be divided into any number of projects. Projects keep titles separate. One project can be modified without affecting others and text can be copied and moved between projects.

### **RAINBOW PATTERN**

Pattern composed of colour gradients.

### **REAL TIME CLOCK**

An effect in which a running clock/calendar is capable of being superimposed over all background possibilities, including line video.

### **RECORDER**

VCR connected to TMCC-3000 output, used to record titles.

### **RESOLUTION**

A measure of the ability to reproduce detail. Referred to as horizontal resolution and evaluated by establishing number of horizontal lines which are clearly discernible on a test pattern. In TMCC-3000 the term refers to the fineness of the characters and determines how smooth they are. TMCC-3000 has high resolution with a specification of 720 x 480 in NTSC or 720 x 580 in PAL (70 ns).

### **SCROLL**

An effect in which a page of titles slides smoothly on to the screen from the bottom, continuing to slide up until all the titles slide off the top of the screen.

### **FADE**

A fade is a transition effect in which the title fades away to leave the background or vice-versa.

### **MENU KEYS**

The top row of keys on the TMCC-3000 used to display a menu.

### **FONT**

The form and shapes of set characters.

### **SLIDE**

Effect in which a page of titles slides on or off the screen in any four directions. A slide starts off the screen and stops when it is fully on the screen; or it starts on the screen and slides completely off.