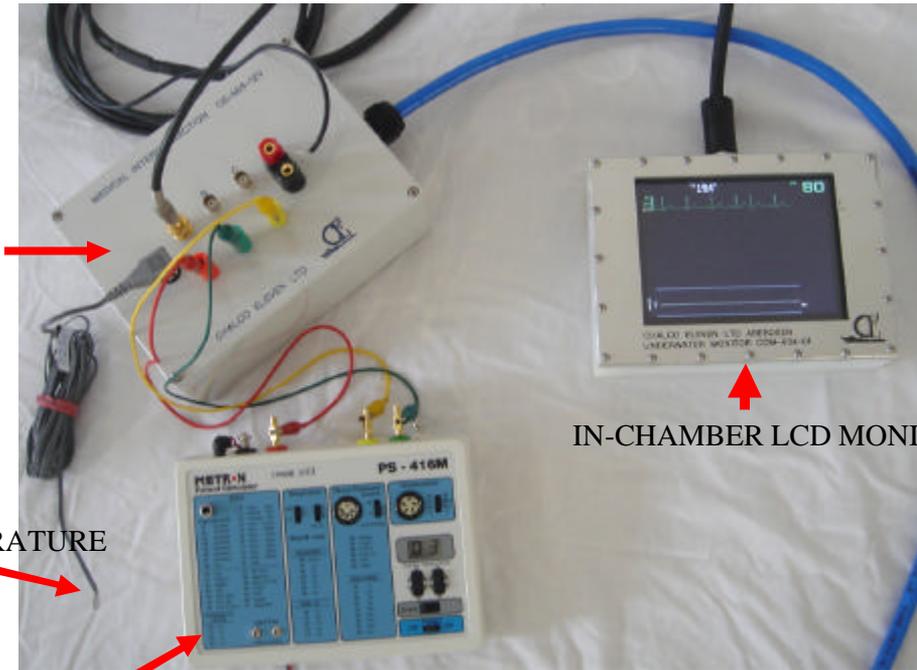


MEDICAL JB A



IN-CHAMBER LCD MONITOR

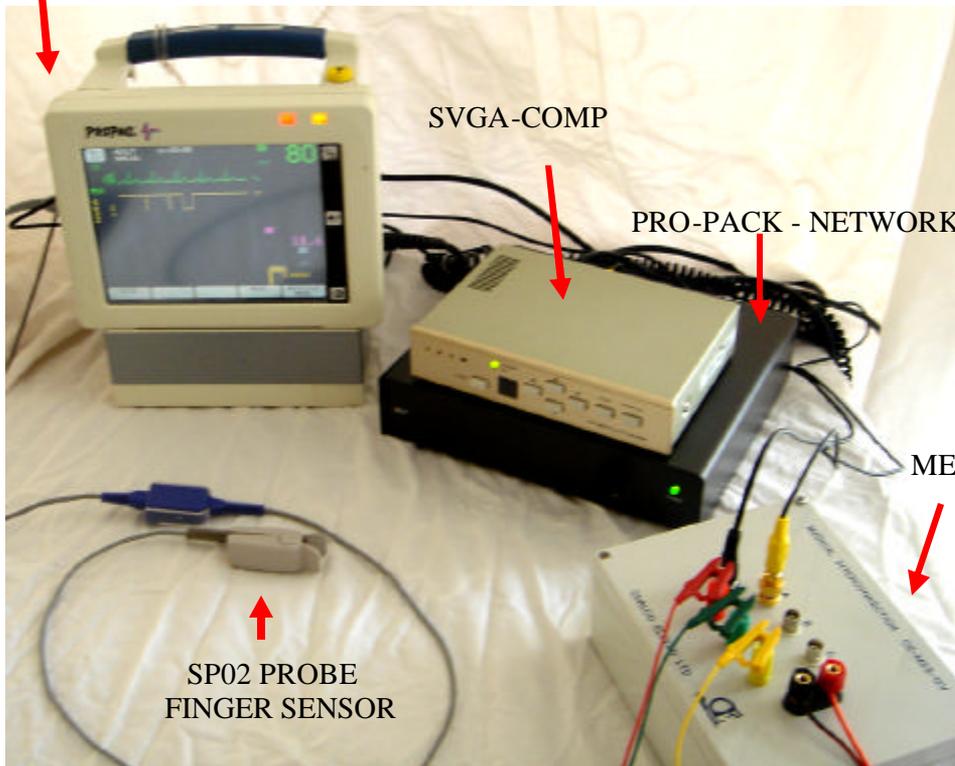
TEMPERATURE PROBE

PATIENT SIMULATOR

50M CE1C/9-100UC CHALCO CABLE



PRO-PACK 228



SVGA-COMP

PRO-PACK - NETWORK

MEDICAL JB B

SP02 PROBE FINGER SENSOR

BRIEF DESCRIPTION OF INTERCONNECT

The Medical Interface System is simple and requires very little maintenance. Potentially it is a passive System that has been implemented in a number of hyperbaric sites around the world along with diving vessels. It has two points of connection; one in a decompression chamber and the other atmospheric. It is the unique design of Chalco's Cable and Penetrators that allows very small signals to travel long distances without any degradation. Also with this unique System there is a visual display (LCD Monitor in the Chamber) of the Pro-Pack image which will duplicate the image of the Pro-Pack. This LCD Monitor can display normal video and can withstand depths greater than 60M.

The Medical Interface is going to be responsible for receiving ECG, temperature and SP02 Finger Sensor once we sort out the amplifier from within the Chamber to the Pro-Pack in Dive Control and transmit video from the Pro-Pack to the inside of the Chamber over a distance greater than 25M with various connectors in between (see Block Diagram B).

INCHAMBER EQUIPMENT

MEDICAL JB A

Medical JB A shown in the Interface Connection Picture would normally be installed inside the Chamber connected directly to the Penetrator via the Chalco Cable CE1C/9-100UC. (See Data Sheet for Cable). This will have all the appropriate connectors installed on the JB in order to accept Temperature Sensor, ECG Probes, LCD Monitor and SP02 Finger Probe. These connectors would be repeated on the Medical JB B.

IN-CHAMBER LCD MONITOR

LCD Monitor would normally be fitted or hand-held inside the Chamber by the patient or Consultant and display video information as it is on the Pro-Pack screen. (See Data Sheet for LCD Monitor).

TEMPERATURE PROBE

The Temperature Probe would normally be plugged in to the Medical JB inside the Chamber in its appropriate socket. This will monitor core or body temperature of the patient.

SP02 PROBE FINGER SENSOR

SP02 Probe will normally sit inside the Chamber and plug in to Medical JB A and placed on the patients finger for monitoring. It will have its own 9 pin din plug.

PATIENT SIMULATOR

Patient Simulator was used to prove ECG signals can be reproduced and monitored without degradation over a 50M Chalco Cable.

50M CE1C/9 -100UC CHALCO CABLE

As seen in interface picture a 50M Chalco Cable is connected between Medical JB A and B. (See Data Sheet for further details).

CONTROL ROOM EQUIPMENT

PRO-PACK 228

Pro-Pack 228 used for demonstration, however, the one which will be used will be a monochrome version rather than colour.

PRO-PACK - NETWORK

Pro-Pack Network Unit allows the video information to be displayed on a remote screen (converted to VGA signal).

SVGA-COMP

CE380 is a SVGA-Composite Video Converter. It will take the Pro-Pack VGA signal, convert it in to a very low volt (1v/p/p) in order for this signal to be transmitted in to the Chamber. Fully optically isolated.

MEDICAL JB B

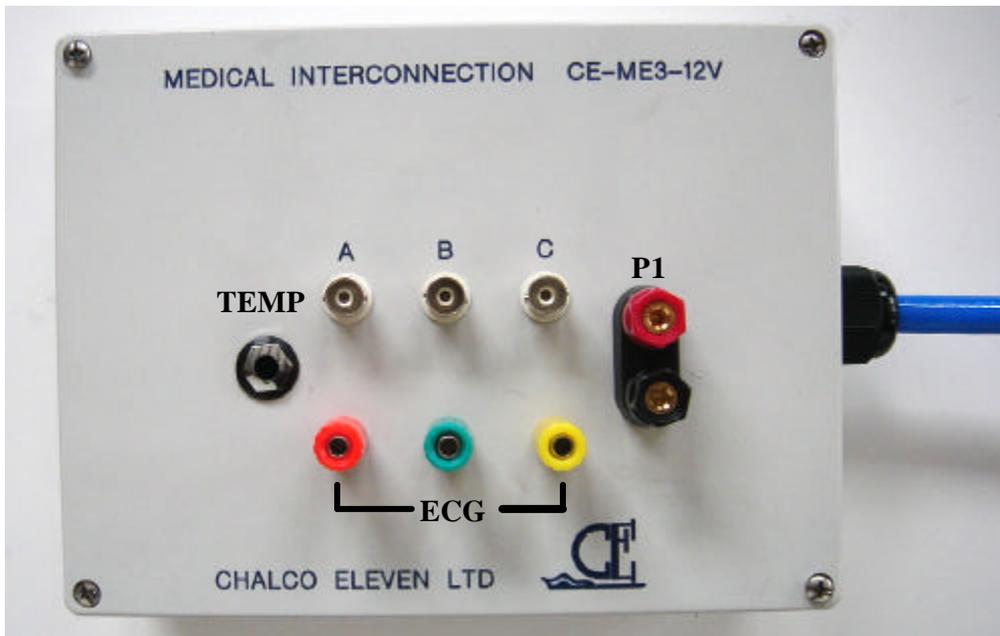
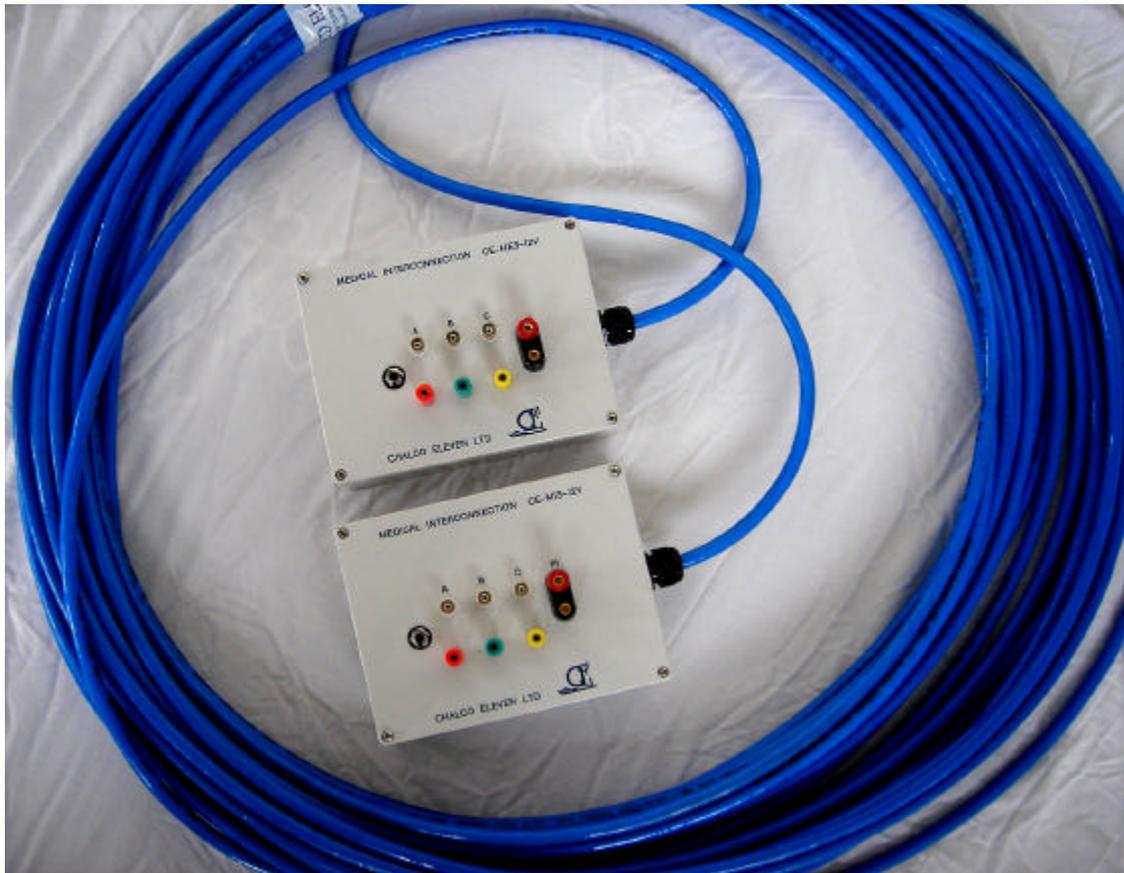
Medical JB B shown in the Interface Connection Picture would normally be installed outside the Chamber connected directly to the Penetrator via the Chalco Cable CE1C/9-100UC. (See Data Sheet for Cable). This will have all the appropriate connectors installed on the JB in order to accept Temperature Sensor, ECG Probes, LCD Monitor and SP02 Finger Probe. These connectors would be repeated on the Medical JB A.

19" RACK MOUNT

At present there are no facilities to mount the Pro-Pack in to the Control Panel. As well as the Pro-Pack there are going to be the interface equipment and their Power Supplies which need to be installed in the Dive Control. We propose to create an approximate U6 19" Rack which will house all the medical equipment and connections and their Power Supplies, a single 13 amp power socket would feed all the equipment in the Rack. All the connections from the Medical Interface will be terminated at a single point.

If you decide to go with our proposal, then we would generate drawings and supply proper sizes so the installation is simplified.

INTERFACE CONNECTION

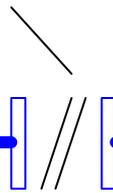




19" RACK MOUNT



BULKHEAD CONNECTOR



BLOCK DIAGRAM B

CHALCO ELEVEN LTD



“CHALCO HOUSE”
MARYCULTER
ABERDEEN
AB12 5GQ

TEL (44)-(0)-1224 733321
E-Mail: ce@chalco.co.uk

FAX (44)-(0)-1224 733685
www.chalco.co.uk

6.4" UNERWATER MONITOR CCM-604-01



The 6.4" Underwater Monitor is designed to serve a multitude of purposes. The CCM-604-01 is a high resolution Colour Monitor for underwater and topside use in air or mixed gas environments i.e. helium, oxygen and helium mixtures or 100% O₂ environments.

The Monitor is rated to an operating depth of 200ft. It has an outer housing made from polyethylene and a clear distortion free acrylic lens. The Monitor can be fixed or hand-held by the Diver or a Nurse in the Chamber, displaying high resolution real-time video images, motion or still. The Monitor can take a signal directly from any output 1V p-p @ 75 Ω composite video signal and operating voltage between 14.5-20V DC or it could be plugged in line with the Underwater Camera CC550UC or any Chalco Eleven Underwater Topside Monitoring Equipment.

Although the Monitor is compact and slim-lined (195mm x 140mm x 48mm excluding connectors), it has an active area of 130.6 x 97.3mm. It utilises TFT technology to deliver exceptional picture quality, has a high resolution screen 960 x 234 and has a high brightness with 250cd/m² to 300cd/m². It has a very wide viewing angle - typically 150 $^{\circ}$ side to side.

The Monitor is easy to install/operate as it comes fully set up, ready to use. The internal electronic circuitry takes care of all the settings and produces sharp, clear video images time after time from an Underwater Camera or a TopsideVCR/Controllers

Standard format is PAL although NTSC is optional.

Features

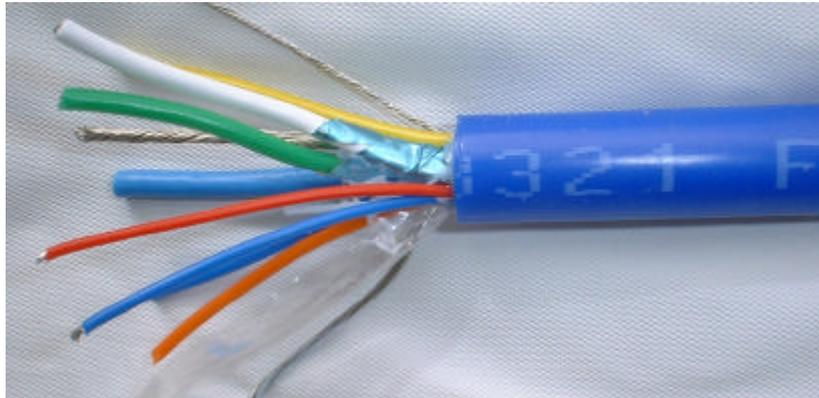
PAL video input
960 x 234 High resolution screens
Wide voltage input 14V-20V
Viewing angle. Typically 150 $^{\circ}$ side to side
High brightness 250 cd/m² to 300 cd/m²
15,000 hours high life on back lights
Low power consumption

Specifications

Display: 6.4" TFT LCD
Resolution: 960 x 234
Active Area: 130.6 x 97.3
Backlight: CCFT
Input Signal: Comp Video @ 75 Ω
Power: 14.5-20V DC
Dimensions: 195mm x 140mm x 48mm



MEDICAL INTERFACE CABLE CE1C/9-100UC



DESCRIPTION : MEDICAL INTERFACE TELEMETRY CABLE CE1C/9-100UC

Medical Interface Telemetry Cable CE1C/9-100UC is specially designed for use in Hyperbaric Chambers with its unique characteristics of copper and silver with very low losses over long distances. If the Cable is cut it will re-seal itself. It can be cleaned with virtually any chemical and does not embolise at depth. It will work in mixed gasses and is durable yet flexible.

Physical Detail

- 1 x 75 μ Low Loss Mini Coax
- 1 x 1.34mm² Twisted Screen Pair
- 1 x 0.5mm² Twisted Screen Pair
- 1 x 1.34mm² Conductor
- 1 x 0.22mm² Twisted Pair
- 1 x 0.22mm² 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	11mm
Outer thickness of sheath	2.0mm
Weight of Cable in air	130kg/km
Weight of Cable in seawater	50kg/km
Minimum static bend radius	165mm
Minimum dynamic bend radius	220mm
Maximum continuous length	5000 metres
Assuming seawater density	1026kg/m ³