OPERATION AND INSTALLATION MANUAL

DETAILS OF THE EQUIPMENT	
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SAFETY AND ENVIRONMENTAL STATEMENT

1. Lethal voltages are exposed within the control unit when the top cover is removed. The unit should always be disconnected from the mains supply before removing or operating any internal components.
2. The unit should be earthed at all times.
3. The unit contains electrostatically sensitive devices (ESSD). Appropriate static protection should be used when handling subassemblies.

RELATED DOCUMENTS

Document Number	Document Title

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Section 1.0 INTRODUCTION AND SPECIFICATION

1.1 INTRODUCTION

The 2150 Minerva surface unit is designed to allow dedicated and reliable control over all sonars within the standard SonaVision range.

It utilises state of the art embedded components for maximum reliability, low power consumption and ease of use and comes equipped with an embedded XP version of SonaVision`s Surface Control software.

It is supplied with a dedicated sonar remote control unit connected to the chassis unit by a curly cable.

1.2 SPECIFICATION

The Minerva unit is a robust yet light low profile 19" rack mounted chassis.

Temperature	
Operating:	0℃ to +40℃
Storage:	-20℃ to +50℃
Power Supply Voltage:	90Vac – 240Vac
Weight	
In Air:	5.5kg (inc. remote unit)
Size:	482.6 (l) x 250 (d) x 88.9 (h)mm (excluding remote tail)
Housing Material:	main housing powder on zinc coated steel, front/rear hard anodised aluminium.
Connectors:	Rear: 1x VGA, 1x Serial, 1x IEC power inlet, 2x mouse/keyboard ps/2, 1x 6 way sonar, (Optional RJ45 Ethernet, USB) Front: 2x mouse/keyboard ps/2.
Controls:	Front: Power on/off, Sonar on/off, RX/TX activity LEDs, CDRW drive.

1.3 GENERAL ARRANGEMENT

The general arrangement of the Minerva surface unit consists of a solid state sonar control computer housed in a 2U high 19 inch rack mounted housing.

It also incorporates a handheld remote sonar controller unit incorporating soft touch buttons and trackerball. This is connected via an ultra reliable self coiling cable.

The unit also includes a CDRW drive for backup and storage of sonar data files and screen images.

Section 2.0 SYSTEM INSTALLATION

2.1 INTRODUCTION

The 2150 Minerva unit has been designed to mount directly into an existing 19 inch racking system. A clean ac power source is recommended for reliable operation and to prevent damage to the equipment, although the Minerva does have ac filtering as standard. The unit requires an SVGA monitor capable of displaying 256 colours at a minimum resolution of 800x600.

PS/2 mouse and keyboard sockets are situated at the front and rear of the unit. This allows users to decide whether the front or rear connectors are to be utilised for keyboard and mouse operation.

IMPORTANT INFORMATION

UNDER NO CIRCUMSTANCES MUST A KEYBOARD AND MOUSE BE CONNECTED TO THE FRONT AND REAR OF THE MINERVA AT THE SAME TIME.

Failure to adhere to the above statement could result in damage to the equipment.

The unit has a standard Sonavision ITT 6 pin connector on the rear for connection to the ROV umbilical. This connector also supplies 24vdc for testing sonars using a test cable or for applications with short cable connections to the sonar.

The 24v output is not designed to supply the sonar while attached to a vehicle. It is for test purposes or short cable use only.

Sonavision recommend the maximum cable length does not exceed 35m when sonar is directly powered from surface unit.

2.2 PACKING/UNPACKING

The unpacking procedure is as follows:

Remove unit from its transit box.

Check that the contents of each case conforms to the packing note.

Notify the manufacturer of discrepancies and/or transit damage.

Retain the transit case for future shipment.

2.3 INSTALLATION

To install the Minerva unit proceed as follows:

a) Remove Minerva from the packing case and inspect for transit damage, retain the transit case for future shipment.

b) If mounting the unit in a 19 inch rack ensure there is space to accommodate its 2U height and rear connector requirements.

c) Ensure that the peripherals (eg monitor, mouse and keyboard etc) have sufficient cable lengths to connect with the unit.

d) Connect all peripherals including the power lead, choose which ports (front or rear) to connect mouse/keyboard (if desired).

e) Switch unit on via front panel “power” switch and ensure startup sequence is displayed on screen.

2.4 OPERATION

Getting Started

The 2150 will boot in the same way as a standard desktop PC. After passing through the initial bootup sequence, Windows XP Embedded will start, followed by SonaVision control software.

Please refer to SonaVision Software manual for software operation.

Connection of the sonar is via the 6 pin ITT cannon connector situated on the rear of the unit. The pinout of which is the same as previous SonaVision surface control units.

Initial System Testing

To test operation of a sonar before installation onto a vehicle it is recommended that connection is made between the two units using a test cable. Test cables are optional and may have been included if the Minerva unit was supplied as part of a sonar package. If this not the case a test cable can be purchased from Sonavision to suit the preferred sonar model.

If the SonaVision surface control software fails to appear on the screen, double click on the icon to start the application.

When connection between the sonar and surface unit is made, power is applied by switching the “sonar” switch located on the front panel. This switches the internal 24v power supply to the sonar connected to the 6 pin connector.

If testing an SV4000, SV3000, SV6000 or the Titan range of sonars, the sonar head will be seen to rotate until it finds it`s headstrobe or points in the forward direction. SV2000 or Mercury sonars cannot be seen to rotate due to the head boot, but a high pitched whistle can be heard to indicate operation.

When the sonar head finds its headstrobe the communications will commence between the surface and subsea units. The green LEDs on the front of the Minerva will flash to indicate data transmission. The message at the bottom of the screen will read “subsea comms ok” and a PPI trace will be visible on the monitor.

Connection to ROV umbilical

Data is transferred between the Minerva and sonar using RS485 or RS232 format from the 6 way ITT cannon connector.

An further 9 pin D-type connector provides a second COM port connection to the PC. This connection is used in versions of software which output data to other equipment but it can be re-configured to communicate with the sonar. Signal levels from this connector are strictly RS232.

RS485 2 wire format (standard on all SonaVision sonars) requires one shielded twisted pair on the ROV umbilical directly from the vehicle to the ROV surface console. A two wire shielded connection is then required between the ROV console and Minerva surface unit.

Care must be taken to ensure that the RS485 communication lines are completely isolated from earth. Sonavision also advise that the shield is only earthed at either the subsea or surface end only. This is to prevent ground loops.

When data line connection is made between the Minerva and sonar via an ROV umbilical. It is important that the 24 volt output from the Minerva is not connected.

Operation can be tested once installation has been completed by ensuring the vehicle is switched on and the SonaVision surface control software is open.

RS485 4 wire communications can also be provided by the Minerva, providing that the sonar unit has been set up to be compatible. This form of communications is relatively uncommon since it offers little advantage over 2 wire communications.

Storing Data

Please refer to the SonaVision Surface control manual for detailed information on sonar operation.

The Minerva differs slightly from normal PC based surface units in that it doesn't contain a physical hard drive and all its storage devices are removable and are as follows:

a) CD read/write drive:
This can be clearly seen on the front of the unit.

b) Industrial flash memory card
Accessed through a slot on the right side of the unit

The CDRW drive is configured to mimic a floppy drive to be used for storage of sonar data files and screen images. New CDRW disks must be formatted before they can be successfully written. This is done automatically when a blank disk is inserted into the drive

Information can be directly saved onto the CDRW disk from within the SonaVision software as a bitmap (for screen grabs) or data file. This can then be easily transported onshore or to an email computer to be beamed back to base. See the Sonavision software operating manual for details.

The flash memory card holds the XP operating system and SonaVision software. It can be written to in the same way as a harddrive, although it has limited capacity and should only be used as a temporary storage device.

2.5 MAINTENANCE

The 2151 remote unit requires little maintenance. It may be occasionally required that the remote be wiped with a damp cloth to remove dust that if left to build up can hinder switch operation.
If trackerball operation becomes erratic it may be necessary to remove and clean the ball and cavity. This is done by inserting the supplied tool into the two locating holes on the trackerball and turning in an anti-clockwise direction. This will release the retaining ring allowing the removal of the ball. Use methylated spirits to clean the ball and cavity with a clean cotton cloth. (For more information see 2151 remote manual).

The Minerva requires little maintenance but the occasional wipe with a damp cloth will ensure the unit is kept clean.

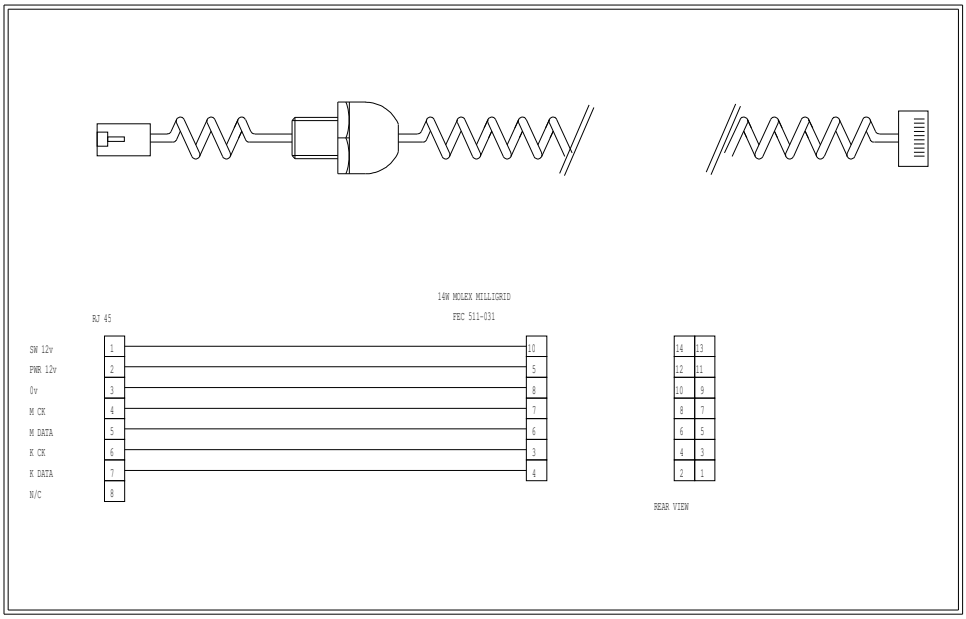
Section 3.0 DRAWINGS AND TABLES

3.1

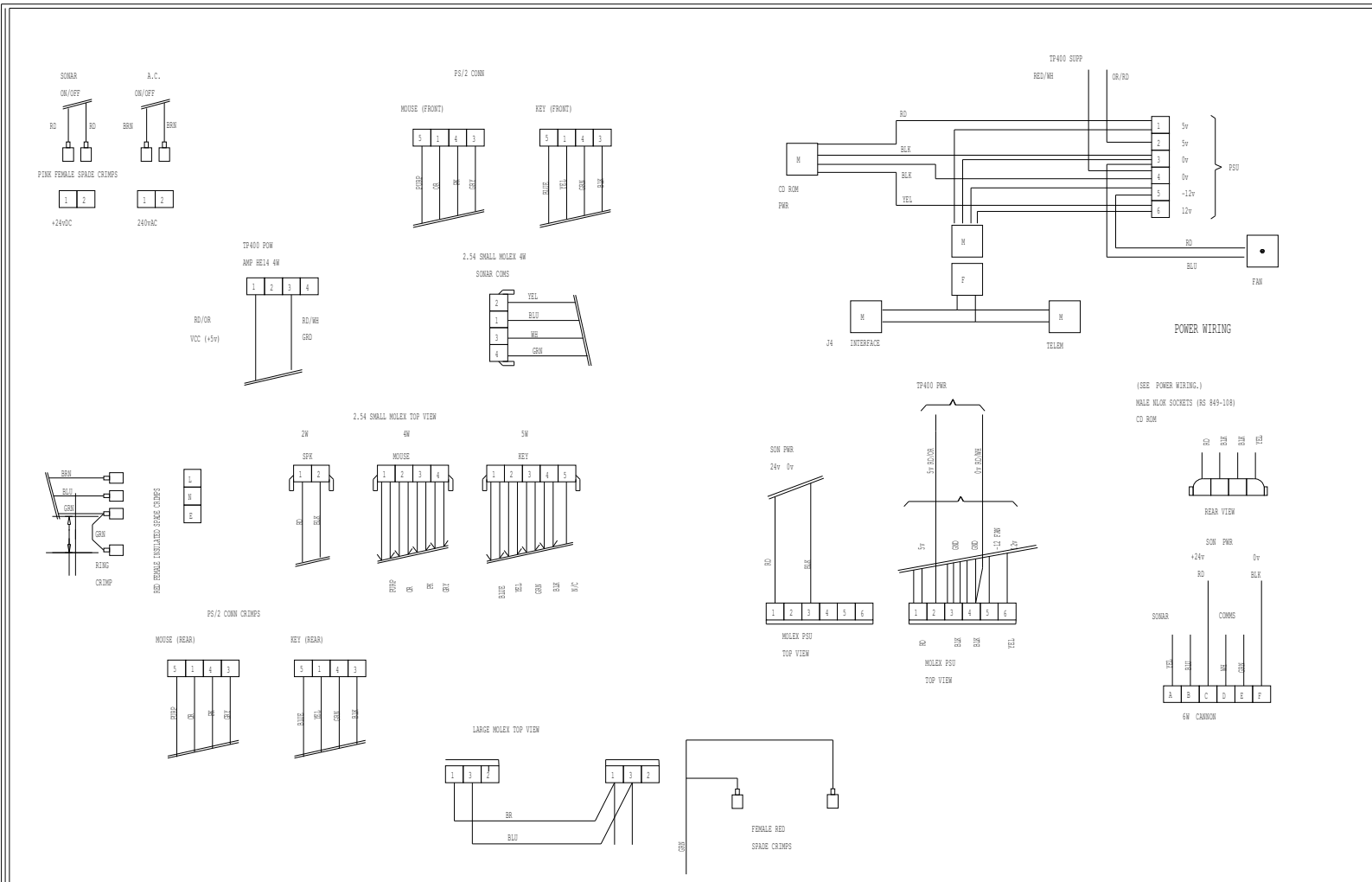
Sonar Unit Connector 6 pin Metal Shell connector

PIN	RS485 (two wire mode)	RS485 (four wire mode)	RS232
F	0v	0V	0v
C	+24v	+24v	+24v
B	RS485+	Tx-	RXD
A	RS485-	Tx+	COM
D		Rx+	
E		Rx-	TXD

Remote Unit Cable (Minerva Standard)



Minerva Unit Internal Interconnection Cables



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