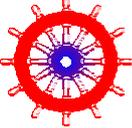


<b><u>VOYAGE DATA RECORDER</u></b>	<b><u>Questions &amp; answers 1</u></b> 16/03/2006 Latest Q & A is available on the <a href="http://www.v-d-r.net">www.v-d-r.net</a> web site guidance notes page. Right-click on the link.
<b>Comments or questions</b>	If any of you out there want to add a question and/or the answer YOU gave send me an email. Thanks to everybody who has contributed. Andrew Fairgrieve <a href="mailto:af@v-d-r.net">af@v-d-r.net</a>
<b><u>GENERAL ISSUES</u></b>	<b>Answer from the designer and some other contributors.</b>
1. Has the new MEU been tested for type approval? 	Yes, by TUV laboratories UK, and passed all EMC, vibration, temperature and humidity tests to IEC 60945, 61996 and Lloyds special standard. And it has been tested by Qinetiq who issue the certificate of MED type-approval. This includes USCG approval.
2. We want to use the VDR as a voyage management computer.	If you want a voyage management system then you will have to buy one. This is a SIMPLIFIED VDR which <u>must</u> operate independently of everything else on the ship.  You could use the "all data" output from the VDR to feed your voyage management system. You could use the same output for your ECDIS, or your Portable Docking Aid.
3. We want to use the VDR for training purposes.	Excellent! I thoroughly approve of this.  For training purposes, take the data out of the VDR on to your own computer and use it how you wish. With the replay programs available you can analyse your own manoeuvres and incidents.
4. Can we keep a monitor continuously connected to the s-VDR?	No. A keyboard and mouse would be required to control the display and that is definitely not allowed.
5. Could the electronics unit be flush mounted in a bridge console?	Yes. We do not make a flush mount kit, you would have to devise your own, not difficult for a shipyard.  Check you have allowed enough access space at the top and right hand side so the s-VDR's panels can be removed. I suggest at least 15 cm, so you can use a screwdriver and put your hand in.
6. What about packing and shipping?	<ul style="list-style-type: none"> <li>• Do NOT have the metal MEU enclosure screwed down inside the plastic box for shipment. <ul style="list-style-type: none"> <li>○ It will probably pull out the screws in transit.</li> </ul> </li> <li>• Wrap the metalwork in bubble wrap polythene to make it a snug fit inside the plastic enclosure</li> <li>• Don't forget all the fasteners, fixings and connectors.</li> <li>• Do NOT ship the power unit with the batteries inside. <ul style="list-style-type: none"> <li>○ Their weight would surely destroy the power unit in transit</li> </ul> </li> </ul>
<b><u>DATA STORAGE, RECOVERY &amp; REPLAY.</u></b>	<b><u>COPYING SAVED DATA TO A COMPUTER.</u></b>
7. Conoco are used to having "removable media" (in their old non type-approved VDRs) which they can unplug and send ashore.	That is an old method of doing things, before the days of cheap lap-top computers.  There is no chance of adding removable media to the s-VDR for good design reasons.  If you want to get the saved data plug in a lap-top. This is the method recommended by the IMO and Marine Coast Guard Agency etc.

8. Can we connect the ship's computer network, or a voyage management system, to the VDR via the LAN?	NO.  The VDR s-VDR should never be interrupted in its essential duties of continuous and independent recording.
9. What about replay?	First you must copy the files from the s-VDR onto your own computer. It is a standard Ethernet connection.  <u>QUICK-CHECK REPLAY</u> You can view and/or play all the saved data using only the programs available on a Windows PC. <ul style="list-style-type: none"> <li>• Notepad for all the NMEA or AIS data</li> <li>• Imaging for radar picture</li> <li>• Media player for sound</li> </ul> <u>FULL REAL-TIME REPLAY</u> We have software available to run on a Windows PC, or several PCs linked together. <ul style="list-style-type: none"> <li>• Data, radar &amp; sound replay (AMI-Geonav program)</li> <li>• AIS replay (AIS is optional, by ESL program)</li> </ul> Once installed and set up on your PC this gives the full replay facility. The software has to be purchased as an optional extra. Ships do not have to carry it.
10. We want to replay the data on <u>one</u> computer.	OK. You can. This is fine for on-board checks.  It will be awkward to see it all in real time as you really need separate screens for <ul style="list-style-type: none"> <li>• instrumentation, rudder, alarms etc</li> <li>• Chart – plotting screen</li> <li>• Radar picture</li> <li>• AIS data</li> </ul> For a serious investigation you can use a computer with 2 screens. Or, 2 computers giving 4 screens. (Plus the audio replay)
11. How do we get copies of the saved data from the s-VDR?	<ul style="list-style-type: none"> <li>• Connect your portable computer to the s-VDR with a standard RJ45 ethernet network cable.</li> <li>• We will supply companion software to explore, select the files you need by date and time and copy them onto your computer.</li> <li>• During this process the s-VDR recording is not interrupted.</li> </ul>
12. How do we get data out of the memory capsule?	<ul style="list-style-type: none"> <li>• This is only required after a serious incident when the capsule is not connected to a MEU, or for test purposes.</li> <li>• Install the capsule download program onto a computer and run it.</li> <li>• Connect the capsule to power and via a local area network cable to the computer</li> <li>• Follow the published instructions.</li> <li>• The program will copy the data in the capsule onto the laptop's hard disk.</li> </ul>
13. Can it connect to a float-free EPIRB capsule?	Not yet. I am in touch with ACR and McMurdo, but none have yet been able to provide one so that we can program the MEU. We are hoping it will be come soon. Jotron made an offer about using their capsule but it was not advantageous to us.  Robin tells me that the EPIRB makers can not conquer the problem of salt water getting to the electrical connections.
14. About the "5 incidents save". Will these incidents be recorded in the capsule?	No. The incidents are only saved in the MEU.  The number of incidents which can be saved depend on the file size.
15. Doesn't the MEU have a copy of the capsule data?	YES! The MEU always has the same data in it as the capsule, and this can be copied much faster than downloading from the capsule.

16. I thought the MEU would hold 5 days or more of the last data, but you are saying its only 1day.	By design we only need 12 hours of data to be recorded in the MEU. It will actually hold more, but that depends entirely on the amount of data being saved. It is typically more than 24 hours.  Perhaps there was confusion over the saving of typically five 12-hour incidents.
17. Will the capsule hold 30 days of data?	NO!
<b><u>RADAR INTERFACING</u></b>	
18. A radar's RGB output does not produce a picture on the s-VDR.	Some radars <u>claim</u> to have an RGB output, some Decca radars for instance, but they do not conform to the list of standards the s-VDR specification calls for.  To prove any radar's output is good, first connect it to a standard PC monitor. If you can see the radar picture the s-VDR will record it. If not, then it can not be recorded unless a special interface is available from the radar manufacturer, and the owner pays for it.  For an s-VDR the alternative is to record AIS data. For a VDR it may mean installing a new radar.
19. The classification society demand we record radar on the s-VDR, but the radar has no RGB output.	Buy a new radar.  Or change your society.
20. When there was a monitor connected to the s-VDR during installation the radar picture looked better on the VDR than on the radar itself.	Your radar screen is worn out, or else the monitor has much better resolution than the radar screen.  Notice that this means the s-VDR is not necessarily recording <u>exactly</u> what the navigator sees on the screen.
21. Is it possible to record two radars?	Yes, theoretically, but it is not yet an option that has been brought in to use, and is not yet sold with the s-VDR.  The limiting factor is the screen size. Two small radars could be handled but not two big ones.
22. What is the maximum size radar picture that can be handled?	IEC 61996 at the moment requires screen sizes up to 1280 x 1024 to be interfaced. However we can go one size bigger to 1600 x 1200.  The radar acquisition interface can actually handle larger screens, if they exist, but the file sizes they produce are too big for the current capsule technology.
23. I see Furuno have a "digital" interface advertised on some new radars. Is that an advantage?	No, its not an advantage. But, if the radar only had a digital video interface output we might be able to connect using an optional extra DVI RAI. We need to test this out with some radars to make sure of it before offering it as a solution.
<b><u>ECHO SOUNDER INTERFACING</u></b>	
24. "But Mike said it would record the echo sounder"	If the echo sounder on the ship has no data output, and no output for a remote display, we can not possibly interface it.  So, owners sometimes have to fit new echo sounders with their new VDR.
25. Can't we connect up to some test points inside the echo sounder?	That is an unauthorised modification. My advice is that you must not carry out any unauthorised modification to ship's equipment.



33. The front panel LEDs look too bright for a dark ship's bridge.	<p>The s-VDR has a light sensor on it and will automatically dim the LEDs when it is dark. (Except for the status LED which only comes on if there is a problem)</p> <p>There is an internal switch so you can have them full on all the time if you want to put the MEU in a cupboard. Red LEDs appear brighter than the green ones.</p>
<b><u>VHF RADIO INTERFACING</u></b>	
34. The VHF has no direct output of transmit and receive audio, so how can I make the direct connection to it?	You can not connect.
35. Can't I modify the handset or solder wires inside to get at the audio?	<p>NO. That is an unauthorised modification. Please do not carry out any unauthorised modification to ANY piece of ship's equipment.</p> <p>Just like the radar, if no COTS interface is available, then it can not be connected.</p>
36. What about the AMI RT2049 interface for the Sailor RT2048?	<p>The AMI 2049 interface intercepts the handset cable plug and socket with a direct connection in a very neat way.</p> <p>The AMI 2049 interface is Type Approved.</p> <p>This interface is not part of the VDR, it is an extra.</p>
37. What can be done if there is no direct audio output from the vhf?	<p>Chose another VHF, or else the owner will have to fit a new VHF.</p> <p>This seems ridiculous. The practical thing to do is put a microphone close the VHF operating position. OR even FIX it to the VHF so it is physically if not electrically connected. If the radio is simplex only with a loudspeaker that can not be switched off then both transmit and receive audio will always be recorded.</p> <p>VDRs are no longer new so there must be VHF radios made with an audio output for use with VDRs. Some radios have a "line" output, especially those used for GMDSS.</p>
<b>DATA OUTPUT FROM THE s-VDR DATA RECORDED BY THE s-VDR</b>	
38. The VDR has gathered-in all this data, so lets feed it to the ECDIS. What is the format of the data <u>output</u> of the VDR?	<p><b><u>FORMAT AND CONNECTION</u></b></p> <ul style="list-style-type: none"> <li>• NMEA 0183, at 38400 baud</li> <li>• This output is provided for test purposes to drive a computer's RS232 port via a short cable.</li> </ul> <p><b><u>DATA OUTPUT</u></b></p> <ul style="list-style-type: none"> <li>• Data out is a repeat of the 4800 baud data input, on a first-in, first-out basis</li> <li>• The data is filtered to reduce the amount of data recorded</li> <li>• PLUS a \$VRALR message giving the alarm state of the VDR every 256 seconds</li> <li>• PLUS, proprietary messages of no value to the outside world.</li> <li>• The data you see being output is being recorded by the VDR.</li> <li>• The AIS or expansion input is not output</li> </ul>

<b>MANUFACTURING ISSUES</b>	
39. Can you use a solid state disk drive?	Yes, if you can accept the increased cost. Solid state disks are currently advertised at about \$500, rather than \$50.  It is usual to supply a spare fully programmed HDD with each s-VDR installation.
40. Does the s-VDR comply with the EC Restriction on Hazardous Substances ROHS directive?	Yes, of course it does. All our manufacturing complies.
<b>ROUTINE MAINTENANCE</b>	
41. Please could you assist me by making suggestions on what parts would be required for this system over a period of about ten years? Sally	Here are my suggestions Sally <ul style="list-style-type: none"> <li>○ Replace the fan every 4 years. The s-VDR will work perfectly without the fan.</li> <li>○ The AC-DC power unit battery need not be replaced routinely. It will probably last 10 years. Test it yearly to see that it will run the s-VDR for 2.5 hours, and if so it is OK for another year.</li> <li>○ Replacement batteries should be purchased when required, not kept on board.</li> <li>○ Any other suggestions anybody? This is not a full list.</li> </ul>
<b>THANKS</b>	
<b>From Andrew Fairgrieve</b>	Particular thanks to Kenny in Singapore, Ollie North, Russel Morton, Andy Midgely, Peter Goddard, Robin Grigg, Marie, and Mike Woods.