Operations Manual

SCC-2DRVL-DVR G3 – 2 Diver radio with camera & light control, DVR & 10.4" monitor.

NOVASUB Surface control case two diver radio with integrated camera and light control with DVR & 10.4” colour monitor.
Index

1  HELP & SUPPORT ........................................................................................................................................5

2  SAFETY MEASUREMENTS ..........................................................................................................................6
  2.1  SAFETY PRECAUTIONS ..........................................................................................................................6

3  MAINTENANCE ...............................................................................................................................................7
  3.1.1  Maintenance by authorized dealer or distributor ..............................................................................7
  3.2  MAINTENANCE SCHEME ..........................................................................................................................7

4  WARRANTY ..................................................................................................................................................8
  4.1  WARRANTY PERIOD .................................................................................................................................8
  4.2  EXCLUSIONS AND LIMITATIONS ..........................................................................................................8
  4.3  THIS LIMITED WARRANTY IS NOT ENFORCEABLE IF ITEM: .........................................................................8
  4.4  LIMITATION OF LIABILITY ......................................................................................................................8

5  GLOSSARY ....................................................................................................................................................9
  5.1  VIDEO FORMAT .......................................................................................................................................9
  5.2  DVR INTRODUCTION ..............................................................................................................................9
  5.3  VIDEO OVERLAY WITH AND WITHOUT DARK BACKGROUND ...........................................................10

6  GENERAL SPECIFICATIONS .....................................................................................................................10
  6.1  DVR SPECIFICATIONS ............................................................................................................................11
  6.2  RECORDING INFORMATION ......................................................................................................................11
    6.2.1  File name ..........................................................................................................................................11
    6.2.2  Recording file size .............................................................................................................................11

7  OPTIONAL .....................................................................................................................................................12
  7.1  BOBOX ..................................................................................................................................................12
  7.2  TMic 1&2 ..............................................................................................................................................12
    7.2.1  Tmic1 ...........................................................................................................................................12
    7.2.2  Tmic2 ...........................................................................................................................................12
  7.3  NSHEADset1, NOISE CANCELLATION HEADSET .................................................................................13
  7.4  SENSOR DATA INPUT ON VIDEO OVERLAY ..........................................................................................13
    7.4.1  UDS-1 Underwater Depth sensor ......................................................................................................13
    7.4.2  UDS-3 Underwater Depth sensor ......................................................................................................13
  7.5  THICKNESS GAUGE (T) ...........................................................................................................................14
  7.6  CP PROBE (CP) ....................................................................................................................................14
  7.7  THIRD PARTY CAMERA CONNECTION .................................................................................................14
  7.8  LOW VOLTAGE POWER SUPPLY ...........................................................................................................14

8  GENERAL FUNCTIONS .................................................................................................................................15
  8.1  MAIN POWER .......................................................................................................................................15
  8.2  DIVER COMMUNICATIONS ....................................................................................................................16
    8.2.1  2 wire comms configuration ...............................................................................................................16
    8.2.2  4 wire comms configuration ...............................................................................................................16
    8.2.3  2/4S - 2 wire simplex ..........................................................................................................................16
    8.2.4  4HD– 4 wire Half Duplex .....................................................................................................................16
    8.2.5  4FD– 4 wire Full Duplex ......................................................................................................................16
    8.2.6  Comms Volume control .......................................................................................................................17
    8.2.7  Internal MIC ....................................................................................................................................17
    8.2.8  Push To Talk (PTT) .............................................................................................................................17
    8.2.9  Cross-Talk .......................................................................................................................................17
  8.3  INTERNAL SPEAKER ...............................................................................................................................17
  8.4  EXTERNAL SPEAKER .............................................................................................................................17
  8.5  HEADSET / MIC ....................................................................................................................................18
  8.6  KEYPAD CONTROL .................................................................................................................................19
  8.7  MOUSE FUNCTION DESCRIPTIONS ........................................................................................................20

9  MAIN OPERATIONS ....................................................................................................................................21
9.1 SYSTEM STARTUP ........................................................................................................... 21
9.2 VIEW .............................................................................................................................. 21
9.2.1 PAP .............................................................................................................................. 21
9.2.2 PIP .............................................................................................................................. 22
9.2.2.1 PIP window view control ...................................................................................... 22
9.3 VIDEO TEXT OVERLAY ............................................................................................... 23
9.4 CAMERA AND LIGHT CONTROL ............................................................................. 24
9.4.1 Camera signal ............................................................................................................ 24
9.4.1.1 Why use video transmission over Twisted pair .................................................. 24
9.4.2 Light controller ........................................................................................................ 24
9.5 RECORDING ................................................................................................................ 25
9.6 SNAPSHOT .................................................................................................................... 25
9.7 PLAYBACK .................................................................................................................... 26
9.7.1 Playback status Bar .................................................................................................. 26
9.7.2 Keypad & Keyboard control during playback ....................................................... 27
9.7.3 Mouse control during playback ............................................................................. 27
9.8 AUDIO TO SPEAKER ..................................................................................................... 27
9.9 BACKUP/COPY FILES ................................................................................................. 27
9.10 SNAPSHOT BACKUP/COPY FILES ........................................................................... 28

10 INTERNAL DVR2 MENU SETTINGS ........................................................................... 29
10.1 MAIN MENU DVR2 ..................................................................................................... 29
10.2 MENU DESCRIPTION .................................................................................................. 30
10.2.1 Main Menu access .................................................................................................. 30
10.2.2 Maintenance Menu ............................................................................................... 30
10.2.3 Intern Overlay ........................................................................................................ 30
10.2.4 Info ............................................................................................................................ 30
10.2.5 Channel Offset ....................................................................................................... 30
10.2.6 Reset settings ......................................................................................................... 30
10.2.7 Firmware Update ................................................................................................... 30
10.2.8 Channel settings (1,2,3 or 4) ............................................................................... 30
10.2.9 Show DSI Depth ..................................................................................................... 30
10.2.10 Show DDG Depth ................................................................................................. 30
10.2.11 Show DDG time ................................................................................................... 30
10.2.12 Set light Type ....................................................................................................... 31

11 DVR MAIN MENU ......................................................................................................... 32
11.1 1 CHANNEL (1 CH) .................................................................................................... 32
11.2 PIP ............................................................................................................................... 32
11.2.1 PIP window view control ...................................................................................... 32
11.3 PAPH ........................................................................................................................... 32
11.4 PAPV ........................................................................................................................... 32
11.5 ELEC ZOOM ............................................................................................................... 33
11.6 SPOT ............................................................................................................................. 33
11.7 SNAPSHOT BACKUP ................................................................................................. 33
11.8 PLAYBACK ................................................................................................................... 34
11.9 BACKUP ..................................................................................................................... 34
11.10 RECORD ..................................................................................................................... 34
11.11 MUTE .......................................................................................................................... 34
11.12 MENU ........................................................................................................................ 34
11.12.1 Value editing control ......................................................................................... 35
11.12.1.1 How to add or edit a value with the keypad: .................................................. 35
11.12.1.2 How to add or edit a value with the Mouse: ................................................... 35
11.12.2 Tools ..................................................................................................................... 36
11.12.2.1 HDD .................................................................................................................. 36
11.12.2.2 User ................................................................................................................... 36
11.12.2.3 Default .............................................................................................................. 36
11.12.2.4 Upgrade ........................................................................................................... 36
11.12.2.5 Time .................................................................................................................. 36
11.12.2.6 Info .................................................................................................................... 36
11.12.2.7 Maintenance .................................................................................................... 36
11.12.3 Setup........................................................................................................................................36
11.12.3.1 Setup Menu..........................................................................................................................36
11.12.3.2 Record Menu........................................................................................................................38
11.12.3.3 Video Menu..........................................................................................................................39
11.12.3.4 Network Menu.......................................................................................................................39

12 USING THE DVR ON A NETWORK ..................................................................................................40
12.1 CONNECTING THE SCC-2DRVL-DVR TO NETWORK.................................................................40
12.1.1 Local PC LAN connection.........................................................................................................40
12.1.2 Network connection..................................................................................................................40
12.2 CONNECTING TO DVR..................................................................................................................41
12.3 NETWORK DVR CONTROL ........................................................................................................41
12.3.1 Image control .............................................................................................................................42
12.4 CONFIGURE....................................................................................................................................43
12.4.1 Server parameters ......................................................................................................................43
12.4.2 Channel Parameters ..................................................................................................................44
12.4.3 Alarm parameters ......................................................................................................................45
12.4.4 User Info Parameters ...............................................................................................................45
12.4.5 Other settings ............................................................................................................................46
12.5 PLAYBACK.......................................................................................................................................47
12.5.1 Search files................................................................................................................................47
12.5.2 Download files...........................................................................................................................47

13 QUICK START GUIDE ......................................................................................................................48

14 VIDEO TEXT OVERLAY BASIC INSTRUCTIONS..........................................................................49

15 PANEL CONNECTIONS..................................................................................................................50
15.1 DVR USB.......................................................................................................................................50
15.2 DVR LAN......................................................................................................................................50
15.3 KEYBOARD.................................................................................................................................50
15.4 VIDEO OUT...................................................................................................................................50
15.5 AUDIO OUT...................................................................................................................................50
15.6 HDMI OUTPUT.............................................................................................................................50
15.7 Mic/HEADSET...............................................................................................................................50

16 TOP CONNECTIONS........................................................................................................................51
16.1 POWER SUPPLY............................................................................................................................51
16.2 MAIN CABLE CONNECTION..........................................................................................................51
16.2.1 Standard connector, SCC-01-10c/11c.......................................................................................51
16.2.2 Connector with sensor data, SCC-01-10d/11d..........................................................................52
16.2.3 Amphenol connector, SCC-01-10b/11b....................................................................................52
16.2.4 Amphenol connector, SCC-01-10e/11e....................................................................................53
16.2.1 Comms Banana sockets............................................................................................................53
16.2.2 Ext. Speakers............................................................................................................................53
16.3 OPTIONAL EXTRA CONNECTORS.................................................................................................54
16.3.1 Data In connection RS232, SCC-01-49.......................................................................................54
16.3.2 Data In/Out connection to DDG, SCC-01-50..............................................................................54
16.3.2.1 UDS-3 connected to SCC......................................................................................................54
16.3.2.2 UDS-3 connected to DDG....................................................................................................54
16.3.3 BoBox........................................................................................................................................55
16.3.4 Low voltage DC power supply.................................................................................................55
YOU MUST READ the SCC-2DRVL-DVR manual before using the SCC-2DRVL-DVR. Failure to do so may lead to improper use, serious injury or death. Care should be taken to follow the instructions correctly and also conduct a separate risk assessment prior to commencing work.

**WARNING**
- You must be aware of the dangers and take necessary precautions when using the device.

**CAUTION**
- Ensure the device is handled with care to avoid damage.

**NOTE!**
- Important information is highlighted.

---

**Disposal of the device**

Please dispose of the device in an appropriate way, treating it as electronic waste. Do not throw it in the garbage. If you wish, you may return the device to your nearest Novasub dealer.
1 Help & Support

First please read this manual thoroughly. Further details about a Warranty Statement can be found at the chapter 4 - Warranty.

For technical support contact your local a Novasub Authorized Service Center or Seascape BV.

Seascape BV
De Hoogjens 22
NL-4254 XW Steeuwijk
The Netherlands
T. +31-183-307900
F. +31-183-307910
E. info@seascape.nl
www.seascape.nl

If you have cause to use our technical support service, please make ensure that you have the following details at hand prior to calling:

- system serial number
- firmware version and build number
- fault description
- any remedial action implemented
2 Safety measurements

The content of this manual may be changed without prior notices. Seascape cannot under any circumstances be held liable for any special, indirect or incidental damages in connection with, or as a result of the purchase or use of this product and items that come.

2.1 Safety precautions

Do not attempt to use the SCC-2DRVL-DVR without reading this instruction manual in its entirety, including all the warnings. Make sure that you fully understand the use, displays and limitations of the instrument. If you have any questions about the manual or the SCC-2DRVL-DVR, contact your Novasub Authorized Service Center before using the SCC-2DRVL-DVR.

Always remember that YOU ARE RESPONSIBLE FOR YOUR OWN SAFETY!
3 Maintenance

The SCC-2DRVL-DVR is a semi ruggedized case. Although it is designed to withstand rough circumstances, you must treat it with the same proper care and caution as any other electronic instrument.

3.1.1 Maintenance by authorized dealer or distributor

Have your SCC-2DRVL-DVR serviced by a Novasub Authorized Service Center. This service will include a general operational check, replacement of the battery, and overall upgrade of firmware. The service requires special tools and training.

3.2 Maintenance scheme

<table>
<thead>
<tr>
<th>By Customer</th>
<th>When needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cleaning SCC-2DRVL-DVR</td>
<td>When needed</td>
</tr>
<tr>
<td>Drying panels</td>
<td>During operations and before storing</td>
</tr>
<tr>
<td>Charging battery</td>
<td>Regularly</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>By Novasub Authorized Service Center</th>
<th>By Customer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Servicing SCC-2DRVL-DVR</td>
<td>2 years</td>
</tr>
<tr>
<td>Internal backup battery replacement</td>
<td>2 Yearly</td>
</tr>
</tbody>
</table>

WARNING

- It is not allowed to disassemble the SCC-2DRVL-DVR or to repair the product by unqualified personal or disassemble part, in that case all warranties are void.
- Avoid large amount of water on the control and monitor panels.
- DO NOT use the SCC-2DRVL-DVR if you detect any moisture or water inside.

CAUTION

- Protect the unit from shock, extreme heat, direct sunlight, and chemical attack.
- The SCC-2DRVL-DVR cannot withstand the impact of heavy objects like air cylinders, nor chemicals like gasoline, cleaning solvents, aerosol sprays, adhesive agents, paint, acetone, alcohol, etc. Chemical reactions with such agents will damage the seals, case and finish.
- Do not use compressed air to blow water off the unit.

NOTE!

- The SCC-2DRVL-DVR is not fully waterproof, it can withstand some water drops on the monitor panel and control panel. Be sure to whip off any water drops or moisture from the panels.
4 Warranty

Novasub warrants that during the Warranty Period Novasub or a Novasub Authorized Service Center (hereinafter Service Center) will, at its sole discretion, remedy defects in materials or workmanship free of charge either by a) repairing, or b) replacing, or c) refunding, subject to the terms and conditions of this Limited Warranty. This Limited Warranty is only valid and enforceable in the country of purchase, unless local law stipulates otherwise.

4.1 Warranty Period

The Limited Warranty Period starts at the date of original retail purchase. The Warranty Period is two (2) years for the SCC-2DRVL-DVR. Warranty applies only on manufacturing defaults. The Warranty Period is one (1) year for accessories, including mounting hardware and connector cables.

4.2 Exclusions and Limitations

This Limited Warranty does not cover:

1. a) normal wear and tear;
   b) defects caused by rough handling or;
   c) defects or damage caused by misuse contrary to intended or recommended use;
2. user manuals or any third-party items;
3. defects or alleged defects caused by the use with any product, accessory, software and/or service not manufactured or supplied by Novasub;
4. battery (only first 6 month after purchase is under warranty).

4.3 This Limited Warranty is not enforceable if item:

1. has been opened beyond intended use;
2. has been repaired using unauthorized spare parts; modified or repaired by unauthorized Service Center;
3. serial number has been removed, altered or made illegible in any way, as determined at the sole discretion of Novasub;
4. has been exposed to chemicals or excessive water spraying. Novasub does not warrant that the operation of the product will be uninterrupted or error free, or that the product will work with any hardware or software provided by a third party.

4.4 Limitation of Liability

To the maximum extent permitted by applicable mandatory laws, this Limited Warranty is your sole and exclusive remedy and is in lieu of all other warranties, expressed or implied. Novasub shall not be liable for special, incidental, punitive or consequential damages, including but not limited to loss of anticipated benefits, loss of data, loss of use, cost of capital, cost of any substitute equipment or facilities, claims of third parties, damage to property resulting from the purchase or use of the item or arising from breach of the warranty, breach of contract, negligence, strict tort, or any legal or equitable theory, even if Novasub knew of the likelihood of such damages. Novasub shall not be liable for delay in rendering warranty service.
5 Glossary

The Surface Control Case (SCC) is a rugged case with the built in NSDVR2 hard disk recorder. The Novasub diver communication radio is based on the latest electronic technology and is specially designed for an outstanding diver and surface sound quality. The unit is standard fitted for a 2 diver connection and has a built in LED light control and video transmission over twisted pair or coax controller for each diver (CCTV).

The video controller is auto tunable for any cable up to 600 m. The unit has a mains and battery backup. Is powered with a built in smart battery charger and has a battery state condition monitoring. Standard the radio is fitted with a volume controllable external speaker amplifier. Both diver and tender voice are heard on the external speaker.

The radio is based on a 2 wire communication principal and has for each diver a PTT (Push To Talk) button. The communication type is “simplex”, that is to say; the operator must press a button to speak. The sound of the diver is always heard, except when operators speaks to the diver. The operator at the surface can speak to each diver individually. Also the operator can activate the communication diver-diver (Cross Talk). The SCC can also be set for Round-Robin (4 wire comms).

Each diver audio and video have an output for extra monitors and recording.

Features

- 960H resolution
- 2 Channel Rec.
- Daylight Monitor
- PIP & PAP
- Text & Data overlay
- Snapshot button
- Camera Control
- Light Control
- Network connection

5.1 Video format

The DVR2 can record either in the standard D1 format or the new 960H wide format. The 960H format is in PAL 960x576 pixels, compared to the D1 720x576 and increase of 35%. To really achieve the actual 960H resolution, use the latest Novasub NSBC cameras which actually have the 960x576 pixels resolution.

5.2 DVR Introduction

The NSDVR2 is based on a embedded processor and embedded operating system with a solid state hard drive for recording the files. The NSDVR2 will be able to record one Channel at D1 and the New WD1 video standard resolution. The WD1 is a 960H video resolution which records the video image in a resolution of 944x576 pixels @ 20 fps. Using the new 700 TVL Novasub video cameras, you will be able to record this WD1 (960H) resolution.

The NS-DVR2 has a VGA and HDMI output to a monitor. The SCC cases uses the VGA output for the internal monitor. The HDMI output can be used to connect a second monitor. On the second monitor you will see a duplicate of the main monitor (VGA). The NSDVR2 has a built in Date &time &Data text overlay line, channel name text overlay, and 2x free text lines video overlay.

The NS-DVR2 is menu controlled either by a mouse or the dedicated Novasub keypad. Recording is selected per channel by keypad button, or mouse control through the menu.

The video files are recorded on a Solid-state hard disk (SSD). Also a snapshot can be made and is also stored on the SSD. The SCC-2DRVL-DVR has an audio input which is recorded in the video file. Both files, the video files and snapshot files can be back upped to a USB-storage device, either an external hard disk or a USB-memory stick. The video files are back upped as a AVI format with a H264 compression.

The NS-DVR2 has a built in Player to playback at your recorded files. The NS-DVR2 also has a network connection which makes it possible to stream the video life over the network/internet using a Browser on a PC, Tablet or Smartphone. Or the supplied CMS-software for viewing, playback and downloading of files.
5.3 Video overlay with and without dark background
The video text overlay are 4 lines of 36 characters each. One line is dedicated for use of the date/time with data. 2nd overlay is the name of the channel plus free text, and the remaining two overlay lines are free text. All overlay lines can be placed anywhere on the window. Also a snapshot can be made and is stored as a JPG on the hard disk. Optional diver data like depth and divetime can be added to the overlay. (see Novasub DDG Digital Diver Gauge and UDS-3 depth sensor)

6 General Specifications

Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ext. Power supply</td>
<td>100-260 VAC, 50/60 Hz</td>
</tr>
<tr>
<td>Light control</td>
<td>100% dimmable per diver, max 30 watts, 12-30 vdc</td>
</tr>
<tr>
<td>Video out</td>
<td>1 per diver, 1Vpp/75 Ohm</td>
</tr>
<tr>
<td>DVR</td>
<td>Solid State HD recording, H264.avi</td>
</tr>
<tr>
<td>Video control</td>
<td>Video transmission over twisted pair or coax, auto-tune to 600 m, 32 vdc (12,15,24 vdc optional)</td>
</tr>
<tr>
<td>DVR control</td>
<td>Panel keypad control &amp; Mouse</td>
</tr>
<tr>
<td>Audio Out</td>
<td>1 per diver signal of 1Vpp</td>
</tr>
<tr>
<td>Diver to diver</td>
<td>Cross-talk switch, full duplex (4 wire)</td>
</tr>
<tr>
<td>Diver volume control</td>
<td>Per diver</td>
</tr>
<tr>
<td>Dimensions</td>
<td>546x347x247mm @ 16,8 kg</td>
</tr>
<tr>
<td>Battery life</td>
<td>20 hours -&gt; 2 diver comms only</td>
</tr>
<tr>
<td>Int. Power supply</td>
<td>2 hours -&gt; 2 Divers Video&amp;DVR</td>
</tr>
<tr>
<td>Int. Power supply</td>
<td>1 hours -&gt; 1 diver light&amp;Video and DVR</td>
</tr>
<tr>
<td>Network</td>
<td>24 vdc rechargeable battery with battery status indication, UPS function</td>
</tr>
<tr>
<td>Tender volume control</td>
<td>Per diver</td>
</tr>
<tr>
<td>Monitor</td>
<td>10,4&quot; Daylight Monitor, 1000 candela</td>
</tr>
<tr>
<td>Recording time</td>
<td>100 hrs@ 960H best</td>
</tr>
<tr>
<td>Ext. speaker</td>
<td>Amplifier 10W/4-8 Ohm with volume control</td>
</tr>
<tr>
<td>Communication</td>
<td>2 wire - simplex, 4 wire - full duplex</td>
</tr>
<tr>
<td>Recording channel</td>
<td>2 channel, per channel record button</td>
</tr>
<tr>
<td>Video file</td>
<td>Retrievable with USB memory stick (*.avi) or connection to PC via LAN</td>
</tr>
<tr>
<td>Connections</td>
<td></td>
</tr>
<tr>
<td>Audio out</td>
<td>2x RCA (Cinch)</td>
</tr>
<tr>
<td>Headset/Mic</td>
<td>Bulgin 8pin, audio out, Mic in, PTT</td>
</tr>
<tr>
<td>Keyboard</td>
<td>USB-A</td>
</tr>
<tr>
<td>Network</td>
<td>LAN RJ45</td>
</tr>
<tr>
<td>Power in</td>
<td>IEC C14 mates with C13</td>
</tr>
<tr>
<td>Umbilical connector</td>
<td>2x Multi pin circular connector, comms, camera and light</td>
</tr>
<tr>
<td>Extra monitor</td>
<td>HDMI</td>
</tr>
<tr>
<td>Video out</td>
<td>2x BNC</td>
</tr>
<tr>
<td>Ext. speaker</td>
<td>2x Banana screw sockets</td>
</tr>
<tr>
<td>Flash drive</td>
<td>USB-A</td>
</tr>
<tr>
<td>Diver comms</td>
<td>2x Banana socket per channel</td>
</tr>
<tr>
<td>The DVR keypad has the following function:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Channel selection 1 &amp; 2</th>
<th>Channel selection for overlay, camera, light and snapshot control</th>
</tr>
</thead>
<tbody>
<tr>
<td>REC</td>
<td>Start/Stop recording</td>
</tr>
<tr>
<td>SNAP</td>
<td>Snapshot picture of video image (same resolution as video)</td>
</tr>
<tr>
<td>VIEW</td>
<td>Selection of view, full, PIP, PAP</td>
</tr>
<tr>
<td>ESC</td>
<td>Escape in DVR menu</td>
</tr>
<tr>
<td>CAM</td>
<td>ON/OFF camera</td>
</tr>
<tr>
<td>Light (+/-)</td>
<td>ON/OFF, dimming</td>
</tr>
<tr>
<td>Arrows, OK</td>
<td>Menu control DVR</td>
</tr>
<tr>
<td>Menu</td>
<td>Access to Menu</td>
</tr>
<tr>
<td>Play, STOP</td>
<td>Access playback of recorded files</td>
</tr>
</tbody>
</table>
### 6.1 DVR specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System</td>
<td>Embedded Linux operating system</td>
</tr>
<tr>
<td>System Resource</td>
<td>2-channel real-time recording simultaneously</td>
</tr>
<tr>
<td>Video Standard</td>
<td>PAL, NTSC</td>
</tr>
<tr>
<td>Image Compression</td>
<td>H.264</td>
</tr>
<tr>
<td>Audio Compression</td>
<td>ADPCM</td>
</tr>
<tr>
<td>Recording Mode</td>
<td>Manual</td>
</tr>
<tr>
<td>Video Search</td>
<td>Time search, event search, channel search</td>
</tr>
<tr>
<td>Backup Mode</td>
<td>USB backup, network download</td>
</tr>
<tr>
<td>Video Input</td>
<td>2 CH composite video</td>
</tr>
<tr>
<td>Video Output</td>
<td>HDMI, 2 channel composite (spot)</td>
</tr>
<tr>
<td>Audio Input</td>
<td>2ch</td>
</tr>
<tr>
<td>Audio Output</td>
<td>1ch</td>
</tr>
<tr>
<td>Recording Quality</td>
<td>PAL: 704x576(D1), 944x576 (WD1) NTSC: 720x480(D1)</td>
</tr>
<tr>
<td>Snapshot Quality</td>
<td>jpeg 720x576 (D1) 960x576 pixels (WD1)</td>
</tr>
<tr>
<td>Image Control</td>
<td>6-level adjustable</td>
</tr>
<tr>
<td>Recording Rate</td>
<td>PAL: D1 25fps/second, WD1 20 fps (adjustable)</td>
</tr>
<tr>
<td>Recording Storage</td>
<td>HDD solid-state drive</td>
</tr>
<tr>
<td>Local Playback</td>
<td>2x channel</td>
</tr>
<tr>
<td>USB Port</td>
<td>2x USB2.0 port, one for data backup, one for mouse connection</td>
</tr>
<tr>
<td>Network</td>
<td>1x RJ45 LAN connection</td>
</tr>
</tbody>
</table>

### 6.2 Recording information

#### 6.2.1 File name

The file name is based on the channel number, date and time; `chn120140620150802`

- Channel 1 date Time

The time is the start time of the recording.

#### 6.2.2 Recording file size

The files are automatically recorded in max. files size of 260 Mb each. During recording the NSDVR2 will automatically make a new file. If a recording is stopped before reaching the 260Mb file size, the next recording file size will smaller than the 260 mb. For example; if the recording is stopped at a file size of 160 Mb, then the new next recording will have a file size of 260-160 = 100 Mb.

For that reason if you will always have smaller file sizes at the beginning and ending of your recordings.

- 700TVL camera connected:
  - Setting: WD1 (960H), 2.5 Mbps, 20 fps, VBR, Excellent
  - Recording: 260 Mb, 39 min, static image = 450 Mb/hr.

- Settings: WD1 (960H), 2.5 Mbps, 20 fps, CBR, Best
  - Recording: 260 Mb, 13 min, static image = 1.2 Gb/hr.
7 Optional

- Diver depth to overlay; direct connection of UDS-3 depth sensor data to video overlay.
- DDG diver data to overlay; DDG depth and dive/time data to video overlay.
- BoBox: Breakout Box for remote comms control with both divers, 50 m cable.
- Thickness Gauge to overlay; Tritex or Cygnus Thickness data to video overlay.
- Analog value to overlay; any 0-10v or 4-20 ma signal data to video overlay.
- Digital data to overlay; rs 232 and rs422/485 data input to video overlay.
- Remote control software; Novasub DVR software to remote control and view the SCC-2DRVL-DVR G3.
- 4 channel viewing and recording
- Lyyn Video enhancement integrated

7.1 BOBOX

The Bobox can be ordered at new order or post ordered for integration on previously built systems. The Bobox is an optional Break Out Box to use as an remote extension for 2 diver communication. The Bobox is standard supplied with 30 m cable. The Bobox has a built in amplifier and speaker. Also PTT for each diver and volume control of the speaker and divers.

Also an external Headset/Mic can be connected.

All Tender-Diver and Diver communication are heared on the Bobox as well as the SCC.

Also the SCC controls are fully functional.

Application:
  - Remote setup out of the diver container at the diver launching platform
  - Remote setup in a control room for any machinery
  - Remote setup in a client area

The Bobox is connected to an optional connector installed on the SCC.

7.2 TMic 1&2

There are 2 versions of table microphones available for the SCC-2DRVL-DVR comms radio.

7.2.1 Tmic1

Table Microphone with PTT switch for connection the the standard Head/Mic connector of the SCC-2DVRL-DVR.

7.2.2 Tmic2

Table Microphone with 2x PTT, for each diver one. With microphone volume control. Requires BoBox connection on the SCC-2DRVL-DVR.
7.3 **NSHEADset1, Noise Cancellation Headset**

Novasub rugged noise cancelling Headset with Mic and PTT for Novasub Diver radio's.
The NSHEADset1 is ideal for use in noise surroundings to be able to hear and speak clearly with the diver.
It has a build on PTT switch.
It connects directly to the standard Head/Mic connector of the SCC-2DRVL-DVR.

7.4 **Sensor data input on Video overlay**

The SCC-2DRVL-DVR can be supplied with a DSI data to video text&data overlay. The DSI enables the input of different analog and digital sensors which can be displayed on the monitor video overlay. The Data can be 0-10v, 4-20 ma, rs232 and rs422/485. And the standard Novasub UDS-3 depth sensor can be interfaced also to the DSI.

7.4.1 **UDS-1 Underwater Depth sensor**

The USD-1 depth sensor is an analog pressure sensor in a underwater housing with a 3 pin connector. The sensor outputs a 4-20 ma signal through the diver umbilical/cable to the SCC’s overlay. The sensors are standard 0-60 MSW and are so calibrated together with the SCC’s overlay OSD-2 unit. Other pressure depth ranges are possible.

7.4.2 **UDS-3 Underwater Depth sensor**

The UDS-3 depth sensor is an analog pressure sensor based on the HART digital protocol data signal over 4-20 ma. The sensors transmit the depth data digital and the sensor is internal calibrated. The calibration is standard 0-7 Bar absolute. The OSD-2 overlay unit displays the water depth in MSW with and accuracy of < 0.2% of the FS (60 MSW)
7.5 **Thickness Gauge (T)**
The data of a Ultrasoon thickness gauge can be displayed on the video overlay. Standard the OSD-2 is configured for the Tritex Multigauge 3000.

7.6 **CP probe (CP)**
The OSD-2 has a built in 0-2000 mV input which can be used with an underwater Proximity Probe to measure the cathodic potentials.

7.7 **Third party camera connection**
The SCC-2DRVL-DVR is fully built to accept the standard Novasub video cameras. However any brand of analog video camera can be connected to the SCC-2DRVL-DVR. The standard voltage output to the camera connection is 32 vdc. This can be configured to a lower voltage by Seascape at its factory. On new orders please specify required voltage range. Standard range are 12 vdc, 15 vdc and 24 vdc.

7.8 **Low voltage power supply**
The SCC can also be fitted with an extra external power supply connection of 12-36 vdc. The SCC can then be powered with 110 /230 vac or 12-36 vdc.
8 General Functions

The SCC-2DRVL-DVR has the full function control from the Keypad, Keyboard and optional Mouse.

8.1 Main Power

The Main power switches on and off the complete unit. When the external IEC plug is inserted on the top left of the case the internal battery will be automatically charged. The system can be powered with 100 – 240 vac 50/60 Hz and requires 150 watts. The Charge level LED’s will indicate that the system is being charged and the status of charge. Charging time for a fully discharged system will take approx. 10 -12 hrs.

When system is fully charged the batteries are automatically trickle charged to maintain full capacity. The Main power does not need to be switched on to charge the system.

<table>
<thead>
<tr>
<th>Charge level</th>
<th>Led indicating the level of the battery (Solid) when there is external power (100-220 vac) connected and charging the internal battery (UPS)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>● Bulk charging ● Trickle charge ● Maintenance charge</td>
</tr>
</tbody>
</table>

8.1.1 Main Power

The Main power switch is located on the top left of the case. When the external IEC plug is inserted the internal battery will be automatically charged. The system can be powered with 100 – 240 vac 50/60 Hz and requires 150 watts. The Charge level LED’s will indicate that the system is being charged and the status of charge. Charging time for a fully discharged system will take approx. 10 -12 hrs.

When system is fully charged the batteries are automatically trickle charged to maintain full capacity. The Main power does not need to be switched on to charge the system.
8.2 Diver Communications

The diver audio is standard set for a 2 wire communications (simplex).
The divers can only speak to each other when the surface operator pushes the cross-talk switch to the desired direction.

The SCC-2DRVL-DVR can also be set for 4 wire communication (duplex)
The divers have an open 2 way communications with each other without any selection from the surface. The surface will hear both divers and can talk to the desired diver by pressing the corresponding PTT. Also can the comms be set for Full duplex. The there is a full open communication (conference) between the divers and surface.

8.2.1 2 wire comms configuration
The SCC-2DRVL-DVR is standard fitted with a 10 pin multipin connector.
The audio comms for 2 wire comms is connected to the diver umbilical via the multipin connector (pins H,J) or via the yellow Banana sockets

8.2.2 4 wire comms configuration
The SCC-2DRVL-DVR can be fitted with a 10 pins multipin connector and a selection comms mode switch. This allows the use of a 4 wire comms system and still be able also to use the system as a 2 wire system.

The 4 wire configurations has 3 user modes:
2S - 2 or 4 wire simplex
4HD - 4 wire Half duplex surface to diver, full duplex diver to diver
4FD - 4 wire Full duplex, surface and divers full duplex without any PTT

8.2.3 2/4S - 2 wire simplex
This mode is the same as the standard comms when using 2 wire. This works with either 2 or 4 wires comms cable configuration. The diver will always be heard at the surface and the Tender needs to push the PTT switch to talk to the diver. The divers can only speak to each other when the Tender uses the Cross to Talk switch from diver 1 to diver 2 and vice versa.

8.2.4 4HD – 4 wire Half Duplex
This mode uses a 4 wire comms cable configuration. In this mode the divers can speak with each other without any control from the Tender. The Tender will hear both.
The Tender needs to push the PTT button to speak to the divers.

8.2.5 4FD- 4 wire Full Duplex
This mode allows to have a full open communication between divers and Tender to divers without using the PTT buttons. Like a conference call.
8.2.6 Comms Volume control
Each diver has a Tender and Diver volume control.
The Volume Diver is the volume control of what the diver hears.
The Volume Tender is the volume control of what the tender hears.

8.2.7 Internal MIC
On the panel between the Volume Tender control, the internal MIC is positioned. It is not needed to place your mouth close to the MIC. Normal arm length distance is sufficient to pick-up the Tender speaking volume.

8.2.8 Push To Talk (PTT)
The button per diver to press when the Tender want's to speak to the diver.

8.2.9 Cross-Talk
The cross talk switch can be used to have Diver 1 speak to Diver 2 in a 2 wire comms configuration. When the toggle switch is pushed direction Diver 2, then Diver 1 can speak to Diver 2. If the toggle switch is pushed towards Diver 1, then Diver 2 can speak to Diver 1.

8.3 Internal Speaker
The Internal Speaker can be switched off with the rocker switch Speaker. This can be used when operating with the Mic/Headset or only with the external speakers.

8.4 External Speaker
The SCC has a built in 10 watt amplifier to which an external 4-8 ohm (10-30w) speaker can be connected. The external speaker has its own volume control.
All conversation, divers and tender are heard on the ext. speaker.
8.5 Headset / Mic

The external headset/Mic connector can be used to connect the supplied headset with mic and used with the SCC built in PTT to speak to the divers. Another option is to use the headset/mic connector for an optional MIC with PTT to talk to the divers. The internal speaker can be switched off if required.

When the Headset with Mic or the MIC only are connected, the internal MIC is automatically switched off.

Headset/Mic standard supplied with SCC, MIC-PTT is optional
## 8.6 Keypad control

Keypad for 2 channel system. The keypad is for direct recording and snapshot function. With the arrows, OK, Menu and esc you can scroll through the complete menu for all settings. The CAM and Light buttons are used to switch on the camera and light and control the light intensity in steps of 10%. The yellow LED on the CAM and LIGHT lit up when a camera and light is switched on. Each key has a unique function or a multiple function.

<table>
<thead>
<tr>
<th>Key</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>MENU</td>
<td>Enters in the Main menu of the NSDVR2 recorder</td>
</tr>
<tr>
<td>VIEW</td>
<td>Scroll between the different views; PAPV, PAPH and PIP</td>
</tr>
<tr>
<td>ESC</td>
<td>Return to previous or cancel</td>
</tr>
<tr>
<td>Up</td>
<td>Up in Main menu's and value higher in settings</td>
</tr>
<tr>
<td>Right</td>
<td>To the right in Main menu's and to next settings in setting menu's</td>
</tr>
<tr>
<td>Down</td>
<td>Down in Main menu's and value lower in settings</td>
</tr>
<tr>
<td>Left</td>
<td>To the left in Main menu's and to previous settings in setting menu's</td>
</tr>
<tr>
<td>OK</td>
<td>Confirm</td>
</tr>
<tr>
<td>FR</td>
<td>In playback fast reverse, press multiple times for 4x and 8x speed</td>
</tr>
<tr>
<td>PLAY</td>
<td>Enters directly in playback menu</td>
</tr>
<tr>
<td>STOP</td>
<td>Stop Playback</td>
</tr>
<tr>
<td>FF</td>
<td>In playback fast forward, press long to activate. In Search/Backup use to select files in list</td>
</tr>
<tr>
<td>LIGHT +</td>
<td>Switches the light on (100% at start up) and increases intensity in 10 steps</td>
</tr>
<tr>
<td>LIGHT -</td>
<td>Switches the light OFF (press long) and decreases intensity in 10 steps</td>
</tr>
<tr>
<td>SNAP</td>
<td>Takes a snapshot of the selected channel</td>
</tr>
<tr>
<td>CAM</td>
<td>Switches the camera ON and OFF</td>
</tr>
<tr>
<td>REC</td>
<td>Start and stops recording per channel</td>
</tr>
<tr>
<td>1 (2,3,4)</td>
<td>Channel selection, when the channel is selected the Green LED is on and has the following options:</td>
</tr>
<tr>
<td></td>
<td>• You can control the camera and light of this channel</td>
</tr>
<tr>
<td></td>
<td>• You can access the video text overlay of this channel</td>
</tr>
<tr>
<td></td>
<td>• When you press SNAP, the snapshot will be taken of this channel</td>
</tr>
<tr>
<td></td>
<td>• In PIP and Quad view you will select this channel as single view or main view</td>
</tr>
</tbody>
</table>

### LED indications

- **Battery status**
  - All Novasub SCC and SCU units have a build in battery backup which operates as an UPS (uninterrupted power supply). The batteries are automatically charged when external power is supplied. The LED are solid when external power is present and blinking when operating on battery.
  - LED solid indication charging
    - Bulk charging
    - Trickle charge
    - Maintenance charge
  - LED blinking indication operating on battery
    - Batt. LOW
    - Batt. half full
    - Batt. FULL

- **Channel**
  - Green led: this channel is selected
  - CAM yellow led: Camera is switched on of this channel
  - Light yellow led: Light is switched on of this channel

- **REC Led**
  - The red REC LED is on when recording this channel
8.7 Mouse function descriptions

When a USB mouse is connected to the DVR USB you can access the menu fully with the mouse using the Left and Right buttons.

Right Mouse button functions:
- Opens Main menu
- Esc or return to previous menu
- Select file in playback or backup search list
- Hide playback menu bar

Left Mouse button functions:
- Select and operate
9 Main Operations
This chapter describes the main basic operations to be able to start the system, have a live camera view, control the light and record the video. Also we explain how to playback and backup your files.

9.1 System startup
Connect the main cable with the camera and light, connect the power supply. Make sure that the actual camera and light are connected at the other end of the cable.
Follow next steps to quick start the system and start recording.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plug in Main power cables</td>
<td>Plug in external power supply 100-240 vac. The system will automatically start charging the internal battery. Even with the main power switch off.</td>
</tr>
<tr>
<td>Connect cable</td>
<td>Connect cable with camera and light</td>
</tr>
<tr>
<td>Switch Main power on</td>
<td>If external 100-220 Vac power is supplied the Charge Level will indicate that the battery is charging and the status of the charge by color. (solid LED) When NO external power is supplied the Battery Level is indicated by blinking LED and indicates the battery status by color.</td>
</tr>
<tr>
<td>Switch on the Camera and light</td>
<td>Select the channel to control. Green LED is ON. Press camera button, the CAM yellow LED switches on Press light + to switch light on, the green LED indicates that the light is powered. Increase and decrease light intensity with + and -. Press and hold + to switch on the Max. light Intensity. Press and Hold – to switch the light off.</td>
</tr>
<tr>
<td>Recording</td>
<td>Press Rec to start recording, Red LED is on Press Rec to stop recording, Red LED is off</td>
</tr>
<tr>
<td>Snapshot</td>
<td>Take a picture of the video image, select the channel and press SNAP Button. The snapshots are stored on the hard disk.</td>
</tr>
</tbody>
</table>

9.2 View
The view button is to select the different view modes of the 1 or 2 channels. Scroll between the different views; PAPV, PAPH and PIP.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>View settings</td>
<td>Press view to scroll between different views.</td>
</tr>
</tbody>
</table>

NOTE! To go back to single channel view from PIP, press first VIEW to be in PAP mode. Then press Channel button 1 or 2 to see the channel in single view.

9.2.1 PAP
PAP stands for Picture and Picture, and shows only 2 channels. PAPH shows the 2 channels vertical one above the other. PAPV shows the 2 channels horizontal side by side.
Date&Time will only show on the Top or left channel in live view. It will be recorded in all other channels, while not visible in live view.
9.2.2 PIP

PIP stands for Picture in Picture. You activate here the PIP mode. PIP is a small view of another channel on top of the main view. PIP has the option of ¼ or 1/9 size. You can freely move the PIP view over the main view using the keypad control or the mouse.

The select the main view channel press one of the channel buttons, to select the pip view channel press the left or right keypad button to scroll through the other channels.

9.2.2.1 PIP window view control

To access the PIP view, you can use the VIEW button by pressing multiple times to scroll to the PIP view. Or use the main menu and select PIP, either using the mouse or the arrow buttons.

- To resize and position the PIP window with the keypad:
  - Press and hold the VIEW button for a several seconds, release and press again to change from 1/9 to 1/4 and again back to 1/9. Use the arrow keys to position the PIP window. If the PIP window is positioned in one of the corners you will need to press multiple times the arrow key before the window starts moving.

- To resize and position the PIP window with the Mouse:
  - Click the right button to show the Main Menu and select PIP.
  - In PIP mode, right click mouse button and you can select the PIP size ¼ or 1/9.
  - To move the PIP, click and hold with the left mouse button and drag the PIP window to the desired position.

- To exit PIP view with keypad:
  - Select with view the QUAD or PAP view. In these views you can press the Channel button to show this channel only.

- To exit the PIP view with Mouse:
  - Press right mouse button and select Exit.
9.3 Video Text Overlay

The internal overlay per channel is based on 4x lines with text, date & time and channel name-text. The 4x overlay lines can be added from the Menu ➔ Setup ➔ Video and the keyboard. Each overlay line corresponds to a Function Key on the keyboard.

F1 = Free text line with 36 characters
F2 = Free text line with 36 characters
F3 = Channel name and Free text line, total 36 characters
F4 = Date, Time & Data line (Diver depth, Diver Time, and more)

<table>
<thead>
<tr>
<th>F1 and F2</th>
<th>Free Text</th>
<th>Press F1 or F2 and type text or remove move text with Back Space.</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1 and F2</td>
<td>Hiding/Showing</td>
<td>Press CTRL-F1 or CTRL-F2 to Show and Hide overlay</td>
</tr>
<tr>
<td>F3</td>
<td>Channel Name</td>
<td>Press F3 to move Channel name and add or remove free text after channel name.</td>
</tr>
<tr>
<td>F4</td>
<td>Date, Time &amp; Data</td>
<td>Press F4 to move the Date, Time &amp; Data overlay</td>
</tr>
</tbody>
</table>

Moving Overlay

- Applies for all
- Move the position of the text line with the arrow keys of the keyboard.

Overlay Background

- The add or remove dark background behind overlay, go to Main Menu ➔ Menu ➔ Setup ➔ Setup. Scroll with Left or right arrow key to Background and select or deselect with OK.

F3 Channel Name Changing

- To change the channel name, go to: Main Menu ➔ Menu ➔ Setup ➔ Video
  - Scroll to name and change here the name, use the virtual keyboard.

F3 Channel name & F4 date & time Hiding / showing

- To hide and show the Channel name an date & time, go to: Main Menu ➔ Menu ➔ Setup ➔ Video
  - Scroll to Show name or Show time and select or deselect with OK
9.4 Camera and light control

The camera and light are switched on from the keypad. The Camera has a button with LED and the Light has a button and LED. The light intensity can be controlled with the – and + keys.

| Switch on the Camera | Select the Channel, Green LED is ON  
|----------------------|--------------------------------------  
|                      | Press camera button, the CAM yellow LED switches on  

| Switch on the Light | Select the Channel, Green LED is ON  
|---------------------|-------------------------------------  
|                     | Press light + to switch light on, the green LED indicates that the light is powered. Press and hold + to switch on the Max. light Intensity. Press and Hold – to switch the light off.  

| Light Intensity Control | Increase and decrease light intensity with + and -. Or use the Yellow Intensity Light rotation potentiometer.  

9.4.1 Camera signal

The SCC has a built in auto tunable video line driver for each camera. This video line driver allows the use of video signal over twisted pair or coax cable up to a maximum length of 600 m. Also the line driver can be set for coax cable use.

The Novasub cameras are available with video line driver for video signal over twisted pair and coax. The Novasub cameras set for Twisted Pair can also be used on Coaxial umbilical’s or cables.

The power supply to the camera is standard 32 Vdc, if required the voltage can be set to 12, 15 or 24 Vdc. This is a factory setting.*

*Only on order of SCC-2DRVL-DVR.

9.4.1 Why use video transmission over Twisted pair

Novasub has developed video transmission converters that makes it possible to transfer a video composite signal over a standard twisted pair cable. The latest converters are Auto tuneable for cable length up to 600 m. All standard Novasub camera and topside control units have these video transmission converters built in. The cameras have a composite video to twisted pair signal transmitter, and the topside units have a twisted pair signal to composite video receiver.

All Novasub cables and umbilical’s, are standard fitted with screened twisted pairs (STP). These STP are used for all possible data/audio and video transmission.

Novasub does not use Coax for video signal transmission. The reason is the mainly weak and interference sensitive Coax cable.

NOVASUB umbilical and cable uses video signal transmission over shielded twisted-pairs (STP). The advantages of twisted-pair are:

- more reliable video transmission through less interference( electromechanical- or radio frequency interference)
- higher movability through higher flexibility
- STP is a stronger cable then coax
- higher flexibility in applications, twisted-pair cabling is the standard in data transfer worldwide
- easier to install/repair/handle

9.4.2 Light controller

The SCC-2DRVL-DVR is standard fitted with a LED light controller that matches the Novasub LUX3 and LUX6 lights. The LED controller regulates the Ampere from 0-1,6 A at 32 vdc.

An Halogen light bulb up to max. 25/30 watts can also be controlled directly from the LED-controller. Also other brands of LED light can be controlled, however they need to be internal protected against a max.of 1,6 Amp. Current and a 32 Vdc voltage.

If required the max. output Ampere can be set to a lower and higher value. This is a factory setting.
9.5 Recording

The SCC-2DRVL-DVR has a quick start recording button per channel. Once clicked it will start recording immediately. If in the DVR Setup menu the status is selected, then a small rec icon will appear on the monitor indicating that video is being recorded. Also the red LED on the button will lit-up when recording.

The files are automatically recorded in max. file size of 260 Mb each. During recording the NSDVR2 will automatically make a new file. The time per file depends on the video quality set in the setup-record menu.

| Recording | Press Rec to start recording, Red LED is on  
Press Rec to stop recording, Red LED is off |

9.6 Snapshot

The DVR has a snapshot function. The snapshot will only be made of the selected channel. The snapshot button, when pressed, makes an image file of the video image seen at that moment. The snapshot includes the text overlay as seen in the preview an recording.

When the snapshot button is pressed a black status indication will appear, “Snapshot OK”

The snapshots are stored on the Hard Disk in a JPG format with the same resolution as the recording resolution.

The Snapshot function automatically generates a file name.

The file name is based on the channel number, date and time; chn120140620150802
chn1 2014-06-20 15:08:02
Channel 1 date Time

| Snapshot | Select the Channel, Green LED is ON
Take a picture of the video image, select the channel and press SNAP Button. The snapshots are stored on the hard disk. |

The snapshot files cannot be viewed back with the SCC-1VL-DVR. You can only backup them to a memory stick and view on a PC. See Chapter 9.10
9.7 Playback

The video files recorded can be played back using the DVR player. To quickly access the Play menu, press the Play button on the keypad.

<table>
<thead>
<tr>
<th>Playback recorded files</th>
<th>Press Play button to access Playback search menu. Use the Scroll arrows to go through the menu’s</th>
</tr>
</thead>
</table>

Press OK to select All channels or select channel 1, 2, 3 or 4, and scroll with right and left arrows key to next item in menu. Select channel. Select Type-Manual. Select the date range you want to playback and scroll to Search to open Search result list. Scroll down to file you want to play and press OK.

The Duration is automatic the current day from 00:00 to present time.

The search result shows 8 files per page. The newest file on top of the list. You can scroll to the next page with Next.

The index line shows, the channel, start date & time, and file size.

9.7.1 Playback status Bar

During playback a status bar appears which can be used to scroll through video file. To Hide status bar press right-mouse button, or CTRL-H on keyboard.

You can also use the Mouse for quick playback control.
9.7.2 Keypad & Keyboard control during playback

You can scroll through status bar icons with the left and right arrow keys, press OK to select.

<table>
<thead>
<tr>
<th>Fast forward</th>
<th>Press and Hold the Fast-Forward button for 2 seconds, repeat for each speed step. You can fast forward in 3 speeds, 2x, 4x and 8x</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fast Reverse</td>
<td>Press Fast- Reverse, repeat for each speed step. You can fast reverse in 3 speeds, 2x, 4x and 8x</td>
</tr>
<tr>
<td>Stop</td>
<td>Press Stop to stop the playback</td>
</tr>
<tr>
<td>Hide/Show status</td>
<td>Press CTRL-H on the keyboard to Hide or Show the status bar</td>
</tr>
</tbody>
</table>

9.7.3 Mouse control during playback

You can use the mouse during playback. Use the slider to scroll quickly through the video files. Press any of the icons for the corresponding function. With the right mouse button you can Hide or Show the status bar.

9.8 Audio to Speaker

When a video file with audio is played back the audio will be heard on internal the speaker. This will be automatically. There is no volume control for the audio playback.

9.9 Backup/Copy files

Use the same player to select and backup your files to an external USB storage device.

<table>
<thead>
<tr>
<th>Copy files (backup)</th>
<th>Press Play button to access Playback search menu. Use the Scroll arrows to go through the menu’s</th>
</tr>
</thead>
</table>

Search the files as described in playback (9.7) and select the files you want to backup using the FF keypad button when the file is grey highlighted or use the right mouse button to select. When the files is selected a “v” appears on the file line. You can select 8 files at the time. After selection of files click or select Backup and press OK. In the next window select avi file and press OK. A backup progress indicator will appear. Depending on the amount of files and the size it can take some minutes to complete the backup.
### 9.10 Snapshot Backup/Copy files

The snapshots are backup using the Snapshot Backup command in the Main Menu. The snapshot files cannot be playback on the DVR, they need to be stored on an external storage device and viewed on a PC.

<table>
<thead>
<tr>
<th>Snapshot backup</th>
<th>Press Menu and scroll to Snapshot Backup, press OK.</th>
</tr>
</thead>
</table>

Select Snapshot backup to copy the snapshots stored on the hard disk to the USB storage. Select the date of which you want to select the stored snapshots. Press Search to select manual the Snapshots, or press directly backup to store all snapshots of that date selection. In Search a drop list appears with the last snapshot on top. You can select a grey highlighted snapshot with the FF button, or with the mouse press right button. When the files is selected a “v” appears on the file line. You can select 8 files at the time. Only 8 snapshots are shown per page, you can scroll to the next page with Next.
10 Internal DVRP2 Menu settings

The keypad which is connected to the DVRP2 DVR control unit has a hidden Menu for overlay and light settings. The overlay settings are used to hide and show the overlay, and to set certain hardware data information to be displayed on the overlay. The lights settings are used to select the max. light control output per channel.

10.1 Main Menu DVR2

The menu has the following structure. This menu structure is based on DVRP2 v0.25

To scroll through Menu use up and down Arrows to scroll up and down in menu items. Ok and left and right arrows to select and Menu button to go back one step. The selected setting is indicated between >…< arrow symbols.

Press ESC button to leave the Main Menu.
The settings for Channel 2, 3 and 4 are the same as channel 1.
### 10.2 Menu description

Make sure that you have CH1 selected to be able to go into the Main Menu

<table>
<thead>
<tr>
<th>10.2.1 Main Menu access</th>
<th>To access the hidden Menu, press and Hold for 3 seconds the MENU button of the keypad membrane. And release.</th>
<th>The overlay will show a the MAIN MENU.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>This is the General Menu of the DVRP2 controls from the keypad Membrane to the DVR recorded</strong></td>
<td>Press OK to enter Maintenance Menu Or scroll down with down arrow key to go to Channel settings</td>
<td></td>
</tr>
<tr>
<td><strong>General settings of the DVRP2 and DVR overlay</strong></td>
<td>Press OK to enter Intern Overlay ON and Off settings. Use left and right arrow keys to select setting</td>
<td></td>
</tr>
<tr>
<td><strong>Select here to switch on and off Internal overlay text</strong></td>
<td>From Maintenance Menu scroll down to Info and press OK. This shows the version of the DVRP2 firmware.</td>
<td></td>
</tr>
<tr>
<td><strong>Shows the firmware version of the DVRP2</strong></td>
<td>From Maintenance Menu scroll down to Channel Offset and press OK. Scroll down or up to select channel offset.</td>
<td></td>
</tr>
<tr>
<td><strong>Is used only to set the units channel number in case of use of more than one SCC/SCU-xx-DVR in the NovaBus network</strong></td>
<td>From Maintenance Menu scroll down to Reset Settings and press OK. Press OK again to reset to factory default settings</td>
<td></td>
</tr>
<tr>
<td><strong>Reset settings</strong></td>
<td>From Maintenance Menu scroll down to Firmware Update and press OK to start Firmware update</td>
<td></td>
</tr>
<tr>
<td><strong>Resets DVRP2 Menu settings to factory default</strong></td>
<td>From Main Menu scroll down to Channel settings and press OK</td>
<td></td>
</tr>
<tr>
<td><strong>Each channel has settings for data input from the DDG (Novasub digital depth Gauge) and light output control settings</strong></td>
<td>From Channel x Settings scroll down to Show DSI depth and press OK Select ON if you have a pressure sensor connected to the DSI PCB board analog input.</td>
<td></td>
</tr>
<tr>
<td><strong>Show DSI Depth</strong></td>
<td>From Channel x Settings scroll down to Show DDG depth and press OK Select DSI for DDG connected with rs232 port to DSI. Select DDG for DDG connected to NovaBus</td>
<td></td>
</tr>
<tr>
<td><strong>The DSI depth is the depth input from the DSI pcb board installed in the SCU/SCU unit. This board has an analog input HART and 4-20 ma, which is used to convert the depth sensor signal to the video overlay</strong></td>
<td>From Channel x Settings scroll down to Show DDG divetime and press OK Select ON to show on overlay</td>
<td></td>
</tr>
<tr>
<td><strong>Show DDG Depth</strong></td>
<td>From Channel x Settings scroll down to Show DDG time and press OK Select ON to show on overlay</td>
<td></td>
</tr>
<tr>
<td><strong>This shows the depth from the DDG, digital depth gauge, either through the rs232 port of the DSI or directly from DDG connected to the NovaBus input of the SCC/SCU.</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
10.2.12 Set light Type

Here you can select the control output for our standard two LED lights, the LUX3 and LUX6.

If you set to LUX3, then full control of the light will output 0.8 A (LUX3 maximum), if you set to LUX6 than the output will be 1.7 A (LUX6 maximum).

From Channel x Settings scroll down to Set Light type and press OK. Select LUX3 or LUX6.
11 DVR Main Menu
The follow chapter describes the complete NSDVR2 menu. The NSDVR2 has a menu for all settings and control and backup. The main menu is opened when you press MENU or use the right mouse button. The first time after startup you will access a login menu, press 2x ➤ and OK. If you have set different users and levels you can select another user in this menu. The Main Menu has the following selections:

<table>
<thead>
<tr>
<th>1CH</th>
<th>1 channel view, select channel</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIP</td>
<td>Picture in Picture view</td>
</tr>
<tr>
<td>PAPH</td>
<td>Picture and picture view, horizontal</td>
</tr>
<tr>
<td>PAPV</td>
<td>Picture and picture view, vertical</td>
</tr>
<tr>
<td>Elec Zoom</td>
<td>Zoom area (only with Mouse)</td>
</tr>
<tr>
<td>Spot</td>
<td>Select channel for spot view (not applicable for SCC units)</td>
</tr>
<tr>
<td>Snapshot backup</td>
<td>Search and select snapshots to backup to USB device</td>
</tr>
<tr>
<td>Playback</td>
<td>Opens playback search and select</td>
</tr>
<tr>
<td>Record</td>
<td>Start and stop channel to record</td>
</tr>
<tr>
<td>Mute</td>
<td>Mute is no sound to audio output and Sound is audio active to audio output</td>
</tr>
<tr>
<td>Menu</td>
<td>Opens sub menu’s</td>
</tr>
</tbody>
</table>

11.1 1 Channel (1 CH)
Here you can select after pressing Menu which channel to see as main. Quick access is by pressing the Channel button on the keypad. When the channel is selected the green LED will go on.

11.2 PIP
PIP stands for Picture in Picture. You activate here the PIP mode. PIP is a small view of another channel on top of the main view. PIP has the option of ¼ or 1/9 size. You can freely move the PIP view over the main view using the keypad control or the mouse.

The select the main view channel press one of the channel buttons, to select the pip view channel press the left or right keypad button to scroll through the other channels

11.2.1 PIP window view control
To access the PIP view, you can use the VIEW button by pressing multiple times to scroll to the PIP view. Or use the main menu and select PIP, either using the mouse or the arrow buttons.

- To resize and position the PIP window with the keypad:
  Press and hold the VIEW button for a several seconds, release and press again to change from 1/9 to 1/4 and again back to 1/9. Use the arrow keys to position de PIP window. If the PIP window is positioned in one of the corners you will need to press multiple times the arrow key before the window starts moving.

- To resize and position the PIP window with the Mouse:
  Click the right button to show the Main Menu and select PIP. In PIP mode, right click mouse button and you can select the PIP size ¼ or 1/9 To move the PIP, click and hold with the left mouse button and drag the PIP window to the desired position.

- To exit PIP view with keypad:
  Select with view the QUAD or PAP view. In these views you can press the Channel button to show this channel only.

- To exit the PIP view with Mouse:
  Press right mouse button and select Exit.

11.3 PAPH
PAP stands for Picture and Picture, PAPH shows the 2 channels vertical one above the other.

11.4 PAPV
PAPV shows to channel horizontal side by side.
11.5 Elec Zoom
You can zoom with the mouse into the video. Drag with the mouse left button a rectangular of the area you want to zoom. Press right mouse button to cancel.

11.6 Spot
Note: Spot is not applicable for the SCC-2DRVL-DVR

11.7 Snapshot backup
Select Snapshot backup to copy the snapshots stored on the hard disk to the USB storage.
Select the date of which you want to select the stored snapshots.
Press Search to select manual the Snapshots, or press directly backup to store all snapshots of that date selection.
In Search a drop list appears with the last snapshot on top.
You can select a grey highlighted snapshot with the FF button, or with the mouse press right button. When the files is selected a “v” appears on the file line. You can select 8 files at the time.
Only 8 snapshots are shown per page, you can scroll to the next page with Next.
11.8 Playback

Select playback to access the Playlist search menu.

Or

Press Play button to access Playback search menu.

Press OK to select All channels or select channel 1, 2, 3 or 4, and scroll with right and left arrows key to next item in menu. Select channel. Select Type-Manual, Select the date range you want to playback and scroll to Search to open Search result list. Scroll down to file you want to play and press OK.

You can also press Playback, then the player will start with the latest file first and will play all files of the duration (date and time) set.

The Duration is automatic the current day from 00:00 to present time.

The search result shows 8 files per page. The newest file on top of the list.

The index line shows, the channel, start date & time, and file size.

During playback a status bar appears which can be used to scroll through video file. To Hide status bar press right mouse button, or CTRL-H on keyboard connected to USB of SCC/SCU DVR units.

See chapter 9.7.1 for explanation of the playback status bar

11.9 Backup

Use the same player to select and backup your files to an external USB storage device. Search the files as described in playback and select the files you want to backup using the FF keypad button when the file is grey highlighted or use the right mouse button to select. After selection of files click or select Backup and press OK.

In the next window select avi file and press OK. A backup progress indicator will appear. Depending on the amount of files and the size it can take some minutes to complete the backup.

11.10 Record

Select Record to start and stop recording using the arrow keys and OK, or with Mouse. Quick record start en stop is with dedicated REC button on keypad.

11.11 Mute

Select Mute to close the audio from the DVR to the audio out. Mute indicates that audio is on at audio out, Click to set to OFF. Sound indicates that audio is off at the audio out, Click to set to ON.

11.12 Menu

In menu you can select 4 settings;

- **Tools;** all User and management related settings
- **Setup;** all device and video related settings
- **Log;** show log file of NSDVR2 controls
- **Shutdown;** restart and shutdown NSDVR2
11.12.1 Value editing control
In different menu's there are values which can be edited. The value’s where you can type and edit/add text and numbers are based on virtual keyboards. The virtual keyboard for numbers automatically pop-ups when you edit a value at the position.

![Virtual keyboard pop-up](image)

11.12.1.1 How to add or edit a value with the keypad:
- Go to the position with the arrow keys left and right.
- Press OK, the virtual keyboard will pop-up.
- Select the value by scrolling with the arrow keys and press OK.

To change the type of virtual keyboard, press FF key for more than 2 seconds. You can scroll through 4 different keyboards.
- Use the backspace → arrow to remove a value.

![Press FF key longer than 2 seconds and the keyboard changes](image)

The following virtual keyboards are available:

- **Numeric value**
- **Letter value**
- **Capitol Letter value**
- **Special symbols**

11.12.1.2 How to add or edit a value with the Mouse:
With the mouse you can select a value with the left mouse button. To change the virtual keyboard click on the grey button which appears when you are editing a value for the 5 different keyboards.
Use the right mouse button to go back one level.
11.12.2 Tools
The tools menu can select the following Tools submenu’s;

11.12.2.1 HDD
Format of HDD and information of Hard Disk Capacity and free capacity

11.12.2.2 User
Add and modify users and set user rights

11.12.2.3 Default
Sets selected settings to default

11.12.2.4 Upgrade
To upgrade the firmware

11.12.2.5 Time
Date & Time and date format settings

11.12.2.6 Info
Shows type of recorder and firmware version

11.12.2.7 Maintenance
Not used

11.12.3 Setup
In setup menu you can select 4 Setup sub menu’s;
- Setup; device settings
- Record; Record settings per channel
- Video; Video image settings and channel name per channel
- Network; Network connection settings

11.12.3.1 Setup Menu
The settings setup submenu are related to the device in general.

11.12.3.1.1 Device ID
The device ID can be set from 1-255 and is used for network identification.

11.12.3.1.2 Device name
The Device name is used for network identification. To change: Go to the Device name button and press OK. A small keyboard will appear, with the arrow keys and ok, select the value you want to add at the position. See 11.12.1 for more explanation how to change the values.

11.12.3.1.3 Loop record
Select “Yes”, when the HDD is full of recording, the system will overwrite the earliest video information to achieve the purpose of cycle recording. Select “No”, when the HDD is full of recording, the system will not record any more.

11.12.3.1.4 Lock time
If there is no operation within the keypad lock time, the system will cancel the current user automatically. To operate, you need to re login the system. The lock time can be: 1 minute, 2 minutes, 5 minutes, 10 minutes, 20 minutes, 30 minutes.

11.12.3.1.5 Auto switch
It shows the time interval of single channel cycle switch in preview. There are: 5 seconds, 10 seconds, 20 seconds, 30 seconds, 1 minute, 2 minutes, 5 minutes and don’t switch options.

11.12.3.1.6 Video Out Set
With the Video Out set you can adjust the horizontal and vertical image position per channel.
Plumb adjust is the vertical offset adjustment
Level adjust is the horizontal offset adjustment
11.12.3.1.7 Standard
Used to set the image format, PAL or NTSC, and it is default to PAL format.

11.12.3.1.8 Display
Set the display format of the connected monitor. If you set the resolution higher than the connected monitor the menu and text overlay will appear in live view smaller than in the recorded files. Set to 1024x768 for same text overlay size in real time view as well as recording.

11.12.3.1.9 Transparency
When the user enters the menu operation interface, he can adjust the transparency between preview image and the menu by adjusting the level of the menu transparency. Low, middle, high and opacity can be set.

11.12.3.1.10 Language
Menu language type can be set according to the requirement of user. There are English, simplified Chinese and Traditional Chinese options. More language will follow later in upgrades.

11.12.3.1.11 Show status
Setup if the preview screen show recording mode, status and enable motion detection mark and “√” means show status while blank means status not shown.

11.12.3.1.12 Background
Selection of text overlay dark background on or off. Enable mark “√” means dark background while blank means no background. You can use the dark back ground if your video image is very light coloured and the white text overlay disappears in the image.
11.12.3.2 Record Menu
In the Record menu you can adjust per channel the recording pixels size and quality.

11.12.3.2.1 Channel
Choose the number of the target channel to be set up.

11.12.3.2.2 Stream
There are two options: A/V (refer to the data stream generated by compressing the video signal and audio signal) and V (the data stream generated by compressing the single video signal).

11.12.3.2.3 Max. Bitrate
There are 128Kbps, 256Kbps, 512Kbps, 1Mbps (unit is bps) options. The specific limit size of the bit rate will be adjusted according to the scene and the camera condition and the requirement on the image quality.

11.12.3.2.4 Quality
Select the video image quality, the better the more data storage is required per hour of recording. The quality can only be selected when VBR is selected at CBR/VBR.

11.12.3.2.5 Main
There are main stream and sub stream for selection. Main stream is mainly used for recording setting while sub stream is mainly used for compressing bit stream during network transmission in order to lighten the hardware burden. You can set all other record settings for Main and Sub differently.

11.12.3.2.6 CBR/VBR
There are VBR and CBR options. When set VBR, you can configure the image quality. CBR indicates Constant Bit Rate and VBR indicates Variable Bit Rate. With VBR the file sizes are in general smaller.

11.12.3.2.7 Frame rate
Select the frame rate for recording. The frame rate is the total frames stored per second 20 fps to 25 fps gives a smooth recording. Lower frame rate will show a stammered video recording. The lower the frame rate the smaller the video file size. At D1 resolution you can record max. PAL 25fps, NTSC 30fps. at WD1 resolution you can record max. 20 fps. Note: The 1 channel NSDVR2 can record WD1 with 25 fps.

11.12.3.2.8 Resolution
The resolution settings is the total amount of pixels which are recorded. D1 = 704x576 pixels (4:3)
WD1 = 944x576 pixels (16:9)
CIF =
Half D1 =

11.12.3.2.9 Copy To
Select a channel to which you want to copy the same settings. To All you copy the settings to all channels.
11.12.3.3 Video Menu
Video image settings per channel.

11.12.3.3.1 Channel
Select the channel for the settings

11.12.3.3.2 Name
The channel name which is shown in the text overlay F3. You can edit the text, see 11.12.1

11.12.3.3.3 Show Name
Select if you want to show the name in the text overlay. When you click on Position you can place the text overlay on a different position. When you are in the live view and have the channel selected you can also move the positions after pressing F3 on the keyboard, using the arrow keys of the Keyboard.

11.12.3.3.4 Showtime
Select if you want to show the time in the text overlay. When you click on Position you can place the time overlay on a different position. When you are in the live view and have the channel selected you can also move the positions after pressing F4 on the keyboard, using the arrow keys of the Keyboard.

11.12.3.3.5 Time
Set the time for which the image settings below the time are applicable.

11.12.3.3.6 Blind
With Blind you can set an area that will not be visible on the video image. Use the Mouse to set the area. Press menu to clear all blind areas.

11.12.3.3.7 Standard (predefined image settings)
The button standard has 4 predefined image settings. We advise Soft for best video image settings.

11.12.3.3.8 Copy To
Select a channel to which you want to copy the same settings. To All you copy the settings to all channels.

Note: Press OK to confirm each setting per channel.

11.12.3.4 Network Menu
Settings for the network connection.

11.12.3.4.1 LAN
You can connect the NSDVR2 to a LAN Network. Enter here the required IP settings. By default the LAN is set to DHCP, the network to which the SCC will be connected determines the IP address.

11.12.3.4.2 PPPoE
PPPoE is Point-to-Point Protocol over Ethernet. Set the required settings here.

11.12.3.4.3 DDNS
Use these settings for a Dynamic DNS server.
12 Using the DVR on a Network

The DVR can be used on the network. To real-time view, playback files, copy files and record. The SCC-2DRVL-DVR can be connected directly to a PC with a LAN cable or connected to an existing network.

12.1 Connecting the SCC-2DRVL-DVR to network

12.1.1 Local PC LAN connection

Connect a LAN cable directly to the LAN port of your computer.

- Go to Menu → Setup → Network → LAN
- Deselect DHCP
- Enter IP: 192.168.1.10
  - Net Mask: 255.255.255.0
  - Gateway: -.-.-.-
  - DNS: -.-.-.-

Set the LAN settings on your PC

- Go to Control Panel → Network and sharing Center → click on Local Area connection → Properties
- Scroll to Internet protocol Version 4 (TCP/IPv4) and double click or click on Properties
- Enter the following
  - IP: 192.168.1.100
  - Subnet Mask: 255.255.255.0

12.1.2 Network connection

Set first DHCP on in the LAN settings of the DVR.

- Go to Menu → Setup → Network → LAN
- Select DHCP
- Exit this menu

Connect the LAN cable between the DVR LAN and the network switch

Go to Menu → Setup → Network → LAN
View which IP is set on the DVR.
12.2 Connecting to DVR

To access the DVR over network you need to have Internet explorer on your PC.
Start Internet Explorer and type the DVR IP address in the title bar.
The following window will appear.
Press the red arrow.

The first time you will be asked to install an ActiveX component.

Confirm the installation and also the use.

Press allow
If the following pop-up appears and install.

Press Install.
If installation fails click on “Manual Installation package”

Download the file in a folder, extract and run.

12.3 Network DVR control

Close the Internet Explorer and open again.
Type the IP address and press Red arrow key.
You will enter in the Main viewing page.

Click on a black window and then at the left select Channel 1 or 2. When they turn blue a connection is made and you will see the video image.

Double click on a window to see it single channel.

12.3.1 Image control

On window, click with right mouse button and you can select controls:

- OpenAudio: The audio on this channel can be listen to on the PC
- Snapshot: Take a snapshot of the image and is stored local on the PC. The Snapshots are stored in the folder which is set in the configure window.
- **Record**: Start and stop record to local PC
  The recorded file is stored in the folder which is set in the configure window.
- **PTZ Option**: Pan, Tilt and zoom control, only for PTZ cameras
- **OSD Option**: Reposition the channel name text overlay
- **Pic Adjust**: adjust the image settings
- **Envelop**: mark an area to be blind
- **Full screen**: shows this channel image full screen

**12.4 Configure**

At the main window, at the right bottom you can select configure.
In Configure-settings window you will see 5 tabs with different settings and control of the NSDVR2
All settings changed here are stored in the NSDVR2, the same as you would change the settings in the NSDVR2 menu.

NOTE!
The settings change here are stored in the NSDVR2 menu settings.
Meaning that the changes made here are the same as making changes directly in the NSDVR2 Menu's

**12.4.1 Server parameters**

Here you can change the main and IP settings

![Server Parameter Settings](image)
12.4.2 Channel Parameters
This tab is for the recording, streaming and PTZ settings per channel
See chapter 11.12.3.2
### 12.4.3 Alarm parameters

These are alarm settings which you will not find in the regular DVR menu.

![Alarm parameters interface](image)

### 12.4.4 User Info Parameters

The User info are the users you can add for login.

![User Info parameters interface](image)

You can set per new user the rights.
12.4.5 Other settings

Here you can start recording local on the NSDVR2 and set the remote recording folder. Also time can be set.
12.5 Playback
You can access the playback window by clicking on Playback, at the bottom right in the main window. Here you can playback and download recorded files from the NSDVR2.

12.5.1 Search files
Select the channel and date range to search for a recorded file. Double click on the file in the list and it will be played. Double click on window to see single channel.

12.5.2 Download files
You can download files from the search results to a local drive on your PC. Select one file or multiple files with Shift. Select Avi and click on File Download. Select the folder where to store the files.

NOTE! If you are not allowed to download files to a folder on the PC, please check your User rights on the PC. Try to download to your Download folder on your PC or to an external USB memory stick or hard drive plugged into your PC.
# Quick start guide

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Plug in Main power cables</strong></td>
<td>Plug in external power supply 100-240 vac. The system will automatically start charging the internal battery. Even with the main power switch off.</td>
</tr>
<tr>
<td><strong>Connect diver Umbilical’s</strong></td>
<td>Connect one or two diver umbilical, diver comms optional on yellow banana sockets.</td>
</tr>
<tr>
<td><strong>Switch Main power on</strong></td>
<td>If external 100-220 Vac power is supplied the Charge Level will indicate that the battery is charging and the status of the charge by color. (solid LED) When NO external power is supplied the Battery Level is indicated by blinking LED and indicates the battery status by color.</td>
</tr>
<tr>
<td><strong>Switch main speaker ON</strong></td>
<td>Switch internal main speaker on to hear the divers</td>
</tr>
<tr>
<td><strong>Switch on the Camera and lights</strong></td>
<td>Press channel button 1 or 2, to select channel, Press camera button, the CAM yellow LED switches on Press + to switch light on, repeat to increase light intensity. Press and hold + to switch on the Max. light Intensity. LED can also be controlled with the Yellow light rotation button. Press and hold light – to switch off.</td>
</tr>
<tr>
<td><strong>Volume adjustments</strong></td>
<td>Regulate the diver and tender volume according the requirements.</td>
</tr>
<tr>
<td><strong>Recording</strong></td>
<td>Press Rec to start recording, Red LED is on Press Rec to stop recording, Red LED is off</td>
</tr>
<tr>
<td><strong>Snapshot</strong></td>
<td>Take a picture of the video image, select the channel and press SNAP Button. The snapshots are stored on the hard disk.</td>
</tr>
<tr>
<td><strong>Main Menu</strong></td>
<td>Press MENU Button to access the main menu. Use the Left and Right arrow key to scroll to next item. Use UP and Down arrow keys to scroll up and down in item. Use OK to select or confirm. Use ESC to go back one level or cancel.</td>
</tr>
<tr>
<td><strong>Playback recorded files</strong></td>
<td>Press Play button to access Playback search menu. Press OK to select All channels or select channel 1 or 2, and scroll with right and left arrows key to next item in menu. Select channel. Select Type-Manual, Select the date range you want to playback and scroll to Search to open Search result list. Scroll down to file you want to play and press OK</td>
</tr>
<tr>
<td><strong>Copy files (backup)</strong></td>
<td>Insert a USB-memory stick or USB hard drive in DVR USB slot. Press Play button to access Playback search menu. Press OK to select All channels or select channel 1 or 2, and scroll with right and left arrows key to next item in menu. Select channel. Select Type-Manual, Select the date range you want to backup and scroll to Search to open Search result list. Scroll down to file you want to backup and press FF button to select. You can select multiple files or all files of one page. Scroll to Backup and press OK Select *avi file format and press OK</td>
</tr>
<tr>
<td><strong>Snapshot backup</strong></td>
<td>Insert a USB-memory stick or USB hard drive in DVR USB slot. Press Menu and scroll to Snapshot Backup, press OK. Select the date you want to search or backup. In Search scroll to the snapshots you want to backup and select with FF button, or select all. Go to backup and press OK</td>
</tr>
<tr>
<td><strong>VIEW</strong></td>
<td>Press VIEW button to scroll through, one channel view, PAP (Picture and Picture) and PIP (Picture in Picture) view.</td>
</tr>
</tbody>
</table>
14 Video Text Overlay Basic Instructions

The internal overlay per channel is based on 4x lines with text, date & time and channel name-text. The 4x overlay lines can be added from the Menu → Setup → Video and the keyboard. The overlay text is white and can be highlighted with a grey background in light video conditions. Each overlay line corresponds to a Function Key on the keyboard.

F1 = Free text line with 36 characters
F2 = Free text line with 36 characters
F3 = Channel name and Free text line, total 36 characters
F4 = Date, Time & Data line (Diver depth, Diver Time, and more)

<table>
<thead>
<tr>
<th>Function Key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1 and F2 Free Text</td>
<td>Press F1 or F2 and type text or remove move text with ← Back Space.</td>
</tr>
<tr>
<td>F1 and F2 Hiding/Showing</td>
<td>Press CTRL-F1 or CTRL-F2 to Show and Hide overlay</td>
</tr>
<tr>
<td>F3 Channel Name</td>
<td>Press F3 to move Channel name and add or remove free text after channel name.</td>
</tr>
<tr>
<td>F4 Date, Time &amp; Data</td>
<td>Press F4 to move the Date, Time &amp; Data overlay</td>
</tr>
<tr>
<td>Moving Overlay Applies for all</td>
<td>Move the position of the text line with the arrow keys of the keyboard.</td>
</tr>
<tr>
<td>Overlay Background</td>
<td>The add or remove dark background behind overlay, go to Main Menu → Menu → Setup → Setup. Scroll with Left or right arrow key to Background and select or deselect with OK.</td>
</tr>
<tr>
<td>F3 Channel Name Changing</td>
<td>To change the channel name, go to: Main Menu → Menu → Setup → Video Scroll to name and change here the name, use the virtual keyboard.</td>
</tr>
<tr>
<td>F3 Channel name &amp; F4 date &amp; time Hiding / showing</td>
<td>To hide and show the Channel name an date &amp; time, go to: Main Menu → Menu → Setup → Video Scroll to Show name or Show time and select or deselect with OK.</td>
</tr>
</tbody>
</table>
15 Panel Connections

The SCC-2DRVL-DVR has connectors on the front panel and at the backside. The following connectors are on the front panel.

15.1 DVR USB

Two USB connection to the DVR. They can be used to connect a Mouse and a USB storage device. With the Mouse you can fully control the DVR Menu. The USB storage device is used to backup/copy the recorded video and snapshot files.

15.2 DVR LAN

The LAN connection is a standard RJ45 network connection. The network connection can be used to view and operate the DVR with a PC using the Internet Explorer browser or a CMS software.

15.3 Keyboard

USB connection for keyboard. The keyboard is only to control the video overlay text and playback menu.

15.4 Video Out

The video out is a composite video signal direct from the camera video signal. The connector is a 75 ohm BNC connector.

15.5 Audio Out

The audio out is the audio from the diver and tender per channel.

15.6 HDMI output

On the front panel there is a HDMI output which duplicates the DVR monitor view. It is the same view as the build in monitor.

15.7 Mic/Headset

The Mic/Headset connector can be used to connect the Mic/headset or only a handheld MIC.

<table>
<thead>
<tr>
<th>Mic/Headset</th>
<th>SCC 01-019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Bulgin, PX0412/08S</td>
</tr>
<tr>
<td>Mating type</td>
<td>PX0410/08P</td>
</tr>
<tr>
<td>Function</td>
<td>Pin layout</td>
</tr>
<tr>
<td>12 vdc</td>
<td>1</td>
</tr>
<tr>
<td>PTT</td>
<td>2</td>
</tr>
<tr>
<td>Speaker/mic</td>
<td>3</td>
</tr>
<tr>
<td>Int. Mic off</td>
<td>4</td>
</tr>
<tr>
<td>Mic +</td>
<td>5</td>
</tr>
<tr>
<td>Speaker +</td>
<td>6</td>
</tr>
<tr>
<td>nc</td>
<td>7</td>
</tr>
<tr>
<td>nc</td>
<td>8</td>
</tr>
</tbody>
</table>
16 Top connections
The SCC-2DRVL-DVR is fitted standard with connectors on top of the case.

16.1 Power supply
The Power supply connector is a standard IEC C14 connector socket.

<table>
<thead>
<tr>
<th>Power</th>
<th>IEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>C14</td>
</tr>
<tr>
<td>Mating type</td>
<td>C13</td>
</tr>
</tbody>
</table>

16.2 Main cable connection
The camera and light connector is a multipin connector. Different types and makes can be used, depending on the clients requirements.

16.2.1 Standard connector, SCC-01-10c/11c
The SCC-2DRVL-DVR is standard fitted with a 10 pins multipin connector.

<table>
<thead>
<tr>
<th>Diver 1&amp;2</th>
<th>SCC 01-10c / 11c</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Souriau, UTS 71210S</td>
</tr>
<tr>
<td>Mating type</td>
<td>UTS61C1210P</td>
</tr>
<tr>
<td>Function</td>
<td>Pin layout</td>
</tr>
<tr>
<td>GND Light</td>
<td>A</td>
</tr>
<tr>
<td>Vcc Light</td>
<td>B</td>
</tr>
<tr>
<td>GND Cam</td>
<td>C</td>
</tr>
<tr>
<td>Vcc Cam</td>
<td>D</td>
</tr>
<tr>
<td>Video +</td>
<td>E</td>
</tr>
<tr>
<td>Video -</td>
<td>F</td>
</tr>
<tr>
<td>Comms Mic</td>
<td>H</td>
</tr>
<tr>
<td>Comms Mic</td>
<td>J</td>
</tr>
<tr>
<td>Comms Head</td>
<td>G</td>
</tr>
<tr>
<td>Comms Head</td>
<td>K</td>
</tr>
</tbody>
</table>
16.2.2 Connector with sensor data, SCC-01-10d/11d
This connector also can interface a depth sensor or other sensor to the video text overlay.

<table>
<thead>
<tr>
<th>Divers 1&amp;2</th>
<th>SCC-01-10d/11d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Souriau, UTS 714E19S</td>
</tr>
<tr>
<td>Mating type</td>
<td>UTS6JC14E19P</td>
</tr>
<tr>
<td>Function</td>
<td>Pin layout</td>
</tr>
<tr>
<td>GND Light</td>
<td>A</td>
</tr>
<tr>
<td>Vcc Light</td>
<td>B</td>
</tr>
<tr>
<td>GND Cam</td>
<td>C</td>
</tr>
<tr>
<td>Vcc Cam</td>
<td>D</td>
</tr>
<tr>
<td>Video +</td>
<td>E</td>
</tr>
<tr>
<td>Video -</td>
<td>F</td>
</tr>
<tr>
<td>Depth V+</td>
<td>R</td>
</tr>
<tr>
<td>Comms Mic</td>
<td>H</td>
</tr>
<tr>
<td>Comms Mic</td>
<td>J</td>
</tr>
<tr>
<td>CP+</td>
<td>N</td>
</tr>
<tr>
<td>Data +</td>
<td>L</td>
</tr>
<tr>
<td>Data -</td>
<td>M</td>
</tr>
<tr>
<td>Depth Out+</td>
<td>P</td>
</tr>
<tr>
<td>Comms head</td>
<td>G</td>
</tr>
<tr>
<td>Comms head</td>
<td>K</td>
</tr>
</tbody>
</table>

16.2.3 Amphenol connector, SCC-01-10b/11b
Amphenol series connector compatible with client standards

<table>
<thead>
<tr>
<th>Divers 1&amp;2</th>
<th>SCC-01-10b/11b</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Amphenol, MS3102A-20-29S</td>
</tr>
<tr>
<td>Mating type</td>
<td>MS3106A-20-29P</td>
</tr>
<tr>
<td>Function</td>
<td>Pin layout</td>
</tr>
<tr>
<td>GND Light</td>
<td>J</td>
</tr>
<tr>
<td>Vcc Light</td>
<td>K</td>
</tr>
<tr>
<td>GND Cam</td>
<td>F</td>
</tr>
<tr>
<td>Vcc Cam</td>
<td>G</td>
</tr>
<tr>
<td>Video +</td>
<td>A</td>
</tr>
<tr>
<td>Video -</td>
<td>M</td>
</tr>
<tr>
<td>Comms Mic</td>
<td>C</td>
</tr>
<tr>
<td>Comms Mic</td>
<td>D</td>
</tr>
</tbody>
</table>
16.2.4 Amphenol connector, SCC-01-10e/11e
Amphenol series connector compatible with client standards, with 4 wire comms

<table>
<thead>
<tr>
<th>Divers 1&amp;2</th>
<th>SCC-01-10e/11e</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Amphenol, MS3102A-20-29P</td>
</tr>
<tr>
<td>Mating type</td>
<td>MS3106A-20-29P</td>
</tr>
<tr>
<td>Function</td>
<td>Pin layout</td>
</tr>
<tr>
<td>GND Light</td>
<td>J</td>
</tr>
<tr>
<td>Vcc Light</td>
<td>K</td>
</tr>
<tr>
<td>GND Cam</td>
<td>F</td>
</tr>
<tr>
<td>Vcc Cam</td>
<td>G</td>
</tr>
<tr>
<td>Video +</td>
<td>A</td>
</tr>
<tr>
<td>Video -</td>
<td>M</td>
</tr>
<tr>
<td>Comms Mic</td>
<td>H</td>
</tr>
<tr>
<td>Comms Mic</td>
<td>S</td>
</tr>
<tr>
<td>Comms Head</td>
<td>B</td>
</tr>
<tr>
<td>Comms Head</td>
<td>C</td>
</tr>
</tbody>
</table>

16.2.1 Comms Banana sockets
Parallel to the Comms MIC are the banana sockets connected. These can be used in a 2 wire configuration to connect the divers comms cable without the use of the Multipin connector.

<table>
<thead>
<tr>
<th>Diver 1&amp;2</th>
<th>2 pin comms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Banana sockets</td>
</tr>
<tr>
<td>Mating type</td>
<td>Banana plugs</td>
</tr>
<tr>
<td>Function</td>
<td>Pin layout</td>
</tr>
<tr>
<td>Comms MIC</td>
<td>Parallel to comms MIC multipin connector</td>
</tr>
</tbody>
</table>

16.2.2 Ext. Speakers
The external speaker banana screw sockets.

<table>
<thead>
<tr>
<th>Ext. Speaker</th>
<th>speaker output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Banana screw socket</td>
</tr>
<tr>
<td>Mating type</td>
<td>Banana plug</td>
</tr>
<tr>
<td>Function</td>
<td>Pin layout</td>
</tr>
<tr>
<td>Speaker +</td>
<td>-</td>
</tr>
<tr>
<td>Speaker -</td>
<td>-</td>
</tr>
</tbody>
</table>
16.3 Optional extra connectors

The following extra connectors can be fitted on top of the SCC-2DRVL-DVR.

16.3.1 Data In connection RS232, SCC-01-49

Data connector for data input of sensor to overlay. The SCC-2DRVL-DVR needs to be fitted with a OSD or DSI sensor interface board.

<table>
<thead>
<tr>
<th>SCC-01-49, RS232</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
</tr>
<tr>
<td>Mating type</td>
</tr>
<tr>
<td>Function</td>
</tr>
<tr>
<td>nc</td>
</tr>
<tr>
<td>nc</td>
</tr>
<tr>
<td>GND</td>
</tr>
<tr>
<td>nc</td>
</tr>
<tr>
<td>nc</td>
</tr>
<tr>
<td>nc</td>
</tr>
<tr>
<td>Rx</td>
</tr>
<tr>
<td>Tx</td>
</tr>
</tbody>
</table>

16.3.2 Data In/Out connection to DDG, SCC-01-50

The Novasub DDG, Digital diver depth gauge can be connected to the SCC-2DRVL-DVR using above connector, or in combination with the SCC-01-50 connector.

<table>
<thead>
<tr>
<th>SCC-01-50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
</tr>
<tr>
<td>Mating type</td>
</tr>
<tr>
<td>Function</td>
</tr>
<tr>
<td>V+ (OSD/DSI)</td>
</tr>
<tr>
<td>GND</td>
</tr>
<tr>
<td>V+ (Depth)</td>
</tr>
<tr>
<td>Vout+ (Depth)</td>
</tr>
<tr>
<td>Vout+ (OSD/DSI)</td>
</tr>
<tr>
<td>Rx</td>
</tr>
<tr>
<td>Tx</td>
</tr>
</tbody>
</table>

This connections make it possible to use the Novasub DDG digital depth gauge with depth sensor measurement. There are 2 ways of connecting the diver depth sensor UDS-3.

16.3.2.1 UDS-3 connected to SCC

The 2 wire UDS-3 depth sensor is wired into the multipin connector of the SCC. By using cable SCC-01-51, the UDS-3 is rewired internal to the DDG. The OSD-2 overlay boards is connected via de rs232 connection with the same cable SCC 01-51 to the DGG. The OSD-2 uses this depth input. Use cable SCC-01-51.

16.3.2.2 UDS-3 connected to DDG

The 2 wire UDS-3 depth sensor is wired to the DDG digital depth gauge. The DDG rs232 is wired to the SCC rs232 port. The SCC-OSD-2 uses the rs232 depth input to display on the overlay. Use cable SCC-01-53.
16.3.3 BoBox

The Bobox connector is needed to connect the BoBox, the comms break-out box.

<table>
<thead>
<tr>
<th>BoBox</th>
<th>SCC 01-43</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Souriau,UTS712E8S</td>
</tr>
<tr>
<td>Mating type</td>
<td>UTS6JC12E8P</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Function</th>
<th>Pin layout</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTT DIVER1</td>
<td>1</td>
</tr>
<tr>
<td>PTT DIVER2</td>
<td>2</td>
</tr>
<tr>
<td>VCC</td>
<td>3</td>
</tr>
<tr>
<td>GND</td>
<td>4</td>
</tr>
<tr>
<td>SPEAKER</td>
<td>5</td>
</tr>
<tr>
<td>MIC+VOL</td>
<td>6</td>
</tr>
<tr>
<td>MIC</td>
<td>7</td>
</tr>
<tr>
<td>nc</td>
<td>8</td>
</tr>
</tbody>
</table>

16.3.4 Low voltage DC power supply

The SCC can also be fitted with an external 10-36 Vdc input.

<table>
<thead>
<tr>
<th>SCC with external 10-36 vdc input</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vdc input</td>
</tr>
<tr>
<td>Type</td>
</tr>
<tr>
<td>Mating type</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Function</th>
<th>Pin layout</th>
</tr>
</thead>
<tbody>
<tr>
<td>nc</td>
<td>1</td>
</tr>
<tr>
<td>nc</td>
<td>2</td>
</tr>
<tr>
<td>GND</td>
<td>3</td>
</tr>
<tr>
<td>+VDC</td>
<td>4</td>
</tr>
</tbody>
</table>