

AxVIEW Video System and LED Lamp Controller for commercial diving activities

Instruction Manual



Revision 19c

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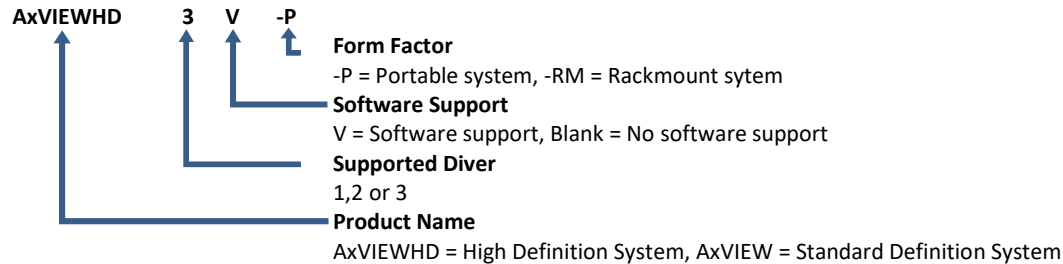
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1. Introduction

1.1 System description

The AxVIEW is a surface video system and LED lamp controller for commercial diving activities, both inshore and offshore. It incorporates video and variable light controls for up to 3 divers. The system is designed to be installed in a commercial diving unit, whether in a closed trailer, cargo container, or other. The system is available in two different versions; a rack mounted version for installation in a 19-inch rack cabinet and a portable version built inside a rugged transport case. The V line of product comes with software support for depth monitoring, video on screen display, dive data logging, audio and video recording on the computer and more. All AxVIEW systems come with video terminals to display video signal from the divers on external monitors and portable systems can optionally be equipped with built-in monitors. Other options include built-in audio-video recording on SD cards and battery backup.

1.2 Model encoding



1.3 Product lineup

Product Lineup – Portable Systems

| Portable standard definition systems | Portable standard definition system with software support | Portable high definition systems | Portable high definition system with software support |
|--------------------------------------|---|----------------------------------|---|
| AxVIEW 2-P | AxVIEW 2V-P | AxVIEWHD 2-P | AxVIEWHD 2V-P |
| AxVIEW 1-P | AxVIEW 1V-P | AxVIEWHD 1-P | AxVIEWHD 1V-P |

Product Lineup – Rackmount Systems

| Rackmount standard definition systems | Rackmount standard definition system with software support | Rackmount high definition systems | Rackmount high definition system with software support | Rackmount high definition system with software support and built-in audio-video recorder on SD card |
|---------------------------------------|--|-----------------------------------|--|---|
| AxVIEW 3-RM | AxVIEW 3V-RM | AxVIEWHD 3-RM | AxVIEWHD 3V-RM | |
| AxVIEW 2-RM | AxVIEW 2V-RM | AxVIEWHD 2-RM | AxVIEWHD 2V-RM | AxVIEWHD 2VR-RM |
| AxVIEW 1-RM | AxVIEW 1V-RM | AxVIEWHD 1-RM | AxVIEWHD 1V-RM | |

2. Safety Information

2.1 Terms in this Manual

These terms may appear in this manual:



WARNING. Warning statements identify conditions or practices that could result in injury or loss of life.



CAUTION. Caution statements identify conditions or practices that could result in damage to this product or other property.

2.2 Symbols on the product

The following symbols may appear on the product:

| | | | |
|--|---------------------------------|--|--------------------------|
| | Caution; Refer to manual | | AC (Alternating Current) |
| | Hazardous voltage | | DC (Direct Current) |
| | Mains disconnected; OFF (Power) | | |
| | Mains Connected; ON (Power) | | |

2.3 Safety Guidelines

If the equipment is used in a manner not specified in this manual, the protection provided by the equipment may be impaired. Do not attempt to use the AxVIEW without reading this instruction manual in its entirety. Make sure that you fully understand the use, displays and limitations of the product. Any confusion resulting from neglecting to follow this instruction manual or from improper use of the product may lead to serious injury or death. If you have any questions about the manual or the product, contact your AXSUB dealer before using the product.

2.3.1 Safety Guidelines - General

To avoid personal injury and prevent damage to this product or any equipment connected to it, follow these guidelines:

- Use the product only as specified in this manual or the protection provided by the product might be impaired.
- Do not operate with suspected failures. Do not use the product if it appears damaged, a foreign object is inside the product, smoke is emitted, unusual smell is emitted, it is unusually hot or if the product is not operating properly.
- Do not disassemble the product. There are no serviceable parts inside. You may receive an electric shock, or foreign matter may enter and result in a fire.

2.3.2 Safety Guidelines - Power

- **Use proper power cord.** For AC main power, use only a power cord with an IEC-320 C13 plug, a maximum of 6ft and with rated current of at least 10A. For DC battery backup power, only use cable supplied with the battery pack.
- **Use proper voltage setting.** Before applying power, ensure that the voltage from the source being used is within the limits specified for the product (100 ~ 240 VAC for AC power, 24V for battery backup).
- **Ground the product when using the main AC power supply.** This product is grounded through the grounding conductor of the power cord. To avoid electric shock, the grounding conductor must be connected to earth ground. Before making connections to the input or output terminals of the product, ensure that the product is properly grounded.
- **Do not pull or insert the AC plug if your hands are wet.** Electric shock may result.
- **Clean dust and other debris of the AC plug regularly.** If dust or other debris accumulates on the plug, humidity, etc. may cause a defect in the insulation which may result in a fire.
- **Insert the AC plug completely.** If the plug is not inserted completely, fire due to overheating or electric shock may result.
- **Do not do anything that may damage the AC cord or the AC plug.** Do not damage or modify the cord, place it near hot tools, bend, twist, or pull it forcefully, place heavy objects on it, or bundle it tightly. Continuing to use a damaged cord may result in fire, short circuit or electric shock.
- **Hold the plug when unplugging the AC plug.** Pulling on the cord may damage the cord, resulting in a fire or electric shock.
- **Keep access to Power Disconnect.** Unplugging the AC plug and battery backup plug disconnects the product from the power source. Do not block access to these terminals; they must remain accessible to the user at all times. For rackmount systems, make sure the AC male plug end is always reachable, either by plugging it in a close and easily reachable wall socket, or in a properly rated power bar or power delivery unit easily reachable on the front or the side of the rack cabinet.

2.3.3 Safety Guidelines - Environment

- **Do not expose rackmount systems or opened portable systems to water, rain, snow or direct sunlight.** When operating outside of a building, use the system in a closed trailer, a cargo container, a dive vessel, a tent or other covered environment preventing rain and water splashes from all directions.
- **Rackmount systems can only be used indoor.**
- **Only use the AC power inlet of portable systems indoor.** Always use the battery power inlet if there is a risk of condensation or high humidity.
- **When using a portable system, always cover the unmated AC inlet connector with its protective cap**
- **When using a portable system, always cover the unmated Diver connectors with their protective caps**
- **When using a portable system, always cover the unmated USB connector with its protective cap**
- **When using a portable system, always cover the unmated HDMI connectors with their protective caps**
- **Do not store drinks or liquids on the product.**
- **Keep the product surfaces clean and dry.**
- **Do not use the product around explosive gas or vapor.**
- **Do not use the product in pressurized air environment.**
- **Do not use the product above 2000m in altitude.**
- **Do not touch the product in a thunderstorm if connected with AC cable or any other cable.**
- **Do not leave this product in high temperature environment for a long period of time.** Leaving this product where it will be exposed to extremely high temperatures such as near fire or in direct sunlight may cause trouble in the internal parts. Continued use in such a resulting condition may lead to short-circuiting or insulation defects, etc. which may in turn lead to a fire or electric shocks.

2.3.4 Safety Guidelines – Battery operations

- **Only use battery packs compatible with the product.** Portable AXVIEW systems are intended to work with 24VDC lead acid battery packs that can provide at least 6Ah (the maximum power consumed by the portable AXVIEW system is 140W). AXSUB's battery pack is the B15Ah-24VDC-V3, please contact your AXSUB dealer before using any other battery pack with the product.
- **Always make sure both the battery pack and portable AXVIEW system are each properly fused before connecting them together.** The fuse on the portable AXVIEW system must be a Fast Blow 6.3A fuse with a DC rating of at least 60VDC. The 021706.3 fuse by Littlefuse Inc. is the default fuse to use with the product.
- **AXSUB Battery packs can only be charged indoors.**
- **Do not charge the battery pack while the portable AxVIEW system is in use unless the AxVIEW system is AC powered**
- **Only use the battery charger approved by AxSUB for AXSUB Battery packs.** The approved model provided with the battery pack is the GC30B-6P1J Power Adaptor with Charging Function by MeanWell.

2.3.5 Safety Guidelines – Handling and Installation

- **Do not place portable systems on unstable surface.** If balance is lost, this product may fall over or drop, resulting in an injury.
- **Install rackmount system in proper cabinet.** Secure the product in a rackmount cabinet using the screws and material provided by the cabinet manufacturer and following the manufacturer's recommendations. Make sure there is a screw in each of the 4 mounting holes, otherwise the product can fall and cause injury. Do not block side openings.
- **Do not block ventilation holes of rackmount systems.** Environment in rack cabinet with many devices can get hot and rackmount AxVIEW systems have ventilations on the side of the device to help key component cooling. Make sure there is at least 3 cm between the side of rackmount AxVIEW systems and others devices or enclosures.
- **Make sure there is no tension in the cables between the AxVIEW system and the surface anchor system.** All divers' umbilical must always be secured at the surface at an anchor point by fixing the D-Ring installed on the strength member of the umbilical to the anchor point. Take care to run the cables from the anchor point to the AxVIEW system in such a way that it is not possible to trip on the cables and that no excessive tension is applied on the cables.
- **Handle the product with care during transport.** Portable systems must always be carried by the case handle and make sure the case clips are closed before carrying.
- **Clear surface of portable systems before closing the product case.** When using a portable AxVIEW system, disconnect all equipment connected to the upper and lower panels before closing the lid of the product case.
- **DO NOT leave any accessory in the case,** including power cords, USB and HDMI cables, laptops and/or PANASONIC TOUGH PAD®. Carry those accessories in a separate container. Accessories left in the case could damage the product such as cracking the windows of optional monitors.

2.3.6 Safety Guidelines – Terminals and Equipment

- **Observe all terminal ratings.** To avoid fire or shock hazard, observe all ratings and markings on the product. Consult the product manual for further ratings information before making connections to the product.
- **Only use equipment compatible with the product.** The product is intended to work with AxDEPTH sensors, AxLIGHT35 lights, AxSEE30, AxSEE57 and AxSEE57i cameras and all their DarkWater Visions counterparts. Equipment should be connected to the product using AXSUB Video and Data Cable and proper connectors. Contact your AXSUB dealer before using any other equipment with the product.
- **Avoid looking directly at underwater LED Lamps.** To protect your eyes from damage, never look directly at the Underwater LED Lamps as the very bright light could be harmful.
- **Do not turn on underwater LED Lamps outside of water.** Axsub's AxLIGHT35 lights are designed to dissipate heat through their enclosure into water. They are not designed to dissipate heat in air. AxLIGHT35 lights are equipped with a thermal protection circuit that will automatically shut the lights if overheat condition is detected. Lights will start running again automatically once overheat condition is removed. **Do not touch a light that has been running in air with your bare hands until the light has time to cool.**
- **Do not use open ended cables.** Always protect open ended cables with appropriate dummy plugs. (SCDC8M, RMG-3MPD, MCDC3M or MCDC5M according to cables terminales)

2.3.7 Safety Guidelines – Usage

- **For professional use.** The AxVIEW and the AXSUB Dive Data Management (AxDDM) Software are intended for professional use only. Commercial or professional diving activities may expose the divers to depths and conditions that tend to increase the risk of decompression illness (DCI).

- **Only qualified personnel trained in the proper use of Surface Supplied diving equipment should use the product.** No system can replace the need for proper Supervisory and Diver training. Insufficient or improper training may cause divers to commit errors that may lead to serious injury or death.
- **Always refer to your company procedures and methods.** The AxVIEW and the AxDDM Software are intended to be working tools for the commercial diving supervisor to crosscheck information and log information that can be referred to later on. You must always maintain and keep the paper system & external stopwatch to control the dive in case of technical problems with the product and/or equipment.
- **Perform prechecks.** Always start the product and conduct a functionality check before diving in order to ensure the pressure sensors read atmospheric pressure, that the displays work adequately and that the equipment is working and correctly secured to the diver.
- **Use Back-Up Instruments.** Make sure that you use back-up instrumentation including a Pneumo gauge, submersible pressure gauge, timer or watch, and have access to copies of the decompression tables whenever diving with the Decompression modules of the AxDDM Software.
- **There is always a risk of Decompression Illness (DCI) for any dive profile even if you follow the dive plan prescribed by dive tables or by a dive computer.** No procedures, dive computer or dive table will prevent the possibility of DCI. An individual's physiological make up can vary from day to day. The dive tables used in the AxDDM software cannot account for these variations. You are strongly advised to remain well within the exposure limits provided by the instrument to minimize the risk of DCI. As an added measure of safety, you should consult a physician regarding your fitness before diving.

Always remember that **you are responsible for the safety of your dives!** When used properly, the AxVIEW and the AxDDM Software are outstanding tools for assisting properly trained, certified divers in planning and executing commercial dives. They are **not a substitute to instructions given by a certified diving supervisor** or to training in the principles of decompression.

3. Getting Started

3.1 General Specifications

| | Portable Systems | Rackmount Systems |
|----------------------------------|--|---|
| POWER INPUT | | |
| Voltage Range | 100 ~ 240 VAC | |
| Frequency Range | 50 ~ 60 Hz | |
| Alternative Current (Max.) | 1.8 A / 110 VAC | 1.0 A / 240 VAC |
| Mains supply voltage fluctuation | ±10% of the mains supply | |
| Overvoltage Category | Overvoltage Category II | |
| Battery Backup | 24 VDC (Lead Acid Battery) | |
| Battery Backup Power (Max.) | 140W | |
| POWER OUTPUT | | |
| Underwater Camera | 12 VDC (Typ.), 14V (Max.) | |
| Underwater Light | 27 VDC (Typ.), 30VDC (Max.) | |
| ENVIRONMENTAL | | |
| Operating Temperature | -20 ~ +50 °C [-4 ~ +122 °F] | |
| Humidity | 20 ~ 95 % RH non-condensing | 20 ~ 80 % RH non-condensing |
| Pollution degree | Pollution degree 3 | Pollution degree 2 |
| Ingress Protection | Transport: IP45 Operation: IP44 *See 3.7.1 - Environment | N.A. |
| PHYSICAL CHARACTERISTICS | | |
| Enclosure Type | Pelican™ iM2300 Storm Case | 2U Rackmount Aluminum and Steel enclosure |

| | | |
|--|--|---|
| Height | 17 cm [6.7 in] | 8.6 cm [3.375 in] |
| Length | 34 cm [13.4 in] | 28.3 cm [11.125 in] |
| Width | 46.2 cm [18.2 in] | 43.5 cm [17.125 in] |
| Weight | Up to 10.5 kg [22.7 lbs] | Up to 5.0 kg [11.0 lbs] |
| CONNECTORS | | |
| External Ports (All systems) | 1 – IEC C14 – Power Inlet | |
| | 1 – MS3102A14S-6P-RES – 6 pin Amphenol Battery Backup | 1 – MS3102E18-19S-RES – 10 pin Amphenol Option |
| | 1 per Diver – MS3102E18-8S – 8 pin Amphenol – Diver Camera and Light | |
| Additional External Ports (AxVIEW) | 1 per Diver – 75 Ω BNC cable jack– Camera Output | |
| Additional External Ports (AxVIEWHD) | 1 per Diver – HDMI Connector – Camera Output | |
| Additional External Ports (AxVIEW V) | 1 per Diver – 75 Ω BNC cable jack– Camera Output | |
| | 1 per Diver – 75 Ω BNC cable jack– Encoder Output | |
| | 1 per Diver – 75 Ω BNC cable jack Backup Video Input | 1 per Diver – 75 Ω BNC cable jack Video Loop for Blackbox |
| | 1 – USB B (4 pin) – USB 2.0 Female | |
| | 1 – 75 Ω BNC cable jack– Audio Input | 2 – 75 Ω BNC cable jack– Audio Input |
| Additional External Ports (AxVIEWHD V) | 1 per Diver – HDMI Connector – Camera Output | |
| | 1 per Diver – 75 Ω BNC cable jack– Encoder Output | |
| | 1 per Diver – 75 Ω BNC cable jack Backup Video Input | 1 per Diver – 75 Ω BNC cable jack Video Loop for Blackbox |
| | 1 – USB B (4 pin) – USB 2.0 Female | |
| | 1 – 75 Ω BNC cable jack– Audio Input | 2 – 75 Ω BNC cable jack– Audio Input |
| Additional External Ports (AxVIEWHD VR) | 1 per Diver – HDMI Connector – Camera Output | |
| | 1 per Diver – 75 Ω BNC cable jack– Encoder Output | |
| | 1 – HDMI Connector - PVR Output | |
| | 1 – USB B (4 pin) – USB 2.0 Female | |
| | 1 – 75 Ω BNC cable jack– Audio Input | |
| AxDDM SOFTWARE | | |
| Operating System | Windows 7, Windows 8 or Windows 10 | |
| Hard Drive Space | 500 MB minimum | |
| Video Recording | 1 GB/h per Diver | |

B15Ah-24VDC-V3

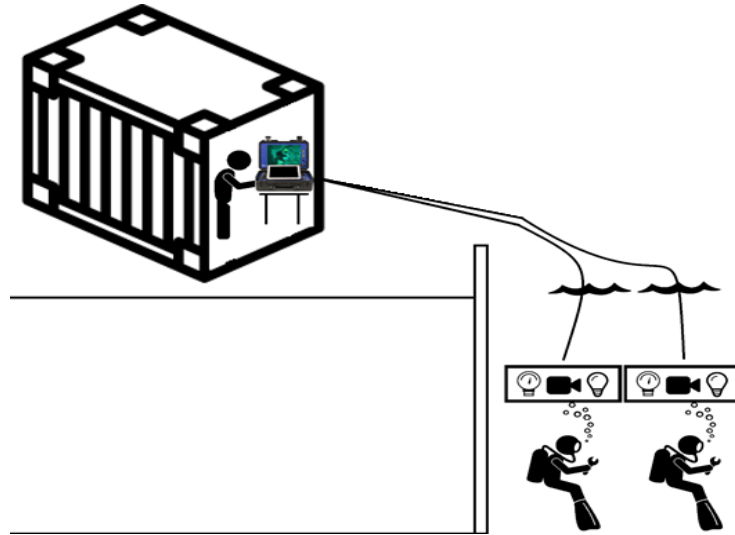
| | |
|--|---|
| OUTPUT | |
| Nominal Voltage | 24 VDC |
| Maximum output current | 6A |
| ENVIRONMENTAL | |
| Operating Temperature (charge) | -15 ~ +50 °C [5 ~ +122 °F] |
| Operating Temperature (discharge) | -20 ~ +50 °C [-4 ~ +122 °F] |
| Humidity | 20 ~ 95 % RH non-condensing |
| Ingress Protection | Transport: IP45 Operation: IP44 *See 4.1.1 – Power – Battery Pack |
| SHELF LIFE (% of nominal capacity at +20 °C [+68 °F]) | |
| 1 Month | 97% |
| 3 Months | 91% |
| 6 Months | 83% |

3.2 System Description

The AxVIEW is a surface video system and LED lamp controller for commercial diving activities, both inshore and offshore. It incorporates video and variable light controls for up to 3 divers. The system is available in two different versions; a rack mounted version for installation in a 19-inch rack cabinet and a portable version built inside a rugged transport case. The V line of product comes with software support for depth monitoring, video on screen display, dive data logging, audio and video recording on the computer and more. All AxVIEW systems come with video terminals to display video signal from the divers on external monitors and portable systems can optionally be equipped with built-in monitors. Other options include built-in audio-video recording on SD cards and battery backup.

Standard definition systems are designed to operate with AXSUB's standard definition NTSC or PAL cameras.

High definitions systems are designed to operate with AXSUB's standard definition NTSC or PAL cameras, as well as AXSUB's high definition AHD cameras.



3.3 Standard Accessories

The standard accessories delivered with the AxVIEW are:

- a) Power Cord: based upon the international power option
- b) 6 feet USB A to USB B cable (If model with software support)
- c) AXSUB Documentation USB Drive
- d) Axsub Equipment (See “3.6 Equipment”)

3.4 Optional Accessories

The optional accessories available with the AxVIEW are:

- a) Coaxial cables terminated with BNC connectors
- b) HDMI cables

3.5 System Options

The system options available for the portable AxVIEW systems are:

- a) P-OPT-FZG1 – Panasonic® TOUGHPAD® FZG1. It is Rugged Tablet computer engineered to withstand hard knocks, drops and spills and built to operate flawlessly in every environment — from intense heat and sunlight, to pouring rain and freezing temperatures. The Operating System and the AxDDM Software are pre-installed on a 128GB SSD for Video & Data Recording. The Computer can be mounted on a tilt bracket with its power supply integrated inside the AxVIEW. (Can be combined with the monitor options).
- b) P-OPT-ITPC12-256GB - Optional 12.1" Industrial Capacitive Touch Panel Computer with the AxDDM Software. The Operating System is pre-installed on a 256GB SSD for Video & Data Recording. The Computer is preinstalled into the lid panel of portable systems. (Cannot be combined with the monitor options).
- c) *P-OPT-1S13 – A single 13" sun readable monitor installed in the lid panel of portable systems
- d) P-OPT-1S13-PVR1-SD – A single 13" sun readable monitor installed in the lid panel of portable systems with single channel SD card backup video recorder (Standard Definition only)
- e) P-OPT-1S13-PVR2S – A single 13" sun readable monitor installed in the lid panel of portable systems with dual channel SD card backup video recorder for both SD and HD systems. Possibility to monitor either Diver 1, Diver 2 or both
- f) *P-OPT-2S07 – Two 7" monitors installed in the lid panel of portable systems
- g) P-OPT-2S07-PVR2-SD – Two 7" monitors installed in the lid panel of portable systems with dual channel SD card backup video recorder (Standard Definition only)

*Available in SD and HD versions

3.6 Equipment

The equipment available for use with the AxVIEW are:

a) Underwater Inspection Cameras

AxSEE30 – Small diameter wide angle underwater inspection camera, available in standard definition NTSC, standard definition PAL, or high definition AHD.



AxSEE57 – Wide angle underwater inspection camera, available in standard definition NTSC, standard definition PAL, or high definition AHD.



AxSEE57i – Wide angle underwater inspection camera with integrated electronic depth meter and water temperature sensor, available in standard definition NTSC, standard definition PAL, or high definition AHD.



b) Underwater LED Lamps

AxLIGHT35 – Powerful underwater inspection lamp with a flux of 5000 Lumens and an illuminance of 2800 Lux at 1m



c) Underwater Sensors

AxDEPTH21 – High precision depth and temperature sensor accurate up to ± 1.5 FSW



d) Video & Data Cable

Underwater cable from AXSUB. The terminated cable can be delivered with straight or right-angle connector, 3-pin pigtail for the lamp and 3-pin or 5-pin pigtail for the camera or depth sensor. Length varies according to application

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and dummy plugs are available to protect unused terminals.



- e) Optional battery pack to supply power as primary power source or as battery backup in case of primary power source fail (UPS function). We recommend using a battery pack (B15Ah-24VDC-V3) to enable the UPS battery back-up of the system. This will prevent shut down of the underwater lights and/or video loss in case of a supply source shut down or voltage drop.

B15Ah-24VDC-V3 – 15Ah (about 8 hours of runtime for 1 diver or 3 hours for 3 diver with AxLIGHT35 and AxSEE57i)



PSC-SINGLE-6BP/PSC-DOUBLE-6BP – Cable to wire 1 / 2 Battery Pack (V2, V3) to an AxVIEW

C01A-24VDC-XX with XX = NA, EU, UK – External charger for Battery Pack (V2, V3)

- f) Standard circular Dummy plugs
- SCDC8M, dummy plug for 8 pin terminated cables
 - RMG-3MPD, dummy plug for RMG-3-FS (light terminal)
 - MCDC3M, dummy plug for MCIL3F (camera terminal)
 - MCDC5M, dummy plug for MCIL5F (camera terminal)

3.7 Operating Requirements and Installation

This section contains information on how to install your AxVIEW.

- Unpack the product and check that you received all the items listed as standard accessories.
- Check that you also received any other equipment that you ordered with your product.
- If using a system with software support, install the AXSUB Dive Data Management (AxDDM) software on a computer along with all drivers.
- For portable systems, place the product on a bench or similar surface and make sure the system is balanced.
- For rackmount systems, secure the product in a rackmount cabinet using the screws and material provided by the cabinet manufacturer and following the manufacturer's recommendations. Make sure there is a screw in each of the 4 mounting holes
- Before operating, ensure that the ambient temperature is between -20°C and +50°C



WARNING. Observe all safety precautions listed in this manual before using this product and any associated equipment. This product is intended for use by qualified personnel who recognize shock hazards and are familiar with the safety precautions required to avoid possible injury. Read and follow all installation, operation, cleaning and maintenance information carefully before using the product. Refer to this manual for complete product specifications.



WARNING. Use properly rated cables and equipment.



WARNING. Do not loosen any screw on this product. There are no user serviceable components inside.

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WARNING. Before applying power, ensure that the voltage from the source being used is within the limits specified for the product.



WARNING. Always carry portable systems by the case handle and make sure the case clips are closed before carrying.



CAUTION. Clear surface of portable systems before closing the product case. When using a portable AxVIEW system, disconnect all equipment connected to the upper and lower panels before closing the lid of the product case. Also, **DO NOT** leave any accessory in the case, including power cords, USB and HDMI cables, laptops and/or PANASONIC TOUGHPAD. Carry those accessories in a separate container. Accessories left in the case could damage the product such as cracking the windows of optional monitors.



CAUTION. The clips to close the product case of portable systems should be easy to close. In order to avoid damaging the system or cracking optional monitors, do not use force to close the case. If something is preventing the case to close normally, reopen the case and look for items that could be preventing the proper closing of the case.

3.7.1 Environment

The AxVIEW is a surface video system and LED lamp controller for commercial diving activities, both inshore and offshore. The system is designed to be installed in a commercial diving unit, whether in a closed trailer, cargo container, a dive vessel, a tent or other covered environment preventing rain and water splashes from all directions. The system is available in two different versions; a rack mounted version for installation in a 19-inch rack cabinet and a portable version built inside a rugged transport case.



WARNING. Do not expose rackmount systems or opened portable systems to water, rain, snow or direct sunlight. When operating outside of a building, use the system in a closed trailer, a cargo container, a dive vessel, a tent or other covered environment preventing rain and water splashes from all directions.

The rack mounted version must be installed indoor in an area where humidity and temperature are controlled and stable. If there is a temperature difference of more than 10°C between transport vehicle and installation site, or if relative air humidity is above 65%, install the system in its rack cabinet and wait for a minimum of one (1) hour before powering ON the AxVIEW so it can reach equilibrium with its environment.



WARNING. Rackmount systems can only be used indoor.

The portable version has two (2) modes of power. One mode is AC power, which act as a primary power source, and the other mode is DC battery power, which can be a standalone primary power source or act as a fallback source when used as battery backup for the AC power. To use the AC power source, the portable AxVIEW system must be installed indoor in an area where humidity and temperature are controlled and stable. If there is a temperature difference of more than 10°C between transport vehicle and installation site, or if relative air humidity is above 65%, install the system on its work surface and wait for a minimum of one (1) hour before powering ON the AxVIEW so it can reach equilibrium with its environment. If the system is not used in an indoor environment, such as a tent or other outdoor but covered environment preventing rain and water splashes from all directions, only the DC battery power source can be used.

The portable version has an Ingress Protection rating of IP45 when in transport mode (all terminals are removed, lid is closed and latches are closed). This means that water projected by a nozzle (6.3 mm (0.25 in)) against enclosure from any direction shall have no harmful effects. It has an Ingress Protection rating of IP44 when in operation mode (lid opened). This means that water splashing against the enclosure from any direction shall have no harmful effects.



WARNING. Only use the AC power inlet of portable systems indoor. Always use the battery power inlet if there is a risk of condensation or high humidity.



WARNING. AXSUB Battery packs can only be charged indoor.

Some connectors, such as HDMI connectors, USB connector, the AC inlet of portable systems and diver terminals, come with a protective cap. Make sure the cap are installed on the connectors if they remain unused to prevent accumulation of debris inside the connectors.



CAUTION. When using a portable system, always cover the unmated connectors with their protective caps

3.7.2 Powering the AxVIEW ON and OFF

Power ON

1. Connect the power cord that was provided with the instrument to the power inlet on the main panel. Connect the power cord plug to a properly grounded electrical outlet.
2. Insert the 8-pin Amphenol connectors of the Video and Data Cables into the diver terminals and screw the locking sleeve until it is fully coupled.
3. On the diver side of the Video and Data Cables, plug the cameras, sensors and/or lights and screw the locking sleeves. Make sure every terminal on the Video and Data Cables is connected to an equipment or protected by a dummy plug.
4. Make all the connections to additional equipment (audio sources, monitors, etc.).
5. If using a V system, connect the AxVIEW to the computer with the USB cable.
6. If using a V system, wait for the computer to detect the AxVIEW subsystem peripherals and wait for the drivers to load.
7. Put the power switch on the main panel to the ON position.
8. If using a V system, start the AxDDM Software and read reference atmospheric pressure.
9. Divers can now move in water

Power OFF

1. Make sure all divers are back at the surface.
2. If using a V system, close the AxDDM Software.
3. Put the power switch on the main panel to the OFF position.
4. Unscrew the locking sleeves and unplug the cameras, sensors and/or lights from the Video and Data Cables.
5. Unscrew the locking sleeves of the 8-pin Amphenol connectors and unplug the Video and Data Cables from the diver terminals.
6. Disconnect all additional equipment
7. Remove the power cord.
8. If your AxVIEW is equipped with the optional Panasonic ToughPad®, always remove the computer from the AxVIEW enclosure and store the computer in a transportation enclosure to prevent damage during transport.
9. When closing the lid of portable systems, make sure there is no cable or material that can damage the system when closing.

3.7.3 Check the Underwater LED Lamp

1. Make sure the LED Lamp is connected to the Diver Terminal on the product by a properly terminated cable. Refer to section "4.3.2 Video and Data Cable Wiring" for design of proper terminated cables.
2. Make sure the locking sleeve is screwed between the Video and Data Cable and the LED Lamp
3. Make sure the AxVIEW is powered ON.
4. Put the LED switch to the ON position.
5. Rotate the dimming potentiometer clockwise to increase light intensity and counter clockwise to reduce it.
6. Check that the LED Lamp turns ON.
7. Check that the dimming potentiometer allows the change of light intensity.
8. Check that the LED Lamp is turned off when the LED switch is on the OFF position.



WARNING. Avoid looking directly at underwater LED Lamps. To protect your eyes from damage, never look directly at the Underwater LED Lamps as the very bright light could be harmful.



WARNING. Do not run underwater LED Lamps outside of water. Axsub's AxLIGHT35 lights are designed to dissipate heat through their enclosure into water. They are not designed to dissipate heat in air. AxLIGHT35 lights are equipped with a thermal protection circuit that will automatically shut the lights if overheat condition is detected. Lights will start running again automatically once overheat condition is removed. Do not touch a light that has been running in air with your bare hands until the light has time to cool



WARNING. Keep access to the LED switches at all time to shut down the underwater equipment in case of leak, cable damage or other problem. A short circuit in a peripheral equipment can cause the main power supply of the AxVIEW to trip.

Document ID: AxVIEW_IM_V19c

Since the AxVIEW main power supply has a Hiccup mode protection, it will automatically recover after fault condition is removed. Switching the faulted equipment to the OFF position will allow the rest of the system to keep operating while the diver is returning to the surface to change or repair the faulted equipment. The diver must always return to the surface immediately when a fault condition is detected.

3.7.4 Check the Underwater Camera

1. Make sure the camera is connected to the Diver Terminal on the product by a properly terminated cable. Refer to section "4.3.2 Video and Data Cable Wiring" for design of proper terminated cables.
 2. Make sure the locking sleeve is screwed between the Video and Data Cable and the Camera
 3. Make sure the AxVIEW is powered ON.
 4. Put the camera switch to the ON position.
 5. Check that the camera is working by using a BNC coaxial cable connected between the Camera Video Output of the AxVIEW and a powered ON monitor.
 6. If using a V system, check that the video encoders are working by connecting a USB cable between the AxVIEW and a computer and then using the AxDDM software to look at the video.
 7. If using a V system, check that the Encoder Video Output is working by using a BNC coaxial cable between the AxVIEW and a powered on monitor.
 8. Check that the camera is turned off when the Camera switch is on the OFF position.
-



WARNING. Keep access to the Camera switches at all time to shut down the underwater equipment in case of leak, cable damage or other problem. A short circuit in a peripheral equipment can cause the main power supply of the AxVIEW to trip. Since the AxVIEW main power supply has a Hiccup mode protection, it will automatically recover after fault condition is removed. Switching the faulted equipment to the OFF position will allow the rest of the system to keep operating while the diver is returning to the surface to change or repair the faulted equipment. The diver must always return to the surface immediately when a fault condition is detected.

3.8 Cleaning

Inspect the product as often as operating conditions require. To clean the surfaces, perform the following steps:

1. Remove loose dust on the surfaces with a lint-free cloth. Use care to avoid scratching the displays.
 2. Use a soft cloth dampened with water to clean the product. Use an aqueous solution of 70% isopropyl alcohol for more efficient cleaning.
-



CAUTION. To avoid damage to the surface of the product, do not use any abrasive or chemical cleaning agents.



CAUTION. Avoid getting moisture inside the unit during external cleaning. Use only enough cleaning solution to dampen the cloth or swab.

3.9 Maintenance, Service & Repair

Please contact your AXSUB's representative or contact AXSUB directly at sales@axsub.com or 1.418.731.1539 if there is any need for maintenance, service or repair on your AxVIEW unit. Only qualified personnel approved by AXSUB and who are aware of the hazards involved should remove the cover for repair, maintenance, or adjustment.

4. System Description

4.1 General Overview



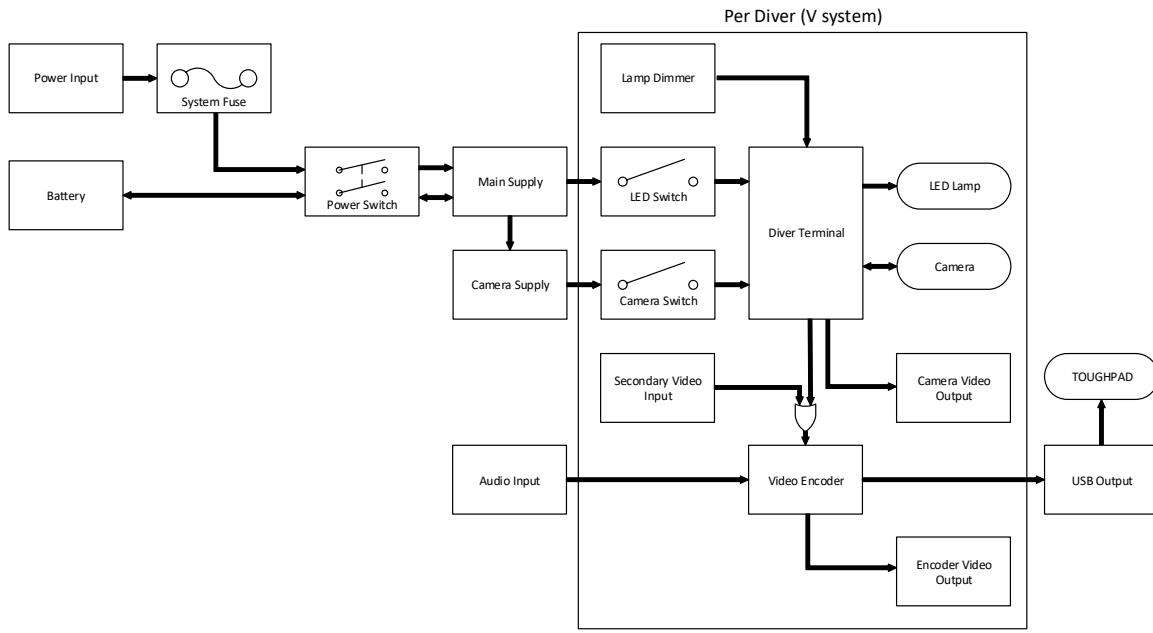
AxVIEW 2V-P with P-OPT-1S13

The AxVIEW portable systems are installed in a Pelican™ iM2300 Storm Case. Two clips on the top side of the front edge are used to open or close the lid of the case. The case handle on the bottom side of the front edge is used to transport the product. As listed in the System Options chapter, optional lid panels can be installed in the lid of the case. Some optional lid panels comes with adjustment screws on the bottom side of the rear edge that can be used to balance the system if needed when the additional weight in the lid causes the product to tilt.

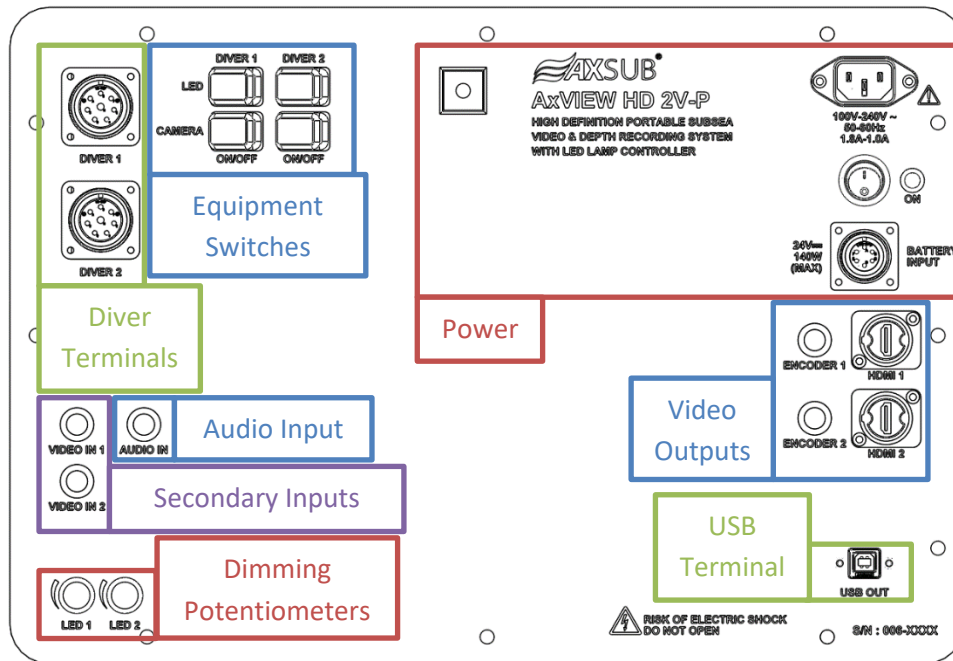


The AxVIEW rackmount systems are installed in a 19-inch rack cabinet. 4 mounting holes are required to fix the AxVIEW inside the cabinet. Use screws and material provided by the cabinet manufacturer and follow the manufacturer's recommendations.

Below is a simplified block diagram of the AxVIEW.

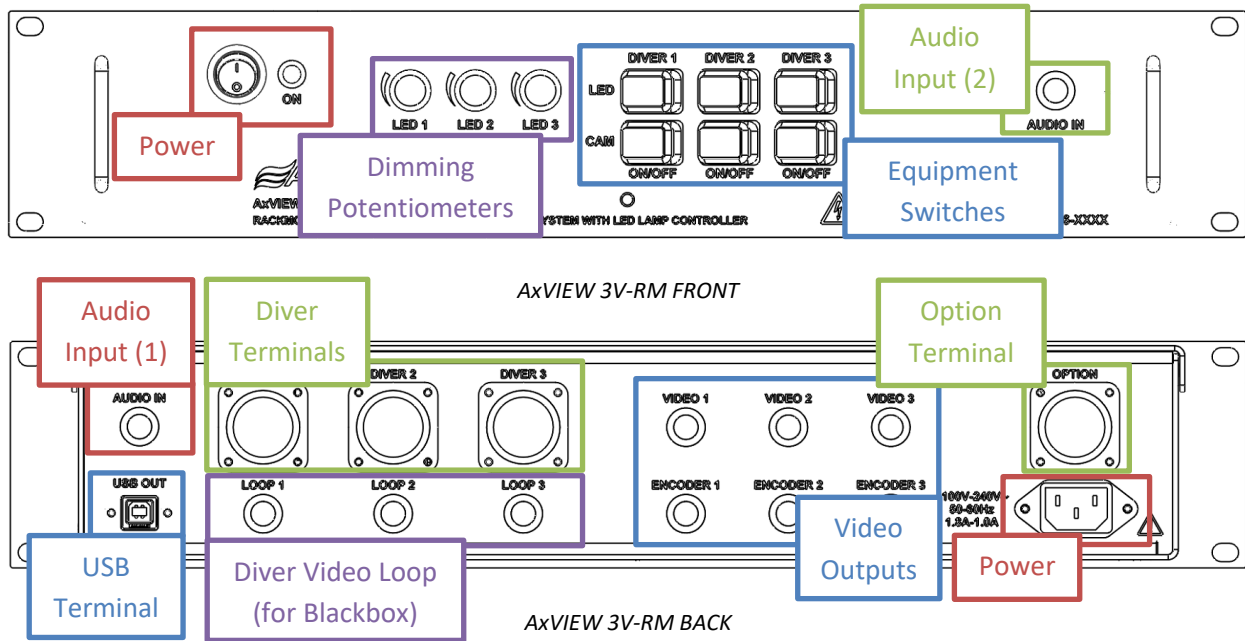


From a user point of view, this block diagram is translated into the following layout (Portable systems), which can be divided into basic functions:

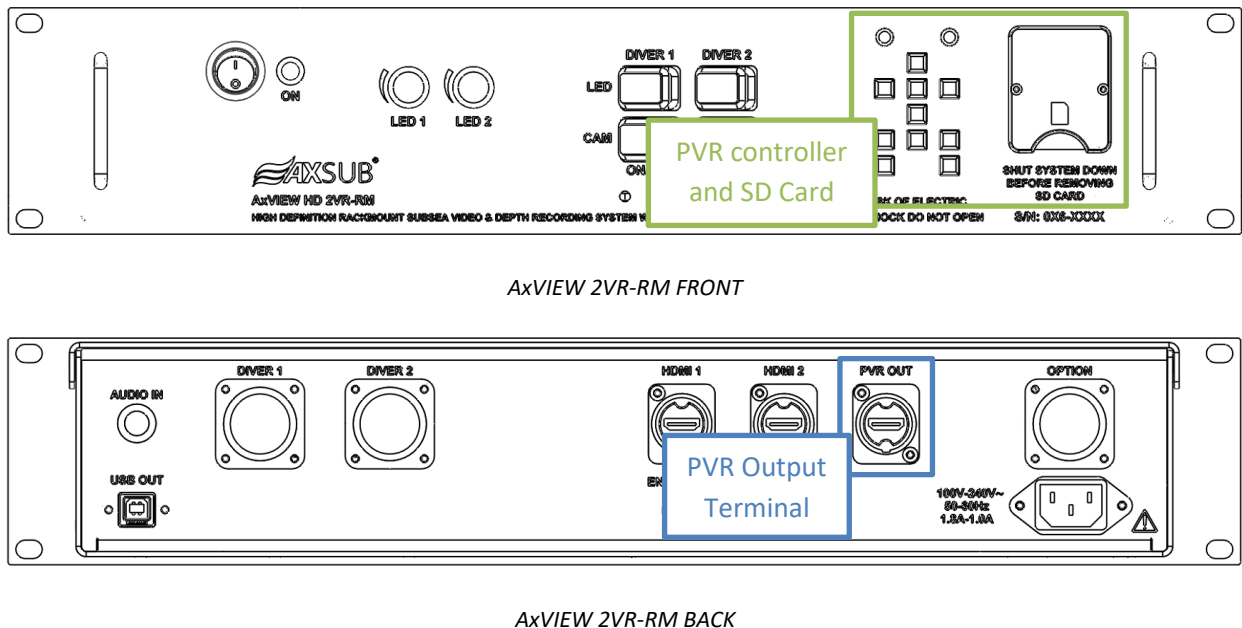


AxVIEW HD 2V-P

For rackmount systems, the equipment switches, dimming potentiometers and power switch are located on the front panel, while all terminals are located on the back panel.



The AxVIEW HD 2VR-RM integrates a secondary recording unit (PVR) as redundancy. Files are recorded on an SD Card accessible on the front panel. There is also an added controller for the PVR on the front panel and its output on the back panel. PVR OUT can be used to monitor both Diver 1 and Diver 2 and watch playback. More information about PVR features can be found in Annex A.



4.1.1 Power

Power Inlet

The power inlet of the product is an IEC C14 connector. It is used to connect a C13 connector on a power cord to the supply source. The power source must have a voltage rating between 100 and 240VAC with a frequency range between 50 and 60Hz, and the maximum current drawn by the product should not exceed 1.8A.



WARNING. *Use only the power cord specified for this product and certified for the country of use.*



WARNING. *Only use the AC power inlet of portable systems indoor. Always use the battery power inlet if there is a risk of condensation or high humidity.*



WARNING. *Before applying power, ensure that the voltage from the source being used is within the limits specified for the product.*



WARNING. *This product is grounded through the grounding conductor of the power cord. To avoid electric shock, the grounding conductor must be connected to earth ground. Before making connections to the input or output terminals of the product, ensure that the product is properly grounded.*

Power Switch

The power switch of the product is used to turn the unit On and Off.



WARNING. *Do not block the power switch; it must remain accessible to the user at all times.*

Status LED

The green LED is used to indicate that the product is powered on.

Battery Pack Fuse



WARNING. Always make sure both the battery pack and portable AXVIEW system are each properly fused before connecting them together. The fuse on the portable AXVIEW system must be a Fast Blow 6.3A fuse with a DC rating of at least 60VDC. The 021706.3 fuse by Littlefuse Inc. is the default fuse to use with the product.

Battery Pack

Optional battery pack can be used to supply power as primary power source or as battery backup in case of primary power source fail (UPS function). This will prevent shut down of the underwater lights and/or video loss in case of a supply source shut down or voltage drop.



WARNING. Only use battery packs compatible with the product. Portable AXVIEW systems are intended to work with 24VDC lead acid battery packs that can provide at least 6Ah (the maximum power consumed by the portable AXVIEW system is 140W). AXSUB's battery pack is the B15Ah-24VDC-V3, please contact your AXSUB dealer before using any other battery pack with the product.

To charge the AXSUB battery pack, use a **GC30B-6P1J Power Adaptor with Charging Function by MeanWell.**



WARNING. AXSUB Battery packs can only be charged indoor.



WARNING. Do not charge the battery pack while the portable AxVIEW system is in use unless the AxVIEW system is AC powered

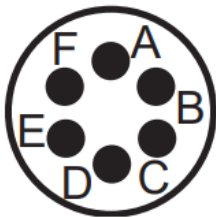
On the B15Ah-24VDC-V3 battery pack, a push button and a LED can be used to provide approximate of battery charge. Red light means the battery pack voltage is critically low and it must be charged immediately otherwise permanent degradation of cells could occur.

Orange light means the battery pack voltage is too low to be used by the AxVIEW system and it should be charged before use. Green light indicates that the voltage of the battery pack is good enough for operations.

This battery pack has an Ingress Protection rating of IP45 when in transport mode (all terminals are removed). This means that water projected by a nozzle (6.3 mm (0.25 in)) against enclosure from any direction shall have no harmful effects. It has an Ingress Protection rating of IP44 when in operation mode. This means that water splashing against the enclosure from any direction shall have no harmful effects.

Battery Backup Terminal

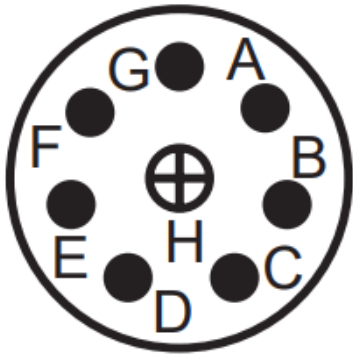
The Battery Backup Terminal on the AxVIEW portable system is a 6 pins MS3102A14S-6P-RES Amphenol Connector with the following pinout.



- A. NC
- B. NC
- C. NC
- D. NC
- E. Battery Ground
- F. Battery +24 VDC

4.1.2 Diver Terminals

The Diver Terminals are 8 pins MS3102E18-8S Amphenol Connectors with the following pinout.



- A. Video Signal
- B. Ground
- C. +12 VDC (Camera and Depth Meter Supply)
- D. RS-485 Data B (Depth Meter Signal)
- E. RS-485 Data A (Depth Meter Signal)
- F. +27 VDC (LED Lamp Supply)
- G. Ground
- H. Lamp Dimming Signal

4.1.3 Secondary Inputs

Video Inputs

Composite video input on a 75 Ohm BNC connector. There is one auxiliary video input per diver, which is used as a backup video input when there is no camera plugged in the associated Diver Terminal.



CAUTION. Do not use this video input if a camera is plugged in the associated Diver Terminal, as both video sources will be superimposed and this will corrupt the video signal.

The primary use of this connector is to allow the recording of deck cameras for systems installed on ships. For instance, a 3 Diver system can be used with the following configuration; divers in slots 1 and 2, and deck camera in auxiliary video input 3.

Audio Input

Audio line input on a BNC connector. It is designed to work with standard input levels (0.707 V RMS) and the input impedance is 10 K Ω . The audio input is split and distributed to the video encoders for each Diver channel. The primary use of this input is to record diver communications audio over the video.

4.1.4 Video Outputs

NTSC/PAL standard definition composite video outputs on a 75 Ohm BNC connector. There is one Camera Video Output and one Encoder Video Output per diver. On HD systems, the 75 Ohm BNC connector for the Camera Video Output is replaced by a HDMI connector. These outputs can be used to take the video signals out of the product and forward them to additional monitors or personal video recorders (PVR).

The Encoder Video Outputs will transmit the stream from the computer, therefore including the OSD and color enhancements introduced by the AxDDM software. The system must be connected to the computer and the AxDDM software must be running for this output to work properly.

The Camera Video Outputs will copy the stream directly from the cameras, so the video signals can still be displayed or recorded on additional systems even if no computer is used to the product.

4.1.5 Equipment Switches

The equipment switches are used to disconnect the cameras and lamps plugged in the Diver Terminals from the AxVIEW. For each Diver Terminal, there is one switch to shut down the LED Lamp power, and one switch to shut down the camera/depth meter power.



WARNING. *Keep access to the equipment switches at all time to shut down the underwater equipment in case of leak, cable damage or other problem. A short circuit in a peripheral equipment can cause the main power supply of the AxVIEW to trip. Since the AxVIEW main power supply has a Hiccup mode protection, it will automatically recover after fault condition is removed. Switching the faulted equipment to the OFF position will allow the rest of the system to keep operating while the diver is returning to the surface to change or repair the faulted equipment. The diver must always return to the surface immediately when a fault condition is detected.*

4.1.6 Dimming Potentiometers

There is one dimming potentiometer per diver. Rotate the dimming potentiometer clockwise to increase light intensity and counter clockwise to reduce it. The dimming potentiometer allows the range to go 0 to 100% of light intensity.

4.1.7 USB Terminal

The USB terminal is a USB B (4 pin) – USB 2.0 Female connector. Use a USB A to USB B connector to connect the product to a computer. The cable must comply with the requirements of chapter 6.6 of “USB Serial Bus Specification Revision 2”.

4.1.8 Serial Number

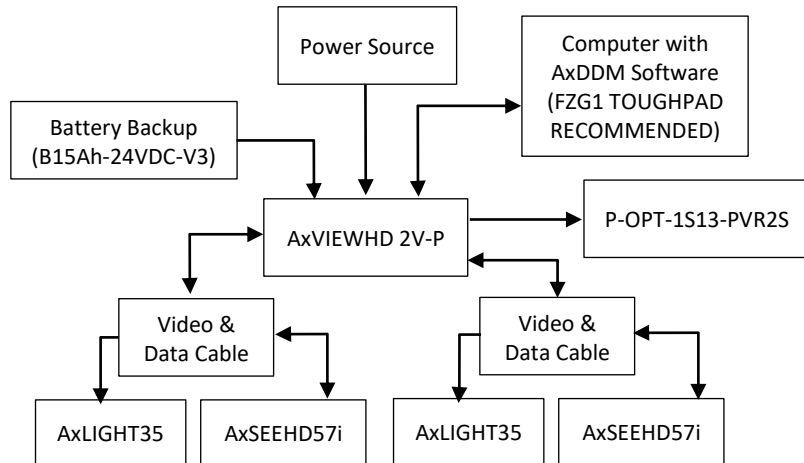
The serial number of the unit is dot peened in the bottom right corner of the product

4.1.9 Optional terminal

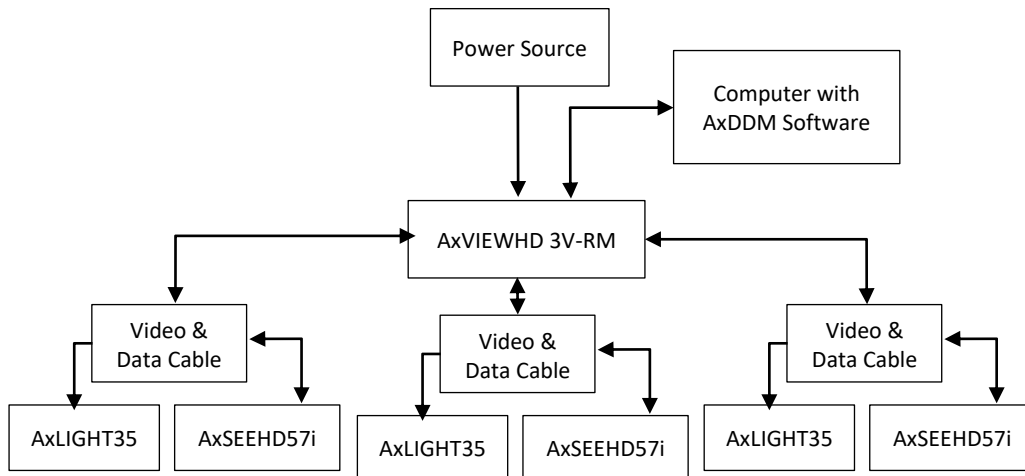
Rackmount systems can be factory equipped with optional features such as support for additional depthmeters. Please contact your AXSUB dealer to learn more about additional options for rackmount systems.

4.2 AxVIEW Equipment Connection

4.2.1 System Diagram – Fully Charged Portable System

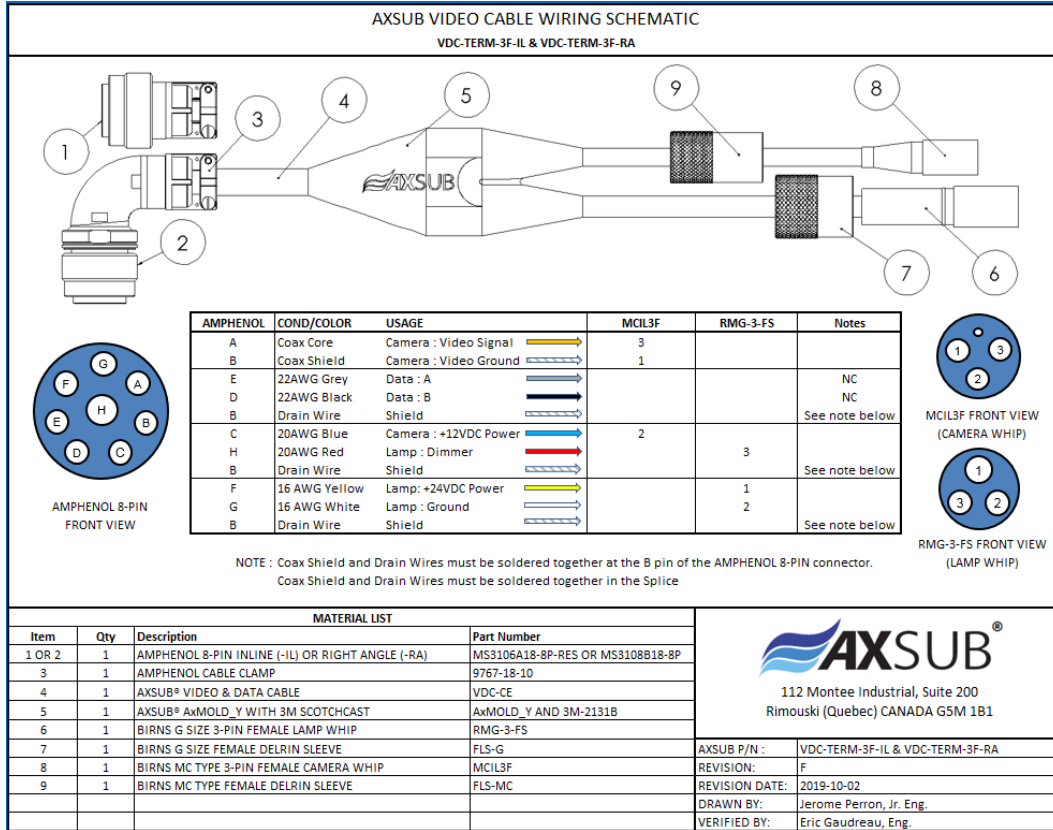


4.2.2 System Diagram – Fully Charged Rackmount System

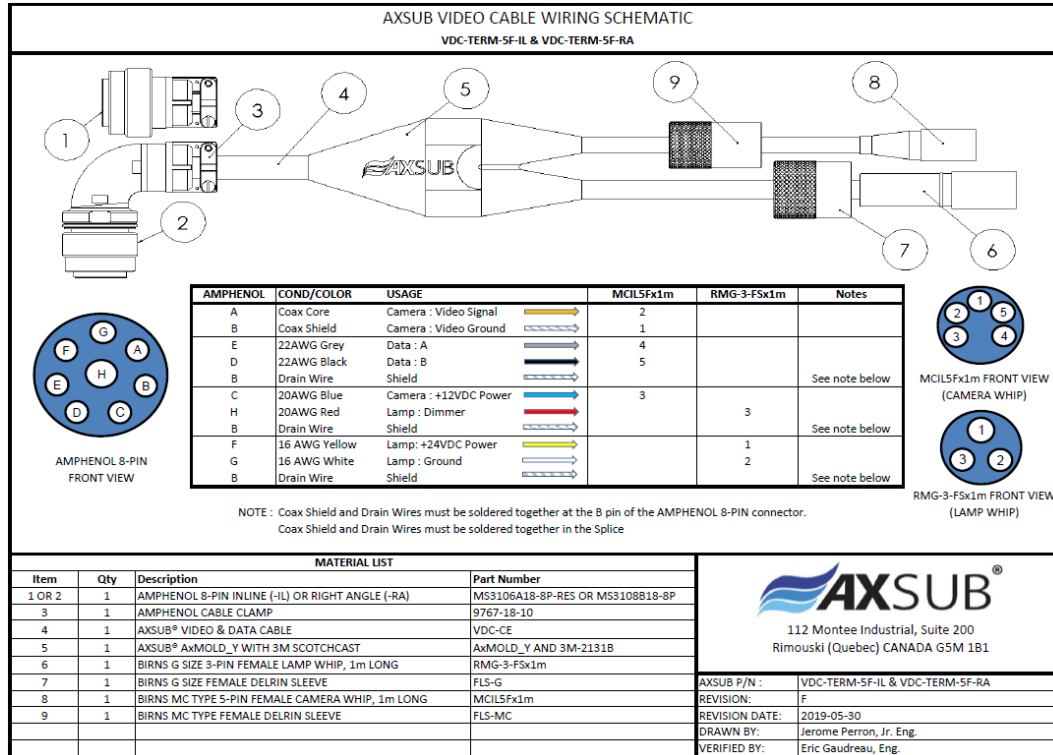


4.2.3 Video and Data Cable Wiring

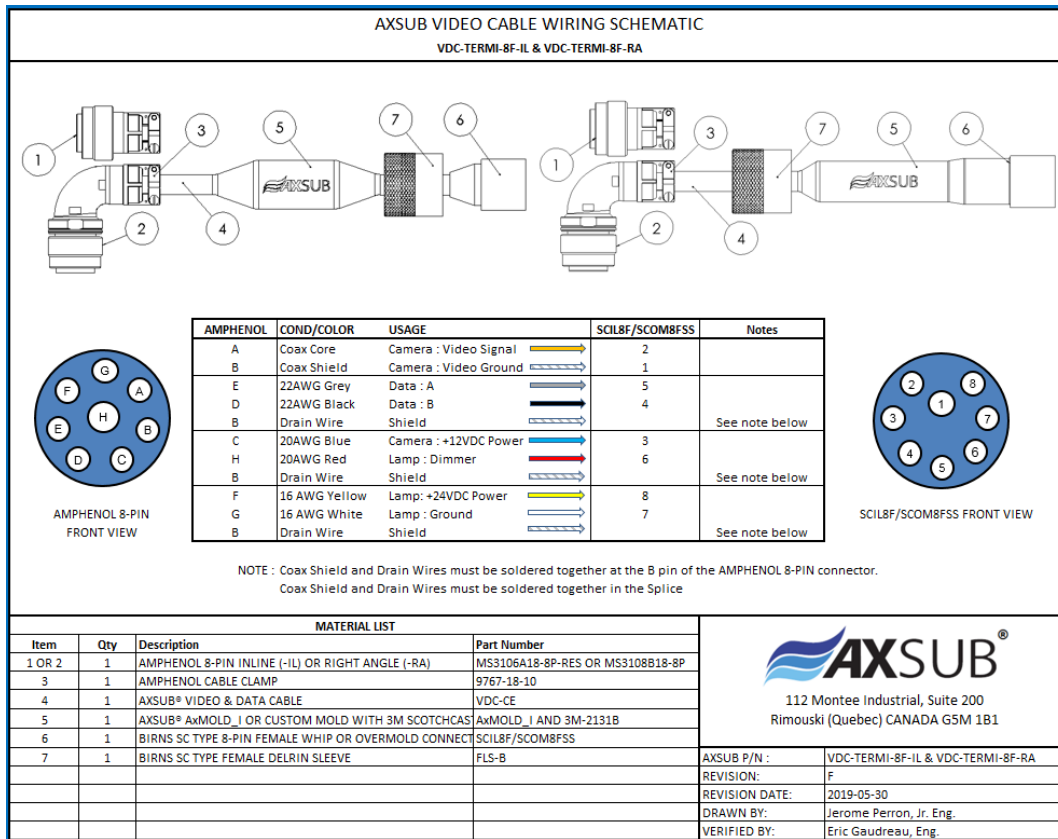
4.2.3.1 VDC-TERM-3F-IL & VDC-TERM-3F-RA



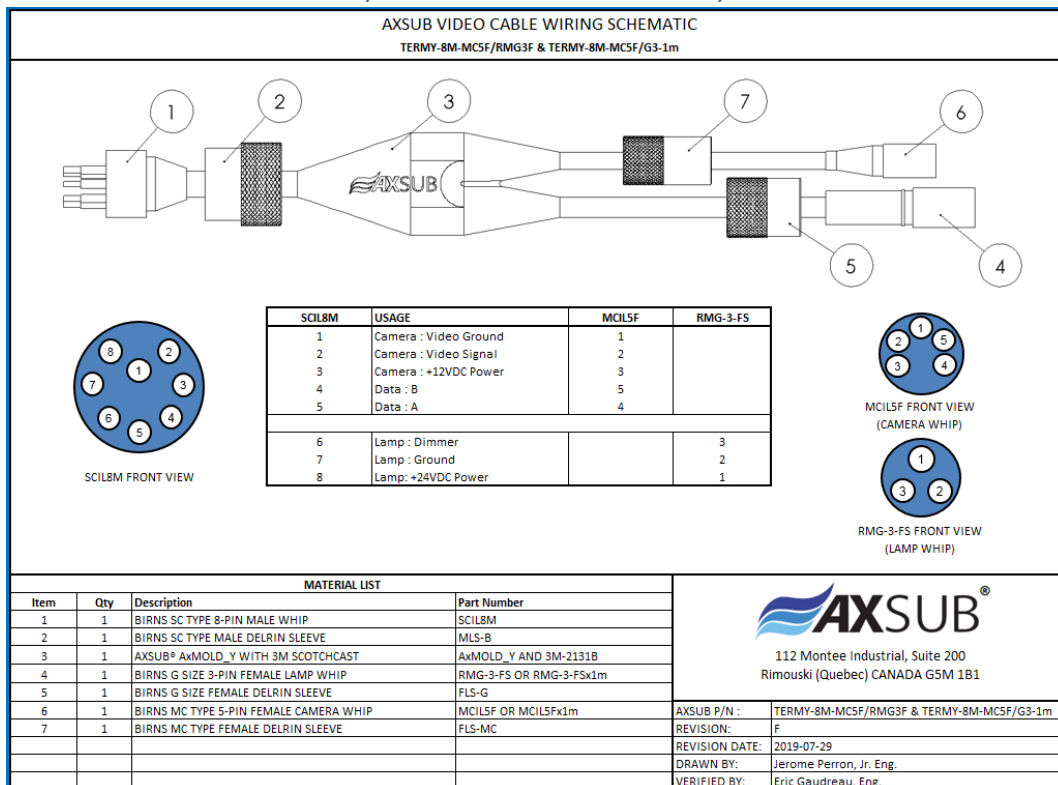
4.2.3.2 VDC-TERM-5F-IL & VDC-TERM-5F-RA



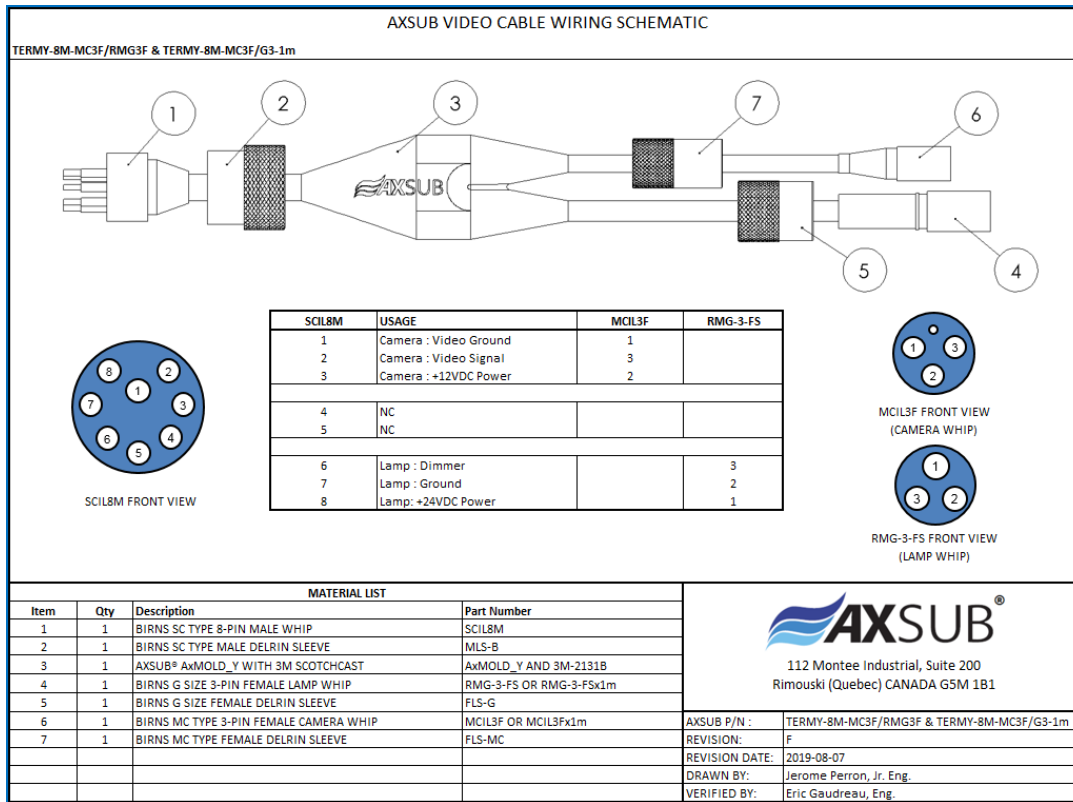
4.2.3.3 VDC-TERMI-8F-IL & VDC-TERMI-8F-RA



4.2.3.4 TERMY-8M-MC5F/RMG3F & TERMY-8M-MC5F/G3-1m



4.2.3.5 *TERMY-8M-MC3F/RMG3F & TERMY-8M-MC3F/G3-1m*



4.3 Optional Panel Overview

The portable AxVIEW systems can be equipped with optional monitors and personal video recorders (PVR) preinstalled in the lid of the case.

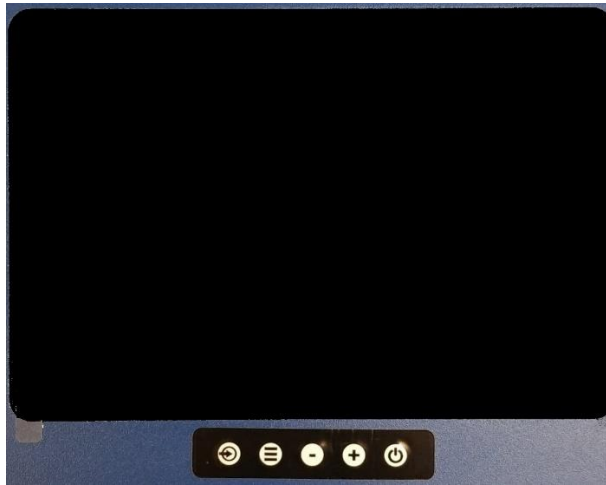
4.3.1 7 Inch Monitor






A 7in monitor with two Audio-Video Channels (AV1 and AV2) and one HDMI channel. On each system equipped with these monitors, one of the AV channel is connected to an input BNC connector on the lid panel. This connector can be used to display video coming from external sources or from the main bottom panel on the monitor.

On standard definition systems without personal video recorders, the second AV channel is internally connected to a diver camera on the main bottom panel. The signal is distributed inside the same cable that is used to deliver power to the monitor, so there is no need to plug external cables.

On high definition systems without personal video recorders, the other AV channel is unused and the HDMI channel is connected to an input HDMI connector on the lid panel. The video signal to the monitor must come from an external source, usually an HDMI cable between the top lid panel and the main bottom panel.

On systems with personal video recorders, the second AV channel is internally connected to the output stream of the PVR. The input signal is internally fed to the PVR by the same cable that is used to deliver power to the monitor, so there is no need to plug external cables. In high definition systems, the output stream of the PVR is displayed in standard definition on the monitor, but the recorded file will be in high definition. In order to display the video in high definition on the monitor, the signal must come through the HDMI connector.



| Keys | Function |
|---|------------------------|
|  | Channel Selection |
|  | Monitor menu |
|  | Decrease value in menu |
|  | Increase value in menu |
|  | Power On or Off |

4.3.2 13 Inch Monitor








A 13 inch monitors with one Audio-Video Channel (AV) and one HDMI channel.

On standard definition systems without personal video recorders, the AV channel is internally connected to a diver camera on the main bottom panel. The signal is distributed inside the same cable that is used to deliver power to the monitor, so there is no need to plug external cables.

On high definition systems without personal video recorders, the AV channel is connected to an input BNC connector on the lid panel and the HDMI channel is connected to an input HDMI connector on the lid panel. The video signal to the monitor must come from an external source, usually an HDMI cable between the top lid panel and the main bottom panel.

On systems with personal video recorders, the AV channel is internally connected to the output stream of the PVR. The input signal is internally fed to the PVR by the same cable that is used to deliver power to the monitor, so there is no need to plug external cables. In high definition systems, the output stream of the PVR is displayed in HD on the DVI channel.



| Keys | Function |
|---|------------------------|
|  | Decrease value in menu |
|  | Increase value in menu |
|  | Monitor menu |
|  | Move Down in menu |
|  | Move Up in menu |
|  | Channel Selection |
|  | Power On or Off |

4.3.3 HD Personal Video Recorder (PVR)

See annex A.

5. AXSUB Limited Warranty for AxVIEW and Accessories

This Limited Warranty is valid as of August 1st, 2012.

AXSUB Inc. (“AXSUB”) provides this limited warranty to those who have purchased the AxVIEW and/or AXSUB diving accessories and equipment. AXSUB warrants that during the Warranty Period, AXSUB or an AXSUB Authorized Service Center will, at its sole discretion, remedy defects in materials or workmanship free of charge either by a) repairing the Product or the parts, or b) replacing the Product or the parts, or c) refunding the purchase price of the Product, subject to the terms and conditions of this Limited Warranty. Your mandatory legal rights under your applicable national laws relating to the sale of consumer products are not affected by this Limited Warranty.

This Limited Warranty is only valid and enforceable in the country in which you purchased the Product, provided that AXSUB intended to sell the Product in that country. If, however, you purchased the Product in a member state of the European Union, Iceland, Norway, Switzerland or Turkey, and AXSUB originally intended to sell the Product in one of these countries, this Limited Warranty is valid and enforceable in all of these countries. The warranty service may be limited due to possible country-specific elements in the Products. Any service made during and after warranty is subject to service fee and compensation for the shipment costs incurred by AXSUB or an AXSUB Authorized Service Centre. You can have warranty service in a country other than the country in which you purchased the Product.

5.1 Warranty Period

The Warranty Period starts at the date of retail purchase by the original end-user purchaser. The Product may consist of several different parts, and the different parts may be covered by a different warranty period (hereinafter “Warranty Period”). The different Warranty Periods are:

- 1) One (1) year for the AxVIEW systems
- 2) Three (3) months for the consumable parts and accessories, including (but not limited to) rechargeable batteries, chargers, cameras, lamps, depth meters, cables, power supply (whether included in the AxVIEW sales package or sold separately).

To the extent your national laws permit, the Warranty Period will not be extended or renewed or otherwise affected due to subsequent resale, AXSUB authorized repair or replacement of the Product. However, part(s) repaired or replaced during the Warranty Period will be warranted for the remainder of the original Warranty Period or for three (3) months from the date of repair or replacement, whichever is longer.

5.2 Exclusions and Limitations

This Limited Warranty does not cover:

- 1) a) normal wear and tear, b) defects caused by rough handling (including, without limitation, defects caused by sharp items, by bending, compressing or dropping, etc.), or c) defects or damage caused by misuse of the Product, including use that is contrary to the instructions provided by AXSUB (e.g. as set out in the Product's user guide and/instruction manual), and/or e) other acts beyond the reasonable control of AXSUB;
- 2) User manuals or any third-party software (even if packed or sold with the AXSUB hardware), settings, content or data, whether included or downloaded in the Product, or whether included during installment, assembly, shipping or at any other time in the delivery chain or otherwise and in any way acquired by you;
- 3) Defects or alleged defects caused by the fact that the Product was used with, or connected to, any product, accessory, software and/or service not manufactured or supplied by AXSUB, or was used otherwise than for its intended use;
- 4) Usage with a power supply other than AXSUB product PS-24V-001;
- 5) Usage with a battery different than an AXSUB Battery Pack B05Ah-24VDC or B15Ah-24VDC;
- 6) Usage with a power source different outside limits of the power supply: 100-240VAC 50/60Hz.

This Limited Warranty is not enforceable if:

- 1) The Product has been opened, modified or repaired by anyone other than AXSUB or a AXSUB Authorized Service Centre;
- 2) The Product has been repaired using unauthorized spare parts;
- 3) The Product's serial number has been removed, erased, defaced, altered or made illegible in any way - and this shall be determined at the sole discretion of AXSUB;
- 4) The Product has been used when surrounding temperature exceed the limits of -20...50°C;
- 5) The Product has been exposed to influence from chemical products;
- 6) The Product has been cleaned with a high pressure air jet or with any other procedure than the one described in this User Manual

AXSUB does not warrant that the operation of the Product will be uninterrupted or error free or that the Product will work in combination with any hardware or software provide by a third party.

5.3 Access to AXSUB warranty service

Please access and review the online help resources available at www.axsub.com or referred to in the User Manual before seeking warranty service.

If a claim under this Limited Warranty appears to be necessary, please contact your local authorized AXSUB retailer – for contact information please visit the AXSUB website www.axsub.com or call the AXSUB Help Desk (national or premium rates may apply) for further details on how to make a claim. You will then be advised on how to bring your Product for warranty service. Should you wish to return the Product by shipping it to your local authorized AXSUB retailer, please use prepaid freight. When making a claim under this Limited Warranty you are required to include your name and address, proof of purchase and/or service registration card (AXSUB warranty registration at www.axsub.com is considered adequate for this purpose), as required in your country, which clearly indicates the serial number, name and address of the seller, the date and place of purchase, and the product type. The claim will be honored and the Product repaired or replaced at no charge and returned in a reasonable amount of time. This shall be determined at the sole discretion of AXSUB or an AXSUB Authorized Service Center. If the Product is found not to be covered by the terms and conditions of this Limited Warranty, AXSUB or an AXSUB Authorized Service Centre reserve the right to charge a handling fee.

Any claim under this Limited Warranty is subject to you notifying AXSUB or a AXSUB Authorized Service center of the alleged defect within a reasonable time of it having come to your attention, and in any event no later than before the expiry of the Warranty Period.

5.4 Other important notices

Please remember to take backup copies of all important content and data stored in your Product (if applicable) because content and data may be lost during repair or replacement of the Product. AXSUB or a AXSUB Authorized Service Centre is not responsible for any damage or loss of any kind whatsoever resulting from loss of, damage to, or corruption of content or data during repair or replacement of the Product. When the Product or a part is replaced, any replaced item becomes the property of AXSUB. If a refund is given, the Product for which the refund is given must be returned to an AXSUB Authorized Service Centre as it becomes the property of AXSUB and/or AXSUB Authorized Service Centre. When repairing or replacing the Product, AXSUB or an AXSUB Authorized Service Centre may use products or parts that are new, equivalent to new or re-conditioned.

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6. Disposal of the Device

Production of this equipment required the extraction and use of natural resources. The equipment may contain substances that could be harmful to the environment or human health if improperly handled at the product's end of life. To avoid release of such substances into the environment and to reduce the use of natural resources, we encourage you to recycle this product in an appropriate system that will ensure that most of the materials are reused or recycled appropriately.

Treat this product as electronic waste; do not throw it in the garbage. If you wish, you may return the device to your nearest AXSUB dealer.

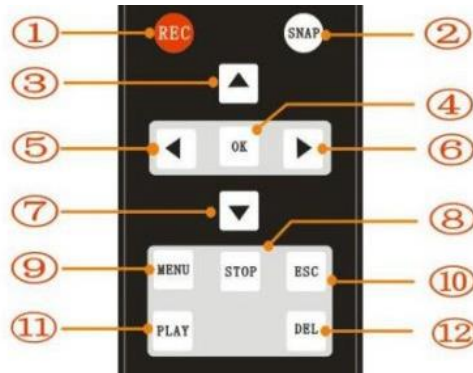
Annex A - HD Personal Video Recorder (PVR)

A dual channel high definition personal video recorder to record video on a SD card of up to 128GB, with resolution up to 1080p and framerate up to 25FPS. Recording can be configured to start recording automatically on power up.



CAUTION. Wait at least 15 seconds before removing the SD card when you power off the AxVIEW system to ensure the last file can be saved on the SD card without corrupting the file.

Controller



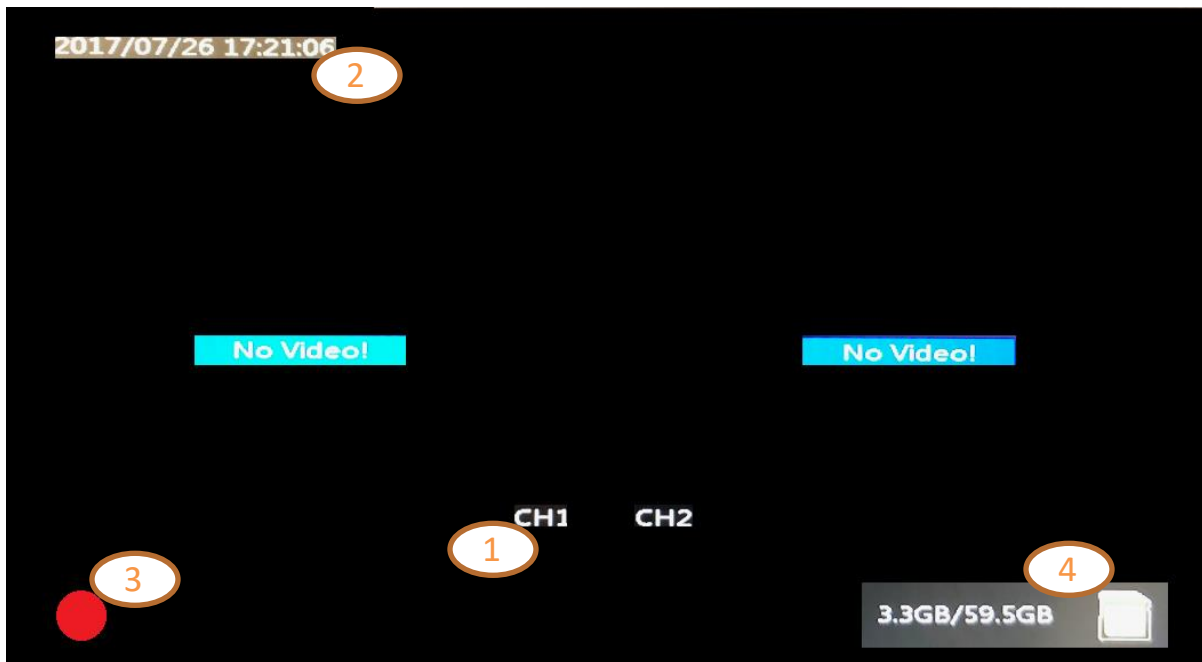
| | Keys | Function |
|----|-------------|---|
| 1 | REC | Start recording |
| 2 | SNAP | Take a snapshot of the current image |
| 3 | ▲ | Move in menu, take snapshot |
| 4 | OK | Confirm, start recording/playback |
| 5 | ◀ | Move in menu, shift preview channel |
| 6 | ▶ | Move in menu, shift preview channel |
| 7 | ▼ | Move in menu |
| 8 | STOP | Stop recording/playback |
| 9 | MENU | Enter main menu |
| 10 | ESC | Esc/return to previous menu |
| 11 | PLAY | Start/pause playback, enter playback mode |
| 12 | DEL | Delete |

HD PVR Preview and Recording Instructions

The PVR preview can be watched on the DVI input of the Portable system or through the HDMI connector labeled "PVR OUT" on Rackmount systems.

The preview and recording modes are shown in the image below. The On Screen Display (OSD) include the following information:

- 1) Channel number (CH1/CH2/BOTH)
- 2) Date and Time
- 3) Recording DOT
- 4) Memory left on SD Card and Total Card Memory



In preview mode, press "◀" or "▶" key to shift channel 1, channel 2, or both channel in one screen.

Press REC/STOP to Start or Stop recording. CH1, CH2 or BOTH channels will record regardless of what is showed on the preview screen. Check *Setup Instructions* to find out how to enter *Video Parameters* and select which channel to record.

HD PVR Playback Instructions

When in the preview mode, press the PLAY button on controller to enter the PVR video playback menu. You can also select "PLAY AVI" when in the PVR main menu. To check the snapshots, select "PLAY JPEG" from the main menu. Video and image playback use a similar menu.

Press "▲" or "▼" key to move in the menu.
Press "◀" or "▶" key to change page.

In the folder list, choose the date of the video you want to watch and press "OK".



| VIDEO PLAYBACK | | | | | |
|-----------------------------|-----------------------|----------|-------|---------|--|
| PATH: /mnt/SdCard1/20171010 | | | *.AVI | | |
| 0001 | 20171010_162123_2.avi | 00:07:24 | 5MP | 321.2MB | |
| 0002 | 20171010_162123_1.avi | 00:07:24 | 1080P | 252.4MB | |
| 0003 | 20171010_162111_2.avi | 00:00:03 | 5MP | 2.6MB | |
| 0004 | 20171010_162111_1.avi | 00:00:03 | 1080P | 2.1MB | |
| 0005 | 20171010_162050_2.avi | 00:00:13 | 5MP | 9.6MB | |
| 0006 | 20171010_162050_1.avi | 00:00:13 | 1080P | 7.5MB | |
| 0007 | 20171010_154651_2.avi | 00:04:11 | 5MP | 181.0MB | |
| 0008 | 20171010_154651_1.avi | 00:04:10 | 1080P | 140.3MB | |
| 0009 | 20171010_154605_2.avi | 00:00:15 | 5MP | 10.9MB | |
| 0010 | 20171010_154605_1.avi | 00:00:14 | 1080P | 8.0MB | |
| 0011 | 20171010_151854_2.avi | 00:18:38 | 5MP | 806.8MB | |
| 0012 | 20171010_151854_1.avi | 00:18:37 | 1080P | 634.5MB | |
| 0013 | 20171010_145132_2.avi | 00:21:50 | 5MP | 948.0MB | |
| 0014 | 20171010_145132_1.avi | 00:21:50 | 1080P | 359.3MB | |

◀ 001/003Page ▶

When in a folder, all the recorded videos will be listed. Press "OK" to watch a file. If both channels are recorded, they will both display side-to-side. Press "◀", "▶" and "OK" key to watch one or the other.

Press "▲" or "▼" key to access fast-forward or fast-backward features. Press "PLAY" to start or pause the video.

DELETE FILES ON THE SD CARD

To delete the files on the SD card, you can use your computer or the PVR directly.

When deleting with the PVR, enter the folder and find the file you want to delete. Then, press "DEL." key on remote controller to delete the selected file. You can also delete an entire folder. When a file/folder is deleted from the SD card, it cannot be recovered. It is a permanent process.

HD PVR Setup Instructions

When in the preview mode, press the MENU button on controller to enter the PVR main menu.



Press “◀”, “▶”, “▲” or “▼” key to choose different menu.

Press “OK” key to enter the menu.

A) PLAY AVI

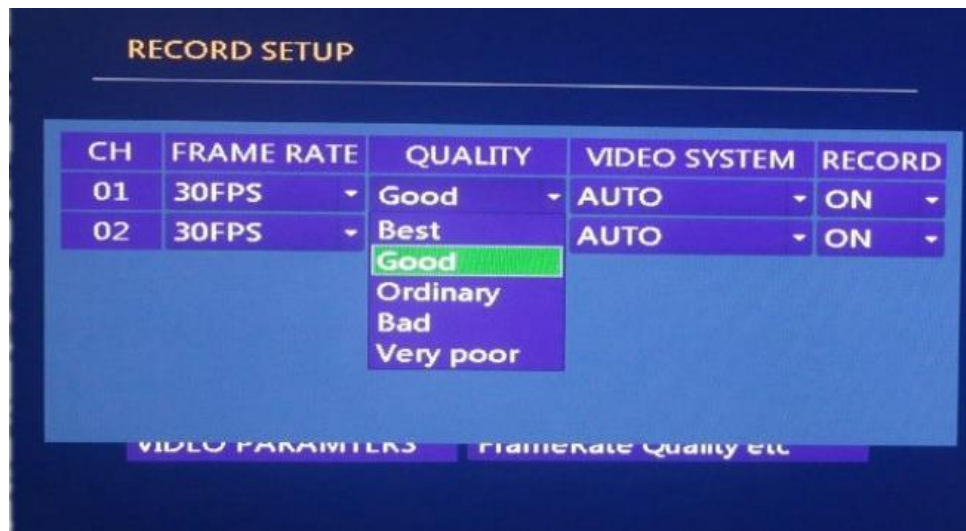
Check *Playback Instructions*

B) DISPLAY SETUP

| | |
|--------------|--|
| HDMI OUTPUT | Select the resolution of your screen 800 x 600 1024 x 768 1280 x 1024 1366 x 768 1440 x 900 1280 x 720 1920 x 1080 (default option) |
| PREVIEW MODE | Dual Channel (Both channel displayed at boot) CH1 CH2 |
| FULL SCREEN | Original (CH1 on left, CH2 on right, keep original aspect ratio) Horizontal View (CH1 on left, CH2 on right, fill the entire screen) Vertical View (CH1 on top, CH2 on bottom, fill the entire screen) |
| AVOUT | Not used |

C) REC SETUP

| | |
|---------------|--|
| RECORD MODE | Power Up Rec (Record at boot, default option) Manual Rec (After PVR power on, use REC and STOP keys) Timer Rec (PVR records on a schedule) MotionDetect (PVR only records video once it be triggered by motion detection) |
| VIDEO CLIP | 1 Minute (A new file is generated every 1 minute) 5 Minute 10 Minute 15 Minute 30 Minute (default option) |
| OVERWRITE | YES (Will erase oldest files when memory is full, default option) NO (When memory is full, PVR will stop recording) |
| TIMESTAMP | YES (Display and record timestamp) NO (Do not display and record timestamp) |
| SHUTDOWN | 0 (Not used) |
| TIMING | Timing settings (for Timer Rec mode) |
| MOTION DETECT | Mask Sensitive settings (for MotionDetect mode) |
| VIDEO PARAM. | Set RECORD to OFF if channel is not used |



D) PLAY JPEG

Check *Playback Instructions*.

E) DISK SETUP

| | |
|-------------|---|
| DISK SELECT | SD1 (no other option should be selected) |
| FORMAT DISK | Format selected disk (all information will be lost) |



CAUTION. After the SD card is formatted, all file in SD card will be deleted and cannot be recovered.



CAUTION. To open the SD card with Mac OS, do not format the SD card directly with the PVR. Use your Mac to format the SD card in ExFAT format.

F) SYSTEM SETUP

| | |
|----------------|--|
| LANGUAGE | English |
| DATE TIME | Press "OK" to enter the date menu |
| DATE FORMAT | YYYYMMDD (default option) MMDDYYYY DDMMYYYY |
| DEVICE ID | Not used |
| LOGIN PASSWORD | Press "OK" to set a password |
| VALIDATE LOGIN | NO (Password will not be asked to enter the main menu, default option) YES (Login Password needs to be entered to access main menu) |
| SYSTEM INFO | To upgrade the PVR with a factory provided file |
| DEFAULT | Set all setting to default values |
| SYSTEM RESTART | Reboot system now |



CAUTION. If you set a password and lose it, the unit needs to be send to factory for recovery. Use this function with extreme precaution.

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