

Clearview System™ II Component Descriptions

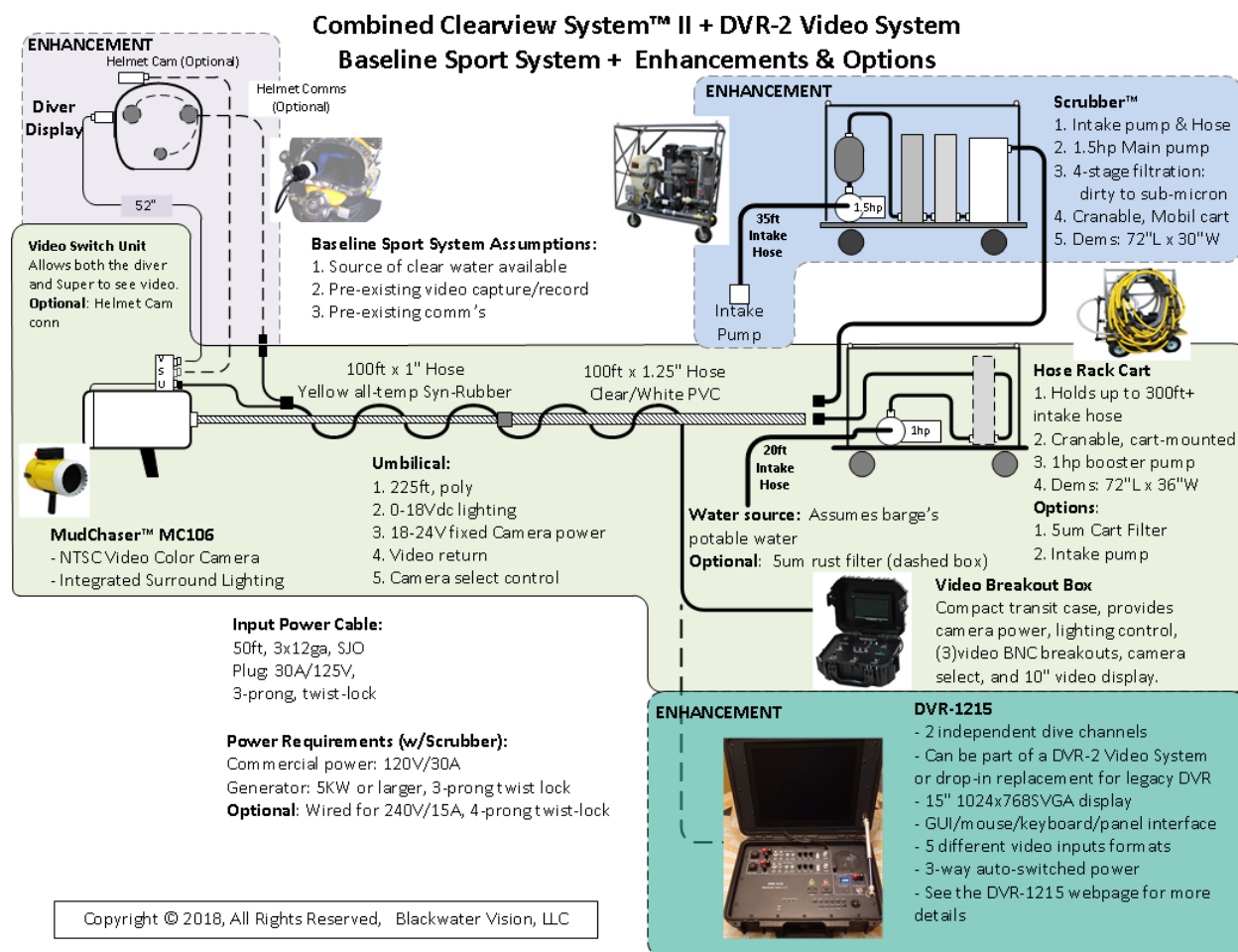
Clearview System II – Baseline Sport System

Overview

Continuing the tradition and superior zero visibility performance of the original Clearview System™ I, the newly redesigned Clearview System™ II addresses the industry needs for a modular, lower-cost, simpler, and safer-for-the-diver system.

The digital, turnkey Clearview System™ I demonstrated that the diver and Supervisor could both see, and inspect, and communicate in real-time regardless of the turbid, silty, muddy, and hazardous working conditions.

The Clearview System™ II implements a modular and simplified system focusing on just the black water conditions. Added to the Digital Video Recording system of the DVR-2, gives the diver and contractor the flexibility to easily adapt to recording in either clear or turbid/black water conditions, thus making a truly extraordinary system.



Clearview System™ II Component Descriptions

The baseline Clearview System II, which is the minimum for seeing and inspecting in black/turbid water conditions, consists of the MudChaser™, a dive cable, the video breakout box, and the hose and hose cart. Enhancements can then be added depending on the circumstances and the near-term budget. If clear, clean water is not readily available, the Scrubber can be added. To make the diver more efficient and speed up the inspection, the Diver Display can be added. If a recorder is needed or a HD recorder is needed, then the DVR-1215 recorder can replace the video breakout box.

The Scrubber™ and hose racks mounted on carts is called the Sport version. While the Pro version has the Scrubber™ and hose rack mounted on skids.

Typically, it is assumed that the DVR-2 Video System is kept on hand and the Clearview System is added on an as needed (temporary) basis for turbid/black water conditions.

Clearview System™ Baseline Assumptions

1. A source of clear is available and provided by the contractor. The booster pump on the hose cart will pump this clear water down to the MudChaser™. If clear water is not available, then the Scrubber™ can be attached as a system enhancement.
2. The contractor already has comm's to the diver. However, this umbilical also includes 4 comm wires, should the customer decide to integrate the two cables. Ask about the optional pass-thru capability.
3. The contractor already has a pre-existing video record system. If not, the Video Capture System-1 is available.

Key Baseline Features

- The basic baseline Sport Clearview System includes the MC106 MudChaser™, 225ft of electrical umbilical cable, 200ft of hose and a cranable hose rack, and the Video Breakout Box.
- The simple Video Breakout Box provides power to the MudChaser™ camera and electronics, provides lighting power, receives and distributes video to three BNC connectors
- The hose cart will hold up to 300ft of hose and the cart-mounted 1hp booster pump will handle up to 300ft of hose
- The Video Switch Unit, mounted on the MudChaser™ includes the connector for the optional Diver Display.

Clearview System™ II Component Descriptions

System Enhancements Available

The Scrubber™ - Takes in dirty, turbid water (preferably non-biohazard) and removes 99.99% of the particulate matter to make clear water at up to 30gpm thru a 4-stage process

Diver Display – Allows the diver to see the same video stream that the Supervisor sees and both can see, analyze, and inspect far more efficiently.

DVR-1215 – A 2-channel video capture/record and playback system that is capable of recording 5 different video formats, 3-way auto-switching power, as part of a semi-custom video system or a drop-in replacement of a legacy system. The built-in 250GB SSD will record over 60hrs of .mp4 video.

MudChaser™ MC106

Creates a tunnel and punches a hole through the turbid water through which the camera can see.

Features

- Handheld 6" diameter MudChaser™ with comfortable pistol grip allows the Diver and Tender/Supervisor to see, inspect, and work clearly in the most turbid water conditions.
- Using a low-tech, highly reliable technique, the muddy, turbid water is displaced, allowing for easy single-handed operation.
- Integrated composite video, color camera
- Integrated surround Hi-Intensity 20-LED light ring.
- Neutrally buoyant in water adds no additional work fatigue on the diver.
- Standard unit includes a connector port to connect the optional Diver Display
- Integrated Video Switch Unit (VSU) supports Diver Display and optional helmet-mounted camera connection. VSU allows the diver and supervisor to see and inspect the same image and provides for surface-switching between the helmet and the MudChaser™ cameras.



Clearview System™ II Component Descriptions

Weight:

Dry: 11.5lbs

Wet (without floatation jacket): 2lbs

Wet (with floatation jacket): 0lbs(neutral buoyant)

VSU - Main Dive Cable Electrical Input / Output

- 10-pin male connector w/locking ring. Secures the MC106 to the dive cable.
- Camera and VSU power : 18-24Vdc @250mA
- LED power: 0-18Vdc @ 1A (Can be adjusted to 24V, if needed)
- Video Out: NTSC Composite video output
- Video Gain: 0-10dB gain (contact BWV to set)

VSU - Diver Display Connection

- 6-pin, male w/o locking ring. Allows quick disconnect with easy tug.
- Electrical: 5Vdc, gnd/shield, and composite video out to the display.

VSU Options:

- Helmet mic pre-amp for stronger, clearer diver voice sound and better signal-to-noise ratio (clearer signal at the surface).
- Helmet camera connection. Allows the helmet cam to plug into the VSU and allow surface switching between cameras

Dive Cable

C1100 - 250ft Umbilical Dive Cable (video, camera/VSU power, lighting). Baseline length.

Features:

- Outer jacket - Neutrally buoyant, bright green
- Multi conductor cable for all power and video functions
- Integrated 4-wire comm's conductor for Customer's use.

Mechanical:

- Braided Kevlar strength member (1200 lbs.)
- Standard length 200-500 ft
- Material: Neon Green, Foam Polyurethane jacket

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- Diameter .55"
- 50 lbs.(22.7Kg) per 500 ft

Electrical:

- Conductors: 75 ohm coax, 1 #24 awg tsp, 1 #24awg tp, 3 #18 awg, 2 #22awg
- 300 volt rated conductors

Option:

- Extended lengths available in 100ft lengths to meet customer's needs.

Video Breakout Box

Provides for a simple low-cost means to provide power and lighting control to the MudChaser™ while displaying and distributing video.

Features:

- Makes video available for recording and other purposes and provides power to the camera, VSU, and lighting, camera video switching.
- Video/Camera Select switch allows selection between video sources – MudChaser™ or helmet cam.
- BWV dive cable connection (23-pin mil spec connector)
- (1) general purpose video input (BNC)
- (3) video outputs: (2)non-isolated, (1) isolated
- Variable lighting control
- 10" display (Shown with a 7")
- Dims: 13-3/4"W (350cm) x 10-1/2"D (267cm) x 6-3/8"H (162cm)
- Weight: 10.5lbs/4.75kg
- Power cord – attached.
- Lockable transit case



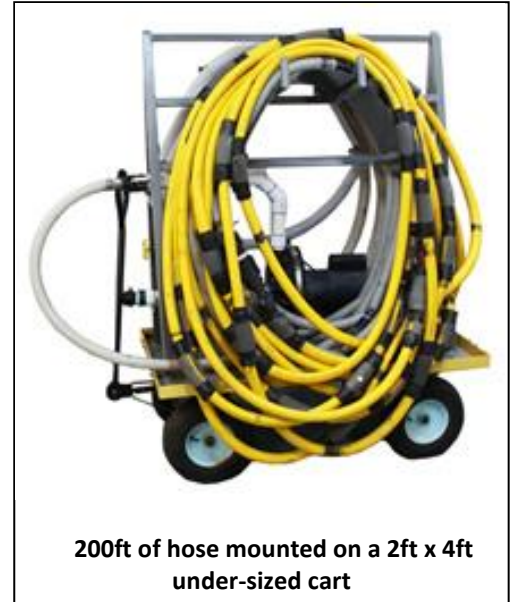
Clearview System™ II Component Descriptions

Hose Rack Cart & Booster Pump(Baseline Config)

- Rack and Pump to be mounted on a 36"x72" cart w/10" wheels (min). All hose will be kept within the footprint of the cart to ensure protection of the hose.
- Crane liftable using standard lift points
- Discharge hose: 100ft x 1" hi-flex, synthetic, wide temp range
- Discharge hose: 100ft x 1.25" PVC
- Intake hose: 30ft x 1.5" PVC
- Std Hose Rack capable of supporting 300ft of hose
- 1hp booster pump. Big enough to handle up to 300ft of hose
- Hose is made neutrally buoyant using flotation sleeves.

Options:

- Intake pump
- 5um x 100sf cartridge filter for large particle filtering
- Longer lengths in 100ft sections.
- Bigger booster pump for total length longer than 300ft.



Scrubber™

For customers who do not have a ready supply of clear water to pump to the MudChaser™ or do not want to sacrifice their potable water.

- High capacity, 4-stage, mobile filtration system removing particles from silt down to submicron at up to 30gpm.
- Mobile 30"x72" cart w/protection frame and crane lift provisions. All plumbing will be kept within the footprint of the cart.
- 1/3hp (120Vac) Intake + 1.5hp(120Vac) main pumps (Adjustment made if Intake pump ordered as part of the Hose Cart. Only need one)
- Stage 1: Continuous purge, particle separator (sludge filter)
- Stage 2: 5um,150sf washable cartridge media filter



Clearview System™ II Component Descriptions

- Stage 3: 80sf DE high capacity, long-use 2um media filter.
- Stage 4: Chemical injection bonding agent to make submicron particles catchable
- Electrical switch box and 50ft power cord
- Four pressure gauges and an output flow gauge to monitor performance of the system.
- Will take +500NTU water and filter it to <1NTU at flow rates up to 30gpm.
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Starter kit Consumables

- (2) 5um, 150sf washable Cartridge filters
- (2) 5gal of bonding agent chem
- (2) 25lb boxes of DE material

Diver Display

Allows the diver to see what is being video captured by the MudChaser™ in zero visibility water conditions. Both the surface Supervisor and the diver can/will see the same thing with the same clarity.

Features

- Monochrome, militarized solder system display modified to Blackwater Vision's spec
- Currently tested to 50ft. Greater depths should be no problem.
- Multi-position bracket allows for infinite adjustment
- Can be mounted for left or right eye operation.



DVR-1215 Digital Video Recorder

- **2/3-Ch Digital Video Recorder captures video/audio in .mp4 digital format**
- **Simple plug'play via Universal dive connection**
- **5 different video camera inputs, auto-synchronized**
- **Typical GUI interface via mouse/keyboard/panel**
- **Semi-custom video system or drop-in DVR for legacy systems**

Clearview System™ II Component Descriptions

- 5W Audio monitoring during dive
- HDMI and CVBS video and audio outputs
- 3-way auto-switch power (115Vac, Ext Batt, Int Batt)
- 1A LED lamp driver and lighting control
- 15" Daylight readable display (1000NIT, 1024x768 SVGA resolution)
- 250GB internal SSD (>60hrs of video storage)
- 4-wire Comm's pass-thru and capture
- Supports the Clearview System
- 2 USB ports for thumbdrive and/or keyboard
- 120/240Vac operation. 10AHr sealed Lead Acid Battery Backup for limited DC operation
- 10AHr, 12V internal sealed lead acid (SLA) battery
- Options:
 - 15" Super Bright Sunlight readable Display (1600NIT, 70,000hr MTBF, auto-color saturation)
 - Upgraded internal SSD to 500GB/1TB
- Dem: 18-1/2"W x 14"D x 7-1/2"H
- Weight: 30lbs

