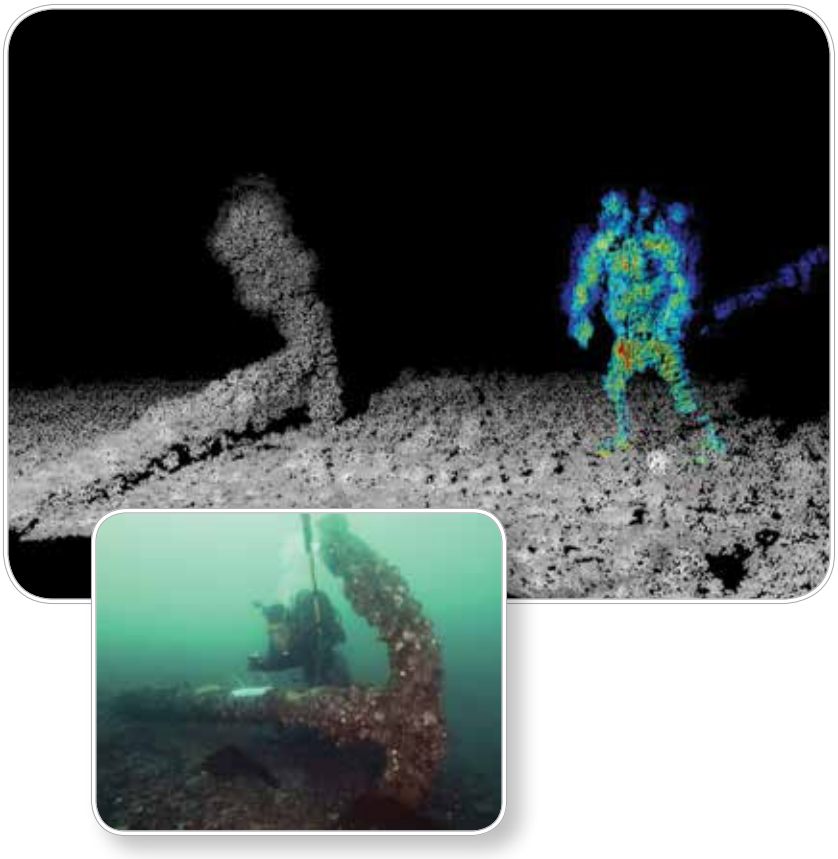
Teledyne BlueView

Making Impossible Jobs Possible



COMPANY PRODUCT GUIDE

High-Resolution Underwater Acoustic Imaging, Measurement, and Automation Systems

TELEDYNE BlueView
Everywhereyoulook™

Teledyne BlueView

Making Impossible Jobs Possible

Teledyne Blueview provides an assortment of sonar solutions that are ideally suited to our customer's underwater imaging and measuring needs. Highly compact, low power, and versatile sonar solutions provide high-quality industry-leading deliverables that expand underwater imaging capabilities.

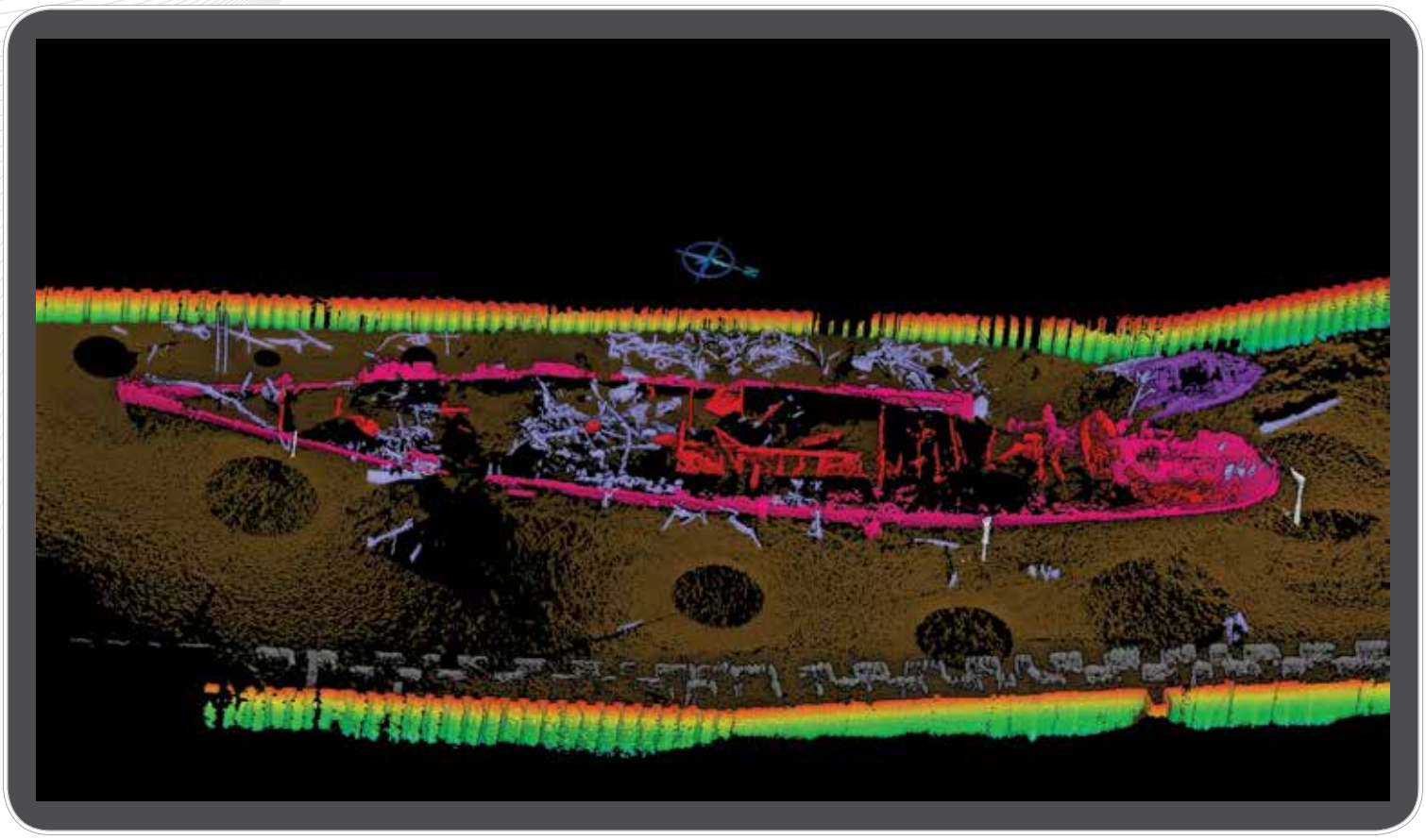


Image courtesy Collins Engineers, Inc.

Teledyne BlueView

Underwater Vision Solutions

2D Multibeam Imaging Sonar

Teledyne BlueView's 2D Sonar Systems are easy to integrate and easy to operate, providing real-time imagery to aid navigation, inspection, monitoring, tracking, and detection for a wide variety of underwater operations.

3D Mechanical Scanning Sonar

Teledyne BlueView's 3D Multibeam Scanning Sonars create high-resolution, fully interactive 3D point clouds, capturing accurate measurements of underwater infrastructure, objects of interest, construction sites, and other areas in need of survey.

Multibeam Profilers and Gap-Fill Sonar

Teledyne BlueView multibeam profilers are high-frequency narrow-beam solutions designed to yield high-resolution near-field data. Multibeam profilers are used for a wide variety of applications on ROVs, AUVs, and surface vessels.

OEM Sonar

Teledyne BlueView develops customized sonar solutions for integrators, vehicle manufacturers, and operators that are specifically designed to meet their needs.

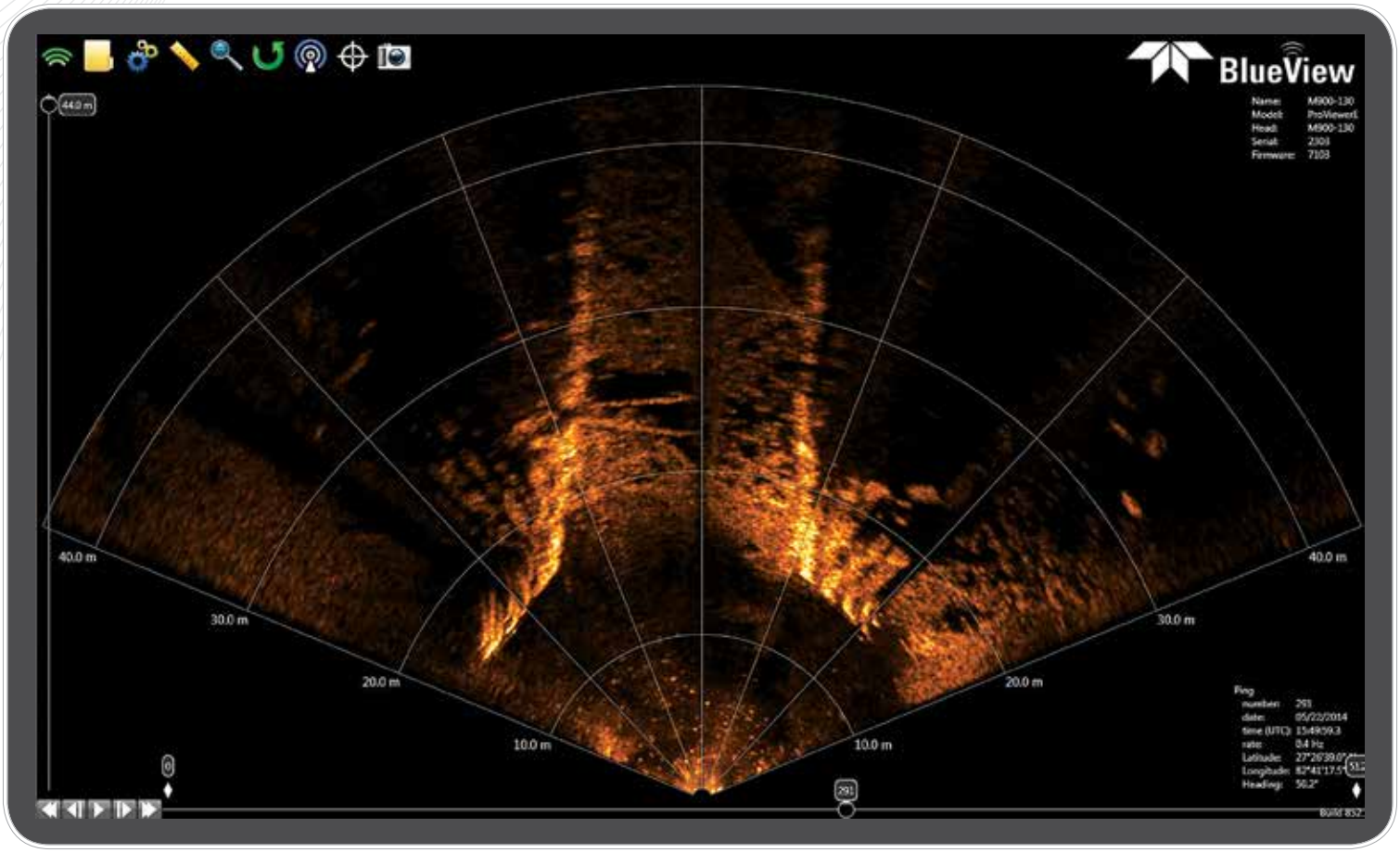
2D Multibeam Imaging Sonar

Near-Infinite Possibilities

Teledyne BlueView 2D imaging sonars deliver real-time, high-resolution video-like imagery, even in very low and zero-visibility conditions. In clear water conditions, situational awareness is significantly increased beyond the optically imaged scene. Fast update rates, high acoustic frequencies, compact size, and industry-leading target tracking make our products the preferred choice in leading-edge multibeam sonar. With the widest range of models available, we offer you the most choices in field-of-view, range, and depth. Teledyne BlueView makes using your 2D Multibeam Imaging Sonar easy with "plug-and-go" operation and multiple deployment options, including:

- ROV Systems
- Boat-Mounted Systems
- Portable Tripod Systems
- Diver Hand-Held Systems
- AUV Systems
- Fixed Position Systems

All Teledyne BlueView 2D multibeam imaging sonar systems include ProViewer® operating software, accessories, and a one-year warranty. We also offer an advanced Software Development Kit (SDK) that enables access to raw data files and sonar controls to make integration into complex monitoring systems easy.



Teledyne BlueView

2D Imaging Sonar

Typical Real-Time Applications:

- ROV Navigation
- Search and Recovery
- Structure Inspection
- Material and Equipment Placement
- Pipeline Tracking and Inspection
- Obstacle Avoidance
- Operations Monitoring
- Target Tracking
- Area Survey
- Damage Survey
- Object Detection
- Target Homing

2D Multibeam Imaging Sonar Systems

Teledyne BlueView has the widest selection of high-resolution multibeam imaging sonars available. Each model features fast update rates that deliver detailed imagery, and include record/play-back features for post analysis evaluation.

M900 *(workhorse)*

The M900 series multibeam imaging sonar is used for high-resolution imaging, navigation, and monitoring of underwater scenes.

M900-2250 Dual-Frequency

(adds enhanced capability; up-close high-res)

The M900-2250 series dual-frequency multibeam imaging sonar is perfectly suited to conduct long-range navigation and up-close ultra high-resolution imaging.

M450 *(where longer range imaging is required)*

The M450 series multibeam imaging sonar is an ideal tool for long-range imaging (up to 300 m), and detection. Deep water equipment placement, touchdown monitoring, pipeline inspections, and vehicle navigation are only a few of the applications where the M450 can increase operational efficiency.

M900X

The M900X sonar provides a 130° horizontal field of view and 45° vertical field of view, providing highly detailed navigation information with the horizontal FOV and inspection information with the vertical FOV.

OEM

Teledyne BlueView OEM sonars are designed to meet integrators' specific specifications to meet the needs of their underwater tools. Customized OEM solutions provide integrators with cutting-edge technology designed specifically with their customers' needs in mind.

2D Multibeam Imaging Sonar *(continued)*

2D IMAGING TECHNICAL SPECIFICATIONS

		M900	M900/2250	M450	M900X
Sonar	Field-of View	90 or 130°	130°	90 or 130°	See footnte
	Max Range	100 m (328 ft)	100 m (328 ft) / 10 m (33 ft)	300 m (984 ft)	100 m (328 ft)
	Optimum Range	2-60 m (6.6-197 ft)	2-60 m (6.6-197 ft) / 0.5-7 m (1.6-23 ft)	5-175 m (16-574 ft)	2-60 m (6.6-197 ft)
	Beam Width	1 x 20°	1 x 20° (900 kHz) / 1 x 20° (2250 kHz)	1 x 10°	1 x 20°
	Beam Spacing	0.18°	0.18°	0.18°	0.18°
	No. of Beams (90, 130 FOV)	512, 768	768	512, 768	768 Hor / 256 Vert
	Range Resolution	1.3 cm (0.54 in)	1.3 cm (0.54 in) / 0.6 cm (0.25 in)	2.7c m (1.1 in)	1.3 cm (0.54 in)
	Update Rate* within Optimum Range	Up to 25 Hz	Up to 25 Hz	Up to 25 Hz	Up to 25 Hz
	Operating Frequency	900k Hz	900 kHz / 2250 kHz	450k Hz	900 kHz
Interface	Supply Voltage	12-48 VDC	12-48 VDC	12-48 VDC	12-48 VDC
	Max Power Consumption**	20 W	2250 kHz - 25.8 W 900 kHz - 20 W	24 W	20 W
	Connectivity	Ethernet	Ethernet	Ethernet	Ethernet
Mechanical	Weight in Air (std/deep)	4 lbs / 10.54 lbs	4.3 lbs / 11 lbs	5.5 lbs / TBD	5.4 lbs
	Weight in water (std/deep)	0.86 lbs / 5.09 lbs	0.95 lbs / 5.1 lbs	2.0 lbs / TBD	1.6 lbs
	Depth rating (std/deep)	1000 m (3280 ft) / 4000 m (13120 ft)	1000 m (3280 ft) / 4000 m (13120 ft)	1000 m (3280 ft) / 4000 m (13120 ft)	1000 m (3280 ft) 4000 m (13120 ft)
	Dimensions*** (L x W x H) (std/deep)	7.56 in x 4.0 in x 4.0 in (4.0 inch can) / 10.2 in x 5.0 in x 5.0 in (5.0 inch can)	8.6 in x 5.0 in x 5.0 in (4.0 inch can) / 10.2 in x 5.0 in x 5.0 in (5.0 inch can)	9.0 in x 7.7 in x 4.0 in (4.0 inch can) / 10.5 in x 7.7 in x 5.0 in (5.0 inch can)	8.7in x 7.0 in x 4.0 in (4.0 inch can)

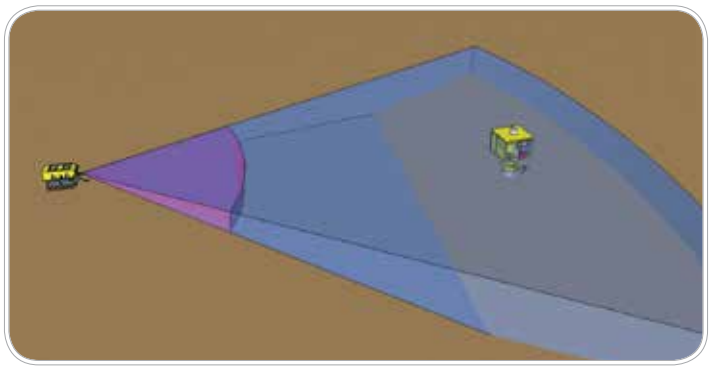
* Range-dependent
** Non-VDSL unit at 24 VDC
*** Length does not include connector length

Note: M900X contains two separate arrays; one 130 x 20° FOV horizontal and one 45 x 20° FOV vertical.

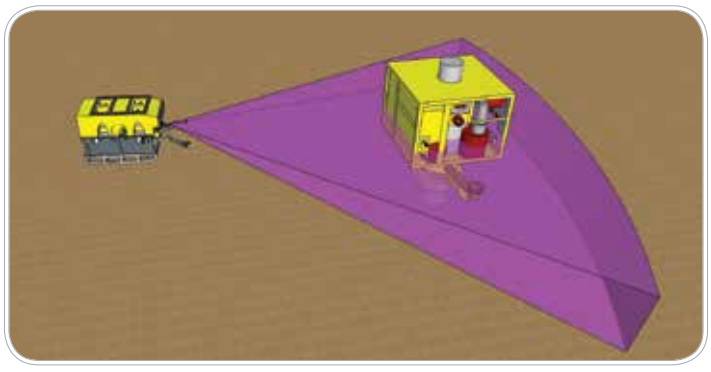
M900-2250 Dual-Frequency

Double Vision

The dual-frequency 900 kHz and 2250 kHz provide the most versatility of any 2D imaging sonar. The 900 kHz offers high-resolution long-range navigation, object detection, and obstacle avoidance, while the 2250 kHz provides ultra-high resolution at close range. ROV navigation, hull inspections, structure inspections, diver monitoring, and search and recovery are a few applications that benefit from the dual-frequency's imaging capabilities.



Long-range navigation.



Up-close inspection.

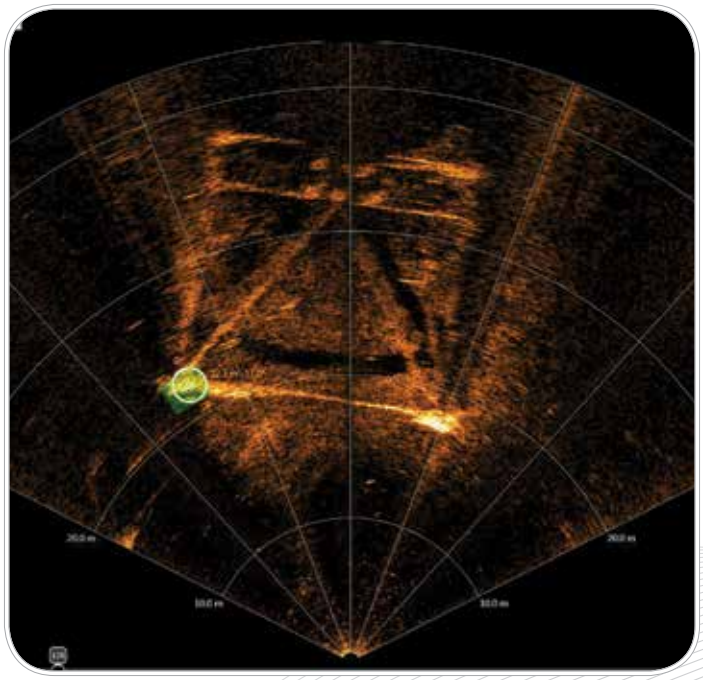
Teledyne BlueView

2D Imaging Applications

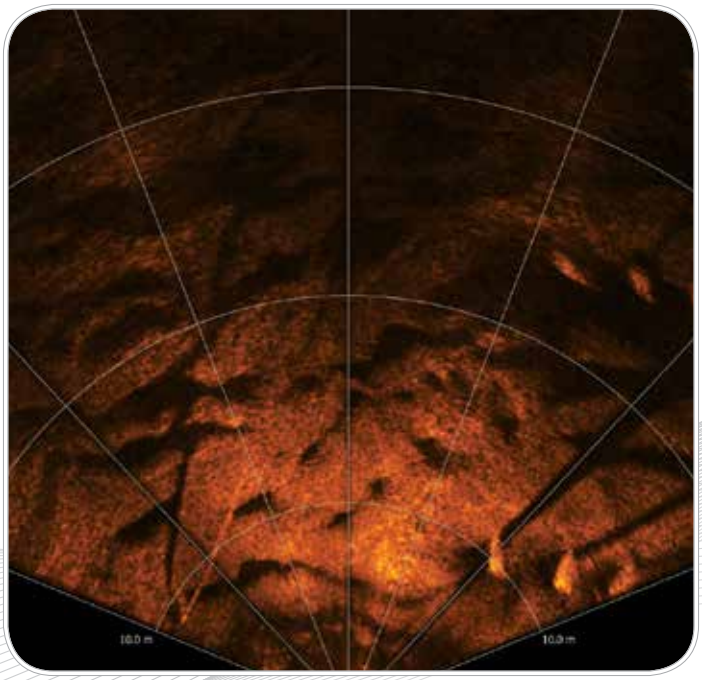
Civil Engineering

Salvage

Energy



Hydrography



2D Sonar Software

ProViewer®

ProViewer is an easy-to-use control software package for all 2D forward-looking imaging sonars. Standard features include zoom, measurement, GPS integration, heading input, data recording, playback, and video export.

2D Sonar Deployment Tools

Boat Mount with Pan and Tilt

Ideal for search, diver monitoring, and underwater inspection. Compatible with all Teledyne BlueView 2D Imaging sonar to create a topside underwater viewing system. Includes: 2-piece 77.5" pole, digitally controlled pan and tilt, quick-release mounting clamp, carry case, and accessories.

Portable Tripod with Pan and Tilt

For local deployment of Teledyne BlueView 2D and 3D imaging sonar systems. Digitally controlled pan and tilt controls the angle and rotation of the sonar head. Lightweight, one-man deployable system is engineered for rugged underwater environments. Includes: portable tripod, pan and tilt, sonar mounting plate, and carry bag.

Boat Mount Manual Pole with Integrated GPS

Large area shallow-water searching/seabed mapping, less than 15 m, the BV3200 provides GPS and heading information to ProViewer to be transmitted into ProMapper. This system provides the components needed to have a complete turnkey shallow-water seafloor mapping tool.

Application Extension (AppEx)

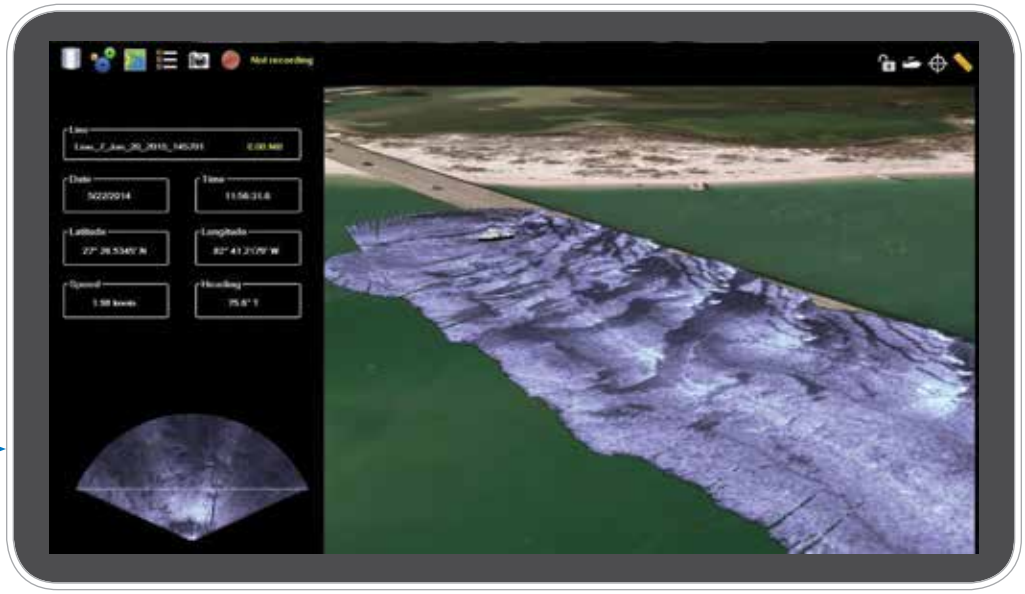
In 2014, BlueView introduced ProMapper, an application extension (AppEx) to ProViewer, BlueView's 2D forward-looking sonar control software. BlueView's AppEx initiative is designed to help customers realize increased value from their BlueView sonar. Each AppEx provides additional functionality above and beyond the capabilities of ProViewer, giving greater utility. BlueView continually works on new app extensions and in 2015 we are pleased to introduce PV360, a rotational mosaicking tool designed to again add value. The AppEx initiative is also open to third-party developers with a free SDK library available to help you design the next must-have app.

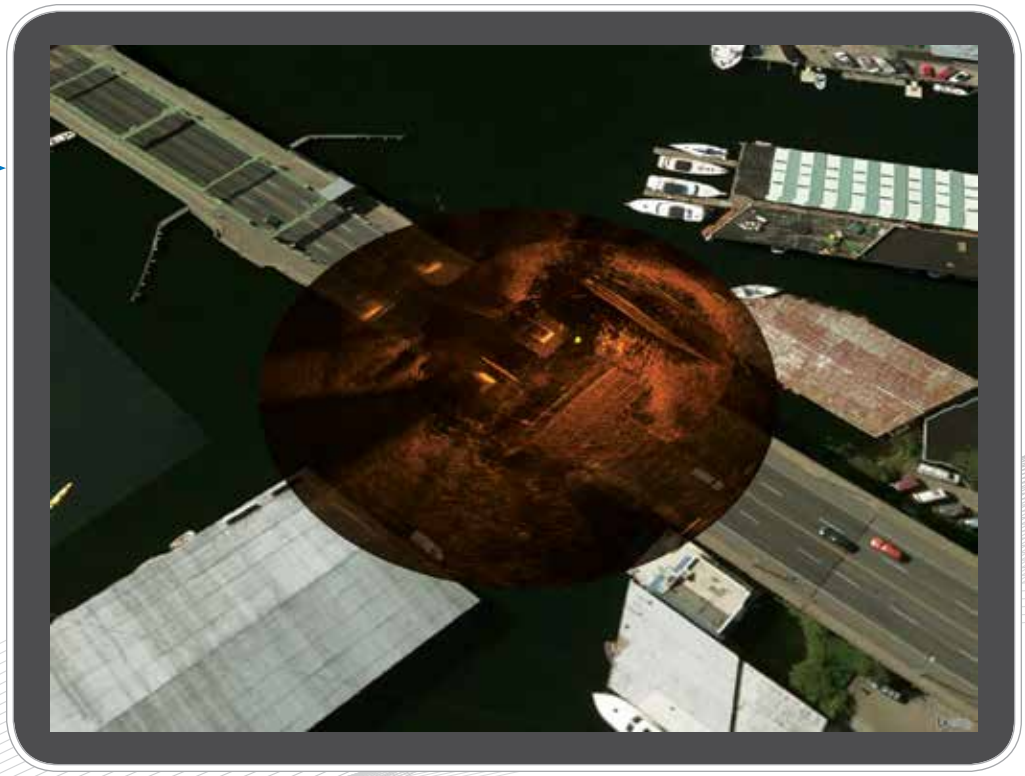
Benefits:

- Customized software solutions to increase the versatility of each sonar
- Flexible deployment: multiple apps can be installed on the same system or an entirely separate computer and run concurrently
- Open technology: the AppEx protocol is open and supported by free tools

ProMapper

ProMapper is an intuitive geo-mosaicking software package using 2D forward-looking sonar imagery to overlay on nautical charts or aerial images. An easy-to-use large-area mapping tool, ProMapper can be used from a surface vessel and ROV-mounted 2D sonar.





PV360 Software

PV360 creates still images from the imaging sonar as it is panned around with a P&T. The still images can be taken from any stable platform, tripod, ROV, or boat mount.

3D Multibeam Profiler

Teledyne BlueView multibeam profilers are high-frequency narrow-beam solutions designed to yield high-resolution near-field data. Commercial off-the-shelf solutions or customizable to suit special applications, the profilers are used for a diverse range of applications. Resolution is optimized by selecting the appropriate frequency to match the range.

Forming part of BlueView's 3D system, they are also frequently used for high-resolution gap-fill and seabed mapping applications from AUVs. Recent special integrations have also seen the product used for a variety of offshore applications, such as the scanning of subsea structures or pipe egress monitoring from a lay vessel's stinger.

Applications:

- Gap-Fill
- High-Resolution Site Survey
- Seabed Mapping
- Mine Countermeasures

Multiple deployment options

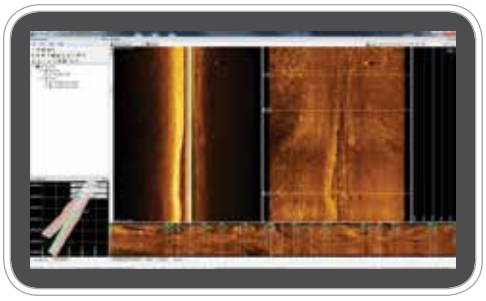
Product Description:

- 1.35 MHz or 2.25 Mhz
- Hardware trigger—allows remote triggering of single or multiple profiler heads
- 1 PPS pulse—allows for precise time synchronization
- Standard NMEA and XYZi outputs enable simple data export to industry standard packages—Teledyne PDS, EIVA, HYPACK, QPS, LEICA, AUTOCAD, etc.

3D Multibeam Profiler Scanner.

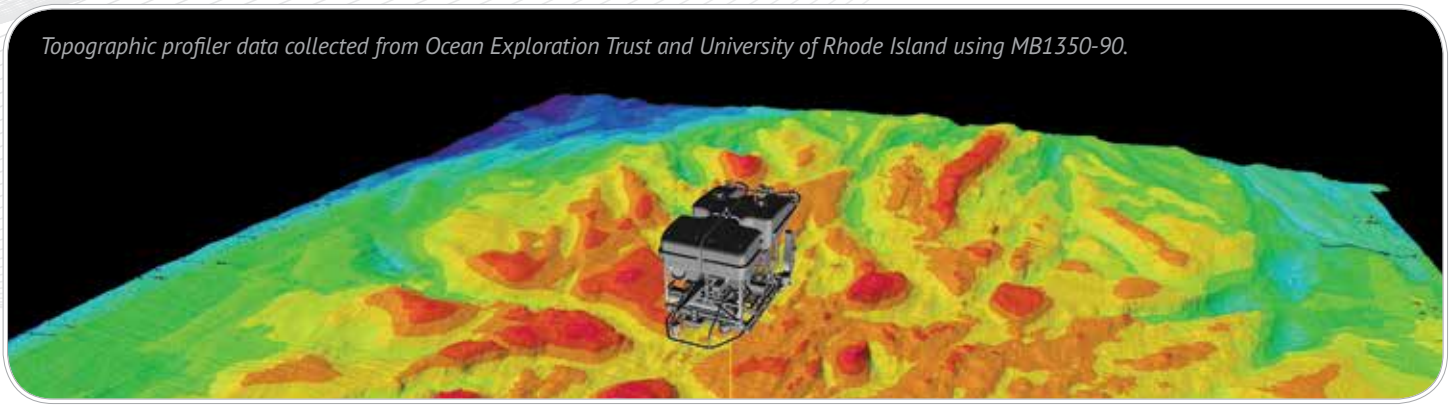
ROV deployment.

Boat deployment.

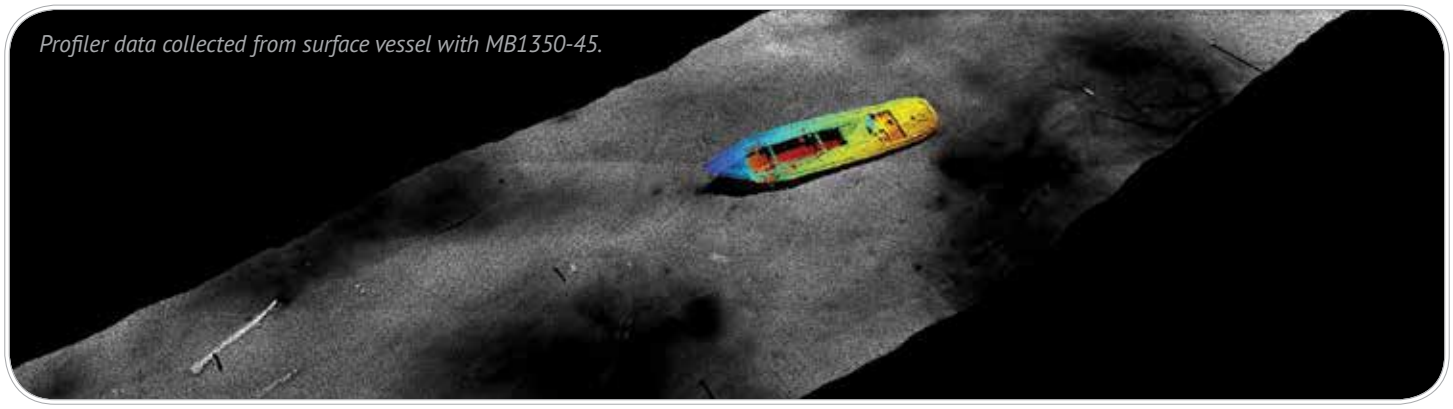


Gap-Fill Software Solution

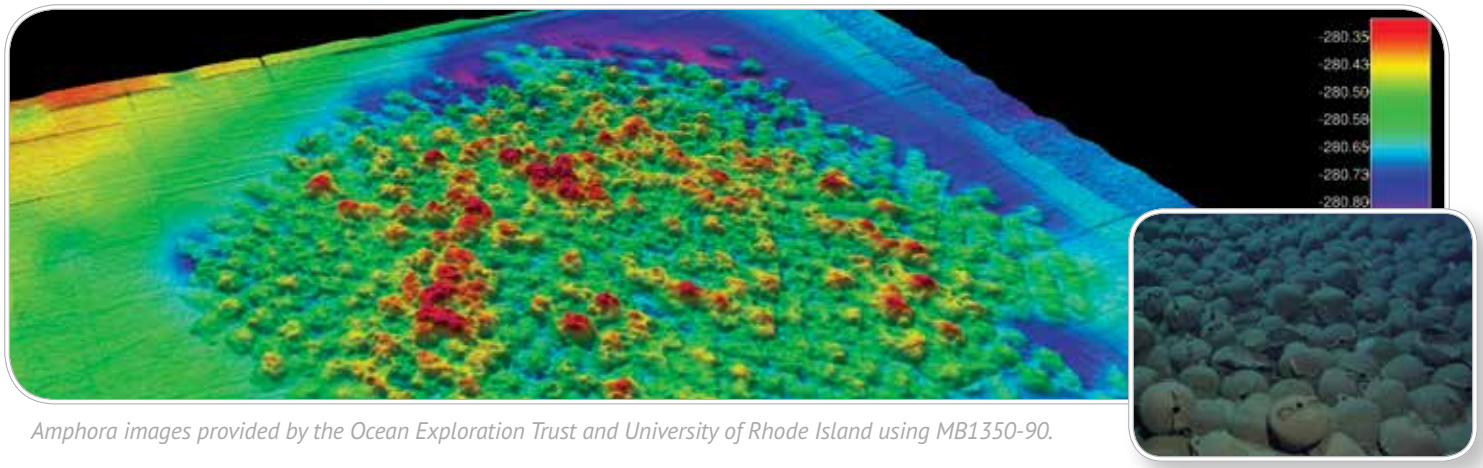
Teledyne BlueView has developed a software interface to quickly combine the multibeam profiler data with most side-scan data formats to create "gap-free" side-scan data. This software also allows operators to combine the profile point cloud data with other bathymetric data for export into previously mentioned industry-standard point cloud software packages.



Topographic profiler data collected from Ocean Exploration Trust and University of Rhode Island using MB1350-90.



Profiler data collected from surface vessel with MB1350-45.



Amphora images provided by the Ocean Exploration Trust and University of Rhode Island using MB1350-90.

		MB2250-N	MB2250-W	MB1350-N	MB1350-W
Sonar	Field-of View	40°	80°	40°	80°
	Max Range	10 m (32 ft)	10 m (32 ft)	30 m (98 ft)	30 m (98 ft)
	Optimum Range	0.5-7 m (1.6-23 ft)	0.5-7 m (1.6-23 ft)	1-20 m (3.2-65 ft)	1-20 m (3.2-65 ft)
	Beam Width	1 x 1°	1 x 1°	1 x 1°	1 x 1°
	Beam Spacing	0.18°	0.18°	0.18°	0.18°
	Number of Beams	256	512	256	512
	Range Resolution	0.6 cm	0.6 cm	1.1 cm	1.1 cm
	Update Rate* within Optimum Range	Up to 30 Hz	Up to 30 Hz	Up to 30 Hz	Up to 30 Hz
	Operating Frequency	2.25 MHz	2.25 MHz	1.35 MHz	1.35 MHz
Interface	Supply Voltage	12-48 VDC	12-48 VDC	12-48 VDC	12-48 VDC
	Max Power consumption**	20 W	20 W	20 W	20 W
	Connectivity	Ethernet	Ethernet	Ethernet	Ethernet
Mechanical	Depth rating (std/deep)	1000 m (3280 ft) 4000 m (9842 ft)	1000 m (3280 ft) 4000 m (9842 ft)	1000 m (3280 ft) 4000 m (9842 ft)	1000 m (3280 ft) 4000 m (9842 ft)
	Dimensions*** (L x W x H) (std/deep)	8.2 in x 4.3 in x 4.0 in (4.0 inch can) / 10.4 in x 5.0 in x 5.0 in (5.0 inch can)	8.2 in x 8.1 in x 4.0 in (4.0 inch can) / 10.4 in x 8.1 in x 5.0 in (5.0 inch can)	9.0 in x 11.8 in x 4.4 in (4.0 inch can) / 10.75 in x 6.3 in x 5.0 in (5.0 inch can)	9.0 in x 11.8 in x 4.4 in (4.0 inch can) / 10.75 in x 11.8 in x 5.0 in (5.0 inch can)

* Range-dependent
** Non-VDSL unit at 24 VDC
*** Length does not include connector length

3D Multibeam Scanning Systems

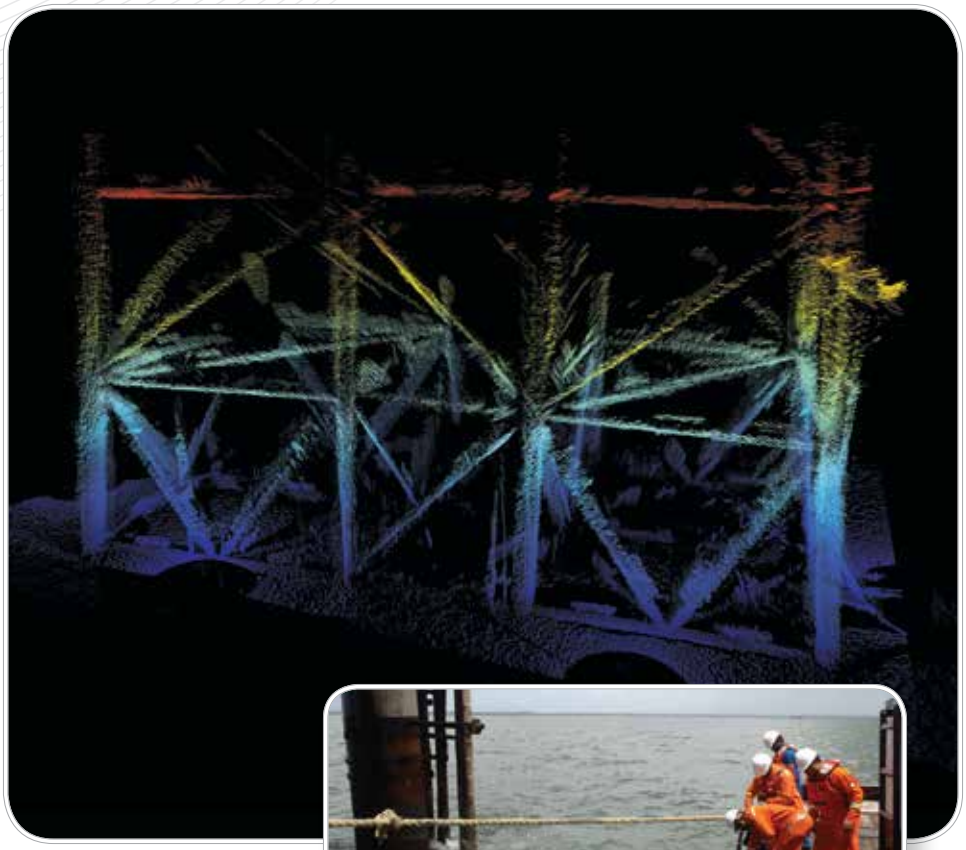
BV5000 Series Provides Turnkey 3D

Teledyne BlueView uses new high-resolution profiling sonar technology to create an easy-to-use underwater 3D multibeam scanner, the BV5000. The compact, lightweight BV5000 works much like a topographic laser scanner, using high-frequency sound beams instead of lasers to create extremely detailed 3D imagery to collect measurement data with centimetric-level accuracy. Designed for high portability and easy integration, the BV5000 system can be deployed on a tripod, ROV, or fixed mount. The BV5000 creates full 360° rotational scans in minutes. Multiple overlapping scans can be registered with or without navigation data to create mosaic images of large structures or areas.

The BV5000, a mechanically scanning sonar, includes includes ProScan® and BlueViewer to collect and review data. The BV5000 data is stored in both raw format for post-processing and in a standard .XYZi point cloud format for easy import into multiple 3D viewing and editing programs. Teledyne BlueView's QuickStitch software is designed for viewing, basic editing, and simplified registration of overlapping scans.

Typical 3D Multibeam Scanning Applications:

- 3D Site Survey
- 3D Structure Inspection
- Structure Decommissioning
- Bridge Inspections
- Dam Inspections
- Seawall and Pier Inspections
- Condition Monitoring
- Scour and Erosion Monitoring
- Jumper and Spool Piece Metrology
- Archaeological Site/Structure Mapping
- Ship Hull Inspections and Mapping



3D Multibeam Scanning Systems

Teledyne BlueView 3D multibeam scanning systems are highly portable instruments that create dense high resolution3D imagery and capture accurate measurement data of underwater structures, objects and sites with 256 or 512 individual acoustic beams depending on the field of view.

BV5000-2250

Engineered for ultra-high 3D resolution, the BV5000-2250 delivers unprecedented imagery and detail at close range. The 2.25 MHz center frequency enables ultra-high resolution 3D scans with ranges from 0.5-10 m (1.6-32 ft.).

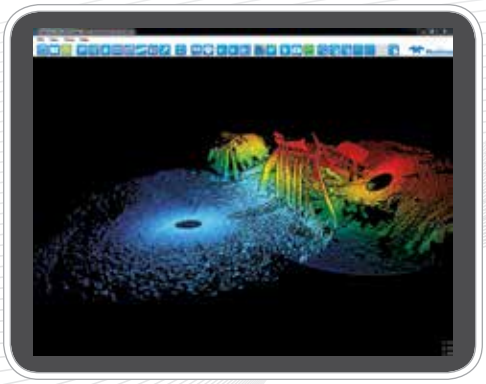
BV5000-2250

BV5000-1350

The perfect balance between range and resolution. The BV5000-1350 is specifically designed for imaging complex underwater structures and areas with a center frequency of 1.35 MHz and a range from 1-30 m (3.2-98 ft.).

BV5000-1350

New 3D Scanning Features

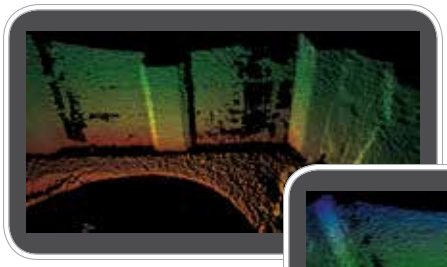


QuickScan

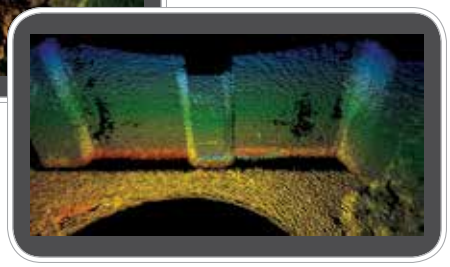
3D scanning sonar operators can now select scan speed in the setup window (up to 10° a second) prior to conducting each scan. By optimizing the ping rate for the working environment and increasing the speed of each scan, on a project with multiple drop locations the operator can reduce the amount of time needed to complete the project.

MultiDetect

The 3D scanning sonar can now be set up to pick multiple points along individual beams; up to 10. Being set by the user during a scan or post-processed into each scan allows users to collect more detail on intricate objects, structures, and areas scanned.



MultiDetect OFF.



MultiDetect ON.

MotionScan

3D scanning can now be accomplished from a dynamic platform with integration of heading, pitch, roll and position sensors. These sensors will compensate for movement, and 3D scanning data can be collected from a surface vessel or an ROV that is not completely stable.

3D MULTIBEAM TECHNICAL SPECIFICATIONS

		BV5000-1350	BV5000-2250
Sonar	Field-of View	40°	40°
	Max Range	30 m (98 ft)	10 m (32 ft)
	Optimum Range	1-20 m (3.2-65 ft)	0.5-7 m (1.6-23 ft)
	Beam Width	1 x 1°	1 x 1°
	Beam Spacing	0.18°	0.18°
	Number of Beams	256	256
	Range Resolution	1.1 cm (0.43 in)	0.6 cm (0.25 in)
	Update Rate* within Optimum Range	Up to 30 Hz	Up to 30 Hz
	Operating Frequency	1.35 MHz	2.25 MHz
Interface	Supply Voltage	110-260 VAC or 24 VDC	110-260 VAC or 24 VDC
	Max Power Consumption**	45 W	45 W
	Connectivity	Ethernet / USB	Ethernet / USB
Mechanical	Depth rating (std/deep)	1000 m (3,280 ft) / 3000 m (9,842 ft.)	1000 m (3,280 ft) / 3000 m (9,842 ft.)
	Sonar, Pan and Tilt dimensions (L x W x H) (std/deep)	9.0 in x 10.4 in x 16.8 in / 10.8 in x 10.4 in x 16.8 in	8.2 in x 10.4 in x 16.8 in / 10.4 in x 10.4 in x 16.8 in
	Tripod dimensions*** (H x W)	36 in x 40 in	36 in x 40 in

* Range-dependent
** Non-VDSL unit at 24 VDC
*** Tripod legs telescope to 60 in x 60 in

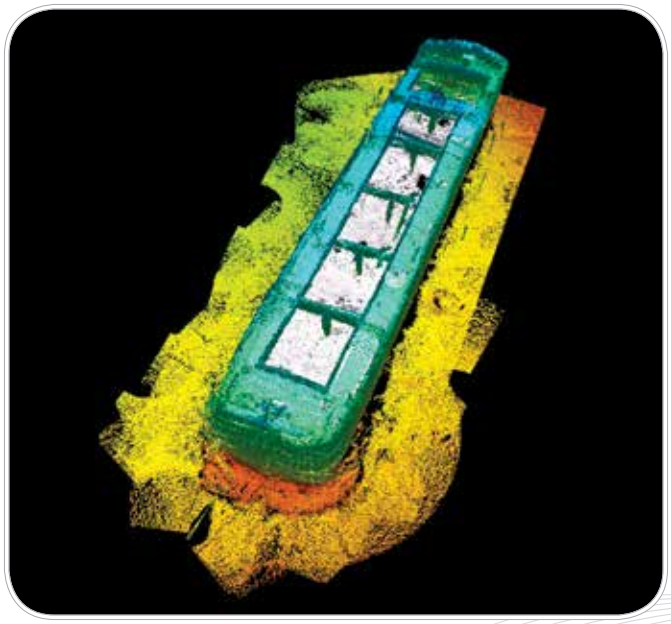
Teledyne BlueView

3D Scanning Applications

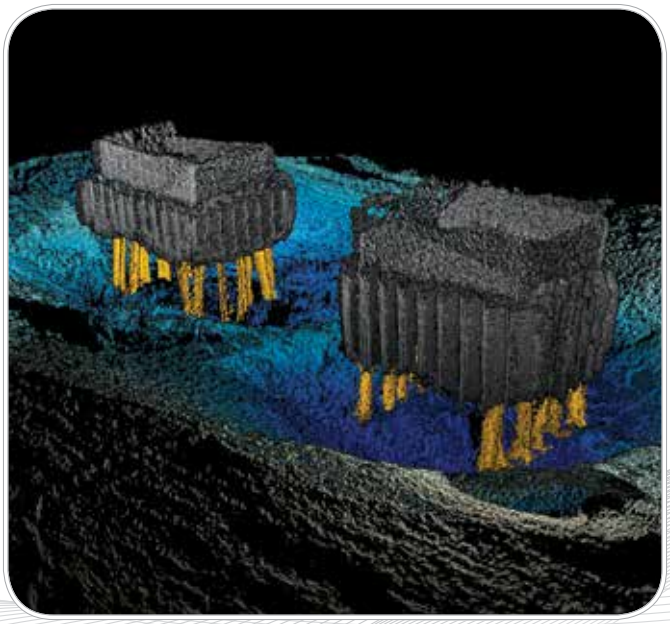
Infrastructure Inspection

Pre and Post Remediation/Construction Validation

Archaeology



Undercut Evaluation

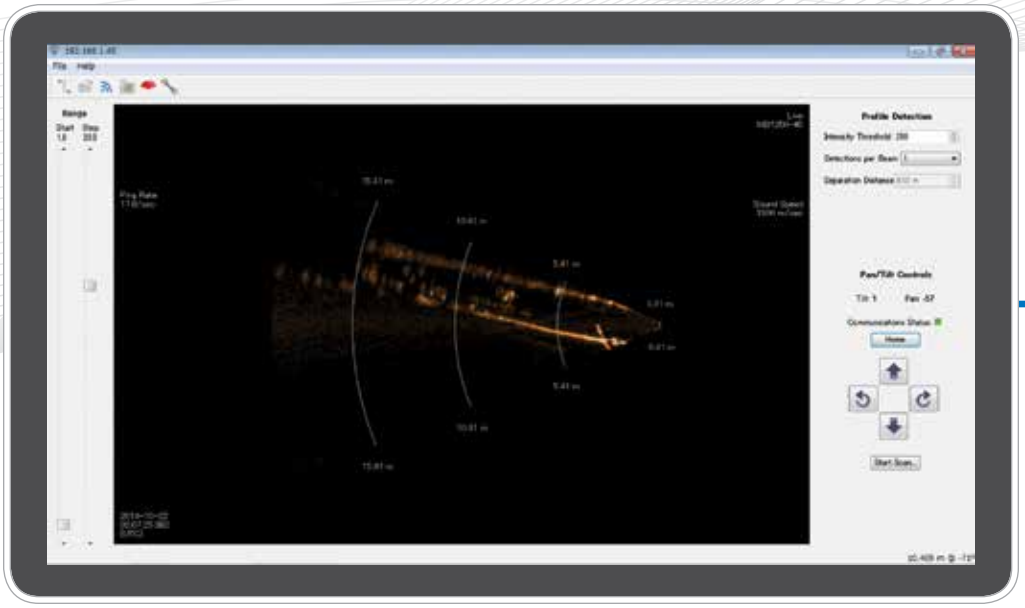


3D Sonar Software

Turnkey 3D: Scan, Stitch, Deliver

ProScan

ProScan is an intuitive control software package for the BV5000 3D scanning sonar. ProScan is used to integrate GPS, heading and motion sensors for positioning of individual scans, and setting up streaming profiler data to third-party data collection software.



3D Sonar Deployment Tools

Portable Tripod and ROV Systems

The BV5000 can be deployed on ROVs or with Teledyne BlueView's portable lightweight tripod. Operating from a stationary position on the tripod the BV5000 will capture 360° spherical scans, and from a surface vessel produce 3D scans of tight, hard-to-reach areas. From an ROV the BV5000 can be maneuvered into or around complex structures, capturing imagery and measurement data of structures and areas previously not accessible with traditional mapping and measurement tools. Advice on custom deployments available on request.

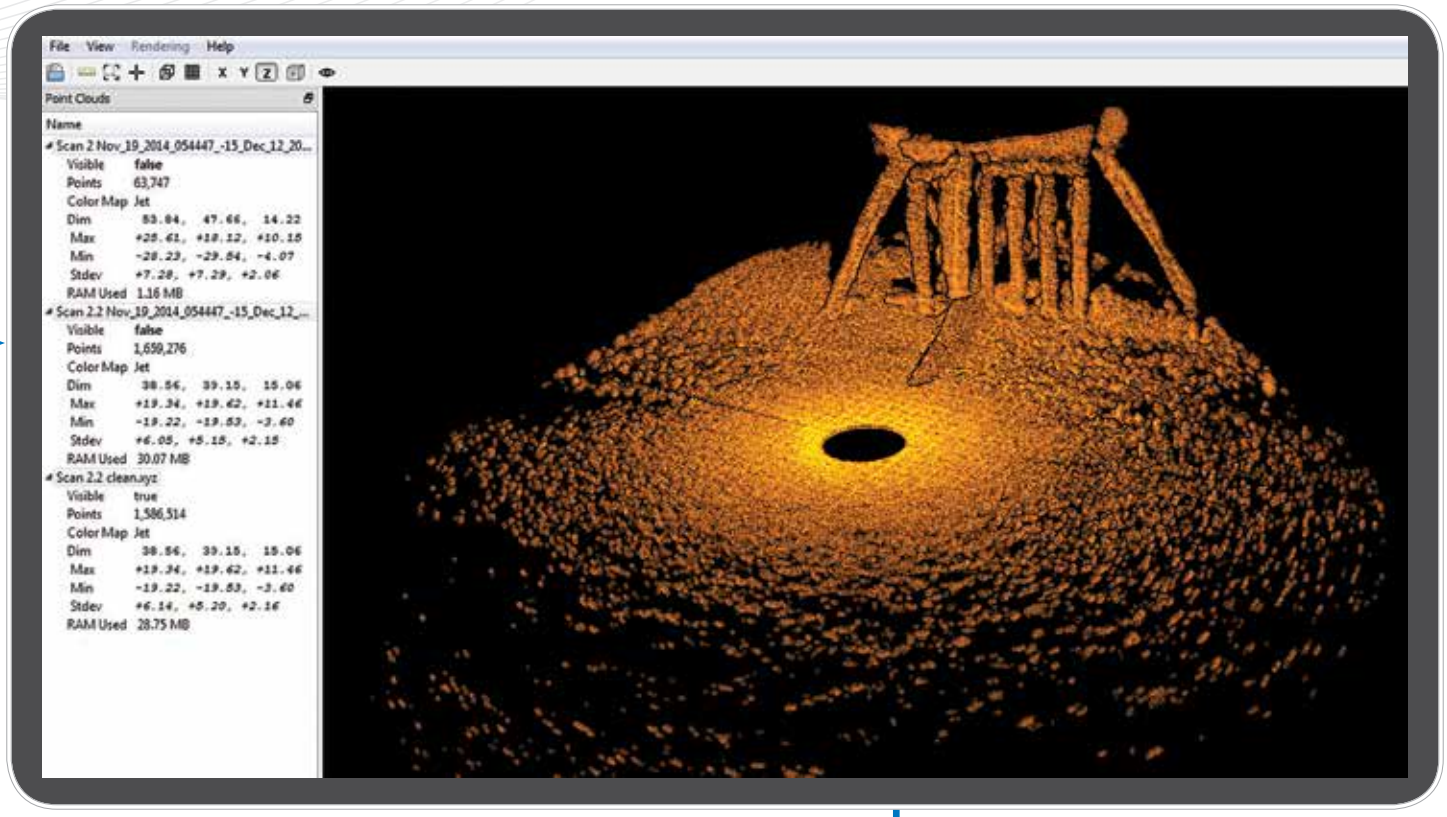
Benthos ROV with BV5000-1350.

Teledyne BlueView is a licensed reseller of **Leica Geosystems Cyclone Software**.

- Cyclone—Register
- Cyclone—Model

BlueViewer

BlueViewer is 3D point cloud viewing software that allows operators to view an .XYZi point cloud immediately after a scan is complete. Operators can also use BlueViewer as a viewing tool for end customers and create high-resolution images for reports.

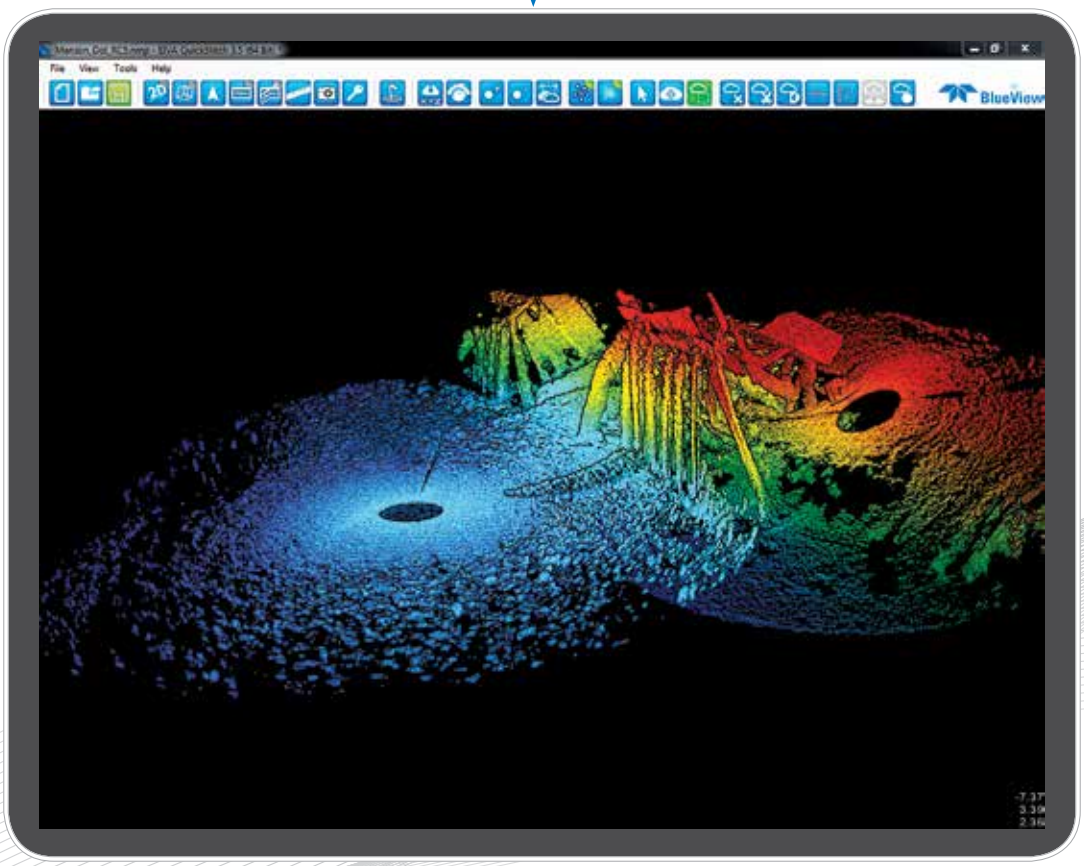


QuickStitch

QuickStitch software is a point cloud viewing, cleaning, and alignment software package specifically designed to streamline post-processing of the BV5000's .XYZi point cloud data. QuickStitch is intuitive, accurate, and significantly reduces post-processing time.

Powered by

EIVA
MARINE SURVEY SOLUTIONS



AUV 3D Multibeam Profilers and 2D Forward-Looking Solutions

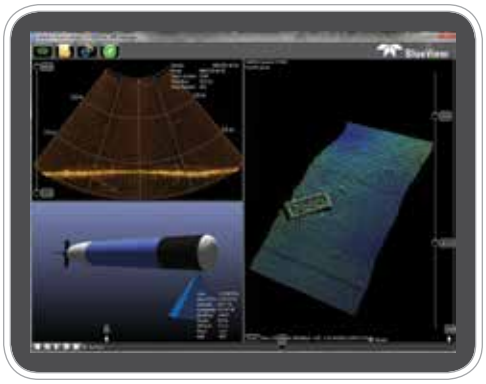
Teledyne BlueView's 2D and 3D sonar solutions are perfectly suited for AUV integration, providing lightweight, low-power, high-resolution, and smart solutions. The 2D forward-looking multibeam sonar can significantly enhance the control tracking and obstacle avoidance capabilities of any AUV. These systems can produce over 1000 beams with just one transmit/receive cycle. The 3D multibeam profiler solutions provide bottom-tracking capabilities, 3D point cloud generation, side-scan sonar gap-fill, and pipeline tracking and inspection solutions.

- Obstacle Avoidance
- Bottom Tracking
- Pipeline Following
- Large-Area Sonar Mapping

AUV Multibeam Profiler

MX-Series Sonar

Teledyne BlueView's MX sonar combines a horizontal and vertical imaging head in one package, allowing AUVs to image, track, and avoid targets in both vertical and horizontal planes simultaneously. With high update rate and continuous coverage in both horizontal and vertical planes, the M900X greatly outperforms single-beam systems or those operating in just one plane. This improves imaging allows the host vehicle to take more intelligent actions and minimizes risk of unplanned mission termination due to false alarms (e.g. a school of fish being incorrectly identified as a fixed object) or catastrophic collision caused by obstacles going unobserved until too late



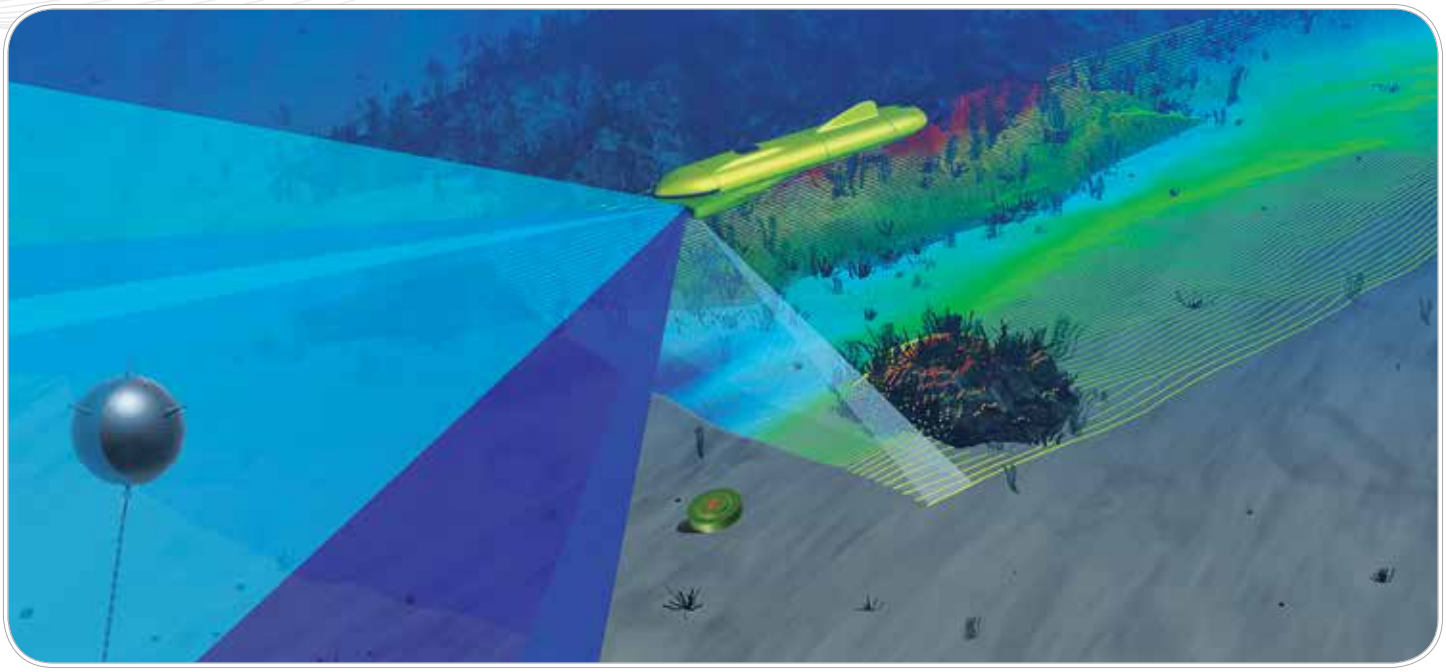
SmartCore™ with Beamforming and Datalogging

Teledyne BlueView's SmartCore™ embedded sonar processor with onboard-beamforming processed images and profiles in real-time for onboard logging and/or streaming to vehicular control systems. The SmartCore product provides our AUV customers with a rapid development path, allowing them to focus on the real mission at hand.

Teledyne BlueView's SmartCore™ embedded sonar processor with onboard data storage, coupled with the MB-DataLogger user interface software creates a turnkey solution for nearly any MB AUV application.

2D FLS, Multibeam Profiler, and Gap-Fill Sonars

All AUV specifications are based on commercial off-the-shelf (COTS) 2D sonar (found on page 6), and any customized sonar will have different specifications depending on the size, field of view, and amount of arrays and onboard processors. Please contact Teledyne BlueView to discuss customized solutions specifications.



FLS X Series Sonar and Multibeam Profiler Sonar on AUV

Developers' Tools

From the beginning, Teledyne BlueView has created some of the most versatile and easy-to-use development tools in the industry. These tools allow both our in-house engineering teams and our customers to rapidly create the solutions needed to make their projects successful. No other sonar company comes close to this level of support. Below are just a few of the tools available to our customers:

Engineered-to-Order (ETO) Systems

Teledyne BlueView's engineering team specializes in quick-turn-around design and delivery of sonar solutions to meet both OEM and special project needs. These include mechanical mounting, protocol interfacing, on-board processing, and custom sonar configurations to meet our customer needs. An SDK for pan and tilt control also available on request.

Sonar SDK

Teledyne BlueView offers a fully documented software development kit (SDK) for its 2D and 3D sonar to enable integration onto complex platforms and/or customized systems. The SDK enables control of the sonar, and provides access to the raw data files to facilitate sonar operation and data flow-through.

AppEx SDK

The Application Extension (AppEx) software development kit provides third-party developers open-source libraries and example applications that reduce the development cost and time-to-market for Teledyne BlueView ProViewer application extensions.

SeeByte Tracking and Automation

SeeByte is at the leading edge of software solutions and data management for the subsea industry. From autonomous riser and pipeline inspections using AUVs and ROVs to state-of-the-art automatic target recognition for side-scan sonar in mine countermeasures, SeeByte's game-changing solutions are adding value to our customers' operations.

Sonar Integration and System Packaging

Teledyne BlueView's equipment is easily integrated and deployed on many different platforms. Each sonar system can easily be moved from one platform to another and often 2D and 3D solutions are paired together to complement the capabilities of each system.

Inspect with 2D

Measure with 3D

Modularity

BlueView's 2D and 3D systems are deployed on a wide array of different platforms worldwide and many of our customers develop customized solutions to solve complex deployment challenges using the same systems moved between different platforms. For added value wherever possible BlueView have designed interchangeability between cables, mounting hardware, and accessories, so that our users can get the most out of their investment.

M900

BV5000

MB1350

System Packaging

2D and 3D sonar systems are complementary tools in many fields. The 2D system provides real-time inspection, navigation, mapping, and object detection, while the 3D system delivers high-resolution point clouds for detailed inspections, measurements, volume calculations, damage assessment, and structural integrity verification. Operators will inspect and map a work site with 2D sonar to identify and locate hazards and debris, and assess the general condition of the work environment. After completing the 2D inspection, the 3D system is deployed in strategic locations that the 2D sonar identified as hazard-free, to collect high-resolution 3D .XYZi point cloud data of the areas of interest.

Accessories

Sonar Deployment Accessories

Engineered for quick and easy deployment of Teledyne BlueView 2D imaging sonar systems.

Pan and Tilt

A pan and tilt allows operators with directional control of the sonar. From a fixed platform, vessel, or moving platform, a pan and tilt helps optimize orientation and grazing angle to provide the clearest imagery.

Heavy Plate

The heavy deployment plate allows operators to successfully deploy a BV5000 or a 2D sonar with pan and tilt to the bottom in higher current situations or in areas where a tripod or ROV would be unsuited, e.g. where the gradient of sea/lake/river bed is rapidly changing or where a user wishes to image close in under a structure.

Sonar Reference Target

SRTs are used to help distinguish common overlapping sections of scans in areas that are featureless. The SRTs help data processors register more accurately and quickly with the easily identifiable common object.

EXC-600 Ethernet Extender

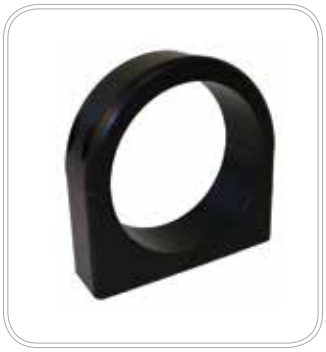
Extends sonar communication over copper wires from 200ft to <2,000 ft.

Cables

A wide variety of cables to test and operate our 2D and 3D systems. Available in the standard lengths:

- Sonar cables
- Cable whips
- Sonar, pan and tilt cables

Standard connectors include: Impulse MKS, Burton, and SeaNet (alternative available on request)



Sonar Clamp

Engineered to fit all Teledyne BlueView 2D and 3D sonar, these 4" and 5" O.D. clamps allow quick on-and-off mounting onto an existing structure or platform. Rugged, lightweight clamp features two (2) heavy duty bolt-mounting points for easy installation

Teledyne BlueView Extended Warranties

Protect your underwater vision investments with an extended warranty from Teledyne BlueView, Inc. Extended warranties are available for all imaging sonar systems and can be purchased in 1-year increments. Contact Teledyne BlueView Customer Support for details at +1-425-492-7400 or via email at swa_sales@teledyne.com.

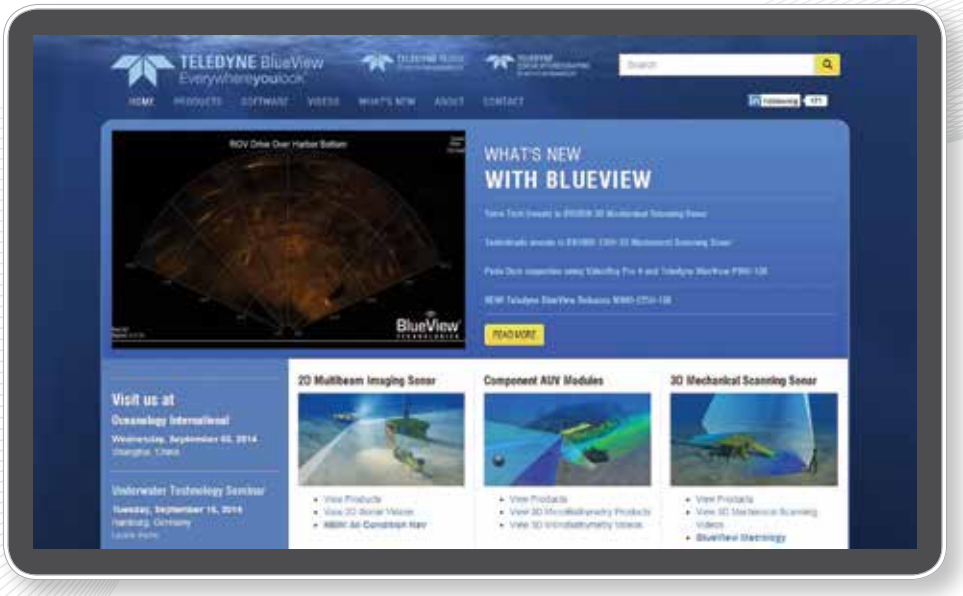
BlueView Training

Teledyne BlueView's training programs provide customers with theoretical, hands-on, and in-the-field experience to prepare participants for real-world scenarios. We know our customers' time is valuable, so courses are designed to transfer knowledge from the trainers to students efficiently and effectively. Courses can be held at the customer's facility, at Teledyne BlueView's headquarters, or at a specified location. The program length and content depends on the purchased equipment; usually 1-3 days with a mixture of in-classroom presentations/activities and in-the-field hands-on activities.

Teledyne BlueView also has a regularly scheduled 3-day comprehensive course for the entire product line called **BlueView University** (BVU). This course is designed to train individuals on the operation, usage, and implementation of Teledyne BlueView's 2D and 3D sonar systems.

Course Outline:

- **Introduction to the Teledyne BlueView Product Line**
- **Basic Sonar Theory**
- **2D User Training** (software, equipment, applications, and best-use practices)
- **3D User Training** (software, equipment, applications, and best-use practices)
- **3D Data Review, Reprocess, and Registration**
- **Project Planning using TBV Products**
- **Equipment Maintenance Procedures**



For more information visit the Teledyne BlueView website.

- Sample Data
- Software
- Case Studies
- News
- Drawings
- Manuals

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