viZaar industrial imaging AG

FOR MORE INFORMATION

CATALOGUE

REVISION 3.7

TANK, VESSEL & PIPE INSPECTION CAMERAS

PAN-TILT-ZOOM CAMERAS ▪ CRAWLERS ▪ PIPE INSPECTION CAMERAS ▪ ACCESSORIES

Article-NO.: DXX-80-000205 | Document-No.: KA002_3-7

CHOOSE THE FITTING EQUIPMENT

This catalogue provides a selection of specialized remote visual inspection systems designed and optimized for large-volume vessel inspections.

DIAMETER

Choose the closest outer diameter of your camera to the inner diameter of your application. The right choice keeps the costs low and the image quality high, as well as enabling a robust stability inside the application.

WORKING LENGTH

Select the effective length of the system to suit your individual requirements.

PERFORMANCE

Select the system best suited to your application. High light sensitivity and a long optical zoom range are ideal for visual inspections (VT) in tanks and vessels, as well as for capturing detailed images from a distance. Orbital weld inspections are best carried out using a dual-camera head with continuous 360° rotation.

The use of these systems can often save time, money and shorten production downtime.
Using viZaar® products reduces the need for inspectors to enter potentially hostile or hazardous environments.
Excellent optical zoom capabilities diminish erecting expensive scaffolding,
avoid potential contamination and damage on sensitive vessel surfaces.

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inVizX98

Minimal Focus Distance of just 10 mm

Titanium or Hard-Anodized Aluminum

98 mm Diameter

Uncompressed Full HD Resolution of 1920 x 1080 px

Certified Watertight as standard up to 45 meters

Dimmable Wide-Angle LED with up to 2000 lm

Fast 360° rotation in under 4 seconds

+/- 165° Tilt Function

The INVIZx98 is a state-of-the-art digital pan-tilt-zoom inspection camera with uncompressed Full HD resolution (1920 × 1080 pixels) for precise inspections inside large-volume vessels, tanks and reactors – ideal for industrial, chemical, pharmaceutical and nuclear applications. Thanks to its compact 98-mm housing made of corrosion-resistant titanium (Ti, Grade 5) or hard-anodized aluminum (Al), it weighs just 1,900 g (Ti) or 1,400 g (Al) and can be inserted through very small access points. This helps prevent contamination, enables a faster return to production, protects surfaces from damage and reduces the need for confined space entry, often eliminating the need for personnel to physically enter vessels, tanks and reactors.

Continuous 360° rotation in under four seconds, a 330° tilt range from ±165° with precise speed control, and two independently dimmable wide-angle LEDs provide excellent visibility and uniform illumination while minimizing shadows.

Waterproof to 45 m (optionally 60 m) and operational from -25°C to +48°C (extendable to +75°C with a cooling system), the INVIZx98 is operated intuitively via the VUnit documentation unit and enables seamless inspection documentation directly on site.

1 DIGITAL FULL-HD INSPECTION SYSTEMS

1.1.1 INVIZx98 Inspection Camera Heads

CAMERA HEAD	INVIZx98 Ti 45	INVIZx98 Al 45	INVIZx98 Al UV365
Item Number	BEM-30-000706	BEM-30-000678	BEM-30-00071406
Type	1/3“ Sony CMOS Sensor	1/3“ Sony CMOS Sensor	1/3“ Sony CMOS Sensor
Resolution	1920 (H) x 1080 (V)	1920 (H) x 1080 (V)	1920 (H) x 1080 (V)
Zoom	10 x Optical Zoom	10 x Optical Zoom	10 x Optical Zoom
Focus Range	10 mm |0.39 inch	10 mm | 0.39 inch	10 mm | 0.39 inch
Light Sensitivity	Color 0,125 lx	Color 0,125 lx	Color 0,125 lx
Shutter Speed	1/30 (25) up to 1/30,000 sec	1/30 (25) up to 1/30,000 sec	1/30 (25) up to 1/30,000 sec
Camera Temperature Display	Yes	Yes	Yes
Cable Length	3 m, 30 m, 50 m and optionally up to 80 m, wound on the viZaar® cable reel VUreel	3 m, 30 m, 50 m and optionally up to 80 m, wound on the viZaar® cable reel VUreel	3 m, 30 m, 50 m and optionally up to 80 m, wound on the viZaar® cable reel VUreel
Field of view	68° - 6,8°	68° - 6,8°	68° - 6,8°
Image Enhancement Features:	Wide Dynamic Range & Advanced Noise Reduction	Wide Dynamic Range & Advanced Noise Reduction	Wide Dynamic Range & Advanced Noise Reduction
ILLUMINATION			
Light Source	White-light LED ring (4,500K) 2 x 1000 lumen Optional interface for additional lighting modules	White-light LED ring (4,500K) 2 x 1000 lumen Optional interface for additional lighting modules	White-light LED ring with 2000 lumen UV 365 nm 1000 µW / cm ² at 28 cm in accordance with DIN ISO 3059 Optional interface for additional lighting modules
OPERATING ENVIRONMENT			
Temperature Range	-25°C to +48°C (-13 °F to 118.4°F) up to 75° C (167° F) with active cooling	-25°C to +48°C (-13°F to 118.4°F) up to 75° C (167° F) with active cooling	-25°C to +48°C (-13°F to 118.4°F) up to 75° C (167° F) with active cooling
Pressure Resistance	4.5 bar (≈ 65 psi) optional 6 bar (≈ 87 psi)	4.5 bar (≈ 65 psi) optional up to 6 bar (≈ 87 psi)	4.5 bar (≈ 65 psi) optional 6 bar (≈ 87 psi)
Internal Housing Overpressure:	Max. 1.5 bar (≈ 21 psi)	Max. 1.5 bar (≈ 21 psi)	Max. 1.5 bar (≈ 21 psi)
PAN AND TILT RANGE			
Pan Range:	360° continuous rotation	360° continuous rotation	360° continuous rotation
Tilt Range:	330° – from -165° to +165°	330° – from -165° to +165°	330° – from -165° to +165°
Axis Speed:	Full 360° rotation in under 4 seconds	Full 360° rotation in under 4 seconds	Full 360° rotation in under 4 seconds
DIMENSIONS			
Weight:	1900 g | 4.19 lb	1900 g | 4.19 lb	1900 g | 4.19 lb
Dimensions mm/in	Width: 97.8 mm |3.85 in Height: 135 mm | 5.3 in	Width: 97.8 mm |3.85 in Height: 135 mm | 5.3 in	Width: 97.8 mm |3.85 in Height: 135 mm | 5.3 in
Accessory Mounting:	M6 mounting points	M6 Mounting Points	M6 Mounting Points
Housing:	Corrosion-resistant grade 5 titanium housing	A combination of red-anodized and hard-anodized aluminum	A combination of red-anodized and hard-anodized aluminum

INVIZx98 TI/45 PTZ
Inspection Camera Set

ILLUMINATION	CONSTRUCTION	LENGTH	SYSTEM KIT
LED	Titanium	30 m	VXX-30-000163

Including:

- Camera Head INVIZx98 Ti 45
- INVIZ Full-HD Main Cable 30 m
- Box for accessories INVIZx98 (strain relief, carbon fiber pole adapter, etc.)
- INIVZx98 Protective Foam Top for VUcase
- Cable and Accessories Soft Pouch

INVIZx98 Al/45 PTZ
Inspection Camera Set

ILLUMINATION	CONSTRUCTION	LENGTH	SYSTEM KIT
LED	Hard Anodized Aluminum	30 m	VXX-30-000164

Including:

- Camera Head INVIZx98 Al 45
- INVIZ Full-HD Main Cable 30 m
- Box for accessories INVIZx98 (strain relief, carbon fiber pole adapter, etc.)
- INIVZx98 Protective Foam Top for VUcase
- Cable and Accessories Soft Pouch

INVIZx98 Al/45 UV365 PTZ
Inspection Camera Set

ILLUMINATION	CONSTRUCTION	LENGTH	SYSTEM KIT
LED/UV	Hard Anodized Aluminum	30 m	VXX-30-000165

Including:

- Camera Head INVIZx98 Al/45 UV365
- INVIZ Full-HD Main Cable 30 m
- Box for accessories INVIZx98 (strain relief, carbon fiber pole adapter, etc.)
- INIVZx98 Protective Foam Top for VUcase
- Cable and Accessories Soft Pouch

Set Base
VUnit Full-HD Platform

	SYSTEM KIT
	VXX-30-000103

Including

- VUcase Transport Case
- VUnit 10.1“ FULL-HD Control Unit
- VUnit Software Module: VUAPP-FULL-HD-C
- Printed User Manual
- VUnit System Cable 1,6 m
- Power Cable (EU, UK, or US plug)
- Country Set FUll-HD
- USB Drive with user manual
- Neck Strap
- VUcase support feet

Carbon Fiber Poles

OUTER Ø	LENGTH	CONNECTION	FUNCTION	ARTICLE NO.
28,8 mm	1.0 m	Socket / Plug TR 18x4 thread	Guiding the camera head	BMX-50-000125
28,8 mm	2.0 m	Socket / Plug TR 18x4 thread	Guiding the camera head	BMX-50-000126

Also compatible with other viZaar systems such as the SNK 60X / SNK Ultra 365

Soft Bag

Soft Bag	FXX-82-000107

For up to 10x 2 m carbon fiber poles (transport and storage). The material is robust and easy to clean.

Titanium-Adapter

INVIZX98 TITANIUM ADAPTER FOR CARBON FIBER POLES	MXX-10-001456

Mounts to the camera head's connection side. Includes all necessary stainless steel screws and hex key. Supported pole connection: TR18 x4 trapezoidal thread, external (DIN103).

INVIZx98 Strain Relief

INVIZX98 STRAIN RELIEF	BMX-50-000663

Protects cable connections from tensile forces when retrieving the camera head. Essential for suspended camera applications.

Pneumatic Hand Pump

PNEUMATIC HAND PUMP	FXX-20-000106

Pre-pressure adjustment and continuous pressure monitoring.

Cable Drum

CABLE DRUM	BEM-30-000654

The cable drum for the INVIZ Full-HD connection cable ensures safe and effortless winding and unwinding of the robust cable.

INVIZ Full-HD Connection Cable

INVIZ FULL-HD CONNECTION CABLE	3 m	15 m	30 m	50 m	80 m
ARTICLE NO.	EXX-91-000134	BEM-30-000653	BEM-30-000526	BEM-30-000527	BEM-30-000631

Kevlar®/Aramid fiber-reinforced cable. Compatible with all INVIZ Full-HD camera heads. VUcase connection. Customizable cable length. Transport bag or cable reel on request.

Transport Bag

TRANSPORT BAG FOR SYSTEM CABLE	FXX-82-000109

All required cables and accessories find a simple and convenient place in this mobile transport bag. The bag is made of robust, dirt-repellent nylon and features a soft shoulder strap plus a carrying handle. It offers space for up to 80 m of system cable and accessories.

IPIDRO

48 mm diameter

Anodized Aluminum

Uncompressed Full HD (1920 × 1080) and lossless PNG images for maximum clarity

Magnetic wheels enable inspections even on overhead

Field of View 145°

The IPIDRO from viZaar is a magnetic inspection crawler for fast, safe and reliable visual inspections in confined, hard-to-reach areas of ferromagnetic structures. Featuring a compact, hard-anodized aluminum housing (Ø 48 mm, length 130 mm, total weight 950 g incl. cable) with magnetic wheels coated in reinforced polyurethane plus differential steering, it effortlessly navigates pipes from DN 300 – even upside down, on steep inclines, or in temperatures from -10 °C to +45 °C.

Fully controllable via the VUnit, it achieves constant speeds up to 3 m/min through a 20 m marked umbilical cable, giving inspectors full control over position and depth at all times. The integrated front camera with wide-angle lens (FOV 145°), uncompressed Full-HD resolution (1920 × 1080 px), and motorized remote focus (20 mm to ∞) delivers razor-sharp images – powered by four dimmable high-performance LEDs with extreme light sensitivity down to 0.003 lux, perfectly illuminating even dark or reflective volumes.

No detail goes unnoticed. Ideal for pipelines, heat exchangers, boilers and HVAC ducts, the IPIDRO helps detect corrosion, leaks and deposits at an early stage. As a seamless module in the viZaar Full-HD platform, it integrates with the VUnit for gap-free documentation including comments, HDMI output, and AI-capable image processing – revolutionizing efficient, predictable inspection processes in chemical, oil/gas, or power plants.

CRAWLER	Inspection Crawler IPIDRO
ARTICLE NO.	BEM-30-000622
Design	• Modular, two-part inspection vehicle (IPIDRO) • Flexible joint for steep inclines • Black anodized, heat-dissipating aluminum housing • Magnetic wheels with polyurethane coating for overhead operation in ferromagnetic structures • Radial navigation in pipes from DN 300
Illumination	Four steplessly dimmable white LEDs (100 lm)
Construction	Black anodized, heat-dissipating aluminum housing
Wheels	Magnetic wheels with polyurethane coating for overhead operation
Camera	Fixed front camera (DOV 0°)
Field of View	145° wide-angle lens
Focus	Remote-controlled motorized focus (20 mm to ∞)
Resolution	Uncompressed Full-HD (1920 x 1080 px)
Weight	950 g with 20 m supply cable; 220 g without
Dimensions	Diameter: 48 mm, Length: 130 mm
Drive	All-wheel drive (3 m/min) with differential steering
Light Sensitivity	Up to 1,000 mm inspection diameter (0.003 lx)
Waterproofing	Brief submersion to 100 mm water depth
Operating Temp.	-10°C to +45°C
Functions	• Joystick control • Integrated temperature sensors to prevent overheating • One-click white balance for true-color images, manual brightness adjustment, 16-step remote focus, stepless LED dimming, image mirror/flip
Connectivity	Fixed 20 m supply cable with meter markings and integrated emergency line

Inspection Crawler IPIDRO Set

CONSTRUCTION	DIAMETER	USABLE LENGTH	SYSTEM-KIT
Aluminum	48 mm	20 m	VXX-60-000100

Including

- Crawler IPIDRO
- IPIDRO Cable 20 m
- Storage and Transport Holder for IPIDRO

Set Base
VUnit Full-HD Platform

SYSTEM-KIT
VXX-30-000103

Including

- VUcase Transport Case
- VUnit 10.1“ FULL-HD Control Unit
- VUnit Software Module: VUAPP-FULL-HD-C
- Printed User Manual
- VUnit System Cable 1,6 m
- Power Cable (EU, UK, or US plug)
- Country Set FUll-HD
- USB Drive with user manual
- Neck Strap
- VUcase support feet

Uncompressed Full HD Resolution of 1920 x 1080 px

Operation even with protective gloves

Brightness of 850 nits

Protection Class IP54

Secure by Design

Up to 8 hours of mobile operation

Seamless System Integration

Optional Expansion Slots

Weather-Resistant Case

The VUnit is the next-generation Full-HD+ documentation unit that combines all essential functions for professional visual inspections in an ergonomic all-in-one system. As the core of the viZaar Full-HD platform, it precisely controls innovative inspection modules like the IPIDRO or INVIZx98 via a 10.1“ dual-touchscreen with 1920x1200 resolution and 850 cd/m² brightness – delivering razor-sharp full-screen views in uncompressed 1080p quality, without operating icons obstructing the inspection image.

Intuitively operable with joysticks, scroll wheels, and glove-compatible touchscreen, the VUnit runs on secure Linux-based vuOS with 128 GB storage for lossless Full-HD videos (MP4) and PNG stills. Its robust aluminum-carbon-fiber housing (IP64) is suited for tabletop, neck strap, or VUcase operation in harsh environments from -10 °C to +45 °C, with extensive interfaces like HDMI, USB, SD, and Ethernet for seamless documentation, voice comments, and integration with customer AI systems.

Powerful and mobile, the VUnit enables efficient inspections in tanks, pipes, heat exchangers, nuclear plants, or pharma facilities – always with uncompressed image quality and secure data management for faster, more predictable processes.

VUcase

VUcase

VUCASE SYSTEM CASE	BEM-30-000613
Dimensions	(W) 550 x (H) 300 x (D) 420 mm
Weight	11.9 kg without inspection module and battery
Material	Durable black HPX polymer
AC Input	100–260 VAC | 50/60 Hz | max. 250 W
Mobile Operation	STIHL® AP and AP-S 36 V DC lithium-ion batteries
Supported capacities: AP 200 S, AP 300 S, AP 500 S	AP 200 S, AP 300 S and AP 500 S
Max. Mobile Runtime	Up to 8 hours with STIHL® AP 500 S
Power Management	Seamless switch between AC and battery during operation
Storage for	• Inspection module • VUnit control and documentation unit • Power cable • 1.6 m connection cable to VUnit • Accessories or spare parts box • STIHL® AP battery incl. charger • Neck strap, user manual
Weather Resistance	• Operable with special cable adapter even lid closed. • IP53 rating with STIHL® AP battery in horizontal position.
Design	• Power supply with battery adapter and IEC60320 C14 inlet • Video signal processor with inspection module cable interface and VUnit output socket • Spare slot for future expansions • Plastic feet for stable VUnit operation in VUcase
Transport Features	• Trolley wheels and telescopic handle • Two latches • Tamper-evident seal

VUnit

VUNIT 10.1“ FULL-HD	BEM-30-000616
Design	• Aluminum-carbon fiber composite housing • IP64 protection • Compact ergonomic grip
Display	• 10.1“ IPS-TFT, 1920 x 1200 px (full) • Native Full-HD 1920 x 1080 px (16:9) • 16.7M colors, no digital manipulation • 85° viewing angles • 850 cd/m² (850 nits) brightness
User Interface	• Glove-compatible capacitive dual-touch • Joysticks (3 buttons + scroll wheel each side) • Ambidextrous (left/right switchable)
Connectivity	• 1.6 m system cable for the VUcase. • USB 2.0 • SD card slot • HDMI output • Ethernet port (for servicing and future functions) • AUX socket
Connection Options	1.6 m system cable for central power supply Optional cable extension up to 5 m Rotatable cable connector for cable outlets on the left, bottom or right-hand side
Usage Options	• Tabletop stand, • Neck Strap • VUcase lid • 1/4 adapters (e.g., Manfrotto® magic-arm® incl.) • Hanging mount
Software/Processing	• Linux-based vuOS-Full-HD-C for module control & documentation • Power-efficient i.MX ARM processor • 128 GB internal storage
Recording Capabilities	• Full-HD videos (MP4) + lossless PNG stills • During video (DualCapture), frozen image, or video screenshots • Expandable via external storage media
Maintenance	• User-updatable software/firmware via USB • Modular: replaceable joystick grips, LCD screen, power supply, processor
Dimensions	(W) 395 × (H) 258 × (D) 90 mm (with joysticks)
Weight	2.598 g
Housing	Ultra-lightweight aluminum-carbon composite

Note: Operation of this control unit requires the VUapp Full-HD-C software module.

Streaming Solution

Streaming Solution	DXX-60-000592

Plug-and-play system for true-color, low-latency inspection image transmission – ideal for AI applications or remote team collaboration.

VUnit Software

VUAPP-FULL-HD-C	DXX-80-000349

The software module is required for operating the VUnit and provides an intuitive control interface. Integrated text editing, graphic, image, and video recording features, along with efficient data management tools, ensure smooth documentation and evaluation of inspection results.

Battery

BATTERY	STIHL AP 200 S	STIHL AP 300 S	STIHL AP 500 S
ARTICLE NO.	EXX-91-000134	EXX-91-000135	EXX-91-000136
Battery Energy	187 Wh	281 Wh	337 Wh
Weight	1,3 kg	1,8 kg	2,0 kg

Compatibility with other Stihl batteries available on request

Standard Charger STIHL AL 101

STIHL AL 101 STANDARD CHARGER	EXX-92-000174

The AL 101 charger is suitable for all batteries from the STIHL AK and AP systems. It impresses with its lightweight design at just 0.7 kg and operates on 220–240 V mains voltage. Charging times vary depending on the battery used.

Rapid Charger STIHL AL 301

STIHL AL 301 RAPID CHARGER	EXX-92-000175

The STIHL AL 301 battery charger reliably and conveniently charges all batteries from the STIHL AK, AP, and AR series. Integrated active cooling protects batteries during charging. The current charge status is shown via LED display.

Small Parts Box

VUCASE SMALL PARTS BOX – INVIZX98	BMX-50-000657

Adapters for strain relief, carbon poles, and compressed air.
Strain Relief
Special Mounting Tools
Strain Relief

USB-Drive with Hardware Encryption

USB Drive with Hardware Encryption	DXX-60-000591

User-friendly stick featuring military-grade security architecture for reliable protection of sensitive inspection data.

INVIZx98 Case Mount

INVIZX98 CASE MOUNT	BMX-50-000708

Easily attaches to the transport case and provides a practical solution for storing the camera head during preparation or short breaks. The form-fit holder keeps the camera securely fixed and always within reach.

USB- Drive

INTENSO SLIM LINE 64 GB USB 3.2	DXX-90-000271

This ultra-compact USB drive fits perfectly under the VUnit's splash protection with its sub-2 cm length. Weighing just 3 g, it stays unobtrusive and can remain plugged into devices or laptops permanently. Despite its small size, Super Speed USB 3.2 Gen 1×1 enables transfer rates up to 100 MB/s.

Power Cable

EU POWER CABLE WITH ANGLED C13 PLUG	EXX-70-000357

EU Power Cable / Angled C13 Plug, L=1.8 m
Conductor cross-section: 3x 0.75 mm²
Cable type: H03VV-F 3G
Voltage: 230 V AC

Neck Strap

NECK STRAP FOR VUSCREEN OR VUNIT CONTROL UNITS	FXX-90-000192

Padded strap for the control unit, enabling light and mobile system operation.

Headset

HEADSET WITH MICROPHONE	EXX-90-000318

Headset with integrated microphone for crystal-clear voice comments during inspections

System Cable

VUNIT SYSTEM CABLE 1.6 M	BEM-30-000536

The VUnit system cable provides a reliable connection between VUcase and VUnit. Specifically designed for Full-HD system requirements, it ensures stable signal transmission even in demanding conditions. Optional cable extension up to 5 m

REVOLVER 80

PANORAMA SCAN

The pipe inspection camera REVOLVER 80 provides an endless 360° rotating dual camera head (0° and 90° DOV) with high power LED il. Controlled by the joystick or following a predefined scan mode, the 360° revolving side view camera is ensuring 100% orbital weld / tube wall panorama inspections and seamless longitudinal weld inspections. No detail is missed. Zoom onto smallest details from the remotest areas with the impressive 10x optical and additional digital zoom. A high resolution forward view camera is offering excellent sight and orientation within your application. The powerful dual il technology is delivering homogeneous automatic or manual il even in big, dark cavities. User-defined left / right level functionality maximizes the potential failure contrast, also on shiny and reflective surfaces such as coated or electro polished food grade tubes. Orientation and image interpretation become easier, even after a view twists and turns during remote visual inspection. If there is no specific geometry or water level, up / down & left / right orientation will be lost and manoeuvering the instrument, interpretation of the image and securing full inspection can become a nightmare. The REVOLVER 80 auto level function keeps your camera in an upright 0° position, which resets the orientation and ensures a precise inspection starting point. It provides simple equipment handling and image interpretation, reduces inspection time, user & equipment fatigue, and therewith costs.

2.1.1 Revolver 80 Camera Head

CAMERA HEAD	Revolver 80
ARTICLE NO.	BEM-30-000142
Diameter	79 mm
Recommended Inner Pipe Ø	80 mm to 1,000 mm
Rotation	Continuous 360° rotation, speed: 0.1° to 90°/sec
Cameras	Front-view and side-view camera (dual head)
DOV	Front: 0° | Side: 90°
FOV	Front: 70° | Side: 4.6° to 46°
Focus	Auto / Manual
Zoom	Side-view: 10 x optical / 12 x digital
Resolution	Front: 752 (H) x 582 (V) px | Side: 530 TV lines
Il	Front: 15 ultra-bright LEDs (auto) | Side: 2 x 4 ultra-bright LEDs (manual/auto)
Light Sensitivity	Front: 1.2 lx
Mount	10 mm connection for fiberglass push rods
Functions	Panorama scanning | Auto-alignment (front camera always at 0° via gravity) | Position memory & auto-return

*upon request also with halogen light source

REVOLVER 80
System-Kits

DOV	FOV	LENGTH	SYSTEM-KIT
0° / 90°	4.6° to 46°	30 m	VXX-11-000116

Including

- REVOLVER 80 Camera Head
- Camera Head Transport Case
- MATRIX E3
- Matrix SNK 60x / Revolver 80 Interface
- Short Guide
- Accessories Pouch
- Main Cable 30 m
- Centering Ring

Optional Accessories

- Glass Fiber Push Pole Set
- Centering Fixture Set
- Soft Bag for Glass Fiber Push Poles
- Main Cable

GLASS FIBER PUSH POLE SET		BMX-50-000297
	5x Glass Fiber Push Pole „Soft“, Ø 6 mm, Each 1.5 Meter Length Simply to Connect and Extend by the Tool-Free 10 mm Interconnector	
	5x Glass Fiber Push Pole „Medium“, Ø 7.5 mm, Each 1.5 Meter Length Simply to Connect and Extend by the Tool-Free 10 mm Interconnector	
	5x Glass Fiber Push Pole „Stiff“, Ø 9 mm, Each 1.5 Meter Length Simply to Connect and Extend by the Tool-Free 10 mm Interconnector	

CENTERING FIXTURES SET		BMX-50-000296
	Centering Fixtures „Medium“: 140 mm to 210 mm	
	Centering Fixtures „Large“: 225 mm to 540 mm	
	Solidly Constructed Aluminum Centering Fixtures Positioning the Camera Head in the Center of the Pipe, Keeping the Camera Head Away from Dirt. The Probe is Easier to Push Forward and a Center Image Position is Delivering Repetitive Magnified, Perfectly Focused Images Around the Tube.	

Main Cables

LENGTH	CABLE REEL REQUIRED	ITEM NO.
3 m	-	BEM-30-000441
30 m	-	BEM-30-000448
50 m	-	BEM-30-000450
80 m	-	BEM-30-000451
150 m	✔	BEM-30-000452*

*Orders of cable reels always include the main cable BEM-30-000441.
Other cable lengths available on request

Centering Ring

Centering Fixture

Centering Fixture

Glass Fiber Push Pole

Glass Fiber Push Pole

Glass Fiber Push Pole

Soft Bag

Glass Fiber Pushing Aids

SPARE CENTERING RING FOR REVOLVER 80, SMALL	MXX-10-000509
Dimension	95 mm
Recommended Pipe Ø	Ab 100 mm
Construction	Robust and low friction polyoxymethylene
Function	s the camera head within the pipe and enables uniform inspection of orbital welds.

CENTERING FIXTURE, MEDIUM	BMX-50-000294
Adjustment Range	140 mm up to 210 mm
Recommended Pipe Ø	From 145 mm
Construction	Aluminum
Function	Centering fixture for usage of the REVOLVER 80 camera head inside pipes. Keeps the camera head off the ground and eases inspections when centered. The centering trolley contains six plastic wheels for low operation friction when pushing the camera head inside the pipe.

CENTERING FIXTURE, LARGE	BMX-50-000295
Adjustment Range	225 mm up to 540 mm
Recommended Pipe Ø	From 230 mm
Construction	Aluminum
Function	Centering fixture for usage of the REVOLVER 80 camera head inside pipes. Keeps the camera head off the ground and eases inspections when centered. The centering trolley contains six plastic wheels for low operation friction when pushing the camera head inside the pipe.

GLASS FIBER PUSH POLE, SOFT	FXX-71-000100
Diameter	6.0 mm
Construction	PE coated Glass Fiber Push Pole
Length	1.5 m
Mounting	10 mm Stainless Steel Quick Coupling

GLASS FIBER PUSH POLE, MEDIUM	FXX-71-000101
Diameter	7.5 mm
Construction	PE coated Glass Fiber Push Pole
Length	1.5 m
Mounting	10 mm Stainless Steel Quick Coupling

GLASS FIBER PUSH POLE, STIFF	FXX-71-000102
Diameter	9.0 mm
Construction	PE coated Glass Fiber Push Pole
Length	1.5 m
Mounting	10 mm Stainless Steel Quick Coupling

SOFT BAG FOR GLASS FIBER PUSH POLES	FXX-82-000108
This soft bag stores up to 15 of your connectable glass fiber push poles. Made from robust easy to clean materials, it will be simple to transport and store your full length push rod system.	

OUTER Ø	LENGTH	ADAPTER	WEIGHT	ITEM NO.
6.0 mm	30 m	6.0 mm to 10.0 mm	6.8 kg	FXX-71-000117
6.0 mm	50 m	6.0 mm to 10.0 mm	7.8 kg	FXX-71-000112
9.0 mm	30 m	9.0 mm to 10.0 mm	10.0 kg	FXX-71-000120
9.0 mm	50 m	9.0 mm to 10.0 mm	12.0 kg	FXX-71-000114
9.0 mm	70 m	9.0 mm to 10.0 mm	14.0 kg	FXX-71-000116
11.0 mm	100 m	11.0 mm to 10.0 mm	35.0 kg	FXX-71-000115

Transport Case

REVOLVER 80 CAMERA HEAD TRANSPORT CASE	BMX-50-000523

Light-weight, compact and splash waterproof high performance transport case for REVOLVER 80 camera head. The transport case is equipped with tailored foam interior for perfect protection of your camera heads during transport and storage.

Storage Bag

CABLE & ACCESSORIES SOFT POUCH	FXX-82-000109

Robust dirt repelling Nylon pouch for transportation & storage of camera cable harness and accessories. The soft shoulder strap allows free hands and user comfort. The pouch carries up to 50 m main cable. All useful accessories have a designated space and fitting, the outer pocket provides space for typical little tools inspectors like to have on-site.

Display Protective Foil

VUSCREEN DISPLAY PROTECTIVE FOIL	MXX-70-000274

This display cover will perfectly fit and protect your touch screen from any dirt and scratching, chemical substances corrosion, destruction, or deterioration caused by sea water. It is easy to place and replace from the screen and highly transparent. The antireflective coating will provide perfect image quality. The touch screen functions are guaranteed even with gloves on.

BOSCH Battery

BOSCH BATTERY	EXX-91-000129

36 V BOSCH battery for up to 5 h operation in battery mode.

BOSCH Battery Charger

BOSCH BATTERY CHARGER	EXX-92-000155

BOSCH battery charger for 36 V battery.

Product Training

SYSTEM TRAINING IN ALBSTADT/WOLFENHAUSEN	SXX-20-000111

Up to 6 persons in one session. (6 hrs)
Inhouse training includes working with the MATRIX E3. First start-up of the system, quick start, handling the camera heads, accurate file management, working with the text generator, copying files on a USB device, changing centering discs and safe storage of the system.

SNK

60X ZOOM

WIDE DYNAMIC RANGE

TEMPERATURE RANGE

WATERTIGHTNESS

The SNK with a unique 60x zoom, precisely RUN & SCAN function & extensive range of pan-tilt-zoom camera accessories. Big vessels, huge volume tanks & other storage containments can be inspected by just entering the SNK through a small manhole.

Remotely positioned and maneuvered from the outside, this system reduces the need for inspectors to enter potential hostile, hazardous environments. A very light sensitive camera system with powerful il, unique and outstanding optical zoom capabilities delivers smallest detail view from long distances. This inspection method reduces costs for scaffolding; avoids potential contamination & damage on sensitive vessel surfaces.

The excellent pan & tilt capabilities offer all round inspection. Quickly achieve good orientation and overview with the wide angle view. No detail is missed. Zoom in the smallest detail from the remotest area with the impressive 60x and additional digital zoom. The image will be presented and analysed from the outside in high resolution, allowing ergonomic working & consultation by other experts. Specific X/Y position information guarantees detailed orientation and documentation and can be saved for repetitive inspections. The RUN & SCAN function ensures systematic outright containment wall inspections, camera coordinates are displayed and registered to prove and document the process. Two independent controllable, field replaceable headlights offer the best possible independent il & failure detection.

Connect the SNK camera head to the MATRIX E3 system utilizing the SNK / REVOLVER 80 pack. With optional, longer cable lengths, the system cable can be stored and operated while winding / unwinding from the patented viZaar® cable reel system. Digital image manipulation provides image presentation in upright position, even when the camera is operated upside down.

CAMERA HEAD	SNK 60X LED *	SNK 60X LED*	SNK 60X LED + UV
ARTICLE NO.	VXX-30-000147	VXX-30-000153	VXX-30-000159
Zoom	60x	60x	60x
Il	1x LED 7 Watt spot (25°) at 4.000K, dimmable 1x LED 7 Watt wide-angle (100°) at 4.000K, dimmable (for homogeneous il coverage of close-up views)	1x LED 7 Watt spot (25°) at 4.000K, dimmable 1x LED 7 Watt wide-angle (100°) at 4.000K, dimmable (for homogenious il coverage of close-up views)	1x LED with 365 nm UV emitter 1x LED 7 Watt wide-angle (100°) at 4.000K, dimmable (for homogenious il coverage of close-up views)
Construction	Black anodized aluminum	Uncoated stainless steel	Black anodized aluminum
FOV	Min. 1.6° (tele angle) Max. 45° (wide angle)	Min. 1.6° (tele angle) Max. 45° (wide angle)	Min. 1.6° (tele angle) Max. 45° (wide angle)
Pan movement range	+/- 173.5° (total 347°)	+/- 173.5° (total 347°)	+/- 173.5° (total 347°)
Tilt movement range	-180° / +60° (total 240°)	-180° / +60° (total 240°)	-180° / +60° (total 240°)
Axis traveling speed	Max. 14 ° / sec.	Max. 9 ° / sec.	Max. 14 ° / sec.
Resolution	1920(H) x 1080(V) (1/3" Panasonic CMOS Sensor)	1920(H) x 1080(V) (1/3" Panasonic CMOS Sensor)	1920(H) x 1080(V) (1/3" Panasonic CMOS Sensor)
Pressure Resistance	50 m water depth default	50 m water depth default	50 m water depth default
Housing air pre-pressure	Max. 0.7 bar / 10.15 psi (for leakage testing and water depth pressure relief)	Max. 0.7 bar / 10.15 psi (for leakage testing and water depth pressure relief)	Max. 0.7 bar / 10.15 psi (for leakage testing and water depth pressure relief)
Weight	2.97 kg	6.6 kg	2.97 kg
Features	Enables inspections of cavity entry zones, home-position, progressive scan for improved motion-video, maintenance-free safety clutch, Wide Dynamic Range, 2D / 3D noise reduction, 1/3" sensor size, temperature sensor, auto-brightness, long-time exposure up to 1/7 sec., min. il at 1/50 sec. exposure time 0.6 lux, min. object focussing distance capability 10mm, manual overrun of autofocus, automatic shutter speed. Fully compatible with all versions of SNK desktop control units (except availability of digital image enhancement and Wide Dynamic Range) & MATRIX E3 documentation systems with SNK / REVOLVER 80 interface.		

*upon request also with halogen light source

Housing Material

The economic choice is the robust & lightweight anodized aluminum housing. For harsh and materials aggressive environments or nuclear radiation environment, we recommend the stainless steel housing. Please contact one of our sales representatives for further help.

Sets and spare camera heads are interchangeable and differentiated by il and housing material.

SNK 60x
System-Kits

ILLUMINATION	CONSTRUCTION	LENGTH	SYSTEM KIT
LED *	Aluminum	30 m	VXX-30-000148
LED *	Stainless steel	30 m	VXX-30-000150

*upon request also with halogen light source

SNK 60x System-Kit includes:

- SNK 60x camera head (LED)
- Camera head transport case
- MATRIX E3
- Matrix SNK 60x/Revolver 80 interface
- Short Guide
- Accessories Soft Pouch
- Main Cable 30 m
- Strain Relief

SNK Ultra 365
System-Kit

ILLUMINATION	CONSTRUCTION	LENGTH	SYSTEM KIT
LED and UV-Emitter	Aluminum	30 m	VXX-30-000161

SNK Ultra 365 System-Kit included:

- SNK 60x Camera Head (LED + UV)
- Camera Head Transport Case
- MATRIX E3
- Matrix SNK 60x/Revolver 80 Interface
- Short Guide
- Accessories Soft Pouch
- Main Cable 30 m
- Strain Relief

Optional Accessories

- Air Pump
- SNK Hardware Set
- Main Cables

SNK INSPECTION HARDWARE SET		BMX-50-000298
	Manhole Swivel Tripod	
	3 x 2 m Carbon Fiber Poles	
	SNK Camera Adapter to TR 18x4	

MANUAL AIR PUMP FOR WATERTIGHTNESS CHECK	FXX-20-000106
	Check camera before inspection to be waterproof. Increase your water depth inspection range by pre pressurisation without CO_2.

Main Cables

LENGTH	SLIPRING CABLE REEL REQUIRED	ITEM NO.
3 m	-	BEM-30-000441
30 m	-	BEM-30-000448
50 m	-	BEM-30-000450
80 m	-	BEM-30-000451
150 m	✔	BEM-30-000452*

*Orders of cable reels always include the main cable BEM-30-000441.
Other cable lengths available on request.

Camera Lift

CAMERA LIFT	BMX-50-000177
Height	Max. 5 m
Function	Allows camera transport into vessels from the bottom.

Manhole Swivel Tripod

MANHOLE SWIVEL TRIPOD	BMX-50-000128
Horizontal operation	Up to 4 m (Carbon Fiber Poles)
Vertical operation (up)	Up to 6 m (Carbon Fiber Poles)
Vertical operation (down)	Up to 30 m (Carbon Fiber Poles)
Push pole Ø	29,0 mm
Fixation size	250 mm up to 1.200 mm
Application	Two ergonomic fixation knobs and one ball joint
Function	Offers fast, three dimensional locking of the camera head inside application. Provides precise and fatigue free camera movement even with higher weight and longer carbon fiber pole length.

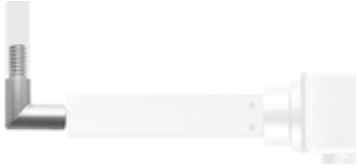
Carbon Fiber Poles

OUTER Ø	LENGTH	MOUNTING	FUNCTION	ITEM NO.
28,8 mm	1.0 m	Male / female TR 18x4 threads	Mounting and guiding of the SNK 60x camera head in the application	BMX-50-000125
28,8 mm	2.0 m	Male / female TR 18x4 threads	Mounting and guiding of the SNK 60x camera head in the application	BMX-50-000126

Soft Bag

SOFT BAG FOR CARBON FIBER POLES	FXX-82-000107

This soft bag stores up to 10x 2 m connectable carbon fiber poles. Made from robust easy to clean materials, it will be simple to transport and store your full length carbon fiber poles.



L-Piece

L-PIECE	BMX-50-000108

Positions the camera head into a 90° horizontal position to the carbon fiber pole, increasing the potential inspection range. Inspect areas, otherwise potentially unreachable or hidden by the own push rod system such as the inner manhole entry, bearings at boiler agitator, heating cartridges or measurement probes.

Push Pole Adapter

SNK CAMERA ADAPTER TO TR 18X4	BMX-50-000107

Stainless steel adapter to connect poles with the camera head.

Pushing Trolley

PUSHING TROLLEY FOR SNK CAMERA HEAD	BMX-50-000301
Dimensions	380 (L) x 193 (W) x 142,5 (H) mm, incl. wheels
Weight	1.5 kg
Function	Connected to carbon fiber poles and 10 mm clutch of fiber epoxy poles. Utilized in forward and backward pushing direction. <

Strain Relief

STRAIN RELIEF FOR SNK CAMERA HEAD	BMX-50-000629

Bridging the weight forces from the camera head onto the Kevlar strengthened camera cable, this device is avoiding strain and potential damage to the electrical connector.

Transport Case

SNK CAMERA HEAD TRANSPORT CASE	BMX-50-000522

Light-weight, compact and splash water proof high performance transport case for SNK camera heads. The transport case is equipped with tailored foam interior for perfect protection of your camera heads during transport and storage.

Soft Pouch

CABLE & ACCESSORIES SOFT POUCH	FXX-82-000109

Robust dirt repelling Nylon pouch for transportation & storage of camera cable harness and accessories. The soft shoulder strap allows free hands and user comfort. The pouch carries up to 50 m main cable. All useful accessories have a designated space and fitting, the outer pocket provides space for typical little tools inspectors like to have on-site.

BOSCH Battery

BOSCH BATTERY	EXX-91-000129

36 V BOSCH battery for up to 5 h operation in battery mode.

BOSCH Battery Charger

BOSCH BATTERY CHARGER	EXX-92-000155

BOSCH battery charger for 36 V battery.

Display Protective Foil

VUSCREEN DISPLAY PROTECTIVE FOIL	MXX-70-000274

This display cover will perfectly fit and protect your touch screen from any dirt and scratching, chemical substances corrosion, destruction, or deterioration caused by sea water. It is easy to place and replace from the screen and highly transparent. The antireflective coating will provide perfect image quality. The touch screen functions are guaranteed even with gloves on.

Product Training

SYSTEM TRAINING IN ALBSTADT / WOLFENHAUSEN	SXX-20-000111

Up to 6 persons in one session. (6 hrs)
The training includes working with the MATRIX E3. First start-up of the system, quick start, handling the camera heads, accurate file management, working with the text generator, copying files on a USB device, changing centering discs and safe storage of the system.

The MATRIX E3 platform sets new standards for professional video and image recording and data capture in the remote visual inspection sector. The platform offers three different docking bays, one for mobile battery operation, one for mains power use and one specialized unit allowing full use and control of the SNK PTZ/REVOLVER 80 inspection cameras.

Various connection/input options ensure full compatibility with a wide range of different inspection systems as well as images and videos recorded with other systems. Any Video and S-Video signal can be connected directly to the system.

Features of the MATRIX E3:

- Save your images and videos in low, medium and high resolution either on the integrated SSD or direct to USB.
- File manager (Create, copy, rename and delete files and folders.
- Image editing (e.g. flip, rotate, zoom, text input, long exposure, white balance, color, contrast, full screen mode, point marker).
- Add text to images with the integrated text generator tool (additional 99 storage locations in standard configuration).
- Record audio commentary/narration for inspection images.
- Up to nine password protected user accounts with stored individual system settings and preferences.
- Multilingual user interface.

The MATRIX E3 is the ultimate single platform for control, capture, edit and viewing of all remote visual inspections.

OPERATION WITH VIZAAR EQUIPMENT

EDITING INSPECTION DATA

DATA STORAGE

MATRIX E3 dition

MATRIX E3

MATRIX E3	VXX-80-000102
Dimensions	(W) 540 x (H) 290 x (D) 400 mm
Weight	without power pack: 11.9 kg | with power pack: 14.6 kg
Construction	Impact resistant HDPE/HWU plastic, aluminum profile with plastic edge protection.
AC input	100 VAC - 240 VAC | 50/60Hz | max. 250 Watt
Memory	80GB SSD
Video input	PAL / NTSC | Composite | S-video
Video output	HDMI worldwide standard (1024 x 768 px)
Connectors	USB 3.0 | Recording remote control | 12V(DC) / 750 mA Aux-out | Headset connector
Environmental specifications	Operation: -15°C to +48°C | Storage: -25°C to +65°C | Relative humidity: max. 95%, non condensing
VUSCREEN touch screen control panel	✔
Display size	10.4" LCD
Resolution	1440 x 1080 px
Contrast	1.600:1
Brightness	850 cd/m²
Backlight	LED
Colors	262.144
Operation	Touch screen | Joystick | Direct access buttons
Mounting	System: Integrated Tilting Mounting | Portable: Neck Strap
Dimensions	(W) 320 x (H) 30 x (D) 230 mm
Weight	1.6 kg
Construction	Carbon fiber design with all around elastomer bumper | Power Cable 1.60 m

AC Power Pack

MATRIX E3 AC POWER PACK	BEM-30-000128

Your MATRIX E3 can be operated from any main power supply utilizing this docking device. Any voltage from 100 to 240 VAC and 50/60Hz will be accepted.

Power Pack

MATRIX E3 POWER PACK FOR SNK / REVOLVER 80 INCL. BATTERY INTERFACE	BEM-30-000397

The power pack for SNK / REVOLVER 80 will greatly enhance the capabilities of your inspection service. This docking bay for your MATRIX E3 will allow connection, control and documentation with any SNK pan-tilt-zoom camera head REVOLVER 80 camera head. The module is simply plugged to the MATRIX E3 docking bay. The camera connections are compatible with your existing camera cables up to 80 m working length.

BOSCH Battery

BOSCH BATTERY	EXX-91-00129

36 V BOSCH battery for up to 5 h operation in battery mode.

BOSCH Battery Charger

BOSCH BATTERY CHARGER	EXX-92-00155

BOSCH battery charger for 36 V battery.

Transport Case

DOCKING BAY CASE	BMX-50-000526

This robust case is home for all power pack and spare batteries. Light-weight, compact and splash water proof high performance transport case for MATRIX E3 power packs. Product tailored interior for perfect protection during transport and storage.

VUSCREEN Control Unit

VUSCREEN CONTROL UNIT FOR VUMAN®/MATRIX E3	BEM-30-000257
Display size	10.4“ LCD
Resolution	1440 x 1080 px
Contrast	1.600:1
Brightness	850 cd/m²
Backlight	LED
Colors	262.144
Operation	Touchscreen | Joystick | Direct Access Buttons
Dimensions	(W) 320 x (H) 30 x (D) 230 mm
Weight	1.6 kg
Construction	Carbon Fiber Design with All-Around Elastomer Bumper | System Cable 1.60 m

Umbilical Cable

UMBILICAL CABLE	EXX-70-000272
Length	1.60 m
Connection angle (VUSCREEN control unit)	90°
Function	Remote Operation Extension Cable for the VUSCREEN Control Unit

Display Protective Foil

VUSCREEN DISPLAY PROTECTIVE FOIL	MXX-70-000274

This display cover will perfectly fit and protect your touch screen from any dirt and scratching, chemical substances corrosion, destruction, or deterioration caused by sea water. It is easy to place and replace from the screen and highly transparent. The antireflective coating will provide perfect image quality. The touch screen functions are guaranteed even with gloves on.

Product Training

SYSTEM TRAINING IN ALBSTADT/WOLFENHAUSEN	SXX-20-000111

Up to 6 persons in one session. (6 hrs)
The training includes working with the MATRIX E3. First start-up of the system, quick start, handling the camera heads, accurate file management, working with the text generator, copying files on a USB device, changing centering discs and safe storage of the system/spare probe.

2.3.3 MATRIX E3 Software

SOFTWARE	MATRIX E3	MATRIX E3 + SNK	MATRIX E3 + REVOLVER 80
SETUP			
Default User	✔	✔	✔
Individual User 1-9	✔	✔	✔
Multi Language User Interface	✔	✔	✔
Saving to SSD / external USB / SSD and external USB	✔	✔	✔
Display Pan and Tilt Data	-	✔	✔
E-Manual	✔	✔	✔
OPERATION MENU			
Standard Operation Menu	✔	-	-
SNK Operation Menu	-	✔	-
REVOLVER 80 Operation Menu	-	-	✔
RUN & SCAN	-	Left / right / up / down	Left / right
Save / Load Camera Position (up to 9 Positions)	-	✔	✔
White Balance	✔	✔	✔
Brightness / Contrast / Color Saturation	✔	✔	✔
Image Focus	-	✔	✔
Long Time Exposure	✔	✔	✔
Il Switch	-	✔	-
Camera Switch (0° and 90° DOV)	-	-	✔
Laser on / off	-	✔	-
Flip / Mirror / Zoom	✔	✔	✔
Rotate (clockwise / counter-clockwise)	✔	✔	✔
Individual Reference Chart / Customer Logo	✔	✔	✔
Full Screen Mode	✔	✔	✔
Point Marker	✔	✔	✔
Auto Leveling	-	-	✔
Video Recording Length	Unlimited	Unlimited	Unlimited
Adjustable Recording Length	✔	✔	✔
Video Quality	Low / Medium / High*	Low / Medium / High*	Low / Medium / High*
Video Format	AVI / MPG	AVI / MPG	AVI / MPG
Audio Commentary for ,Images (up to 30 sec.)	✔	✔	✔
Image Capture during Video Recording	✔	✔	✔
Image Quality	Low / Medium / High*	Low / Medium / High*	Low / Medium / High*
Image Format	JPG / BMP	JPG / BMP	JPG / BMP
Measurement	✔	✔	✔
TEXT GENERATOR			
Status Bars	4	4	4
Free Text	✔	✔	✔
Text Color	7 colors	7 colors	7 colors
Text Background Color	9 colors	9 colors	9 colors
Date & Time	✔	✔	✔
Individual Reference Chart / Customer Logo	✔	✔	✔
Camera Head Temperature	-	✔	✔
Displayed Item Positioning	✔	✔	✔
Save / Load User Settings	✔	✔	✔
FILE MANAGER			
Copy Files	✔	✔	✔
Rename Files	✔	✔	✔
Delete Files	✔	✔	✔
Create Folders	✔	✔	✔
Create Subfolders	✔	✔	✔
Copy Folders / Subfolders	✔	✔	✔
Rename Folders / Subfolders	✔	✔	✔
Delete Folders / Subfolders	✔	✔	✔
MEDIA PLAYER			
Video Playlist	✔	✔	✔
Image Slide Show	✔	✔	✔
Play / Pause	✔	✔	✔
Forward / Backward	✔	✔	✔
BACKUP MENU			
Create / Load System files Backup	✔	✔	✔
Restore Factory Settings	✔	✔	✔
Autoscan and Repair	✔	✔	✔

* Depending on connected video equipment.

XPANDING YOUR VU

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