



MADE  
IN  
GERMANY

THE UNIVERSAL **CAPTURE/VIEW/CONTROL** MEASUREMENT  
PLATFORM FOR ALL REMOTE VISUAL INSPECTIONS

**MATRIX** *dition* **E3**



Your Complete Source for  
Testing Equipment Since 1969!

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Berg Engineering & Sales Company, Inc.

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# THE UNIVERSAL CAPTURE/VIEW/CONTROL PLATFORM

THE MATRIX E3 CAN BE USED WITH ALL REMOTE  
VISUAL INSPECTION PRODUCTS...



## SRK

INSPECTION VESSEL & TANK INSPECTION



# MATRIX dition E3



### RIGID BORESCOPE COMPONENT INSPECTION

The MATRIX E3 can be used to capture both videos and images digitally from your rigid borescope inspections. The data is stored on the integrated SSD on the MATRIX E3 and can be edited, annotated and narrated as required.



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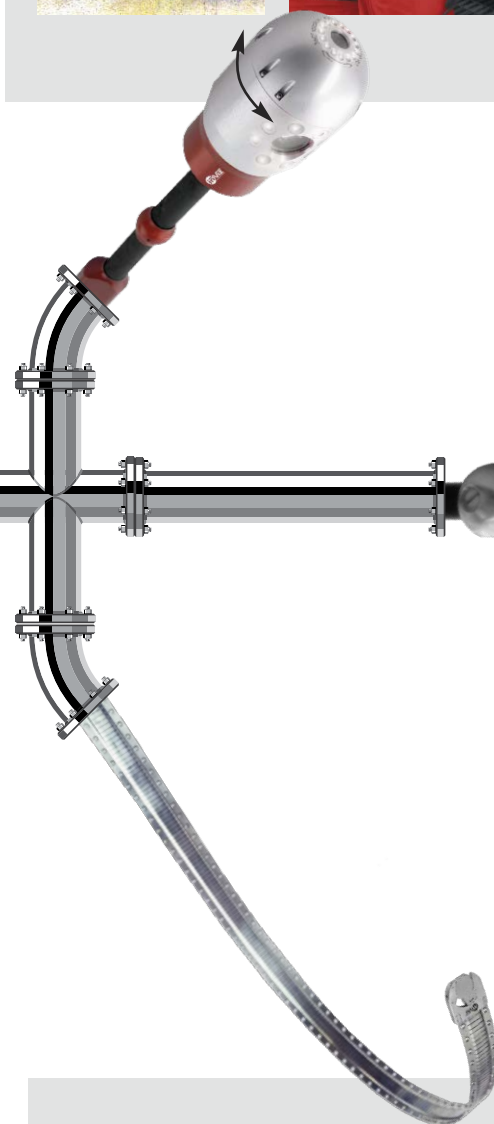
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# REVOLVER 80

## INTERNAL ORBITAL WELD INSPECTION - ENDLESS REVOLVING



Simply connect the **REVOLVER 80**, with its two cameras and an endless 360° rotating camera head. The front view camera (0°) provides excellent orientation for your Remote Visual Inspection (RVI). Scan welds / orbital welds / inner pipe walls with the side view camera (90°). Both cameras have adjustable high power LED illumination, and an additional 10x optical zoom for the side view camera for perfect contrast even on reflective surfaces like coated or polished food grade tubes.



## BIG

### SMALL VESSEL & PIPE INSPECTION

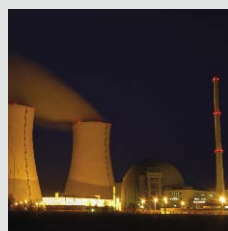
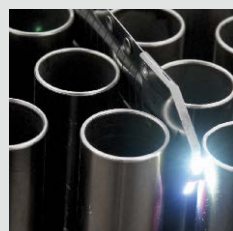
The BIG is the optimal 29 mm diameter solution for cost efficient and reliable inspections of small and medium volumes.

With the latest high power LED illumination technology, the BIG provides excellent, true-color inspection details. Due to the large usable length inspection point at distances up to 80 meters can be reached.



### FLEXIBLE FIBEROPTIC COMPONENT INSPECTION

Even fiberscopes can be directly connected to the MATRIX E3. Allowing full capture and edit facilities for complex, articulating inspections.



## VUFLEX®

### STEAM GENERATOR INSPECTION

Even specialised videoprobes such as the viZaar VUFLEX-S and -C steam generator inspection probes can be connected to the MATRIX E3



# MATRIX dition E3

## HIGHLIGHTS



### COMMON PLATFORM

Keep all of your inspection data in one place and in one single format. By using the MATRIX E3, all of your data will be converted to a digital format, stored in one location and transferred easily via either USB or SDcard.



### DATA & MEDIA STORAGE

Images and videos are digitised and displayed in high resolution on the integrated VUSCREEN (PPE compatible touchscreen). It can be captured (via the integrated solid state HDD or direct to USB) as either a video or picture easily and simply in a choice of low, medium and full resolution versions.



### EDIT - TEXT ANNOTATION

Add annotations, text, point markers or any other reference data required through the MATRIX E3 in real time via the easy to use VUSCREEN PPE compatible touchscreen controller. Alternatively, simply connect the headset and record real time audio narration to any inspection videos.



### REFERENCE MEASUREMENT

An integrated measurement system, allows for accurate measurement of linear distance, radius, circumference and area. Save the images with measurement data and you can re-measure as required.



### CONTROL - SNK PTZ CAMERA

The viZaar SNK can be fully integrated and controlled with the MATRIX E3 allowing you to use the unique 40x optical zoom, precise run & scan function & independently adjustable LED units. Perfect for all tank and vessel inspection requirements.



### CONTROL - REVOLVER 80

Full control and connectivity with the viZaar REVOLVER 80. The REVOLVER 80 provides a dual camera head (0° and 90° DOV) with endless 360° rotating camera head for Remote Visual Inspection (RVI) of orbital welds in pipework from 80 mm to 1.000 mm inner diameter.



### CONNECT - BORESCOPE CAMERA

Capture your rigid borescope and fiberoptic inspections by connecting your camera to the MATRIX E3, and you can convert the images/videos instantly to digital and enjoy the benefit of the real time high resolution digital image and storage abilities.



### CONTROL - BIG

Full control of the viZaar BIG pipe inspector which provides a light sensitive 29 mm camera head for inspections of pipes 30 mm inner pipe diameter upwards.



### CONNECT - VUFLEX-S/C

Specialised videoprobes, such as the VUFLEX steam generator inspection videoprobe, are full compatible with the MATRIX E3, ensuring full functionality and capabilities even on the most specialised inspections.





# FEATURES

CAPTURE. VIEW. CONTROL.

## VUSCREEN CONTROL UNIT

A fully integrated, ergonomic and robust viewing and control unit for the MATRIX E3 system. Resistive, true colour, 10.4" 1024 x 768 touchscreen with LED backlight, integrated joystick and sliding adjustment bars. Carbon fiber housing with elastomer bumpers to ensure durability and portability PPE/Glove compatible Simple and intuitive control interface.

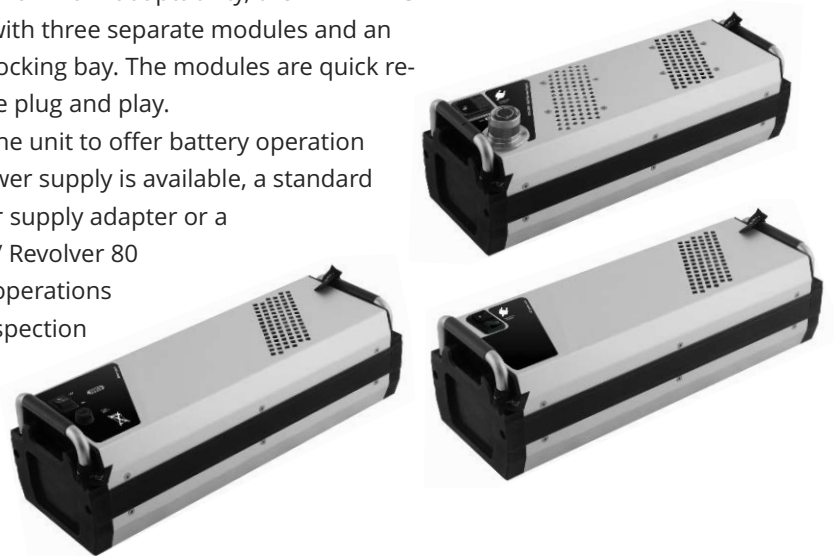
Can be used as a standalone screen or mounted on the integrated housing in the MATRIX E3 unit there by ensuring ease of use even in harsh environments.



## MODULAR DESIGN



To allow for maximum adaptability, the MATRIX E3 is available with three separate modules and an integrated docking bay. The modules are quick release and are plug and play. This allows the unit to offer battery operation when no power supply is available, a standard global power supply adapter or a special SNK / Revolver 80 adapter for operations with both inspection systems.



## VIDEO IN / HDMI OUT

To ensure that the MATRIX E3 is a universal platform, it offers the ability to push video in from non OEM products and use the digital image and video capture abilities. The system automatically recognizes PAL/NTSC composite and S-Video inputs. The MATRIX E3 also offers video out via digital (HDMI) 1024 x 768 to allow for connection to external monitors or recording devices.



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# SPECIFICATIONS



## TECHNICAL DATA MATRIX E3

<b>Dimensions in mm / inch</b>	(W) 540 / 21.26" x (H) 290 / 11.41" x (D) 400 / 15.74"
<b>Weight (all incl. case)</b>	15.8 kg / 35 lbs with battery   11.2 kg / 24.7 lbs without battery
<b>Environmental Specifications</b>	Operation temperature -15°C to +48°C (5°F to +118°F)   Storage temperature -25° to +65°C (-13°F to +150°F)   Relative humidity max. 95%, non condensing
<b>AC input</b>	100 VAC – 240 VAC / 50/60Hz / max. 250 Watt
<b>Housing</b>	Impact resistant HDPE/HWU plastic, aluminium profile with plastic edge protection
<b>Video input</b>	PAL or NTSC composite and S-Video, auto detecting
<b>Video output</b>	HDMI worldwide standard (1024 x 768px)
<b>Connectors and outlets</b>	USB 3.0, recording remote control, 12VDC / 750mA Aux-Out, optional Composite and S-Video output (PAL and NTSC)
<b>System memory</b>	Up to 16 hours of full resolution MPEG4 video-recording or several thousand BMP and JPG high quality images



## TECHNICAL DATA VUSCREEN MATRIX E3

<b>Dimensions in mm / inch</b>	(W) 320 / 12.6" x (H) 30 / 1.18" x (D) 230 / 9.06"
<b>Weight</b>	1.6 kg / 3.3 lbs without cable
<b>Mounting</b>	Base Unit: integrated recording   Portable: shoulder harness
<b>LCD monitor</b>	10.4" LCD, contrast 1200:1, 400 cd, sunlight transreflective LED illumination, 262,144 colors, viewing angle all directions +/- 90°
<b>Operation</b>	Resistive touch screen incl. five direct access buttons and joystick
<b>Features</b>	10.4" VUSCREEN touchscreen control unit. Features include an integrated file manager, image manipulation flip, mirror, rotate, zoom, text editing, full screen mode and point marker feature, audio narration, text generator, customisable colour reference charts, multi user support, reference measurement system, PTZ control via the integrated joystick, light intensity/zoom/focus control via the sliding controllers.

## TECHNICAL DATA DOCKING MODULES MATRIX E3

<b>Option docking bay case</b>	Dimensions in mm / inch: (W) 415 / 16.34" x (H) 465 / 18.31" x (D) 190 / 7.48"   Weight: 3,3 kg / 7.2 lbs, transport case for optional docking bays.
<b>Option LCD display protective foil</b>	Highly transparent, easy to mount display cover with antireflective coating fits perfectly and protects the touch screen from any dirt and scratching, chemical substances, corrosion, destruction, or deterioration.
<b>Option AC power pack</b>	Dimensions in mm / inch: (W) 342 / 13.46" x (H) 100 / 3.93" x (D) 133 / 5.23"   Weight: 2.2 kg / 5.1 lbs
<b>Option INVIZ SNK / Revolver 80 pack</b>	MATRIX docking module for connecting, controlling, recording with the SNK PTZ and the Revolver 80 cameras. Dimensions in mm / inch: (W) 342 / 13.46" x (H) 100 / 3.93" x (D) 133 / 5.23"   Weight: 2.9 kg / 6.5 lbs
<b>Option battery pack</b>	NIMh: 9 Ah, 24 Volt. Operation time: approx. 1,5 to 2 hours. Operation environment: -25°C to +45°C (-13°F to +113°F). Charging unit included.   Dimensions in mm / inch: (W) 342 / 13.46" x (H) 100 / 3.93" x (D) 133 / 5.23"   Weight: 4.7 kg / 10.4lbs

WARNING! Not for medical use. Never use close to electrical facilities, or in hazardous or explosive environments. US or EUROPEAN patents may apply to all INVIZ® and VUCAM® products.



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# CAMERAS



**REVOLVER 80**

**CAMERA HEAD 10X, OPTICAL ZOOM**

A dual-camera remote visual inspection system incorporating one high resolution [ $>470$  video lines, 752 (H) x 582 (V) pixel], 1,2lx) 90° DOV side viewing orbital inspection camera and one forward viewing navigation camera. The orbital camera performing autofocus function with a 10x optical zoom, wide angle oversight at 46° field of view to details at 4,6° field of view. The system features: endless rotation, unique helix scan function, an adapter for 10 mm glass fibre pushing aids, circumferential LED illumination for 80 mm to 1000 mm  $\varnothing$  pipe, high speed rotation to programmable return and home position, advanced digital drive and white balance adjustment.



**SNK**

**SNK 40 X OPTICAL ZOOM (PTZ), INSPECTION CAMERA HEAD,**

Black anodized aluminium PTZ inspection camera head. Pan movement range  $\pm 173,5^\circ$  [total 347°], tilt movement range  $-180^\circ / +56^\circ$  [total 236°, enables inspection of the cavity entry zone]. Max. motorized traveling speed of each axis 14mm/sec., home- position, maintenance-free safety clutch; weight 2980 grams, max. verified operation depth in water: 50 meter, max. environmental operation temperature 55°C; 1 x LED lamp 7 Watt Spot (25°) @ 3500K + 1 x LED lamp 7 Watt wide-angle (100°) @ 3500K for homogenous illumination-coverage of close-up views, each LED lamp provides 8 dimming steps; SD-Video max. Resolution of 570.000 Pixel, Wide Dynamic, 2D / 3D noise reduction, Sony Super Had II CCD imaging technology, sensor size  $\frac{1}{4}$ ", progressive scan for improved motion-video, long-time exposure up to 1 sec., min. illumination at 1/50 sec. exposure time 0,6 lux, max. camera FOV /wide angle 60°, min. FOV / tele angle 1,6°, max. digital zoom 12 x (max. total zoom 480 x), min. object focussing distance capability 10mm, manual over-ride of autofocus, auto-brightness and automatic shutter speed; temperature sensor, housing can be air-pressurized up to 0,7 bar / 10psi for leakage testing and water depth pressure relief. Fully backwards compatible with all versions of SNK desktop control units (digital image enhancement and WD functions only available with MatriX based systems) and MatriX documentation systems with SNK / R80 interface.

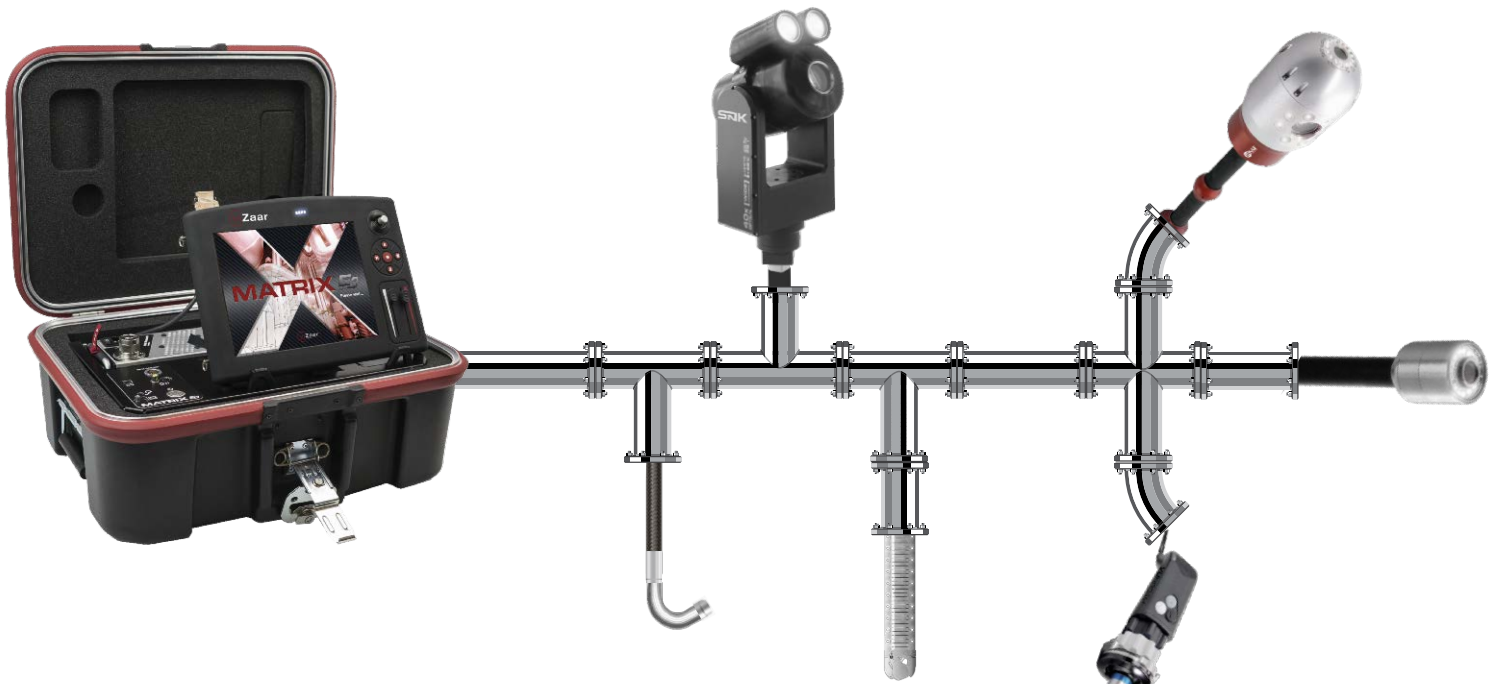


**BIG PIPE CAMERA**

**CAMERA HEAD**

1/3" SONY Super HAD sensor, over 570,000 pixel, automatic exposure, 92° FOV, straight view (f=4,6mm), Focus adjustment area from 30 mm to 400 mm, large depth of sharpness, head diameter 29 mm, shock resistant camera head from stainless steel, waterdepth to 5 bar.





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