2018
Product Catalog

"The Standard of the Industry"

CUES®

- Video Pipeline Inspection Equipment
- Condition Assessment Software
- Manhole Inspection Equipment
- Grouting Equipment & Rehabilitation Solutions

www.cuesinc.com

"The Standard of the Industry"

CUES provides innovative pipeline inspection technology and solutions for the Water/Wastewater/ Stormwater industries.

CUES is the world's leading manufacturer of closed circuit television video (CCTV) inspection systems, joint sealing, pipe profiling equipment and asset inspection/decision support software for sanitary and storm sewers, industrial process lines, and water lines. For over 50 years, CUES has provided innovative pipeline inspection technology and solutions to enable accurate condition assessment and proactive maintenance programs for buried infrastructure.

CUES continues to be the industry leader by designing and manufacturing a full-circle solution of products for pipe inspection, profiling, rehabilitation, and data acquisition with bi-directional interfaces to ESRI ArcGIS and asset management software such as Hansen, Azteca Cityworks, and others.

In addition to inspection equipment, CUES also designs and manufactures chemical grouting systems for mainline and lateral pipe joints capable of using a wide variety of grouting products.

CUES also manufactures lateral reinstatement cutting systems for laterals in mainline sewers after they have been relined. Pipe profiling is accomplished via Laser or Sonar based systems.

CUES after-sales support is a foundation of our business model. We ship 98% of our spare part orders within 24 hours of receipt of an order. We also provide loaner equipment and full-time customer support and training by experienced industry professionals. Operator training schools with resultant certification are provided for our customers. Our emphasis on innovation and customer support has made CUES the world's largest supplier in our industry.

CUES operates its manufacturing and development operations from over 60,000 square feet of facilities in Orlando, FL. We maintain facilities for sales, service and repair in California, Wisconsin, Georgia, and Canada. We appreciate the opportunity to serve you and look forward to hearing from you at your earliest convenience.

ABOUT CUES

- Designs and manufactures a full-circle solution of products for pipe profiling, pipe rehabilitation, pipe inspection, and mainline / lateral grouting.
- Industry leader for over 50 years.
- Customer service and after-sales support are the best in the industry.

CUES, Inc. Product Catalog

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DUC Digital Universal Camera

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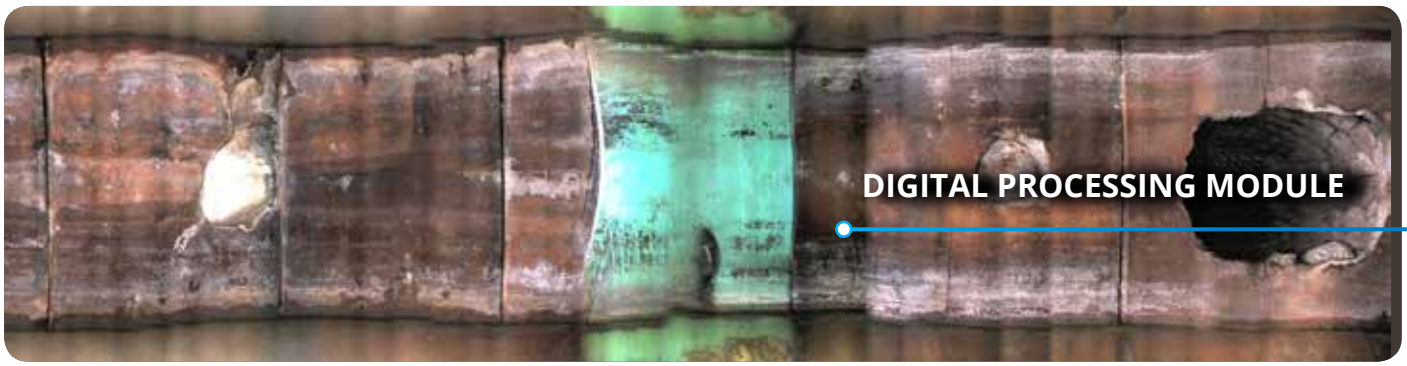
DUC Camera shown on the optional Ultra Shorty 21 transporter.

THE CUES DIGITAL UNIVERSAL CAMERA (DUC) IS A HIGH RESOLUTION DIGITAL CCTV SIDE-SCANNING CAMERA DESIGNED FOR RAPID AND DETAILED CONDITION ASSESSMENT OF YOUR WASTEWATER OR STORMWATER SYSTEM.

When used in conjunction with our GraniteNet software, customers double their daily footage, on average, while significantly reducing the overall cost of an inspection. The system can be deployed from both portable and vehicle-mounted systems, providing a versatile solution for CCTV pipeline inspection needs.



DUC Digital Universal Camera

Features & Benefits

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- Allows for proactive sewer repair and replacement recommendations. The EPA has stated that proactive management of sewer assets can reduce total asset costs by 20-30%.
- Show compliance with local, state, and federal regulatory agencies; maintain compliance with CMOM and GASB 34 while establishing a solid baseline to apply for various State and Federal grants.
- Identify the most critical problems to address in your wastewater system and achieve predictive failure analysis, based on rapid, accurate, and detailed condition assessment.
- Establish a centralized system of record keeping accessible to all decision makers to assure proper, defensible spending.
- DUC ReDUCtions: overall cost of inspection per foot, such as traffic control costs, equipment maintenance, vehicle expenses, coding of observations, inspection review/viewing, reduces risk of monetary fines.
- Perform a full inspection, including condition assessment of a 400ft pipe segment, in under 15 minutes!
- High output strobe lighting system illuminates 6”-60” lines without externally-mounted lighting.
- 3.1 megapixel high resolution camera produces unparalleled detailed images - industry leading resolution!
- Integration with CUES GraniteNet software and GIS systems provides a powerful tool for Capital Improvement Planning.
- No moving parts on the camera – simply drive the unit on a CUES wheeled or tracked transporter through multiple pipe sections for maximum efficiency.
- DUC can be retrofitted to any CUES or industry standard multi conductor truck mounted system.

Captures and provides LIVE video, not just still images.

Offers 2x to 3x production over traditional analog systems.

Reduces overall operations cost per foot by more than 50%.

Can inspect the largest range of pipe sizes of any digital side-scanning system, 6”–60”.

Video is stitched via the CUES GraniteNet software digital processing module. Flat images are available immediately following the inspection while LIVE video is available during/throughout the inspection. Virtual pan, tilt, and zoom plus a flat unfolded view of the entire surveyed pipe, enables rapid condition assessment review, significantly faster than traditional video inspection review. An expanded flat view is provided for additional detail with measuring capabilities.

OZIII Pan Tilt & Optical View Camera

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OZIII Camera shown on the optional CUES CPR transporter.

THE OZIII CAMERA PROVIDES UP TO 40:1 OPTICAL/DIGITAL ZOOM, AUTOMATIC FOCUS, AS WELL AS REMOTE FOCUS AND IRIS CONTROL, TO ASSURE THE BEST QUALITY VIDEO WITHIN VARYING PIPE CONDITIONS.

The OZIII optical zoom pan-and-tilt camera offers built-in directional field-replaceable lighting for 6" to 72" pipe to produce the highest quality image details of your CCTV pipeline inspection. Use the OZIII camera with the CUES steerable Compact Pipe Ranger (CPR) to inspect 6" relined through 48" sanitary and storm sewers. OZIII connects directly to the CPR transporter with no exterior wires or cables.

OZIII Pan Tilt & Optical Zoom Camera

Features & Benefits

- 10X optical zoom and 4X digital zoom; total 40:1 zoom capability enhances image details from faraway distances.
- .4 MP; higher image resolution means sharper pictures with maximum detail.
- 360 x 285 degree pan and rotate viewing capability; pan and tilt simultaneously while the transporter moves!
- Field-replaceable white LED lighting for 6”-72” lines with optional external lightheads; internal lights are directional with the moving camera head for optimum illumination in various pipeline conditions.
- Gamepad control of focus, iris, and shutter allows the operator to compensate for pipe conditions.
- Pan, rotate, zoom, and focus homing feature; quick and easy to reorient to the current location.
- Optical-grade sapphire camera window helps prevent image distortion.
- Includes an internal diagnostic system.
- Options: 512 Hz sonde for locating and inclinometer for inclination surveys.
- Can be used in pipelines as small as 5” in diameter.

10X optical zoom and 4X digital zoom; total 40:1 zoom capability

360 x 285 degree pan and rotate viewing capability.

Auto-focus to quickly focus on an area of interest.

Can be used in pipelines as small as 5” in diameter.

The OZIII camera include an optional sonde to accurately locate the camera in metallic and non-metallic pipes! An optional inclinometer is also available for inclination surveys.

OZII Pan Tilt & Optical View Camera

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OZII Camera shown on the optional CUES SPR transporter.

THE OZII OPTICAL ZOOM PAN-AND-TILT CAMERA OFFERS UNPARALLELED IMAGING TECHNOLOGY AND BUILT-IN LIGHTING FOR 6" TO 72" PIPE TO PRODUCE CLARITY OF PICTURE WITH ENHANCED DETAIL.

The OZII camera provides up to 40:1 optical/digital zoom, automatic iris and focus, as well as remote focus and iris control to assure the highest quality picture within varying pipe conditions. CUES "Light Enhancement Technology" eliminates the need for an external lighthead! Easy operation at the controller allows the operator to change the sensitivity of the camera at their fingertips - - no need to install an external lighthead if the pipe material or pipe diameter changes!

OZII Pan Tilt & Optical Zoom Camera

Features & Benefits

"The Standard of the Industry"

- 10X optical zoom and 4X digital zoom; total 40:1 zoom capability enhances image details from faraway distances.
- .4 MP camera; higher image resolution means sharper pictures with maximum detail.
- Four field-replaceable lights (available with white LEDs or halogen lamps); internal lights are directional with the moving camera head for optimum illumination in 6"-72" pipe.
- Gamepad control of all camera functions: focus, iris, and shutter allows operator to compensate for pipe conditions.
- Pan, rotate, zoom, and focus homing feature; quick and easy to reorient to the current location.
- 400 degree rotational optical viewing angle; 331 degree pan viewing angle range; view minute defects and voids around the entire diameter of the pipe wall.
- Compatible with up to 4000' multi-conductor cable and up to 2000' single-conductor cable.
- Options: 512 Hz sonde for locating and inclinometer for inclination surveys.
- Includes an internal diagnostic system.

10X optical zoom and 4X digital zoom; total 40:1 zoom capability.

Pan, rotate, zoom, and focus homing feature.

Four field-replaceable lights (available with white LEDs or halogen lamps).

Auto-focus to quickly focus on an area of interest.

The OZII camera include an optional sonde to accurately locate the camera in metallic and non-metallic pipes! An optional inclinometer is also available for inclination surveys.

STEERABLE PIPE RANGER II

Multi & Single Conductor Wheeled Transporters

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The Steerable Pipe Ranger II is a rugged and versatile robotic camera transporter designed to traverse silt, mud and debris commonly found in storm and sanitary sewers. The SPR II is designed with single-point wheel removal to facilitate speedy configuration changes for various pipe diameters and conditions. The unique built in two (2) speed transmission doubles the torque of the unit to produce maximum pulling power in large diameter pipe when the 10.5" diameter tires are installed.

- Operates with up to 2000' of single or multi-conductor cable to inspect 7" relined through 72" pipe.
- Single-point wheel removal for speedy configuration changes in various pipe diameters and conditions.
- Multiple wheel sets are available to maximize bottom clearance, traction, and optimum camera position.
- The SPRII can operate with the CUES Digital Side Scanning Camera (DUC).

8" Rubber

10" - 15" Rubber

12" Pneumatic

* SPRII transporters are shown with the optional OZII camera.

SPRII Transporter

Features & Benefits

8” Steel

10” - 15” Steel

18” - 72” Knobby

THE SPRII CAMERA TRANSPORTER IS DESIGNED TO TRAVERSE SILT, MUD AND DEBRIS COMMONLY FOUND IN STORM AND SANITARY SEWERS.

- Single point removal of wheels; multiple wheel sets are available to maximize bottom clearance, traction, and optimum camera position.
- Optional remote operated electronic camera lift or manual camera lift.
- Operates with all CUES cameras: pan-and-tilt and optical zoom.
- Freewheel, powered reverse, forward variable speed control.
- Operates with the CUES Digital Side Scanning Camera (DUC).
- Designed to provide clearance in a 7” diameter pipe; can inspect 8” relined pipe.
- Two-speed transmission doubles the torque and maximizes traction in larger diameter pipe or in difficult pipe conditions.
- Rear tip-up bulkhead connector minimizes strain on the cable connection during the inspection and retrieval.
- Wheels and spacers designed for the CUES Compact Steerable Pipe Ranger, LAMP II Lateral Launcher, and wheeled / tracked transporter can be used on the Steerable Pipe Ranger II without the need for modification.
- The SPR II can be used with the wireless gamepad controller for all camera and transporter functions.
- An aluminum version is available for those that require a lightweight transporter for their inspection needs.

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COMPACT PIPE RANGER

Multi-Conductor Wheeled Transporter

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CPR transporter shown with the optional OZIII camera.

THE COMPACT PIPE RANGER (CPR) IS A LIGHTWEIGHT, COMPACT, AND RUGGED STEERABLE TV CAMERA TRANSPORTER USED TO INSPECT SANITARY AND STORM SEWERS.

The Compact Pipe Ranger (CPR) is designed to operate on a minimum of 1000' ft of multi-conductor TV cable to inspect 6" relined pipe through 48" diameter pipe. The Compact Pipe Ranger (CPR) includes full-proportional steering to traverse meandering pipe and 45 and 90 degree turns. The superior pulling power of the CPR, combined with the optics and directional lighting of the compact OZIII zoom pan and tilt camera (with the ability to rotate in a 4" circle), creates video inspection quality that's unsurpassed in the industry.

CPR in the 6" Rubber Configuration

CPR in the 8" Configuration

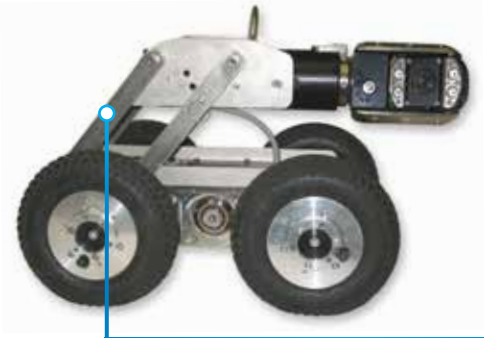
CPR in the 6" Steel Configuration

Multiple wheel sets are available to maximize bottom-clearance, traction, and optimize camera position; High-traction wheels are available for slippery PVC pipe; Wheels can be installed or removed from a single point of contact.

CPR Transporter

Features & Benefits

An optional mechanical or power camera lift is available to prevent the need for an operator to enter the manhole to position and reposition the camera height and to optically center the camera in varying pipe diameters.



Optional Mechanical Camera Lift

Optional Power Camera Lift

An optional rear-viewing camera, which is mounted to the CPR transporter, is available to help avoid obstacles and potential tip-overs in the pipeline by providing visibility when retrieving the transporter or driving in reverse.

Optional Rear-Viewing Camera

THE CPR IS DESIGNED TO TRAVERSE LONG DISTANCES AND TOUGH PIPE CONDITIONS, AND TO FACILITATE EASE OF HANDLING DURING INSERTION AND RETRIEVAL.

- Operates in 6" relined pipe through 48" diameter pipe and larger.
- Operates with CUES OZIII zoom pan and tilt camera & CUES multi-conductor systems.
- Ease of operation is accomplished with one joystick control for all transporter and camera movements.
- A variable "cruise control" setting is available for transporter speed for hands-off operation!
- Designed to traverse sanitary sewers, storm drains and pipe with debris and silt.
- Freewheel, powered reverse, forward variable speed control, all wheel drive.
- Locking bayonet-style rear bulkhead connector - durable/stable.
- Two-speed transmission doubles the torque and maximizes traction in varying pipe conditions.
- Rear swivel bulkhead connector minimizes strain on the cable connection during insertion and retrieval of the unit.
- Compact camera/transporter length with the CUES OZIII camera facilitates entry into small inverts, small manholes, dead end lines, and traversal of sweeps.
- Full proportional steering control to traverse meandering pipe with 45° and 90° turns; minimizes transporter turnover in small diameter pipe.

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WTRIII Transporter

Wheeled/Tracked Transformer Transporter

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WTRIII transporter shown with the optional OZIII camera.

THE CUES WTRIII OFFERS THE BEST OF BOTH WORLDS. THE CUES WTRIII IS AN AFFORDABLE AND VERSATILE TRANSFORMER TRANSPORTER THAT CAN OPERATE WITH WHEELS OR TRACKS. YOU CAN TRANSFORM YOUR TRANSPORTER TO ACCOMMODATE VARYING PIPE CONDITIONS!

Distinguished as the first modular transporter in the CCTV pipeline inspection industry, the WTRIII can be adapted to operate in varying, difficult, and hazardous pipelines ranging from 6" diameter relined pipe up to 30" pipes. Save time with the quick installation of wheels or tracks with single point removal. Save money since existing CUES wheel sets can be used on the transporter. Various wheel sets and tracks are available to maximize performance.

WTRIII Transporter

Features & Benefits

- Traverse varying pipe conditions with quick install of wheels or tracks.
- Inspects 6” relined through 30” pipe.
- Optional high-traction tracks are available, easy to install.
- Weighted adapters optically center the camera in each pipe size and increase bottom clearance.
- Single point removal of wheels.
- Various wheel sets available to maximize performance in various pipe conditions.
- Camera connects directly into transporter with protective carriage assembly.
- Works with CUES OZIII pan and tilt zoom camera or CUES OZIII Nite Lite Pan and Tilt Camera.

Various wheel sets and tracks are available to maximize performance.

Affordable and versatile transformer transporter that can operate with wheels or tracks.

Save time with the quick installation of wheels or tracks with single point removal.

Inspects 6” relined through 30” pipe.

The CUES WTRIII is an affordable and versatile transformer transporter that can operate with wheels or tracks. You can transform your transporter to accommodate varying pipe conditions!

STEERABLE MUDMASTER

Multi & Single Conductor Wheeled Transporter

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SMM transporter shown with the optional OZII camera.

THE STEERABLE MUDMASTER IS A CAMERA TRANSPORTER SPECIFICALLY DESIGNED WITH THE NECESSARY WEIGHT, POWER, HIGH CLEARANCE, AND ALL- WHEEL DRIVE FOR PIPELINES RANGING FROM 24" TO 200".

The unit is designed to operate with 2000' of single-conductor cable or multi-conductor cable and combines high ground clearance with pneumatic tires to provide the traction and camera stability that's required for operation under the most adverse pipeline conditions, including high flow, deep mud, sand and large amounts of debris. Optional tandem wheels are available.

Go the Distance with the CUES Steerable Mudmaster!

SMM Transporter

Features & Benefits

THE CUES STEERABLE MUDMASTER OPERATES WITH CUES MULTI OR SINGLE CONDUCTOR SYSTEMS.

- Inspects 24” through 200” lines.
- Can operate on all truck-mounted and portable systems.
- Operates with all CUES cameras.
- Four or eight (tandem) wheels provide greater traction in all types of pipe, under all conditions.
- Remote-operated adjustable camera lift to position the camera for best available picture; stable center of gravity when the camera lift is extended.
- 255 watt light system, variable, adjustable, 3 lamps (2-lamps for single-conductor III units-170 watts total).
- Fits through a manhole with an inside diameter of 19”.
- Utilizes all-wheel drive in conjunction with a low center of gravity to traverse and steer through pipelines.
- Longer wheel base to prevent accidental roll-over.
- Dual motors to ensure adequate power for longer inspections.
- High-clearance for operation in debris-filled pipes.

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Ultra Shorty 21

Variable Weight Tracked Transporter

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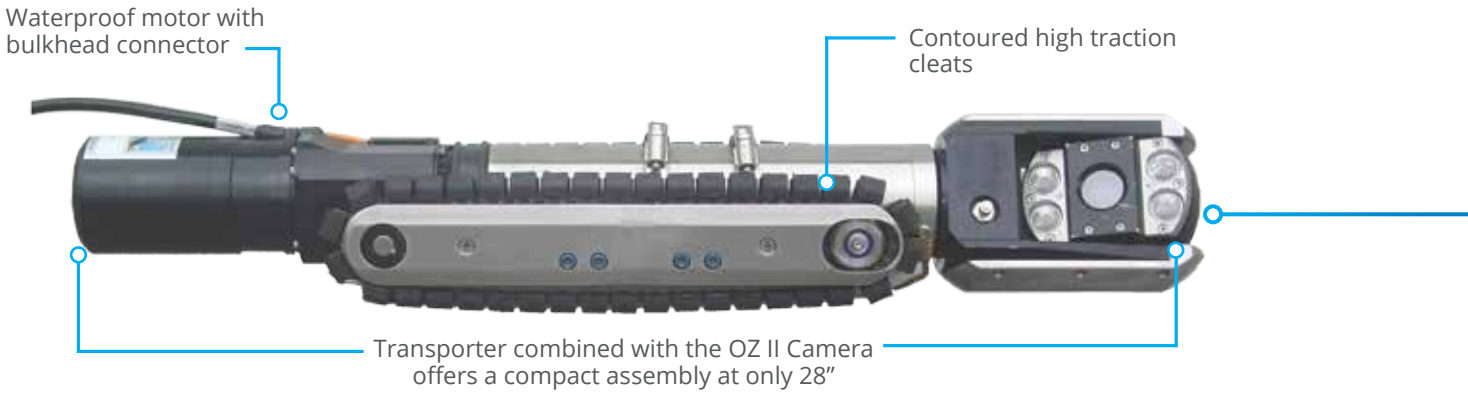
US21 transporter shown with the optional OZII camera.

THE CUES ULTRA SHORTY 21 IS A TRACKED-TRANSPORTER DESIGNED TO INSPECT 6"-36" LINES WITH MAJOR OFFSETS AND PROTRUDING LATERALS. ADAPTER BLOCKS ARE AVAILABLE TO OPTICALLY CENTER THE CAMERA IN 30" TO 36" LINES. THE TRANSPORTER, WHEN COMBINED WITH THE OZII PAN, TILT, OPTICAL ZOOM CAMERA, OFFERS A COMPACT ASSEMBLY AT ONLY 28".



Ultra Shorty 21 Transporter

Features & Benefits

- Proven transmission with power forward, freewheel and power reverse; high speed retract without running over cable and easy to back out of a dropped manhole.
- Operates in 6” to 36” lines; maximum versatility and applications.
- Waterproof motor with bulkhead connector.
- Contoured high traction cleats; maximum pipe wall contact for greater traction.
- Weighted track extenders that lift to optically center camera; greater weight for increased traction.
- Self-cleaning drive sprockets; maximum performance in mud and sand.

Operates in 6” to 36” lines; maximum versatility and applications.

Adapter blocks are available to optically center the camera in 30” to 36” lines.

The transporter, when combined with the OZII camera, offers a compact assembly at only 28”.

Contoured high traction cleats; maximum pipe wall contact for greater traction.

The Ultra Shorty 21 tracked transporter, when combined with the OZII pan, tilt, optical zoom camera, offers a compact assembly at only 28”.

Ultra Shorty III Transporter

Variable Weight Tracked Transporter

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USIII transporter shown with the optional OZIII camera.

MAXIMIZE YOUR ADVANTAGE IN 6" RELINED PIPE! THE CUES ULTRA SHORTY III OFFERS THE MOST COMPACT TRACKED TRANSPORTER IN THE INDUSTRY TODAY!

The CUES Ultra Shorty III can be used with any multi-conductor system to inspect 6" relined to 24" lines with major offsets and protruding laterals. Ultra Shorty III features a reduced camera/tractor length with the CUES OZIII Camera to facilitate line entry through inverts with limited space and traverses 22, 45, and 90 degree sweeps in smaller diameter lines. The transporter includes weighted adapter blocks to optically center the camera and a built in connector and protective housing for direct insertion of the OZIII camera; no camera interface cables are required.

Ultra Shorty III Transporter

Features & Benefits

- Proven transmission with power forward, freewheel and power reverse; high speed retract without running over the cable and easy to back out of a dropped manhole.
- Weighted track extenders to optically center the camera; greater weight for increased traction, increase bottom clearance as pipe diameter increases.
- Inspection speed can be optimized to match pipe size and conditions.
- Contoured high traction cleats are provided to maximize pipe wall contact for greater traction.
- The transporter also includes dual track fasteners to increase track/cleat life and self-cleaning drive sprockets when operating in mud and sand.
- The reduced USIII transporter width enables full pan and tilt / zoom capabilities in 6” relined pipe.

Inspect 6” relined to 24” lines with major offsets and protruding laterals.

Reduced OZIII camera/tractor length eases line entry through inverts with limited space.

Maximum clearance is provided for 6” and 6” relined pipe.

The transporter includes weighted adapter blocks to optically center the camera.

The Ultra Shorty III is provided with a built in protective housing and bulkhead connector to accommodate the mounting and direct connection of the CUES OZIII Zoom Pan and Tilt Camera. Weighted adapter blocks are available to optically center the camera, and increase traction and bottom clearance in 6” through 24” lines.

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LAMPII

Lateral & Mainline Probe

The self-propelled, robust LAMPII is a CCTV pipeline inspection tool for identifying infiltration and inflow, potential crossbores, pipe defects, and structural conditions in lateral services and mainlines. The LAMPII is able to accomplish this by utilizing a self-propelled lateral launcher, transportation platform, and two cameras, one for pan/tilt/optical zoom operations (mainline) and one for lateral launching. The LAMPII with the optional Mini Pan & Tilt Camera will inspect laterals services and traverse multiple bends and wyes when deployed with or against the flow.

LAMPII shown with the optional Mini Pan & Tilt Camera.

LAMPII Lateral & Mainline Probe

Features & Benefits

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- True one-pass mainline and lateral inspection; inspect more in less time.
- Self-leveling lateral camera with built in sonde.
- Traverse multiple bends and wyes with or against the flow.
- Can be added onto existing CUES units.

PAN & TILT INSPECTION OF ALL LATERAL CONNECTIONS, WITH OR AGAINST THE FLOW! SIMULTANEOUS PAN, TILT & ZOOM INSPECTION OF MAINLINES!

- Easily launches with or against the flow.
- Inspect mainlines and laterals with one inspection run.
- Front-mounted pan and tilt / zoom camera (40:1 optical/digital zoom): Completes mainline inspection and monitors lateral camera; Articulates to facilitate invert entry; Automatic centering.
- Traverse up to 1,000' of mainline pipe while still being able to launch into laterals.
- Self-leveling lateral camera with built in sonde.
- Supplied with 4 sets of wheels for 6"-30" lines.
- Traverses 45 and 90 degree bends in lateral services.
- Fiberglass push cable: up to 150 ft. push cable.
- Rear tip-up connector.
- Optional Equipment: mini pan & tilt lateral camera with directional rod for steering; rear-view camera; high traction steel wheel sets; big pipe package available to increase pipe size range to 36".
- Robust 6 wheel drive with single point wheel removal.
- Can be added onto existing CUES units.

MINI Pan & Tilt Camera

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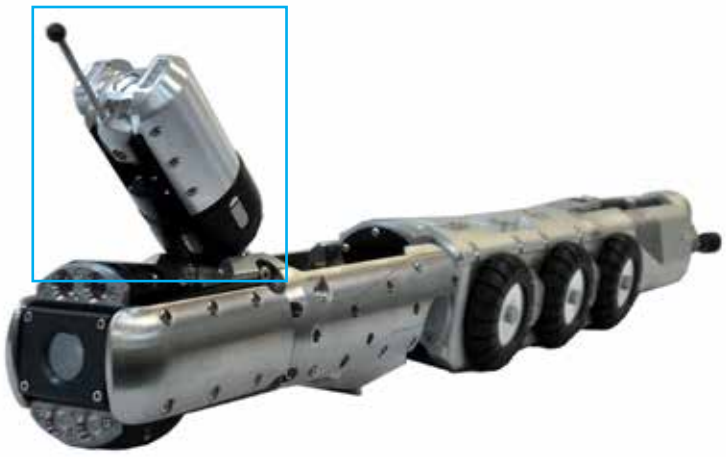
THE CUES MINI PAN & TILT CAMERA IS DESIGNED TO WORK WITH THE LAMPII LATERAL LAUNCHER OR WITH THE MPLUS+ XL SYSTEM FOR MAINLINE PIPE INSPECTIONS.

The Mini Pan & Tilt Camera is designed to navigate through multiple wyes and 45 and 90 degree bends / sweeps with the integrated directional rod. All pan and tilt functionality is integrated into the systems controller.



MINI Pan & Tilt Camera

Features & Benefits

- Rotation: Continuous 360 degree rotation; Pan: Continuous 360 degree rotation.
- Illumination: White LED Lighting.
- Scratch-resistant sapphire window.
- Ability to direct the camera and lights to observe all defects, including joint separations, cracks, offsets, spotting, and roots.
- Built-in multi-frequency sonde transmitter; 512 Hz or 8 kHz.
- Detachable steering wand provides the ability to navigate through multiple wyes.
- Built in lens wiper.
- Self-leveling camera head.
- LED lighting with variable intensity.
- Rugged carrying case.
- Optional skid packages available for mainline use.

Built in multi-frequency sonde transmitter; 512 Hz or 8 kHz.

Direct the camera and lights to observe all pipeline defects.

Built in camera lens wiper; no need to remove the camera from the pipe to clean the lens.

Detachable steering wand to navigate through multiple wyes.

Use the optional CUES Mini Pan & Tilt Camera with the CUES LAMPII or MPlus+ XL system for mainline pipe inspections. The Mini Pan & Tilt Camera includes a detachable steering wand, self-leveling camera head, built in lens wiper, 360 degrees pan and tilt, (4) banks of LED's with variable light intensity, and a built in sonde with switchable frequencies.

CUES CUSTOM
TRUCK-MOUNTED INSPECTION SYSTEMS

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CUES PROUDLY OFFERS CUSTOM TRUCK, VAN, ATV, OR TRAILER-MOUNTED SYSTEMS FOR ALL OF YOUR TV INSPECTION, CONDITION ASSESSMENT, AND REHABILITATION NEEDS!

Made to withstand the most severe conditions and ergonomically designed for comfort and efficiency, CUES vehicle-mounted systems can include TV inspection equipment for sanitary and storm water lines, laser and sonar pipe profiling systems, mainline joint and lateral sealing, and lateral reinstatement cutters for the relining industry. Equipment can be ergonomically mounted to inspect 6" through 200" mainlines and 3" through 8" lateral services. Customize your truck interior, cabinets, equipment, and mounting configuration to fit your unique requirements! Truck and trailer mounted grout rehabilitation systems are available for mainline, manhole, and lateral joint sealing and can be equipped with the latest CCTV equipment and decision support software for television inspection with documented condition assessment!

CUES TRUCK-MOUNTED Inspection Systems

TV MAINLINE/LATERAL INSPECTION TRUCKS
Equipment can be ergonomically mounted to inspect 6" through 200" mainlines and 3" through 8" lateral services with optional equipment to inspect 3" through 8" lateral services with access from the mainline or a clean-out.

TV/INSPECTION TRUCKS
CUES offers a wide variety of chassis choices with custom interiors. Equipment can be ergonomically mounted to inspect 6" through 200" mainlines and 3" through 8" lateral services. User friendly GraniteNet data acquisition software can interface with various asset management and ESRI ArcGIS systems.

SPRINTER TV INSPECTION TRUCKS
Custom Sprinter trucks are available for pipeline inspection operations.

TV/CUTTER/GROUT INSPECTION TRUCKS
This all-in-one production unit can complete TV Inspection of mainlines, laterals (optional), joint sealing of mainlines or laterals, and lateral reinstatement (cutting). Pipe inspection operations and the resultant rehabilitation action are facilitated by one integrated system.

TV/CUTTER INSPECTION TRUCKS
Custom Cutter / TV inspection trucks include full capabilities for reinstating lateral services, removal of protruding taps, brush finishing existing cuts, and pre and post TV inspection.

TV/GROUT INSPECTION TRUCKS
This all-in-one production unit can complete TV Inspection of mainlines, laterals (optional), joint sealing of mainlines or laterals, and lateral reinstatement (cutting). Pipe inspection operations and the resultant rehabilitation action are facilitated by one integrated system.

CUES IS A LICENSED TRUCK DEALERSHIP/TRUCK-BODY CONVERTER AND STOCKS VARIOUS FORD, GMC, CHEVROLET, WORKHORSE, INTERNATIONAL, AND FREIGHTLINER CHASSIS, RANGING FROM 5,280 GVWR TO 33,000 GVWR.

With our in-house, state-of-the-art Vehicle Assembly Center, CUES can substantially reduce the manufacturing time required for your turn-key truck-mounted system! Customize your truck interior, cabinets, equipment, and mounting configuration to fit your unique requirements! Depending on the specific vehicle, chassis are available in diesel, gas, and natural gas configurations. Optional dry freight box mounted systems are also available.

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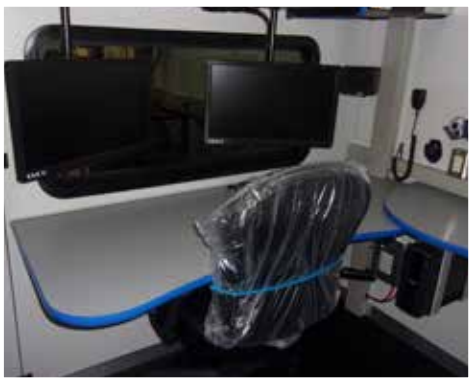
EVOLUTION
Series 3.0 Interior

THE CUES EVOLUTION 3.0 SERIES IS DESIGNED TO MAXIMIZE OPERATOR COMFORT, SAFETY AND CONVENIENCE.

THE EVOLUTION 3.0 SERIES INTERIOR PROVIDES A MODERN ERGONOMIC DESIGN TO ACHIEVE EASE OF OPERATION, SAFETY, AND CONVENIENT STORAGE TO PRODUCE THE MOST EFFICIENT, RUGGED, AND RELIABLE SYSTEM IN TODAY'S MARKET.

The Evolution 3.0 Series Interior includes many standard features, such as insulated walls and ceilings for interior comfort, the best interior materials and finishes available to provide a long lasting quality work environment for the operator, a large tinted safety glass viewing window to maximize the viewing area when operating the equipment, and high-bright long life interior LED lighting to maximize operator safety and efficiency.



EVOLUTION SERIES 3.0

Features & Benefits

OPTIONAL EQUIPMENT

- Sliding drawer storage in rear kick plate for tools and accessories.
- Lockable storage drawer in rear kick plate with cable notch for camera/transporter setup.
- Three step rear bumper with folding step and safety grab handle.
- Side entry door with fold out steps and safety grab handle.
- Hazard strobe warning light system.
- Front and rear directional traffic advisors.
- Custom exterior safety lighting/strobes/LED flasher systems (customer to specify).
- Rear awning for protection from the sun and rain.
- Intercom system for communication between the Viewing and Equipment rooms.
- 20 gallon washdown system for equipment cleanup.
- Retractable water hose reel for equipment cleanup.
- Sink/faucet for operator cleanup.
- Full restroom.
- Compressor system.
- Wireless keyboard and mouse.
- Custom cabinetry (customer to specify).
- Custom laminate colors (customer to specify).
- Equipment room mounted LED flat-screen monitor for rear operator viewing.
- 12V crane system to aid in equipment deployment and retrieval.
- Optional EVO II interior.

THE CUES EVOLUTION 3.0 SERIES IS DESIGNED TO MAXIMIZE OPERATOR COMFORT, SAFETY AND CONVENIENCE. CONTACT CUES TO LEARN HOW A CCTV INSPECTION VEHICLE CAN BE CUSTOMIZED PER YOUR SPECIFICATIONS.

- Interiors designed to maximize operator comfort and convenience.
- Seamless FRP finished walls and ceilings for easy cleaning.
- Cabinets/walls/ceiling constructed with high quality plywood - no particle board or MDF material used.
- Vehicle layout is specifically designed for even weight distribution from side to side to ensure a quality ride.
- Rear floodlights are installed inside of the rear doors for quick, simple adjustments.
- Indirect high-bright LED lighting - produces even lighting, which eliminates glare on viewing monitors.
- Electronic components mounted above the desktop to increase countertop space.
- Flat screen LED video and computer monitors mounted above desktop (attached to electronics console) to maximize valuable countertop space in the Viewing Room.

"The Standard of the Industry"

CUES®

CUES CUSTOM
Trailer-Mounted Systems

"The Standard of the Industry"

CUES PROUDLY OFFERS CUSTOM TRAILER-MOUNTED SYSTEMS AS ANOTHER EFFECTIVE ALTERNATIVE TO TRUCK-MOUNTED SYSTEMS FOR ALL OF YOUR TV INSPECTION AND REHABILITATION NEEDS!

CUES trailer-mounted systems can include TV inspection equipment for sewer/storm/potable water lines, mainline joint or lateral sealing, and lateral reinstatement cutters for the relining industry. A variety of options can be added to expand your system, as needed. Customize your trailer interior, cabinets, equipment, and mounting configuration to fit your unique requirements!

TRAILER-MOUNTED SYSTEMS

Features & Benefits

CUSTOMIZE YOUR TRAILER INTERIOR, CABINETS, EQUIPMENT, AND MOUNTING CONFIGURATION TO FIT YOUR UNIQUE REQUIREMENTS!

- The interior of the trailer is divided into two areas of operation: a TV trailer Control Room (operator's station and viewing Room) and an Equipment Room (equipment mounting and storage area).
- The trailer is equipped with (2) roof-mounted amber warning beacons and (2) adjustable halogen floodlights as shown on the component list.
- An ergonomic control console with rounded edges is used for mounting all electronic components.
- The Control Room is located at the front of the trailer. A roof mounted 13,500 BTU air conditioner with built in heat strip is supplied.
- Can be used with a variety of vehicles.
- Save the cost of a dedicated vehicle.
- Can be set up with the same equipment as conventional truck-mounted systems.
- Optional configurations are available.

"The Standard of the Industry"

CUES

THE NEXT GENERATION CONDITION ASSESSMENT SOFTWARE

GraniteNet is a PACP, MACP and LACP Version 7 certified software platform for managing assets, tasks, people and equipment.

GraniteNet
ASSET INSPECTION / DECISION SUPPORT SOFTWARE

GraniteNet is the next generation of our highly successful Granite XP software, and has been architected using contemporary technologies offering unmatched flexibility, customization, and ease-of-use to meet the growing needs of the industry. GraniteNet has many advantages which are critical to deploying a comprehensive Capacity Assurance, Management, Operation, and Maintenance program (CMOM).

PRECISE ASSET DATA ENABLES EFFECTIVE REGULATORY COMPLIANCE

GASB 34, instructs municipal utilities to report values for their infrastructure. Failing to comply could result in penalty to a municipality, or criminal liability. CUES innovated a solution which assists municipalities with these mandates to allow asset values to be documented and calculated more accurately.

GraniteNet is a complete software solution for managing the condition of assets. It helps users schedule inspections and review the condition of assets as well as control the process of inspecting and analyzing your infrastructure at a more granular level with the addition of tasks and assignments.

GRANITE NET BASIC EDITION: SIMPLE ... EASY TO USE FOR OPERATORS

GraniteNet Basic was designed for operators to optimize data collection. It has a simple interface to take advantage of small screens and portable computers. Main, Lateral, and Node Inspection modules can be activated independently allowing you to only purchase the features that you need.

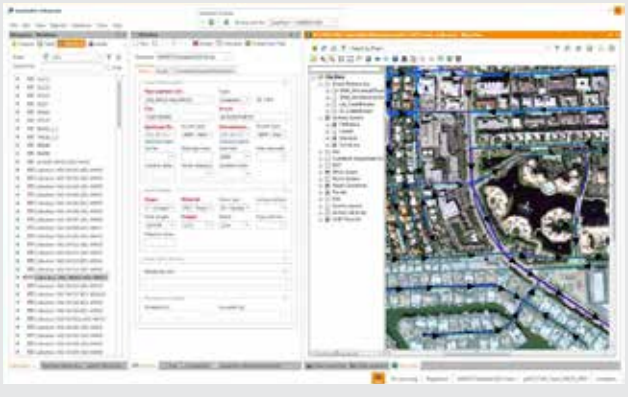
Simple. Start from a map and go!

View completed inspection videos via the Internet from any browser, review tasks, run reports, filter, and search.

Fast and easy data entry for PACP, MACP & LACP

GRANITE NET ADVANCED EDITION: MORE SOPHISTICATED FOR USE IN THE OFFICE OR IN THE FIELD TO MAKE INFORMED DECISIONS.

Process Control - GraniteNet will collect many types of inspection data to provide a unified view of the current condition of a particular asset. Decision makers can make informed decisions based on the analysis of the information.



GraniteNet

Features & Benefits

OPTIONAL GRANITE NET SOFTWARE MODULES

- CUES Total Pipe Score for NASSCO – Use with PACP data.
- NASSCO's PACP - Compatibility, Import, and Export.
- NASSCO's LACP - Compatibility, Import, and Export.
- NASSCO's MACP - Compatibility, Import, and Export.
- Lateral - Inspection, video, and pictures of laterals.
- Manhole & Nodes - Inspection, video, and pictures of Nodes.
- Software Titling - Overlay inspection, or observation information on the video, using user selectable fonts and colors.
- Media Linking - Links third party videos or pictures to inspection and observation details.
- GPS Acquisition - Enables real-time collection of GPS coordinates.
- ESRI ArcGIS Interface - Enables integration with ESRI's ArcGIS software using the ArcGIS Runtime SDK for .NET.
- ESRI ArcGIS Import – Allows import of ArcGIS asset data.
- User Management - Create user accounts and define their level of access, employment details, or security privileges to the software.
- Scheduler - Plan automated procedures between databases on a daily, weekly, monthly, or yearly schedule such as exports, synchronizations, ArcGIS Transfer, and Report Generation via email attachments.
- Formula Fields - Allows a custom formula to any field to do an action, perform calculations, or any other activity.
- Scoring - Rate any observation and create scores for mainlines and laterals.
- CUES Standard - Includes the default CUES code system, field structures, and reports.
- Report Designer - Allows to create or modify report templates.
- DUC Video Recording - Records digital video from a CUES Digital Universal Camera (DUC) to a digital file.
- DUC Flat Generation - Creates side scanning flat images from a DUC.
- DUC Review - Plays back digital video and flat images from a DUC.
- Enterprise Database Support - Operate with Oracle databases.
- Inclinometer – Collects inclination data and displays depth changes and ponding locations.
- MAXIMO interface – Work orders can be issued directly to the inspection crews and results returned.
- Azteca Cityworks interface - Provides a flexible process flow for inspections and work orders.
- EN 13508-2 Standard - Compatibility, Import, Export, and Reports.
- MPEG4 H.264 Video Recording Module - Records digital video from an analog live video source to a digital file.
- Infor Public Sector Module (previously known as Hansen v8)- Transfers completed inspections to the IPS server through a scheduled export process.
- Excel interface - Import of information stored on a Microsoft Excel file that uses a predetermined field mapping template.
- Sonar - Operates with the CUES Sonar System to provide data on silt level, grease accumulation, pipe deformation, offsets, etc. The sonar information can be used to perform measurements, create reports, and capture images.

THE SOFTWARE SOLUTION FOR MANAGING YOUR ASSET INFRASTRUCTURE

In the past, the "Project-based management methodology" only recorded inspections, and only after the inspection was totally complete. There was no way to pre-assign the work to an individual, to track interim status of tasks, or to identify all contributors when operating in a post-processed environment. In GraniteNet, we have introduced "Task-based management methodology": A work process control approach that lets you manage the process of inspecting and analyzing your infrastructure at a more granular level through the addition of:

- Assignments: Specific activities such as "Record Video" or "Create Observations" that can be performed by one or more employees.
- Tasks: A group of assignments that when completed will provide a snapshot of the state of work that is in process.
- Sessions: Which track further detailed information that is useful when an assignment must be interrupted and then resumed at a later time.
- An Accept/Reject process: Allowing supervisors to reject tasks before they become part of the asset history.
- Change Review tools: Which allow comparing an asset's current properties with those of a new inspection to identify what has changed.
- Support for Post Processing: Through assignments which can be completed in the office by different employees.

CUSTOMIZATION - CONTROL OVER THE DATA AND THE ABILITY TO CUSTOMIZE TO THE USER'S REQUIREMENTS

- Security roles allow you decide who controls the data.
- Different users/groups can have different screen rights.
- Screen layouts and configurations are controlled by a central utility
- Specific fields can be set as mandatory with the ability to set custom formulas against any field for advanced analysis.

PACP V7.0 · MACP V7.0 · LACP V7.0 · Business Partner · Ready for Cloud & Smarter Infrastructure

Cityworks Partner Network

"The Standard of the Industry" CUES

CUSTOM GROUT
INSPECTION VEHICLES

"The Standard of the Industry"

CUES

CUES OFFERS A FULL LINE OF PORTABLE AND TRUCK-MOUNTED CHEMICAL GROUT REHABILITATION SYSTEMS. GROUT PACKERS ARE AVAILABLE FOR MAINLINE AND LATERAL SEALING.

Truck-mounted grout rehabilitation systems are available for mainline joint sealing/lateral sealing and can be equipped with the latest CCTV equipment for television inspection. Applications include joint testing and sealing of mainline and lateral joints, manholes, junction boxes, large diameter pipes, or any other low pressure waterproofing application. All systems can be configured to run Urethane, Acrylimide and Acrylate grouts. Dry freight box (for export) and trailer-mounted systems are also available.

CUES CUSTOM Grout Vehicles

Features & Benefits

"The Standard of the Industry"

CONTROL PANEL	Easy Grout computer program, graphic user interface, intuitive, easy to train, lower operational cost.
CHEMICAL TANKS	Chemical resistant, polypropylene, clearly labeled, can order 30 or 60 gallon capacity with heaters.
FLOORING	Lonseal lonplate industrial-rated vinyl throughout.
WALLS	Kemlite, scratch, dent and chemical resistant; white finish makes the interior brighter.
GROUT TANK MOTOR & HEATER	Variable-speed, pnuematic, with small stainless steel propellers located near the bottom of tank to eliminate air from entering the grout hoses.
TUBING/FLOOR/REEL FRAME	Stainless steel construction on all grout-related equipment and components.
CAT PUMPS	Custom build, chemical resistant, explosion proof, nitrogen-charged pulsation dampers and pressure regulators to ensure even pumping for ideal chemical mixture.
CAT PUMP MOTOR	3 hp, 3 phase, variable speed, stainless steel, chemical resistant, motor.
FLUSH LINES	Automatic, simply move a shut off/bypass valve to divert the chemcals/water back to the tanks.
CHEMICAL FILTERS	Black to eliminate premature chemical set-up.
TRUCK SIZE	Available from 16' to 24' custom design builds for contractors or municipalities.
AIR COMPRESSOR	2.0 hp with 30 gallon tank.
GENERATOR	Typically Onan 10Kv or higher depending on the pump requirement.
PENTA HOSE	3 lengths to choose - 500', 650', and 800' for manhole, mainline and lateral grouting.
WATER TANK	Non-metallic, can be heated, 75 gal to 125 gal capacity.
CONTROLS	Computer program and K2, wireless for camera and packer, can control lateral packer using our wireless handheld controller.

Stop Leaks in sewers, manholes, tanks, vaults, tunnels, and many other applications.

Chemical grouting is the least expensive rehabilitation method available and also the least disruptive.

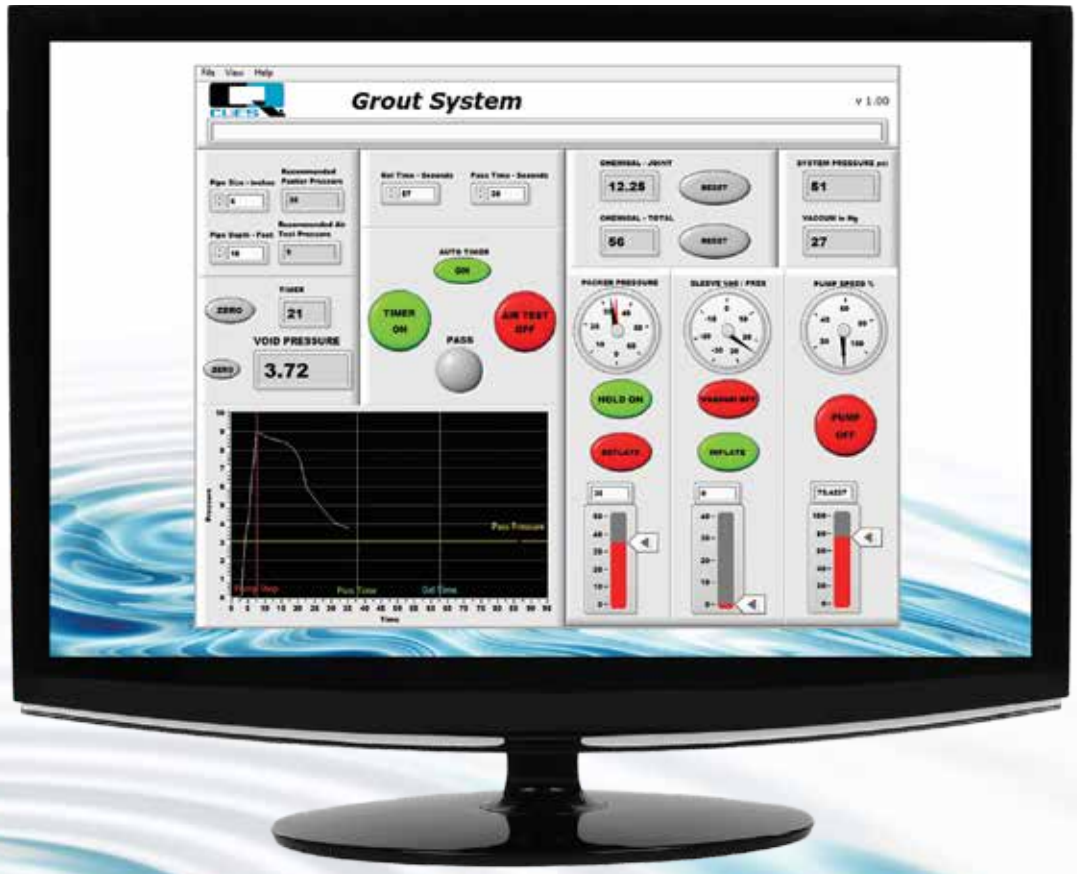
Best, long-term defense against infiltration of groundwater into structurally sound sewer systems.

Test & seal operation can be recorded for a permanent record of the exact pipeline condition.

- Plenty of room for packers & grout material.
- Climate-controlled office.
- ***Contractor-grade.***
- Retrofit any vehicle or trailer.
- Combo trucks are available for TV, Cutter & Easy Grout.
- Do not need an office using wireless Easy Grout.

EASY GROUT
Computerized Grout Control System

"The Standard of the Industry"



THE CUES EASY GROUT SYSTEM IS A COMPUTERIZED GROUT CONTROL SYSTEM DESIGNED TO CONSOLIDATE ALL VALVES, ELECTRICAL CONTROLS, ETC., INTO AN INSTRUMENTATION CABINET THAT CAN BE MOUNTED IN ANY LOCATION.

The Easy Grout graphical user interface (GUI) leads you intuitively through the grouting process. Easy Grout includes help files and tool tip descriptions to assist new users and refresh users who have been away from operating for some time. Automated entry logic provides recommended settings for the grouting process automatically based on the basic inputs of pipe size, depth etc. Because the grout panel is now a computer user interface, it is no longer physically tied to the grout process equipment and can be located virtually anywhere a computer connection, wired or wireless, can be made.

EASY GROUT System

Features & Benefits

"The Standard of the Industry"

CUES

Modern look and feel; displays packer pressure, sleeve vacuum/ pressure, pump speed, daily and per joint totalizers.

Reduction of training time for grout operators due to intuitive graphical user interface.

Operate the grout system from wherever you like because the grout panel is now a computer interface.

Quick repair time since the entire control cabinet can be easily replaced to get you back up and running quickly.

EASY GROUT INCLUDES INTEGRATED HELP FUNCTIONS TO WALK NEW OPERATORS THRU THE GROUTING PROCESS, WHICH REDUCES TRAINING TIME AND MAKES GROUTING LESS INTIMIDATING.

- Modern look and feel of the computer interface makes grouting more appealing to new users.
- Graphical, real-time, trending, display of void pressure aids in the grouting process by allowing the operator to "see" what is happening in the void, making the grouting process much easier to perform.
- Automatic calculation of recommended settings based on field conditions and pipe size makes it easier to set up and get to work.
- Automatic totalization of grout volumes pumped per joint and per job eases the job of recording information.
- The wall mounted, replaceable, control cabinet makes for easy maintenance access and repair. In the event of a system failure, a new cabinet can be replaced in the field by the customer to get back up and running quickly.
- The modularity of the system allows the user to operate the grout equipment from another vehicle or use a wireless controller.

CHEMICAL SEALING PACKERS
Low Void Packers

"The Standard of the Industry"

CUES

CUES LOW VOID PACKERS ARE LOW-VOLUME, CHEMICAL INJECTION, MULTI-GROUT PACKERS. LOW VOLUME PACKERS WORK WITH ACRYLAMIDES, URETHANE, AND OTHER COMMON CHEMICAL GROUTING MATERIALS.

CUES low void packers are fully compatible to and intended to be used with acrylamides, urethane and other common chemical grouting materials. Other design features include the ability to air or water pre-test, grout seal, and re-test without the need for repositioning. Its low profile design insures a minimum grout ring residue remaining at the joint with maximum dispensing efficiency of the grout material.





PACKERS - Low Void Chemical

Features & Benefits

- Both water and air-testing capabilities.
- Fully compatible for acrylamides, urethane and other chemical grouts; multi compatibility saves the cost of different packers for different grouts.
- Minimum residual grout ring remaining assures maximum flow in the sewer after grouting; low volume operation provides a cost effective use of grout.
- Operates with existing grout systems.
- Field-replaceable sleeves reduce overall repair and downtime.
- Combination pressure test and seal efficiency; dual pressure and seal capability minimizes operational time required for inspection, seal and check.

Low void packers are available for 8” thru 42” diameter pipe sizes.

Field-replaceable sleeves reduce overall repair and downtime.

Packers can be operated and used with existing CUES Grout Systems.

Low volume operation provides a cost effective use of grout.

CUES IS THE INDUSTRY LEADER OF PORTABLE, TRUCK, AND TRAILER MOUNTED GROUT REHABILITATION SYSTEMS FOR MAINLINE, MANHOLE, AND LATERAL JOINT SEALING.

CHEMICAL SEALING PACKERS
Compact Collapsible Packers

CUES OFFERS THE MOST ADVANCED LINE OF JOINT SEALING PACKERS FOR LARGE SIZED SEWERS - THE CUES COMPACT/COLLAPSIBLE PACKER. THESE PACKERS CAN BE QUICKLY DISASSEMBLED TO PROVIDE EASY INSERTION INTO THE MANHOLE.

Save time, labor and money over conventional style packers. CUES compact/collapsible packers are rugged, but lightweight for easy handling. The packers compact design, along with the collapsible feature, means any of the CUES large pipe sized packers can be inserted through a minimum 21" standard manufactured manhole without having to remove the ring or cone. The savings in time, labor and money are significant over conventional style packers.

PACKERS - Compact Collapsible

Features & Benefits

"The Standard of the Industry"

CUES

- Save time, labor, and money with the compact/ collapsible packers.
- Packers can be quickly disassembled to provide easy insertion into the manhole.
- The packer cylinder is made of aluminum to minimize corrosion.
- The packer single sleeve is made of multi-ply rubber for increased strength and flexibility.

CUES GROUT REHABILITATION VEHICLES ARE AVAILABLE FOR MAINLINE JOINT SEALING/LATERAL SEALING AND CAN BE EQUIPPED WITH THE LATEST CCTV EQUIPMENT FOR PIPELINE INSPECTIONS.

- All CUES packers, beginning with the 18" size, are compact with the maximum width being 19.5". The packers beginning with the 24" size are collapsible.
- Packers can be quickly disassembled to provide easy insertion into the manhole.
- The cylinder is aluminum to minimize corrosion.
- The single sleeve is made of multi-ply rubber for increased strength and flexibility.
- The compact feature, along with the collapsible feature, means any of the CUES large pipe sized packers can be inserted through a minimum 21" standard manufactured manhole without having to remove the ring or cone.
- The 3/4 inch rubber thickness means the sleeve will not easily stretch out of shape, which so often occurs with some of the thin type sleeves available.
- The multi-ply wrap resists cuts and abrasions while in the sewerline.

MARK3

"The Standard of the Industry"

CUES

On the Mark: a compact, durable, and portable inspection system.

You asked, we listened!

We value our customers' input and are proud to offer a new solution to pipeline inspection demands. Sanitary and storm sewer in-pipe conditions are difficult enough; simply getting the equipment to the access point should not be the issue. The CUES MARK3 is a crossover tool for those needing a portable system for easement/off-road work, complementary mainline work, or an affordable platform for those performing infrequent inspections. As a complement to our time-tested mainline equipment, the MARK3 fills the void between portable and traditional vehicle-mounted systems and is compatible with existing CUES equipment.

MARK3

Features & Benefits

- Durable and portable system for mainline inspections in 6” - 72” diameter pipelines.
- Compact and easy to mount in a variety of smaller vehicles, including an ATV, van, trailer, etc.
- Fully compatible with CUES GraniteNet asset inspection & condition assessment software.
- Can operate with the CUES Digital Side-scanning Camera (DUC).

- Will operate 1,000 ft. multi conductor cable.
- Made from stainless steel and aerospace-grade aluminum.
- LCD display case contains built-in keypad with high-resolution monitor mounted on a reinforced RAM assembly; adjustable for height and rotation.
- Weatherproof, removable display case with keypad (can be mounted up to 15 ft. away with optional extension cord).
- Dimensions: 14” W x 20” H x 31.5 L
- 12-conductor sealed slip-ring.
- Automatic-payout and retrieve for video cable.
- Connection ports including (1) AV, (3) USB (2 on the PCU; 1 on the display case), (1) VGA, ethernet, serial cable, SD card, and standard microphone.
- Local control via front-mounted reel control panel, or control from standard CUES gamepad controller.
- Easily accessible hand brake, hand crank, and freewheel activation.
- Low-maintenance design to reduce contaminants in the vehicle.

MPlus+ & MPlus+ XL
Portable Lateral & Mini-Mainline Push System

"The Standard of the Industry"

The CUES MPlus+ offers the most flexible and feature packed lateral and mini-mainline push system on the market. The MPlus+ modular design combines easy operation with its refined all-in-one set up with the flexibility of facilitating quick removal of the control unit to be used separately for off road or remote jobsites or to accommodate compact storage. The MPlus+ is the most versatile push system available in the market today.

- The advanced MPlus+ system stands out by integrating all of the most sought after features into an easy to use and intuitive package.
- This lightweight system is manufactured for rugged reliability and designed to handle rigorous field use.
- Push cables incorporate exclusive HDPE jackets and advanced fiberglass rods designed for longer pushes and extended life.
- Contact your CUES Regional Sales Respresentative for a complete list of optional equipment!

MPLUS+ COILER & CAMERA

- Two coiler configurations for lateral & mini-mainline push applications:
  - Industry leading push cables with exclusive HDPE jackets
  - Configurable for any installed push rod length
  - On-screen customizable distance counter
- Standard configuration lateral coiler – 100, 200, 300 and 350ft push cable lengths available:
  - .444" optimized push cable (.197" fiberglass rod) for longer pushes
- XL coiler configuration for mini-mainline applications – 300, 350, 400 and 500ft push cable lengths available:
  - .517" rigid push cable (.236" fiberglass rod) for larger pipeline applications.
  - Configurations include standard SR3 self-leveling camera for 2" - 12" pipelines and an optional advanced pan & tilt camera head for 4" - 12" pipelines.

MPlus+ & MPlus+ XL

Features & Benefits

Full featured control unit offers advanced text writing, observation coding, digital recording and more in a weather/water resistant enclosure.

The large 8.4" industrial grade optically bonded monitor offers the clearest picture in adverse conditions.

Extensive video titling includes multiple predefined and customizable screens for job documentation. Customized screens and operator data are retained in memory for efficient operation.

The advanced digital recorder features USB mpg. recording and playback of video and screenshot picture images. The operation is fully integrated with easy to understand intuitive controls. 16GB external and 128GB internal memory is included.

Operate the MPlus+ anywhere with either 110 AC mains power, 12VDC power or the advanced internal Li-Ion battery delivering 4+ hours of use on a single charge.

The standard and XL coilers will deliver years of service with their heavy gauge and corrosion resistant stainless steel construction.

OPTIONAL EQUIPMENT

Optional adapters for the MPlus+ to work with truck-mounted/portable mainline systems and asset management software.

Wireless digital video for operation with a mainline truck or any other remote location with receiver.

Mainline interface cable for operation with a CUES multi-conductor TV truck.

Optional pan & tilt camera for mainline or large pipe applications features continuous 360 deg rotation and pan:
- All pan & tilt functionality is fully integrated into the systems' controller; built-in multi-frequency 512 Hz and 8kHz sonde transmitter.

Locator/receiver for accurate camera location in metallic and non-metallic pipelines.

A large array of optional skids and skates.

Quadrature footage interface for external asset management software.

Optional line trace post for 128Hz, 1kHz, 8Hz and 33kHz locating.

MPLUS+ CONTROLLER

8.4" display mounted in a weather resistant control unit that features a quick connect mount for attaching to the coiler.

Digital recorder with integrated controls featuring intuitive buttons for all recording and playback functions. Features dual drive recording for redundancy and file safety.

System Interface connection offers flexibility for unique applications and includes video, audio, and 12VDC outputs and a video input. Quadrature footage output for optional asset management software.

Internal Li-Ion Battery with Intellicharge technology offers 4+ hours of continuous use on a single charge. Also accepts AC and 12 VDC power input.

MPlus+ XL with Optional Pan & Tilt Camera

"The Standard of the Industry"

K2 WIRELESS BASE STATION

"The Standard of the Industry"

CUES

THE CUES K2 BASE STATION IS MOUNTED IN A COMPACT, RUGGED, WEATHER-PROOF ENCLOSURE AND CAN FIT INTO AN ATV, VAN, OR PICK-UP TRUCK TO ACCESS EASEMENTS AND HARD-TO-REACH AREAS.

Featuring wireless control, the K2 Base Station is a compact, portable, easy-to-use pipeline inspection system that operates all CUES transporters, cameras, and video cable reel functions to accommodate 6"-200" pipe inspection. The reel features automatic payout with a capacity of 1700 ft. video cable. Heavy duty welded lifting eyelets and forklift skids are provided for quick deployment to the host vehicle. The unit can operate with the CUES Digital Side Scanning Camera (DUC).

K2 WIRELESS BASE STATION

Features & Benefits

"The Standard of the Industry"

- Wireless control of all camera, transporter, and reel functions.
- Compact, rugged, weatherproof enclosure; can fit into a pick up truck, ATV, trailer or van.
- Covered with protective aluminum sheets and industrial grade weather resistant paint.
- Operates CUES cameras and transporters to accommodate 6”- 200” pipe inspections.

- Partition separates the video cable reel with tractor and camera storage from the power control unit, monitor, and optional computer.
- Racks are mounted with shock-isolators to prevent equipment damage from jarring and vibrations.
- Sealed front door is hinged, supported by a gas shock, and functions as an awning in the open position.
- Easy access to service and maintain the unit via removable panels.
- Optional, heavy-duty welded lifting eyelets or forklift skids available for quick deployment or removal from an ATV or truck.
- Automatic video cable payout on the reel to maximize transporter pull distance.

K2 WHEELED DOLLY

Mini-Mainline Inspection System

"The Standard of the Industry"

CUES

The K2 Wheeled Dolly is a portable, rugged, durable mini-mainline system for 6" through 200" pipeline inspections.

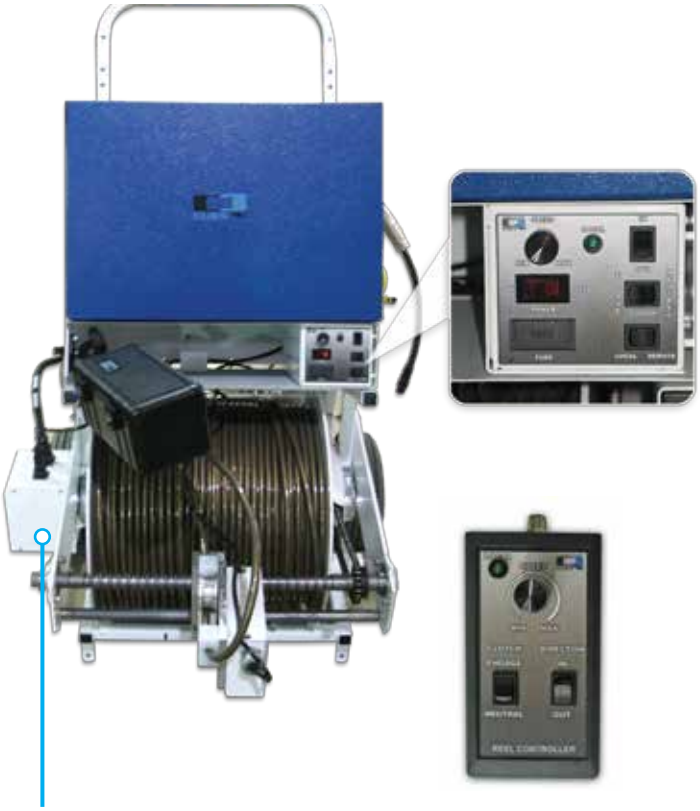
- Cost-effective pipeline inspection solution in lieu of a dedicated truck-mounted system.
- Wireless control of all camera and transporter functions.
- Portable, durable, rugged mini-mainline inspection system for use in 6" - 200" pipelines.
- Achieve easement access and difficult to reach areas since the system can be wheeled off-road.

The K2 Wheeled Dolly includes the same functions found in truck mounted systems while providing easement access as the entire system is self-contained and can be wheeled off-road. Priced at about ½ the cost of vehicle-mounted systems, the K2 Wheeled Dolly provides all of the operational capabilities normally found only in dedicated vehicle systems.

K2 Wheeled Dolly

Features & Benefits

An optional DVR-SD Digital Video Recorder (DVR) is available to digitally record and playback manhole and pipeline inspections. The recordings are saved on a SD card.



An optional electric clutch with remote reel control pendant is available (shown above).

THE K2 WHEELED DOLLY PORTABLE PIPELINE INSPECTION SYSTEM PROVIDES ALL OF THE OPERATIONAL CAPABILITIES NORMALLY FOUND ONLY IN DEDICATED VEHICLE SYSTEMS.

- Wireless control of all camera and transporter functions.
- Integrated hand-held controller for all CUES transporters and pan and tilt cameras.
- Optional electric clutch with remote, reel control pendant is available.
- Built in video overlay unit and system diagnostics.
- Portable and compact; easy to move for easement inspection.
- 10” LCD high resolution flat screen monitor.
- Lightweight / compact unit.
- Rugged video cable; minimum 1000 lbs break strength; 1000 ft. video cable capacity.
- Works with GraniteNet Asset Inspection/ Decision Support Software.
- Optional DVR-SD Digital Video Recorder is available to digitally record and playback manhole and pipeline inspections. The recordings are saved on a SD card.

“The Standard of the Industry”

MANHOLE INSPECTION VEHICLES

"The Standard of the Industry"

CUES

THE CUES MANHOLE INSPECTION VEHICLE (MIV) ELIMINATES THE PICTURE QUALITY AND PRODUCTION LIMITATIONS OF TRADITIONAL HAND-HELD, CABLE, OR TRIPOD MANHOLE INSPECTION SYSTEMS.

The CUES MIV is designed to operate all CUES manhole cameras with a user-friendly interchange mounting bracket. The MIV is the only vehicle in the industry that can INSPECT and SCAN most types of structures such as: Sanitary/Storm Manholes (up to 50 feet deep), Sanitary/Storm Pipelines (6" to 120" diameter), Lift Stations, Gravity Interceptor Pipelines (without bypass pumping), Vaults, Outfalls, and more.

Manhole Inspection Vehicles

Features & Benefits

"The Standard of the Industry"

CUES

CUES MANHOLE INSPECTION VEHICLES CAN OPERATE ANY CUES MANHOLE CAMERA:

DUC

CUES-IMX

SPiDER

Use CUES MIV's to determine where to perform rehab and CCTV inspections.

Reduce costs and save time! Prescreen pipeline conditions during the manhole inspection.

Stable deployment up to 50 feet deep; Inspect up to 40 manholes per day!

3D point cloud for precise manhole measurements; 360 degree field of view.

- Stable deployment up to 50 feet deep.
- Prescreen pipeline condition during manhole inspection - REDUCE costs and save time.
- Camera is remote controlled from ground level – no heavy lifting.
- Motorized pan and tilt manhole camera for optimum video.
- One truck setup per day for maximum production and ease of use.
- Camera remains deployed between manhole visits.
- Determine where to perform rehab and CCTV inspections.
- System can be deployed off-road.

"The Standard of the Industry"

CUES

SPiDER

Spherical Imagery Digitally Enhanced Rendering

3D Wireless Manhole Scanning

SPiDER is a revolutionary portable manhole scanning technology

ACCURACY	SPEED	WEIGHT	CABLE
1 to 5 mm	10 ft / min	30 lbs	none

>Tablet Controlled

> Measurable Color Point Cloud

> Wireless Connection

SPiDER Manhole Scanner

Features & Benefits

"The Standard of the Industry"

Measureable Data
SPiDER collects millions of three-dimensional (3D) points during each manhole scan that provides engineering and survey quality information on manhole geometry and condition. Output can be used for structural assessment, pre and post rehabilitation analysis, hydrological surveys, as well as general condition assessment.

Portability
SPiDER weighs less than 30 pounds and can be hand carried to difficult to access sites. Additionally, SPiDER does not require a truck or data/power cable for operational use. Scanning data is recorded on the unit.

Tetherless Positioning
SPiDER can calculate its position in the manhole shaft by using its internal sensor data to measure its incremental motion. This technology frees manhole scanning from problems associated with inaccurate, poorly calibrated cable counters and poorly managed cables.

Tablet Controlled
SPiDER is operated with a tablet which controls the scanner's cameras and lights.

3D, Textured Point Clouds
SPiDER provides renderings of manhole geometry to provide three dimensional visualization that can be imported into a wide range of 3D viewers.

File Format Deliverables
- 3D MPEG Video (.MPG)
- Point Cloud (.PLY) which can be converted to:
  - Surface Model (.STL)
  - CAD Model (.DXF)
  - Virtual Model (.OBJ)
- MACP Report using your preferred NASSCO Certified Software

Live Video
SPiDER provides a 190 degree field-of-view live video stream - making it an ideal tool for Infiltration and Inflow (I&I) studies which depend on live video to detect moving water.

SPiDER weighs less than 30 pounds and can be hand carried to difficult to access sites.

SPiDER is operated with a tablet which controls the scanner's cameras and lights.

Output can be used for structural assessment and pre/post rehabilitation analysis.

SPiDER provides a 190 degree field-of-view live video stream making it an ideal tool for I&I studies.

> Live Video

> Portability

> Virtual Tether

DUC MANHOLE INSPECTION CAMERA

"The Standard of the Industry"

INSPECT MORE THAN 50 MANHOLES PER DAY! THE CUES DIGITAL UNIVERSAL MANHOLE INSPECTION CAMERA (DUC) IS A SEMI-AUTONOMOUS, HIGH RESOLUTION DIGITAL CCTV SIDE SCANNING CAMERA DESIGNED FOR RAPID AND DETAILED CONDITION ASSESSMENT OF YOUR WASTEWATER SYSTEM.

When used in conjunction with CUES asset-based Granite Net decision support software, you can inspect and assess 50 manholes or more per day, increasing your revenue, while reducing your expenses. The system can be packaged for off-road applications to minimize the costs of traffic control. The CUES Digital Universal Camera system produces a continuous hemispherical scan of the internal manhole conditions. The Digital Universal Camera operates at a constant speed without the need to stop or pan and tilt.

Improve the operational, environmental, and financial performance of your wastewater system! The Digital Universal Camera System will outperform traditional manhole inspection review. Call your CUES representative today!

DUC Manhole Inspection Camera

Features & Benefits

"The Standard of the Industry"

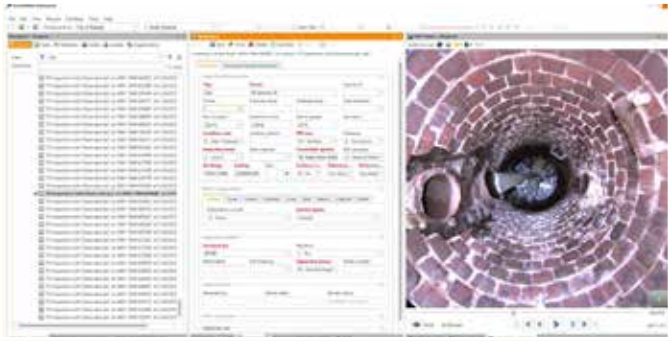
- Allows for proactive sewer repair and replacement recommendations. The EPA has stated that proactive management of sewer assets can reduce total asset costs by 20-30%.
- Show compliance with local, state, and federal regulatory agencies; maintain compliance with CMOM and GASB 34 while establishing a solid baseline to apply for various State and Federal grants.
- Identify the most critical problems to address in your wastewater system and achieve predictive failure analysis, based on rapid, accurate, and detailed condition assessment.
- Establish a centralized system of record keeping accessible to all decision makers to assure proper, defensible spending.
- DUC ReDUCtions: overall cost of inspection per foot, such as traffic control costs, equipment maintenance, vehicle expenses, coding of observations, inspection review/viewing, reduces risk of monetary fines.
- Perform a full inspection, including condition assessment of a 400ft pipe segment, in under 15 minutes!
- High output strobe lighting system illuminates the manhole without externally-mounted lighting.
- 3.1 megapixel high resolution camera produces unparalleled detailed images - industry leading resolution!
- Integration with CUES GraniteNet software and GIS systems provides a powerful tool for Capital Improvement Planning.
- No moving parts on the camera – simply drive the unit on a CUES wheeled or tracked transporter through multiple pipe sections for maximum efficiency.
- DUC can be retrofitted to any CUES or industry standard multi conductor truck mounted system.

Captures and provides LIVE video, not just still images.

Offers 2x to 3x production over traditional analog systems.

Reduces overall operations cost per foot by more than 50%.

Inspect 50 manholes or more per day, increasing your revenue, while reducing your expenses.



Video is stitched via the decision support software digital processing module and is available at the end of the inspection run. Virtual pan, tilt, and zoom of the entire surveyed manhole enables rapid condition assessment review -- significantly faster than traditional video inspection review.

CUES-IMX MANHOLE CAMERA

"The Standard of the Industry"

CUES

PRECISE manhole inspection to help prioritize and identify sewer issues!

WITH THE CUES-IMX MANHOLE CAMERA, COLLECTION SYSTEM OWNERS AND OPERATORS CAN NOW REDUCE SYSTEM OPERATION / MANAGEMENT COSTS AND QUICKLY IDENTIFY HIGH-RISK AREAS OF THE WASTEWATER / STORMWATER SYSTEM.

Make the best use of your time and money by using the CUES-IMX Manhole Camera to inspect your manholes and mainline pipes. The camera offers unparalleled imaging technology with a 25:1 optical zoom that is stabilized and remotely controlled via a telescopic boom to produce picture clarity with enhanced detail up to 300 ft!

CUES-IMX Manhole Camera

Features & Benefits

- Manhole inspection with live video to help prioritize and identify sewer issues.
- Swiftly locate problem areas of the pipe.
- Quickly identify maintenance requirements and identify structural defects to prevent sewer overflows.
- Helps you comply with CMOM & GASB34 requirements.
- Designed for use in pipes 6" in diameter and up with the ability to illuminate and inspect manholes and large diameter pipes at distances up to 300'.
- Designed to provide close-up views of manholes and pipes.
- Base unit consists of the following: boom, mast, controller, camera, and integral/external lighting.
- Designed to gage the manhole depth.
- Mast is designed to position the camera 50ft below the surface of the road.
- Optional compass is available to support GIS systems.

Medium External Lighthead

Large External Lighthead

System Equipment:

CAMERA

- Optical Zoom Range: 25x; Digital Zoom Range: 1x through 12x
- Total effective zoom ratio: 300x
- Remotely controlled from the control console.
- The mounting fork is designed to pan the camera head 360 degrees continuously, tilt mechanically 35 degrees up, 90 degrees down, and tilt optically 166 degrees; camera forks are rounded or chamfered and do not exceed 5 inches in diameter.
- The camera imager, optics, mechanics, and electronics are housed in a damage resistant, waterproof, rugged enclosure.

LIGHTING

- Camera Integral HID Lighting - The camera includes (4) HID spot lights and one (1) flood light centered above the lens:
- Each of the five (5) lights are individually sealed to prevent water entry.
- Four (4) HID spot lights have a total light output equivalent to 200 watts of halogen light.
- One (1) HID flood light has a total light output equivalent to 50 watts of halogen light.
- Medium External Lightheads - The camera includes two (2) quick disconnect external lighthead assemblies, each lighthead assembly consisting of two lightheads on each side of the camera.
  > The high performance lightheads provide a total of 340 watts of light, 170 watts per lighthead assembly.
  > External lighting is designed to move relative to the camera lens to provide directional illumination.
- Large External Lightheads - Two quick disconnect large external lighthead assemblies for inspection of pipelines 18" diameter to 84".

MAST SYSTEM

- The truck-mounted mast can position the camera 50ft below the surface of the road and is designed to achieve optimum picture stability throughout the optical zoom range of the camera.
- The camera unit can be electronically raised and lowered.
- Prevents the need for an operator to enter the manhole to position and/or reposition the camera height.
- Perform manhole & mainline inspections and gauge the manhole depth without the need for a camera transporter!
- Can be installed on existing TV inspection systems without the need for modifications to other existing equipment already installed on the unit.

"The Standard of the Industry"

CUES®

COMPAK²

With Manual Reel

THE CUES COMPAK2 IS DESIGNED TO OPERATE AND BE INTERCHANGEABLE WITH CUES MANHOLE CAMERAS.

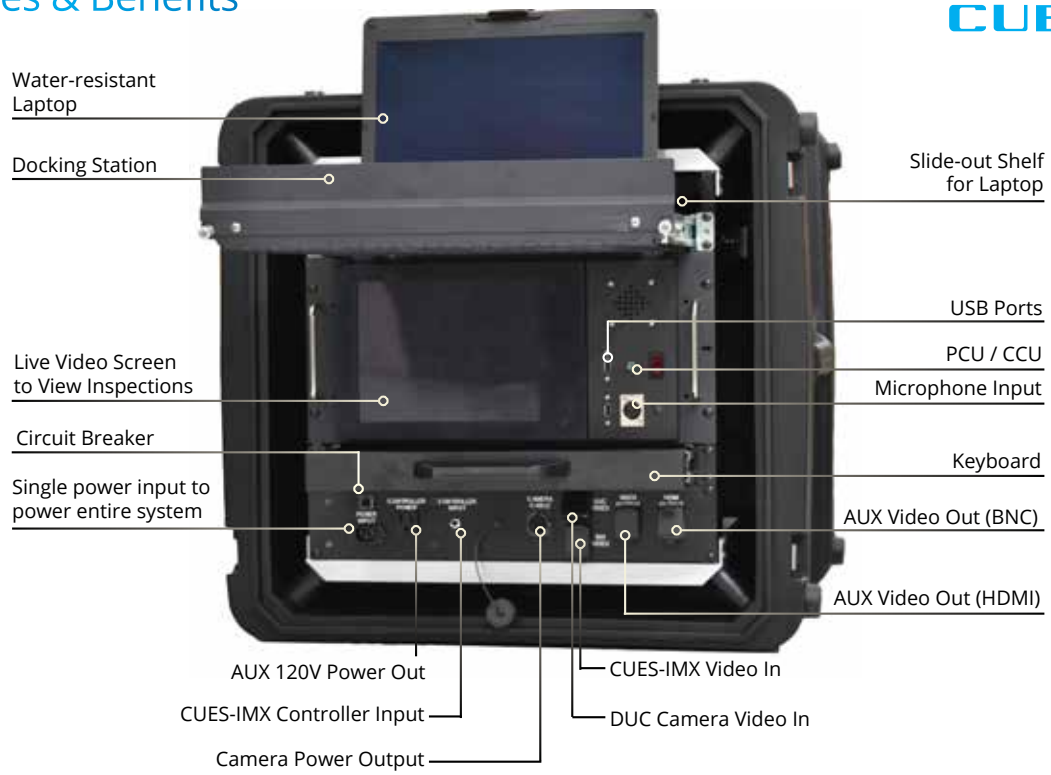
Make the best use of your time and money by using the CUES CompaK2 to inspect your manholes and mainline pipes. This compact, lightweight, and rugged system can be mounted in an ATV, pick-up truck, trailer or van.

COMPAK²

Features & Benefits

"The Standard of the Industry"

CUES



System can be mounted in an ATV, pick-up truck, trailer or van.

Provides maximum protection via an enclosed video inspection system.

Versatile, mobile, rugged and economical CCTV inspection system!

System consists of a control box, reel, and tripod.

- Compact, lightweight, rugged, weatherproof enclosure; control box weighs only 100 lbs.
- The racks are mounted with shock-isolators to prevent equipment damage from jarring and vibrations.
- Easy access to service and maintain the unit via front and back removable panels.
- The tripod is operated with a battery-operated electric winch

- Operates and is interchangeable with CUES manhole cameras:
- - DUC Digital Side Scanning Camera produces 3D images of manholes with unwrapped view and measurements.
- - CUES-IMX Mpeg video with real-time zoom, pan & tilt, for preliminary pipe assessment.
- - SPiDER 3D scanning camera produces 3D video and measurable point cloud.

PORTABLE MANHOLE INSPECTION SYSTEM
With Mechanical Reel

"The Standard of the Industry"

CUES

THE CUES PORTABLE MANHOLE INSPECTION SYSTEM WITH MECHANICAL REEL IS MOUNTED IN A COMPACT, RUGGED, WEATHERPROOF ENCLOSURE AND CAN FIT INTO AN ATV, VAN, OR PICK-UP TRUCK TO ACCESS EASEMENTS AND HARD-TO-REACH AREAS.

Featuring wireless control, the unit operates all CUES transporters, cameras, and video cable reel functions to accommodate 6"- 200" pipe inspections. The reel features automatic payout with a capacity of 1700 ft. video cable. The unit can operate with the CUES Digital Side Scanning System (DUC) and operates all CUES cameras and wheeled and tracked transporters!

INSPECT PIPELINES IN ANY LOCATION

For manholes up to 100 ft deep and pipe diameters ranging from 6" to 200

K2 WIRELESS BASE STATION

Features & Benefits

"The Standard of the Industry"

Wireless control of all camera, transporter, and reel functions.

Compact, rugged, weatherproof enclosure; can fit into a pick up truck, ATV, trailer or van.

Covered with protective aluminum sheets and industrial grade weather resistant paint.

Operates CUES cameras and transporters to accommodate 6”- 200” pipe inspections.

- Partition separates the video cable reel with tractor and camera storage from the power control unit, monitor, and optional computer based data acquisition system.
- Racks are mounted with shock-isolators to prevent equipment damage from jarring and vibrations.
- Sealed front door is hinged, supported by a gas shock, and functions as an awning in the open position.
- Available with the CUES laser pipe profiling system.
- Optional laser-based precision measurement system to accurately measure offset joints, cracks, and joint separations in sanitary or storm sewers.
- Easy access to service and maintain the unit via removable panels.
- Optional, heavy-duty welded lifting eyelets or forklift skids available for quick deployment or removal from an ATV or truck.
- Automatic video cable payout on the reel to maximize transporter pull distance.
- Built-in camera and camera transporter storage.
- Rubber seals, gaskets, and aluminum water-tight enclosure to protect all components.

THE QZ3 IS A LIGHTWEIGHT, PORTABLE, VIDEO INSPECTION SYSTEM THAT CAN BE OPERATED BY ONE PERSON!

QZ3 is a lightweight, portable, video inspection system that can be operated by one person! Accomplish safe-viewing in industrial or environmental areas with no man entry. Perform swift inspections and surveys of pipelines, wet wells, manholes, sewer treatment plants, steam generators, tanks, vessels, and other areas that are difficult to reach. QZ3 can also be used to locate lateral services or to identify a blockage at a manhole, access port, or other entry point without entering the line or structure.

QZ3 is mounted on a lightweight carbon fiber adjustable telescopic pole that can extend up to 24' (an optional 34' pole is available). Get enhanced detailed viewing of cracks, breaks, pipe separations, scale, and various defect conditions from hundreds of feet away!

QUICK ZOOMCAM III

Features & Benefits

- Simple to use and light weight!
- Establish condition assessment priorities.
- FAST-look, single-person inspections!
- On-screen menu for easy set-ups.

- Image Sensor: 1/2.8-type CMOS
- Lens: 30x optical zoom
- Picture Quality: Full HD 1080p (1920 x 1080)
- Minimum Illumination Color: 0.01 lux
- Digital Zoom: 12x (360x with optical zoom)
- Viewing Angle: 63.7° to 2.3°
- Video Output: Digital
- Pixels: Approximately 2.3 Megapixels
- Signal System: 1080p
- Battery: Lithium-Ion 4 hrs minimum operation

CUES

TruVue

Increase the Efficiency and Quality of Your Cleaning & CCTV Operations

THE CUES TRUVUE VIDEO TRANSMISSION SYSTEM ENABLES THE JET TRUCK OPERATOR, INSPECTOR, REMOTE EQUIPMENT OPERATOR, CONSULTING ENGINEER, OWNER, ETC., TO REMOTELY VIEW REAL TIME VIDEO IMAGES, AS GENERATED BY A CCTV INSPECTION SYSTEM UP TO 1500' AWAY.

TruVue applications include the minimizing of the potential for unintended collisions between the jet nozzle, saving water during the cleaning process, and simultaneous remote viewing by multiple parties in less than ideal weather conditions and/or temperatures. The CUES TruView operates with all manufacturers video inspection systems, requiring only a standard (NTSC or PAL) video output. The CUES TruVue works with all manufacturers' video inspection systems, requiring an available video output and AC power.

TruVue System

Features & Benefits

THE CUES TRUVUE ENABLES THE JET TRUCK OPERATOR TO REMOTELY VIEW REAL TIME VIDEO IMAGES, AS GENERATED BY A CCTV INSPECTION SYSTEM.

- The jet truck monitors pipe conditions in real time view identical to the CCTV inspection operator's view; keeps your camera safe from a possible collision with the nozzle.
- CCTV Truck can remain at one entry point while the jet truck can move from manhole to manhole, decreasing set up time and enabling the inspection of multiple cleaned pipe sections from one access point.
- Easy to use – set up within a few minutes.
- Use for any operation where remote video monitoring is beneficial, including point repair and other rehabilitation processes.
- High resolution 8.4" LCD monitor mounted in a weather proof case with protective sun shade.
- Built in lithium iron phosphate battery provides minimum 12 hours battery power.
- Built in diagnostics includes display for voltage, amperage, charge/discharge indicator, percentage of charge, and bar graph displaying remaining charge.
- Supplied with mounting tripod and battery charger.

"The Standard of the Industry"

CUES®

KANGAROO & GIANT KANGAROO
Lateral Reinstatement Cutters

"The Standard of the Industry"

CUES KANGAROO CUTTERS ARE DESIGNED FOR USE AFTER THE PIPE LINING PROCESS IS COMPLETE, FOR REINSTATING SERVICE LATERALS BACK INTO SERVICE, AS WELL AS REMOVING PROTRUDING SERVICE LATERALS AND ROOTS FROM THE MAINLINE. THESE ARE JUST A FEW OF THE APPLICATIONS FOR THIS PRODUCT.

These cutters are rugged, waterproof, and built to withstand the shock and vibration of everyday use during these applications. CUES Giant and Small Kangaroo Cutters are equally effective in CIPP or Fold and Form liners and can be installed on most CCTV manufacturer's system. Both Cutter systems perform optimally using 1000-1500' of cable and can be operated with the Dual Kangaroo Cutter Controller!

The Dual Kangaroo Cutter Controller includes all switches, potentiometers, controls, and meters required to operate and monitor the Giant and Small Kangaroo Cutters.

Kangaroo Cutters

Features & Benefits

BOTH SMALL & GIANT KANGAROO CUTTERS:

- 110 or 220 VAC.
- Requires (8) Conductors: (6) for the cutter and (2) for the reel mounted remote air valve.
- Recommended minimum air requirements: 38 CFM @ 125 psi.
- Controls, Electrical: 360-degree rotate, up/down, in/out, on/off, and polarity.
- Controls, Pneumatic: cutter motor, cutter locking brake.
- Includes (3) 24v DC electrical drive motors assembled into a waterproof housing.
- Includes (2) router bits and pipe lock assembly.

SMALL KANGAROO CUTTER ONLY - For use in 6" - 12" Diameter Relined Pipe.

- Includes low profile metal skids for 6" pipe mounted to the cutter housing and extenders for 8" and up.
- Includes a .9hp air motor to provide more power, increased productivity, and a smoother cut when operating in 8" - 12" relined pipe.

GIANT KANGAROO CUTTER ONLY - For use in 12" - 30" Diameter Relined Pipe.

- Removes protruding lateral services.

DUAL KANGAROO CUTTER CONTROLLER – Operates both Large and Small Kangaroo Cutter.

- Includes all switches, potentiometers, controls, and meters required to operate and monitor the Giant Kangaroo and Small Kangaroo Cutter.
- Controls the cutter head movements in (6) directions: IN / OUT, RIGHT / LEFT ROTATION, and UP / DOWN .
- A rotary potentiometer is provided to adjust the speed of each control motor.
- An Amp meter is provided to display the current draw by each motor.
- The Air Motor/Clamp - ON/OFF switch opens and closes the air flow of the remote air solenoid while simultaneously activating or deactivating the pipe lock system and cutter air motor.

Custom CCTV/Cutter Truck and Trailer-mounted units include full capabilities for reinstating lateral services, removal of protruding taps, brush finishing existing cuts, and pre and post TV inspection.

- High Cubes, Step Vans, and Medium Duty Chassis and Trailer Mounted Units.
- Dry freight box mounted for export.
- Can be mounted with joint and lateral sealing equipment in a self-contained unit.
- Compressor can be mounted inside the truck or towed behind.

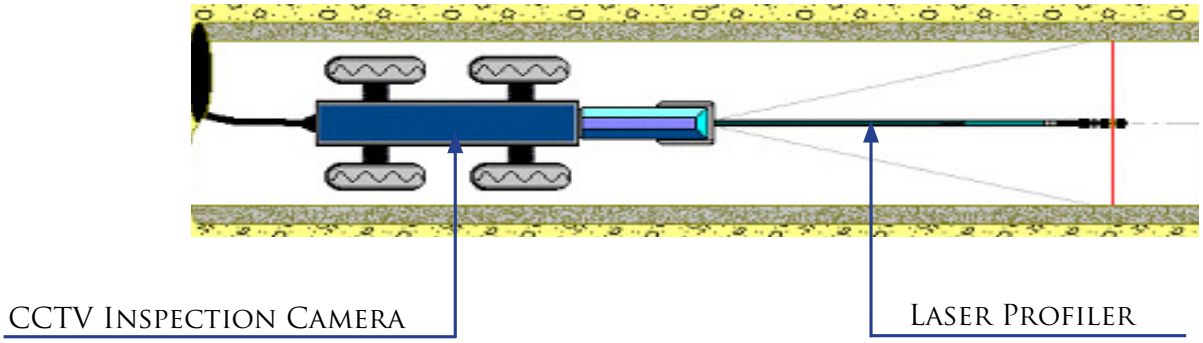
OPTIONAL EQUIPMENT

- Desktop control unit for both cutters.
- Protruding lateral cutter attachments.
- 12" extenders for Small Kangaroo Cutter.
- Air Hose Reel with speed control / retrieve with 500 ft. ½" or ¾" ID air hose.
- Automatic level wind for Air Hose Reel.

"The Standard of the Industry"

CUES®

LASER PROFILER SYSTEM



THE CONCEPT - SIMPLE AND EASY:

- A ring of laser light is projected onto the internal pipe surface.
- Laser image is in the field of view of the camera while the camera moves through the pipe.
- Analysis is performed on the ring of light using the Laser Profiler software to build a digital pipe profile.
- For use with live or pre-recorded to video (tape, CD, or DVD).

THE LASER PROFILER IS A STAND-ALONE, SNAP-ON TOOL FOR USE WITH A CUES CCTV SURVEY SYSTEM AND CUES CAMERA TO COLLECT SURVEY DATA AND CREATE PIPELINE REPORTS CONTAINING THE MEASUREMENT OF FAULTS AND OTHER FEATURES INSIDE THE PIPELINE.

The Laser Profiler is designed to provide the contractor, municipality, or consulting engineer with the ability to determine internal pipeline conditions prior to and/or after rehabilitation. This includes measurements of pipe size, laterals, water levels and other features, as well as automatic analysis of pipe ovality and capacity up to 30 times per second. The Laser Profiler simply attaches to your existing CCTV Camera and the resulting CCTV images are analyzed using innovative machine vision software.

- Can operate in pipe sizes ranging from 6” through 72”.
- Internally battery powered (rechargeable); no electrical connections are required; no moving parts.
- Software can be used on a TV inspection vehicle or on a remote computer.
- Can capture a single frame of video from videotape, previously stored file, CD, DVD, etc, when utilized on a remote computer.
- Designed to project a laser light in a radial plane perpendicular to the CCTV camera’s line of sight and create a red line on the inside wall of the pipe; laser is designed to provide sufficient intensity to view the video image with normal CCTV camera lighting.
- Easily attaches to your existing CUES CCTV Camera or Transporter.
- Designed to capture and display a single frame on the data monitor for measurement and analysis in industry standard formats to include JPEG, BMP, or TIFF formats.
- Text can be placed anywhere within the captured video image.
- A line graph displays the cross-sectional amplitude over the entire length of the pipe run from entry to exit access.
- High-strength carbon fiber and aluminum construction.
- Designed to obtain the actual degradation of the pipe by utilizing the laser profiling and measurement tools
- Certified by WRc.

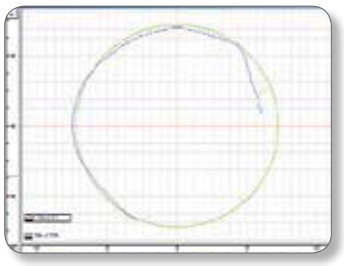
LASER Profiler
Features & Benefits

"The Standard of the Industry"

THE SOFTWARE
Manual Measurements - Precise measurements can be taken from a single frame captured from the prerecorded or live video. This includes pipe size verification, size of laterals, water levels, holes, and off-set joints. The captured frame, with its measurement data, can then be stored as a JPEG or BMP file. Manual measurements can be performed on the captured digital profile to an accuracy of 1mm*.

Examples of quantifying lift in liner using both the manual and the automated digital measurement methods. The 3-D model can be seen below.

MANUAL



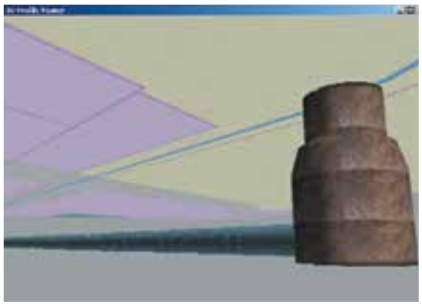
AUTOMATED

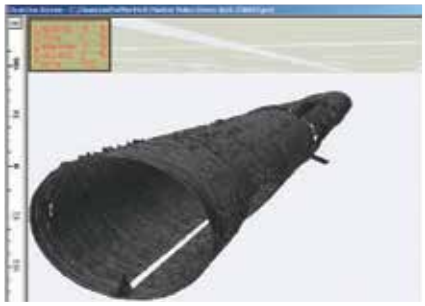
THE LASER PROFILER BASE SYSTEM INCLUDES THE FOLLOWING:
- For 6"-15" pipe: Camera mounting assembly, single laser head, battery charger, 3-D measuring software, rod extension for 10", 12", 15", barrel distortion target, calibrator target, AC adapter, and hardware case.
- For 8"- 42" pipe: Laser wand, triple laser head, battery charger, 3-D measurement software, barrel distortion target, calibrator target, AC adapter, camera skid assembly 8"-30", skid plate assemblies for 36" and 42", skid adapter plate, and hardware case.

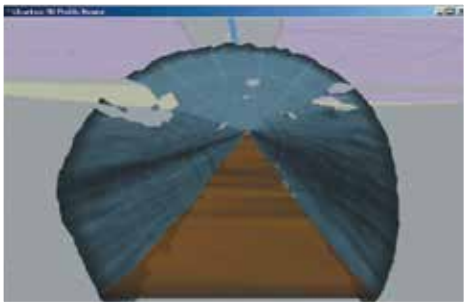
AUTOMATED ANALYSIS
The software uses machine vision. Machine vision is used to find the video image of the laser profile (red laser line). Each frame of the inspection video is analyzed to build a digital profile of the pipe. From this profile, the Laser Profiler built-in functions display the following:

- Ovality - The Ovality function calculates the "q" (as per ASTM F 1216, the internationally recognized standard for CIPP rehabilitation).
- Capacity - The Capacity (X-sectional Area) function calculates the cross-sectional area for each profile and normalizes the results against the expected internal pipe area.
- Interfaces with CUES software.
- Delta - The Delta calculation finds the maximum and minimum pipe radius for each profile.

THE LASER PROFILER 3D DEVELOPMENTS:





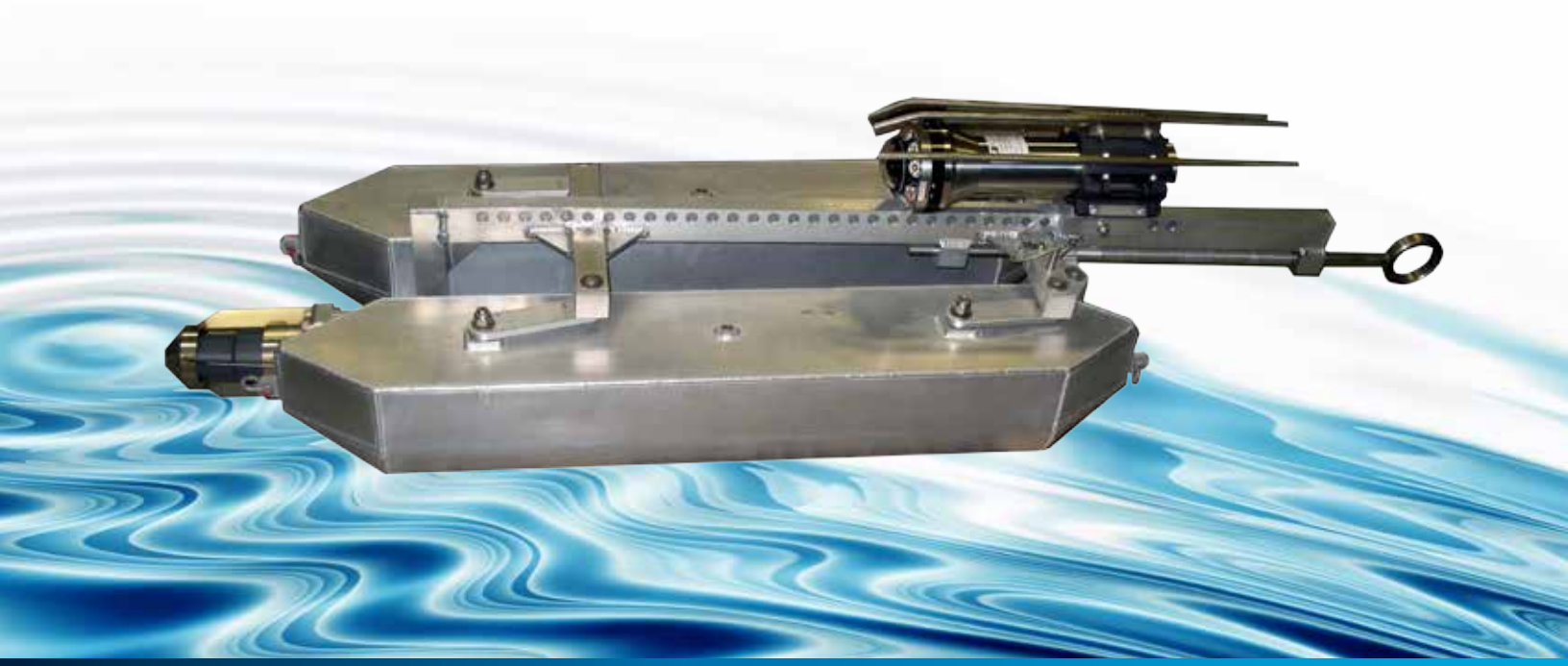


3D Modeling- Using the digital profile, the Laser Profiler creates a fully interactive 3D model of the pipe. This allows the user to navigate through the selected pipe within its local environment, thereby providing a new perspective to traditional CCTV inspections.

SONAR PROFILER SYSTEM

for Submerged and Semi-submerged Pipes

"The Standard of the Industry"



SONAR SYSTEM FOR SUBMERGED PIPE - Two (2) different sonar systems, (1) for submerged pipelines and (1) for semi-submerged pipelines, are available to survey pipelines measuring 12" up to 18' in diameter. Both systems provide 'real time' cross-sectional views of the pipe by utilizing high resolution/short range sonar. For semi-submerged pipelines, the non-submerged portion of the pipe is displayed on the video monitor as a standard video image.

- Base system includes the following equipment: Underwater Scanner Unit, Collapsible Sonar.
- Siphon Float, Sonar Processor/Monitor, Skid Set, and all necessary interconnect cables.
- Specifically designed to survey fully submerged (all water, no air) pipelines and/or pipelines containing heavy silt without disrupting the service.
- Capable of inspecting fully submerged pipelines from 24" to 18' in diameter.
- Includes a collapsible Sonar Siphon Float with slightly positive buoyancy designed to accommodate. different pipe sizes; the Float is designed to position the sonar in the center of the pipeline to ensure accurate measurements.
- Includes a specially designed skid set to align the Sonar System in 12"-60" submerged pipelines.
- Designed to operate as a multi-conductor 'stand-alone' system.

While CCTV is the standard acceptable method of visually inspecting pipelines above the waterline, it cannot provide visual information on internal pipe conditions below the waterline. The Sonar Profiler System is designed to provide accurate dimensional data on silt level, grease accumulation, pipe deformation, offsets, etc, below the waterline. In charged lines or siphons, the Sonar Profiler System provides the visual profile, profile comparison, and dimension data of significant items or defects. A sonar inspection of a fully or partially charged line provides a two-dimensional profile of the interior pipe wall similar to a medical MRI. Using the sonar software, a circle overlay is projected, sized, and moved anywhere within the image for checking erosion or remaining wall thickness. Accurate measurements can be made between any two points within the sonar image. Thus, offset, debris level, size of blockage, grease level, defects and so forth can be quantified. In partially charged lines, the Sonar can be combined with CCTV to provide a simultaneous composite image of the pipe both above and below the waterline!

SONAR Profiler

Features & Benefits

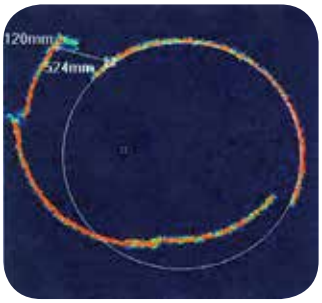
"The Standard of the Industry"

- Operates with CUES Standard CCTV to provide underwater profiles of pipe interior and conditions.
- Operates in pipes, lines or siphons from 12" though 18' without flow interruption.
- PAL or NTSC outputs for recording on standard VHS or S-VHS recorders.
- Real time continuous interior scanning over full 360 degrees in under 1 second.
- Direct image capture to hard disk for recording still frames on CD at full resolution.
- Screen display of distance location from entry point for positive location confirmation.
- Operates both in fully charged and partially charged lines.
- Analysis can be performed in a CCTV inspection vehicle or on a remote computer.
- Collects, stores, and prints pipeline inspection data (footage count and inclinometer data) & video images for display/report generation.
- Stores inspection files on disk to be exported into other computers.
- Surveys approximately 4 inches/per second.
- Includes an inclinometer designed to collect pitch and roll data.
- User can display distance measurements and/or draw a circle around the pipe image to determine pipe diameter.
- User can add titling information to the video or to a computer report while printing.
- Operates off of 115 or 240 volts AC current.
- Underwater Scanner Unit provides communications with the scanner, sampling of the acoustic signals, and interfacing to the cable counter for each Sonar System.

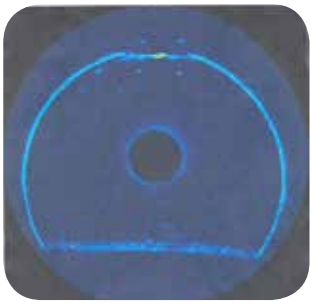
SONAR / TV SYSTEM FOR SEMI-SUBMERGED PIPE - An optional system is available as an integrated Sonar with video for use in submerged and large semi-submerged pipelines.

- The base system is designed to operate as part of a multi-conductor TV Inspection System and includes the following equipment: Underwater Scanner Unit, Sonar Processor/Monitor, Picture in Picture system, and all necessary interconnect cables.
- Designed to survey large semi-submerged (part air/part water) pipelines without disrupting the service.
- Capable of inspecting large semi-submerged pipelines from 24" up to 18' in diameter.
- For use in conjunction with a camera transporter float and pan & tilt camera in larger pipelines; the float is designed to position the camera above the waterline and the sonar below the waterline.
- Designed to display live television pictures of the pipeline and the sonar image with the Picture in Picture (PIP) display.
- Uses the USATI (United Sonar and TV Inspection) survey method for semi-submerged pipelines greater than 24 inches in diameter. With USATI, the camera is positioned above the waterline and the sonar is positioned below the waterline to provide a 360-degree survey of the pipeline. The sonar image is super-imposed on the picture to display views above & below the waterline on one monitor!

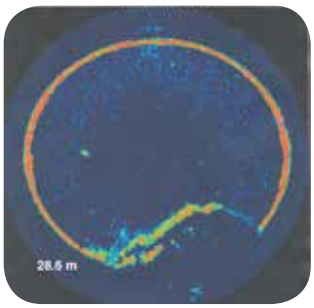
SONAR PIPE PROFILES - The CUES Sonar Profiler provides a two-dimensional profile of the interior pipe wall similar to a medical MRI!



Broken Pipe w/ Circle & Measurement


40 Inch Siphon


Pipe Image with Lateral Opening



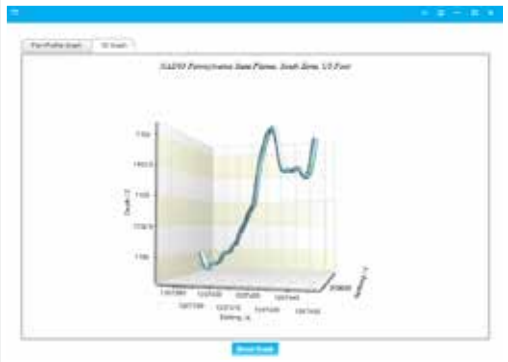
GRP Pipe w/ Debris

CUES AMP
Pipeline Mapping System

"The Standard of the Industry"

CUES AMP, THE WORLD'S MOST VERSATILE AND UNIQUE AUTONOMOUS MULTI-PURPOSE PIPELINE MAPPING SYSTEM, DELIVERS EXACT 3D POSITIONAL DATA. THE GYROSCOPIC BASED PIPELINE MAPPING SYSTEM IS DESIGNED FOR RAPID AND ACCURATE XYZ LOCATION OF YOUR WASTEWATER SYSTEM.

The Accurate Mapping Probe (AMP) provides precise and efficient 3D location of any underground pipeline asset quickly and easily, including wastewater, utilities and directional drilled lines. AMP's accurate data can be used for as-built drawing verification and defect locating including pipe sags, misaligned joints, horizontal and vertical design problems and hydraulic modeling. The system includes interchangeable wheel sets allowing AMP a wide operational range from 3" in diameter to 58" in any and all pipe materials including VCP, iron, plastic and concrete.



- AMPVUE™ 3D Graph

- AMPVUE™ Data Transfer Download Screen

CUES AMP
Features & Benefits

AMPVUE, a cloud based free service for all users of CUES AMP is available to manage all the data produced by the CUES AMP. This tool provides industry standard enterprise GIS outputs, multiple CAD formats and standard detailed reports.

- Provided as a free service to all users of the CUES AMP.
- AMP data is immediately converted and available for download in industry-standard GIS & CAD formats.
- Cloud technology, accessible via a web browser.
- Manages all data produced by the CUES AMP.
- Permits non-technical users to easily access data.
- Standard reporting modules, allowing easy documentation of projects performed with the CUES AMP.
- Easy data integration (import/export) with any existing enterprise GIS.

AMPVUE Professional is available for any size operation requiring a GIS (Geographic Information System). AMPVUE Professional provides a cost effective web-based GIS platform at a competitive cost and includes all of the functionality in AMPVUE, plus:

- All-in-one information repository, includes modules for Document and Photo Libraries.
- Easy to use web-based GIS display (can integrate data from any other location/mapping technology).
- Allows for seamless integration of legacy information (e.g. old CAD maps).
- Allows for creation/use of custom, industry-specific queries and reports.
- Municipalities without a GIS can be up and running with minimal cost.
- Automated bend radius analysis modules utilizing CUES AMP results.
- Custom reporting modules can be created for various industry-specific Key Performance Indicators (KPI).

CUES AMP IS THE WORLD'S MOST VERSATILE AND UNIQUE AUTONOMOUS MULTI-PURPOSE PIPELINE MAPPING SYSTEM THAT DELIVERS EXACT 3D POSITIONAL DATA.

- Use AMP for precise location of your underground pipeline assets for proactive sewer repair and replacement.
- Identify the critical problems, such as inclination, sags, bends, etc. in your wastewater system.
- The CUES AMP data can be used with your centralized system of record keeping and be accessible to all decision makers to assure proper defensible spending.
- Identify short and long term concerns to be considered in future CIP and O&M budgets.
- Integration of exact positional location with CCTV-identified anomalies and CUES asset-based GraniteNet decision support software allowing for accurate and cost-effective spot repairs.
- Use data for as-built drawings and confirm that installations meet location specifications.
- Project specific custom carriers available upon request.

"The Standard of the Industry"

REDI

REMOTE EVALUATION DIAGNOSTIC INSPECTION KIT

Take the TROUBLE out of TROUBLESHOOTING

CUES is proud to introduce REDI Kit, the first CCTV pipeline inspection troubleshooting kit available on the market today! CUES equipment is manufactured for rugged durability and designed to withstand the harshest environments found in sewer/ pipeline systems. Like all manufacturers, CUES equipment is powered electronically. Even with preventative maintenance and precautions, equipment failures can still occur.

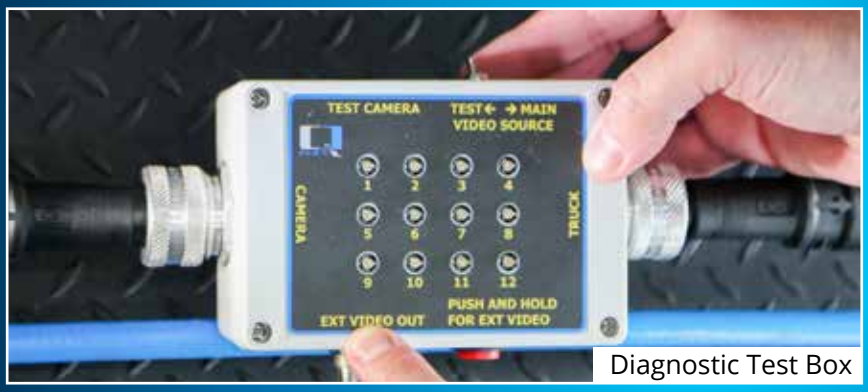
To significantly reduce unplanned downtime, use the CUES REDI Kit! This handy diagnostic kit includes tools that are indispensable at remote sites for electrical issues, troubleshooting, and repair. Use the REDI kit, along with your CUES technical staff, and take troubleshooting and support to the next level! Get up and running quickly and **GO THE DISTANCE** with the CUES REDI Kit!

"The Standard of the Industry"

CUES®

REDI KIT

Features & Benefits



Diagnostic Test Box

Footage Test Box

- A hi-resolution web camera allows for two-way video conferencing with CUES Technicians, Parts Specialists, and Engineers to expedite troubleshooting, enhance parts identification, and provide for specialized support by the Engineers that designed your systems.
- A Diagnostic Test Box provides easy access to the TV cable conductors via test points. This makes taking voltage readings much safer and easier and can be done with the camera and transporter attached for a more accurate reading while under load.
- The Diagnostic Test Box also contains a built in mini-camera, which can be used to send video back thru the TV cable and truck if you believe you may have a problem with your camera. Having this back-up camera helps to eliminate the need to locate an alternate mainline camera for video path troubleshooting.
- The Footage Test Box can be substituted for your footage head encoder, on both newer and older CUES reels. This will allow you to generate the footage signal in place of the encoder, if you suspect the encoder is malfunctioning. Test points are also provided to allow you to verify that operating voltage is present at the encoder.
- A USB diagnostic tool is included to help troubleshoot computer issues relating to the 5 volt power supply and any USB peripherals that are connected to the computer.
- A user friendly multi-meter is provided. CUES Technicians are very familiar with its operation and can assist, as needed. Video cables and adapters are also included, as they are sometimes helpful during troubleshooting.

"The Standard of the Industry"

Contact CUES

CUES has the most locations and dealers available to serve you! To find a local CUES facility, find the operating hours for a particular location, or to contact us at your most convenient stocking location, please log onto our website at www.cuesinc.com or call CUES' Corporate Headquarters in Orlando, Florida for more information.

CUES Corporate Office
3600 Rio Vista Avenue
Orlando, Florida 32805
Phone: 800-327-7791
Fax: 407.425.1569
Hours: 8AM - 6PM EST M-Fri
Email: salesinfo@cuesinc.com
www.cuesinc.com

Visit us on the web! Use your Smart Phone to scan the code above and then be directed to the CUES website.