

Raising expectations for easier underground inspections

We specialise in the manufacture and distribution of Pipeline Inspection Systems including Proteus Tractors, SOLO PRO+ Push Cameras.

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About Us

Dedicated to pipeline inspection innovation



For over 30 years we have used our industry experience and customer feedback to continually innovate. We develop leading solutions for challenging environments, producing smart, user-friendly, durable, high-quality systems that keep our customers working.

Minicam Inc is North America's distributor of sewer inspection equipment, parts and accessories. With the support of our extensive dealer network. They also function as a service and retail facility headquartered in the Detroit, Metropolitan Area. They intend to provide world-class sales, service and training to the underground inspection industry.

START
PLANNING YOUR
PROTEUS SYSTEM
TODAY

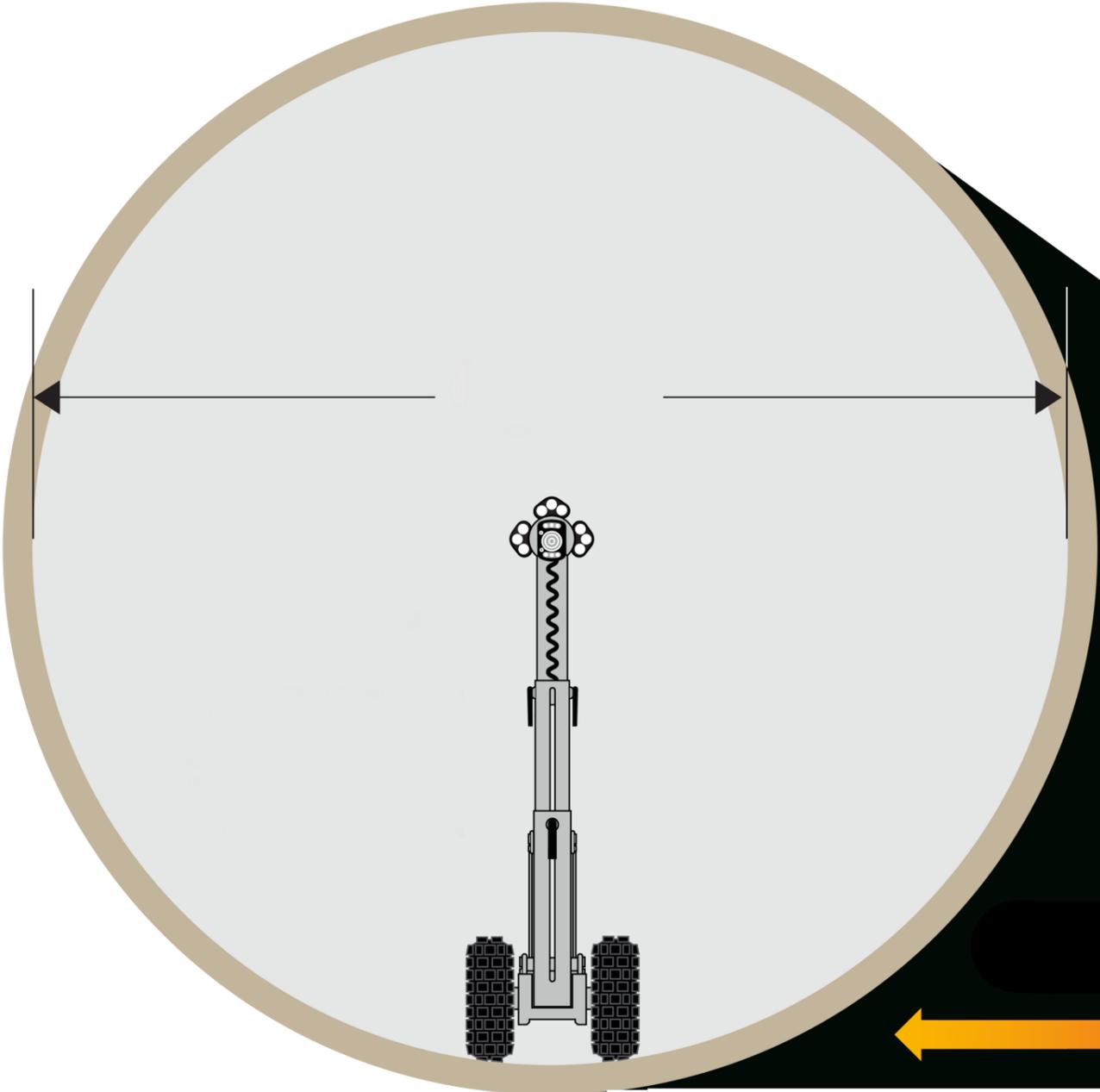
MINIATURE TO MASSIVE

Proteus handles them all

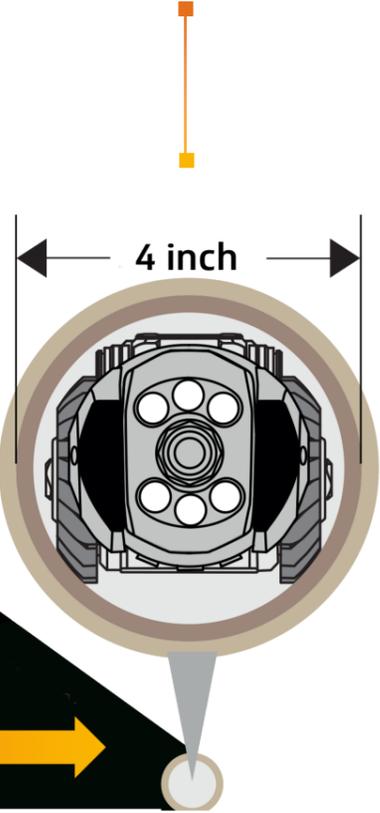
With five tractors, six cameras, two compatible coilers and over twenty accessories, the Proteus system can be configured to perfectly meet your requirements. As your business grows simply add more components from the Proteus range to your kit, enabling you to significantly increase your inspection capabilities for larger diameter pipes and tricky, challenging environments. No matter what the pipe diameter, Proteus Tractors are rugged, agile and rapidly responsive to your commands.

The example shown below demonstrates the scope of the Proteus system. The compact size of our smallest CRP90 Tractor allows it to easily survey relined 4" pipes, while the CRP300 Tractor, the largest in the range, with the optional CEP300, Camera Elevation Platform, centers the camera in an impressive 86" pipe diameter.

CRP300 Tractor with CAM028L Pan, Rotate & Zoom, ALN300 Auxiliary Lights, ALB300 Auxiliary Light/Backeye, CEP300 Camera Elevation Platform and QRW250 Balloon Wheels in a 86 inch diameter pipe.



CRP90 Tractor with CAM026 Pan & Rotate Camera. Elevator Down, inside a 4 inch diameter relined pipe.



PROTEUS TRACTORS

CRP90

Massive capabilities
Skillfully miniaturized

CRP90's compact size allows it to easily survey relined 3.5" pipes. The motorized elevator enables the camera to be centered in pipes of up to 9" diameter.

ALL STANDARD FEATURES INCLUDED

PLUS

- 6 x QRWX60SR 2" Rubber Wheels
- Motorized Elevator - Range 1.5-3"
- Articulated 'Knuckle' Connector

OPTIONAL

- Carbide Wheels
- High Grip Wheel



TECHNICAL SPECIFICATION	
Product Code	CRP90
Pipe Sizes	3.5" - 9"
Weight	10lbs

CPL150S

Entry level, mid-size tractor with manual elevator

The perfect companion to the RMPL250 Reel. CPL150S has the same professional grade quality, reliability and accuracy as our mainline Proteus Tractors.

ALL STANDARD FEATURES INCLUDED

PLUS

- 6 x QRWX90SR 2" Rubber Wheels
- Manual Elevator - Range 2-4"
- Heavy Duty Rear Connector

OPTIONAL

- Multi-Frequency Sonde
- Inclination Sensor
- Carbide Wheels
- High Grip Wheel



TECHNICAL SPECIFICATION	
Product Code	CPL150S
Pipe Sizes	From 6" - 18" to 31" with PCC01 Tractor Cradle
Weight	20lbs



CRP140

Sophisticated mid-size tractor modelled on the CPL150S

For pipes from 5.5" (even in a relined pipe) up to 24", with the optional PCC01 Tractor Cradle it can even be used in pipes up to 40" diameter.

ALL STANDARD FEATURES INCLUDED

PLUS

- 6 x QRWX90SR 3.5" Rubber Wheels
- Motorized Elevator - Range 4-8m"
- Articulated 'Knuckle' Connector

OPTIONAL

- Carbide Wheels
- High Grip Wheel

TECHNICAL SPECIFICATION	
Product Code	CRP140
Pipe Sizes	From 5.5" - 24" to 40" with PCC01 Tractor Cradle
Weight	21lbs



CRP300

Engineered to perform reliably
in challenging conditions

Designed for larger pipe diameters with high flow rates, this heavy duty tractor makes easy work of inspections in more difficult environments.

ALL STANDARD FEATURES INCLUDED

PLUS

- 6 x QRWX140SR 5.5" Rubber Wheels
- Motorized Elevator - Range 5-15"
- Heavy Duty Rear Connector

OPTIONAL

- Wide Axel Balloon Wheels

TECHNICAL SPECIFICATION	
Product Code	CRP300
Pipe Sizes	From 12" - 40" to 86" with Elevation Platform
Weight	70.5lbs

PROTEUS HD SYSTEM HD WITHOUT COMPROMISE

Minicam's Proteus HD System offers high-quality 1080p Full HD video recordings in pipes from 6" and up and can deploy over 1,640 feet from the access point with our fully automatic synchronized cable reel, without introducing noise or latency into the video feed all while using our tried & tested, easily repairable, copper cable.



ACR350/500-HD

Our Proteus HD fully-automatic cable reels ensure you're cable is always perfectly in synchronization with your tractor, whether deploying down the pipe or on the way back, never get nervous about running over your cable again. Our ACR cable reel now supports our Full HD 1080p video footage, without introducing noise or latency even over 1,640 ft of cable all while still using our much loved reinforced, lightweight 6-core copper cable, which means HD no longer means expensive repair bills.

TECHNICAL SPECIFICATION		
Product Code	ACR350	ACR500
Cable Length	1150 ft	1640 ft
Dimensions	26" x 12" x 25.6"	26" x 21.6 x 25.6"
Power Supply	90 n- 264 VAC	90 - 264 VAC
Power Consumption	600 W	600 W
Environmental Protection	IP45	IP45
Weight	99 lb	121 lb
Remote Controller (Included)	RJP Joystick	RJP Joystick
Van Guide Pulley	VGP350 (Optional)	VGP500 (Included)

CAM090-HD

Minicam's CAM090-HD pairs with our refreshed CRP140-HD to deliver exceptional video quality for the inspection of pipelines 6" and up and with our built-in LEDs the CAM090-HD provides plenty of lighting even in larger mainline wastewater pipes. The CAM090-HD also enables the recording of 1080p video while providing excellent clarity and color balance, it also features 10x analog zoom enabling the ability to see up laterals and connections without losing resolution. The CAM090-HD also features continuous 360° rotation and 135° of bi-directional tilt ensuring you can see wherever you need to and with the CAM090 you have automatic focus, ensuring you are always in focus, no matter what size pipe you are in or how far up a connection you are looking.

TECHNICAL SPECIFICATION	
Pipe Diameter	4" - 25"
Aligned Laser Spacing	30 mm
Camera Resolution	1080p (Full HD 1920 x 1080)
Sensitivity	< 1.0 lux
Aperture/Field of View	F/1.8 - 2.9 / 46° ~ 4.6°
Dimensions	Ø 3.3" / length 6.1"
Illumination Intensity	Adjustable to 12.5k lux at 4"
Pressure Depth Rating	1 bar (14.50 psi)



CRP140-HD



Our feature-rich mainline tractor has been upgraded to carry our new CAM090-HD 1080p camera. For use in pipes from 6" (even in a relined pipe) up to 24" and with the optional PCC01 Crawler Cradle it will even center the camera in pipes up to 40" diameter. With powerful 6-wheel drive and a wide range of wheel size and tire material options, Proteus continues to be able to comfortably navigate a wide range of conditions and sizes in any pipe material and with our strong multi-frequency sonde transmitter, you can even locate the CRP140-HD further underground and in a wider range of pipe materials.

TECHNICAL SPECIFICATION	
Pipe Diameter	6" - 24" (With Crawler Cradle: upto 40")
Dimensions	15.1" x 5.2" x 4.2"
Weight	25.3 lb

PROTEUS LATERAL

Pan-Tilt Laser Camera

Expertly engineered in stainless steel and aluminium, this robust camera offers maximum pan and rotate flexibility for use in small diameter pipe applications, from 2.36" up. The camera features an integral distance sensor and dual aligned visible lasers, to enable accurate pipe diameter, defect, and object measurement, directly from the control unit. The precision camera lens and four ultra-bright LED's guarantee clear, defined, quality inspection images.

Flexible Pivot

Horizontal pan and vertical tilt positioning of the deployment arm provides the operator with optimum flexibility.

Hinged Mid-section

The hinged mid-section allows for flexible mainline entry for access sizes as small as 12.5". No hinge locking required due to constant wheel support.

Observation Camera and LED Auxiliary Light

Forward facing precision camera capable of 740TVL resolutions with powerful ultra-bright LEDs provides a bright, clear picture to assist launching into the unknown with confidence.

Meterage Counter

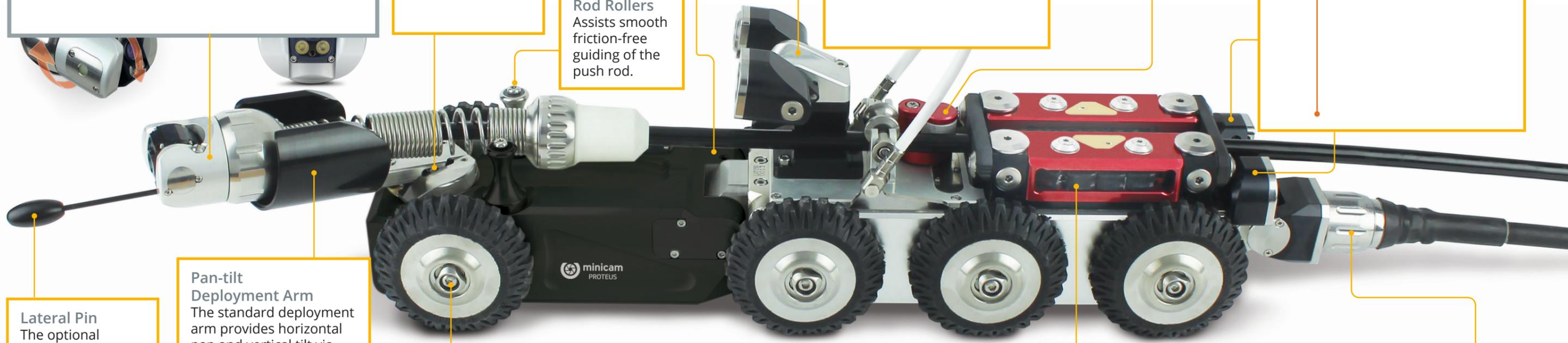
Close to deployment for an accurate lateral distance measurement.

Back-eye Camera and LED Auxiliary Light

Taken from our tried and tested Proteus Back-eye camera and positioned above flow, this color camera and LED light enables confident cable management during reverse travel.

Rod Rollers

Assists smooth friction-free guiding of the push rod.



Lateral Pin

The optional pin adjusts the direction and guides the camera smoothly along the pipe.

Pan-tilt Deployment Arm

The standard deployment arm provides horizontal pan and vertical tilt via the flexible front pivot, which enables accurate positioning of the camera/push rod prior to launch. For larger mainlines, the unique design of the pivot provides quick and easy attachment of deployment tubes in varying sizes.

Quick Change Wheel Lock

Easy single tool wheel lock enables you to use a variety of wheel sizes and type to offer significant performance benefits in various pipe diameters and for specific operating conditions.

Lateral Drive Belt

The drive mechanism maximizes your productivity by powerfully feeding the push rod up to 150 feet. The drive belt is designed to repel debris whilst in operation, the flexible tread is designed to remove dirt and prevent belt clogging, meaning long service intervals. The drive belt housing is user-serviceable enabling a quick single tool cartridge change while on-site.

Articulated 'Knuckle' Connector

Enables easy deployment of the tractor and prevents water ingress to the connections.

Tractor Nudge Mode

Use the orange colored arrows on the keyboard to nudge incremental distance for truly accurate positioning of the tractor.

Single Click Mode Change

Changing control mode between mainline and lateral is made easy by a single click of the joystick top button.





Standard Features

Compatible with:

- CAM026 Pan & Rotate
- CAM026L Pan, Rotate & Laser
- CAM027 Axial
- CAM028L Pan, Rotate, Zoom & Laser
- ALB300 Auxiliary Light with Backeye Δ
- ALN300 Auxiliary Light (Non-Backeye) Δ
- APB300 LED Pod with Backeye Δ
- APN300 LED Pod (Non-Backeye) Δ
- Continuous monitoring of speed, internal pressure, inclination and temperature
- Dual Axis Inclination Sensor
- Single Auxiliary Light/Backeye Mounting
- Multi-Frequency Sonde 33kHz / 512Hz / 640Hz
- Steerable High Torque
- All-Wheel Drive
- Robust Housing
- 1 BAR (14.5psi) Pressure Tight
- Quick Change Wheel Lock
- In-Built Lowering Arm
- Heavy Duty Camera Connector
- Protective Front Connector Cap
- Protective Rear Connector Cap
- Lowering Rope
- Protective Carry Case*
- Tools

Δ Except CRP90, *Except CRP300



PROTEUS CCU

CCU208

Survey Features

Access embedded reporting software to create detailed on-site reports.



Review Footage

Organize videos and images into folders, then find them using the thumbnail gallery. Review media using standard controls.



Illumination

Increase or decrease the intensity of the ultra-bright camera LEDs.



Hot Keys

User-friendly, multi-function hot keys control an intuitive on-screen display of the numerous features.



Write Screen Text

Type and store up to 16 pages of on screen text. Customize text color, position and background color.



Capture Footage

Record MPEG video and JPEG images, and zoom up to 3x on video playback.



Sonde Settings

Set the frequency of the Sonde transmitter to 33kHz, 512Hz or 640Hz.



Control Meterage

Accurately set the meterage zero offset using the meterage key.



Generate Reports

Use embedded reporting software to create detailed inspection reports with a pipe graph to pinpoint defects.



Offload Data

Copy reports, videos and images to USB or SDHC media for easy transfer to PC and seamless integration with WinCan reporting and querying capabilities.

Alternative Languages

Proteus is currently available with keyboards in English, French, German and Russian.

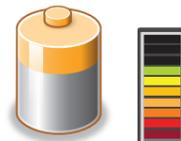
Screens Intensity

The brightness, color and backlit intensity of the internal display can be adjusted to suit the environment in which the system is being used.



Internal Batteries

The Proteus CCU includes internal batteries so that it can be used autonomously to view inspection reports and video.



Setup & Configuration

Easily and quickly configure the Proteus CCU to your specific requirements using the various menu options. Set language, date and time, establish file formats and naming conventions, adjust camera parameters.



Share Files

WiFi enabled to allow remote access to stored images and data. Users can instantly share PDF reports, images and footage via email or upload WinCan Reports via the Cloud to WinCan Web for secure, immediate team-wide access online.



Joystick Controls

The left joystick controls tractor manoeuvrability. Movement of the Pan & Rotate camera is smooth and effortless using the right hand joystick control. Perform a 360° rotation and pan the camera +/- 135°.



CONTROL UNIT

Bigger and Better!

The same rod and systems that you love but with a new and improved Control Unit. View, record, and annotate inspection footage with ease on our Next Generation MCU! Designed with the user in mind the ergonomic unit and control panels aid you in the field. This new system is more powerful and simpler to use than ever with more features and functions with no setbacks. Sleek and modern, the unit is built to last and stand against the challenges of in-the-field surveys.



The case of the new Proteus MCU is rugged, industrialised and conforms to IP65. The ergonomic design allows for a comfortable feel to the unit for the user. The base of the unit has a web design to enforce integrity upon impact to reduce the chances of damage when exposed to falls of a certain degree.

Easy, fold-away clips for quick access to the main body of the unit are located on either side of the case, allowing the lid to fall and be ready to use with no fuss. The handle is sturdy and secure and ready to be carried to your next inspection. On the right side of the unit, two USB-C connections can be found, concealed under a silicon tab to protect them against the weather, dirt and grime.



Under the lid, you can find the inset 12" screen with the control unit and system on/off buttons with LED indicators to the left of the screen.

With 6 - 8 hours of battery life and 120GB of usable storage, you can keep going for longer. The unit is also compatible with PlayStation and Xbox controllers if needed along with wireless video streaming to your phone or tablet so you can view the feed from a distance.

Technical Data

Screen	12" sunlight readable touchscreen (1000 nits)	Processor	INTEL® Quad Core 1.5 GHz Processor
Keyboard	Full size QWERTY IP68 backlit silicone keyboard	Storage	256GB (Expandable to 2TB+)
Rating	IP65	Software	Embedded WinCan ProTouch
Dimensions	19.5 x 7 x 15.5 inch	Video Output	HDMI via USB-C

FUNCTIONALITY AT YOUR FINGERTIPS

Much More Than Meets The Eye.

Our bright screens just got brighter with our 12" sunlight-readable screen is accompanied by the soft-touch waterproof anti-microbial keyboard with eight hot keys found along the top of the keyboard to help you keep your surveys quick and efficient. The layout of the keyboard and pods is ergonomically built to help support your hands and wrists during long surveys.

The mouse can be found at the bottom of the keyboard to help navigate the easy to use software, but if the mouse isn't to your liking, the MCU has a touchscreen interface ready for use whenever it's needed.



The modern interface is designed to simplify surveys. With improved file and project management, battery status indicator, multi-language support and so much more so that you, the user, have a better and easier experience when out in the field. The powerful reporting software built in as standard with WIFI 6 and Bluetooth is also enabled on the unit.

Conforming to IP65 the unit is fully protected against dust and is weatherproof so you have a reliable unit when in the field under tough conditions.

Backwards compatibility allows the unit to be compatible with all existing SOLO PRO+ reels, hardware and Proteus crawlers with an update to the Proteus Lite system so that the MCU will fit comfortably on the frame.

NEXT GEN CCU

MCU312

The Proteus Control Unit has two intergrated control pods that each hold a joystick and nine dedicated control keys to enable quick and efficient surveys when in the field.

Cruise Up

Sets the next cruise speed for the crawler. There are 7 possible forward cruise speeds.



Cruise Down

Sets the next cruise speed for the crawler. There are 7 possible backward cruise speeds.



Stop

Stops the crawler and sets the cruise speed to 0.



User Defined key

P1

Is a configurable button that can be set to whatever the user wants from a selectable list.

Reel Adjustment

When this is selected the plus and minus buttons will adjust the cable tension.



Payout

When this is selected, the plus button will payout cable.



Arm Adjustment

When this is selected, the plus and minus buttons move the arm up and down.



Adjustment -

Depending on what is selected this is used to decrement the current selected option between Reel Adjustment, Cable Payout and Arm Position



Adjustment +

Depending on what is selected this is used to increment the current selected option between Reel Adjustment, Cable Payout and Arm Position



Home

Sends the camera to the home position



Backeye Switch

Switches between the backeye and the front camera, also changed the LED selection on the GUI



Reset Meterage

Resets the meterage to 0.



User Defined key

P2

Is a configurable button that can be set to whatever the user wants from a selectable list.

Focus

If this is selected, the plus and minus buttons adjust the focus on the camera.



Zoom

If this is selected, the plus and minus buttons adjust the zoom on the camera.



LED Brightness

If this is selected, the plus and minus buttons adjustment the LED Brightness for the selected camera.



Pan, Rotate & Laser CAM026L

Based on Minicam's popular CAM026 the CAM026L features an integral distance sensor and two aligned visible lasers to enable accurate pipe diameter, defect and object measurement, directly from the Proteus control unit.

With a continuous 360° rotation and +/-135° Pan, CAM026L is a compact, robust camera with twin clusters of three high powered ultra-bright LED lights to provide optimum illumination for better image clarity. The hard wearing, scratch resistant sapphire glass provides protection of the camera lens.

TECHNICAL SPECIFICATION	
Product Code	CAM026L
Pipe Diameter	3.5" x 24"
Aligned Laser Spacing	1"
Camera Resolution	470 HTVL
Sensitivity	<1.0 Lux
Aperture/Field of View	F2.5/75°
Dimensions	5" x 2.8" x 2.8"
Illumination Intensity	12.5k Lux at 6"
Pressure Depth Rating	1 BAR (14.50psi)



Axial CAM027

A robust camera head with triple clusters of 3 high powered ultra-bright LED lights for optimum illumination and a scratch resistant sapphire glass to protect the lens.

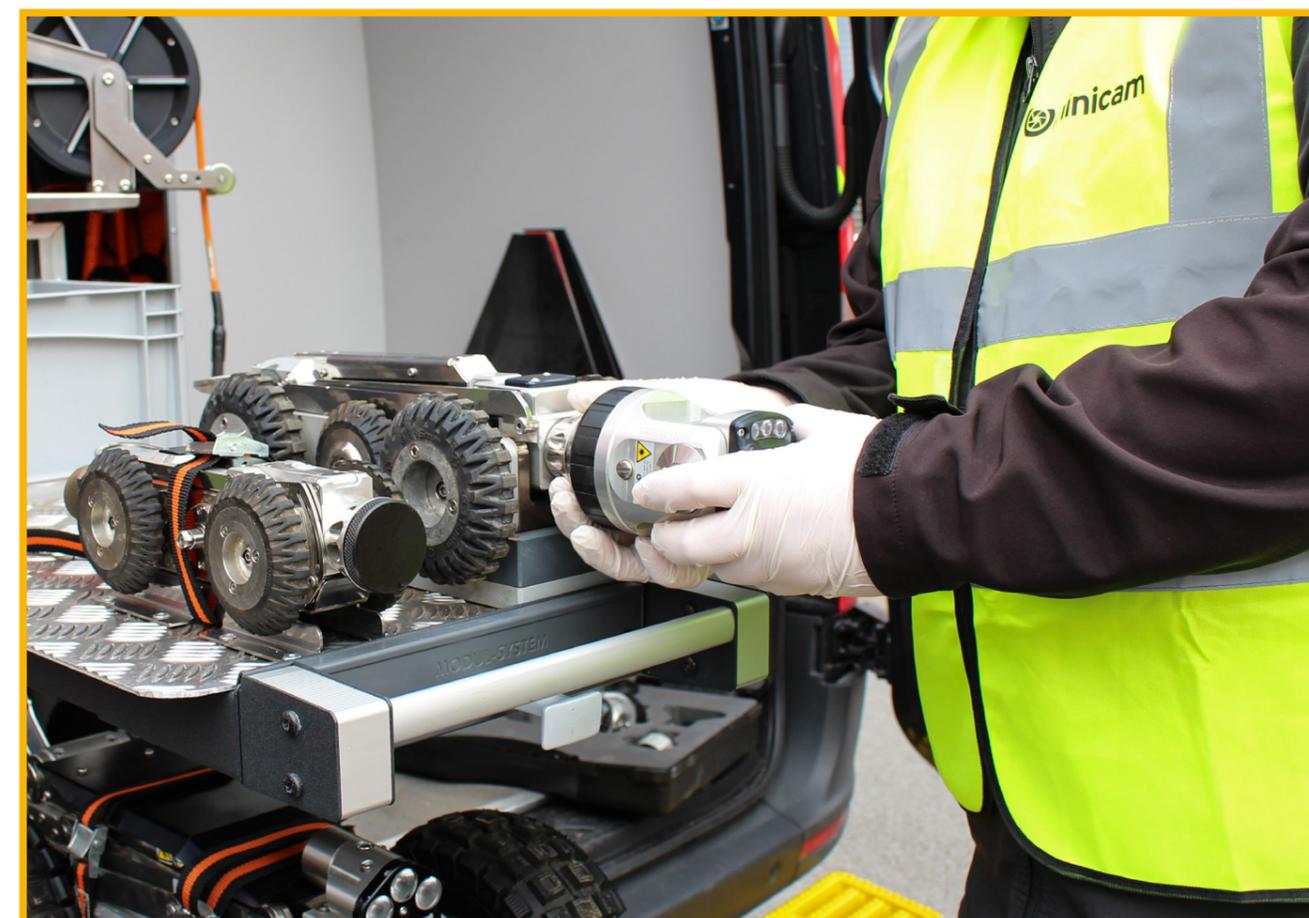
TECHNICAL SPECIFICATION	
Product Code	CAM027
Camera Resolution	470 HTVL
Sensitivity	< 1.0 lux
Aperture/Field of View	F2.5 / 75°
Dimensions	2.8" x 2" x 2"
Illumination Intensity	12.5k lux at 6"
Pressure Depth Rating	1 BAR (14.50psi)



Pan, Rotate, Zoom & Laser CAM028L

CAM028L Pan & Rotate camera with zoom has the same features as the CAM026L, but with the addition of an optical and digital zoom function to allow distant objects to be viewed in much greater detail. As with the CAM026L it has two aligned lasers for defect and object measurement and a distance sensor for pipe diameter measurement. It also has twin clusters of three powerful, ultra-bright LEDs for optimum illumination. Horizontal and vertical movement is smooth and shutter-free, with the full 360° rotate and +/-135° pan.

TECHNICAL SPECIFICATION	
Product Code	CAM028L
Pipe Diameter	3.5" - 24"
Aligned Laser Spacing	1.2"
Camera Resolution	800 HTVL
Sensitivity	< 1.0 lux
Aperture/Field of View	F1.8 - F2.9 / 46° - 4.6°
Dimensions	5.5" x 3" x 3"
Illumination Intensity	12.5k lux at 6"
Pressure Depth Rating	1 BAR (14.50psi)



Proteus Lite System

RMPL250 Reel

The core of the Proteus Lite system, this compact, space-saving reel is engineered to the same exacting standards as our mainline Proteus equipment.

- 820' Kevlar Reinforced Cable
- Manual Cable Layering Arm
- 2-Step Quick-Release Footage Rollers
- Friction Brake
- Removable Winding Handle
- Spring Loaded Connector
- Powder Coated Frame with Rubber Feet
- Mounting bracket for easy-fit Control Unit

CPL150 Tractor

- Quick-Adjust Manual Elevator
- Lowering Handle
- Heavy Duty Rear Connector
- 6 Soft Rubber Wheels
- Quick-change Wheel Lock

CAM026 Pan & Rotate Camera

With a continuous 360° rotation and +/-135° Pan, CAM026L is a compact, robust camera with twin clusters of three high powered ultra-bright LED lights to provide optimum illumination for better image clarity. The hard wearing, scratch resistant sapphire glass provides protection of the camera lens.

CCU208 Control Unit

View, record and annotate inspection footage from any composite video source with Minicam Control Units. User friendly multi-function hot keys control an intuitive on-screen display, to enable quick and accurate navigation and numerous other features.

CCU208
Proteus Control
Unit

RMPL250
Lite Reel
820'



Proven Reliability Modular Capability

Minicam's Proteus Lite brings together, the well proven performance and reliability of the Proteus family, in a value for money, entry level system.

Designed and developed in-house, Proteus Lite is the ideal starter kit for a one-man operation, integration into a small inspection van, or a low-cost option for larger companies to use for off-road, remote locations.

Proteus Lite provides all the resources required to undertake efficient, easy to perform inspections, and with ProPIPE+, WinCan Embedded and WinCan Web software as standard, you can deliver accurate, detailed reports, instantly on-site.

Future proof and totally modular, when your business budget allows, simply upgrade your Proteus Lite with a larger or smaller tractor, extra cameras and auxiliary lights, or one of the many other Proteus compatible accessories available.

CPL150S Tractor,
CAM026 Pan &
Rotate Camera



Quick-Adjust Manual Elevator



Lowering Handle



Manual Cable Layering Arm



Friction Brake / Hand Brake



Fold-away / Removable Handle



2-Step Quick Release Meterage
Rollers

Camera Adaptor PCA01

Invaluable for hand-held walk-throughs and vertical inspections in manholes, chimneys, tanks and vessels.

A useful accessory for your inspection kit. PCA01 allows the user to connect a camera to the CCU without the need for a Tractor. Precision engineered from high specification materials, this compact tool is invaluable for vertical inspections, hand-held walk-throughs, and for use in a service department.



TECHNICAL SPECIFICATION

Product Code	PCA01
Compatibility	Proteus System
Features	Dual Aux Light Housings
Dimensions	5" x 2.7 x 3"
Weight	2lbs

Adaptor Guides BAK01

Designed for vertical inspections. The robust arms keep the camera centered in the pipe and help to prevent damage to the camera and adaptor. BAK01 kit includes 2 sizes: 6" and 9".



LED Pods APB300 / APN300

Adjustable LED light pods for larger pipe diameters.

Twin LED light pods are in-built to the auxiliary light. Manually adjustable, the directional light function provides a full horizontal 180° rotation and a 90° upward rotation, enabling forward, upward, rear or sideways facing positions. The light pod accessory fits all Proteus Tractors, and is quick and easy to fit. The APB300 backeye version features a color rear view camera to aid Tractor reversing.



Auxiliary Lights ALB300 / ALN300

Ultra-bright LEDs for optimum illumination

A must-have accessory for Tractor users. The durable anodized aluminium housing features three high-powered ultra-bright LED lights and a scratch resistant sapphire glass to protect the lens.

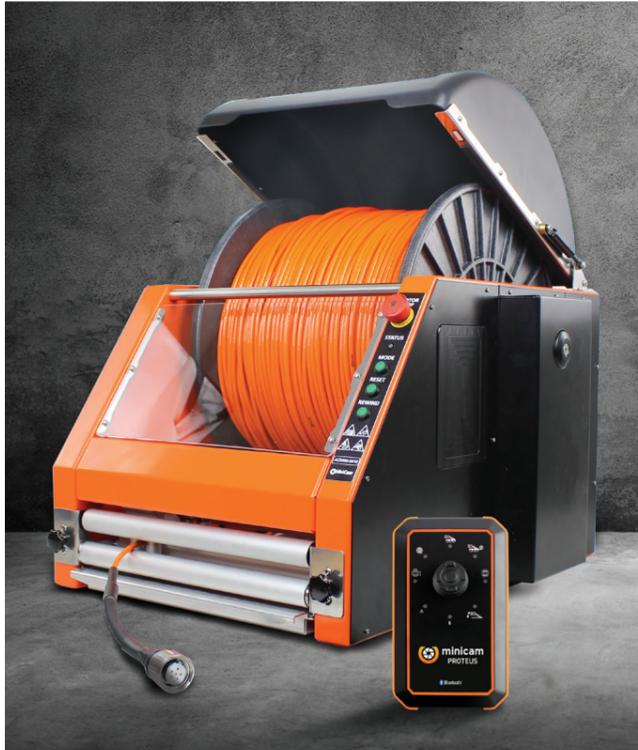


Automatic Reel ACR350 / ACR500

Experience powered winding in both directions!

Developed for the CCTV Inspection Van market, and modelled on our best-selling Proteus 1640' motorized cable reel, the ACR500 large capacity reel gives users an impressive 1150' of extra inspection capability.

Fitted with high strength, Kevlar reinforced inspection cable, ultra-smooth operation is provided by the powerful, three phase motor and cable layering mechanism, specially designed for uninterrupted, tangle free pay-out and re-winding. A clear safety screen prevents contact with the cable whilst coiling, and for additional safety there's a rigid cover and an instant motor stop button.



Motorized Reel RAP200 / RAP300

Experience powered winding in both directions!

Built to the same exacting standards as our manual cable reels, these labour saving motorized reels are sturdy, rugged and built to perform reliably efficient pipeline inspections.

Minicam motorized cable reels are designed for easy one-person operation in remote locations. The reels are fitted with high tensile strength Kevlar reinforced inspection cable. The ultra-smooth operation is provided by the powerful three phase motor and cable layering mechanism for uninterrupted, tangle free pay-out and re-winding. A rigid, clear safety screen prevents contact with the cable whilst coiling.

The reel is operated using the dedicated keys and intuitive on-screen display on the Proteus CCU.



Lateral Reel LCR350

Experience powered winding in both directions!

Fitted with 1150 feet of high strength, Kevlar reinforced inspection cable and 150' of flexible 1/2" diameter push rod. The extendable arm of the guide roller has 4 distance locks enabling the cable/rod to be deployed from the optimum position. Dual reels with installation flexibility in van arrangements are used to drive the LAT150 tractor. The Lateral Reel gives you 1150' of mainline capability to then extend the main camera up to 150 feet into a lateral pipe, while the mainline reel provides cable to the tractor for runs of up to 1150' within the mainline pipe. Ultra-smooth operation is provided by a powerful motor and cable layering mechanism, specially designed for uninterrupted, tangle free pay-out and re-winding. Clear safety screens prevent contact with the cable whilst coiling, and for additional safety there is a rigid lid and an emergency stop button.



Van-fit configuration with LCR350 (top) and ACR350.

Used in conjunction with the lateral reel the fully automatic reel provides a distance capability of 1150' power the tractor along the pipeline. It uses our tried and tested Kevlar reinforced inspection cable, and has all the functionality and safety features of the lateral reel. For additional smooth friction-free guiding, an optional van guide pulley is available.

REELS	Lateral Reel - LCR350	Mainline Reel -ACR350
Operation	3 Phase motor	
Payout / Rewind	Cable layering mechanism	Cable layering mechanism
Emergency stop button	In-built	In-built
Push rod length	150'	-
Cable length	1000'	1150'
Cable type	Kevlar reinforced	Kevlar reinforced
Power Supply	100-240 VAC	100-240 VAC
Power Consumption	600W	600W
Dimensions L x W x H	35" x 19" x 28"	26" x 17" x 25"
Weight	265lbs	93lbs
Van Guide Pulley	Integral	VGP350 (Optional)

TRACTOR WHEELS

Our specially designed wheels offer significant performance benefits in various pipe diameters and for specific operating conditions.

Soft Black Rubber

Available in four sizes and wide axel

Black, soft rubber wheels developed to provide improved traction in regular pipes.



Carbide

Available in four sizes and wide axel

Fragmented copper particles fused to an heavy duty stainless steel body.



High Grip

Available in three sizes and wide axel

Hard wearing carborundum manufactured with a deep bevel profile to provide improved traction in wet and greasy pipes



Pneumatic Balloon

Available in one size and wide axel

Heavy duty, 10" wide tyres designed to improve performance on our large Proteus CRP300 tractor. Optional for tractor Cradle PCC01



Wheel Sizes & Compatibility

WHEEL TYPE	TO FIT CRP90	TO FIT CRP140 & CPL150S	TO FIT CRP300	RECOMMENDED PIPE DIAMETER
Soft Black Rubber Whe				
2"	QRW60SR/90	-	-	4"
3.5"	QRW90SR/90	QRW90SR/150	-	6"
3.5" XL	QRW90XLSR/90	-	-	6"
4.5"	-	QRW115SR/150	-	8" - 12"
5.5"	-	QRW140SR/150	QRW140SR/300	12" - 16" (150) 12" - 24" (300)
5.5" XL	-	QRW140XLSR/150	-	18" - 24"

Carbide Wheels				
2"	QRW60CB/90	-	-	4"
3.5"	QRW90CB/90	QRW90CB/150	-	6" - 8" (90) 6" (150)
3.5" XL	QRW90CBXL/90	-	-	8" - 12" (90)
4.5"	-	QRW115CB/150	-	8" - 12"
5.5"	-	QRW140CB/150	-	12" - 18"

High Grip Wheels				
3.5"	QRW90HG/90	QRW90HG/150	-	6" - 8"
3.5" XL	QRW90HGXL/90	-	-	8" - 12"
4.5"	-	QRW115HG/150	-	8" - 12"
5.5"	-	QRW140HG/150	-	12" - 18"

Pneumatic Balloon Wheels				
10"	-	-	QRW250	24" - 39"
10" XL	-	-	QRW250XL	24" - 39"



Quick Release Lock

All Proteus Tractors feature Minicam's unique, patented wheel lock device. This makes it easy to change the tractor wheel type to suit the size and condition of the pipe. Using the supplied Hex T-Bar driver, the operation is quick and simple with no other tools required.



Wide Axel Wheels

Extend the capability of your Tractor. Quick and easy to attach, wide axel wheels provide instant extra width for inspections in wider pipe diameters

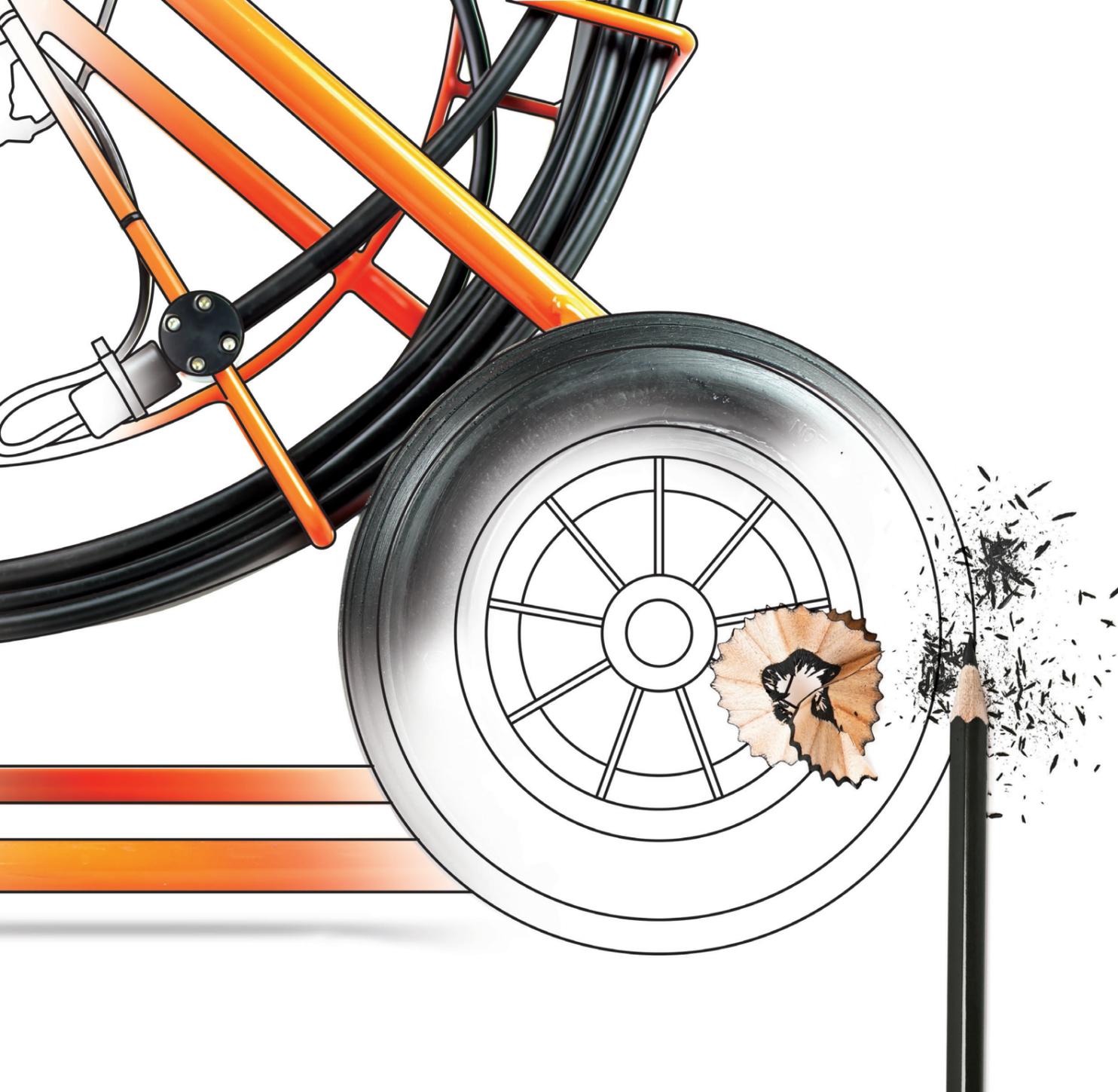
Wide Axel wheels are available in soft black rubber, high grip and carbide

ENGINEERED TO PERFORM

SOLO PRO+ handles it all

High quality components are used in all Minicam products, and our skilled technicians build each system by hand to our exacting standards.

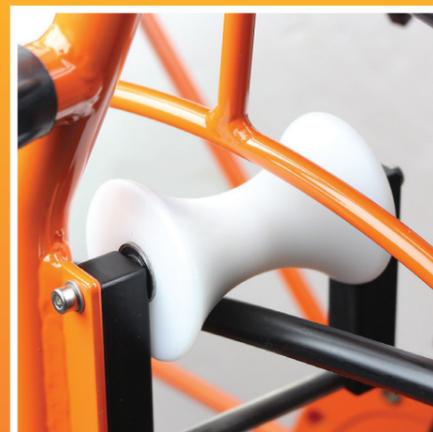
Every SOLO PRO+ System is checked and rigorously tested before leaving our factory, and you can rest assured that we're right behind you, with our impeccable service and aftercare.



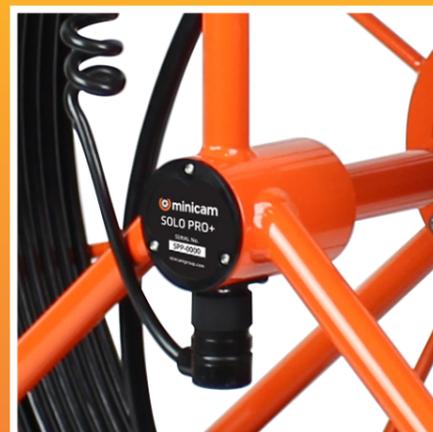
Easy-fit Control Unit



Heavy Duty Camera Connector



Rod Roller



Integrated Meterage Measurement



Friction Brake



Heavy Duty Wheels

Coiler

SPP 130 / 200 / 330

The coiler frame is the carrier for the coiler rod, the camera and the CCU. Minicam have constantly refined the design, materials, components and construction, to make for our best ever frame. Customers the world over have come to rely on the SOLO PRO+ frame for the reliability, and of course our enviable after-care and service back-up.

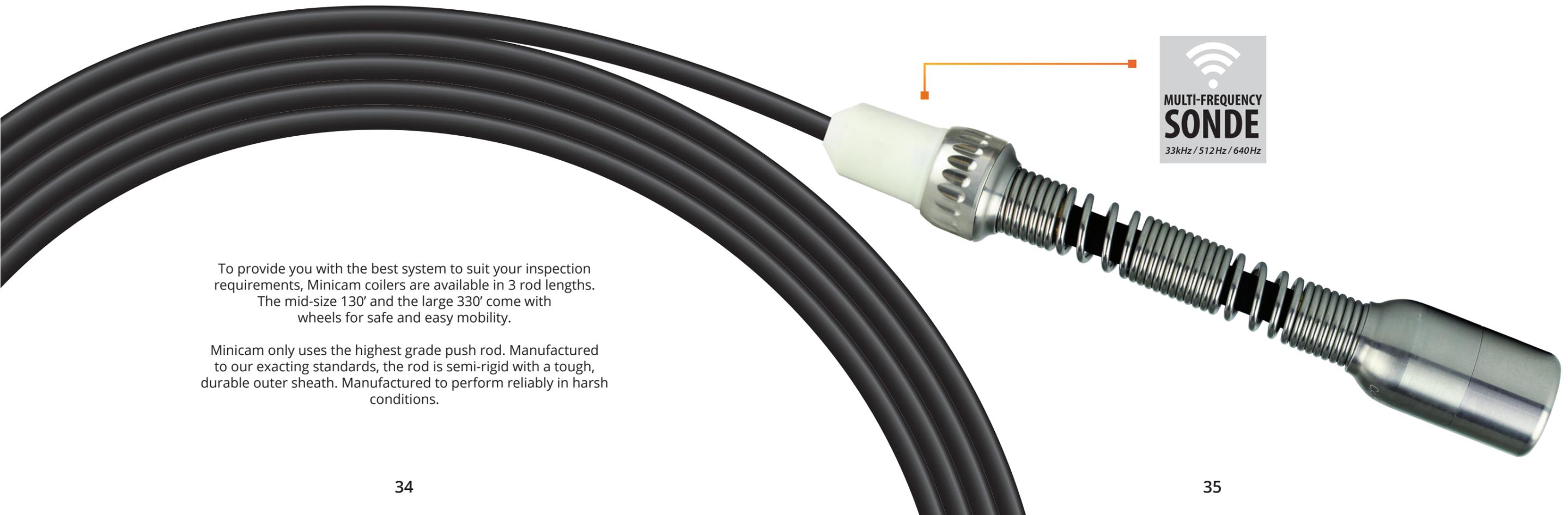
The welded tubular steel construction and protective powder coating means the coiler stands up to the punishment of daily field use. The rod sheath is protected when paying-out and rewinding by an integrated rod roller, and a sturdy, water resistant camera connector houses the multi-frequency sonde, with selectable frequencies 33kHz, 512Hz and 640Hz. A sealed slip ring in the coiler hub ensures reliable operation, while measurements from the integral distance counter appear on the CCU screen for recording into the video.



330'

200'

130'



MULTI-FREQUENCY
SONDE
33kHz / 512Hz / 640Hz

To provide you with the best system to suit your inspection requirements, Minicam coilers are available in 3 rod lengths. The mid-size 130' and the large 330' come with wheels for safe and easy mobility.

Minicam only uses the highest grade push rod. Manufactured to our exacting standards, the rod is semi-rigid with a tough, durable outer sheath. Manufactured to perform reliably in harsh conditions.

SOLO PRO+

CCU210

Review Footage

Organize videos and images into folders, then find them using the thumbnail gallery. Review media using standard controls.



Illumination

Increase or decrease the intensity of the ultra-bright camera LEDs.



Survey Features

Access embedded reporting software to create detailed on-site reports.



Hot Keys

User-friendly, multi-function hot keys control an intuitive on-screen display of the numerous features.



Write Screen Text

Type and store up to 16 pages of on-screen text. Customize text color, position and background color.



Capture Footage

Record MPEG video and JPEG images, and zoom up to 3x on video playback.



Sonde Settings

Set the frequency of the Sonde transmitter to 33kHz, 512Hz or 640Hz.



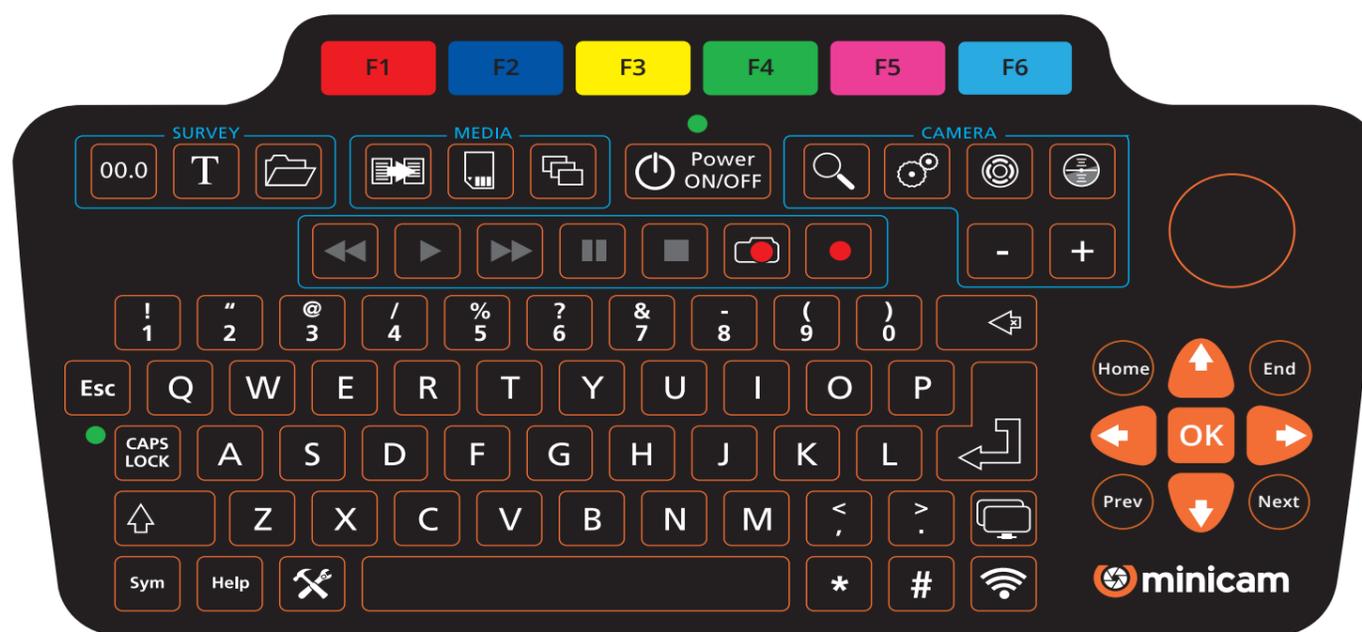
Control Meterage

Accurately set the meterage zero offset using the meterage key.



Generate Reports

Use embedded reporting software to create detailed inspection reports with a pipe graph to pinpoint defects.



Offload Data

Copy reports, videos and images to USB or SDHC media for easy transfer to PC and seamless integration with WinCan reporting and querying capabilities.

Alternative Languages

SOLO PRO+ is currently available with keyboards in English, French and German.

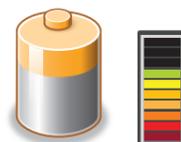
Screens Intensity

The brightness, color and backlit intensity of the internal display can be adjusted to suit the environment in which the system is being used.



Internal Batteries

The SOLO PRO+ CCU includes internal batteries so that it can be used autonomously to view inspection reports and video.



Setup & Configuration

Easily and quickly configure the SOLO PRO+ CCU to your specific requirements using the various menu options. Set language, date and time, establish file formats and naming conventions, adjust camera parameters.



Share Files

Wi-Fi enabled to allow remote access of stored images and data. Users can instantly share PDF reports, images and footage via email or upload WinCan Reports via the Cloud to WinCan Web for secure, immediate team-wide access online.



Joystick Controls

Controlling movement of the pan & rotate camera is smooth and effortless using the joystick control. Perform a 360° endless rotation and pan the camera +/- 135°.



PRECISION CAMERAS FOR OPTICAL EXCELLENCE

Highest quality components are used in our camera designs, and our skilled technicians assemble and rigorously test the cameras at our production facility. Built for longevity, the cameras are rugged, with robust and precise connectors, and are engineered to perform with excellent optical qualities.



Axial CAM025

A Minicam best seller, the CAM025 Self-Levelling Axial camera performs reliably in daily use. The stainless steel housing with flexible four high powered spring and heavy duty connector features four high powered, ultra-bright LED Lights.

The housing has an integral, hard wearing, scratch resistant sapphire glass to protect the camera lens. CAM025 is supplied as standard with the SOLOPRO+ Axial System and the SOLOPRO+ Duo System.

TECHNICAL SPECIFICATION

Product code	CAM025
Effective Pixels	470 HTVL
Sensitivity	<1.0 Lux
Aperture	F2.5/75°
Illumination Intensity	12.5k Lux at 150
Pressure Depth Rating	1 BAR (14.50psi)
Dimensions	12.6" x 1.6" x 1.6"



Pan, Rotate & Laser CAM050

Continuous 360° rotation and +/-135° pan. Integral distance sensor and twin lasers to enable accurate pipe diameter, defect and object measurement. CAM050 is shipped with Minicam's SOLOPro+50 pipeline video inspection system.

CAM050 is shipped with Minicam's SOLOPro+50 pipeline video inspection system or optionally with our standard SOLOPro+ configuration, available in multiple rod lengths and with a range of options. The CAM050 is also compatible with our LAT150, mainline to lateral inspection system.

TECHNICAL SPECIFICATION

Product Code	CAM050
Pipe Diameter	Greater than 60mm (2.36")
Aligned Laser Spacing	Dual aligned front facing / single side
Camera Resolution	1200 HTVL
Sensitivity	<1.0 Lux
Aperture/Field of View	F2.5/75°
Dimensions	50mm diameter
Illumination Intensity	12.5k Lux at 150mm
Pressure Depth Rating	1 bar (14.50psi)





Roller Skids

Increase the effectiveness and lifespan of your pipeline inspection system

Manufactured from high quality materials. No tools or manual adjustments are required, simply fit the skid and the three pivoting arms with specially shaped nylon wheels adjust to fit the required pipe diameter, keeping the camera head centered in the pipeline at all times.

The roller skids expand the SOLO PRO+ system for use in 6" - 9" pipelines, this enables you to use your push camera inspection system in pipelines that would otherwise require a tractor system. The roller skids allow inspection cameras to navigate multiple corners and bends and increase the inspection range significantly.

Manufactured from stainless steel and ABS plastic, the device is sturdy, rugged and corrosion resistant to withstand the punishment of daily field work.



TECHNICAL SPECIFICATION

Compatiability	Product Code
7" Roller Skid for CAM025	ASS-002-009
7" Roller Skid for CAM026	ASS-001-955
5" Roller Skid for CAM026	ASS-002-160
5" Roller Skid for CAM025	ASS-002-008

Available in two sizes to fit the CAM025 Self Levelling Axial Camera and the CAM026 Pan & Rotate Camera.



ASS-001-955 & CAM026



ASS-001-955



ASS-002-009



ASS-002-160



ASS-002-008



ASS-002-008 & CAM025

Tilting Table

Adjust the CCU position to suit the needs of the user

Quick and easy to attach, the Tilting Table allows adjustment of the control unit position, to give the user optimal screen viewing and keyboard positions. The table can be tilted 35° forward and 75° backwards, with a full, unobstructed 360° horizontal rotation. No tools are required, simply attach using the adjustable clamps.



TECHNICAL SPECIFICATION

Product Code	TTC01
Dimensions	14" x 12" x 10.6"
Weight	6.6lbs

All Terrain Wheels

Improved stability for coiler rolling

The All Terrain Wheels attachment provides better stability for the user when manoeuvring a coiler through rocks, grass, woodland, mud and pavement. Sturdy construction, portable and easy-to-store. Quick and easy to attach and remove, no tools are required.



TECHNICAL SPECIFICATION

Product Code	SPP-ATA
Dimensions	34" x 10" x 10"
Weight	3lbs

Proteus Transport Cases

Dual cut foam cases for safely transporting a CRP90, CRP140 or CPL150S tractor along with a CAM026L or CAM028 camera head and any Proteus lighthouse.



Video Input Cable

Connectivity to external video equipment

Allows use of external video equipment to be recorded on SOLO PRO+ Control Unit. This allows the user to take advantage of the embedded reporting software.



TECHNICAL SPECIFICATION	
Product Code	SPP-EVL
Length	6.5 foot
Weight	0.3lbs



Seesnake® Interface

Exclusively compatible with Minicam control units

Sturdy and robust construction, the Minicam SeeSnake Interface unit quickly and easily connects the Rigid SeeSnake Standard and SeeSnake mini cameras to Minicam's intuitive and advanced control units.

TECHNICAL SPECIFICATION	
Product Code	SSP02
Compatibility	SOLO PRO+ Control Unit
Dimensions	2" x 10.5" x 9.5"
Weight	0.3lbs

Lateral Pin Kit

Smooth inspection of incoming laterals

For use with the CAM026 Pan & Rotate camera when attached to the CCP60/100 Compatible Coiler. Simply attach the pin to allow the inspection of incoming lateral pipes. The pin adjusts the direction, and guides the camera smoothly along the pipe. The kit comes with three sizes of pin: small 6", medium 9" and large 12". Fixings and instruction included.



TECHNICAL SPECIFICATION	
Product Code	ASS-001-968
Small Pin Length	6"
Medium Pin Length	9"
Large Pin Length	12"

Compatible Coiler

Companion accessory to the Proteus System

Push rod coiler CCP60R with removable CAM025 Self Levelling Axial camera head, designed to plug directly into the Proteus CCU. Also available as CCP60D (Duo) allowing a CAM026 Pan & Rotate camera to be attached. Robust construction with mobility wheels and a durable powder coated finish. Centering skids optimize your view in pipes 3" and larger. The CCP coiler comes complete with a set of three skids and a removal tool.



TECHNICAL SPECIFICATION	
Product Code	CCP60 / CCP100
Temperature Range	-20°C to +50°C
Dimensions	35" x 14" x 27"
Weight	47lbs
Environmental Protection	IP54

CCU Tilting Table

Customize the CCU position to suit the needs of the user

Quick and easy to attach, the Tilting Table allows adjustment of the control unit position, to give the user optimal screen viewing and keyboard positions. The table can be tilted 35° forwards and 75° backwards, with a full unobstructed 360° horizontal rotation. No tools are required, simply attach using the adjustable clamps.



TECHNICAL SPECIFICATION	
Product Code	TTC01
Dimensions	13" x 12" x 10.6"
Weight	7lbs

Centring Skids

Optimize your view

Centring Skids optimize your view in pipes 3" and larger. Manufactured from ABS plastic, which can be washed and wiped clean, the skids are sturdy and rugged to withstand the punishment of daily field work.

Quick and easy to fit. Minicam's Proteus Compatible Coiler (CCP100/CCP60) is shipped with a complete set of 3 centring skids and a skid removal tool.



TECHNICAL SPECIFICATION	
Supplied with CCP60 / CCP100	
	4 inch Skid
	6 inch Skid
	Protection Skid
	Skid Removal Tool

Floatation Raft

Pipe inspection in flowing water just got easier

Eliminate the need for man-entry. The raft features three powerful angled auxiliary LED ultra-bright light modules, to illuminate pipes in excess of 78". Small enough to be lowered down most common sizes of sewer hole cover, the compact design allows inspection capabilities in pipes from 24". An in-built lowering loop makes for quick and easy deployment and retrieval, and the floatation plate ensures the device is perfectly balanced to eliminate rolling.



TECHNICAL SPECIFICATION	
Product Code	FRP01
Dimensions	28" x 16.5" x 8"
Weight	13lbs
IP Rating	IP68

Proteus Power Battery Pack

Portable power ... where will it take you?

No need to rely on vehicle or mains power. Minicam's unique Proteus Power Battery Pack enables pipeline inspections in the most remote locations with in excess of 5 hours inspection time*. The rugged pack is quick and easy to connect and features output short circuit protection and LED charge status indication. The battery is charged using the standard Proteus power supply unit.



PLEASE NOTE: Charging unit shown above for illustration only, not included with Proteus Power Pack. Charging Unit purchase separately.

* Battery life dependant on operation conditions



OPTIONAL EASY ACCESS CARRY CASE

TECHNICAL SPECIFICATION	
Product Code	BPP24
Dimensions	11" x 4" x 4.7"
Weight	9lbs
Optional	Carry Case

Dangerous goods shipping conformity required - please contact us for details

Cable Guide Pulley

For smooth guiding of inspection cable during survey

Reduces wear by preventing kinks and chaffing, and assists in the smooth guiding of inspection cable during your survey. Comes complete with 40 feet of rope and features a quick release mechanism to aid feeding the cable through the rollers.

TECHNICAL SPECIFICATION	
Product Code	CGP01
Dimensions	19" x 3" x 4"
Rope Length	40'
Weight	6lbs



Manhole Top Roller

For smooth guiding of inspection cable during survey

Reduces wear by preventing kinks and chafing, and assists in the smooth guiding of inspection cable during your survey. Fully adjustable to fit most manhole sizes ensures the device is perfectly balanced to eliminate rolling.



TECHNICAL SPECIFICATION	
Product Code	TRP01
Dimensions	25.5" x 11" x 5.5"
Weight	10lbs

Tractor Cradle

Improved inspection capabilities

The Tractor Cradle adapts Minicam's CPL150S, and CRP140 Tractors for use in large diameter pipes. Versatile, quick and easy to attach, the cradle provides extra ground clearance enabling improved inspection capabilities in pipes and culverts up to 39" in diameter.

This robust, steerable, 4-wheel drive cradle is driven by the tractor, and features a unique gear selector, enabling the user to change between high speed and high torque operation. Exclusively compatible with Proteus CPL150S, and CRP140 Tractors, PCC01 comes supplied with four 8.6" balloon wheels.



UNIQUE GEAR SELECTOR



TECHNICAL SPECIFICATION	
Product Code	PCC01
Dimensions	16" x 10" x 8.6"
Weight	7.65kg



Tractor Camera Extender

Extends the camera position 4" forwards

The Tractor Camera Extender moves the camera position 4" forwards, extending the camera beyond the tractor. When the camera is positioned 90° downwards, this provides a view of the invert of pipeline, and not the Tractor.



TECHNICAL SPECIFICATION	
Product Code	CCE01
Dimensions	4.5" x 1.9" x 1.9"
Weight	302g

Extra Weight Plate

Extra down-force and traction for the Tractor

Exclusively compatible with Proteus CPL150S and CRP140 Tractors, the 2.5kg Extra Weight Plate gives the tractor extra down-force to allow for more traction in tricky pipe conditions. Quick to attach, the assembly is supplied with fixing bolts and washers.



TECHNICAL SPECIFICATION	
Product Code	EWP01
Compatibility	CPL150S / CRP140
Dimensions	10" x 3" x 0.5"
Weight	2.5kg
Supplied with	Fixing Bolts & Washers



Portable Storage Trolley

Complete mobility for your Proteus System

Eliminate health hazardous lifting, and time consuming carrying to your remote work site. Engineered to allow for the mobile operation of your Proteus inspection system in difficult to reach areas, such as inside buildings, or other situations a distance away from your vehicle.

The trolley securely holds everything you need to efficiently undertake your pipeline inspection; control unit, reel, battery pack and accessory case. Simply wheel the unit to your location, connect a tractor and Camera, and you're up and running in minutes.

The added convenience of Minicam's unique Proteus Power Pack, means there's no need to rely on generator or mains power. The power pack enables pipeline inspection in the most remote locations with up to 5 hours* inspection time.



TECHNICAL SPECIFICATION				
Product Code	PTP01	PTP02	PTP03	PTP04
Compatability	RMP100/200	RAP200	RMP300/RAP300	Proteus Lite
Dimensions	25.5 x 45 x 29.5"	25.5 x 45 x 29.5"	25.5 x 45 x 34"	29.5 x 45 x 19"
Weight	9.75kg	9.75kg	10.5kg	13.5kg

PLEASE NOTE: Equipment shown on trolley NOT included with PTP01/02/03/04
*Battery life dependant on operating conditions.

Remote Controllers

Instant control with Bluetooth® wireless connectivity

Instant control with Bluetooth wireless connectivity. The remote control is used to control a tractor and motorised cable reel using Bluetooth® wireless technology. The motorized cable reel can be controlled directly without the presence of the control unit. A handy size and lightweight, the remote control is simple to use and is rechargeable via USB. Supplied with full instructions.



TECHNICAL SPECIFICATION	
Product Code	RCP4
Compatability	RAP300/200
Dimensions	3.4 X 5.7 X 1"
Weight	175g

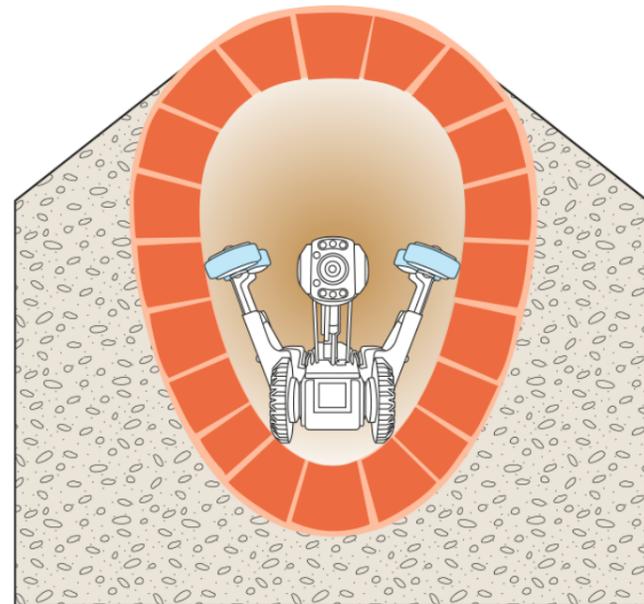
TECHNICAL SPECIFICATION	
Product Code	RJP
Compatability	ACR350/500,RAP500/300/200
Dimensions	3.4 X 5.7 X 1"
Weight	175g

Brick Egg Stabilizer

Eliminates rolling over of the Tractor

A simple quick fit to our Proteus tractor, the Brick Egg Stabilizer stops the tractor from rolling over during inspections in pipes with an egg-shaped profile. Exclusively compatible with Minicam's Proteus CRP300, CPL150S and CRP140 Tractors.

Compatibility:
 BEP300 fits Proteus CRP300
 BEP150/140 fits Proteus CPL150S and CRP140



TECHNICAL SPECIFICATION	
Product Code	BEP300
Compatibility	CRP300
Dimensions	17" x 7" x 8.6"
Weight	2.95g



TECHNICAL SPECIFICATION	
Product Code	BEP150/140
Compatibility	CPL150S/CRP140
Dimensions	15" x 7" x 8"
Weight	2.05kg

Cable Reel Guide

Smooth Friction-Free Cable Guiding

Reduces friction and provides additional guidance for the cable when paying out and rewinding. Also brushes and cleans the cable when rewinding. Exclusively compatible with minicam motorized and manual 980 feet and 650 feet cable reels.



TECHNICAL SPECIFICATION		
Product Code	CGP300	CGP200
Compatibility	RAP300/ RMP300	RAP200/ RMP200
Dimensions	21" x 19" x 6.8"	21" x 14.5" x 6.8"
Weight	3.5kg	2.9kg



Van Guide Pulley

Smooth friction-free cable guiding

Reduces friction and provides additional guidance for the cable when paying out and rewinding. Exclusively for use with Minicam Motorized and Manual, 980 feet and 650 feet cable reels.

TECHNICAL SPECIFICATION	
Product Code	VGP01
Compatibility	RMP200/300 & RAP200/300

Camera Elevation Platform

Increase Your Inspection Capabilities

The telescopic elevator is quick to attach to the CRP300 tractor and can be manually moved up or down to increase inspection capabilities up to 86". Interface provides easy connection for various combinations of camera, auxiliary lights and pods.



TECHNICAL SPECIFICATION

Product Code	CEP300
Connections	Camera connection, Lifter connection, 2x additional lamp connections, 1x additional lamp connector with backeye camera
Top Camera Position	43" (pipe center) using pneumatic balloon wheels
Mid Camera Position	Approx 32.6" (pipe center) with extended plate
Low Camera Position	22" (pipe center) with pneumatic wheels
Dimensions	5.5" x 5" x 18.7"
Weight	5.7kg

Reel Bracket

Use the reel as a CCU holder, for portability in remote areas

This lightweight tubular bracket is quick and easy to attach, using the bolts and washers supplied. The bracket holds the control unit firmly in place in a comfortable working position for the user. Available in two sizes.

TECHNICAL SPECIFICATION

Product Code	RBP01	TBP02
Compatibility	Fits 650' Reel	Fits 980' Reel
Dimensions	14" x 8.5" x 4.6"	16" x 8.5" x 4.6"
Weight	675g	735g



Pressure Kit

All you need to purge a Proteus Tractor and camera head

Pressurisation is safe, quick and easy. Two kits are available: Standard CO₂ and a Nitrogen version for ATEX equipment. Supplied in a handy padded carry case. Replacement cylinders can be purchased separately.

TECHNICAL SPECIFICATION

Product Code	Description
PKP01	Standard CO ₂ Pressure kit
PKP02EX	ATEX Nitrogen Pressure Kit

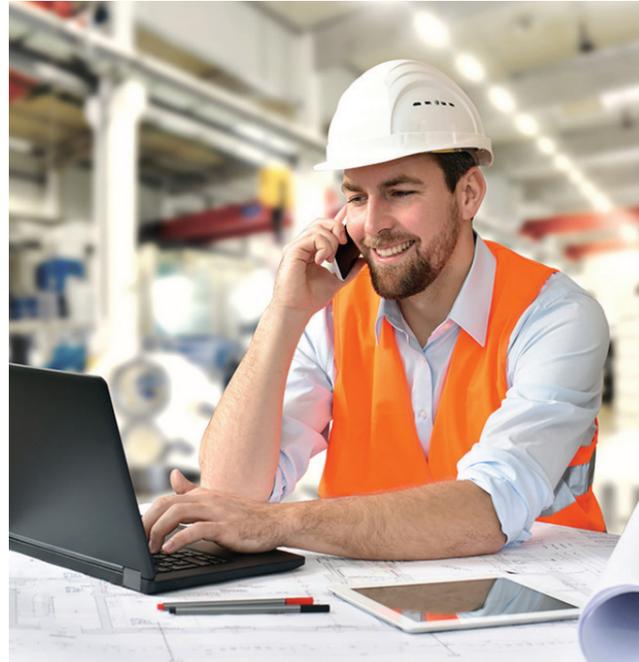
AFTER SALES SUPPORT

We are right behind you all of the way

We pride ourselves on our commitment to always going the extra mile with our customer care.

After sales support and Service and Repair is available from 8am until 5pm Monday to Friday and Saturday by appointment.

Operator and Service Training is available to customers and their employees, at our headquarters, your company headquarters or your preferred location. Contact us for full details and costs.



CONTACT US

Whether you're interested in product features, purchasing, service or in person demo - our experienced team is ready to answer all your questions.

Business hours
Monday to Friday: 8am - 5pm
Saturday: By appointment
Sunday: Closed

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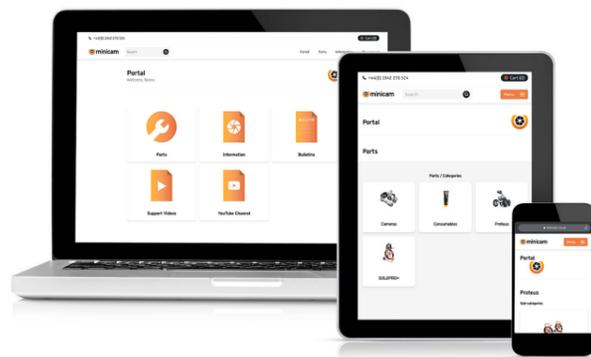
Phone: (978) 643 0397
Email: newengland@minicaminc.com

PARTS PORTAL

Quick and easy online ordering and worldwide delivery.

Appointed Minicam Partners are given access to the online part shop which has the full range of genuine Minicam spares and accessories, all available to order online with same day dispatch if ordered before 3pm*. The portal stocks parts for all Minicam systems and equipment.

*Terms and conditions apply - contact us for details



We will **be happy to answer**
any questions you may have...

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A **Halma** company

