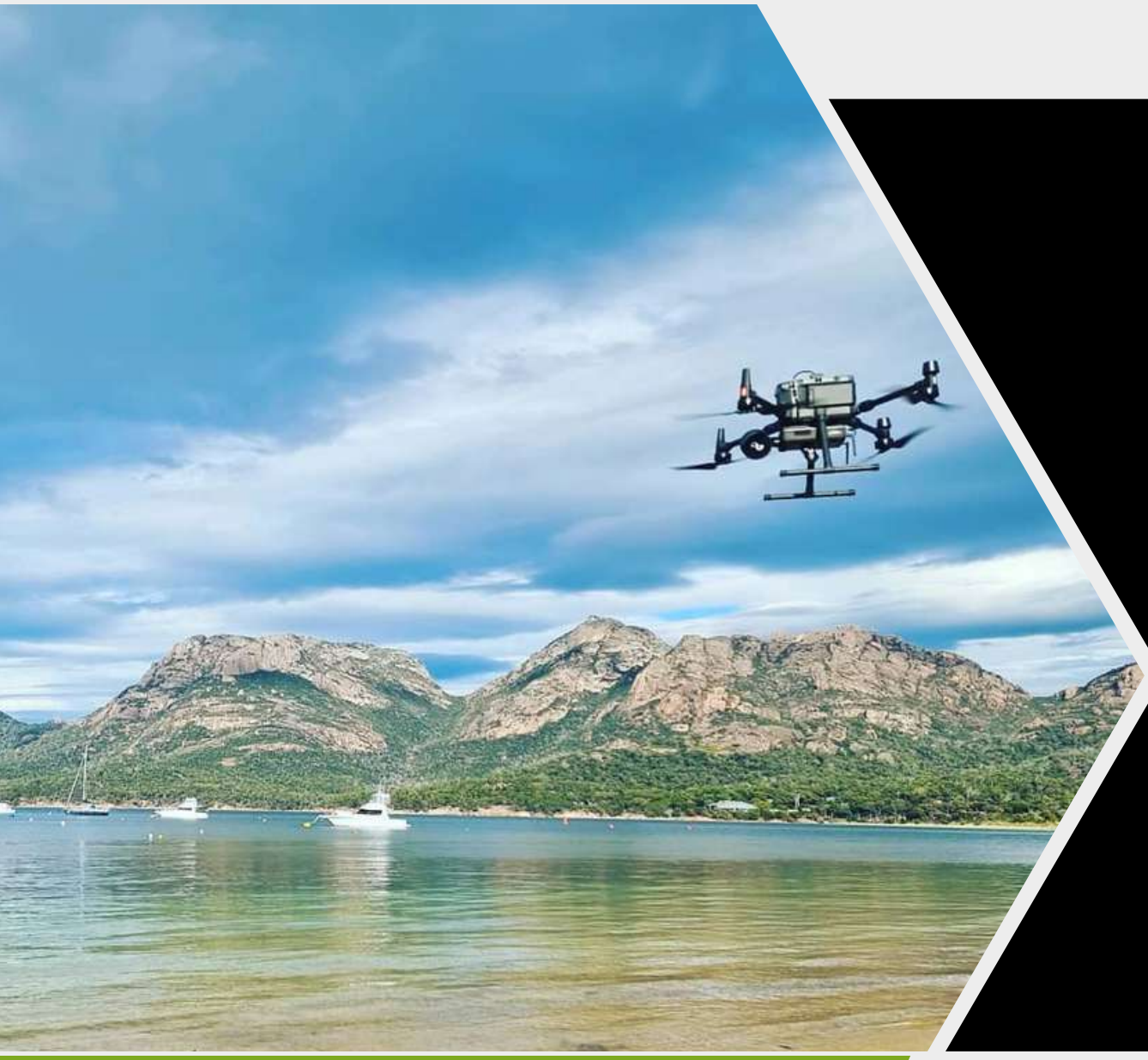
SERVICES GUIDE 2023

UDM
Utility Detection & Mapping

Utility Detection & Mapping are a leading multi-disciplinary Survey company, specialising in Pipe & Cable Locating, Concrete Scanning, CCTV Pipe Inspections, Aerial Mapping & Lidar, Ground Penetrating Radar.



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UDM
Utility Detection & Mapping

CAPABILITY STATEMENT

Tasmania's experts in surveying, aerial mapping, pipe & cable locating, GPR and CCTV pipe inspections

CONTACT

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GET THE FULL PICTURE
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PIPE & CABLE LOCATING

UDM's Service Locators are fully certified. Call the experts and find out what utility services are underground and how deep they are. We use state-of-the-art technology to identify the location of:

- Electricity
- Gas and fuel lines
- Telecommunications
- Water
- Sewer
- Stormwater

GROUND PENTRATING RADAR (GPR)

GPR is used for the location and survey of conductive and non-conductive subsurface utilities and structures. It is the ideal way to locate:

- *Fibre optic cables*
- *Forensics*
- *Fuel tanks*
- *Nylon gas*
- *Road and pavement inspections*
- *Sewer and storm water*
- *Underground storage tanks*
- *Underground structures*
- *VC water mains and services*
- *Voids and cavities*

CERTIFIED LOCATOR www.daydiocator.com
ACCREDITED PLANT LOCATOR
taswater
NULCA AUSTRALIA

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CAPABILITY STATEMENT

CCTV PIPE INSPECTIONS

CCTV drain or sewer survey is a quick and accurate way to get an instant, detailed look at the condition of underground sewer and stormwater drainage systems including:

◉ Condition inspection of sewers ◉ Culvert inspections ◉ Site drainage connectivity ◉ Manhole and pumping station survey

CONCRETE SCANNING

C-thrue is an all-in-one Ground Penetrating Radar (GPR) for accurate scanning and real time analysis of concrete structures. Improve the way you locate:

◉ Rebars ◉ Voids ◉ Post-tension cables ◉ Cavities ◉ Conduits ◉ Any other objects buried in a structure before cutting or drilling into concrete

AERIAL MAPPING / LIDAR

We specialise in low level, high accuracy, high-resolution imagery and Lidar suitable for:

◉ Engineering design ◉ Volumetric computations ◉ Corridor mapping ◉ Environmental assessment ◉ Exploration ◉ Flood studies ◉ General project planning

SURVEYING

A topographical survey gives a 2D or 3D representation of an area of land, including natural and man-made features and land contours. We are able to provide the following surveys:

◉ Engineering ◉ Topographical ◉ As-Built ◉ Asset ◉ Utility ◉ Building ◉ Setting-Out ◉ Laser Scanning ◉ GPS Machine Guidance

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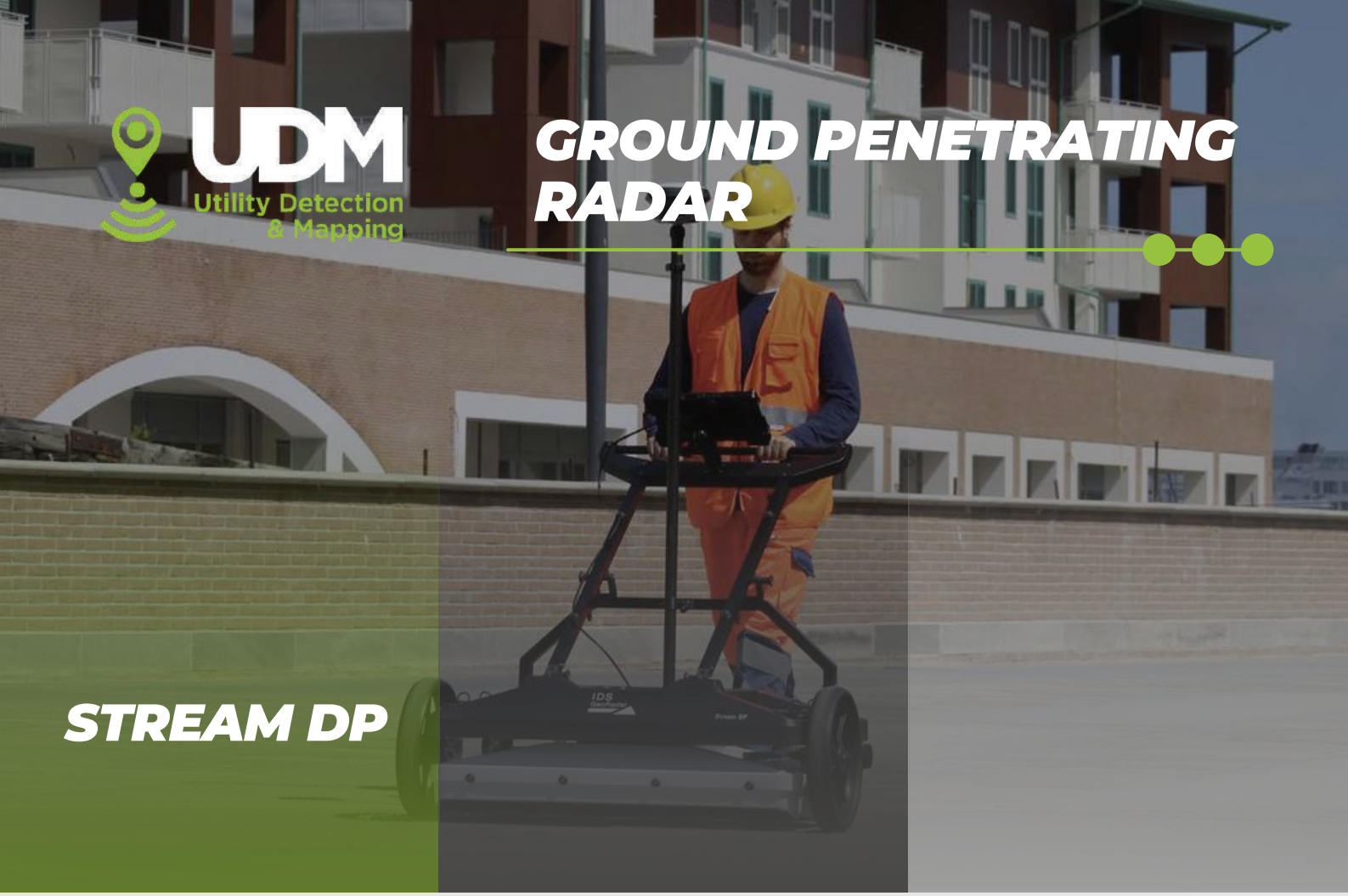
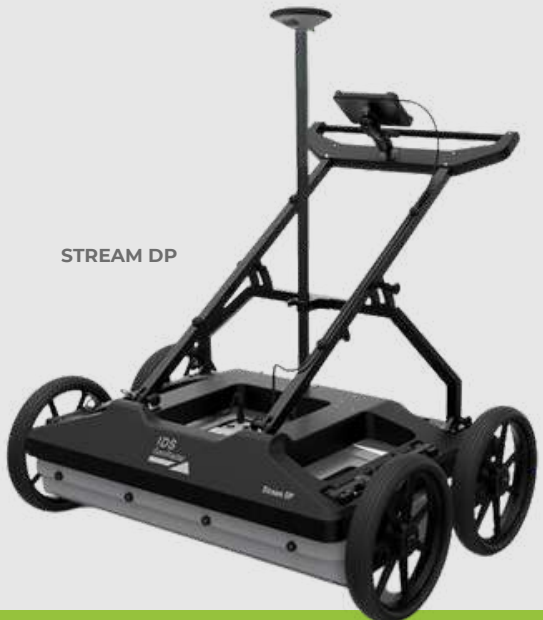


GROUND PENETRATING RADAR

STREAM DP

The Steam DP is the ultimate in GPR technology, providing maximum depth, high resolution and versatile design that produces superior underground surveys.

UDM currently has the only Stream DP in Tasmania (and are only one of three providers in Australia), honouring our commitment to offering only the best and most advanced service and outcomes.



STREAM DP

Advantages:

- Asphalt (pivoting wheels) and rugged terrain configuration
- Assembled in less than five minutes out in the field
- The highest accuracy positioning data on the market
- Easy radar data collection and smarter data analysis
- Extended depth range in ultra-high resolution, offering unparalleled performance and maximising assets detection at a deeper range compared to any other solution available on the market

System Specifications:

- 30 channels (19VV+11HH)
- Positioning: Integrated Encoder and PPS; external GPS and TPS
- Max. Acquisition Speed: 14 km/h (8.7 mph)
- Scan width: 83 cm
- System size: 116X82 cm
- Total weight: 42 kg (92.6 lb)
- Environmental: IP65

Non-Stop Performance:

- Low battery power consumption (15-19W)
- Hot swap technology for power supply

Greater Efficiency:

- Single operator assembly /disassembly
- Superior manoeuvrability
- Compact and light-weight design

Multi-Environment Configuration:

- Asphalt -> pivoting wheels
- Rugged -> terrain wheels

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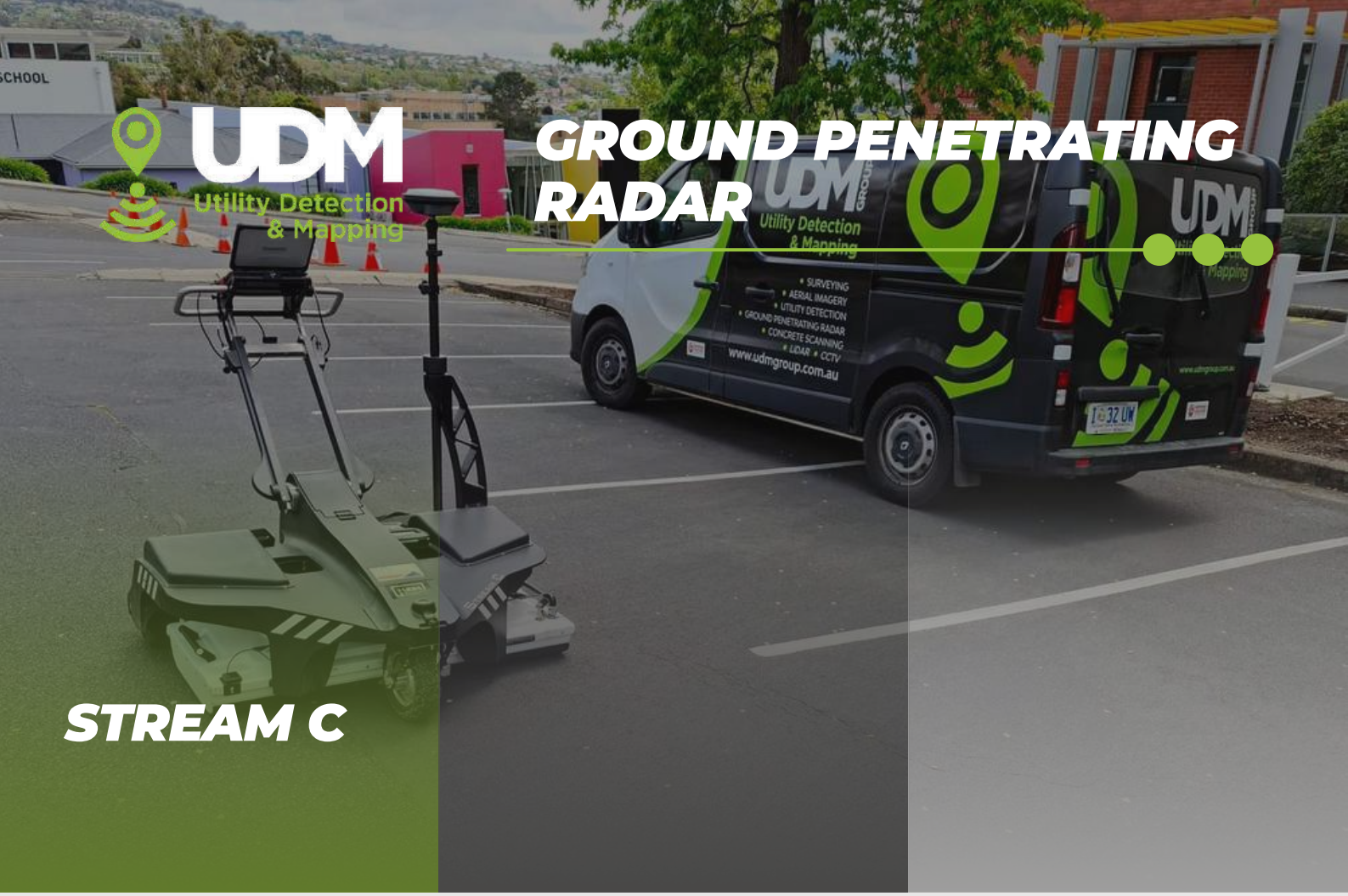
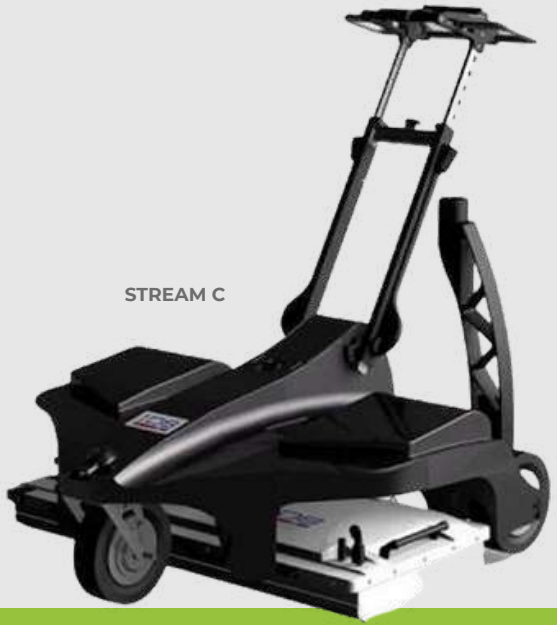


GROUND PENETRATING RADAR

STREAM C

The Stream C is the compact sister of the Steam DP, offering real-time 3D mapping of underground utilities and features. High accuracy means the Steam C is able to detect pipes and cables automatically.

Daily use of the Stream C is aided by options to tow manually or with a small vehicle and a motor assisted drive wheel, facilitating large surveys.



STREAM C

Advantages:

- Highly productive as surveys only need to be performed in one direction to ensure optimal detection of both longitudinal and transversal pipes
- An automated system that uses electronic ride height adjustment and detects and locates the position of pipes in real time
- As the system can be towed manually or with a small vehicle, survey can be undertaken faster without compromising accuracy

System Features:

- Massive array of 34 antennas in two polarisations: this enables an accurate 3D reconstruction of the underground utility network to be created in a single scan.
- Automatic Pipe Detection (APD): real-time automatic detection of buried pipes and cables.
- Compact size: Stream C's small dimensions enable it to survey areas inaccessible to larger array systems while maintaining the same accuracy.
- Robust construction: built to the highest standards and with hardwearing materials so that it can be used in harsh, demanding environments.
- 3D radar tomography: real-time tomography on a GPS or total station assisted cartographic background.
- Professional subsurface survey: pipes, cables and buried objects can be automatically transferred to CAD and GIS formats allowing a complete subsurface GIS based digital map to be quickly produced.

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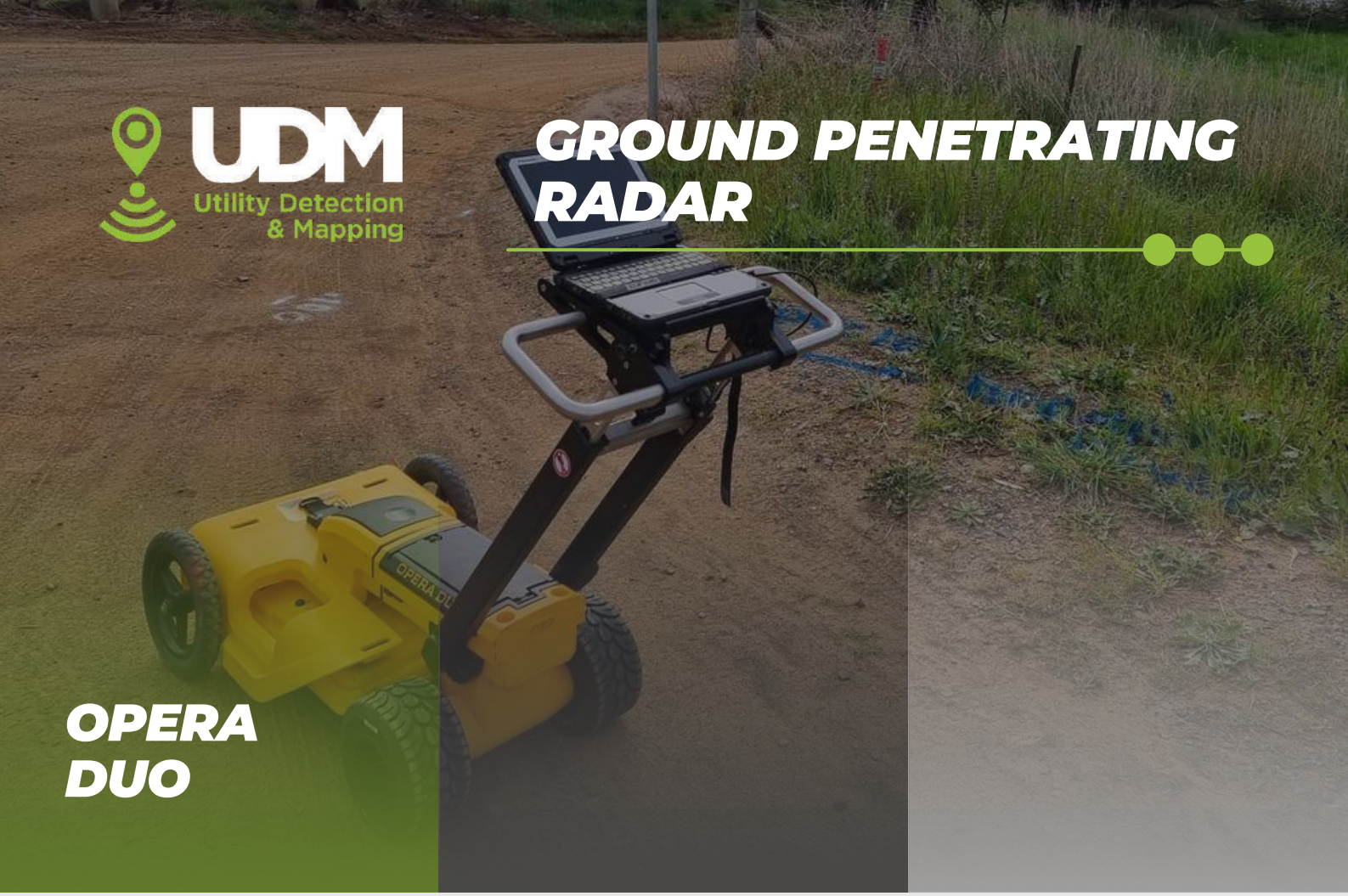
GROUND PENETRATING RADAR



OPERA DUO

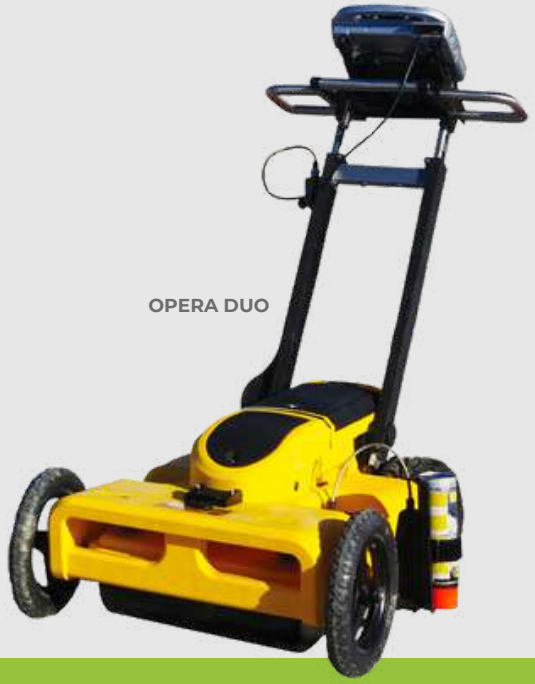
Tried and true, the Opera Duo is the original dual frequency antenna GPR offering onsite job reporting. The inbuilt acquisition software along with accurate GPS tracking system allows for precise onsite reporting as well as a robust design that can withstand diverse terrain.

Advantages:

- A robust rotar moulded housing
- Quick and simple to set up
- Auto calibration software to get the best performance
- Operates across a variety of soil types without the need for recalibration
- Onsite reporting software offers immediate data reporting

System Features:

- Superior Manoeuvrability – A large, comfortable handle to make pushing and pulling easier, large wheels for better control and a balanced weight distribution to offer minimum resistance.
- Engineered and built to withstand the harshest field conditions, the Opera Duo is suitable for heavy use in every type of terrain.
- Large bandwidth offering the highest resolution; the largest dynamic range for the best penetration depth; and dual-head sensor integrating ultra-wide band antennas (250MHz and 700MHz).
- Just click the start button to receive the best performance in every soil condition. No need to perform calibration or adjust any other manual settings.
- The system tracks the position of the radar and marks targets automatically. All of the acquired data can be exported to CAD and GIS, and reports can be produced directly on site.
- Opera Duo leverages IQMaps, the post-processing software for faster and smarter GPR data analysis.



OPERA DUO

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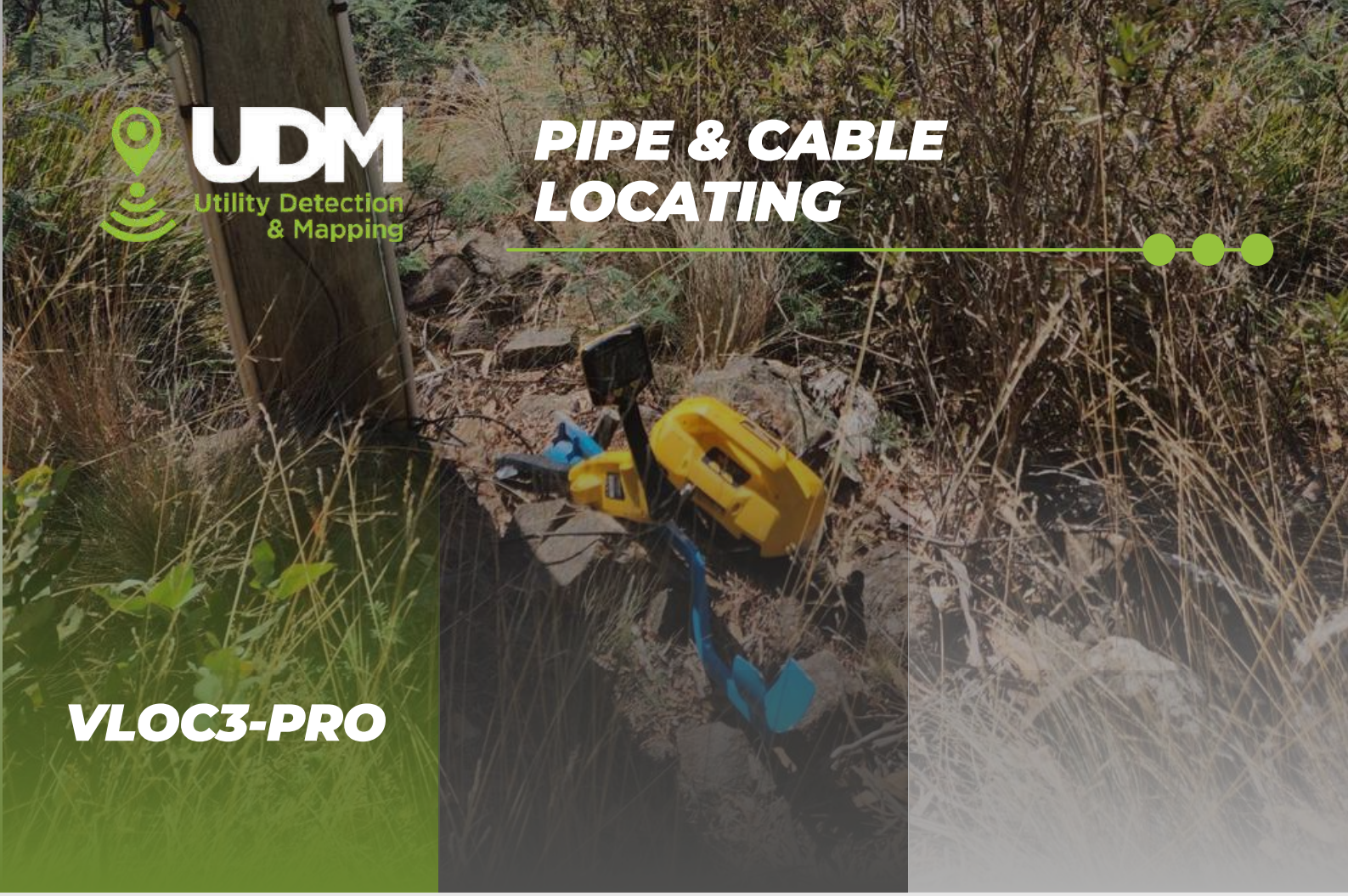
PIPE & CABLE LOCATING



VLOC3-PRO

The vLoc3-Pro utility locator introduces new innovative tools for locating buried utilities, assuring damage prevention while gathering information for analysis.

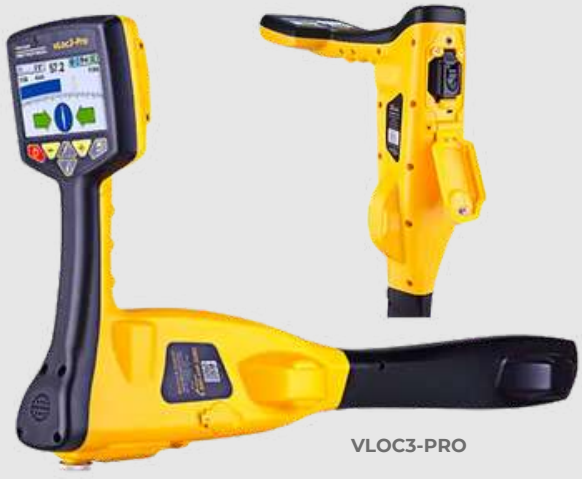
Using two sets of screened 3D antennas, the vLoc3-Pro easily detects signal distortion and offers new locate perspectives which are displayed on a bright 4.3" full-colour display. The vLoc3-Pro works with the operator to detect damage and gather information about the utility for further analysis.

The vLoc3-Pro provides immediate measurements and shows relative orientation of the cable at any angle. The graphical Sonde screen with guidance arrows leads to the sonde location even when it is vertical.

The highly configurable vLoc3-Pro contains eight passive locate modes, fault-find mode, SD (showing direction of outgoing current), and a range of configurable frequencies from 98Hz to 200kHz. Audio and mechanical vibration alerts can also be configured by the operator, providing warnings for shallow depth, overload, overhead cables and excessive swinging.

System Features:

- Two sets of 3D Triaxial antennas
- Continuous depth correction
- Colour-coded EM distortion warnings
- Vibration alerts for user feedback and warnings, customisable
- Self-Test Calibration
- Distortion Alert
- Ultra Bright LCD – viewable even with polarised sunglasses
- Built-in data logging for 50 million records
- Multiple Locate Modes (see below)
- Wide range of configurable frequencies (98Hz to 200kHz)
- Rugged ABS construction
- Lightweight (2kg) ease of carry
- Li-Ion Rechargeable Battery Standard
- Available VM-MAP smartphone app for real-time maps (using external GPS)



VLOC3-PRO

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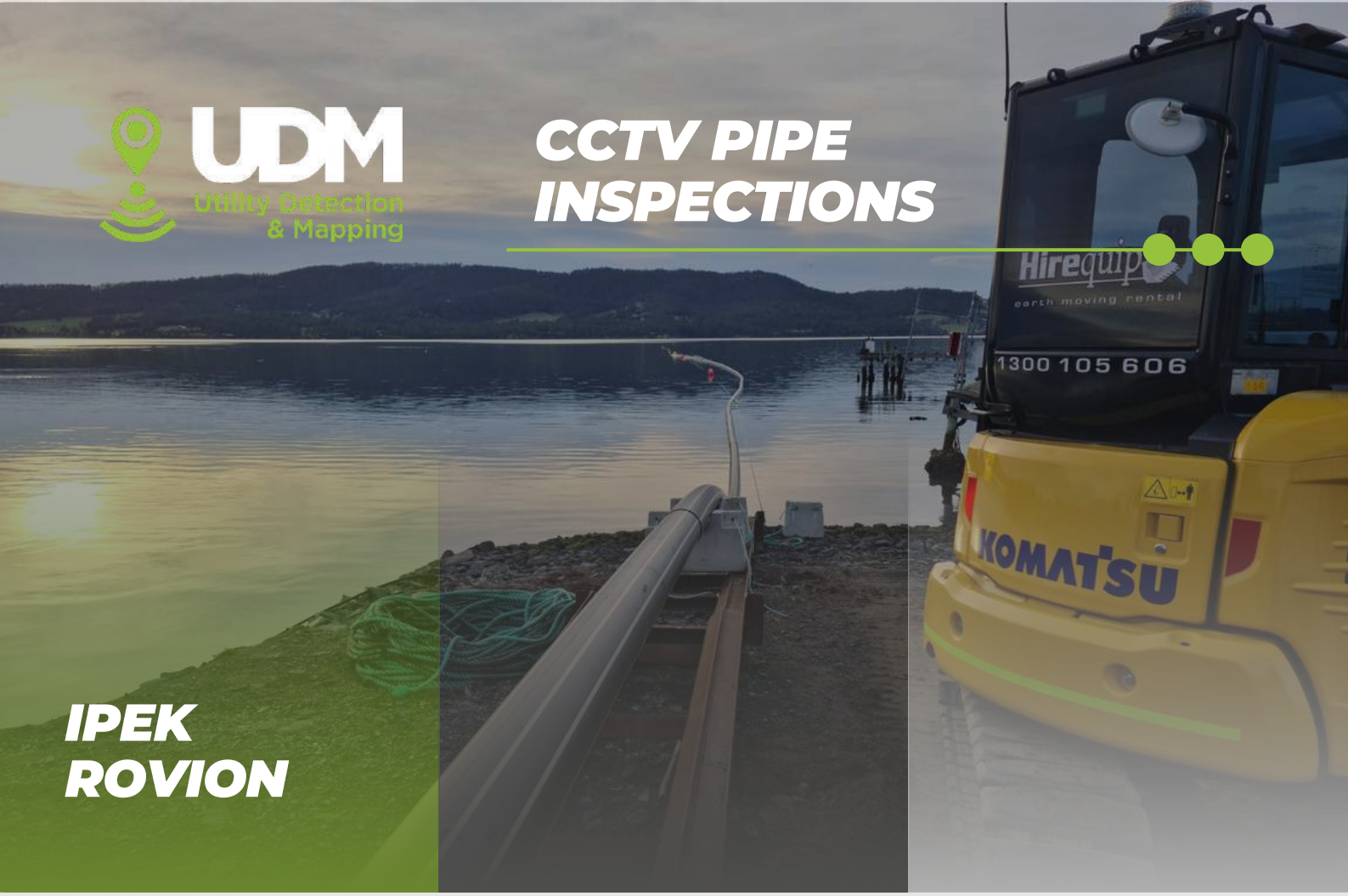
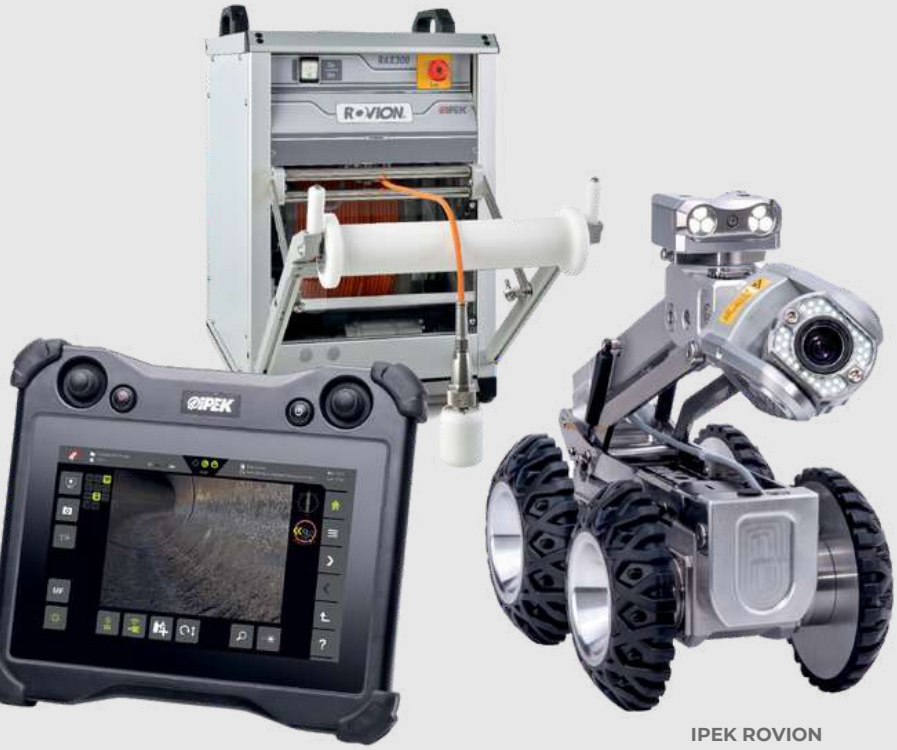
CCTV PIPE INSPECTIONS



IPEK ROVION

The Rovion is a pipeline inspection system designed to suit a range of conditions. With its scalable combination of components, this crawler camera is capable of inspecting pipe diameters ranging from 100 to 2000mm.

It's highly compatible, robust design and wide selection of cameras and lenses mean it is available for a wide range of inspection tasks, with an operating range of up to 500m.



IPEK ROVION

Advantages:

- Inspection ranges from 95mm to 2000mm and a cable length of 200m to 500m
- High resolution camera with options of pan and tilt, fisheye and a shaft inspection camera with rotation unit
- Inspects all types of pipes to WSA standards and communicates directly with reporting software
- Multiple configurations possible to suit any operational need

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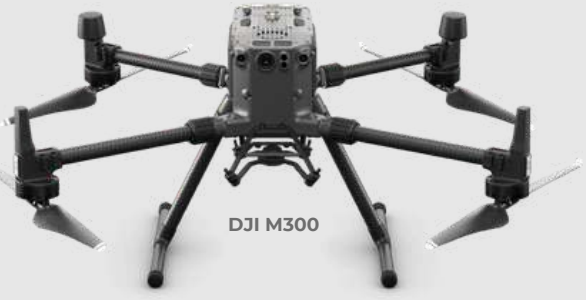
AERIAL & LIDAR SURVEYS

DJI M300

The Matrice 300 is DJI's latest commercial drone, hosting advanced AI and capable of up to 55 minutes of flight time, the DJI M300 is one of the most comprehensive UAV's on the market.

Setting a whole new standard through combining intelligence with high-performance, and up to 15km transmission, there's not much the DJI M300 can't handle when it comes to Aerial and LiDAR surveying.

The DJI M300 allows for the efficient and safe collection of geomatic data including light detection and ranging (LiDAR) and aerial photography and mapping across a broad scope of terrain.



DJI M300

ZENMUSE L1

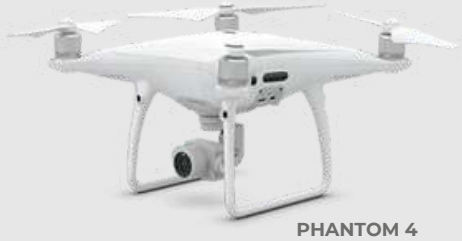
The Zenmuse L1 integrates a Livox Lidar module, a high-accuracy IMU and a camera with a 1-inch CMOS on a 3-axis stabilised gimbal. When used with the M300, the L1 forms a complete solution that gives real-time 3D data throughout the day, efficiently capturing the details of complex structures and delivering highly accurate reconstructed models.

ZENMUSE L1

PHANTOM 4

The DJI Phantom 4 is an extremely smart flying camera able to intelligently track objects all within the one device, as well as avoiding obstacles. The Phantom 2 shoots up to 120 frames per second and captures crisp, clean images, all while shooting 4K video or 12 mega pixel stills.

It is highly agile and ideal for smaller scope projects, particularly aerial mapping.



PHANTOM 4

Advantages:

- With high resolution imagery and video, surveys are completed to the highest accuracy possible
- Remote operation and long transmission distances ensures data can be captured with the best health and safety practices observed for both operator and the general public
- Analysing hard to reach, culturally sensitive locations has never been easier with access possible from anywhere
- The flexibility offered by aerial surveys means large areas of land can be covered in a short amount of time, greatly reducing time spent on projects

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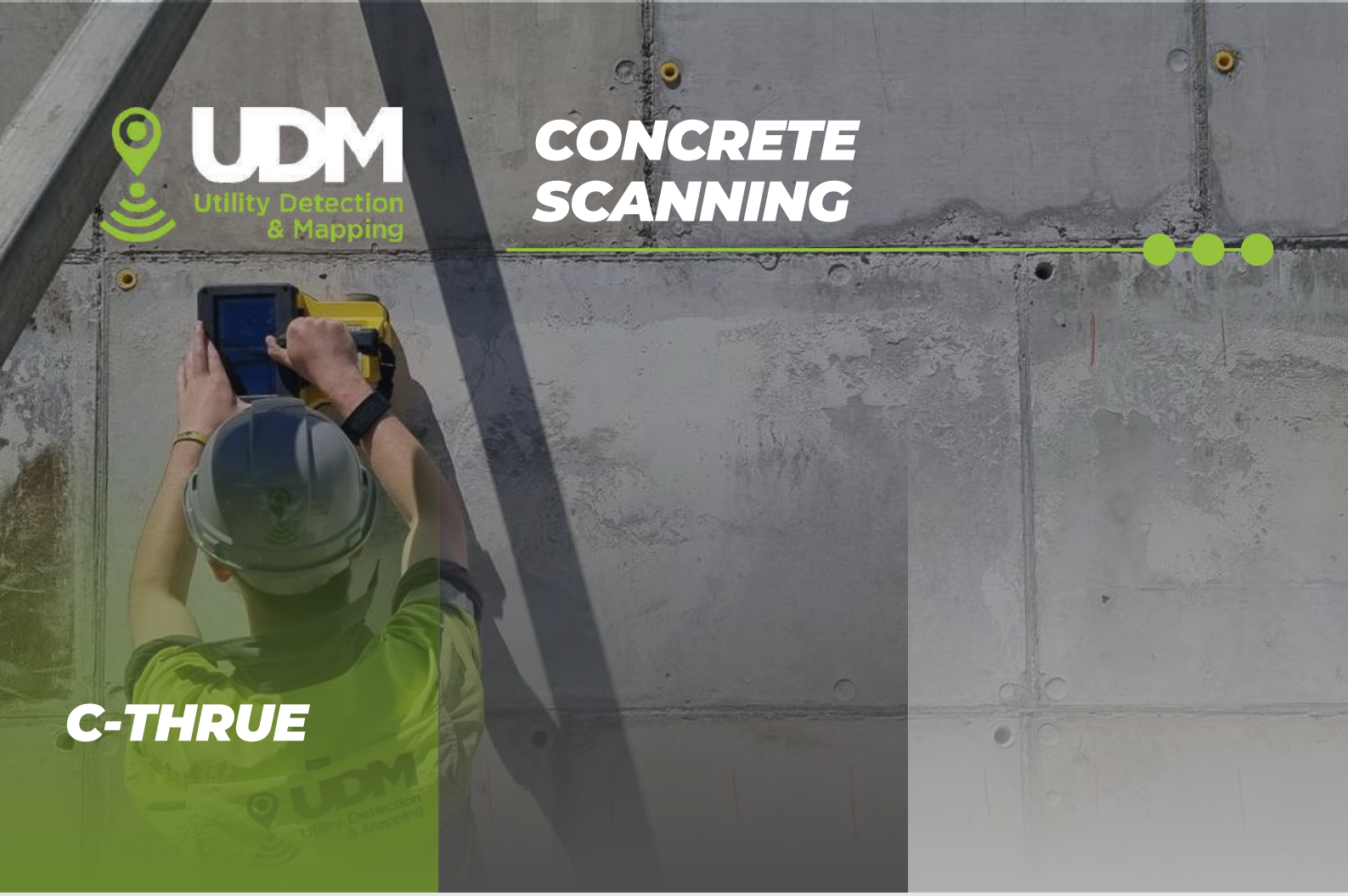
CONCRETE SCANNING



C-THRUE

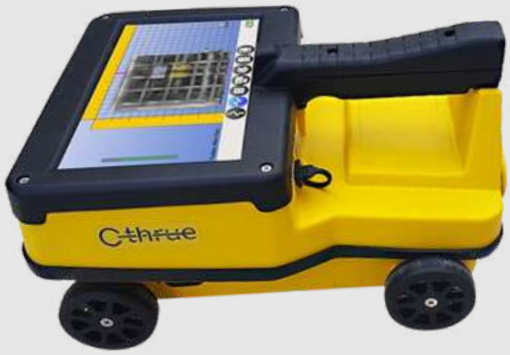
The C-Thrue concrete scanner is invaluable when it comes to accurately investigating slabs and complex structures, while avoiding potential costly damage. Utilising advanced radar technology, we can detect and locate embedded objects like rebar to prevent accidental damage during drilling, cutting or demolition.

As the name suggests, the C-Thrue is an easy-to-use, robust solution to see through concrete structures and reveal accurate data to lead to optimal decision-making. Suited to all construction sites and operations, the C-Thrue can be applied to building renovation, overpasses, monuments, bridges and tunnel surveys as well as for detailed analysis and comparison of engineering projects with as-built structure.

C-Thrue offers limitless flexibility for project analysis requirements thanks to a compact and light telescopic pole and external controller that can be easily transported on site and across challenging locations and conditions. The C-Thrue also allows fast, real-time data processing and results in Augmented Reality for more informed decision-making.

Advantages:

- Improved way of locating rebars, voids, post-tension cables, cavities, conduits and any other objects buried in the structure
- Clearer and faster surveys, detecting both first and second levels of rebar thanks to the system's double polarisation
- Rebar/void automatic insight capabilities
- Simplified data interpretation supported by visualisation of acquired data in 3D models/augmented reality
- Flexibility to be applied everywhere due to lightweight, compact, drop-resistant design and highly transportable system



C-THRUE

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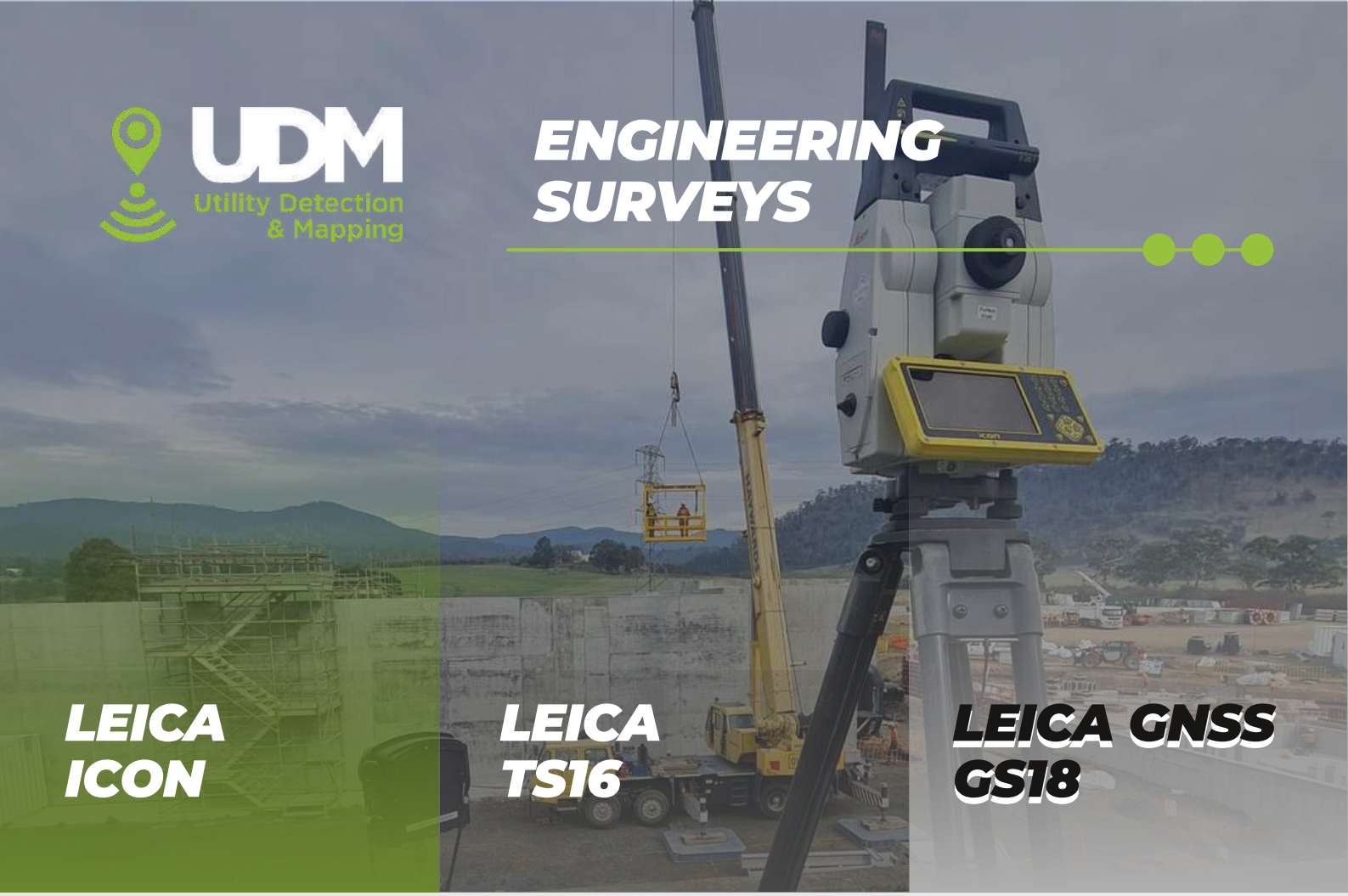
ENGINEERING SURVEYS



LEICA ICON

Increased complexity in construction projects as well as the digitisation of building modelling make digital layout methods provided by the Leica ICON crucial.

The Leica ICON is a valuable addition to digital and automated construction set-outs. The ICON brings increased productivity by minimising labour time and mistakes and increasing accuracy and speed.

Its applications include stipulating set-out lines for various foundations, structure and building exteriors and can effectively provide as-built checks and control measurements in vertical construction.

With a measurement range of up to 80 metres, the Leica ICON meets typical requirements for comprehensive set-out applications and is specifically developed to deal with difficult site conditions such as reflections, interruptions of line of sight or congestions that slow down the set-out process.

LEICA TS16

Made to face any challenge or project, the Leica TS16 automated total station delivers accurate data whenever and wherever its needed. With automatic target recognition under any environmental circumstance, the TS16 is capable of handling tasks with ease and efficiency.

The TS16 offers best-in-class automated measurements for a variety of applications, including engineering and topographic surveying and construction set-out.

Capable of capturing layout design data, as-built checks, machine guidance and road, rail and tunnel-focussed workflows, the TS16 is the ultimate site preparation and machine guidance tool.

The TS16 demonstrates quick, reliable monitoring of locations, buildings and objects in real-time, making it perfect for campaign monitoring.

LEICA GNSS GS18

The Leica GS18 is an innovative, accurate, easy to use GNSS RTK Rover. It utilises highly innovative Visual Positioning technology that seamlessly integrates with GNSS, IMU and a camera. This enables the measuring of survey grade points in images on site and in the office, creating point clouds from captured data to expand options further.

Designed to measure large amounts of points at the highest efficiency within minutes, the Leica GS18 allows reduced time spent on-site and cuts down rework – once the site is captured, data can be measured and collated from anywhere.

Through the power of imaging, the Leica GS18 also provides an unmatched level of safety, reaching places previously undiscoverable without switching tools or climbing through obstacles. The Leica GS18 maximises productivity across projects and ensures ultimate flexibility in the field.

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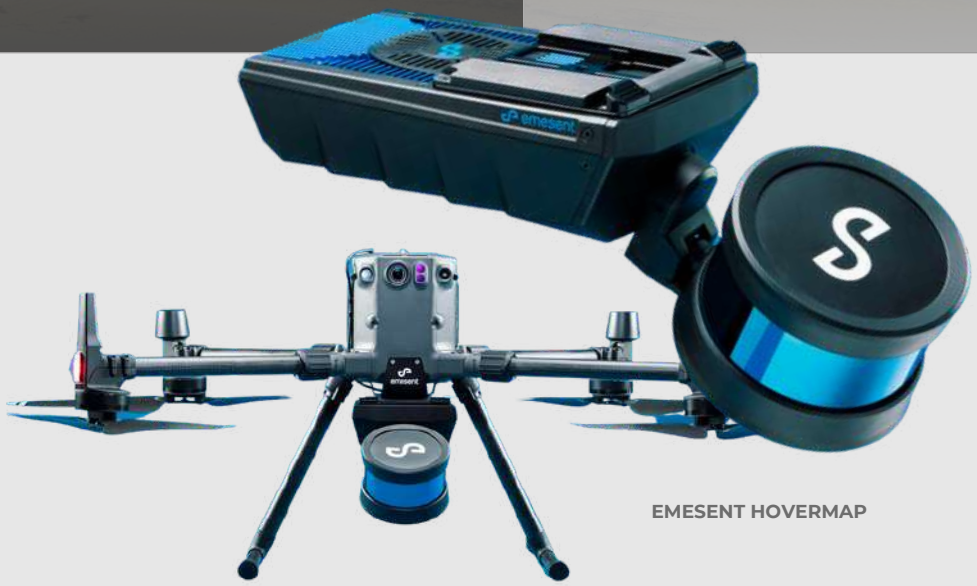
3D LASER SCANNING

EMESENT HOVERMAP

Hovermap incorporates the latest in LiDAR sensing technology to offer high density point clouds with exceptional coverage. Featuring a sensing range of up to 300 metres and more than a million points per second, Hovermap captures detailed, accurate data over a large area fast – accelerating time to insight.

The Hovermap is designed with tough, lightweight weather sealed design to capture harsh areas and the Wildcat SLAM solutions and Emesent autonomy algorithms ensure drone safety in even the most hazardous, GPS-denied environments.

Emesent Aura offers integrated processing and visualisation software, while its Automated Ground Control feature increases accuracy of Hovermap point clouds to enhance mapping capabilities.



EMESENT HOVERMAP

Advantages:

- Fast results and increased efficiency due to a sensing range of up to 300 metres and triple returns capable of more than one million points per second.
- Survey-grade accuracy via award-winning Wildcat SLAM Control Points and high-resolution LiDAR sensor providing a cleaner point cloud with sub-centimetre precision.
- Unique versatility through plug and play design and quick-release mechanism allowing Hovermap to be used as a drone, handheld, vehicle or pole/mounted scanner.
- Captures shadowless, detailed, high quality point clouds of an entire complex asset with high density data sets, revealing richer features and an added level of colourisation.

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