ROBIN

WALK | DRIVE | FLY

MAP EVERYWHERE IN 3D



WALK

Backpack Construction
Carbon fibre frame
Freestanding design when not in use
Lightweight padded harness with waist strap
Fully adjustable
Heavy duty straps with quick-release

Additional batteries can be 'stacked' to allow extended duration scanning across larger areas.



Components	
VUX-1HA Laser Scanner	Swivel camera mount
Dual GNSS Receiver	Stackable battery system - PAGLINK V-Mount Li-Ion 96
Ruggedized GETAC tablet computer	Ethernet data cable for scanner and INS
FLIR Grasshopper 3 12MP camera	Option to upgrade IMU - ROBIN PRECISION

APPLICATIONS:

Easy to mount and operate, the ROBIN backpack configuration has been designed to be used by a single operator. WALK mode is ideal for applications where access for vehicles is restricted or terrain is difficult, such as railway slopes or areas with woodland or dense vegetation.

ROBIN WALK mode is suited to applications such as asset mapping, forestry, heritage mapping and geohazard monitoring.

With a simple to use 'quick-release' system, it takes less than 5 minutes to change the ROBIN system from WALK to DRIVE mode, allowing for multiple scans to be completed of the same area in the same day.







DRIVE

Vehicle Mount Construction
Carbon fibre roof mounting frame
Freestanding design when not in use
Easy fitting to Thule 'Aerobar' or 'Squarebar' roof bars
Quick release fitting plate positioned at 20° or 40°angle
Robust dual antenna fittings

Easy transition between WALK & DRIVE mode; designed for use by a single operator.



Components	
VUX-1HA Laser Scanner	Option to upgrade to +PANORAMIC camera set up
Dual GNSS Receivers	Powered directly from vehicle power or battery box
Ruggedized GETAC tablet computer	Ethernet data cable for scanner and GNSS/INS
FLIR Grasshopper 3 12MP camera	Option to upgrade IMU - ROBIN PRECISION

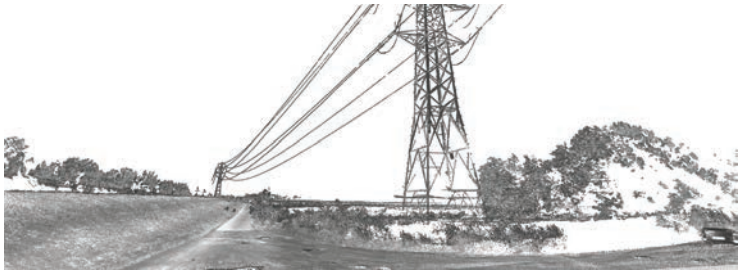
APPLICATIONS:

Improve the safety of your surveys with DRIVE mode. With a robust and stable mounting system and in-car power option, DRIVE allows the ROBIN system to be mounted to almost any vehicle, making it suitable for the following applications:

- Highway Mapping
- Urban Asset Management
- Rail Infrastructure Mapping

For city surveys or large civil engineering projects, the ROBIN +PANORAMIC add-on can provide a 360° spherical view for enhanced imaging and retrospective analysis of a site. An optional optical odometer can be supplied for more challenging project needs.







FLY

Airborne LiDAR systems are traditionally only suitable for being mounted onto aircraft. ROBIN +WINGS takes the flexibility of the standard ROBIN system to new heights, with a simple to perform transition between WALK, DRIVE & FLY functions.

ROBIN +WINGS integrates the standard components of the ROBIN system with an extended capacity hard drive and control unit which allows the system to be powered by the aircraft's power supply. The addition of three PhaseOne aerial cameras allows for enhanced imagery to be collected to support the creation of high-density point clouds backed up by high-resolution geo-referenced images.

The ROBIN system's flexibility means that data sets can be combined from WALK, DRIVE and FLY surveys, providing accurate and detailed information from both the ground and air.

The +WINGS add-on works with both single pole and nose helicopter mounts and can improve surveying results in a range of sectors, including forestry, environmental monitoring and transportation infrastructure mapping.

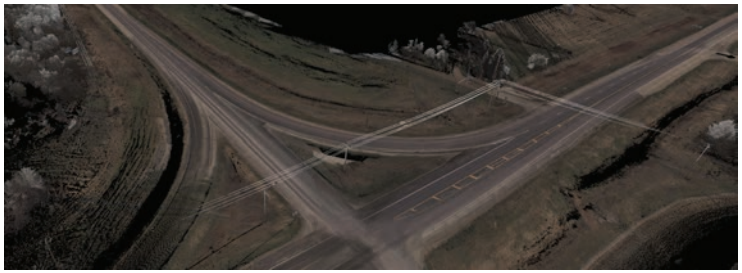


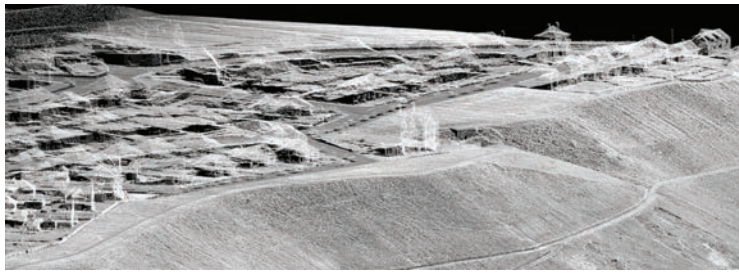
+WINGS HELIPOD:

The ROBIN +WINGS add-on includes a robust and stable HeliPod which is designed to be carried on the AirFilm utility mount.
The ruggedized control unit replaces the standard control tablet to provide both system power, control funtions and extended data storage.

Inside the pod, there are three pre-defined camera slots - two downward facing (RGB & NIR) and one oblique. These slots are designed to fit the PhaseOne iXU 1000 aerial camera systems which feature the CMOS sensor to enable image capture in lower light conditions. The iXU 1000 also has a higher image resolution, wider ISO range and faster capture speed than any other medium format camera system on the market.







Standard System Physical Characteristics	
Size	350mm x 175mm x 150mm
Helipod Weight	8KG

Fitting/Mounting Requirements
Air Film AFSP-1 or Similar
Tyler or Dovetail

Helipod Certification
FAR-27 Compliance Checklist
Mass Balance and Load/Stress Calculations
Airworthiness Report
Installation instructions
Flight Manual

Fits the following components
1 x VUX-1LR Laser Scanner
1 x GNSS/INS
1 x Antenna
Up to 3 cameras, 2 x downward facing, 1 forward facing

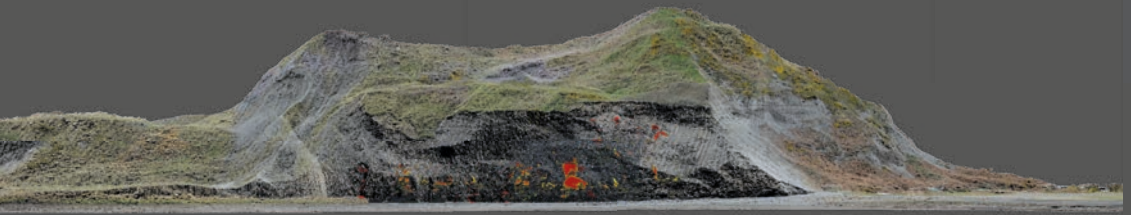
Components	
Aluminium main frame	ROBIN control unit
Shock isolated sensor mount for stability	HeliPod Power - Splitter Cable
Satcom antenna	Carbon fibre honeycomb panels



APPLICATIONS

Airborne LiDAR systems make it possible to collect highly accurate topographic data much faster, making projects spanning large areas more cost-effective. Low altitude corridor mapping produces dense and accurate point cloud data, even through dense vegetation, allowing for enhanced DTMs and DEMs to be created of typically inaccessible areas. The ROBIN +WINGS add-on is ideal for the following applications:

- Forestry management & planning
- Flood mapping & modelling
- Environmental monitoring
- Utility & Infrastructure mapping







ROBIN +WINGS

CERTIFICATION IS IN COMPLIANCE WITH THE STC FOR THE AFSP-1

ROBIN PRECISION



PERFORMANCE	Compact MEMS IMU	Compact FOG IMU
Position	0.02m	0.02m
Velocity	0.005m/s	0.005m/s
Roll/Pitch	0.015°	0.008°
True Heading	0.03°	0.010°
Gyro-Bias	1°/hr	0.03°/hr
Gyro-Random Walk	0.07°/√h	0.005°/√h
Accelerometer Bias	0.1mg	0.3mg
Data Rate	400Hz	128Hz

PERFORMANCE*	Compact MEMS IMU	Compact FOG IMU
Position	0.3m	0.1m
Roll/Pitch	0.018°	0.008°
True Heading	0.03°	0.015°

*Compact IMU/GNSS system performance after 60 seconds GNSS outage

SURVEY-GRADE MOBILE MAPPING

The ROBIN PRECISION upgrade features a fibre optic (FOG) IMU making it more suitable for detailed topographic surveys, city modelling and construction or mining environments where GNSS conditions are more challenging.

Generally speaking, FOG IMUs have better accuracy than traditional MEMS (Micro Electromechanical System). In particular attitude accuracy is higher and gyro random walk is less which leads to reduced drift when there is no satellite coverage.

ROBIN PRECISION can be used in WALK, DRIVE and FLY set-ups combined with +PANORAMIC and +WINGS extensions for projects requiring greater accuracy.







ROBIN +PANORAMIC is designed for extending the ROBIN system capabilities especially for road and city survey applications.

ROBIN +PANORAMIC includes everything from the standard system set-up, in addition to a FLIR Ladybug5 panoramic camera with additional mounting suitable for use with the ROBIN standard vehicle mount. An optional optical odometer can be supplied for more challenging project needs.

+PANORAMIC comes with a the ruggedised ROBIN Control Unit (RCU) which includes integrated system power management for connecting directly to the vehicle power.

The Ladybug5 panoramic camera has six cameras and can capture at a rate of up to 5 frames per second,uncompressed. Each image is accurately time-stamped by the GNSS/INS allowing geo-referenced image production.



CAMERA SPECIFICATIONS:	
Resolution	2048 x 2448 - 30 MP (6 Sensors x 5MP)
Frame Rate	5 frames per second uncompressed
Lens Field of View	90% of full sphere
Shutter	2.02 ms to 2 seconds
Spherical Distance	Calibrated from 2m to infinity
Focus Distance	Objects have an acceptable sharpness from ~ to °







SECTORS

Laser scanning has a wealth of benefits for many sectors and projects. From creating accurate three dimensional models of buildings to mapping and identifying assets on major highways, LiDAR applications are growing in scope and popularity.

3D Laser Mapping are at the leading edge of innovation when it comes to mobile laser scanning systems. We have worked with clients across the world to create systems and software to deliver exceptional results in the field. Our mobile LiDAR systems are created to make data acquisition easy and straightforward for a single operator, meaning that costs are saved on surveying personnel as well as scanning duration.





Pre-construction specialist Central Alliance purchased ROBIN in 2016:

"ROBIN will give us the ability to improve our service offering in a variety of ways - from faster deployment in an emergency situation, to enhancing our existing airborne capabilities, ROBIN's versatility and forward compatability was crucial in the decision making process."

Richard Pidcock - Technical Director, Central Alliance

"ROBIN means that we will be able to collect more data in a shorter period of time, with less people, even in difficult to access locations. ROBIN also enables Central Alliance and their clients to meet health & safety obligations by doing everything reasonably practicable to minimise exposure and therefore risks associated with staff on site."

Rachel Massey - Group Business Director, Central Alliance







SECTORS

From flood mapping to carrying out environmental impact assessments, LiDAR systems provide enhanced intelligence to help make informed decisions, even in the toughest of environments. ROBIN allows operators to map on the move in difficult to reach locations such as coastlines, forests and agricultural areas via the unique backpack mount or the ROBIN +WINGS helipod upgrade.



Using a mobile mapping system means that projects can be completed around 80% faster than when using Terrestrial Laser Scanners. ROBIN, take around five minutes to initialise – around the same time it would take to set up a TLS scanner and mount it to a tripod; yet once the system is set up, it can continue to scan for as long as the data capacity will allow.

ROBIN's flexibility also offers the ability to change between mounting options in minutes. The fast and easy transition between WALK | DRIVE | FLY means that multiple surveys can be completed in a single day.

Texo Drone Survey & Inspection:

"Texo DSI has always been a company that stays at the forefront of the very latest technology. Having previously worked with scanner data both terrestrially and airborne we quickly recognised the merits of combining LiDAR with UAV technology. The ability to rapidly collect highly detailed data via UAV, backpack and vehicle keeps us way ahead of the competition"

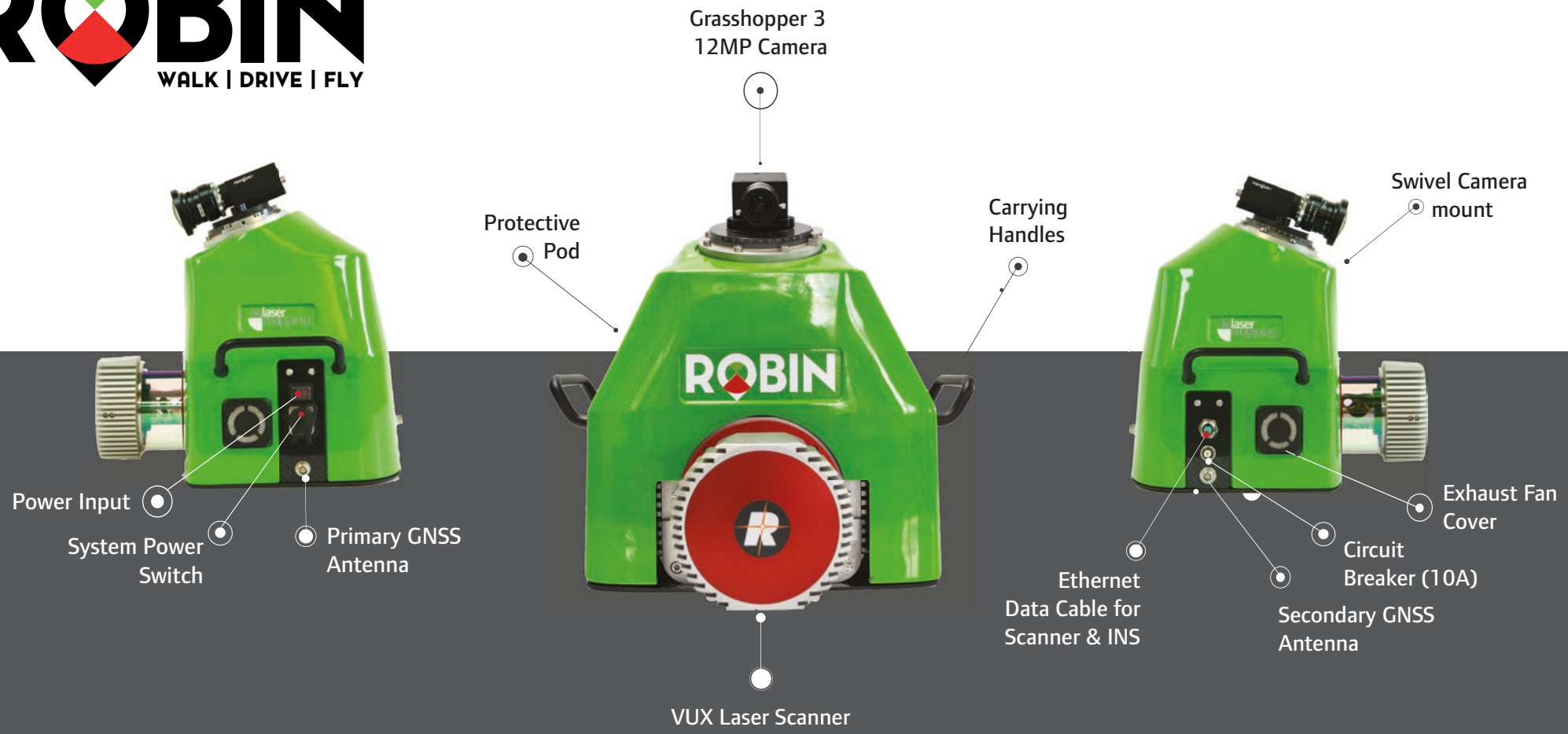
James Arnott - Principle Systems Officer, Texo Drones Survey & Inspection







ROBIN
WALK | DRIVE | FLY



SYSTEM CHARACTERISTICS

Control Unit for +PANORAMIC & +WINGS



SYSTEM OPTIONS

	ROBIN WALK | DRIVE | FLY	PRECISION	+PANORAMIC	+WINGS
2cm Accuracy with Good GNSS	✓	✓	✓	✓
High Accuracy Level in Restricted GNSS (Upgraded IMU)	X	✓	Optional	X
Panoramic Camera	X	X	✓	X
Car & Backpack Mounts	✓	✓	✓	Optional
Control Unit for Data Storage	Optional	Optional	✓	✓
Helicopter Pod & Cables	X	X	X	✓
Odometer	X	X	Optional	X
High resolution medium format camera (50MP-1000MP)	X	X	X	Optional
Powered by mobile, stackable batteries	✓	✓	X	X
Powered from vehicle power	✓	✓	✓	✓









3D laser mapping

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