

# TRIMBLE AX60i AIRBORNE LIDAR SOLUTION

## KEY FEATURES

**High performance** airborne LIDAR system

**Versatile** solution for aerial survey, remote sensing, and **corridor mapping**

Fully integrated, **end-to-end solution** covers pre-flight planning to post-flight processing

Single laser with **400 kHz pulse repetition rate** gives class-leading ground resolution

Maximum operating flight altitude of **1600 m AGL**

Wide effective swath width allows **efficient data capture** and optimized flight profiles

**Low cost-of-ownership** through proven reliability and high workflow productivity

## OVERVIEW

The Trimble® AX60i is a high performance, versatile, and fully integrated airborne LIDAR solution designed to meet various aerial survey requirements. It captures very dense point clouds at high resolution using a powerful laser system with a pulse repetition rate (PRR) of 400 kHz. The solution also exploits advanced techniques such as simultaneous multi-pulse processing, echo digitization, and waveform analysis. With its Trimble flight planning and sensor management software, and Trimble Inpho processing software, the AX60i has been designed as an end-to-end solution to deliver unparalleled performance, operational flexibility and efficiency, and in-service reliability. At the same time, however, it offers a low cost-of-ownership for aerial survey companies while long-term lifecycle support is provided by Trimble's global organization.

## APPLICATIONS

The Trimble AX60i can be used for a variety of aerial survey and corridor mapping projects. A key advantage of this solution is its use of a powerful yet eye-safe laser which makes it ideal for use at lower altitudes. The solution is designed to capture and process dense point clouds for end-user requirements in the majority of LIDAR application areas. Applications typically include agriculture and forestry management; mining, oil and gas exploration; complex city and urban mapping; power line and pipeline surveys and monitoring; and snowfield and glacier mapping. The airborne sensor suite can be installed on both fixed- and rotary-wing aircraft.

## BENEFITS

The solution offers an extensive range of benefits that will help aerial survey companies deliver a high quality service to customers at the same time as lowering cost and risk. These benefits include:

### End-to-end process

Designed from the outset as a seamless solution, the Trimble AX60i is supplied with a comprehensive suite of Trimble software tools to enable operators to rapidly plan missions, capture high quality data, and carry out the detailed analysis required. These tools cover the entire end-to-end process and include flight profile planning, sensor(s) and data recorder configuration, in-flight sensor management, in-flight monitoring, post flight analysis, and information extraction and presentation. The proven workflows offer high productivity to further reduce the cost-of-ownership.

### Excellent performance

The AX60i integrates a powerful laser operating at 400 kHz PRR with a maximum scan frequency of 200 Hz. Beam deflection is achieved through a rotating polygon mirror instead of the more common oscillating mirror, resulting in parallel scan lines on the ground with uniform point spacing and high accuracy within a 60 degree field-of-view. With the capability of simultaneously processing up to 10 pulses in the air, the AX60i is ideal for surveying complex terrain.

### Operational flexibility

The AX60i offers significant operational flexibility to allow missions to be completed faster, and at lower cost and risk. Survey companies can exploit the performance advantage in a number of ways. For instance, to achieve a given resolution on the ground, flight profiles can be planned more efficiently. This is because the need for track overlap is significantly reduced meaning less time in the air. Missions can be flown at economic ground speeds further enhancing productivity.



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## SYSTEM

Temperature	
Operation	0 °C to +40 °C (32 °F to 104 °F)
Storage	-10 °C to +50 °C (14 °F to 122 °F)
Humidity	0% to 85% non-condensing
Power consumption	< 25A @ 28 V (UPS included)
Weight	75 kg (165 lb) approx

## SENSOR HEAD

Laser classification	Class 3R
Laser wavelength	Near infrared
Laser Pulse Repetition Rate	80 kHz–400 kHz
Scanning mechanism	Rotating polygon mirror
Scan pattern	Parallel scan lines
Scan frequency (max.)	200 Hz
Scan width (FOV)	0–60°
Operating flight altitude	30 m–1600 m (98 ft–5,250 ft) AGL
Range measurement accuracy <sup>1</sup>	.2 cm
Vertical accuracy <sup>1</sup>	<15 cm (absolute)
Horizontal accuracy <sup>1</sup>	<25 cm (absolute)
Beam divergence	≤0.5 mrad
Range capture	Unlimited echoes (Digitized waveform processing)
Intensity capture	16 bit dynamic range for each echo
Vertical discrimination distance	.0.4 m–0.7 m
Dimensions	690 x 440 x 306 mm

## COMPUTER RACK

Log time	>8 hours
Data storage	removable SSD
Dimensions	400 x 370 x 310 mm

## APPLICATIONS

- Agriculture and forestry management
- Mining, oil and gas exploration
- Complex city and urban mapping
- Power line and pipeline surveys and monitoring
- Snowfield and glacier mapping

## POSITIONING SYSTEM

Trimble AP50 GNSS/IMU (non-ITAR)

## FLIGHT & SENSOR MANAGEMENT

Flight management software	Trimble FMS
Mission planning software	Trimble AMP
Mission control software	Trimble AMC

## DATA PROCESSING SOFTWARE

### Included

Direct georeferencing	Applanix POSPac
LIDAR processing	LPMaster

### Optional

Orthophoto processing	OrthoMaster OrthoVista
Terrain modelling	DTMaster DTMExtension

## DIGITAL AERIAL CAMERA (OPTION)

Model	Trimble AC IQ180
Array size	.80 MP
Channels	.Three (RGB)
Forward Motion Compensation	.Fully integrated
Shutter type	.Electronically controlled leaf shutter
Shutter speed	.1 second to 1/1000 second, bulb
Ground Sample Distance <sup>2</sup>	.>5 cm
Image pixel size	.5.2 µm
Calibration	.Geometrical and Radiometrical

<sup>1</sup> The given accuracies have been achieved in test conditions. These accuracies can vary with flight altitude.  
<sup>2</sup> GSD can be smaller if flying lower.



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