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## HALO-V SERIES

The HALO series LiDAR scanners are made for high altitude high efficiency mapping. City scale lidar projects are easily achievable with swath widths reaching 5,150 m. Selectable pulse rates up to 1600 kHz and line speed up to 250 per second can be tuned to meet challenging pulse density specifications. The HALO-V is available in two different models; the **HALO-15V** and **HALO-30V**. The -15V variant is designed for city and corridor mapping applications. The -30V variant is a general-purpose longer range mapping system and can accommodate greater terrain relief due to its higher maximum flying heights.

### FEATURES

- Up to 1,400,000 shots-per-second on the ground
- Narrow 0.3 mrad beam divergence results in excellent accuracy & precision.
- 1030 nm laser wavelength for better measurement probability through various environmental conditions
- Designed for medium-format gyro stabilizers such as the SOMAG DSM400 and smaller camera hatches

### PAYLOAD

OVERALL DIMENSIONS	30.4 x 29.4 x 47.3 cm
OPERATING VOLTAGE	18 - 28 VDC
POWER CONSUMPTION	Max. 155 W
OPERATING TEMPERATURE	0° - 40° C / 32° - 104° F
WEIGHT	-15 kg / 33 lbs

### LiDAR SENSOR

	HALO-15V	HALO-30V
LASER WAVELENGTH	1030 nm	1030 nm
RANGE MAX	2500 m @ 20% reflectivity, 100 kHz	4300 m @ 20% reflectivity, 100 kHz
PULSE REPETITION FREQUENCY	100 - 1600 kHz	100 - 1600 kHz
SCAN SPEED	20 - 250 lines/second	20 - 250 lines/second
MAX RETURN COUNT	Virtually unlimited	Virtually unlimited
BEAM COUNT	4 facet pyramidal mirror	4 facet pyramidal mirror
BEAM DIVERGENCE	0.3 mrad	0.3 mrad
HORIZONTAL FIELD OF VIEW	10° - 80°	10° - 80°
LASER ACCURACY	0.03 m RMS (1200 m range @ 20% reflectivity)	0.03 m RMS (1200 m range @ 20% reflectivity)
LASER SAFETY	CLASS 3B	CLASS 3B

### QUICK SPECS

**INTRASWATH PRECISION** <sup>(1)(2)(3)</sup>  
6 cm RMSDz @ 750 m

#### EXAMPLE ACQUISITIONS:

##### HELICOPTER (HALO-15V)

- » 500 m AGL, 60 knots, 80° FOV, 1600 kHz
- » Swath Width = 840 m
- » Avg. Density = 54 points/m<sup>2</sup>
- » Collection Rate = -90 km<sup>2</sup>/hr

##### FIXED WING (HALO-30V)

- » 1500 m AGL, 120 knots, 80° FOV, 400 kHz
- » Swath Width = 2517 m
- » Avg. Density = 2 points/m<sup>2</sup>
- » Collection Rate = -560 km<sup>2</sup>/hr

### APPLICATIONS

GENERAL MAPPING

UTILITIES MAPPING

AGRICULTURE & FORESTRY MONITORING

URBAN AREA MAPPING

### NAVIGATION SYSTEM

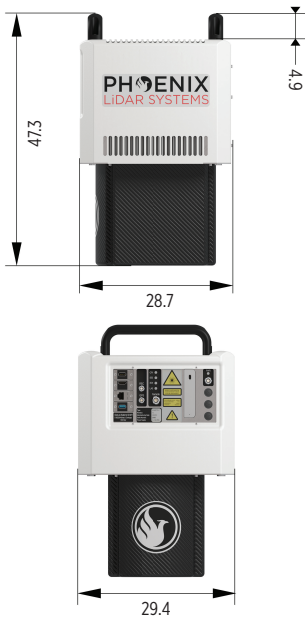
CONSTELLATION SUPPORT	GPS + GLONASS + BEIDOU + GALILEO
SUPPORTED ALIGNMENT	Static, Kinematic, Dual-Antenna
OPERATION MODES	Real-time, Post-Processed
ACCURACY POSITION	1 cm + 1 ppm GNSS baseline RMS Horizontal

#### ACCURACY ATTITUDE <sup>(5)</sup>

ROLL, PITCH	0.002° RMS
HEADING	0.007° RMS

(1) Approximate values based on PLS test methods described at <https://docs.phoenixlidar.com/accuracy-standards-and-quantification>  
 (2) Using a 80° max downward field of view.  
 (3) Expected RMSEz when following the PLS recommended acquisition & processing workflow and ASPRS check point guidelines.  
 (4) Flat surfaces with >20% reflectivity at the laser's wavelength.  
 (5) Estimated post-processed

## DIMENSIONS (mm)

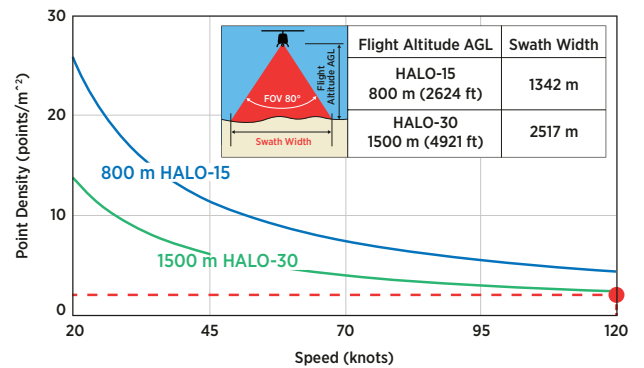
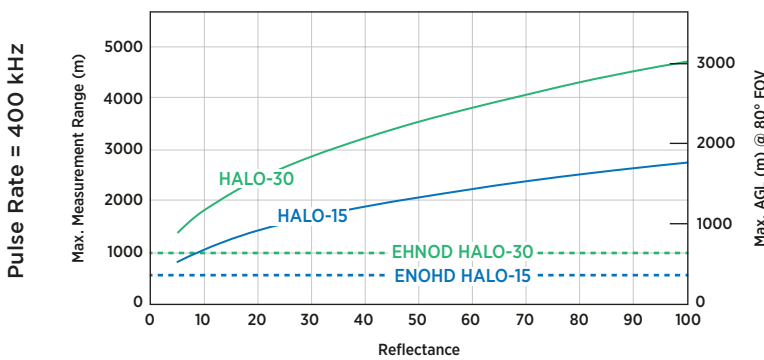


## MEASUREMENT PERFORMANCE

	HALO-15V				HALO-30V				
	Laser Pulse Repetition Rate PRR	100kHz	600kHz	1000kHz	1600kHz	100 kHz	600kHz	1000kHz	1600 kHz
<b>MAX. MEASURING RANGE</b>									
natural targets $\rho \geq 20\%$ (e.g. Dry Roads)	2500 m	1185 m	958 m	787 m	4300 m	2038 m	1647 m	1354 m	
natural targets $\rho \geq 60\%$ (e.g. Dry Grass)	3950 m	1873 m	1514 m	1245 m	6796 m	3221 m	2604 m	2141 m	
natural targets $\rho \geq 80\%$ (e.g. Snow)	4454 m	2111 m	1707 m	1403 m	4906 m	3632 m	2935 m	2413 m	
<b>MAX. OPERATING FLIGHT ALTITUDE AGL</b>									
@ $\rho \geq 20\%$	1600 m (5249 ft)	759 m (2490 ft)	613 m (2011 ft)	504 m (1653 ft)	2754 m (9035 ft)	1305 m (4281 ft)	1055 m (3461 ft)	867 m (2844 ft)	
@ $\rho \geq 60\%$	2530 m (8300 ft)	1200 m (3937 ft)	969 m (3179 ft)	797 m (2615 ft)	4352 m (14278 ft)	2063 m (6768 ft)	1667 m (5469 ft)	1371 m (4498 ft)	
NOHD	160 m	60 m	50 m	30 m	280 m	110 m	90 m	70 m	
ENOHD	1130 m	430 m	310 m	210 m	1970 m	790 m	600 m	460 m	

1) 100% laser power 2) 80° field of view 3) NOHD & ENOHD determined for non-overlapping beam footprints.

## RANGE & POINT DENSITY EXAMPLES

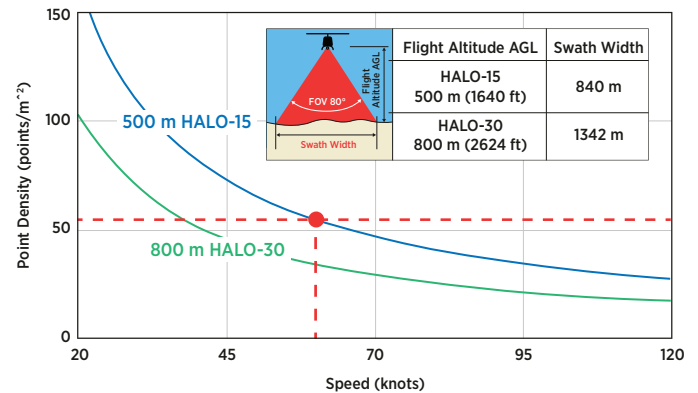
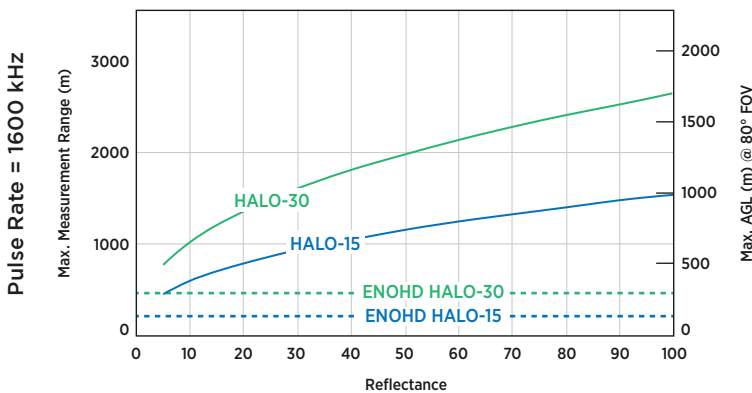


EXAMPLE

HALO-30V - 400 kHz • 80° Field of view • Flying height AGL = 1500 m • Flying speed = 62 m/s (120 knots)

RESULTS

2 points/m<sup>2</sup> density  
~560 km<sup>2</sup>/hr collection rate



EXAMPLE

HALO-15V - 1600 kHz • 80° Field of view • Flying height AGL = 500 m • Flying speed = 31 m/s (60 knots)

RESULTS

54 points/m<sup>2</sup> density  
~90 km<sup>2</sup>/hr collection rate



EXPLORE A PHOENIX LiDAR SYSTEM FOR YOUR TEAM, CONTACT US!

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