

Gaps M5 (G5)

Pre-calibrated USBL system

Gaps M5 is a Medium frequency Ultra-Short Baseline (USBL) positioning system for accurate location, positioning and tracking of subsea assets, from ultra-shallow water to medium water depths. It combines an USBL integrated with a heading and attitude sensor based on Exail FOG technology. Available in free of export version and extended range version (Gaps M5-XR), Gaps M5 is a lighter and more compact version of Gaps.



FEATURES

- Compact, all-in-one USBL/AHRS solution
- Compatible with dynamic positioning systems
- Simultaneous beacons tracking and communication
- Third-party transponder compatibility
- Acoustic communication
- 995 m version (free of export restriction)
- 4,000 m version (export licence required)

DESIGNED FOR

- Survey applications
- ROV tracking
- Tow fish tracking (UXO, SSS...)
- AUV tracking & communication
- Diver tracking
- Structure deployment
- Dynamic positioning (DP2, DP3)

BENEFITS

- Rapid deployment
- Pre-calibrated
- Horizontal tracking (>200° coverage)
- High precision & accuracy
- Multiple tracking capabilities
- Tracking & communication

GAPS M5 TECHNICAL DESCRIPTION

Positioning performance

Repeatability ⁽¹⁾ ⁽²⁾	0.10%SR – CEP50
Pre-calibrated accuracy ⁽¹⁾ ⁽³⁾	0.20%SR – CEP50
Bearing accuracy ⁽⁴⁾	0.03°
Range accuracy	1 cm
Max position update rate	3 Hz
Number of targets	40

Acoustic performance

Operating frequency	18 – 34 kHz
Range	995 m 4,000 m (XR version ⁽⁵⁾)
Coverage	>200°

Embedded INS/AHRS

Type	AHRS
Heading accuracy	0.15° secant lat (RMS)
Roll/Pitch accuracy	0.1° (RMS)
Heave accuracy	10 cm RMS

Acoustic communication

Frequency	18–34 kHz
Range	up to 3,000 m
Services	8–80 bytes messages, modem and file transfer
Bitrate	500 bps to 8 kbps

Mechanical

Housing	Carbon fiber
Weight (air/water)	14 kg / TBD
Dimensions (HxØ)	520x296
Depth rating	25 m

Environment

Temperature (operating)	-5°C to +35°C
Temperature (storage)	-40°C to +70°C
EMC	EN60945

(1): %SR = % of slant range; CEP50 = Circular Error Probability at 50%

(2): In vertical conditions at input SNR = 20 dB, with MF transponder

(3): In vertical conditions. Including GPS error of 0.1 m. Sound velocity profile compensated. With MF transponder, transmit level = 191 dB ref µPa @ 1 m. Slant range of 1 000 m

(4): RMS value at input SNR = 20 dB, with MF transponder

(5): XR extended range version – requires export licence

Interfaces

Power supply	100 to 240 VAC / 50-60 Hz 24/36 VDC
Power consumption nominal with Gaps Box and 50m cable	24 W
Input/output ports	Ethernet 4 serial RS232/422 (with Gaps BOX)
Synchronisation	1 PPS + 3 IN/OUT (TTL or differential +/-5V)
Control/command & Display	WebMMI NMEA protocol 3D visualization software in option

GAPS BOX SPECIFICATIONS

Dimension	233 mm x 330 mm x 94 mm
Weight	4.1 kg
Temperature (operating)	-25°C to +55°C
Temperature (storage)	-40°C to +70°C

GAPS SERIES TRANSPONDERS

Gaps is compatible with all Exail MF beacons including:

Name	Description	Acoustic communication	Applications
MT9x2 series 	Internal rechargeable battery, OEM, 1,000, 3,000 m depth rated		ROV, Tow fish and diver positioning
MTBx2 series 	Mini transponder for AUV OEM and 300 m depth rated	●	AUV positioning
Canopus 	LBL and Sparse LBL Intelligent transponder 4,000 and 6,000 m depth rated	●	AUV positioning, LBL calibration, Dynamic Positioning (DP)

Third-party transponders compatibility: contact Exail