

IGS-2xx series, deeply integrated guidance family for mortars and projectiles



The IGS product families utilize an ultra tightly coupled INS-GPS system for <5m Circular Error Probable (CEP) GPS-aided accuracy. This highly precise and robust anti-jam (AJ) performance results in the lowest risk of collateral damage required for urban close combat situations. Furthermore, IGS products offer margin against the ever increasing and complex jamming threat utilizing inertial sensors to maintain precision accuracy in the event of loss of GPS track. Additional IGS products are in development with increasingly higher anti-jam and navigation performance in smaller packages, for both projectiles and munitions.

Integrated Guidance Systems LLC, is expanding on the initial IGS-200 product with a family of precision guidance products to meet the demand for smaller, more scalable systems for mortars and projectiles.

The IGS-2xx family of precision guidance products is G-hardened to survive up to 20,000 Gs of firing shock – extending artillery range while enabling ordnance delivery to targets with unsurpassed accuracies. In addition to the IGS-200, the family now includes a unique, scalable packaging approach that provides either 2-channel or 4-channel anti-jam in the IGS-202/204 models. Further size reductions provide even greater platform applicability in the IGS-250 model.

Standard capabilities and features for all IGS-2xx products

Documentation and tools

- Complete set of user manuals
- Data collection and analysis software
- User-purchased Mindready card (for 1394b communication)

System throughput and memory for user code

- Hosts 3rd party guidance and control software
- >25% throughput + 4 Mbyte RAM, 2 Mbyte ROM

Interfaces

- 2 ports – 400 Mbps IEEE-1394b
- 1 port – EIA-644 LVDS asynch
- 2 ports – EIA-644 LVDS configurable as 1 SDLC and 1 asynch, or 2 asynch
- 2 ports – EIA-644 LVDS configurable as 2 asynch or 4 programmable discretes
- 4 discretes – LVCMOS - programmable
- Keying – via DS-101, asynch or IEEE 1394b

Features

- MEMS digital inertial sensor assembly
- SAASM L1/L2 all-in-view GPS (12-satellite)
- Tightly or ultra tightly coupled navigation
- Anti-jam capability
 - >88 dB BB, >95 dB CW (J/S tracking)
 - >59 dB BB, >66 dB CW (J/S D-Y acquisition)
- <10 second direct P(Y) TTFM (90% probable)
- Outputs
 - 3D position, velocity, attitude
 - 200, 1200 or 1800 Hz flight control sensing data
- Environmental – -43°C to 71°C
- Power – <10 W, +5 V input
- Field reprogrammable

Scalable, flexible features

	IGS-200	IGS-202	IGS-204	IGS-250
G-hardening	>15,750 G	>15,750 G	>15,750 G	>20,000 G
Anti-jam	2-channel digital nulling	2-channel digital nulling	4-channel digital nulling	2-channel digital nulling with excision
Size	16.5 in ³ (270.4 cm ³)	16.5 in ³ (270.4 cm ³)	16.5 in ³ (270.4 cm ³)	7.8 in ³ (127.8 cm ³)
Dimensions	2.79" D x 2.65" H; 3.25" D flange (7.08 cm D x 6.73 cm H; 8.3 cm D flange)	2.79" D x 2.65" H; 3.25" D flange (7.08 cm D x 6.73 cm H; 8.3 cm D flange)	2.79" D x 2.65" H; 3.25" D flange (7.08 cm D x 6.73 cm H; 8.3 cm D flange)	2.00" D x 2.20" H; 2.55" D flange (5.08 cm D x 5.59 cm H; 6.48 cm D flange)
Weight	<1.25 lbs (0.567 kg)	<1.25 lbs (0.567 kg)	<1.25 lbs (0.567 kg)	<0.75 lbs (0.340 kg)
Aided-INS/GPS***	<5 m CEP, <8 vertical error 1 σ	<5 m CEP, <8 vertical error 1 σ	<5 m CEP, <8 vertical error 1 σ	<4 m CEP, <4 vertical error 1 σ

*AJ performance is based on 1 Jammer of any type. Full performance is classified.
 **Export of Precise Positioning Service (PPS) units is authorized for GPS Memorandum of Understanding countries only. PPS security modules must be obtained through Foreign Military Sales (FMS) procurement.
 ***Trajectory dependent.

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