



LINAPS ARTILLERY POINTING SYSTEM

In service with the British Army 105mm L118 Light Gun, LINAPS was successfully deployed in Iraq during the second Gulf war. A self-contained gun-mounted navigation, pointing and weapon management system, LINAPS enables rapid and accurate artillery deployment in all weather conditions both by day and night.

OPERATIONAL ADVANTAGES

- No surveying of gun emplacement
- No setting up of aiming posts or selecting known distant objects
- Faster into action time
- Improved accuracy and repeatability
- Easy deployment
- Easy concealment
- Easy night deployment
- Easy to use
- Minimal training.

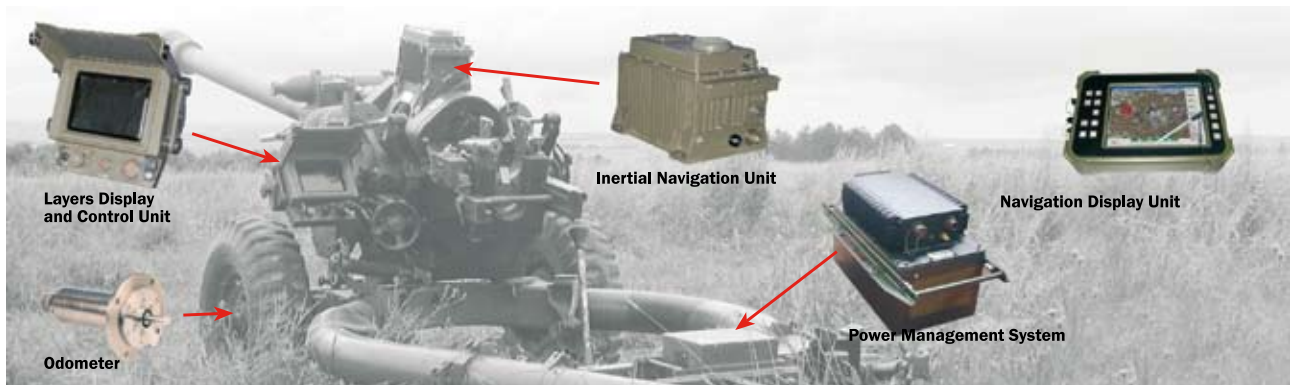
WEAPON MANAGEMENT

- NATO and other ballistic calculations
- Accurate direct fire using ballistic kernel
- Interfacing and control of other gun sensors e.g. muzzle velocity radar and laser rangefinder
- Interfaces to a range of radio types.

KEY BENEFITS

- Continuous and accurate 3D self location with and without GPS
- Continuous determination and display of gun barrel direction and elevation
- Operational under all weather conditions and at all times of day and night
- Operates during helicopter lift
- 115 A hour power source to provide 24 hours continuous operation
- Bright and flexible man-machine interface.

LINAPS Artillery Pointing System



LINAPS components

TECHNICAL SPECIFICATIONS

Accuracy Pointing and Positioning

Horizontal Position

INS/GPS:	10 meters CEP
INS/Odometer:	25 meters or 0.25% of distance travelled (whichever is the larger)

Vertical Position

INS/GPS:	10 meters PE
INS/Odometer:	0.15% of distance travelled

Heading Pointing

	<1 mil RMS
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Roll Elevation

	< 0.5 mil RMS
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Initialisation Time

Static:	10 minutes
"On the Move":	LINAPS can be moved 90 seconds from switch-on; 10 minutes to full performance assuming GPS available

FIN 3110L INERTIAL NAVIGATION UNIT (INU)

Navigation and pointing information for LINAPS is provided by the FIN3110L INU. The INU is a rugged, unjammable navigation system based on strap-down Ring Laser Gyro technology specifically designed for artillery applications. It provides a hybrid navigation solution combining data from other sensors such as GPS and the vehicle odometer in a Kalman Filter to provide a continuous and precise navigation solution. Whilst the INU uses GPS in its main navigation mode, it is capable of providing accurate back-up navigation using odometer data, should GPS be unavailable.

A Rockwell Collins 12 channel P(Y) Code MPE-1.12.1 with an antenna built into the top cover of the FIN3110L is offered as standard for approved users. An optional C/A code version is also available.

FIN 3110 also generates accurate angular information - elevation, roll and azimuth. The capability to withstand high levels of gun fire shock has been designed into the equipment. FIN 3110 has been demonstrated at levels of gunfire shock in excess of 300g peak.

LAYERS DISPLAY AND CONTROL UNIT (LDCU)

The LDCU forms the heart of LINAPS. It is a highly capable product combining 8.1 inch touch-sensitive, electro-luminescent man machine interface, powerful processing for fire control and ballistic calculations together with a capability to interface with a full range of additional sensors and equipment all contained in a single unit.

This feature provides a navigation and fire control capability system with minimal hardware content and provides a unique single box solution for managing the following key weapon management functions:

- NATO and Other ballistic calculations
- Accurate and rapid gun laying
- Autonomous GPS/INS navigation
- Interfacing and control of additional on-gun sensors
- Flexible radio interfacing.

BATTERY POWER MODULE

LINAPS is powered from a gun-mounted Battery Power Module (BPM) based on lithium ion technology with a capacity of 115 A hours. A single fully charged BPM is able to power LINAPS for in excess of 24 hours continuous operation.

The BPM incorporates an integral DC charger, which will provide a 20 A on-board charging capability with a charge time of 7 hours. Accurate indications of BPM status is provided both on a 5 LED display and on the LDCU.

NAVIGATION DISPLAY

A commercial off the shelf (COTS) touch sensitive tablet provides the in-cab display of navigation information on a high performance, multi-layered digital moving map.

Map features include:

- High grade raster image with terrain and symbology overlays
- Accurate geo-referencing and seamless worldwide operation
- Map overlays include: routes/ waypoints/no-go areas/ compass rose
- Supports U.S. data formats CADRG, CIB
- Terrain overlay using DTED data 1 to 2.



Navigation Display graphics

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