

# Phins E

## High-performance inertial navigation system for civil engineering

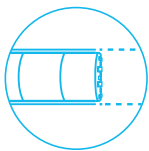
Phins is an inertial navigation system providing 3D position, true heading, attitude, and speed. Its high-accuracy inertial measurement unit is based on iXblue's fiber-optic gyroscope technology coupled with an embedded digital signal processor that runs an advanced Kalman filter. Phins E is a product with dedicated algorithms for civil engineering and industrial applications.



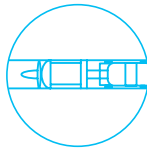
### FEATURES & BENEFITS

- All-in-one high-accuracy 3D positioning with true heading, roll and pitch
- Robust to harsh environments
- FOG unique strap-down technology
- Multiple aiding available: (Water level, GNSS, Odometer)
- Compact, lightweight and reliable
- Ethernet, web server (GUI)
- IMU option for high accuracy platform stabilization
- Static and dynamic alignment modes, with and without GNSS
- Embedded data logger
- Fast alignment (no aiding sensor)
- Versatile I/O options for integration
- Embedded web user interface
- Low latency for real time control loops
- Maintenance free
- ITAR-free
- Postprocessing capability with APPS software option
- Restore Attitude mode
- Restore Position mode

### APPLICATIONS



Tunneling and mining



Pipe inspection



Industrial vehicle



Drilling

## TECHNICAL SPECIFICATIONS

### Performance

Heading accuracy with GNSS during navigation	0.01° seclat RMS <sup>(1)</sup>
Heading accuracy in autonomous mode with rotations during alignment	0.05° seclat RMS <sup>(1)</sup>
Heading accuracy after 15 minutes in static autonomous mode	0.083° seclat RMS <sup>(1)</sup>
Heading accuracy after 5 minutes in static autonomous mode	0.25° seclat RMS <sup>(1)</sup>
Roll	0.01° RMS
Pitch	0.01° RMS
Resolution for Heading, Roll, Pitch	0.001°
Range	Heading: 0° to 360° Roll: -180° to +180° Pitch: -90° to +90°

### Operating Range / Environment

Operating / storage temperature	-20 °C to +55 °C / -40 °C to +80 °C
Rotation rate dynamic range	Up to 750 deg/s
Acceleration dynamic range	±15 g
MTBF	150,000 hours (System observed) 500,000 hours (FOG + Accelerometers)
Heading / roll / pitch	0 to +360 deg / ±180 deg / ±90 deg
Special conditions	No warm-up effects, shock and vibration proof

### Physical characteristics

Dimensions (L x W x H)	180 x 180 x 162 mm
Weight in air	5.4 kg
Material	Aluminum

### Interfaces

Serial	RS422 or RS232
Ethernet	100 Mbit - UDP / TCP server / TCP client / web server (GUI) / NTP synchro
Pulses	PPS input for < 100µs time synchronization
Inputs / outputs	Configurable 7i / 5o - Pulses 4i / 2o - Configuration port
Baud rates	Up to 460 kbaud
Data output rate	0.1 Hz to 200 Hz real measurements
Power supply / consumption	24 VDC (20-32 V) / 20 W typ. @24V/23°C (unloaded)

(1) Secant latitude = 1/cosine latitude