



# FUGRO PILOTSTAR BERTHING AID SYSTEM

A high precision portable berthing aid system, compliant with pilot requirements for docking can help improve the safety and efficiency of complex marine operations.

## HIGH PRECISION APPROACH AND DOCKING

During complex marine operations, environmental factors can affect the location of tankers, FPSO and CALM buoys. Precise real-time positioning and heading data, combined with metocean data, is essential to vessel pilots to give advanced warning of conditions that may affect the movement and motion of the vessel.

## SOLUTION

The Fugro PilotSTAR berthing aid system provides positioning assistance during the offloading operations of tankers with a CALM buoy or in tandem with an FSO/

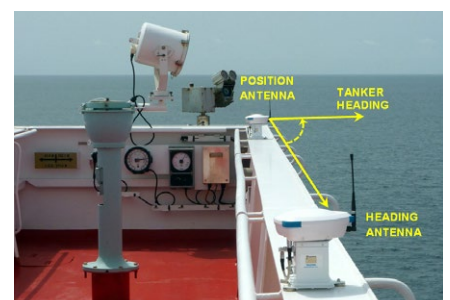
FPSO. The system integrates with metocean/hawser tension sensors to provide a complete overview of the prevailing conditions affecting the vessel. This allows appropriate action to be taken to keep the vessel on course and within operational safety margins.

## BENEFIT

- Effective and reliable
- Improves safety during all phases of loading operations
- Reduces the risk of collisions
- Reduces costs
- Worldwide local support



Fugro PilotSTAR rugged laptop on tanker bridge.



Fugro PilotSTAR wing units located on the tanker wing.



# EQUIPMENT FLYER



## PILOTSTAR BERTHING AID SYSTEM

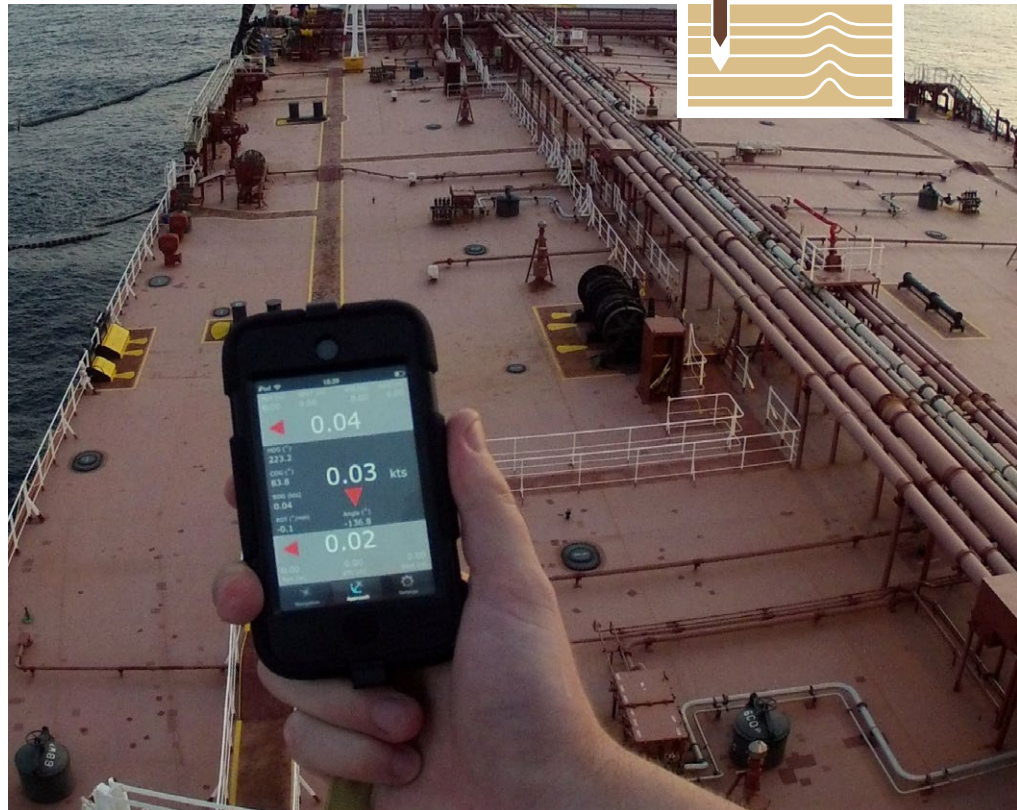
The PilotSTAR system comprises two fully autonomous PilotSTAR wing units, that are set up by the pilot on both sides of the tankers wing.

These units together with the permanent equipment installed on the CALM buoy/ FPSO/FSO allows for the calculation of a positioning solution based on Real Time Kinematics (RTK) and moving base line ( MBL ) algorithms.

A rugged carry case provides the pilot's display, including tanker, FPSO and tug navigation data, prediction and historical tanker position, hawser tension and metocean information (wind and sea current).

### FEATURES

- Light and portable Equipment
- Rugged reinforced components for long term durability and reliability
- Lightning proof
- Quick and East installation
- User friendly software
- Integration of AIS information and metocean sensors
- Virtual Unlimited Autonomy (Hot swappable battery)
- High durability and non-explosive NiMH battery pack
- Sub decimetre position accuracy
- 0.01 degrees accuracy in the azimuth determination
- Sensitive enough to highlight slow speed motion
- Multi-baseline determination
- Integration of metocean data
- Integration of hawser tension data
- Integration of specific client data
- 2 UHF band: 869 MHz and 400 MHz
- Configurable alarms
- ATEX (for offloading buoy application)



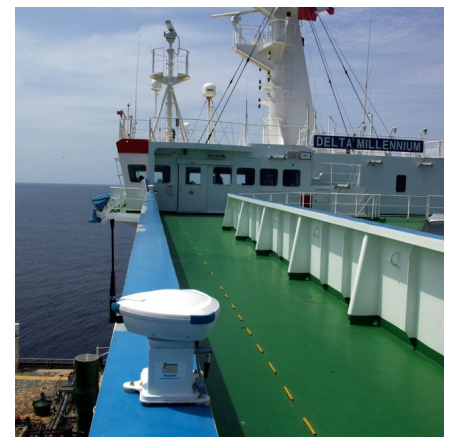
Navigation information received on iPod Touch via Wi-Fi network.

### TECHNICAL SPECIFICATION

- Tanker DGNSS position accuracy - 1 m
- Relative position accuracy (Tanker/FPSO/CALM Buoy) - 5 cm
- Heading accuracy (20 m wing unit separation) - 0.01°
- Bow and stern speed accuracy - 1 cm/s (0.02 knots)
- Rate of turn (ROT) - 0.1°/min
- Dedicated AIS receiver - Yes
- Wi-Fi connection to pilot display - Yes
- Tanker wing unit dimensions - 20 x 18 x 20 cm (L x W x H)
- Battery capacity - 14 hours hot swappable
- Wing unit weight - 3.6 kg



Fugro PilotSTAR screen display.



Fugro PilotSTAR wing units located on the tanker wing.