



Seatex DARPS Transponder

The DARPS Transponder represents the next generation in relative GPS (RGPS) position systems. Utilizing the latest in state-of-the-art GPS technology, the DARPS Transponder is tailored to applications demanding extremes in reliability and accuracy in relative position between any vessel and platform or FPSO during loading or reloading.

Proven Technology

Kongsberg Seatex has been developing and manufacturing GPS based marine tracking systems for more than a decade. The DARPS Transponder combines this continually growing base of experience and innovation with the latest GPS technical advances and offers an ideal relative position solution for today's increasing need for position reference during various offshore operations.

Relative positioning with DARPS Transponder

The Transponder captures GPS carrier and phase code and transmits it to the host vessel via UHF radio signals. One or more vessels having DARPS 100 on board can communicate with the same transponders while the DARPS 100 accurately processes the data and calculates relative positions.

Robustness and intelligent functionality

The DARPS Transponder is self contained with all electronics and GPS and UHF antennas integrated in the same physical unit. Only one cable (power) is connected to the unit; operation starts automatically upon power up. Both the polyethylene housing and the electronics are designed to withstand the challenging environments of the offshore operations.

Unique Performance

The built in 12-channel GPS receiver has a sophisticated anti-multipath feature for maximum accuracy and minimum signal degradation. The UHF radio in the DARPS Transponder gives a typical range of 15-20 km. Erroneous data is detected and removed by utilising a reliable data protocol, protecting the RGPS processing against invalid results.



The robust and intelligent functionality are based on a TDMA (Time Division Multiple Access) radio protocol where all relevant raw data and transponder status parameters are transferred to the main DARPS 100 system on board the vessel.

The DARPS Transponder is available in two frequency bands, 450MHz or 870MHz. The frequency is easily changed within these bands.

Vast access through reliable TDMA technique

The TDMA technique makes it possible to allocate time slots for other DARPS 100 systems operating at the same frequency within the vicinity or at the same location. A low power UHF radio and a TDMA protocol provide efficient communication between the vessel and the transponder. Up to 24 vessels can share the same frequency utilising a fast two-second-update rate.

Key configuration parameters, such as change of radio frequency, can be transmitted to each individual transponder using the DARPS 100 vessel control unit or a handheld controller.

System features

- Rugged GPS transponder with integrated GPS and UHF antenna
- High accuracy relative GPS position solution using L1 C/A code measurements
- Transmission of GPS data to the vessel via a robust UHF link
- TDMA functionality for multiple vessels (24) sharing the same UHF frequency
- UHF frequency at the DARPS Transponder is remotely configurable from the DAPRS master via UHF radio link
- DGPS position available at the DARPS Transponder when RTCM corrections are transmitted from the vessel
- Continuous monitoring of all status parameters of the DARPS Transponder to prevent unexpected breakdown

Technical specifications

General

- Polyethylene cylinder with mounting bracket adapter
- Up to 1Hz update rate

GPS

- 12 channels L1 C/A code and carrier phase, multipath mitigation

UHF

- 450-470MHz (868-870 optional) synthesized, two-way radio
- Channel separation 25KHz
- 0.5W transmitted power
- 9600 bps data transmission
- Typical range 15-20 km (line-of-sight)

I/O

- Remotely configurable baud rates for serial I/O ports, TDMA slot number, UHF radio mode and GPS update rate
- Remote reset command and polling of status message
- Transmission of raw-data, position and status parameters from transponder
- 3 serial I/O lines with baud rates up to 19200 baud

- Interface to handheld terminal for local status and control
- Different connector options available
(contact Seatex for further information)

Physical characteristics

Size 150 mm (d) x 800 mm (h)

Weight 4.5 kg

Power Nominal 9-32V DC, 6.5W

Operating temp -10° to +55°C

Storage temp -30° to +70°C

Humidity IP 68, 10 m

Specification subject to change without further notice

