

Canopus

LBL and sparse LBL intelligent transponder

Canopus is the new intelligent seabed transponder providing the most advanced LBL capabilities to Exail positioning and navigation solutions.



FEATURES

- Modes of operation
 - Long BaseLine positioning
 - ASBL Sparse Array positioning
 - Acoustic Communication
- Embedded user interface (MMI)
- Depth rating: 4,000 m (6,000 m in option)
- Compatibility
 - Gaps and Posidonia (USBL)
 - Ramses (LBL and ASBL)
 - Exail INS
- Standard environment sensors including: pressure, temperature, inclinometer

BENEFITS

- Low power consumption
 - Listening life: more than 5 years (Alkaline)
 - Operation life: 1,600,000 pings pings at maximum sound level (Alkaline)
- A few hundred of unique wideband addresses and codes
- Medium frequency band and omnidirectional transducer head

TYPICAL APPLICATION

- Marine construction
- Long term subsea observatory
- Renewable energy
- Dynamic positioning
- Subsea mining

Taking subsea positioning to the next generation

The Canopus transponder is the latest addition to the Exail underwater positioning systems. Used as a reference seabed transponder installed on tracked vehicles, it will contribute to the best underwater positioning solution in terms of accuracy, functionalities and ease of use. Using its expertise and accumulated experience in signal processing and data fusion techniques, Exail developed a powerful and evolutive electronic platform, able to provide distance telemetry, underwater communication, sensors measurements and data logging.

Canopus is a compact instrument featuring extreme low-power consumption, unique acoustic characteristics, and the usual Exail touch in terms of simplicity of use, common look and feel user interface, and open architecture.

Canopus, a part of the new subsea positioning solution developed by Exail

With the new supervision software developed for subsea positioning operations, Canopus along with other Exail sensors is now forming an integrated positioning solution, designed to assist and guide the user from initial planning of the operations up to data collection, visualization and post-processing.

The next underwater positioning solution is now available providing ultimate performance, time savings, with less equipment to be deployed and no compromise on accuracy.

ACOUSTIC CHARACTERISTICS

| | |
|-------------------------|--|
| Accuracy | < 1 cm |
| Operating frequency | MF band (20~32 kHz) |
| Transmit source level | From 181 dB re. 1µPa @ 1m to 196 dB re. 1µPa @ 1m, user programmable |
| Transducer beam pattern | Omnidirectional |
| Received sensitivity | 85 dB re. 1µPa |
| Signal modulation | MFSK / MPSK. Compatible with other Exail products |
| Data telemetry | 500 bps |
| Compatibility | Gaps, Ramses, Exail INS |

SENSORS AND DATA LOGGING

Standard sensors

| | |
|--------------------|--|
| Pressure sensor | 700 bar, +/- 0.05% full scale |
| Temperature sensor | -10°C to +60°C, ± 0.10°C |
| Inclinometer | ± 90°, ± 0.5° (the accuracy of ± 0.5° is only guaranteed on the range ± 70°) |

Optional sensors

| | |
|-----------------|--|
| Sound Velocity | 1375 m/s to 1900 m/s, ± 0.020 m/s |
| External sensor | Isolated RS 232/422/485 interface Synchro IN Power Supply 12 VDC, 5 Watt max |

| | |
|-------------------------|--------------------------------------|
| Internal storage memory | Standard SD card, max capacity 32 Gb |
|-------------------------|--------------------------------------|

POWER SUPPLY / CONSUMPTION

| | |
|-----------------------------------|--|
| Battery | Alkaline or lithium battery pack |
| Alkaline | Standby (listening): 70 months ⁽¹⁾ Nb ping: 1 600 000 pings ⁽²⁾ |
| Lithium | Standby (listening): 110 months ⁽¹⁾ Nb ping: 2 800 000 pings ⁽²⁾ |
| External power supply/Programming | External Subconn connector (USB transponder programming, synchro IN) and power supply provided (9 Vdc to 36 Vdc) |

MECHANICAL CHARACTERISTICS

| | |
|--------------------|---|
| Depth rating | 4,000 m (6,000 m in option) |
| Construction | Hard Anodised Aluminium Alloy & Protective sleeve |
| Release mechanism | Pelican hook, 250 kg Release load |
| ON/OFF | Reed magnetic ON/OFF switch |
| Size (ODxL) | 180 mm x 1060 mm (pressure housing diameter 143 mm) |
| Weight (air/water) | 28 kg / 16 kg |
| Storage | -20°C to +70°C |
| Operating | -5°C to +55°C |

(1) at 20 deg, not considering battery aging and mechanical consideration of the transponder

(2) maximum number of pings at 191 dB ref µPa @1m, out of listening consumption