SWALE OCEANOGRAPHIC

Why are S2C modems from EvoLogics the best for the offshore industry?

EvoLogics has launched their R-series of modems based on patented Sweep Spread Carrier (S2C) technology. The modems are available in different models to suit the specific needs of customers in the offshore industry. The key features in the range of modems are

- Achieve datalink speed up to 32 kbps over short distance or up to 6.5 kbps over very long distances
- Working range of up to 8000m
- Available in high grade plastic, AlMg alloy, Stainless Steel or Titanium housing to suit the varying depths
- Low energy consumption
- Very compact and low weight
- Error rate of less than 10^{-9} even when conditions deteriorate during transfer
- Built in relative speed and distance measurement with USBL module expandable
- Built in data logger with extensible option
- Each model is also available in OEM version for easy integration into customer applications.

S2C modems from EvoLogics provide reliability and can deliver data even where other modems fail

Offshore applications cannot afford failure in communication link. To overcome the challenge of acoustic signals prone to disruptions and sometimes complete failure, S2C modems mimic dolphin sound pattern by continuously spreading the signal energy over a wide range of frequencies and adapting the signal structure so that the multipath components do not interfere with each other. Advanced signal processing at the receiver converts received signals into narrow band signals, achieving significant suppression of multipath disturbances and substantial system gain. This allows applications to operate even in conditions where the signals may be heavily masked by noise from multipath or environmental conditions.

Maximum channel capacity utilization and best bit rate

Intelligent algorithms continuously analyze the quality of the incoming signals and automatically adjust the transmission parameters accordingly to providing the best bitrate possible under the given circumstances. Interweaving of signals maximizes the utilization of the channel capacity and compensates for propagation delays

Disruption resistance included

The energy of the signals is distributed across a wide range of frequencies. Common disruptive noise signals concentrate the energy in a narrow band of frequencies. Special technology enables the receivers to read these dispersed signals from among the noise and compress them to regenerate the signal with necessary strength. As a side effect, strong narrow-banded signals are in contrast spread out as background noise and easily filtered out.

Rapid response to emergency signals

In offshore applications, it is critical for urgent command or emergency signal to be delivered immediately. Typical modems wait for completion of data transfer to transmit these signals.
S2C modems allow anytime “Instant Messaging”. These are asynchronous insertion of data, immediately transmitted on top of the data stream. The receiver promptly processes these messages independent from other data, enabling rapid response. This works in both directions and avoids need to install an extra emergency or command link (e.g. in AUVs, subsea installations etc.).

Priority driven operation of multiple sensors / devices

S2C modems can handle data from multiple input sources individually. Numerous logical data channels (8, 16 etc. nos. for different sensors) can be defined and – most advantageous – be assigned different priorities. Asynchronous transmission ensures that higher-priority data are delivered at the first instance. These logical “fast tracks” provide flexibility and ease to efficiently control even complex underwater systems and processes, enabling timely response to an evolving situation.

Extended underwater data networks

Each modem is individually addressable and at each connection to another address they “see” the distance and relative velocity and evaluate the acoustic properties of that channel. Sharing these data with other nodes enables optimal traffic planning and routing in the network, allowing an integrated system, facilitating fast and flexible adaptation to variable situations.

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