



Installation of a dual VSAT system with automatic switch over between two redundant systems

EPAK EVOLUTION...

A technology that delivers reliable tv and high speed data access even during harsh weather conditions at sea

by **Abdelghani AG**

Automatic satellite tracking systems – most reliable antennas for marine TV and Internet

Telecommunication systems rank very high on the list of critical parts on any vessel. Reliability, therefore, is of utmost importance. EPAK has long understood this and specializes in delivering reliable, high quality systems that can sustain connectivity even during harsh conditions in the middle of the ocean. As supplier for the German navy, EPAK products and services have to meet the highest standards while remaining at the cutting edge of technological advancement.

Innovation is the key

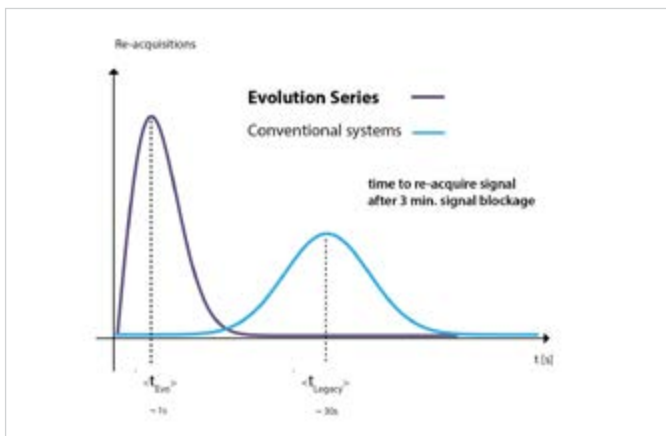
The foundation for technical progress is embedded in the organization. Since its start-up in the year 2000, EPAK keeps all essential processes under one roof. Hardware design,

software development, prototyping and manufacturing are completely managed in-house. By having detailed expert knowledge at hand, the company can efficiently realize breakthrough inventions as well as continuous improvements.

In many ways EPAK has shown to lead the way rather than follow the trend. One example is the unique and patented EVOLUTION technology.

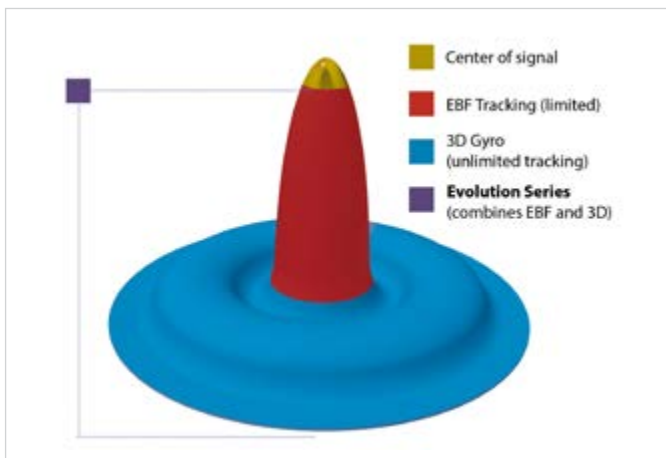
EVOLUTION technology for better performance

In order to receive and transmit data, VSAT or TVRO antennas have to be pointed exactly at the satellite. Even small pointing errors render communication impossible. Conventional stabilized antennas use a 3D gyro to calculate



After a signal blockage of 3 minutes, the EPAK Evolution system can re-acquire the signal 30 times faster than conventional antennas.

the rolling and pitching of the vessel at sea and compensate this movement. The technology is reliable but not very accurate. Small calculation errors accumulate and the mispointing increases progressively. This so-called drift in the alignment between antenna and satellite has to be corrected by a gyro calibration, during which the antenna goes into a scanning mode. The EPAK EVOLUTION technology precludes this scanning mode and the consequent signal interruption by adding a second gyro technology, the EBF (Electronic Beam Forming). This redundant system analyses the strength of the satellite signal 80 times per second. The combined information from both systems keep the antennas perfectly aligned.



While the EBF (red) allows an excellent pointing accuracy within a narrow angle around the beam's centre (yellow), the 3D gyro module (blue) has an unlimited tracking range. In combination they make the Evolution System both accurate and stable.

Tried and tested

The strength of the Evolution technology has concrete advantages for the user. Even at the hardest sea conditions defined, the antennas can sustain satellite connection. This was tested and verified on a motion simulator at the German Fraunhofer Institute. In the event the signal is blocked by obstacles, the Evolution technology will bring the antenna back online about 30 times faster than conventional tracking antennas.



Technical Drawing of EPAK DS13, maritime VSAT antenna with 130 cm reflector diameter in protective dome

More attention to the Middle East

EPAK is increasingly gaining a reputation and business requests from distant parts of the world, as well as from the Middle East. Jochen Grüner, CEO of EPAK comments on the opportunities. "There are many opportunities in maritime economy emerging in the Middle East and the strong infrastructure in the UAE makes it particularly attractive as a regional hub. Our business success depends on the quality of service and support we provide. Customer expectations are higher than ever and it is no longer enough to ship out a good product. We provide hardware, satellite broadband services, 24/7 technical support – in short a one-stop-solution. That's why we have opened an office in the UAE to assure quality support for our customers in the region." ●