VDR 4350
Voyage Data Recorder
As a leading systems integrator, SAM Electronics is constantly striving for improvements to the safety of navigation. The new VDR 4350 emphasises such expertise through integration of an Integrated Navigation System with VDR. Especially designed for the SAM radar family 1x00 and NACOS xx-5, the VDR 4350 also offers compatibility to the next-generation of navigation systems.

Up until now, the VDR functioned as an additional black box with separate interfaces to each required sub-system. The VDR 4350 changes this approach and offers the benefits from true integration of the VDR into the complete navigation system.

Essential VDR 4350 functions are operated via the RADARPLOT, thus combining user-friendly operation with improved situational awareness all in a cost effective, tailor-made state-of-the-art solution. The VDR comes as a scalable solution at a competitive price suitable to all kinds of newbuildings over the complete market range.

The modular and ethernet based solution requires minimum space and wiring and allows fast and effective installations. The replay system is based on standard PC hardware and offers fast and easy access to downloaded data. Once the VDR is connected to a SATCOM system remote maintenance of the VDR including the entire navigation system is available. The 4350 series meet all requirements of the IMO Resolution 861(20) and the performance and test standards of IEC 61996.

Features

- Navigation sensor data and digital radar image via ethernet
- Remote operating (alarm handling, download) by SAM Radar (1x00 and future products)
- Harmonised user interface
- Available as console integrated or cabinet mounted solution
- ECDIS - based replay system (onboard as well as onshore)
- Remote control and maintenance via SATCOM (option)
- Extended recording time
The VDR 4350 consists of a core module, a flexible number of audio NMEA and process modules and the Final Recording Medium. The radar system connected via ethernet acts as the operating and alarm unit. Optional communications and / or replay systems can be connected.

Core Module
The Core Module includes all key components necessary for data acquisition and processing.

Audio Modules
Audio Modules (IP-based) capable of converting bridge audio, VHF radio and telephone communication into a digital audio stream.

NMEA Modules
NMEA Modules (IP-based) merging and converting of up to 5 serial interfaces into a network protocol.

External Data Acquisition
Digital and analogue interfaces will be installed outside the Data Concentrator where required. They are rail mounted and can be placed in an existing console or in a separate housing (Interface Extension Box).

Final Recording Medium
The Final Recording Medium is a fire resistant and pressure tight storage medium to store recorded data as required by the IMO. The capsule is resistant against shock, penetration, fire, deep sea pressure and immersion. The Final Recording Medium includes:
- Protected memory capsule with 4 GB flash memory for 12 hours recording time
- Mounting unit

Operation
The operation is done via the RADARPILOT 1x00. All connected Radarpilots are able to display alarms and start the incident backup function (ensure recorded data of last 12 hours).

Replay Station
The replay station is an optional PC (software is part of VDR) to download and display the recorded data from the VDR. The replay software is based on ECDIS and visualises the information graphically and alphanumerically in separate windows.
Standard Configuration

Core module with
- Local flash memory 16GB for redundant backup / parallel recording
- USB stick 8 GB for backup / parallel recording incl. fast retrieval functionality
- 2 built-in audio channels for VHF
- 2 built-in serial channels for AIS and NMEA
- Built in 8 port Ethernet switch
- NiMH battery pack

NMEA2net module
- 5 serial channels
- Ethernet and power connection to core module
- Extendable to max. 3 modules

2 x Audio2net modules
- Connection of up to 4 microphones each
- Merging of 4 audio channels into 2 tracks
- Ethernet and power connection to core module
- Extendable to max. 3 modules

Process DCU
- 4 analogue inputs
- 32 digital inputs
- Ethernet and power connection to core module
- Extendable to max. 3 modules

Standard Replay Software which requires a standard PC (windows XP or higher)

Final Recording Medium
- 1 x diving capsule with 4GB flash memory

Options
- Installation of VDR in a cabinet
- Additional process interfaces
- Replay system based on ECDIS (chart license)
- Remote Maintenance via SATCOM
- Extended storage capacity for FRM
- Long term recording functionality
- Project specific replay software
- Replay PC

Planning Data
Prior to the system delivery, technical details such as connected subsystems, number and type of interfaces and data telegrams require clarification.

Quotations
Binding quotations can only be issued after at least the general planning data are available, such as the number and type of sensors to be interfaced and the format of the used data telegrams. As long as these data are not available please use the VDR 4350 standard configuration for a budgetary quotation.

Delivery Time
The delivery time of the system will be typically 90 days after clarification of all technical details.