AIR TRAFFIC MANAGEMENT

SIGNAL MULTICHANNEL RECORDERS

Supplying ATM systems around the world for more than 90 years

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Neptuno recorders family allows the multichannel signal capture under analog and digital medium and phone or higher bandwidth.

**Neptuno family**

Neptuno recorders feature a wide variety of configurations to fit any requirement:
- Analog inputs/outputs with different bandwidths
- Digital inputs/outputs for ISDN lines
- Channelized E1 digital inputs/outputs
- VoIP digital inputs/outputs
- PBX
- Storage and backup on database
- Variety of storage devices
- KVM Local control
- Remote control by application or API
- Diversity of environmental, mechanical and electrical requirements

**Applications**

- Call centers
- Trading centers
- Internet telephony
- Off-line COMINT analysis
Technical characteristics

Recording (Playback)
Simultaneous recording and playback on all available channels.

Analog Inputs/Outputs:
- From 4 to 96 channels (*)
- Sample rate of 8,000 Hz
- Resolution of 8 bits per second
- Resolution of 8 bits per second

Analog Inputs/Outputs with telephone bandwidth:
- From 2 to 360 channels (*)
- Loop start, ground start, 2/4 wires E&M, voice channels
- Maximum input level 7.16 dBm @ 600 ohm

Digital Inputs/Outputs:
- ISDN lines both PRI and BRI interfaces. Support for CCS signaling is available (specially Q.931 and Q.SIG) for PRIinterface
- From 1 to 3 E1 lines (30 channels for line) (*) Also available for T1 lines
- Direct connection to multiplex services (radio links, command and control centers..)
- VoIP networking
- PBX (consult)

Compression and file format

Compression:
- PCM 16, 8 bits
- G.711: uLaw, aLaw
- G.726: ADPCM-IMA, ADPCM-MS

Format:
- .wav files

Storage
- Customizable storage capacity (*)

Backup copies:
- DAT / DVD-RAM / DVD-R / CD-RW Units
- Remote storage systems (NAS)

Server/client architecture
- Several recorders (servers) and control applications (clients) over data networks supporting workgroups and access control
- Resource management by user groups

Synchronization
- System clock: Synchronization by NTP protocol (Network Time Protocol)(*)
- Remote control library: synchronized recording/playback with external events. Examples: telephonic signaling, radar data.

Software
- Human Machine Interface (HMI). Control client in window environment, locally and remotely executable in Unix or Windows platforms
- Redundancy control client executable remotely in Unix platforms
- Library (API in C) for remote control over TCP/IP from Unix platforms
- Library (API in Java) for remote control over TCP/IP from any platform
- Unattended operation from startup by configuration file
- Trunking network integration
- Web Client for remote control
- Centralized management application (management of recorders sets)
- Remote monitoring of alarms using both SNMP and alarm port (Dry contact interface card)

Fault tolerance
Multiple fault-tolerance configurations supported:
Parallel system configuration:
- Redundant configuration 1+1
Components redundancy:
- Online storage redundancy
- Power supply redundancy
- Backup devices redundancy
- Dual LAN
Configurable generation of alarms and warnings

Electrical characteristics
- Power supply configurations: VAC/VDC.
- Maximum consumption: 460W.

Environmental and mechanical characteristics
- Temperature: +10 ~ +35°C
- Humidity: 8 ~ 90%
- Shock resistance: 10G max.
- Vibration resistance: 1.1G max.

Physical dimensions
- 19" rack installation, 3U: 450 mm x 132mm x 650mm (height x width x deep) (*)

Approvals
- CE Mark according to European legislation in force
- Fulfillment of ICAO international standards: “Investigation of Aviation Accidents and Incidents” established in the annexes 10, 11 and 13

System elements

Recorder
- "Neptuno” recorder with support for signal recording up to 320 channels (*) simultaneously under analog and digital medium and phone or higher bandwidth
- Applicable to all settings

KVM
- Switching device that allows local control of the recorder including screen, keyboard and mouse
- Applicable to all settings

Interface box
- Interface box for I/O signals to adapt impedances and protect the input channels from voltages, ring tones on telephone lines, over voltages or shocks that might occur in the input channels
- Applicable to configurations with analog lines recording

Playback and supervision workstation
- Auxiliary equipment that complements the installation of an audio recorder from the Neptuno's family offering an easy interface for remote locations. This unit allows the remote management and supervision of multiple recorders simultaneously, remote management of redundancy (if any) and the recovery and management of backup media
- Applicable to all settings
- Use recommended if remote management and supervision of recorders is desire

(*) Consult other capacities, configurations or measurements

VOICE RECORDER
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