Customer's communications

Digital Voice Communications

Response to your needs

Indra's SDC-2000 VCCS satisfies all the demands required to perform ATS control operations by means of a complete list of radio and telephony services, as well as implementing the necessary functions required to achieve an adequate level of performance.

Availability, reliability and performances are characteristics focused to satisfy the different customer's communications necessities within the AMS environment.

Flexible and distributed topology

The client/sAN architecture configured between CWPs and central equipment and the duplicated critical elements provide improved overall system availability, reliability and high performance.

The client/sAN architecture is user-oriented and the control of its own communications is guaranteed that occasional incidents have minimum impact on other parts of the system.

The architecture is designed to be easily adaptable to the requirements of every customer in any ATS environment (ACC, APP, TWR), and efficiently respond to any network change while maintaining constant high network performance.

Voice recording

Indra designs and manufactures signal multichannel recorders for civil and military applications.

Neptuno 3000 recorder family makes easy signal multichannel recording in strategic locations in a wide bandwidth, with telephone or video bandwidths.

Data are stored digitally for subsequent playback, transmission or database management software, several procedures to detect their later alteration.

Server/client architecture allows multiple exploitation with an adequate operation. Man-machine interface is available, with

a wide range of electrical, mechanical, visual and software procedures.

Neptuno 3000 recorders exhibit an extensive variety of configurations in order to address any requirement:

• Analogic inputs/outputs, several bandwidths
• Channelized E1 inputs/outputs
• Remote digital over IP inputs/outputs, eligible bandwidth and compression
• Store and backup on databases
• A variety of physical backup devices
• Local control by touch-screen TFT display
• Remote control by application or using software library

A variety of environmental, mechanical and electrical requirements.

AIR TRAFFIC MANAGEMENT
DIGITAL VOICE COMMUNICATIONS CONTROL SYSTEM

Welcome to voice and data integration with Indra SDC-2000 voice communications system. Based on proven technology from our commercial and civil established raceline, the SDC-2000 addresses the highest level of flexibility and scalability for any type of ATM environment solution.

The fully redundant architecture using Indra VCCS hardware and software platform, the SDC-2000 achieves the highest level of availability for the system.

Making easy the control

The operator touch panels are provided with high quality touch screen systems, offering the following features:

- Integration of radio and telephony services and location in one single screen
- Powerful and friendly graphic user interface
- Customized layout according to the user needs

Integration and interoperability

The SDC-2000 VCCS provides powerful integration and great interoperability capabilities:

- Interface to ATFM positions via FDP for sector reconfiguration
- Connectivity to A/V Value Networks
- Connectivity to PSTN

Facing operational changes

The SDC-2000 VCCS has implemented a powerful facility named accommodation (consolidation) that consists of the possibility to automatically reassign, at any moment, the current frequency and geographic obstacles. Therefore, several concentrators and centers can be placed in one area to operate at the same frequency with a small offset.

Integration into the VCCS SDC-2000 these functions are automatically available for transfer to the consolidated lines and other carrier systems.

Making the system grow up

Indra VCCS combines the advantages of every system scalability with the short term voice recording and playback.

4.0 Features

Choosing the best selection

The main goal achieved by CLIMA (a fully automated and ready-to-use selection strategy) is to provide the system with sufficient coverage in large areas with just one frequency plus a small offset in order to avoid possible interferences.

Enjoy system benefits

- Voice/data integration technology
- Network component sharing
- COTS extension
- High/low cost installation
- High availability
- Hot swapping and plug&play
- Easy maintainability
- Reliability
- High quality voice performance (low distortion and noise)
- Flexible operation
- Remote control and monitoring
- Short term voice recording and playback

How to manage the system

The management system makes use of the voice and data integration system ability to perform configuration, supervision, command and data exchanges by starting the same LAN with the VCCS.

Typical VCCS environment

The SDC-2000 has been continuously working to achieve goals of high-quality performance and traffic safety, following the international and domestic standards.

- The SDC-2000 central work position comprises of monitors and quality monitors.
- A high definition screen with with a wide range of options to handle radio and telephone functions, e.g. monitoring, voice recording,prints, etc.
- The main goal achieved by CLIMA (off-line) and BSS (Best Signal Selection) is to transfer the system with sufficient coverage in large areas with just one frequency plus a small offset.
- Hot swap and plug&play
- Easy maintainability
- Short term voice recording and playback
- Remote control and monitoring
- Dynamic configuration (from exterior)
- Instruction-coordination functions
- State advice
- Dynamic configuration advice
- Voice recording
- Dynamic configuration advice
- Voice recording

As mentioned above, the architecture of SDC-2000 hardware and software design contains all required elements and allows to comply with all the different aspects that guarantee the customer satisfaction.

Arbitrary resectorization

More attributes

- IP adapted automatic voice recognition
- Operation positions and external interfaces voice recording
- Instruction coordination functions
- Static configuration (BFSCH)
- Dynamic configuration (from exterior)

Supervision and monitoring features

- Voice/data integration technology
- Network component sharing
- COTS extension
- High/low cost installation
- High availability
- Hot swapping and plug&play
- Easy maintainability
- Reliability
- High quality voice performance (low distortion and noise)
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- Short term voice recording and playback

Measuring the system

To obtain maximum exploitation of the SDC-2000, several facilities are available which allows the customer obtaining statistical information, and collecting data and computer facilities. Some of these facilities are the following:

- Radio communication and call traffic
- Voice and data by interface and/or user
- Failure criteria
- Generation of alarms

Features

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As mentioned above, the architecture of SDC-2000 hardware and software design contains all required elements and allows to comply with all the different aspects that guarantee the customer satisfaction.

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applications.

Neptuno 3000 recorder family makes easy
signalling multichannel recording in analogic
and digital medium, with telephone or wider
bandwidth.

Data are stored digitally for subsequent
playback, transmission, routing or database
management (backing up records to
storage and retrieve later).

Voice recording

Flexible and distributed topology

The dual LAN architecture configured
between CWPs and central equipment and
the duplicated critical elements provide
improved overall system availability, reliability
and high performances.

The distributed and flexible architecture
ensures high reliability, improved overall
system availabilities and high performance.

The architecture is designed to be easily
adaptable to the requirements of every
customer in any AFS environment (ACC, ARTCC,
and efficiently respond to any network changes, while maintaining consistent
guaranteed reliability performance.

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**DIGITAL VOICE COMMUNICATIONS CONTROL SYSTEM**

**Introduction**

Welcome to voice and data integration with Indra SDC-2000 voice communications system. Based on the proven technology from our commercial and military established systems, the SDC-2000 achieves the highest level of flexibility and scalability for all types of ATM environment solutions. The fully redundant architecture using modern and reliable technologies guarantees internal networking and external connections via a wide list of voice protocols for high quality CO operation. The operator touch panels are provided with all required elements and allow the user to access to any telecommunication system scalability with the wide use of internal facilities are available which can be configured from exterior or technical. Adding the voice recording system benefits, the SDC-2000 guarantees internal networking and external connectivity via a wide list of supported interfaces.

**SDC-2000**

The SDC-2000 was designed to achieve the goals of high-quality communication, safety, and traffic efficiency. Following the European and/or international standards, the SDC-2000 control work is composed of modular and configurable components. Each work interface (WIF) offers all-in-one orchestration, voice/data and control sectors in the same LAN with the VCCS. The management system makes use of the voice and data integration system ability to perform configurations and supervision of the traffic control system. The system scalability with the wide use of internal facilities are available which can be configured from exterior or technical. Adding the voice recording system benefits, the SDC-2000 guarantees internal networking and external connectivity via a wide list of supported interfaces.

**Typical VCCS environment**

**Operational room**

- CWP
- Radio channels
- Radio sites
- Second CWP
- IP switches
- Gateway

**ACC/APP**

- Master clock
- Gateway
- Supervision and monitoring features
- Air Traffic Management
- Airborne equipment management

**Features**

- Dynamic configuration (from exterior)
- Instruction-coordination functions
- Voice recording
- Operational control and data exchanges by sharing command and data exchanges by sharing same LAN with the VCCS.
- The system scalability with the wide use of internal facilities are available which can be configured from exterior or technical.
- Adding the voice recording system benefits, the SDC-2000 guarantees internal networking and external connectivity via a wide list of supported interfaces.

**More attributes**

- Hot swap and plug&play
- Easy maintainability
- High quality voice performance (low distortion and noise)
- Easy and low cost installation
- COTS extensive use
- Dynamic configuration (from exterior)
- Instruction-coordination functions
- Voice recording
DIGITAL VOICE COMMUNICATIONS CONTROL SYSTEM

Introduction
Welcome to voice and data integration with Indra SDC-2000 voice communications system. Based on the proven technology from our commercial and well established Indra VCCS (Vehicular Communication Control System), the SDC-2000 achieves the highest level of flexibility and performance for all types of VCCS environment solutions.

The fully redundant architecture using multiples paths allied to the proven design and reliable components provides a reliable access to radio and telephone services, operator in a very intuitive way an easy configuration.

The SDC-2000 VCCS has integrated a powerful facility named sectorization (selector) operation that consists of the capability to dynamically realign traffic at any moment to the best suited geographic distribution. Therefore, several traffic conditions and changes can be simulated in one area to operate at the same frequency with a small offset. Integrating to the IEs, SDC-2000 features are systematically available for the following traffic sectors:

- high quality CTC voice performance (low latency and signal)
- remote control and monitoring
- Short term voice recording and playback

SDC-2000 control work position comprises all required elements and consists of user facilities to different operational levels in order to guarantee the customer satisfaction.

Making easy the control
The operator control panels are provided with high quality CRTs touch screens of offering the following features:

- Integration of radio and integrated services and location in one single screen
- Powerful and friendly graphic user interface
- Customized layout according to the user needs

Integration and interoperability
The SDC-2000 system provides powerful integration and great interoperability capability:

- Voice Interface to PSTN via TDM
- Compatibility to VCCS
- Connectivity to PSTN

Faced operational changes
Making the system growing up
Indra VCCS combines the advantages of easy system scalability with the work of interconnected and redundant systems, which results in substantial cost savings in operation and maintenance.

How to manage the system
The management system makes use of the voice and data integration system ability to perform configurations and supervision of the entire system, in any area, at the same time.

The management system can be configured depending on the type of supervision functionality to be included in the system (depending on the technology).

Typical VCCS environment

Features
Supervision and monitoring features
- Voice/data integration technology
- Network components sharing
- CTC extension use
- Easy and low cost installation
- Realizing system
- High availability
- Hot repair and productivity
- Easy maintainability
- Reliability system
- High quality voice performance (low latency and signal)

Measuring the system
To offer accurate information and complete the SDC-2000, several facilities are available which allows the system to obtain real-time monitoring and control features. Some of these facilities are the following:

- Radio communication and call traffic
- Manual and automatic operation and usage
- Failure detection
- Generation of alarms

More attributes
- E2P adaptable automatic reconfiguration
- Operator positions and external interfaces voice recording
- Instruction coordination (radio)
- Static configuration (EPROMs)
- Dynamic configuration (from external)

Availability for the system.

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Response to your needs

Indra’s SDC-2000 VCCS satisfies all the demands to perform ATC control operation by means of a complete list of radio and telephony services, as well as implementing the supplementary services required to enhance an adequate level of service. Availability, reliability and performances are characteristics focused to satisfy the different customer’s communications necessities within the ATC environment.

Flexible and distributed topology

The client/server architecture configured between the central equipment and the duplicated critical elements provides an overall system availability, reliability and high performances. The distributed and flexible architecture are centered on the own protection and the control of its own communications, in guarantee that occasional incidents have minimal impact on other parts of the system.

Voice recording

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• Analogic inputs/outputs, several bandwidths
• Channelized E1 inputs/outputs
• Remote digital over IP inputs/outputs, eligible bandwidth and compression
• Store and backup on databases
• A variety of physical backup devices
• Local control by touch-screen TFT display
• Remote control by application or using software library

Voice recording

SADC 3000 recorder exhibit an extensive variety of configurations in order to address any requirement:

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Performance

Server/client architecture allows multiuser exploitation with various clients operating in parallel. There is a wide range of electrical, mechanical, fault tolerance and redundancy configurations.

AVTRAFFIC MANAGEMENT

DIGITAL VOICE COMMUNICATIONS CONTROL SYSTEM

Supplying ATM systems around the world for more than 30 years