Voice Line Card™

Voxtronic Join™ - Gateway for analogue technology

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THE MAIN POINTS AT A GLANCE

- Use of existing infrastructure
- Supports many operating modes
- Documentation and voice recording at the gateway
- Reduction of bandwidth
- Dislodged operation
- Economics

Introduction

Voice Line Card ™ is a special Voxtronic join ™ gateway to connect analog interfaces to a VoIP network.

Voice Line Card ™ presents on the analog side, a number of operating modes, which allow different types of analog devices to be connected. Special features of operating modes are transparently communicated and interpreted.

The use of existing technologies, and their combination with a modern VoIP infrastructure, making the Voice Line Card ™ to a powerful component of modern IP based communication systems.

Use Of Existing Infrastructure

Depending on the requirements of the customer's infrastructure the Voice Line Card™ connects different technologies together. Information's from the analogue interfaces and devices connected to the gateway are accepted, translated and enriched by the gateway. In this way, information's, which are provided by the use of individual analogue operating modes, are forwarded to all communication subscribers via IP.

Voice Line Card™

smart connecting

Supporting Numerous Operating Modes

Voice Line Card™ supports numerous operating modes. Through its dynamic structure, new technologies or special adaptations of operating modes on local conditions can be performed easily.

Local battery and tunnel emergency call

Voice Line Card™ can connect actively, phones with local battery and tunnel emergency equipment based on local battery, using VoIP. For generating the ringing, an external ring tone generator via contacts is driven. The geographical data of the tunnel emergency call can be transmitted via an RS232 interface to the Voice Line Card™.

Analogue radio and digital radio

Radio systems can be connected via 2-wire or 4-wire to the Voice Line Card™. The PTT button is triggered via contacts or by tapping. The assignment of the channel is detected via digital inputs and switched via contacts. Additional information about digital radio (e.g. TETRA) can be transmitted via RS232 or RS485 interfaces to the Voice Line Card™.

VARIOUS INTERFACES

Analogue train radio and trunked radio

The connection of analogue train radio or trunked radio systems based on the same interfaces as those of the analogue radio. The control and transmission of additional data occurs in this case not via contacts but completely via RS232, RS422 or RS485 interfaces.

Status information's and alarm contacts

Voice Line Card™ provides digital inputs and contacts for each channel. These can be used for example for alarm contacts, or on / off and toggle switches.

Public address system and acoustic irradiation

Voice Line Card™ also supports electroacoustic systems (ELA). Unidirectional (EL) and bidirectional (WL) directed loudspeaker systems are connected via 2-wire or 4-wire interface. The amplifier and the contacts are detected via the digital inputs and switched via contacts.

Public telephony and business telephony

Commercially available analogue telephones (PBX, BASA) and analogue trunks (PSTN) are supported by Voice Line Card™ with FXO (Foreign Exchange Office) and FXS (Foreign Exchange Station). Features such as CLIP, CLIR, COLP, etc. are just as transparently forwarded as DTMF tones and line identifications.

Passive interface connections

As a separate operating mode Voice Line Card™ can be passively switched on analogue communication lines. This high-impedance type of connection is usually used for the pure voice recording, as hereby no impact is made on the existing line.

Documentation And Voice Recording At The Gateway

All communications which are handled via Voice Line Card™ can be right at the gateway, regardless of the connected and used technology, recorded and be used in a court of law.

USABLE IN A COURT OF LAW

Depending on safety requirements, records can be encrypted and compresses. Records can be automatically moved to another system or deleted after a defined time, if they are not relevant.

Specific information's, which will be integrated into the recording by the system, prevents undetected spoofing in case of transferring call recordings to an external person.

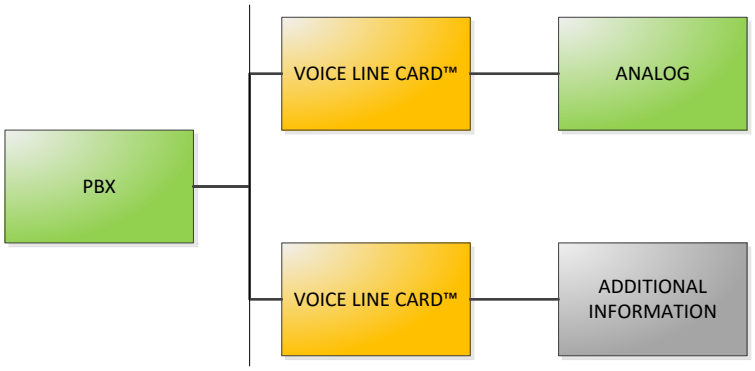
Data Compression

By using a bandwidth optimized VoIP codec all Voice Line Card™ variants need in the transmission of communications a very low bandwidth in the network. This reduces the demands on the enterprise network infrastructure with increased speech quality. Depending on which technology is connected to Voice Line Card™, signals can be transmitted up to a quality of 8kHz.

HIGH VOICE QUALITY

Dislodged Operation

The use of a Voice Line Card™ is not bonded to the location of a terminal. The advantage of a Voice Line Card™ is that both functions and interfaces can be summarized and interpreted from separate locations. These can be geographical data as an example, which are provided through a remote interface or the information of a telephony system (PBX) to filter determine communications directly at the gateway. The use cases as diverse as our customers.



Example of a dislodged operation of a Voice Line Card™

Central Management

The central administration of all Voice Line Card™ variants results in an extensive reduction of administrative effort. All Voice Line Card™ variants, which are connected to the infrastructure, are managed and configured from a central graphical user interface (GUI).

In addition, all components provide their current operating status, problems and information also at this central point. For the administrator, therefore reducing the administration effort to a minimum, since he can perform all the necessary work centrally.

RESOURCE-SAVING

By using a central software repositories Voice Line Card™ can also be centrally supplied with patches or updated software.

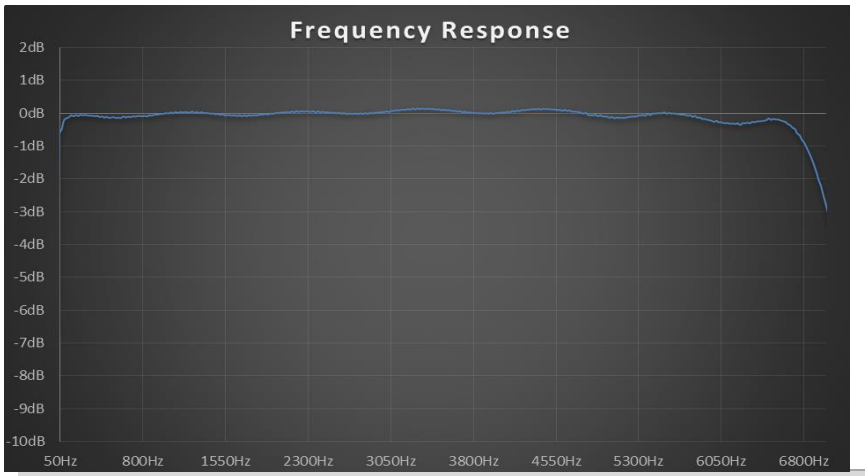
The central Inventory provides the administrator with a detailed overview of all operating components and can be used as a basis for a system overview

Features

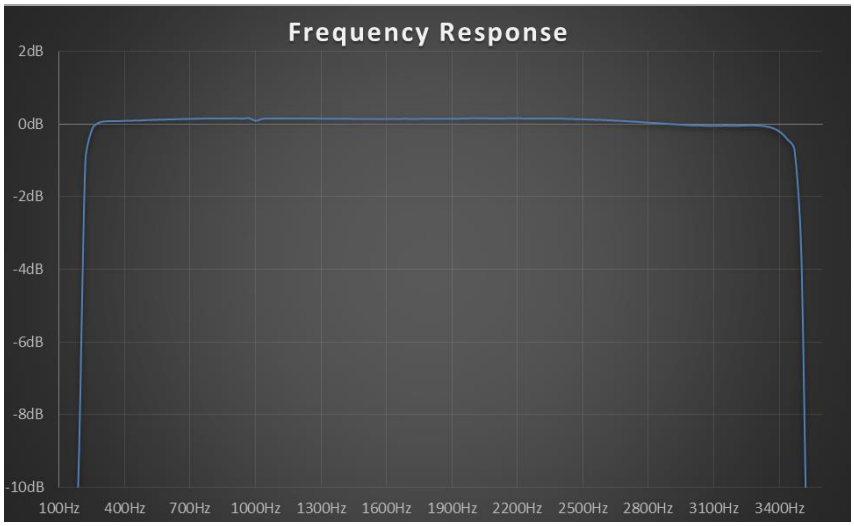
2-Wire Interface	2-wire interface full duplex
4-Wire Interface	4-wire interface full duplex
Acoustic Echo Canceller	Reduction of acoustic echos
Adaptive Jitter Buffer	Buffer against loss of RTP-packages
Automatic Gain Control	Automatic adjustment of volume
CallerID	Detection of caller number id according to ETSI
Center Tapped Interface	Interface for active analog Connections with symmetric center tapping
Codecs	Support of a large variety of VoIP Codecs
Comfort Noise Generation	Erzeugung von Grundrauschen bei Stille am Eingang
DTMF Detection	Detection of DTMF-Signals on the analog interfaces
DTMF Relay	Weiterleitung von über RTP empfangenen DTMF-Tönen
DTMF Generation	Generation of DTMF-Signals on the active analog interfaces
Echo Cancellation	Reduction of Echos according to Standard G.168-2002
FXO/FXS Interface	Interface for active analog Connections
Gain Control	Manual gain control
High Impedance Interface	Interface for passive für passive activation of analog connections
Line Break Detection	Recognition of wire interruptions on the analog interface (FXO)
Noise Reduction	Suppression of noise
Paket Loss Concealment	Correction of package loss
Short Circuit Detection	Short circuit detection on the analog interface (FXO / FXS)
Silence Suppression	Silence suppression of RTP-Packets
SIP Info	Transmission of additional data
Voice Activity Detection	Detection of voice activity on the audio input
Voltage Level Measurement	Detection of the actual voltage level on the analog interface (FXO / FXS)

Frequency Response

The following tables show the frequency response typical deviations from the signal on the audio interface.



2 Wire Full Duplex



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4 Wire Full Duplex

Applications

PA Systems	Integration of PA systems within a VoIP PABX
Fire alarm system	Notification of status from a fire alarm system to mobile users
Railway	Integration of railway specific infrastructure
Radio systems	Integration of radio systems within PABX infrastructure

Technical Data

Case	
Case	19" 3U Subrack 133mm x 483mm x 435mm (H x B x L)
Power Supply Voltage	48VDC / 24VDC

Power Consumption	Max. 100W per 3U Subrack
Maximum Input Current	Max. 6,5A @ 24VDC
Ingress Protection Rating	IP20
Operating Temperature	0°C – 55°C
Humidity	0% - 95% not condensing
Channels	16 per 3U Subrack

Analog

Impedance	600Ohm
Connections	8x SubD25 Plug, 8x SubD25 Socket, 16x RJ45
Frequency	300 – 3.400 Hz @ 2 Wire Fullduplex 50 - 8.000 Hz @ 2 Wire Simplex and 4 Wire Fullduplex
Output power	Max. 3dBm
Center Tapping	Voltage 12V – 52V Max. Current 100mA

VoIP

Acoustic Echo Chanceller	Max. 128ms
Jitter Buffer Length	300ms
Codecs	G.711 G.722
	G.723.1 G.729 Annex A & B
	Opus
Comfort Noise Generation	ITU G.711 Appendix 2
Echo Chanceller Length	Max. 64ms

Output

Maximum Switching Voltage	60VDC / 75VAC
Minimum Switching Voltage	100µV
Maximum Switching Current	1A RMS
Minimum Switching Current	10mA @ 20mV
Relay Type	SPDT with 3 Contacts (Opener & Closer)

Input

Maximum Input Voltage	52VDC
Minimum Input Voltage	5VDC
Maximum Input Current	9mA
Input Type	Potential free

Supported Standards

Standards	DIN 41494 IEC 60297
	IEEE 1101 IEC 61587-3
	EN 50121-4:2006 IEC 68-2-38

	EN 60950-1/2003-03 IEC/EN 60664-1
	IEEE 802.3 Clause 25, Clause 31 IEEE 802.1D, P, Q
	ETS 300 659-1, 2 ETS 300 659-1 Annex C
	ES 201 235-3/2000 Part 3

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Communicate.
We back you up.

Voxtronic ist ein führender Anbieter im Bereich digitaler Sprach- und Datenaufzeichnung sowie Entwickler sicherheitsrelevanter Lösungen für Industrie, Wirtschaft und Behörden.

Weiterführende Informationen

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