virtuosis
by commend

Because Intercom doesn't stop at the hardware level

Software Intercom Server for virtualised IT platforms

Ready for Nutanix	Ready for VMware	Ready for Hyper-V	VoIP SIP	Ultimate availability	16kHz eHD Voice

Intercom Server as an app

The **world's first 100% software-based Intercom Server** VirtuoSIS by Commend is designed specifically to integrate seamlessly into the flexible, dynamic world of virtual IT environments.

It is here that the Software Intercom Server shows its true talents and great benefits: It has the same functionality as its hardware-based cousins at remarkably low investment and operating costs. As a "fellow inhabitant" of the virtual server landscape without the need for any separate hardware, VirtuoSIS is child's play to maintain and requires no extra personnel.

Embedded into the virtual server infrastructures, VirtuoSIS can take advantage of the usual extra-high backup and security mechanisms. This automatically ensures the essential high availability that has become a hallmark of Commend solutions.
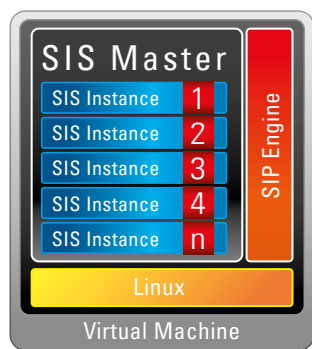
Features and highlights

- Suitable solutions for any system size
- Software Intercom Server based on Linux (Debian 10, 64 bit) for virtualised IT platforms
- Ready for use on virtualisation platforms vSphere by VMware, Hyper-V by Microsoft and Acropolis AHV by Nutanix
- Ultimate availability – ultimate security
- Flexible licensing options – expandable at a mouse click
- Intercom systems for up to 25,000 subscribers
- Supports IP-based, digital and analogue Intercom stations as well as Commend SIP stations and third-party SIP phones
- VoIP connectivity via SIP trunk to IP PBX servers and service providers
- VoIP connectivity to PSTN via SIP gateways
- IPv4 for IoIP®
- IPv4 and IPv6 for SIP clients/trunk connections (audio and video)
- Supports all Intercom functions and feature levels
- Networkable with all IP Intercom Servers via LAN or WAN
- Networkable with the Intercom Servers S3, S6 and GE 800 via NET
- IP interfaces: ICX over IPv4/IPv6, RTP, SIP over TLS and (S)RTP as well as IoIP®
- Supports Commend Solution Apps, e.g. ComPLC
- Convenient configuration via the software CCT 800

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World's first 100% software-based Intercom Server

Ready for connection of

– IP Intercom stations
– Commend SIP stations and third-party SIP phones
– 2-wire Intercom stations (with IP Intercom box ET 901-D)
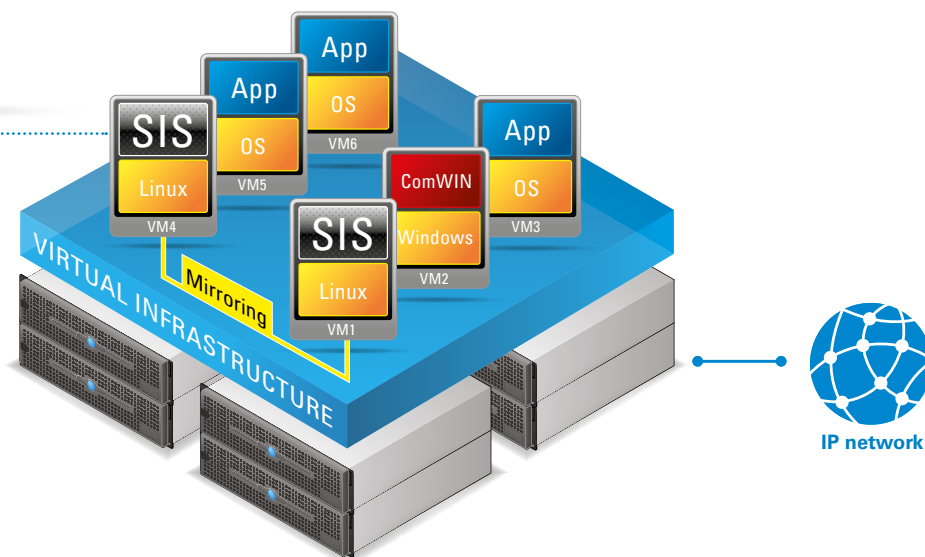– 4-wire Intercom stations (with IP Intercom box ET 901-A)

Highly efficient use of hardware resources

– **Optimum use** of existing resources: allows you to pool your common infrastructure resources as needed.
– **Lower costs** thanks to reduction of physical server infrastructures and improved server/administrator ratio.
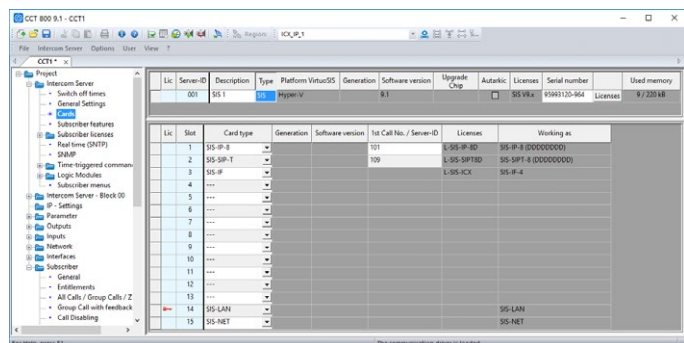
Green IT — low energy costs

– Optimised use of hardware resources
– Low power consumption
– Saves air conditioning energy

Central configuration

The configuration software CCT 800 allows central configuration and maintenance of VirtuoSIS as well as all subscribers and interfaces:

– Support of additional subscribers and performance features can be unlocked via software licences
– Optional remote maintenance support via internet

Ultimate availability – ultimate security (mirroring)

Entire virtual environments can be easily and reliably stored and migrated. This eliminates the need for planned downtimes and enables fast recovery after unplanned ones.
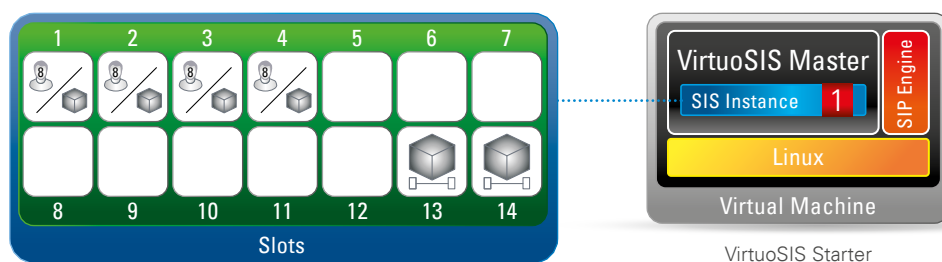
Flexibility for IT staff

– Only one IT infrastructure platform to maintain – keeps maintenance requirements low
– Hardware is easy to replace
– Different operating systems can be run on the same hardware
– Multiple virtual machines can be run on the same hardware

Licensing scheme

In order to offer suitable solutions for small as well as large systems, the Software Intercom Server is available in two expansion levels: VirtuoSIS Starter with one VirtuoSIS Instance and up to 32 IP subscribers or 24 SIP subscribers and VirtuoSIS Professional with up to ten VirtuoSIS Instances and 1,120 IP/SIP subscribers.
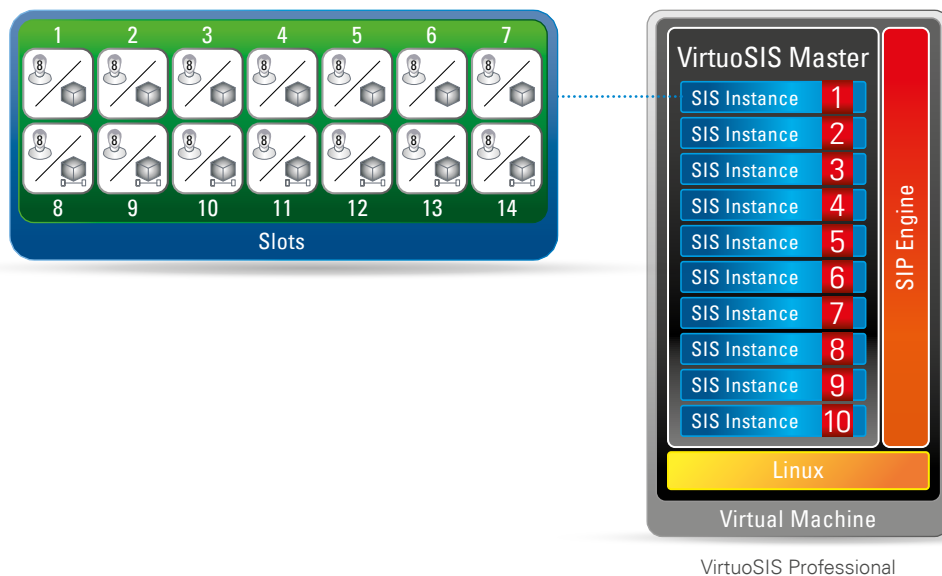
VirtuoSIS Starter

– for small systems
– upgrade option to VirtuoSIS Professional
– for up to 32 IP subscribers or 24 SIP subscribers
– 1 VirtuoSIS Instance per VirtuoSIS Master
– Slot 1 to 4 usable for subscriber and interface cards
– Slot 13 and 14 usable for interface and networking cards
– Slot 15 reserved for networking cards (NET or LAN)

VirtuoSIS Starter

VirtuoSIS Professional

– for medium-sized and large systems
– for up to 112 IP/SIP subscribers per VirtuoSIS Instance
– for up to 1,120 IP/SIP subscribers per VirtuoSIS Master
– up to 10 VirtuoSIS Instances per VirtuoSIS Master
– Slot 1 to 14 usable for subscriber and interface cards
– Slot 8 to 14 usable for networking cards
– Slot 15 reserved for networking cards (NET or LAN)

Using the upgrade licence L-SIS32-UPG, VirtuoSIS Starter can be upgraded to VirtuoSIS Professional at any time.
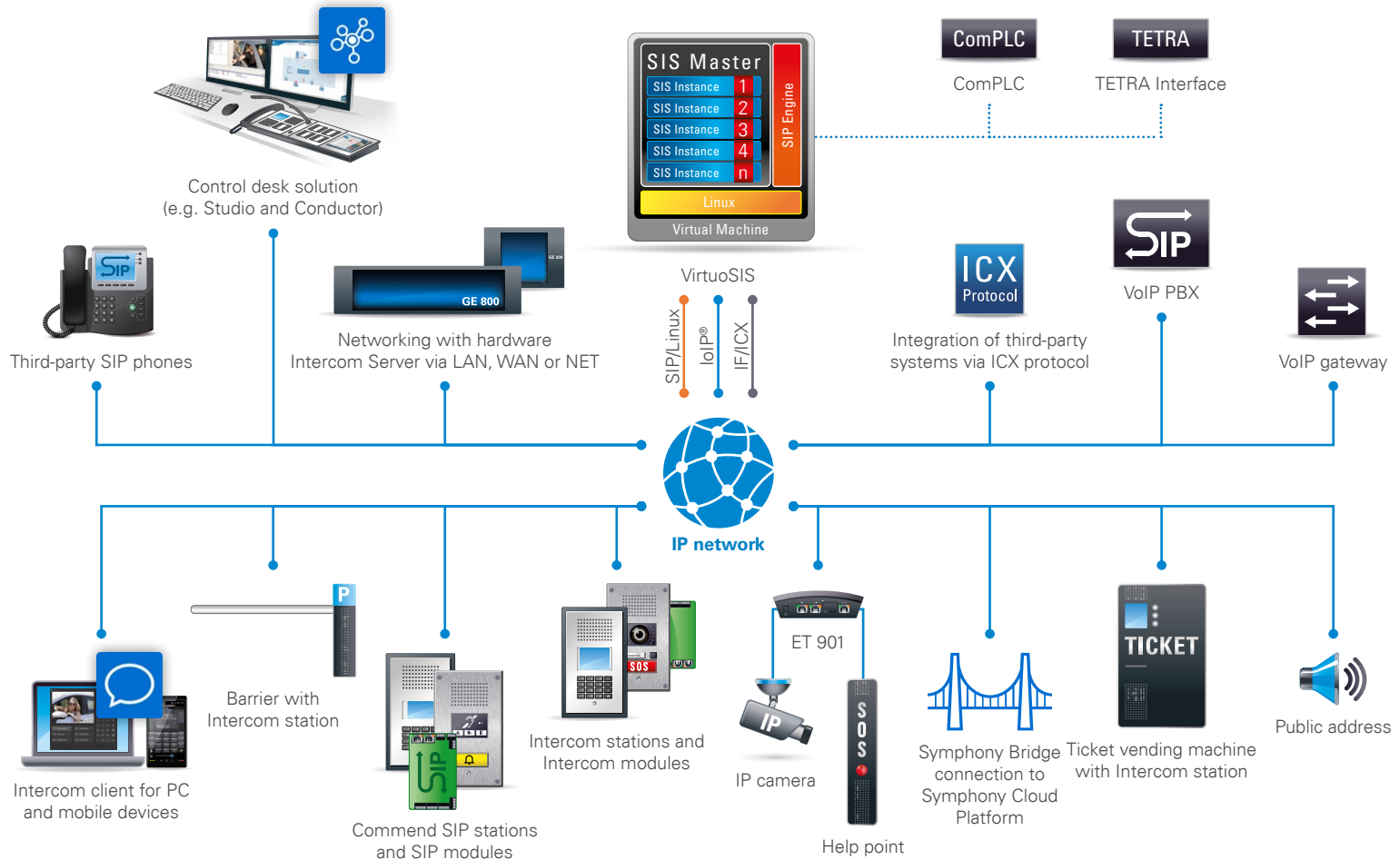
VirtuoSIS Professional

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Commend Intercom platform available for virtual IT infrastructures

Voice communication with 16 kHz sound experience

Commend's 16 kHz audio standard transmits voice communication, emergency calls and especially music **with previously (literally) unheard-of clarity**. At the same time, the IP Intercom Servers double as PA servers to enable the combination of **public address and Intercom on a single platform**.

Intercom solutions by Commend

Data networks enable the transmission of all kinds of data. For Intercom transmissions, Commend has developed a specific technology: IoIP®, short for Intercom over IP. As a logical further development of the Voice over IP standard, IoIP® provides **better speech quality and higher data security** and serves as the Commend standard for the professional integration of Intercom stations, control and display functions, networking of Intercom Servers, and especially for **security and communication solutions**.

Control desk solution
(e.g. Studio and Conductor)

Third-party SIP phones

Networking with hardware
Intercom Server via LAN, WAN or NET

VirtuoSIS

Integration of third-party
systems via ICX protocol

VoIP PBX

VoIP gateway

IP network

Intercom client for PC
and mobile devices

Barrier with
Intercom station

Commend SIP stations
and SIP modules

Intercom stations and
Intercom modules

ET 901

IP camera

Help point

Symphony Bridge
connection to
Symphony Cloud
Platform

Ticket vending machine
with Intercom station

Public address

100% flexible, 100% compatible

VirtuoSIS adapts easily and flexibly to your project requirements while remaining fully compatible with previous system generations. The server supports all IP-based, digital and analogue Intercom stations by Commend; third-party systems can be integrated easily via Intercom eXchange protocol (ICX).

Integration of Commend Solution Apps

Thanks to direct integration of any Commend Solution App into VirtuoSIS, no further hardware or software is needed. That's why it is easy to use third-party systems e.g. TETRA by simply licensing the appropriate interface on the Software Intercom Server.
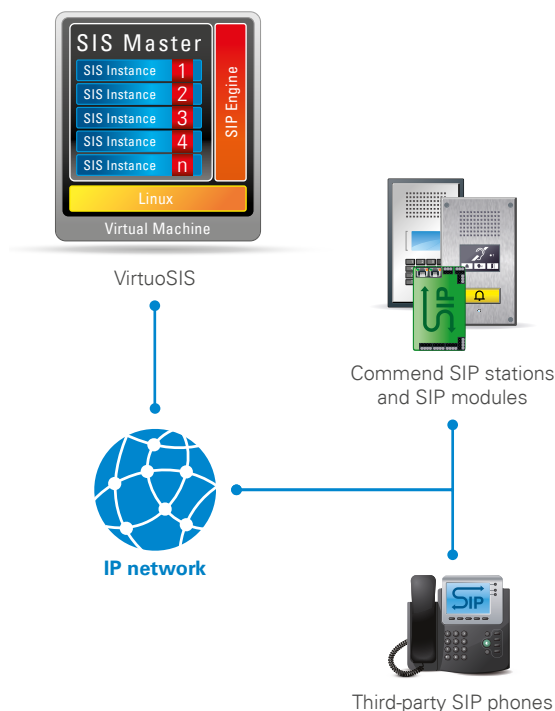
Highlights from more than 150 features

– Control desk functions
– Functional monitoring of microphone, loudspeaker and Intercom station lines
– Control functions (video, doors and gates etc.)
– Pre-recorded voice messages for customised announcements (waiting, information, alarm messages etc.)
– Audio monitoring for automated call triggering, e.g. at a scream or shout
– Audio recording interfaces
– All Calls and group calls with automated response function
– Conference calls with any number of subscribers
– Call forwarding
– Integration of third-party systems (OPC, TETRA etc.)
– Seamless VoIP integration via SIP
– And many more ...

Increased possibilities through SIP

As of VirtuoSIS version 4.0, it is possible to integrate SIP subscribers – first and foremost the versatile and multi-functional Commend SIP series – directly into the Intercom network. This makes it possible for a vast range of VoIP devices to communicate with each other over the Intercom network and to fulfill basic Intercom features.
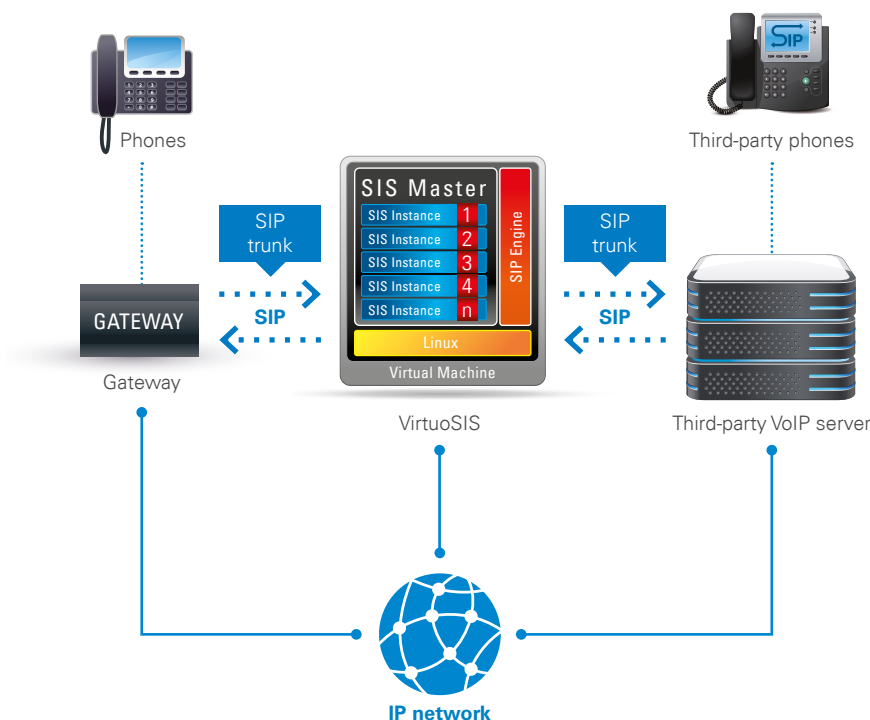
What is SIP-C?

Via the virtual SIP-C card, it is possible to use SIP clients (SIP-C) like third-party SIP phones and Commend SIP stations into VirtuoSIS directly. For this, only a simple IP network connection is necessary.

What is SIP-T?

Using a SIP trunk (SIP-T), VirtuoSIS can be connected to one or several third-party SIP servers. As soon as a SIP-T connection is established, there is an huge mutual benefit: all servers are able to use numerous of features and functions of the other one.

Highlights SIP-C features

– Line monitoring for SIP-T and SIP-C subscribers
– Triggering call requests, optionally with calm down message and/or with assigned video camera
– Door station with a contact triggered via DTMF
– Listening to radio channels
– Receiving All Calls, group calls and door ringing calls
– Participant radio conference
– Control desk function
– Receiving call requests and corresponding ICX messages
– OpenDuplex® conferences
– Protocols used for SIP-C: UDP, TCP and TLS
– Supported video codec: H.264/MPEG-4 AVC

Start smart with feature level A subscribers

– Ideal for small-sized systems
– Basic Intercom functions: privacy call, conversation, group ringing to group 0 and door opener via DTMF after-dialling
– Expandable to feature level B with the upgrade licence L-UG-8B or to feature level D with the upgrade licence L-UG-1D

Highlights SIP-T features

– Each channel can be assigned to a separate trunk
– Up to 8 SIP trunks per card
– The trunk automatically selects one of the free assignment channels
– Line monitoring
– Configuration of dial-prefixes, pre-dialling and code numbers for easy call numbers within the system
– Call history with up to 20 entries (0T)
– Basic Intercom functions (e.g. calls)
– Executive-secretary transfer chain
– Initiator conference
– Alarm receiver
– Control desk function
– Auto dialler mode
– Audio mixing for speech recording
– PA function (for phone call by direct outward dialling)
– Radio feed-in (4T, 6T)
– Protocols used for SIP-T: UDP, TCP and TLS
– Supported video codec: H.264/MPEG-4 AVC

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VirtuoSIS
Technical specifications

Installation

VirtuoSIS is available as template for simple deployment and installation in virtualisation environments.

Software requirements

Virtualisation environment:	**VMware vSphere** (min. version 6.5) **Microsoft Hyper-V** (Server 2016, Server 2019) **Nutanix Acropolis Hypervisor (AHV)** (AOS min. Version 5.20 LTS)

Hardware requirements

RAM:	1 GB for first VirtuoSIS Instance, 256 MB for each additional VirtuoSIS Instance
CPU:	min. 1 CPU core with 1 GHz, depends on hardware load capacity, 1 GHz per VirtuoSIS Instance (assuming average system load)
Storage space:	30 GB

Example:

VirtuoSIS Instances	1	2	3	4	n (up to 10)
Subscriber units	**112**	**224**	**336**	**448**	
RAM	1 GB	1.25 GB	1.5 GB	1.75 GB	+256 MB
CPU	1 GHz	2 GHz	3 GHz	4 GHz	+1 GHz
Storage space	30 GB	30 GB	30 GB	30 GB	30 GB

Network adapter

Network interfaces:	up to 2 network interfaces by default (expandable through licence)
Network segmentation:	**SIP/Linux** (br0), **IoIP** (Intercom stations and/or network) and **IF/ICX**

Activation

For activation and "live" operation, so-called key subscribers are required. Therefore, certain Intercom stations and/or network key subscribers (SIS-DONGLE) can be used. For further information about key subscriber requirements, see manual "**VirtuoSIS Setup Guide**".

Optional network key subscriber

If no appropriate Intercom stations are available for activation, it is possible to use optional network key subscribers instead.

SIS-DONGLE	VirtuoSIS network key subscriber

Concurrent calls

A single conversation may use one or more channels. For further information on the concurrent use of SIP audio channels, see manual **"Intercom Server Configuration"**. The following number of concurrent conversations and use of channels are possible:

IoIP conversations (audio)	max. 32 per instance
SIP conversations (audio)	max. 32 per instance max. 64 per master
SIP conversations (audio and video)	max. 64 per master
Concurrent channels in use	SIP channels (audio): max. 128 SIP channels (audio and video): max. 128
VirtuoSIS instances	1 VirtuoSIS master with max. 10 instances

Available licences

Base licences

Per VirtuoSIS Master, one base licence is required.

L-SIS-11	VirtuoSIS Base Professional licence version 11 for up to 10 VirtuoSIS Instances
L-SIS32-11	VirtuoSIS Base Starter licence version 11 for 1 VirtuoSIS Instance with up to 32 subscribers

IP licences

L-SIS-IP-2B	Licence for 2 subscribers, feature level B
L-SIS-IP-8B	Licence for 8 subscribers, feature level B
L-SIS-IP-32B	Licence for 32 subscribers, feature level B
L-SIS-IP-2D	Licence for 2 subscribers, feature level D
L-SIS-IP-8D	Licence for 8 subscribers, feature level D

SIP-C licences

L-SIS-SIP-8A	Licence for 8 SIP subscribers, feature level A
L-SIS-SIP-2B	Licence for 2 SIP subscribers, feature level B
L-SIS-SIP-8B	Licence for 8 SIP subscribers, feature level B
L-SIS-SIP-2D	Licence for 2 SIP subscribers, feature level D
L-SIS-SIP-8D	Licence for 8 SIP subscribers, feature level D

Interface licence

L-SIS-ICX	Single licence for ICX interface

SIP-T licences

L-SIS-SIPT8B	Licence for SIP trunk, 8 channels, feature level B
L-SIS-SIPT1D	Licence for SIP trunk, 1 channel, feature level D
L-SIS-SIPT8D	Licence for SIP trunk, 8 channels, feature level D

Network licences

L-SIS-LAN-4	Licence for 4 LAN connections
L-SIS-LAN-8	Licence for 8 LAN connections
L-SIS-WAN-8	Licence for 8 WAN connections
L-SIS-MI	Licence for more than 2 network interfaces
L-SYM-BRIDGE	Licence for Symphony Bridge

Upgrade licences

L-SIS32-UPG	Upgrade licence from VirtuoSIS Base Starter to VirtuoSIS Base Professional
L-UG-1D	Upgrade licence for 1 subscriber from feature level A, B or C to feature level D (for IoIP and SIP subscribers)
L-UG-8B	Upgrade licence for 8 subscribers from feature level A to feature level B (for SIP subscribers only)

We recommend a VirtuoSIS upgrade subscription so that the system always remains up-to-date and benefits from new features and improvements.

Further licences

In addition, various platform independent licences are available (e.g. Intercom Client, Mobile Client, Studio and ComPLC).

Quality tested. Reliable. Smart.

COMMEND products are developed and manufactured by Commend International in Salzburg, Austria.

AUSTRIA — OBSESSIVE ABOUT QUALITY

The development and manufacturing processes are certified in accordance with **EN ISO 9001:2015**.

A strong worldwide network

COMMEND is represented all over the world by local Commend Partners and helps to improve security and communication with tailored Intercom solutions.

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