



VoIP[®]

Much more than VoIP

INTERCOM over IP

by Commend

The latest generation in Intercom systems

 **omplus Teltronic**
Integrated Intercom Solutions





VoIP

Data networks allow transmission of manifold data. VoIP (Voice over IP) is the transmission of speech using Internet Protocol (IP), particularly in telephony.

Much more than VoIP

For professional security and communication solutions Commend provides the next step: IoIP® (Intercom over IP). Here we outline all the benefits that IoIP provides.

The future of Intercoms

Historically, only telephones used the IP network to transmit speech as a VoIP solution, today intercom systems can use the IP network not only transmit speech, but also take on increasingly complex control and reporting tasks.

The principle of IoIP, is that new IP enabled servers can be networked together so that large complex solutions can be offered both locally and remotely.



Speech-Image-Data over IP.

Security and process management enhanced by communication.

Commend – stepping into tomorrow's communication technology today.

Speaking and listening are the basic functions of any Intercom system. Crystal clear speech quality and voice transmission of up to 7 kHz guarantee that speech is perfectly understood. Yet Intercom has a great deal more to offer than just excellent speech quality.

Security through integration

Speech alone covers only a part of the total field of communication. Modern Intercom systems also enable events to be reported and processes to be triggered and controlled. For example, it may be used to report someone ringing at a door, whilst at the same time the Server switches on a camera to provide a picture on a monitor,

following which the corresponding door opening mechanism can be activated. These functions are made possible using input/output contacts or by means of V24 RS-232 interfaces.

See the total picture

Images are very important to enable a watchful eye on a security system. Besides the ability to display information on the Intercom unit displays, special and graphic user interfaces provide a continuous overall picture of all the processes within the entire system. Opened doors or reports from a building management system, for example, are displayed on interactive plans and the external outputs can be activated with a simple mouseclick.

IoIP[®] Technology

Networking Intercom Servers.

Networking via IP.

Often, various site locations, need to be linked together. Intercom terminals with digital 2-wire or analogue 4-wire technology can now be IP enabled by connecting to the IP Intercom Server. Commend has developed networking solutions for IP, ISDN, E1 and HDSL platforms.

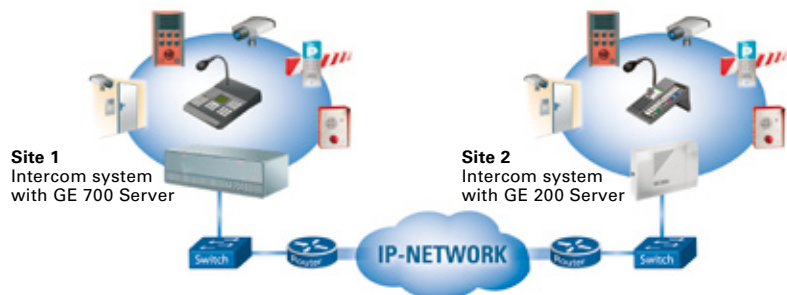
Networking Intercom Servers allows the local Intercom system to act as one large system across different sites. All specified functions are available across the entire Intercom network and programming is conducted centrally from a single location.

Intercom Networking via IP

Server Networking

Networking of Commend Intercom Servers via an IP-based network.

- IP network cards G7-CNET-LAN for GE 700 Servers and G2-CNET-LAN for GE 200 Servers.
- High-speed/high-performance connections. Standardised protocols. Central programming and remote maintenance via PC.
- Thousands of subscribers with uniform call number scheme.



Connecting Intercom terminals.

Intercom Terminals via IP.

After networking Intercom Servers via IP Commend introduced the IP Intercom box (ET 901). Using the ET 901 IP Intercom box, every Intercom terminal (including all programmed features) can be directly connected to the IP network. Every analogue or digital Intercom terminal from the whole Commend range is therefore IP enabled. Allowing

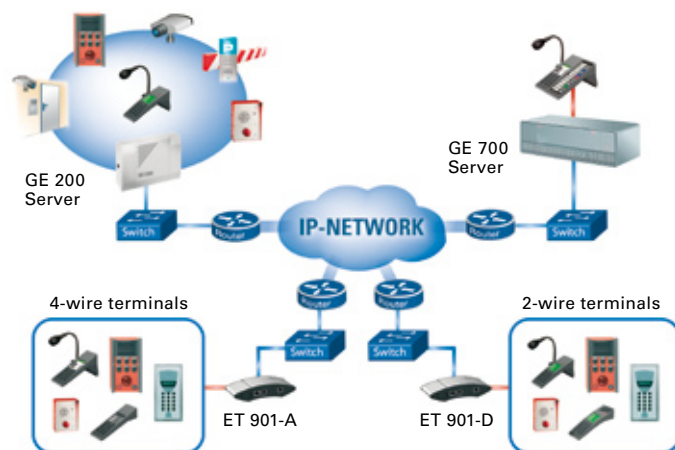
for the perfect solution on-site for every type of application. As most intercoms are equipped with local inputs and outputs, it is possible to create reporting and control functions alongside voice connections via the IP Network. ET 908 and new, future IP Intercom modules provide 'built-in' IP connection, ready to attach directly to the network.

Terminal Networking via IP

Intercom Terminal Connection

Intercom terminals in latest SMD design, tailored to specific application areas.

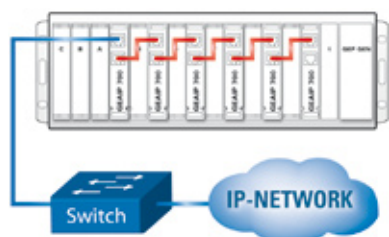
- Equipped with loudspeaker, microphone, keypad, inputs and outputs, as well as data interfaces and latest DSP features.
- Special IP boxes enable direct connection of the entire Intercom terminal range (ET 901-A for analogue / ET 901-D for digital) to IP-based data networks, a built in switch for connecting directly to additional IP appliances (e.g. cameras), and all DSP functions supported.



Cascading Server Ports

GE 700
with 6 x
G7-DSP-IP8

Switch



Intercom terminals are connected to the Intercom Server via the IP network. Just a single CAT 5 cable is used from the Intercom to a switch. This is made possible by the cascade arrangement of the subscriber cards on the Intercom Server. In this way, up to 48 Intercom terminals can be controlled using just one cable from the Intercom Server to the switch. Transmission to the Intercom terminals is carried out via the data network.

Application areas and benefits of Intercom over IP.

Practical use of lolP®.

Now that digital 2-wire and analogue 4-wire technology can be IP enabled without any problem, lolP® can be applied to the entire range of Commend Intercom stations. Connecting Intercom terminals by means of an existing IP network saves the need for extra wiring.

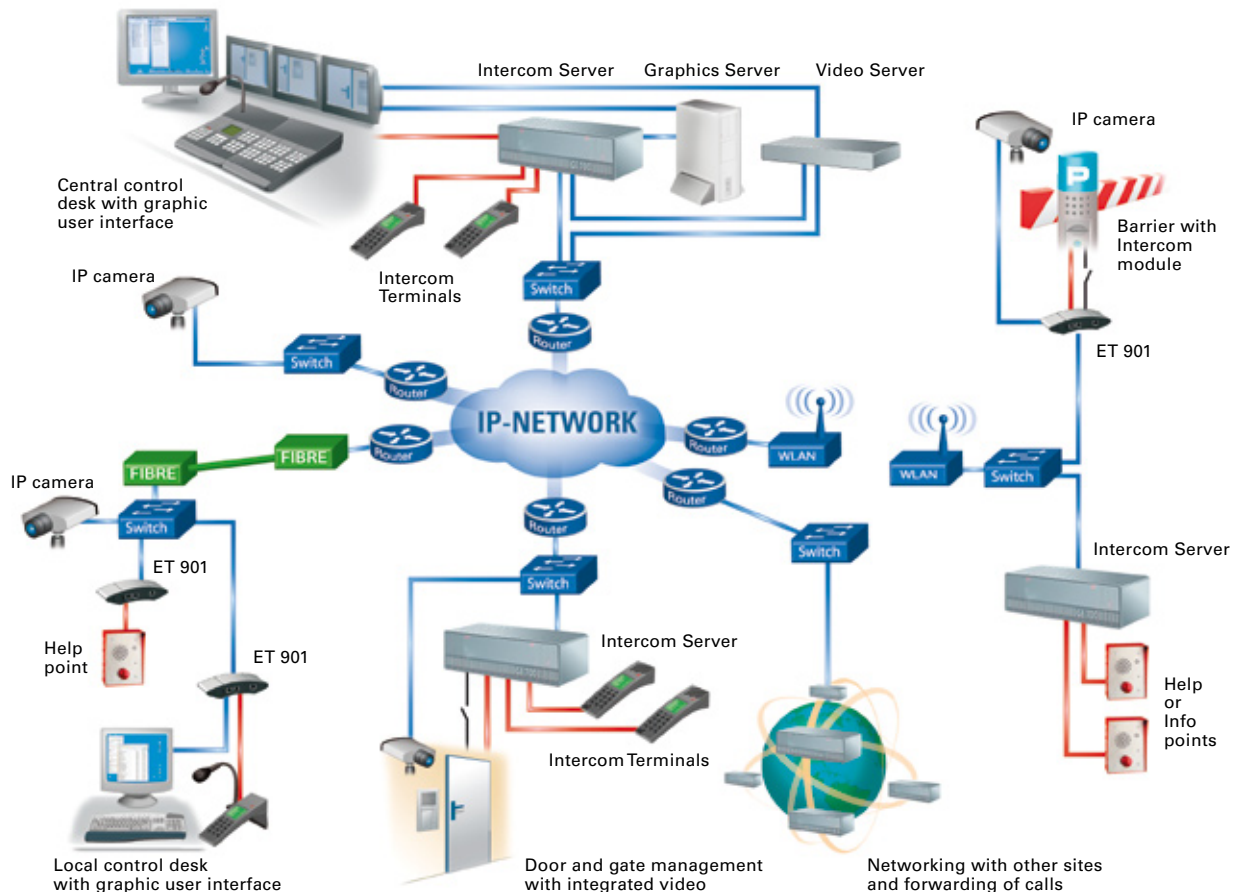
It is now possible to use Intercom terminals in places where previously issues relating to cost of new wiring prevented installation. Examples of applications, which can be found in most business sectors.

- Remote doors, gates and barriers – due to IP and WLAN, an lolP® door station can be connected.
- Administration areas and offices – Intercom stations can be connected to the existing IP network without additional wiring.

- Paystations, barriers and ticket machines in car parks and for public transport – an existing IP connection allows Intercom stations to be used, providing greater convenience for users.

These are just a few ideas where lolP® is able to provide new applications for Intercom and thus better communication for improved security. IP allows for bespoke solutions to be designed to meet customer specific needs

Speech-Image-Data Networks over IP



VoIP® – Crystal clear speech quality for optimum intelligibility

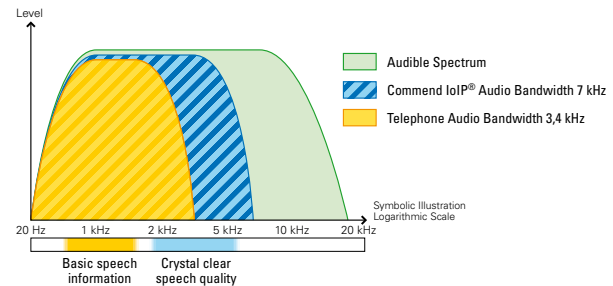
VoIP is the term used to define telephony solutions using IP networks. Telephony in general is restricted to an audio bandwidth of 3.4 kHz. This bandwidth is easily transmitted and the sound quality is adequate for telephone conversations. Quality problems arise with hands-free conversations, where background noises, which also largely lie in the audio bandwidth of up to 3.4kHz, considerably reduce voice intelligibility. VoIP® stands for Intercom over IP. Intercom was developed for hands-free communication and uses an audio bandwidth of 7 kHz. Voices are therefore clearly defined against background noises. Crystal clear voice quality gives a greater clarity of speech in hands free applications.

More than just speech

Another significant difference between VoIP and Intercom lies within the functionality. In contrast to telephony, Intercom solutions are designed for a multitude of extra functions.

These include control, reporting and visualisation. Inputs and outputs within the intercom system allow complex applications to be implemented in a simple and manageable manner.

Applications created for communication and security, for public transport, car parks and any place where there is a need for emergency calls, require high-performance functionality both at the individual Intercom terminals and at the central control desks.



Glossary

E1-STANDARD

Standardised interface for data and audio, frequently used for → media converters.

HDSL

High Data Rate Digital Subscriber Line: a powerful and cost effective means of transmitting digital data over copper wires.

Intercom OVER IP (VoIP®)

Intercom over IP: use of IP-networks for networking Intercom Servers with much better speech transmission than VoIP using a higher bandwidth of 7 kHz.

IP

Internet Protocol: asynchronous protocol for the package transmission of information through a common network, e.g. the internet (www – world wide web).

ISDN

Integrated Services Digital Network: internationally standardised system for digital telephones which defines both transmission and signalling.

LAN

Local Area Network: network limited to a small and closed environment, typically within a building, e.g. a company network. Usually a LAN is designed an IP-network.

MEDIA CONVERTER

Device that converts signals between two transmission means using different technologies, e.g. from E1 standard to fibre optic.

PACKAGE TRANSMISSION

A synchronous method for the transmission of data, mainly in networks. Datastreams are divided into packages, which are re-assembled in the correct order at the receiving end. Varying delays in the network must be respected.

QUALITY OF SERVICE (QoS)

Procedure in IP networks that prioritises certain connections and / or data packages by granting a defined delay and bandwidth. QoS is also used for the prioritisation of audio data in → VoIP®.

SIP

Session Initiation Protocol: network protocol for build-up of a communication session between two or more participants. The protocol is specified in RFC 3261. SIP is a frequently used protocol in IP-telephony.

S0

Network access interface for → ISDN.

SYNCHRONOUS DATA TRANSMISSION

All procedures where datastreams are transmitted continuously without interruptions.

TCP/IP

Transmission Control Protocol: protocol for secure data transmission using IP, e.g.

for downloads from the internet or for e-mails. Checks automatically if the data was transmitted correctly and repeats the transmission if problems have occurred..

UDP

Universal Datagram Protocol: protocol for data transmission without confirmation, e.g. used for speech transmission in networks.

VOICE OVER IP (VoIP)

VoIP is the overall term for telephony solutions via IP networks.

WAN

Wide Area Network: network limited to a defined environment, which can include several locations of a company, e.g. several LANs form a WAN.

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