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IoIP®

INTERCOM OVER IP

by Schneider Intercom

The latest generation of Intercom systems

The future of Intercoms – Intercoms of the future.

What were simply interphones until just a few years ago are now Intercom systems that not only transmit speech, but also assume increasingly complex control and reporting tasks. Central to these are networkable Intercom Servers. Add-on systems are integrated into a uniform operating logic, whilst the terminals become increasingly multifunctional.

The latest advance in this technological evolution is called IoIP® – Intercom over IP. In convergent company networks, based on internet protocol (IP), Intercom terminals can be connected directly and Intercom Servers are networked with one another. Data from external systems is integrated into the Intercom system, evaluated, processed and sent back out. All by means of IP.

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IoIP® Technology

Networking Intercom Servers.

Networking via IP.

What is often at stake is combining various locations, where Intercom terminals with digital 2-wire or analogue 4-wire technology are connected to the Intercom Server. Schneider has developed networking ideas for IP, ISDN, E1 and HDSL. Networking Intercom Servers means that local Intercom systems can act like a large Intercom system on a cross-location basis. All functions are available across the entire Intercom network and programming is conducted centrally from a single location.

Connecting Intercom terminals.

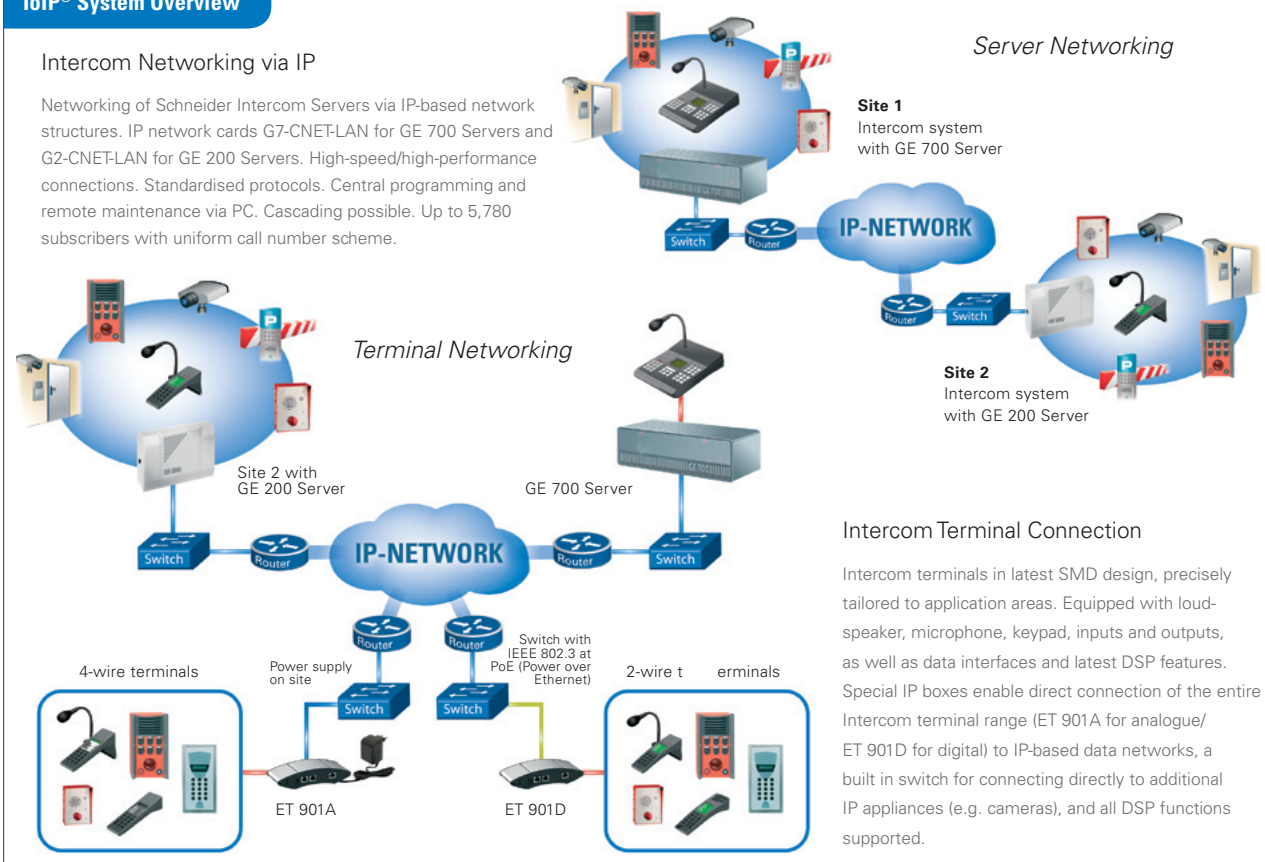
Intercom Terminals via IP.

The next logical step after networking Intercom Servers via IP is the IP Intercom box. Using the ET 901 IP Intercom box, every Intercom terminal including all its features can be directly connected to the IP network.
Every analogue or digital Intercom terminal of the whole range of Schneider Intercom terminals is thus IP enabled. This allows for the perfect solution on-site for every type of application. As most of them are equipped with local inputs and outputs, it is possible to create reporting and control functions alongside voice connections in a very simple manner.
Complete IP Intercom modules, which have IP ‚on board', complement the flexibility of IoIP®: ET 908 and new, future IP Intercom modules provide 'build-in' Intercom terminals, which are distinguished by their compact size.

IoIP® System Overview

Intercom Networking via IP

Networking of Schneider Intercom Servers via IP-based network structures. 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. Cascading possible. Up to 5,780 subscribers with uniform call number scheme.



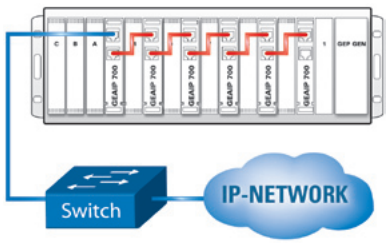
Intercom Terminal Connection

Intercom terminals in latest SMD design, precisely tailored to application areas. Equipped with loud-speaker, 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 901A for analogue/ ET 901D 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 goes 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.

The application areas and benefits of Intercom over IP.

Practical use of IoIP®.

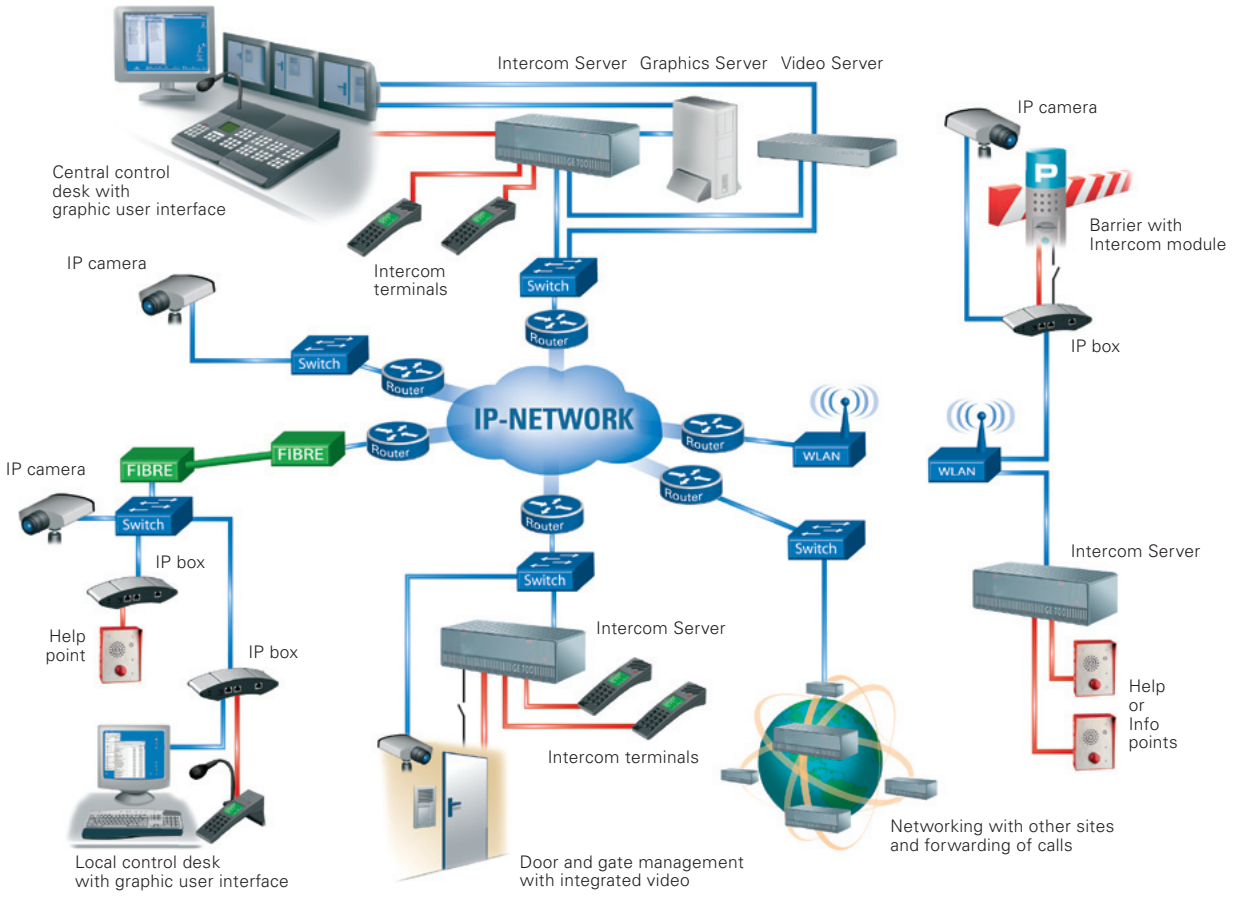
Thanks to the fact that digital 2-wire and analogue 4-wire technology can be combined without any problem, IoIP® can be applied no matter how or where Intercoms are used. Connecting Intercom terminals by means of an existing IP network saves the need for extra wiring.

Now it is also possible to use Intercom terminals in places where it was previously prohibited on grounds of cost or insufficient wiring. Here are some examples of applications, which can be found in any business sector.

- Remote doors, gates and barriers – thanks to IP and WLAN, an IoIP® 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 IoIP® is able to provide new applications for Intercom and thus better communication for improved security and convenience. All ideas for applications must be discussed at an individual planning meeting, in order to ensure a communication and security solution that is tailored to the customer's needs.

Speech-Image-Data Networks over IP



Speech-Image-Data Networks over IP.

Security and process management enhanced by communication.

Schneider – stepping into tomorrow's communication technology today.

Speaking and hearing 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.

Security through integration

Speech alone covers only a part of the total field of human communication. Modern Intercom systems also enable events to be reported and processes to be triggered and controlled. Reports from connected systems are displayed and these systems' functions can be controlled using the key-pad on the Intercom station. 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 at the door station. These functions are made possible using input/output contacts or by means of V24 interfaces.

See the total picture

Images are very important to keep an eye on the entire system. Besides the ability to display information on the Intercom terminals' displays, special central control desks and graphic user interfaces provide a continuous overall picture of all the processes within a central system and all connected systems. Opened doors or reports from a building management system, for example, are displayed on interactive plans and the external systems connected to the central system can be activated with a simple click of a mouse.

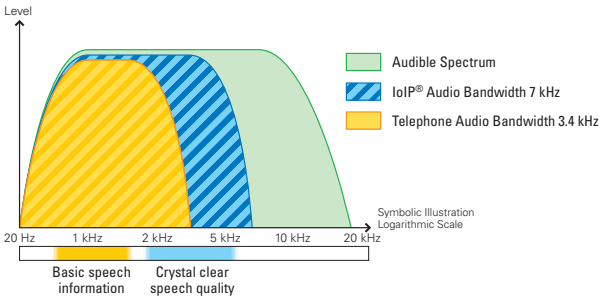
IoIP® (Intercom over IP) versus VoIP

VoIP is the overall term for telephony solutions via 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 3.4 kHz, considerably reduce voice intelligibility.

IoIP® stands for Intercom over IP. Intercom was developed for hands-free communication – even when the user is talking from some distance to the intercom terminal – and allows an audio bandwidth of 7 kHz and more. Voices can therefore be made out more clearly and can be clearly detected against background noises. Crystal clear voice quality, perfect intelligibility.

Another significant difference lies within the functionality. In contrast to telephony, Intercom solutions are designed for a multitude of extra functions. Above all these are control, reporting and visualisation functions. Inputs and outputs allow complex applications to be implemented in a clearly structured system, in a simple and manageable manner.

Especially those solutions created for communication and security in plant protection centres, 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, as well as the renowned reliability of Intercoms.



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 (IoIP®)
Intercom over IP: use of IP-networks for networking Intercom Servers with much better speech transmission using a higher bandwidth of 7 kHz.

IP
Internet Protocol: asynchronous protocol for the package oriented transmission of information (various data) 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 as 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
Asynchronous 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 → IoIP®.

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, uses IP for the information transmission, e.g. for downloads from the internet or for e-mails. Checks automatically if the data was transmitted correctly and repeats the transmission in case of problems.

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.

For further information on our products please also visit **www.schneider-intercom.de**.

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