SOPHO iS3000 Series
Integrated communication solutions for IP and TDM telephony

Key features
- Hybrid communication solutions for IP and TDM telephony
- Converged speech and data on a high performance platform
- Flexible migration to IP telephony
- Complete functional integration of TDM and IP telephony
- Proven TDM features on IP extensions
- Full functional integration of IP telephony and availability of networking features in SOPHO iSNet networks
- Optimum use of existing bandwidth in the IP network with the latest algorithms for speech compression
- Full support of IP communication servers
- SIP-based operator trunking
- SIP extension interface

Information and communications technologies are constantly changing. Speech and data networks are merging. Converged networks based on Internet Protocol (IP) pave the way for completely new and integrated speech and data applications. Migration strategies must protect existing equipment and be open for future communications requirements.

As an IP enabled PBX, the SOPHO iS3000 combines packet-switched IP and traditional circuit-switched TDM (Time Division Multiplex) telephony on one platform. That means: openness for the future plus a maximum of investment protection for existing terminal devices, applications, and infrastructure.

Thanks to state-of-the-art IP enabling technology in the SOPHO iS3000, all of the proven features of traditional TDM telephony are available for IP extensions as well. The SOPHO iS3000 provides much more than just Voice over IP (VoIP) in corporate networks: communications solutions using the SOPHO iS3000 are a first step towards high-performance Voice over IP. But that is not all: SOPHO iS3000 gives the ICT and corporate management complete freedom in implementing an IP migration strategy. Since the same performance is available for IP and TDM extensions, you determine the speed and the extent of your IP migration.
Next steps into IP migration are adding an IP communication server to your network for expansions, true IP peer-to-peer voice communication or SIP-based operator trunking.

**SOPHO iS3000 Series**

The SOPHO iS3000 series of IP enabled PBXs addresses organisations looking for the highest possible degree of flexibility in implementing their IP migration strategy.

All five models of the SOPHO iS3000 IP enabled PBX have a uniform hardware architecture and a common software platform. This guarantees high investment security even when a dynamic market requires you to adapt your communications infrastructure to changing business processes and corporate structures.

The SOPHO iS3000 Series' Hybrid Communications Platforms and its system software Call@Net Release 3 has full IP capabilities in all expansion phases.

**SOPHO Call@Net**

Call@Net is the call processing software for the SOPHO iS3000 series. Customers already operating a SOPHO installation and using SOPHO SSW 805 or SOPHO Call@Net Release 2 can upgrade an existing SOPHO installation to Release 3 of the software, depending on their IP migration strategy.

**SOPHO Call@Net Release 3 - Key features at a glance**

- Networking with all well-known TDM features over IP infrastructure
- Telephony for end users over IP infrastructure (IP-to-the desk)
- Telephony without terminal devices by means of IP soft phones
- Fully compatible with present and future SOPHO applications (Management@Net, MyOffice@Net, MyMail@Net)
- SIP-based extension and trunking

**IP migration in practice**

The SOPHO iS3000 combines circuit-switching TDM and packet-switching IP telephony on one, integrated platform. This gives you the highest degree of installation design options when realizing your IP migration strategy. For example, you can integrate TDM and IP phones in one uniform numbering scheme, compile them in groups (such as query groups, ACD groups), or administer them jointly using uniform tools like Management@Net. The complete functional equality of TDM and IP telephony lets you migrate to VoIP step by step according to the individual depreciation of your existing terminal devices. Moreover, you can take the existing or future voice capability upgrade of your data network into account. Compared to a mere IP solution, the investment when migrating to VoIP is considerably lower. Not to mention the substantially reduced risk of having to rearrange your existing data communication infrastructure.
In-System Gateway (ISG)

Every SOPHO iS3000 IP enabled PBX with Call@Net Release 3.1 onwards supports an integrated gateway – the In-System Gateway (ISG). The ISG is a standard board for the SOPHO iS3000 that supports IP trunking as well as IP extensions by means of a plug-in working with up to 30 channels simultaneously. With this ISG you can integrate IP extensions in the local network (LAN) and also Remote IP extensions and SOPHO iS3000 communication systems over a wide area network (WAN). The ISG is integrated into the PBX requiring no additional space and no separate power supply.

With flexible scalable support for IP trunking as well as IP extensions, the ISG offers you a gradual and demand-oriented IP migration strategy. There’s no need to tie up capital with premature investments in not-yet-needed hardware or software.

Media connections are established by IP enabling over H.323 and SIP-based calls between the IP terminal points and the iS3000. The features of the iS3000 are provided to the callers by the iTMP protocol, the IP variation of the proprietary PBC terminal protocol TMP.

IP trunking with full iSNet functionality

Using IP trunking the SOPHO iS3000's ISG supports the necessary gateway functionality to network the SOPHO iS3000 IP enabled PBX over IP based WANs. Up to 30 simultaneous media connections can be realised per ISG.

Automatic ring back on busy, rerouting calls, or displaying a callers name and number: all features of the SOPHO iS3000 are, of course, also available to callers over the IP based WAN – on ErgoLine@Net IP phones and on traditional business phones of the proven ErgoLine terminal series. This is done by providing the features of SOPHO iSNet over the SOPHO iPVN network.

Enterprises and organisations with SOPHO PBXs can set up a corporate network based on a Virtual Private Network. SOPHO iPVN allows the use of the IP network for transmitting PVN signalling by means of the Ethernet 10/100 baseT interface included in the SOPHO iS3000. With less than 1 Kbit/s SOPHO iPVN requires very little bandwidth for the transmission of the SOPHO services. The routing of speech data and the signalling are carried out over the IP network.

SIP operator trunking

Proof of the openness of the SOPHO platform is the SIP-based trunk functionality supported on the In-System Gateway.

Interfacing to SIP-based operators offers cost effective trunking of voice calls.

The cost reduction is in general established by using the operators’ network and break-out gateways. Instead of using ISDN or analogue trunk lines for incoming and outgoing traffic, the SIP trunk is now used to interface the external traffic. At the same time the ISG can be used for IP extensions interfacing or IP networking to other SOPHO systems.

IP enabling of extensions with ISG

The ISG is a gateway for ErgoLine@Net IP phones. The ISG supports the simultaneous handling of up to 30 media connections. It generates and recognises multi-frequency dialling numbers needed, for example, to handle speech messages when voicemail systems are activated.

Since the IP end-points are addressed directly by the ISG, no gatekeeper is needed. An iTMP driver, installed on an external

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**IP enabled extensions on iS3000**

- **ISDN**
- **ErgoLine@Net terminals**
- **Branch office**
- **IP**
server or on the In-System Gateway, controls the signalling data between the SOPHO PBX and the IP phones within the scope of the IP enabling for extensions. Thus, the iTMP driver provides the well-known and proven SOPHO features for the ErgoLine@Net IP terminals.

Integration of fax and analogue terminal devices

To integrate analogue terminal devices, such as fax, analogue phones, and intercom systems, the IP adapter SOPHO IP-21, implemented over the Ethernet interface to the IP network, completes the portfolio. The hold, reroute, and callback functions are processed according to H.450 standard. Thus, these functions are also available for analogue extensions over the IP network. For fax-over-IP, only the actually used data is transmitted, requiring no more bandwidth than for usual compressed IP calls.

To offer high quality fax transmission between iS3000 network nodes, the T.38 fax protocol for IP is supported by the ISG.

SOPHO SIP extension

One of the benefits of using open standards within IP telephony is the use of SIP phones available in the marketplace.

Call@Net 3 software supports a SIP extension interface so that end-users can benefit from the SIP sets as available in the market. Fixed SIP phones as well as SIP-based softphones will give a freedom of choice to the user selecting the set on required price, performance and functionality.

Within the SOPHO product range SIP-based telephone sets are available offering ensured functionality and support.

SOPHO ErgoLine@Net IP phone

New technology, familiar workplace: staff are given a high-performance IP phone designed for business-applications which makes the change-over to the new technology really easy. The functional scope of ErgoLine@Net corresponds with that of the digital business terminal SOPHO ErgoLine D325. The ErgoLine@Net IP phone is also based on the well-proven user interface of the ErgoLine terminal series. Everything remains in its place — so every caller can immediately change over without costly training.

As an IP phone for IP extensions of the SOPHO iS3000, the ErgoLine@Net can be connected over an IP network to the central IP enabled PBX from any place. Since no expensive leased lines or RPMs (Remote Peripheral Module) are required, the IP phone ErgoLine@Net is a highly attractive terminal device for branch offices and teleworkers.

Moreover: Installation over the IP network is practically unlimited as to distance between the terminal device and the SOPHO iS3000.

ErgoLine@Net has a built-in Ethernet switch. A single wall socket is, therefore, sufficient for the telephony and data communication for comprehensive LAN or WAN connection. ErgoLine@Net supports the Power-over-Ethernet standard 802.3af, i.e. a line-fed power supply through the free spare pair of CAT5 Ethernet cables.

While the handling of speech data between the ErgoLine@Net IP phones and the SOPHO iS3000 is executed over the integrated IP gateway ISG, the iTMP driver installed on a PC or a server takes care of the multiplexing/demultiplexing of the TMP signalling for the control data. The allocation of the IP addresses to ErgoLine@Net IP phones and the ISG is carried out by the DHCP server or fixed allocations. All IP phones receive a configuration file, containing the IP address and IP port number of the iTMP driver, over the TFTP server.
Now, existing investments can be protected and the benefits of native IP telephony enjoyed at the same time and on the same network. The key to this transparent communication is adding an IP communication server to the iS3000 series PBX or iS3000 network. By adding the IP based Common Channel Interoffice Signalling (CCIS) networking protocol to PBC’s iSNet portfolio it enables iS3000 series PBXs and 2000 IPS/ SV7000 communication servers to communicate with each other over the same network.

CCIS is incorporated with the SOPHO IP communication servers and has been embedded in PBC’s Call@Net Release 3 software for the iS3000 series PBX. CCIS is designed to enable different types and sizes of businesses to combine IP telephony with a broad range of traditional voice features, such as automatic ring back, calling and called name and number display, call forward, follow me, message waiting and call intrusion, among many others.

The SOPHO 2000 IPS/SV7000 are IP communication servers that perform a similar call/data routing function as the SOPHO iS3000 PBX, but over the corporate intranet. Each 2000 IPS supports 100-1,000 IP extensions and one of the major advantages of a native IP environment is peer-to-peer telephony. This means that internal calls placed to anyone on the corporate network, no matter where they are located, are entirely free of charge. The SV7000 is suited for medium and large enterprises.

**SOPHO 2000 IPS/DM communication servers**

The SOPHO 2000 IPS (Internet Protocol Server) and SOPHO IPS DM (Distributed Module) are the ideal communication solution for small and medium-sized offices, and (remote) branch offices. It caters for both TDM and IP telephony and can support up to 1000 IP extensions.

The SOPHO 2000 IPS allows your small or medium-sized (branch) offices to take full advantage of all the benefits of peer-to-peer IP telephony, when you want it, while continuing to enjoy the hundreds of PBX features you’ve come to expect from Philips. Although the system fully supports native IP telephony, this is completely optional. The SOPHO 2000 IPS offers the utmost flexibility by providing the choice of time division multiplex (TDM) switching, pure peer-to-peer IP connectivity or a combination of the two, all in a single unit.

While the SOPHO 2000 IPS can function within and support a hybrid network, comprising traditional/analogue switching, IP/TDM/IP switching and pure peer-to-peer IP switching, users can continue to utilize their existing equipment while they phase in IP telephony and lay the foundations for future networks.

Designed to complement the IPS family, the SOPHO IPS DM (Distributed Module) supports the same features and functionality as the SOPHO 2000 IPS, but is tailored to meet different space requirements. The SOPHO IPS DM offers superior port density without compromising the IP extension capacity. Although the housing is different, it can accommodate the same cards and devices as the SOPHO 2000 IPS. The SOPHO IPS DM is made up of special 19” modules ideally suited for IT environments.
**SOPHO SV7000 IP communication servers**

SOPHO SV7000 is a total communications system platform that consists of modular core, and optional hardware and software components. The heart of the system is an IP-PBX and is based on a true Client-Server design architecture that does not require circuit switched common equipment hardware for support of analogue station or trunk circuit requirements. The platform offers a unique set of advantages to users seeking an advanced information system that is both flexible and dependable.

SOPHO SV7000 is targeted at medium, large and enterprise line-size customers. For customers with extremely large campus or multi-location requirements, multiple SOPHO SV7000 systems can be networked using powerful networking solutions. Users have access to more than 900 features that can enhance user productivity, reduce operating costs, and improve communication efficiency and many business applications.

SOPHO SV7000 supports inter-working with SOPHO iS3000 and SOPHO 2000 IPS and offers a high level of feature transparency. Therefore, Philips Business Communications offers a smooth migration to IP networking to customers already using these platforms.

**CCIS based Private Networking**

SOPHO iSNet enables the iS3000 Hybrid Communication Systems and the SOPHO IP Communications Servers to interlink via WAN or LAN Networks. By adding the In-System Gateway to the iS3000 PBX an 10/100 Mbit/s Ethernet connection offers the IP link the SOPHO communication servers. The connection is based on CCIS protocol used between the SOPHO IP Servers. The SOPHO iS3000 systems with Call@Net 3 supports fully support this CCIS protocol.

By adding the IP based Common Channel Interoffice Signalling (CCIS) networking protocol to PBC’s iSNet portfolio it enables iS3000 series PBXs and 2000 IPS servers to communicate with each other over the same network offering transparent communication.

**SOPHO Dterm IP phones**

Put the full power of SOPHO 2000 IPS at your fingertips with the Dterm business phones. The SOPHO Dterm IP terminals connect to the SOPHO 2000 IPS and its distributed model, the SOPHO IPS DM. Both support peer-to-peer IP Telephony connectivity, in either the LAN or WAN.

The SOPHO Dterm IP has been ergonomically designed for natural comfort and offers an array of menu-driven soft key functions and easy-access function keys. Together, these deliver power, versatility and programmability to all user stations, maximizing efficiency and productivity. In fact, the entire desktop surface is designed for user productivity; promoting speed, service and performance to help your business to reach more profitable heights.

Dterm IP terminals transport you into the world of IP telephony while maintaining all of the features and functions you have come to expect from Philips terminals. The Dterm IP gives you the freedom to tailor your platform and telephony applications even as the business grows and your needs expand. With its advanced circuitry, the Dterm IP consists of several distinct models to meet users’ diverse telephone terminal needs. The Dterm IP terminals are designed with an ergonomic form and provide user-friendly functions.

The range of 5 models of the Dterm IP terminals are ideal choices for both business and remote users in residential home offices that are connected through a managed IP network.
SOPHO Dterm SoftPhone

The SOPHO Dterm SP30 is a multi-media tool that allows end-users to communicate via voice, and on top of that offers a collaborative working environment to improve communication. It is the ideal companion for travelling and remote users, but also for PC-intensive desktop users. Besides telephony services the Dterm SP30 user can benefit from:

- Videoconferencing
- Whiteboarding
- Chat mode
- File Transfer
- Call logging

SOPHO Dterm SP30 features:

- Call forwarding on logout
- Drag and drop dialling
- Fast access to buttons (via windows shortcuts)
- Call log
- Voicemail and live recording
- 4 presentation modes:
  - Maximised, Compact, Tray and desktop toolbar
- User defined settings and customization
- Address book integration
- Quality of Service support
- Multiple audio algorithm support
- Application sharing, white boarding, file transfer, chat mode, video conferencing
- Short text messaging
Network Readiness Services

A successful implementation of VoIP and VoIP solutions is only guaranteed if the data network supplies the necessary bandwidth. Implementing quality-of-service mechanisms is necessary to ensure that IP packets with time intensive speech/telephony data reach the recipient without any delay.

Philips Business Communications’ network readiness services accompany you into a safe VoIP future. These services include various consulting services that allow you to estimate how well prepared your network is for implementing VoIP and VoIP solutions. In addition to our counseling we also advise you as to modifications that are needed to ensure a stable network suitable for VoIP and VoIP. You can choose from three modules:

**Network Quick Scan**

Network Quick Scan prepares the first inventory of the network. A map of the network topology is created, network adaptations are recommended, and the necessary bandwidth is calculated.

**Network Assessment**

Network Assessment measures the actual network performance (e.g. bandwidth, traffic density, availability) and evaluates the results on the basis of the previously defined priorities for the planned VoIP solution and service quality. The results of this assessment are the basis for determining necessary further steps on the way to installing the solution.

**VOIP Assessment**

VoIP Assessment guarantees that Telephony over IP actually yields the optimum service and speech quality you demand. The quality of simulated VoIP calls is assessed by generating real VoIP traffic in your network. Since the quality of service and the necessary bandwidth are subject to many, often interdependent, parameters (such as codecs, packet sizes, silence suppression, jitter buffers) a quality check of the results with various parameter settings is carried out during the test procedures. A final report lists the results in detail.

**Expert Services**

The SOPHO iS3000 Series is fully supported by Philips’ Expert Services. This extensive portfolio of services provides the insight and support needed to get the most out of equipment and applications. The services offered comprise advice, design, customisation, integration, training, maintenance, continuous optimisation and Business Partner services.

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