Compact, secure, powerful.

**Compact integrated access systems
for professional VoIP, analog and ISDN telephony
plus voice-data integration.**

**elmeg Txxx series
bintec TR series**

Funkwerk: The Perfect Fit.

VOICE, DATA, SECURITY.

Communications solutions which adapt themselves to your company instead of the other way round: With Funkwerk systems, you can work more efficiently and securely.

Our product portfolio allows companies of any size to connect different company sites securely with each other using VPN, to protect their networks reliably against spamming and viruses, to connect mobile employees with the company headquarters, and to set up and operate flexible, reliable, high-speed telecommunications or wireless LAN infrastructures boasting a wide range of features.

Hardware with long life cycles, efficient commissioning, reliable operation, and competent partners: Funkwerk will provide you with a tailor-made solution!

Compact and convergent: The Txxx and TR systems.

Digital communication today: Worlds are merging.

The advance of digital communication continues. Information technology and telecommunications are merging evermore while the demands for flexibility and system integration increase.

xDSL and ISDN are now established as essential technologies for effective digital corporate communication across all industries.

You can find more information on modular PABX systems for office and industrial applications in the "elmeg ICT" product folder.

Compact is big.

Today a PBX has to be capable of more than providing telephony for a handful of internal subscribers. Internet access and IP routing are increasingly merging with traditional communication, particularly in the area of compact systems.

Whether as a central system for small businesses, subsidiaries or for home office workplaces, professional features, security, scaleability and, above all, effective administration, are essential criteria for a reliable, convergent and future-proofed solution.

Voice over IP: More than a trend.

Sophisticated IP solutions such as VoIP and Virtual Private Networks (VPNs) can be achieved today thanks to increasingly powerful connectivity with the Internet worldwide. What could be more natural than to enable existing and proven terminal devices and their features for use with this new technology?

With the elmeg T444 and elmeg T484 systems, together with the new bintec TR200 convergence system, you can break through the traditional communication network barriers.

Compact ISDN systems: High performance. Low price.

elmeg T240: More than an entry level system.

The elmeg T240 PBX combines high performance with new innovative functions in a compact, attractively shaped casing.

Four a/b ports, which can be extended to six a/b ports by means of an optional add-on module, offer CLIP (Calling Line Identification Presentation), support all current industry standards for 12/16 kHz call charge pulse and offer a/b convenience functions. Simply connect all existing terminal devices, such as wireless or fixed line phones, modems, fax machines, call answering machines and even hands-free entrance telephones and configure your system conveniently at the PC.

The settings are transferred to the PBX via the USB port and your PC can surf the Internet by ISDN directly on the USB port via the PBX. The shipped TAPI and CAPI drivers serve to implement Computer Telephony Integration (CTI) in a simple way.

elmeg T444: ISDN and VoIP—internal and external.

The compact elmeg T444 PBX combines ISDN conventional systems telephony, compact design, simple configuration and an integrated xDSL/ISDN router, in a single innovative solution. One ISDN trunk to the PSTN, one internal ISDN bus for digital terminal devices, and four analog accesses for phone and fax are offered by the basic module.

All the features of proven elmeg systems telephony are available such as the internal ISDN bus: central PBX phone book, creation of teams, daytime-dependent operation, external/internal automatic callback, and many other functions.

An integrated IP router provides the central Internet connection —including packet filter firewall, xDSL/ISDN fallback, LAN-TAPI/ LAN-CAPI and NAT. Secure and stable, configuration of the router function can be performed from any PC in the LAN or via a USB interface.

By expanding the elmeg T444 with an optional 4 DSP module, the PBX becomes an interface for Internet telephony (VoIP): The module provides four voice channels for convergent transition of conventional telephony to IP telephony, enabling connection to SIP providers and connection of SIP phones in the LAN.

elmeg T484: More ports, more subscribers, more performance.

The elmeg T484 closes the gap between compact PBX systems and the modular elmeg ICT series telecommunications systems for professional IT environments. Thanks to the elmeg T484's scope of functions and modular design, by the addition of two BRI, four a/b, or up to four analog connections (POTS), it is ideally suited for small to medium-sized offices, manual trade businesses and the catering industry.

Even the basic extension of the elmeg T484 is impressive: Besides eight ports for analog terminal devices and two ISDN connections, elmeg T484 systems also offer an integrated xDSL/ISDN IP router with extensive firewall functions and packet filter firewall for central Internet access to any DSL modems.
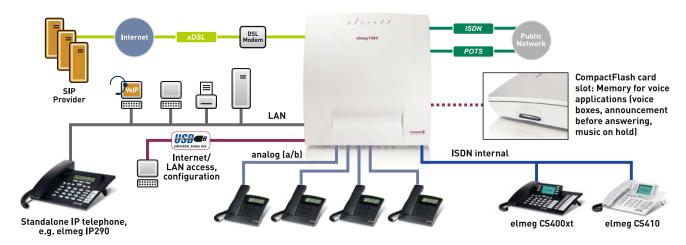
The elmeg T484 can also be equipped with an optional 4 DSP module for Internet telephony (VoIP): the module provides four voice channels for convergent transition of conventional to IP telephony, enabling connection to SIP providers and connection of SIP phones in the LAN.

Thanks to the USB port, you can connect your PC to the Internet within a few minutes—and also to an entire Ethernet LAN. The configuration can be performed via USB, LAN, the internal ISDN bus, or from remotely by your vendor.

A slot for CF memory cards allows you to set up professional voice applications, such as announcement before answering, multiple voice boxes etc.

Example of elmeg T484 configuration (includes optional equipment)

SIP Provider

Internet xDSL DSL Modem

VoIP

LAN

USB UNIVERSAL SERIAL BUS

Internet/ LAN access, configuration

analog (a/b)

Standalone IP telephone, e.g. elmeg IP290

ISDN

POTS

Public Network

CompactFlash card slot: Memory for voice applications (voice boxes, announcement before answering, music on hold)

ISDN internal

elmeg CS400xt   elmeg CS410

Breaking barriers: bintec TR200.
Unified Communication.

VoIP, WLAN Routing, ISDN Telephony.
All in one Device.

With the bintec TR200, Funkwerk Enterprise Communications presents a new generation of convergent communication solutions.

The bintec TR200 is an extensively equipped and flexible multifunction gateway with professional features for routing, WLAN and telephony. It was developed especially for high-speed Internet access via xDSL and can also be used for remote access in small to medium-sized companies or remote offices.

In particular, small companies or branch offices without their own system administrator on-site will profit from this new concept. The support and setup workload for the bintec TR200 is significantly lower than for individual devices and can even be accomplished conveniently from a remote location.

The basic version of the system offers two ISDN connections (internal/external), two internal analog connections, a port for the analog trunk (POTS) and a 4-port switch (10/100 Mbps Ethernet), as well as a DSL2+ modem for broadband up to 16,384 kbps. The system has two IPsec tunnels and VPN functions as standard.

The all-rounder that loves contact.

Traditional analog or ISDN telephones along with IP telephones are easy to connect with the bintec TR200. The LAN or system can be logged on with up to ten providers for Internet telephony.

The bintec TR200 fits perfectly as a Unified Messaging Gateway in existing Exchange 2007 Groupware environments. Control of the firewall and voice data functions is automatically transferred from the bintec TR200, which considerably simplifies configuration for newcomers.

As a wireless LAN access point, the bintec TR200 supports the 802.11b/g standards with a data throughput of 54 Mbps.
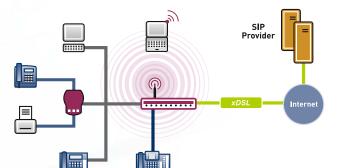
Professional functions and optimal security.

The bintec TR200 sets itself apart from simple box solutions by offering advanced IP routing with real professional functions. The support provided by VPN (two IPsec tunnels as standard) and ISDN fallback in case of failure or a fault on the DSL connection, is unique in this market.

To safeguard WLAN data transmission, as well as WEP encryption, the secure WPA and WPA2 modes for the use of pre-shared keys or inclusion of a Radius server are also available. Access control is performed on the port level via IEEE 802.1x, while Multi-SSID permits the simultaneous configuration of several user groups with proper rights and virtual radio networks.

The integration of telephony and router functions also allows a seamless, convergent transition from conventional to IP telephony —as with the compact ISDN systems elmeg T484 and elmeg T444 with the 4 DSP module. You can use your existing terminal devices and simply telephone via the Internet—without additional hardware, PC, or complicated configuration.

The 4-channel DSP for VoIP voice data processing and refined quality of service router functions, which are integrated in the bintec TR200, guarantee high voice quality and connection security, whereas many competitive systems only offer software-emulated VoIP data processing where quality is far more dependent on the momentary overall system load.

Configuration and Maintenance: A Multi-stage Concept for every User.

The system is conveniently configured via a simple and intuitive to operate HTLM interface. The use and maintenance of several systems, e.g. in branch networks, is considerably simplified with the remote maintenance functions. For example, the one-click update feature brings the system up to the latest release status – also remotely.

ISDN and VoIP Telephony – Unified in Harmony.

With ISDN system telephony features on the internal BRI bus, bintec TR200 takes advantage of the proven, extensive functionality also found in the elmeg Txxx and elmeg ICT systems: 3-party conferences, alternation between lines, system-internal phone book for all internal subscribers and optimal support from CS series ISDN system telephones offer state-of-the-art business convenience.

You can find more information on professional IP router systems in the "funkwerk Router" product folder.

Expansion modules for the elmeg Txxx series

M 4 DSP VoIP module

(only for elmeg T444 and elmeg T484)

With the M 4 DSP expansion module your compact PBX system becomes a complete network-to-IP gateway. This permits the transition of IP voice data into the traditional voice network and vice versa. For optimum voice quality with minimum bandwidth, the standard voice codecs G.711, G.723.1, G.726, and G.729a/b are supported. The module offers four VoIP connections or voice channels available simultaneously.

1 POTS module

(for elmeg T240 and elmeg T444)

The 1 POTS module extends the T240 and T444 PBX systems by an analog trunk (POTS). For example, this option serves to connect an existing analog fax line to your PBX in addition to the external ISDN access, e.g. to retain a telephone number.

2 POTS / 4 POTS module

(only for elmeg T484)

Like the 1 POTS module, but for two or four analog trunks to an elmeg T484.

2 BRI module

(only for elmeg T484)

Expansion module for two or four additional BRIs each for the connection of ISDN telephone sets or ISDN PC cards.

For each module, one BRI can be configured as an external trunk (PtP/PtMP). All BRIs can be used to connect elmeg systems telephones.

2 a/b module

(for elmeg T240 and elmeg T444)

This module extends the T240 and elmeg T444 PBX systems by two internal analog connections. You can thereby connect up to six analog terminal devices with CLIP and call charge pulse to these PBX systems.

4 a/b module

(only for elmeg T484)

For four or eight additional analog PBX systems, such as (mobile) phones, fax group 3, call answering machine, external voice mail, or modem. All a/b ports offer CLIP support and call charge pulse.

FSM module

(only for elmeg T484)

The FSM fine protection module serves to protect the various PBX connections against overvoltage. The overvoltage occurring on the lines due to lightning is grounded in the process thus protecting against the damage that would otherwise occur.

NSP module

(only for elmeg T484)

For the emergency power supply for an ISDN-capable systems telephone, e.g. elmeg CS400xt, at an internal BRI bus (the external BRI is passed through). This option serves to ensure your availability even in the case of a power failure.

Contact module

(only for elmeg T484)

Six sensor inputs and three switch contacts connect the most diverse technical devices (e.g. heating, alarm system, proximity switch, or short circuit contact in the case of water inleakage) with automatic initiation of calls, signal transmission, etc.

You can find more information on comprehensive and ergonomic terminal devices for system and VoIP telephony in the "funkwerk telephones" product folder.

Optimally matched: Convenient terminal devices.

elmeg CS290*

The elmeg CS290 offers stylish elegance and excellent ergonomic features. The menu navigation with three soft keys and the alphanumeric display make operation fast and simple. Five freely programmable keys with LED support, partly in two colours, display the states of important functions to the user at all times. Additional convenience features for use in the office are offered by the list of calls received with ten possible entries, redialling of the last five numbers stored, and a short code dialing memory for ten further entries (VIP memory).

elmeg CS400xt*

The elmeg CS400xt ISDN systems phone closes the gap between the elmeg CS290 models for standard requirements and the elmeg CS410 for the professional workplace. The elmeg CS400xt is equipped with ten additional, LED-supported function keys. In addition to short code dialing, they can be used as line keys, to check in/out teams, or for other freely programmable functions. elmeg CS400xt can be operated in emergency situations**—so you are still accessible after power failure.

elmeg CS410*

This is the systems phone which meets and exceeds all your needs: optimally matched with elmeg PBX systems, the elmeg CS410 fulfils all convenience requirements for professional users.

Through its modular design, an optionally available call answering module offers a recording time of up to 48 minutes and can be easily and quickly integrated into the phone. USB permits the simple installation of CTI functions, Internet access and data communications and provides these functions, for instance, to configure your PBX. Up to three T400 cascaded keyboard extensions can be connected to elmeg CS410.

elmeg IP290*

With the elmeg IP290 standalone device you will enter the age of Internet telephony. This top-quality and innovative elmeg IP290 satisfies all modern business requirements: comprehensive features, such as an internal phone book with 100 entries, call holding / transfer, integrated music on hold, call forwarding, and many more, provide business telephony functions with VoIP.

PC Pr@xis Testsieger 04/07

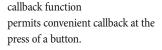PC Professionell Empfehlung der Redaktion Ausgabe 11/2006 elmeg IP290
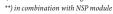
elmeg CA50

As a cost-effective and robust alternative to CS series ISDN comfort/ systems phones, the elmeg CA50 is an ideal solution for environments with many PBX units, such as hotels, nursing homes or medium-sized offices. In spite of its compact dimensions, the elmeg CA50 is a full-scale business telephone with all important convenience features for operation and handling. CLIP serves to display incoming calls with telephone number on the handset display. Missed calls are signalled via LED and are entered into a list of callers with call number, date and time. The callback function permits convenient callback at the press of a button.

*) not connectable to elmeg T240
**) in combination with NSP module

PERFORMANCE FEATURES ELMEG T / BINTEC TR

	elmeg T484	elmeg T444	elmeg T240	bintec TR200aw bintec TR200bw
Interfaces				
ISDN S_0 ports, total	2	2	1	2
Analogue internal ports	8	4	4	2
Analogue external ports	max. 4 (opt. Module)	max. 1 (opt. Module)	max. 1 (opt. Module)	1
Emergency operation with analogue external ports	–	–	–	•
USB-Port	1	1	1	–
LAN-interfaces 10/100 BaseT Ethernet	1	1	–	4
WAN-interface Ethernet	1	1	–	–
Internal xDSL-Modem	–	–	–	ADSL (2+)
DSL-Variant	–	–	–	Annex A/Annex B
DSP-channels	4 (opt. Module)	4 (opt. Module)	–	4
WLAN Access Point integrated	–	–	–	802.11b/g
Slot for memory card	CF Card	–	–	–
Modular expansion	•	•	•	–
Configuration				
Comprehensive elmeg WIN-Tools included with system	•	•	•	Integrated Web Configuration
Configuration via int. S_0 / USB / LAN	• / • / •	• / • / •	– / • / –	– / – / •
Remote configuration	•	•		•
Firmware download local / or remote	• / •	• / •	• / •	• / •
Feature set PBX (selection)				
PtM or PtP connection	•	•	•	•
Flexible number allocation	•	•	•	•
CLIP No Screening for external ISDN P-P connections	•	•	•	–
Freely assignable internal numbers	2 digits	2 digits	2 digits	3 digits
Number transfer to all analog ports (CLIP, CLIP off Hook)	•	•	•	•
12/16 kHz charge rate pulse at analog ports	•	•	•	–
Name transfer from pbx phonebook to all analogue ports (CNIP)	•	•	•	•
Inquiry call / Broker's call / Call waiting	• / • / •	• / • / •	• / • / •	• / • / •
Three-party conference call	•	•	•	•
Open inquiry	•	•	•	–
Comprehensive team functions	•	•	•	–
Day/Night Mode manually/with time control	• / •	• / •	• / •	– / •
Call forwarding immediately (CFU, CFNR, CFB)	•	•	•	•
Follow me (internal / external)	• / •	• / •	• / •	• / –
Automatic call-back (internal/external)	• / •	• / •	• / •	• / •
Room monitoring (internal/external)	• / •	• / •	• / •	• / –
Don't disturb for analogue terminals	•	•	•	•
Hotline (direct call)	•	•	•	•
Pick up	•	•	•	•
Configuration of several line authorization levels	•	•	•	•
Automatic line access per port configurable	•	•	•	•
External line access with individual user PIN	•	•	•	–
Emergency function	•	•	•	•
Specific restricted and unrestricted numbers	•	•	•	•
Charge rate data records in memory	500	500	500	500
Project numbers can be assigned to charge rate data records	•	•	•	–
Entries in PABX-specific telephone directory	500	500	500	300
Remote control for switching contacts	•	–	–	
Music on hold Internal / External / wav	• / – / •	• / – / •	• / – / •	• / – / –
Integrated Voice-Box functionality	• (with CF Card)	–	–	–
Integrierted Auto Attendant, Wake up calls	• (with CF Card)	–	–	–
Call Through	•	•	•	•
Door intercom units can be connected via module / analogue ports	• / •	– / •	– / •	– / •
LCR Professional (Automatic Route Selection)	•	•	•	–
Dialling rules	–	–	–	•
Support of elmeg system telephones S_0 / U_{p0} / IP-S	• / – / –	• / – / –	– / – / –	• / – / –
Number of supported SIP-Provider	10 (opt. Module)	10 (opt. Module)	–	10
Number of supported IP-Telephones (SIP-Standard)	4 (opt. Module)	4 (opt. Module)	–	4
CTI with support for Microsoft TAPI	•	•	•	–
CAPI support	•	•	•	•

	elmeg T484	elmeg T444	elmeg T240	bintec TR200aw bintec TR200bw
IP-Access / Routing				
RIP v1 / v2 / triggered RIP	–	–	–	●
IGMP v3	–	–	–	●
Bridging / Mulitbridging	–	–	–	● / ●
PPPoE Client / PPPoE Server	●	●	●	●
PPPoA	–	–	–	●
IPoA	–	–	–	●
Multi-VC (ATM)	–	–	–	●
Multi-Link PPPoE	–	–	–	●
Load Balancing	–	–	–	●
DHCP Server	●	●	–	●
QoS	–	–	–	●
TCP Download Rate Control	–	–	–	●
VLAN 802.1P/q	–	–	–	●
Tacacs+	–	–	–	●
RADIUS	–	–	–	●
Scheduling	–	–	–	●
Dyn DNS Support	●	●	–	●
Keep Alive Monitoring	●	●	–	●
UPnP	–	–	–	●
Switch Port Separation	–	–	–	●
Automatic disconnection of internet access	●	●	–	●
Integration into existing networks / LANs	●	●	–	●
WLAN				
Multi-SSID	–	–	–	●
WPA, WPA2 (PSK & Enterprise)	–	–	–	●
IPsec over WLAN (PSK & Certificates)	–	–	–	●
WDS	–	–	–	●
Antenna Diversity	–	–	–	–
WLAN-buttom (WLAN on/off)	–	–	–	●
Security				
IPsec, max. number of tunnels	–	–	–	● / 5 tunnels
PPTP-VPN, max. number of tunnels	–	–	–	● (opt. license) / 5 tunnels
DynVPN	–	–	–	●
IP-Addres in D-channel	–	–	–	● (opt. tunnels)
NAT / PAT	●	●	–	●
Firewall	●	●	●	●
Content Filtering	–	–	–	●
Backup				
Load Balancing	–	–	–	●
ISDN-Backup	–	–	–	●
Technical Data				
Enclosure dimensions W x H x D	290 x 310 x 60 mm	290 x 230 x 50 mm	290 x 230 x 50 mm	206 x 174 x 30 mm
Weight	ca. 2,2 kg	ca. 1,3 kg	ca. 1,3 kg	ca. 1,3 kg
Ambient temperature	5–40 °C	5–40 °C	5–40 °C	5–40 °C
Power supply	230 V (±10%)	230 V (± 10%)	230 V (± 10%)	100–240 V

Funkwerk: The Perfect Fit.

V O I C E , D A T A , S E C U R I T Y .