bintec elmeg
Teldat Group Company

ALL-IP SOLUTIONS

Simple migration of existing ISDN PABX to ALL-IP

be.IP

- Vendor-independent use
- No change of PABX necessary
- 2x ISDN (system and multipoint connection)
- Further use of connected devices
- Highest speech quality
- Mediagateway and professional VDSL Router in one system
- IPv6, Quality of Service, Firewall

be.IP

Simple migration of existing ISDN PABX to ALL-IP

The be.IP is a powerful and flexible media and VPN gateway. It unites secure internet access, professional routing, VPN functionality, and wireless LAN features all in a single system.

The simple, professional way to integrate ISDN systems into the ALL-IP network

The be.IP family of devices makes your transition to the new ALL-IP network fast and secure. Thoroughly integrate ISDN telephone systems into the new network in just minutes with the help of step-by-step setup assistants.

And best of all, you can seamlessly migrate your ISDN infrastructure to the digital network of the future at no further expense. Quick, easy, and future-proof.

Suitable for both point to multipoint and point to point connections at small and mid-sized businesses with multiple retail locations, home office workers, and branch offices. Start migrating your commercial accounts now, regardless of which manufacturer their existing ISDN system is from.

Product description

be.IP family systems offer blazing fast network access with any ALL-IP service including DeutschlandLAN IP Start and DeutschlandLAN IP Voice Data from Deutsche Telekom. By supporting ADSL2+ and VDSL2 with vectoring, up to 100 Mbps downloads and 50 Mbps uploads can be achieved over existing copper cables. These flexible systems unite professional media gateway functionality with the benefits of a powerful VPN router, ensuring secure voice and data communications with rock-solid stability.The professional wireless LAN implementation forms the basis of a number of applications such as integrating smartphones or wireless LAN telephones into the company network. The integrated access point operates on either the 2.4- or 5-GHz frequency band, enabling raw data rates of up to 300 Mbps.

The be.IP family of systems can be individually tailored to meet your communications needs. No matter if you require a LAN, additional WAN interfaces, or a perimeter network for on-site servers (web, e-mail, etc.) - the five available Gigabit Ethernet ports offer maximum flexibility for company network design and implementation.

Easy migration for ISDN telephone systems

Thanks to its two integrated ISDN interfaces, the be.IP allows you to continue using your conventional ISDN telephone systems and terminal devices including phones and fax machines over your VOIP service. Business users can thus take advantage of all the benefits of IP telephony while continuing to use their existing telephone equipment. That's an unbeatable argument if you seek to maintain the value of your investments.

Airtight security

The be.IP offers an impressive range of security features for voice and data communications. The five available VPN channels can be used concurrently to ensure reliable voice and data transmissions, making it easy to establish links to branch locations, home offices, and travelling employees. The integrated IPSec implementation allows the use of pre-shared keys as well as digital certificates as recommended by Germany's Federal Office for Information Security. This allows you to use a public key infrastructure for maximum security. The flexible and customizable stateful inspection firewall uses dynamic packet filtering to provide the network additional protection against attacks launched either over the internet or from internal networks.

Professional management

The be.IP is configured over a web-based graphical user interface. Integrated assistants and user profiles allow for flexible configurations that fulfill each customer's unique requirements. Administrators can also manage the devices locally or remotely using configurable management interfaces.

Convenient WLAN Controller

In addition, the be.IP also includes the bintec WLAN Controller, which provides professional management of wireless infrastructures. The WLAN Controller lets you configure and monitor small WLAN networks with optionally up to 5 additional access points. No matter whether you need frequency management with automatic channel selection, load balancing across several access points, support for virtual LANs, or virtual wireless network administration (multi-SSID) for easy configuration and secure separation of guest and company networks - you'll have all these advanced features at your fingertips with the WLAN Controller. The software continuously monitors the entire wireless network, notifying administrators of any malfunctions or security threats.

Sophisticated design

The fanless housing ensures long-term reliability for mission-critical applications. You can operate the be.IP on a desktop, mount it to a wall, or integrate it into a 19" server rack using the included 19" rackmount bracket. The system is able to adapt to the requirements of any application.

100% ready for the future

With its numerous automatic setup assistants, the be.IP is easy to integrate into existing network infrastructures and enables migration to the ALL-IP network of the future. The integrated VDSL2 modem supports the standards used in Germany and most other European countries. This state-of-the-art hardware has been designed so that additional features can easily be added via future software updates. In addition, the be.IP also supports the next-generation network protocol IPv6. With its ability to easily migrate existing infrastructures to ALL-IP networks, its suitability for use on the SIP trunk, and support for VDSL vectoring technology, the be.IP is a sound investment for sustainable professional IP and telecommunications applications.

Variants

be.IP (5510000389)	IP Access Media Gateway; 2x ISDN-S0 int., integr. VDSL2/ADSL2+ Modem (Annex B/J,Vectoring, ALL-IP), IP Router, 5x Gigabit Eth., 5x VPN-tunnel, WLAN controller, VoIP with 5 DSP channels, Wall-,Desktop- or 19"-Rack mounting

Features

Protocols / Encapsulations

PPP/MLPPP	Support of Point to Point Protocol (PPP) for establishing of standard PPP connections, inclusive the Multilink extension MLPPP for the bundeling of several connections
IPoA	Enables the easy routing of IP via ATM
Packet size controling	Adaption of PMTU or automatic packet size controling via fragmentation
PPPoE (client)	Point-to-Point Protocol over Ethernet for creating PPP connections over Ethernet/DSL (RFC2516).
DHCP	DHCP client / server / proxy for simplified TCP/IP configuration
DNS	DNS client, DNS server, DNS relay and DNS proxy
DNS forwarding	Makes it possible to forward DNS queries from any specified domain for resolution by certain DNS servers.
DynDNS	Makes it possible to assign dynamic IP addresses through a dynamic DNS provider, for instance when setting up VPN connections.

WLAN Electric Characteristics

TX power @ 2,4 GHz	Max. 20dBm
TX power @ 5 GHz	Max. 17dBm
Receiver Sensitivity @ 2.4 GHz 802.11n 20 MHz	MCS0 -95 dBm; MCS1 -94 dBm; MCS2 -92 dBm; MCS3 -88 dBm; MCS4 -85 dBm; MCS5 -81 dBm; MCS6 -80 dBm; MCS7 -78dBm; MCS8 -95 dBm; MCS9 -94 dBm; MCS10 -91 dBm; MCS11 -87 dBm; MCS12 -84 dBm; MCS13 -81 dBm; MCS14 -79 dBm; MCS15 -77 dBm
Receiver Sensitivity @ 5 GHz 802.11n 20 MHz	MCS0 -96 dBm; MCS1 -93 dBm; MCS2 -91 dBm; MCS3 -88 dBm; MCS4 -85 dBm; MCS5 -81 dBm; MCS6 -79 dBm; MCS7 -77 dBm; MCS8 -94 dBm; MCS9 -92 dBm; MCS10 -90 dBm; MCS11 -87 dBm; MCS12 -84 dBm; MCS13 -80 dBm; MCS14 -78 dBm; MCS15 -76 dBm
Receiver Sensitivity @ 5 GHz 802.11n 40 MHz	MCS0 -91 dBm; MCS1 -89 dBm; MCS2 -87 dBm; MCS3 -84 dBm; MCS4 -81 dBm; MCS5 -78 dBm; MCS6 -76 dBm; MCS7 -74 dBm; MCS8 -90 dBm; MCS9 -89 dBm; MCS10 -87 dBm; MCS11 -83 dBm; MCS12 -80 dBm; MCS13 -77 dBm; MCS14 -75 dBm; MCS15 -73 dBm
TX power @ 2,4 GHz 802.11n 20 MHz	MCS0/8 19 dBm; MCS1/9 19 dBm; MCS2/10 19 dBm; MCS3/11 19 dBm; MCS4/12 19 dBm; MCS5/13 19 dBm; MCS6/14 19 dBm; MCS7/15 19 dBm
TX power @ 5 GHz 802.11n 20 MHz	MCS0/8 23 dBm; MCS1/9 23 dBm; MCS2/10 22 dBm; MCS3/11 21 dBm; MCS4/12 20 dBm; MCS5/13 19 dBm; MCS6/14 18 dBm; MCS7/15 18 dBm
TX power @ 5 GHz 802.11n 40 MHz	MCS0/8 19 dBm; MCS1/9 19 dBm; MCS2/10 19 dBm; MCS3/11 19 dBm; MCS4/12 19 dBm; MCS5/13 18 dBm; MCS6/14 17 dBm; MCS7/15 17 dBm

WLAN Electric Characteristics

Receiver Sensitivity @ 2.4 GHz 802.11b/g	1 Mbps -91 dBm; 2 Mbps -90 dBm; 5.5 Mbps -89 dBm; 11 Mbps -88 dBm; 6 Mbps -90 dBm;9 Mbps -89 dBm; 12 Mbps -88 dBm; 18 Mbps -86 dBm; 24 Mbps -83 dBm; 36 Mbps -80 dBm; 48 Mbps -76 dBm; 54 Mbps -74 dBm
TX power @ 2,4 GHz 801.11b/g	1 Mbps 19 dBm; 2 Mbps 19 dBm; 5,5 Mbps 19 dBm; 11 Mbps 19 dBm; 6 Mbps 19 dBm;9 Mbps 19 dBm; 12 Mbps 19 dBm; 18 Mbps 19 dBm; 24 Mbps 19 dBm; 36 Mbps 19 dBm; 48 Mbps 19 dBm; 54 Mbps 19 dBm
Receiver Sensitivity @ 5 GHz 802.11a/h	6 Mbps -95 dBm;9 Mbps -94 dBm; 12 Mbps -93 dBm; 18 Mbps -90 dBm; 24 Mbps -88 dBm; 36 Mbps -84 dBm; 48 Mbps -82 dBm; 54 Mbps -81 dBm
Tx Power @ 5 GHz 802.11a/h	6 Mbps -94 dBm;9 Mbps -93 dBm; 12 Mbps -92 dBm; 18 Mbps -90 dBm; 24 Mbps -88 dBm; 36 Mbps -85 dBm; 48 Mbps -82 dBm; 54 Mbps -80 dBm
Receiver Sensitivity @ 5 GHz	<95dBm

VoIP Media Gateway

SIP Clear Channel	Support of RFC 4040 – SIP Clear Channel for remote maintenance of ISDN TK Systems via ALL-IP
SIP registrar	SIP users are able to sign on at the media gateway with registration and authentication.
SIP proxy	Mapping of an unlimited number of SIP single or DDI provider accounts to SIP single user or to VoIP PABXs.
Calling number transformation	Conversion list of calling numbers; in this list are correlated external and internal numbers.
Backup routes	Unlimited number of backup routes for the automatic selection of outside lines
Fax transmission	4 channels can be simultaneous converted from LAN fax T.38 to T.30, ISDN an analogue. No matter how high the system load, for each channel is supported by a DSP.
SIP ISDN gateway	Transparent conversion of connections of a VoIP PABX to ISDN trunk
Number of simultaneous VoIP connections	No software limitation
SIP user	No software limitation
ISDN SIP gateway	Transparent conversion of ISDN PABX connections to single SIP provider, or to DDI SIP trunk access
CLID conversion	Manipulation of calling party numbers in incoming calls; add a prefix to incoming numbers, to route corresponding calls via a certain SIP account.
Call router	Flexible switching of all calls according rules; conditions for call forwarding (routing). List with rules or rule chains for manipulating the signalled target calling number
SIP link	Switching of incoming and outgoing calls like SIP trunks, though without DDI, but with single calling number blocks, with or without registerin
Media protocols	RTP, SRTP
Audio codec support	G.711, G.726 (32 kbps), G.729, G.722, HQ Audio for VoIP-VoIP connections G.722
DTMF Support	DTMF Inband and out of band RFC 2976 (SIP Info) and RFC 2833 (RTP Payload Type/outband) support.
Backup routes	Fallback routes, if a connection could not be established via the prior route
Debug Trace	Record of all data streams via console and WEB Configuration. Trace format text and PCAP

VoIP Media Gateway

SIPS	SIP secure (TLS), establish secure calls
SIP properties	CLIP, CLIR. REFER, PRACK, SESSION Timers, HOLD, INFO, NAPTR, ...
SIP protocols	UDP, TCP, TLS
SIP 2.0	RFC 3261 conform. 2327, 2976, 3261, 3262, 3263, 3264, 3311, 3323, 3325, 3428, 3515, 3581, 3608, 3891, 3966, 4028, 3555, 2833, 1035, 2782, 2915, 2617, ...SIP Connect 1.1
Features hybrid connections	Echo cancellation according G.168, Comfort Noise Generation CNG
Early Media Connect	Early Media Connect vconnectsaudio or data stream before call complete.

VPN

IPSec	Internet Protocol Security for establishing VPN connections
IPSec Algorithms	DES (64 Bit), 3DES (192 Bit), AES (128,192,256 Bit), CAST (128 Bit), Blowfish (128-448 Bit), Twofish (256 Bit); MD-5, SHA-1,SHA-2 (256,384,512), RipeMD160, Tiger192 Hashes
IPSec hardware acceleration	Integrated hardware acceleration for IPSec encryption algorithms DES, 3DES, AES
Number of VPN Tunnel	5 simultaneous VPN connections.
IPSec RADIUS	Authentication of IPSec connections at a RADIUS server. Additionally the IPSec peers, which were configured on a RADIUS server, can be loaded into the gateway (RADIUS dialout).
IPSec QoS	The possibility to operate Quality of Service (traffic shaping) inside of an IPSec tunnel
IPSec Dead Peer Detection (DPD)	Continuous control of IPSec connection
IPSec NAT	By activating of NAT on an IPSec connection it is possible, to implement several remote locations with identical local IP addess networks in different IP nets for the VPN connection
IPSec NAT-T	Support of NAT-Traversal (Nat-T) for the application at VPN lines with NAT
IPSec IKE	IKEv1 & IKEv2: IPSec key exchange via preshared keys or certificates
IPSec IKE Config Mode	IKE Config Mode server enables dynamic assignment of IP addresses from the address pool of the company. IKE Config Mode client enables the router, to get assigned dynamically an IP address.
IPSec IKE XAUTH (Client/Server)	Internet Key Exchange protocol Extended Authenticaion client for login to XAUTH server and XAUTH server for loging of XAUTH clients
IPSec IKE XAUTH (Client/Server)	Inclusive the forwarding to a RADIUS-OTP (One Time Password) server (supported OTP solutions see www.bintec-elmeg.com).
Certificates (PKI)	Support of X.509 multi-level certificates compatible to Micrososft and Open SSL CA server; upload of PKCS#7/8/10/12 files via TFTP, HTTP, HTTP, LDAP, file upload and manual via GUI
Certificate Revocation Lists (CRL)	Support of remote CRLs on a server via LDAP or local CRLs
SCEP	Certificates management via SCEP (Simple Certificate Enrollment Protocol)
IPSec Multi User	Enables the Dial-in of several IPSec clients via a single IPSec peer configuration entry
IPSec IPComp	IPSec IPComp data compression for higher data throughput via LZS

Wireless LAN

Wireless LAN

WLAN standards	802.11n (Mimo 2x2); 802.11b; 802.11g; 802.11a; 802.11h
WLAN	1Modes 2,4 GHz Operation: 802.11b only; 802.11g only, 802.11b/g/n mixed; 802.11b/g/n mixed long; 802.11b/g/b mixed short; 802.11b/g/n ; 802.11g/n; 802.11n only; 5 GHz Operation: 802.11a only; 802.11a/n; 802.11n
Data rate for 802.11n (2,4 / 5GHz)	MCS0-15 enables physical rates up to 150 Mbps at 20 MHz channels bandwidth, 2 streams, short guard interval; MCS0-15 enables physical data rates up to 300 Mbps at 40 MHz channels bandwidth, 2 streams, short guard interval
Data rates for 802.11a,h (5 GHz)	54, 48, 36, 24, 18, 12, 9 and 6 Mbps (OFDM modulation)
Bandwidth (802.11n)	20/40 MHz (bundling of two adjoining 20 MHz channels to one 40 MHz channel)
Data rates for 802.11b,g (2.4 GHz)	11, 5.5, 2 und 1 Mbps (DSSS modulation); 54, 48, 36, 24, 18, 12, 9 and 6 Mbps (OFDM modulation)
Frequency bands 2.4 GHz indoor/outdoor (EU)	2.4 GHz Indoor/Outdoor (2412-2472 MHz) max. 100 mW EiRP. The permitted transmission power may vary in countries outside the EC.
Frequency bands 5 GHz indoor (EU)	5 GHz indoor (5150-5350 MHz) max. 200 mW EiRP allowed (Germany). The permitted transmission power may vary in other countries.
Frequency bands 5 GHz outdoor (EU)	5 GHz outdoor (5470-5725 MHz) max. 200 mW EiRP allowed (Germany). The permitted transmission power may vary in other countries.
Broadcast SSID	On/off switchable
Multi-SSID	Depending on the complexity of configuration up to 16 service sets per radio module, with virtual access points and own MAC address per SSID
Automatic Rate Selection (ARS)	Automatic usage of the optimized data rate
WLAN operation	WLAN Accesspoint operation
RTS/CTS	RTS/CTS threshold adjustable
Short guard interval (802.11n)	On/off switchable; increase of throughput by reduction of the guard intervals from 800ns to 400ns
Number of spatial streams (802.11n)	1 or 2
Extended Performance Feature	Beamforming, MRC (Maximum Ratio Combining), Block-Acknowlegde

Hardware

Housing	Plastic housing, white with red frame
Dimensions	327 x 193 x 44 mm (B x H x T)
Protection Class	IP20
Power Supply	External power supply, Input: 100V - 240V AC, with high efficient switching power supply; follows EuP Directive 2008/28/EC
Wall mounting, Destkop, 19" -Rack	Wall mounting integrated in housing, Desktop, 19"-brackets (included in scope of delivery)
Power consumption	Idle: 14 W, maximum: 29 W
Fan	Fanless design therefor high MTBF

Hardware

Status-LEDs	9 LEDs to display the operational states: Power, Status, Service, DSL, Phone, BRI1, BRI2, WiFi; Memory
Reset Taster / Factory Settings	Restart or reset to factory state possible
Function Button	Additional Trigger-Element for the Event Scheduler
Realtime clock	System time persists even at power failure for some hours.
Standards and certifications	R&TTE Directive 1999/5/EC (EN 55022; EN 555024); Low Voltage Directive 2006/95/EC (EN60950-1); Ecodesign/ERP Directive 2009/125/E
Environmental conditions	Desk, wall or rack mountable, operating temperature: : +5° C to +40° C, Stocking: -20°C to +70°C, air humidity: max. 85 % non condensing, dry and dust free rooms

Interfaces

VDSL2 / ADSL2+	VDSL2 nach ITU G993.2, ADSL2+ / ADSL2 / ADSL (compatibl to U-R2 & 1TR112 Deutschen Telekom), Annex B / J, G.Lite (ITU G.922.2), Vectoring support, VDSL Up- and Downstream up to 100 MBit/s
Ethernet WAN / DMZ	1x 10/100/1000 Mbps Ethernet Twisted Pair, autosensing, Auto MDI/MDI-X, up to 4 ports can be switches as additional WAN ports incl. load balancing, all Ethernet ports can be configured as LAN or WAN.
Ethernet	4x 10/100/1000 Mbps Ethernet Twisted Pair, autosensing, Auto MDI/MDI-X, up to 3 ports can be switches as additional WAN ports incl. load balancing, all Ethernet ports can be configured as LAN or WAN.
ISDN S0 ports	2x ports for internal operation: internal for connecting S0 standard or system telephones, (external: PtP, PtMP) / PABX in MGW mode
WLAN	1x radio module IEEE 802.11abgn Mimo 2x2 for 2.4 or 5 GHz
External WiFi Antenna	2x external antenna with Omni characteristic for each radio module, RSMA socket, approx. 1,5dBm gain
USB 2.0 host	1x USB 2.0 full speed host port for connecting LTE(4G) or UMTS(3G) USB sticks (supported sticks: see www.bintec-elmeg.com)
Serial console	not supported

DSL

VDSL2-Vectoring	VDSL2-Vectoring (ITU G.993.5) kompatible to VDSL2-Vectoring connections
VDSL2	VDSL2 (ITU G.993.2) compatible to VDSL2 connection of Deutsche Telekom
VDSL Profile	VDSL Profile 8a, 8b, 8c, 8d, 12a, 12b, 17a, 30a
VDSL	Compatible to ADSL/ADSL2/ADSL2+, Annex B / J
ADSL	ADSL1, ADSL2 or ADSL2+ with internal ADSL2+-Modem

Security

WLAN Access Control List (ACL)	MAC address filter for WLAN clients (Whitelist)

Security

Stateful inspection firewall	Directional packet filtering with monitoring and interpretation of the respective status of the individual connections.
Policy-based NAT/PAT	Network and port address translation using different criteria such as IP protocols, source/destination IP address, source/destination port.
NAT / PAT	Symmetrical network and port address translation (NAT / PAT) with randomly generated ports including multi-NAT (1:1 translation of the entire network)
Packet filter	Filtering of IP packets based on various criteria such as IP protocols, source/destination IP address, source/destination port, TOS/DSCP, layer-2 priority can be individually configured for each interface
Password Admin	Administrator system access for the Web configuration
Encryption WEP/WP	WEP64 (40 Bit key), WEP128 (104 Bit key), WPA Personal, WPA Enterprise, WPA2 Personal, WPA2 Enterprise
Access Control List (ACL)	MAC address filter for WLAN clients (white list) and dynamic and static blacklist. Black list function requires WLAN Controller
IEEE802.11i authentication and encryption	802.1x/EAP-MD5, 802.1x/EAP-TLS, 802.1x/EAP-TTLS, 802.1x/EAP-PEAP, key management, PSK/TKIP encryption, AES encryption, 802.1x/EAP
Inter Cell Repeating	Inter traffic blocking for public hot spot (PHS) applications for preventing of communication radio client to radio client in a single radio cell.
VLAN	Network segments on layer2 possible. Per SSID one VLAN ID available. Static VLAN configuration according IEEE 802.1q; up to 256 VLANs supported.

Content of Delivery

Ethernet cable LAN	1x Ethernet cable, (RJ45-RJ45), 3m, yellow
Ethernet cable WAN	1x Ethernet cable WAN (RJ45-RJ45), 3m, blue
VDSL cable	1x VDSL cable (TAE-F-RJ45), gray
19 " brackets	2x 19 " brackets + Mounting clamps and screws
WIFI Antennas	2x WIFI antennas (dual band, R-SMA), white
Power Supply	1x External power supply, Input: 100V - 240V AC, with high efficient switching power supply; follows EuP Directive 2008/28/EC
Documentation	Setup manual, safety instructions

Max. system values

SIP providers (VoIP)	Max. 25 SIP providers
External SIP channels	No restrictions
VPN / IPSec Tunnel	Max. 5
WLAN Controller	For internal AP and additional 3 external AP via Default License, max. 6
Media interfaces (TDM / IP)	5 DSP channels (G.711) from which 5 DSP are with compression (G.729, G.726)

IPv6

IPv6	
IPv4/ IPv6 Dual Stack	Parallel mode IPv4/ IPv6 supported
DHCPv6	DHCP Server and Client
NDP	Neighbor Discovery Protocol: Router Discovery, Prefix Discovery, Parameter Discovery, Address Resolution, Static configuration of neighbors, IPv6 Router AAdvertisment Option for DNS Configuration (trough ND)
ULA	Unique Local IPv6 Unicast Addresses
IPv6 Adressing	IPv6 Stateless address auto-configuration (SLAAC), Manual address configuration, General-prefix support for address configuraion (user and prefix delegation DHCPv6), Duplicate Address Detection
ICMPv6 (router & host)	Destination Unreachable, Packet too big, Time exceeded, Echo Request
Routing Protocols	Static Routes
Multicast	Multicast for IPv6
Firewall	Firewall via IPv6
IPSec	IPSec for IPv6

IP Routing	
VLAN Tagging	VLAN tagging on IP interfaces can be configured (Value range up to 4096 VLANs)
Multicast inside IPSec tunnel	Enables the transmission of multicast packets via an IPSec tunnel
Multicast IGMP	Support for Internet Group Management Protocol (IGMP V1, V2, V3) for simultaneous distribution of IP packets to multiple stations.
Multicast IGMP proxy	For simple forwarding of multicast packets to dedicated interfaces.
Policy-based routing	Advanced routing (policy-based routing) depending on various criteria such as IP protocols (layer 4), source/destination IP address, source/destination port, TOS/DSCP, source/destination interface and destination interface status.
Switch/Port Separation	Logical separation of ports at the Ethernet switch to connect a system behind a VDSL modem.

DECT connection	
Singlecell/multicell via LAN	As DECToIP system used with existing Ethernet interfaces via SIP protocol

Configuration access	
General configuration	The be.IP is configured using a Web browser to access the Configuration Interface. Supported browsers: Internet Explorer, vers. 7 or later, Firefox 2 or later, Safari, Chrome
Web configuration	Configuration access is performed locally and remotely over IP: HTTP / HTTPS without a signed certificate.
Remote maintenance over IP	Remote maintenance via HTTP/ HTTPS
Export and import configuration	Load and save the configuration; save encrypted configuration; Optionally runs automatically from the scheduler.
Firmware download	Via IP

Configuration access

Event scheduler	Controlling actions using both scheduling and event-driven criteria, for instance Reboot Device, Activate/Deactivate Interface, Trigger Software Update, and Configuration Backup.

Logging / Monitoring / Reporting

Interfaces Monitoring	Statistics on all physical and logical interfaces (ETH0, ETH1, ...), output over the Web-based configuration interface (http/https).
IPSec Monitoring	Display of IPSec tunnel and IPSec statistic; output via web-based configuration user interface (http/https)
IP Accounting	Detailed IP accounting, source, destination, port, interface and packet/bytes counter, transmission also via syslog protocol to syslog server
WLAN Monitoring	Display for each link: MAC address, IP address, TX packets, RX packets, signal strength for all receiver antennas, signal-to-noise ratio, data rate; output via web-based configuration user interface (http/https).
WLAN monitoring	Detailed display for radio, VSS, WDS links, bridge links, client links.
E-Mail alert	Automatic e-mail notification for specified actions or statuses.
External Systemlogging	Syslog, multiple syslog servers can each be configured with a separate syslog level.

Administration / Management

Configuration Interface	Integrated web server for web-based configuration via HTTP or HTTPS (supporting self created certificates). This user interface is by most of bintec elmeg GmbH products identical.
Remote maintenance	Remote maintenance via HTTP, HTTPS
GSM remote maintenance	Remote maintenance via GSM login (external USB UMTS (3G)/ LTE (4G) modem required)
Software update	Software updates are free of charge; update via local files, HTTP, TFTP or via direct access to the bintec elmeg web server
Configuration export and import	Load and save configurations, encrypted; optional automatic control via scheduler
Configurable scheduler	Controlling actions using both scheduling and event-driven criteria, for instance Reboot Device, Activate/Deactivate Interface, Trigger Software Update, and Configuration Backup.
Management: Supported management systems	bintec WLAN Controller
RADIUS	Central check of access authorization at one or several RADIUS server, RADIUS (PPP, IPSec inclusive X-Auth and login authentication, WPA Enterprise WLAN 802.1x)
RADIUS dialout	On a RADIUS server configured PPP und IPSec connection can be loaded into the gateway (RADIUS dialout).
Automatic Time Settings	Time zone profiles are configurable. That enables an automatic change from summer to winter time.
Time synchronization	The device system time can be obtained from a SNTP server (up to 3 time server configurable). The obtained time can also be transmitted per SNTP to SNTP clients.
On The Fly configuration	No reboot after reconfiguration required

Layer 2 Functionality

Bridging	Support of layer 2 bridging with the possibility of separation of network segment via the configuration of bridge groups
Proxy ARP	Enables the router to answer ARP requests for hosts, which are accessible via the router. That enables the remote clients to use an IP address from the local net.
VLAN	Support of up to 256 VLAN (Virtual LAN) for segmentation of the network in independent virtual segments (workgroups)

Redundancy / Loadbalancing

Load Balancing	Static and dynamic load balancing to several WAN connections on IP layer
BoD	Bandwidth on Demand: dynamic bandwidth to suit data traffic load

Technical data

Standards and certifications	R&TTE Directive 1999/5/EC (EN 55022; EN 555024); Low Voltage Directive 2006/95/EC (EN 60950-1); Ecodesign/ERP Directive 2009/125/E

IP Telephony

Media protocols	RTP, SRTP (in preparation)
SIPS	SIP secure (TLS), establish secure calls (in preparation)
Number of paralell connectins	2 x BRI <-> SIP hybrid connections, independent of codec type
SIP properties	CLIP, CLIR. REFER, PRACK, SESSION Timers, HOLD, MOH, INFO, NAPTR, ...
SIP 2.0	RFC 3261 conform. 2327, 2976, 3261, 3262, 3263, 3264, 3311, 3323, 3325, 3428, 3515, 3581, 3608, 3891, 3966, 4028, 3555, 2833, 1035, 2782, 2915, 2617, ...SIP Connect 1.1
Features hybrid connections	Echo cancellation according G.168, Comfort Noise Generation CNG
SIP protocols	UDP, TCP, TLS* (in preparation)
NTP Client/Server	Automatic update of date/time from time server. Internal time server for connected IP terminals.
Connection to SIP provider	A connection to an SIP provider can be configured by using an individual telephone number or extension.
Connecting standard SIP terminal devices	Standard SIP telephony over the LAN Telephony over (WAN) SIP provider; general SIP and router settings: SIP RTP port, DSCP value (SIP packets), DSCP value (RTP packets)
Number of simultaneous SIP connections per provider	The number of simultaneous SIP connections to the provider can be configured. System side not limited
Offsite extensions	Offsite extensions can be set up with IP system telephones or SIP telephones.
Bandwidth management with support for multiple locations (1)	Locations can be set up in order to use the bandwidth management. A location is identified with the aid of its fixed IP address or DynDNS address, or by using the interface to which the device is connected.
Bandwidth management with support for multiple locations (2)	The available VoIP bandwidth (upstream and downstream) can then be set up for each location.

IP Telephony	
Codecs	Codecs G.711, G.726, G.729, DTMF inband, DTMF outband, SIP INFO,
Codec for SIP providers, or IP terminals	Various codecs can be defined to influence voice quality and meet the specific requirements of individual providers. Codecs can be sorted according to various criteria and presented according to quality or bandwidth, for instance.
Early media connect	Early media connect connects voice or audio data (e.g.: announcements) before the call was accepted.
Quality of Service	DSCP header / ToS bits configurable
STUN	A STUN server is required to provide VoIP devices behind an active NAT with access to the internet. In such cases, the current, public IP address of the connection is determined and utilized to ensure a precise address is available from the outside.
Dialling end identifier/shortening via #	The time after which the system begins to dial externally; i.e. after dialling the last digit of a call number. The time can be shortened by entering #.

Quality of Service (QoS)	
Bandwidth reservation	Dynamic bandwidth reservation, assigning guaranteed and maximum bandwidths
DiffServ	Priority queuing of packets using the DSCP/TOS field.
Layer2/3 tagging	Mapping 802.1p layer 2 priority information to layer 3 Diffserv attributes.
Policy-based traffic shaping	Dynamic bandwidth management using IP traffic shaping
TCP download rate control	Reserves bandwidth for TCP connections.

Accessoires

Access Points and Bridges	
bintec W1001n (5530000173)	W1001n, Economic WLAN Access Point with 1 single radio acc. 802.11abgn (2.4/5 GHz) Mimo 2x2, 1 Gigabit ETH, PoE, integr. antennas, integrated wall mounting, incl. WLAN Contr. license for Master AP, shipment without power supply, without ceiling mounting
bintec W1003n (5510000321)	W1003n, WLAN Access Point with a single radio module according 802.11abgn (2.4/5 GHz) Mimo 2x2, one Gigabit ETH, PoE, integrated antennas, incl. wall and ceiling mounting, incl. WLAN Controller license for Master AP, shipment without 100-240V wall adapter
bintec W2003n (5510000324)	W2003n, WLAN Access Point with a dual concurrent radio module according 802.11abgn (2.4/5 GHz) Mimo 2x2, 2 Gigabit ETH, PoE, integr. Antennas, incl. wall/ceiling mounting, incl. WLAN Controller license for Master AP, shipment without 100-240V wall adapter
bintec W2003n-ext (5510000325)	W2003-ext, WLAN Access Point with a dual concurrent radio module according 802.11abgn (2.4/5 GHz) Mimo 2x2, two Gigabit ETH, PoE, 4 ext. antennas, incl. wall/ceiling mounting, incl. WLAN Controller lic. for Master AP, shipm. Without 100-240V wall adapter

Access Points and Bridges

bintec W2004n (5510000320)	W2004n, WLAN Access Point with a dual concurrent radio module according 802.11abgn (2.4/5 GHz) Mimo 3x3, 2 Gigabit ETH, PoE, integr. antennas, incl. wall/ceiling mounting, incl. WLAN Controller license for Master AP, shipment without 100-240V wall adapter

Pick-up Service / Warranty Extension

Service Package 'small' (5500000810)	Warranty extension of 3 years to a total of 5 years, including advanced replacement for bintec elmeg products of the category 'small'. Please find a detailed description as well as an overview of the categories on www.bintec-elmeg.com/servicepackages.

Add-ons

ANT-RSMA-Omni Set (5510000397)	Antenna Set (2,4GHz) with two onmi antennas for devices with RSMA socket
bintec 4GE-LE (5530000119)	LTE (4G)/UMTS (3G) extension device for router; 1x Gbit Eth; Simcard slot; Wallmounting; PoE Injector inclusive