Freedom can be purchased
Wireless LAN for the Office
and Industry

bintec W/WI Series

funkwerk
enterprise communications

Teldat
bintec-elmeg

Teldat: ICT-Solutions for tomorrow

VOICE, DATA, SECURITY.

Teldat GmbH (formerly Funkwerk Enterprise Communications GmbH) is part of the Teldat Group, a European provider of information and communications technology. The company provides innovative products and solutions in the fields of IP access, security, telephony, and WLAN with a focus on medium-sized companies and freelancers. The global provider also successfully markets scalable and flexible solutions for enterprise clients and branch networking. Products and solutions for the carrier and provider sector round out the portfolio.

Teldat GmbH has a total of 700 employees at several European locations.

Teldat GmbH headquarters are located in Nuremburg, Germany. The Teldat Group is headquartered in Madrid, Spain.

Technology that liberates you.

The application options of wireless data transfer via radio transmission (Wireless LAN) are continuously offering new options to companies and service providers. However, many manufacturers see Wireless LAN as little more than products for wireless communication, i.e. only a further segment of mobile communications.

Teldat, on the other hand, does not only offer products, but solutions, where all components are carefully tuned to each other and harmonize with each other — throughout the complete communication process.

At the same time, we address the demands for extensibility, easy maintenance, high availability, and particularly the requirements made on security mechanisms, which always have to keep pace with current developments.

WLAN solutions make your communication more efficient and increase the productivity of your daily work. We draw upon mechanisms and functions which ensure top-level security for data transfer and compliance with industry standards.

Moreover, the central WLAN Controller for WLAN networks opens up a new dimension of more convenient and effective administration of WLAN infrastructure.

WLAN components from Teldat allow you to realize sophisticated and innovative projects with ease in the most diverse sectors: Fast and flexible project planning and implementation, as well as trouble-free and reliable operation, are hallmarks of Teldat systems.

Access Points for Office WLAN

bintec W150n

The bintec W150n, an affordable entry-level option for 802.11n wireless networking, appeals to users with its extremely small footprint. Ideal for small companies or home offices, the W150n provides wireless access to the internet, network printers, or other network components. The 802.11n device uses the 2.4 GHz band and MIMO 1x1 technology to achieve transmission rates of up to 150 Mbps using 40 MHz channels. The W150n is of course also backwards compatible with 802.11b (11 Mbps) and 802.11g (54 Mbps) WLAN devices.

The bintec W150n operates as an access point, but can also serve as a WLAN client if desired. This configuration enables devices that drivers cannot be installed on and those equipped with only an Ethernet port to quickly and easily connect to the wireless network. Together with a second W150n, the router can also be used as a repeater or to implement a bridge link.

- WLAN according IEEE 802.11n, compatible to .11bg
- Single Band Radio 2.4 GHz
- Physical data rates of up to 150 Mbps
- Operation as access point, bridge, WDS, client

bintec W1002n

The bintec W1002n is the latest access point in the successful Wx000 series. It supports new 802.11n technology and allows significantly higher net data rates than devices with 802.11g —while improving range. With its IEEE 802.11n compatibility mode, the bintec W1002n is compatible with all previous IEEE 802.11g and IEEE 802.11a/b/g/h clients. Moreover, it supports the mixed operation of IEEE 802.11n clients, as well as IEEE 802.11b/g and IEEE 802.11a/h clients.

The operation of two bintec W1002n devices in bridge mode permits the setup of line-of-sight radio links. IEEE 802.11n presents advantages here too, as two separate data flows can be used simultaneously.

- WLAN according to IEEE 802.11n
- Dual-band radio module with 2.4 GHz and 5 GHz
- Physical data rates of up to 300 Mbps
- WiFi certificate, compatible with IEEE 802.11agbh devices
- WiFi certificated security (WPA2, 802.1x, etc.)
- Operation as access point, bridge, WDS, client
- Multi SSID to establish virtual radio networks with VLAN
- Voice ready (VoWLAN) with seamless hand-over, if WLAN Controller is used
- Operation with up to 4 Watt transmission power (5.8 GHz)
- PoE (Power over Ethernet) according to IEEE 802.3af
- Operation is medical institutions permissible (EN60601)
- Management via free of cost DIME manager or via bintec WLAN Controller

Access Points for Industrial WLAN

bintec WI1040n / WI2040n

The bintec WIx040 series with one or two WLAN radio modules was specially developed for professional use in industry, the health sector and public transport and has extended approvals for these areas.

The devices support IEEE 802.11n technology and depending on requirements they can be operated in access point, access client or in bridge mode. Transmission is in the frequency bands 2.4 and 5 GHz.

A relay output can be applied either as automatic alarm output for signalling or individually as switch output for signals, external devices, etc. The devices can also be used with optical fibre connections.

The compact and very robust design is suitable for installation almost anywhere in an industrial environment. Well thought through details, such as protection against theft, open up a broad field of applications. The bintec WIx040 series access points are E1 licensed for trouble-free use in vehicles. Installation in vehicles or busses is therefore possible without voiding the vehicle manufacturer's warranty.

bintec WI1065n / WI2065n

The bintec WIx065n series was specially developed for the professional application in particularly rugged environments. According to Safety Class IP 65, it offers protection against dust and water jets. Thanks to the extended temperature range, operation is also possible in outdoor environments without further protective casing.

Besides the previous wireless frequencies in the 2.4 GHz and 5 GHz range, the bintec WI series devices also support subband 3 in the 5 GHz range (5755-5825 MHz).

The Bundesnetzagentur (German Federal Network Agency) allows the use of BFWA (Broadband Fixed Wireless Access) applications with up to 4 Watt transmission power in this frequency range for Internet service providers.

The scope of performance is identical to that of the bintec WIx040 series devices: access point, access client or bridge mode in the frequency bands 2.4 and 5 GHz, IEEE 802.11abgn, Mimo 2x3, relay output, as well as SFP slot for optical fibre connections.

- IEEE 802.11abgn with Mimo 2x3
- Up to two radio modules per access point
- SFP slot for fibre-optical modules
- Temperature range -25 to +65 °C
- Safety class IP 40 / IP 65
- Triply redundant power supply
- Usage as managed or stand-alone access point

WLAN Client for use in Rugged Environments

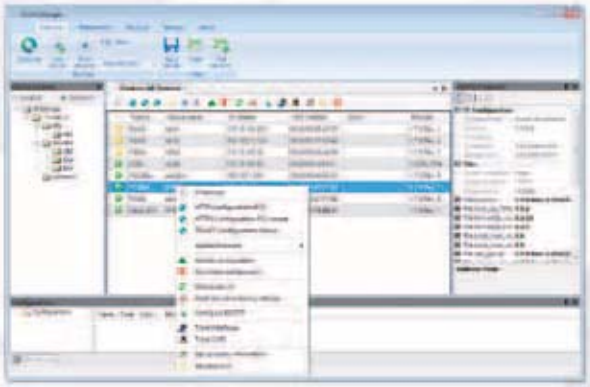
bintec WI Client

The bintec WI Client connects devices or machines with Ethernet or serial interfaces in WLAN networks (802.11a/b/g/h). The performance spectrum, the robust design and flexible installation options also allow the use of the device in difficult environments.

Typical fields of use for the WI Client are in industrial WLAN applications, such as machine-to-machine communication or in mobile installations, e.g. on lift trucks. Implementation of the serial data interface is compatible with the bintec WIx040n and WIx065n devices.

- WLAN client adapter for industrial applications
- 10/100 Mbps Ethernet interface
- Facilitates wireless connection of RS232 devices
- Supports 2.4 and 5 GHz according to 802.11a/b/g/h
- DIN rail assembly and wall mounting
- Compact dimensions: Just 105 x 125 x 40 mm
- Broad operating temperature range
- Approval for usage in vehicles (E1)

Configuration and Administration

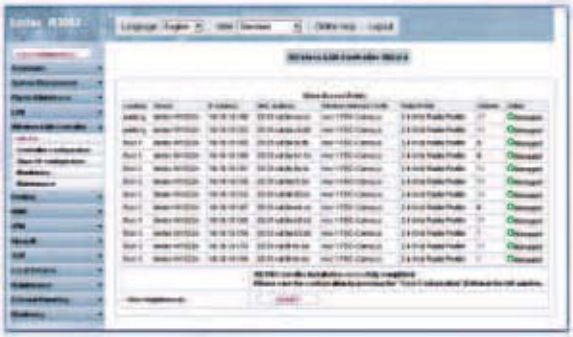


DIME Manager

The DIME Manager is the free-of-charge management tool for basic administration of R, W/WI series of Teldat devices (except the W150n) and the hybird family. The .NET-based application is designed for up to 50 devices and excels by virtue of its easy handling and clear display of devices, parameters and files.

Devices in the LAN are found through SNMP Multicast irrespective of their momentary IP address. New devices in the LAN can therefore be assigned a new IP address, a new password and other parameters quickly and easily. A configuration can then be initiated via HTTP or Telnet.

- Management tool for up to 50 devices
- Device discovery
- Basic configuration
- Firmware and configuration administration



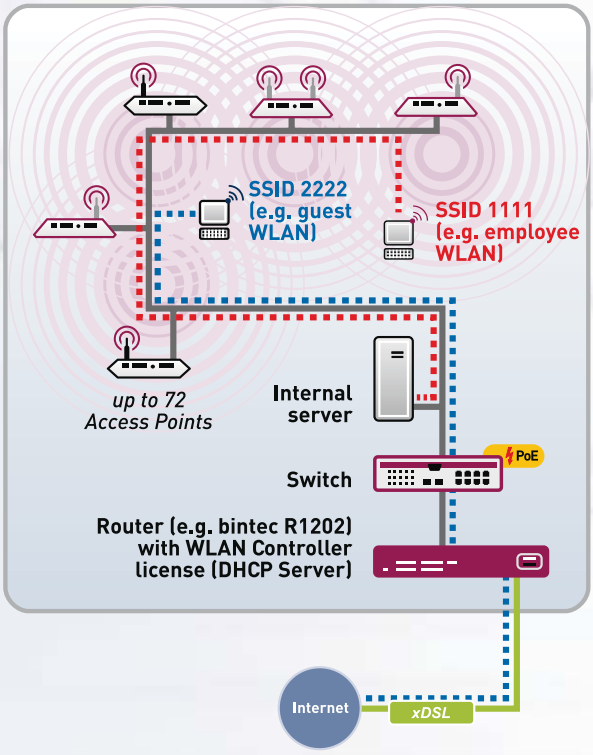
bintec WLAN Controller

The bintec WLAN controller enables your customer's WLAN network to be configured in under 30 minutes—with no particular WLAN skills!

The automated RF management system spares you time-consuming searches for free WLAN channels and selects the channels that are best for the system as a whole. The easy-to-use monitoring system enables the system to be seamlessly monitored, and swiftly detects any threat to the network.

- Wizard-guided installation in just five steps
- For .11n WLAN APs with full performance (W1002n/WI series)
- Supports VoWLAN telephony
- Ideal for networks with 2-150 access points
- Extendable as redundant system (backup WLAN Controller)
- Integrated HotSpot functionality (optional)
- E-mail alarm functionality, if access point goes offline
- Operation up to 6 APs on a master AP without additional Hardware

The bintec WLAN controller is designed for applications in SMEs and can manage up to 150 access points. No additional hardware is required for the smallest version (up to 6 APs) because the WLAN controller software is run as a licence on a master access point. For 7-72 access points, the bintec R1202 hardware is required, for up to 150 access points a RXL12x00. To run it, you require a WLAN controller licence on the master access point or on a bintec Rxx02 series (R1202, R3002, R3502, R3802 or R4402) resp. RXL12100/RXL12500.



bintec HotSpot Solution

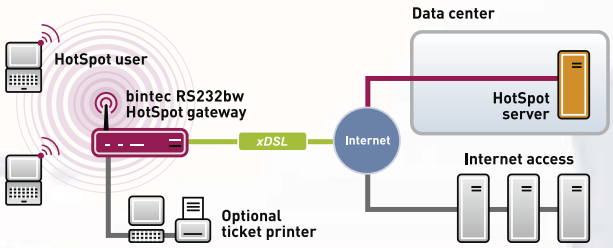
"Surfing expressly requested!"

The bintec HotSpot Solution allows the operation of public hotspots for Internet access via WLAN—it is easy to set up, powerful, provides flexible configuration options and is compatible with the current legal requirements regarding data protection and telecommunications data retention according to TKG (German Telecommunications Act). The Internet access at the HotSpot can be offered as free service or operated with a time or volume-based ticket system. The solution support branch office solutions and can therefore be offered at various locations and administrated centrally.

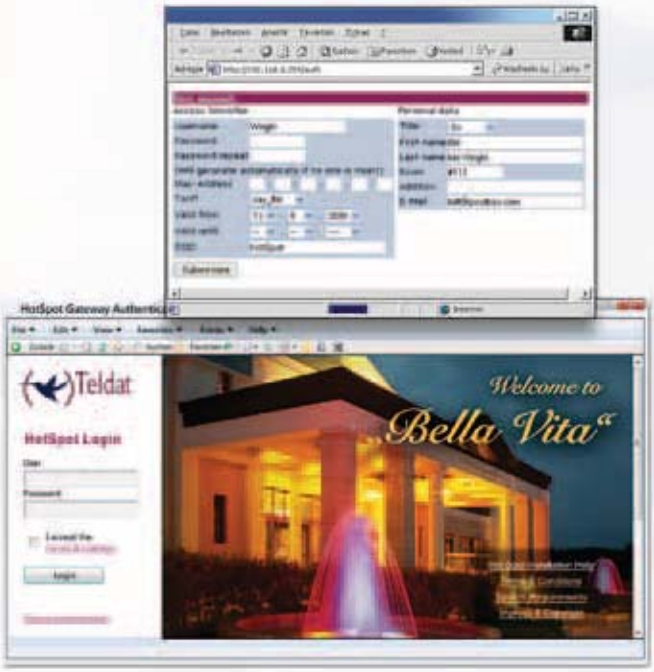
The bintec HotSpot Solution typically consists of a locally installed bintec RS232bw used as a HotSpot gateway and of the Teldat HotSpot Server that automatically manages the Internet access of the gateway. An administration terminal—e.g. the reception desk PC in the hotel—is used for the administration of the operator account on the server: Logging of registrations, creation of tickets, statistical evaluation, etc.

The HotSpot Server

The operation of the bintec HotSpot Solution requires both the gateway and a HotSpot Server. The server performs the hotspot user administration and stores all data needed for compliance with the legal provisions for telecommunications data retention.



As the operator of a HotSpot, you rent a virtual server. Particularly in the case of smaller hotspots, the virtual server offers economic advantages. Moreover, the operator does not need in-depth technical know-how. The rented virtual server is located in a modern high-availability computing centre connected to the Internet via redundant data links.



HotSpot Gateway:

- Hotspot as fee based service or as free of charge service
- Automatic activation by operation as free of charge hotspot
- Simple user login via web browser
- Multilingual, for your international guests
- No multiple registrations
- No expiry of time credits after log-off or if the connection is interrupted
- Redirecting to an operator-specific log-in page for initial access

HotSpot Server:

- Several locations per customer (branch support)
- Several tariffs per customer (e.g. day, hour, volume)
- Manual generation of hotspot tickets, generation of hotspot vouchers
- Compliance with legal requirements, the system fulfils the data retention law

Radio Measurement for Optimal WLAN Coverage

The performance of a radio data system is essentially dependent on two factors: Firstly on the integration of the radio network in the entire data network structure, secondly on the quality of the radio coverage. Careful planning and professional installation are required to ensure this quality of coverage in all working areas and the stable operation of the data radio network.

Detailed and technically competent radio measurement, ideally in advance of the installation, helps you define sites for access points and identify sources of interference and compensate any weaknesses in the radio network.

As a manufacturer of wireless LAN systems for all types of professional solutions, Teldat has modern measurement and calculation techniques, as well as unparallel practical knowledge, at its disposal. With this service program, we offer you maximum precision for top results—in cooperation with your IT partner on-site as well of course.

Radio Measurement Services

Radio measurement entails a comprehensive professional spectrum of individual services:

- On-site tour (also by simulation as far as this is possible)
- Radio measurement or simulation of coverage
- Marking the sites (only in the case of real measurement)
- Definition of the antennas and access points
- Review meeting
- Comprehensive measurement report
- Complete documentation

Antenna Concepts

The best position for an access point is not always the best position for achieving an optimum performance of the WLAN infrastructure—separately positioned antennas are the solution. The WLAN antenna portfolio of Teldat constitutes an optimum supplement to the access points with external antenna ports in every situation.

Besides patch antennas, the portfolio comprises omni and dualband antennas, as well as special antennas, such as the indoor Mimo antennas or dual polarization antennas: The 5 GHz dual polarization antenna is designed for bridge links in combination with two 802.11n devices that can therefore transmit two streams simultaneously.

The high-quality antennas optimize the coverage of the wireless LAN or extend the length of bridge links—optimized for various requirements.

The optimum antenna positions can be determined by means of a professional site survey. The antenna configurator on the Teldat web pages helps you find the appropriate solution:

www.teldat.de/bridge-link-calc-11n/

Features WLAN Access Points

	bintec W150n	bintec W1002n	bintec WIx040n-Series	bintec WIx065n-Series
WLAN				
Number of internal radio modules	1	1	max.2	max.2
Antenna connector RTNC / RSMA	–/1	3/–	3-4/–	3-4/–
IEEE 802.11n 1x1 / 2x3 Mimo	● / –	–/ ●	–/ ●	–/ ●
IEEE 802.11b/g/a(h)	● /● / –	● / ● / ●	● / ● / ●	● / ● / ●
Frequency range 2,412 – 2,472 GHz / max. allowed EiRP	● /100mW	● / 100mW	● / 100mW	● / 100mW
Frequency range 5.150 – 5.350 MHz / max. allowed EiRP	–	● / 200mW	● / 200mW	● /200mW
Frequency range 5.470 – 5.725 MHz / max. allowed EiRP	–	● / 1000mW	● / 1000mW	● / 1000mW
Frequency range 5.755 - 5.825 MHz / max. allowed EiRP (BFWA)	–	● / 4000mW	● / 4000mW	● / 4000mW
Operation mode WLAN off / AP / Bridge / Client	● / ● / ● / ●	● / ● / ● / ●	● / ● / ● / ●	● / ● / ● / ●
Bridge (Point To Point, Point To Multipoint)	●	●	●	●
Wireless Distribution Service (WDS)	●	●	●	●
Display of signal strength / data rate per client	● / –	●	●	●
Table of associated clients (Nodes)	●	●	●	●
Broadcast SSID can be switched off	●	●	●	●
Multi-SSID (up to 8 SSIDs per radio)	–	●	●	●
Number of spatial streams (802.11n)	1	2	2	2
Bandwidth 20/40 MHz (802.11n)	● / ●	● / ●	● / ●	● / ●
TPC (Transmission Power Control) for 5 GHz	–	●	●	●
DFS (Dynamic Frequency Selection) for 2,4 and 5 GHz	–	●	●	●
Wi-Fi Protected Setup (WPS)	●	–	–	–
Security				
WPA2 Personal Mode / Enterprise Mode	● / ●	● / ●	● / ●	● / ●
WPA Personal Mode / Enterprise Mode	● / ●	● / ●	● / ●	● / ●
Encryption with RC4 WEP 64 (40 bit key), 128 (104 bit key)	●	●	●	●
Authentication via RADIUS server (.1x authentication)	●	●	●	●
802.1x/EAP/ –MD5/ –TLS/ –TTLS/ –PEAP	●	●	●	●
Inter cell repeating on/off	●	●	●	●
VLAN (up to 32)	–	●	●	●
Access Control List (ACL) local	●	●	●	●
NAT/PAT	–	●	●	●
VPN IPSec with hardware encryption	–	●	●	●
Software/Management				
Roaming (AP mode) with IAPP (Inter Access Point Protocol)	–	●	●	●
Fast roaming für 802.1x encryption (Pre-auth / PMK caching)	–	●	●	●
WMM 802.11e (Wireless Multimedia)	–	●	●	●
WMM Power Save (U-APSD)	●	●	●	●
Internet dial-up (PPPoE)	●	●	●	●
DHCP client / server	● / –	● / ●	● / ●	● / ●
Configuration via HTTP	●	●	●	●
Configuration via SSH, HTTPS, Telnet	–	●	●	●
SNMP V1, V2, V3 / SNMP configuration	–	● / ●	● / ●	● / ●
Load and save of configuration	●	●	●	●
Configuration changes without reboot	–	●	●	●
DIME Manager for device discovery and configuration	–	●	●	●
WLAN Controller functionality for up to 6 Access Points	–	optional	optional	optional
Management via WLAN Controller	–	●	●	●
Hardware				
RJ45 connectors for 100 BaseT-Ethernet with Auto Crossover	1	2	2	2
SFP-Slot for 100 Mbps fibre	–	–	●	●
Serial interface RS232 (console / data mode)	– / –	● / –	● / ●	● / ●
External switched power supply	●	●	optional	optional
Power Over Ethernet according to IEEE 802.3af	–	●	●	●
Status LEDs for Power, Wireless, Ethernet	●	●	●	●
Alarm relay	–	–	●	●
Wall mounting	–	●	●	●
Theft protection optional	–	●	●	●
Compliant to R&TTE directive 1999/5/EG	●	●	●	●
Medical approval acc. to EN 60601-1-2	–	●	●	–
Automotive approval E1-mark	–	–	●	–
WiFi certified 802.11abgn	–	●	●	●
Extended temperature range	–	–	●	●
Designed for outdoor use	–	–	–	●

Features Antennas/cables

Model	Indoor	Outdoor	dB gain (2,4 GHz)	dB gain (5 GHz)	Cable length (cm)	Usage	Connector
ANT-Ceiling-Mimo-2G	●	–	10/8*	–	200	Mimo ceiling antenna	RTNC plug
ANT-Omni-4-dual	●	●	4		–	Ceiling antenna	N jack
ANT-Omni-Vehicle-1,2m	●	●	5 / 4*	–	120	Vehicle antenna	RTNC plug
ANT-Omni-5-2G-1,2m	●	●	5 / 4*	–	120	Omni	RTNC plug
ANT-Omni-8-Dual	●	●	8	8	–	Omni	N jack
ANT-N-20-5G-Dualpol (Dual Polarisation)	–	●	–	20	–	Dual-polarization antenna	N jack
ANT-D-8/11-dual-0,2m	●	–	8,5	10,5	20	Panel antenna	RTNC plug
ANT-N-D-13/15-dual	–	●	13,5	15,5	–	Panel antenna	N jack

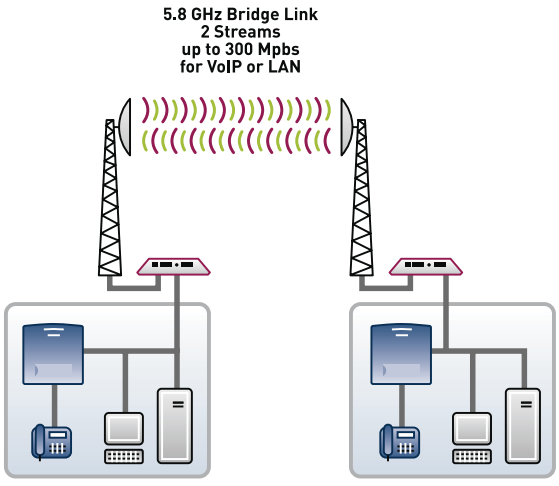
The antenna configurator on the Teldat web pages helps you find the appropriate solution:
www.teldat.de/bridge-link-calc-11n/

WLAN BridgeLink Bundles

The WLAN Outdoor BridgeLink Bundle "Out-of-the-Box" is designed for wireless bridging of radio links in outdoor environments. The bundle contains all required components to setup a radio link by using the new 802.11n technology.

The WLAN Outdoor BridgeLink Bundle is intended to build radio links up to 8 km distance. In case of free line of sight the results below can be expected by using the following configuration:

Distance	Minimum antenna height	Operation Band	Number of Spatial Streams	Bandwidth	Allowed EiRP	PHY Rate
0,6 km	2 m	5 GHz Outdoor	2	40 MHz	1000 mW	300 Mbit/s
1,5 km	3 m	5 GHz Outdoor	2	40 MHz	1000 mW	180 Mbit/s
2,5 km	4 m	5 GHz Outdoor	2	40 MHz	1000 mW	120 Mbit/s
5 km	5,5 m	5 GHz Outdoor	2	40 MHz	1000 mW	60 Mbit/s
8,5 km	8 m	5 GHz Outdoor	2	20 MHz	1000 mW	14,4 Mbit/s



- bintec WLAN BridgeLink Bundle with bintec W1002n access points: Item no. 55 1000 0226
- bintec WLAN Outdoor BridgeLink Bundle with bintec WI1065n access points: Item no. 55 1000 0271

bintec W Series
bintec WI Series

WLAN solutions make your communication more efficient and increase the productivity of your daily work.

- WLAN solutions for all size companies
- Wireless solutions for voice, data and machine-to-machine communication
- Independent stand-alone mode or operation with wireless controller
- Solutions for guest access (hotspot)
- High-performance solutions to bridge link connections between locations

WLAN components from Teldat allow you to realize sophisticated and innovative projects with ease in the most diverse sectors: Fast and flexible project planning and implementation, as well as trouble-free and reliable operation, are hallmarks of Teldat systems.

Your system house will be happy to advise!

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FLEXIBLE COMMUNICATION SOLUTIONS THAT GROW WITH YOU.

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

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

Our product and solutions 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: Teldat will provide you with a tailor-made solution!

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