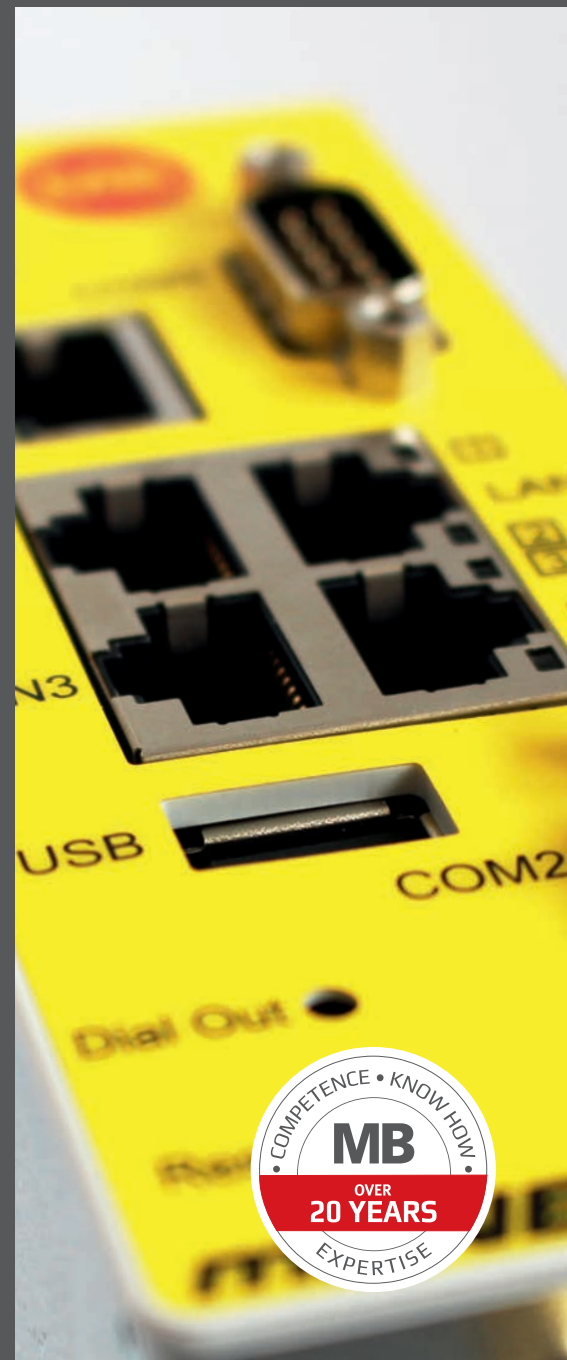


**sps Edition**  
smart production solutions



# PRODUCT CATALOGUE 2019



**SECURITY**

**IS OUR PROMISE**

# YOUR EXPERT FOR



## Remote Access

We enable remote diagnostics and remote maintenance of your machines and plants.



## Industrial Internet of Things

Collect valuable data from your machine plant and use the easy-to-navigate web visualization.



## Industrial Security

Protect your machines and systems from unauthorized access and attacks.



# OUR COMMITMENT

## USABILITY AS A SUCCESS FACTOR



### **FAST - YOUR TIME IS VALUABLE**

Set up your devices faster and connect with just a few clicks. Focus on remote maintenance - we take care of the technology behind it.



### **EASY - KEEP IT SIMPLE**

It's all about usability. We want to improve your user experience so that you can excel as an automation professional, whether your main focus is remote access, data logging or cybersecurity.



### **SECURE - SECURITY BY DESIGN**








Do not worry: your data is secure and your system is protected against unauthorized access - security is our main priority.

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### SYMBOL KEY CONNECTIONS:

	WAN
	LAN
	RS-232/RS-485
	MPI/PROFIBUS
	Mobile Communication
	WIFI
	Firewall

#### Registered trademarks of

**Siemens:** TIA Portal, S7-300, S7-400, S7-1200, S7-1500, SIMATIC, S7, STEP 7

**Beckhoff:** TWINCAT

**3S-Smart Software:** CoDeSys

# MB CONNECT LINE

## YOUR FORERUNNER FOR THE DIGITAL TRANSITION



MB connect line GmbH was founded in 1997 and focused on “Made in Germany” from the beginning. The headquarter is located in the Bavarian town Dinkelsbühl. North American customers are being supported by our US-subsiary MB connect line Inc. which is located in Warrenville, Illinois.

As independent medium-sized business we are pacemaker when it comes to solutions for professional communication via internet. Specifically it's about the secure connection of machines and plants for remote maintenance, data collection and M2M-communication. In the early years industrial modems played the major role. In the meantime the internet became the backbone of the worldwide communication and therefore also the base of the remote service building kit of MB connect line. Today we are facing the continuous digitalization of the complete chain from the planning and development to the production up to the transportation to the end-user. In this case we deliver solutions that are convincing not only because of their functionality but also when it comes to the protection of data against unauthorized access, manipulation and reconnaissance.

The foundation of our success as supplier of future technology are very well skilled specialists. Besides offering various training

opportunities to our employees, we are an active training company of the Chamber of Industry and Commerce and as cooperation partner of the Duale Hochschule Heidenheim we offer several dual study programs in information technology.

Our association work and memberships e.g. at the Cluster Mechatronik & Automation Bayern e.V., at the TeleTrusT – Federal Association IT-Security e.V. and at the European Cyber Security Organization (ESCO) also show that the subject cybersecurity is very important to us.

**Siegfried Müller**  
CEO




---

## MADE IN GERMANY

Our products are produced exclusively in Germany, which guarantees the highest quality and safeguards jobs in Europe.

# DATA SECURITY

## WE STAND FOR SECURE CONNECTIONS

We are a manufacturer of hardware and software for remote maintenance systems and are focused on developing high-security products and services for our customers, such as the mbCONNECT24 remote service portal. We guarantee a reliable and rapid reaction to emerging security vulnerabilities. In order to meet our requirements in this highly sensitive area, we are active in the following organizations and are continuously working to be able to offer you state of the art security technology.



### TELETRUST - IT SECURITY ASSOCIATION OF GERMANY

We are a member of the IT Security Association of Germany (TeleTrust) and we develop our products under the defined guidelines of TeleTrust, which allows us to represent the “Security Made in Germany” label. TeleTrust is a network of excellence, which includes domestic and foreign members from industry, administration and science as well as topical related partner organizations.

### ALLIANCE FOR CYBERSECURITY

MB connect line is a member of the Alliance for Cybersecurity and we actively work with the German Federal Office for Information Security. This enables our development engineers to be preemptive and to counteract security threats very quickly.

### SECUVERA

Nobody can guarantee 100% security all the time, but MB connect line can provide the highest level of security possible. Backed by tool-driven and manually performed penetration tests of mbCONNECT24 V2, executed by BSI certified IT service provider Secuvera, you have the peace of mind of knowing that highest level of security, is yours.

We use open source technologies which enable us to ensure the highest possible security when using the mbCONNECT24 portal. Additionally, those open source technologies give us high flexibility when it comes to integrating external hardware. Our remote maintenance systems work with X.509 certificates, OpenSSL and TLS-Encryption. Our servers are located in high-security centers worldwide.

With MB connect line you have chosen a partner that understands the importance and upholds the utmost standards of security. We stand for secure connections.







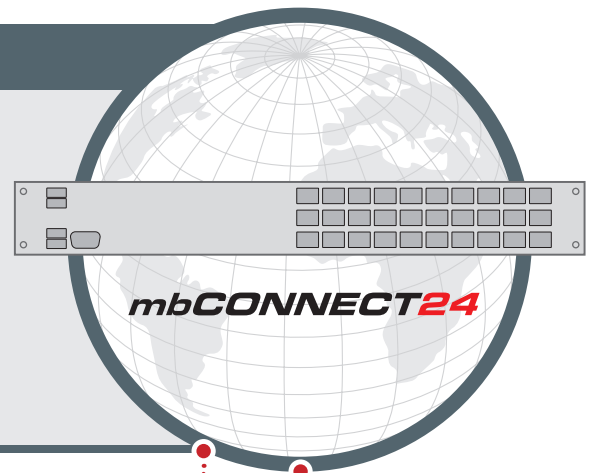
# Remote Service Portal

# *mbCONNECT24*

## THE ECOSYSTEM

### Remote Service Portal

- Worldwide accessibility via internet
- Serves as central connector between user, units and plant components
- Secure, encrypted connections to the machines and to the users
- As basis for secure remote maintenance, data collection, M2M-communication and networking via internet



### Server Management

- Simple management via web interface
- Project based management of your machines and devices
- Role based user management with highly scalable access authorizations (also on IP- or Port-level)
- Comprehensive functions for reporting, task management and messaging
- Various server solutions, public and private
- LDAP-Connector

### Maximum Security

- Encrypted SSL/TLS-connections
- 2-factor authentication
- Secure Remote Password Protocol (SRP)
- IP Black/Whitelisting
- Certified and audited security
- Security-by-Design

## Your options

### IP transparent access (mbDIALUP)

- ✓ Diagnosis, configuration and programming via internet
- ✓ Use of existing engineering tools such as Siemens Step7, TIA, RSLogix or Codesys, as if you were on the spot
- ✓ Direct MPI/PROFIBUS interface and driver for SIMATIC software
- ✓ Remote diagnosis with program- and firmware-updates
- ✓ Several users can access the router at the same time

### Web based access (mbWEB2go)

- ✓ Supports webserver, RDP and VNC directly in standard browsers
- ✓ Optimized for smartphones and tablets
- ✓ No client- or additional software required

### Web based visualization

- ✓ Easy link of indicating and operating element with process data (drag & drop)
- ✓ Reading and writing of system- and process-data via standard browser
- ✓ Editor for Dashboards and Widgets
- ✓ Access to visualization pages via external static links

### Data management

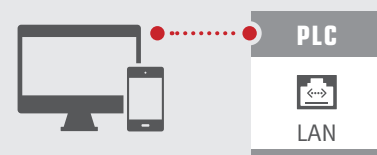
- ✓ Comprehensive reports (manual or time-controlled)
- ✓ Data export as PDF, CSV or HTML
- ✓ Connection to enterprise systems (ERP, SCADA)
- ✓ External data base connection (mysql)
- ✓ API-Access to live- and logging-data

## Your machines and equipment

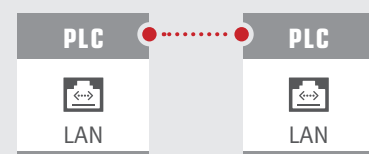
### Remote access



### Data logging and alarming

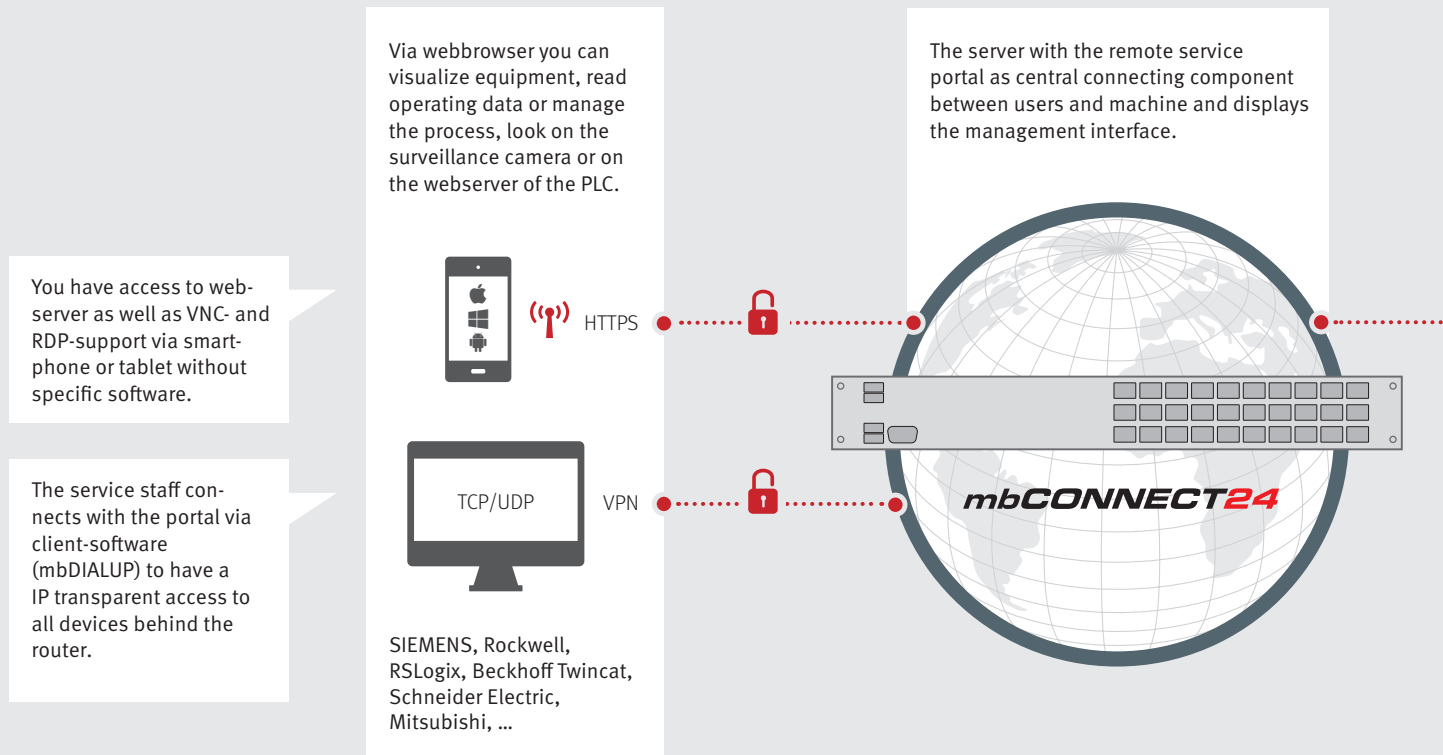


### M2M-communication



## The modular system – functional principle

For remote access, collect and display data, web-based visualization, monitoring and alarming, as well as M2M communication on a secure platform.

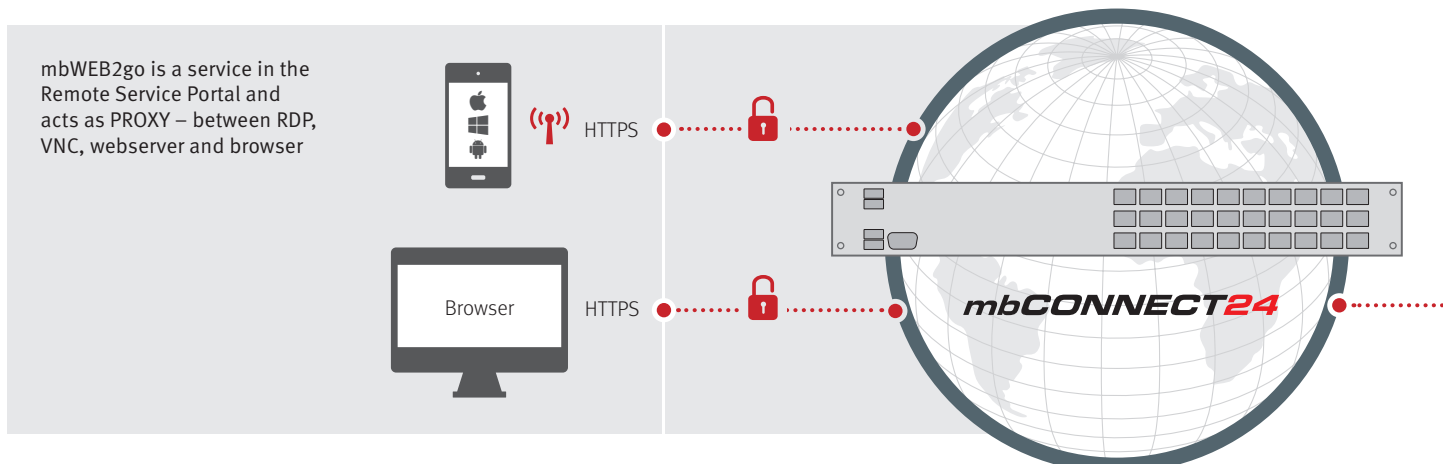


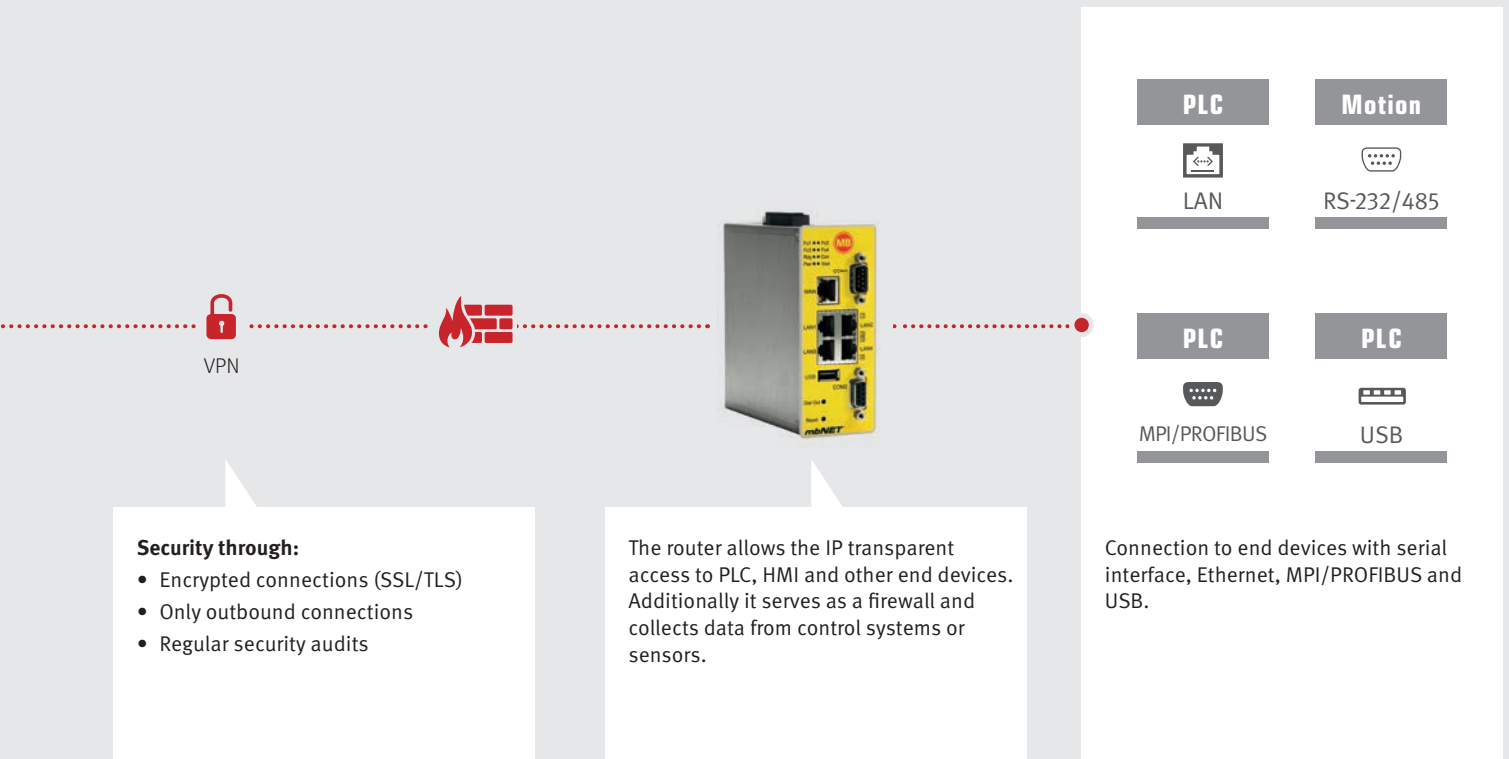
## Webbased access *mbWEB2go*

### Functional Principle

Terminalserver technologies, such as VNC or RDP, usually require an appropriate client on the user side, e.g. with Java or Flash; mbWEB2go solves this issue via server-sided Proxy, which translates the graphic outputs of VNC and RDP, so that access is possible directly via standard browser.

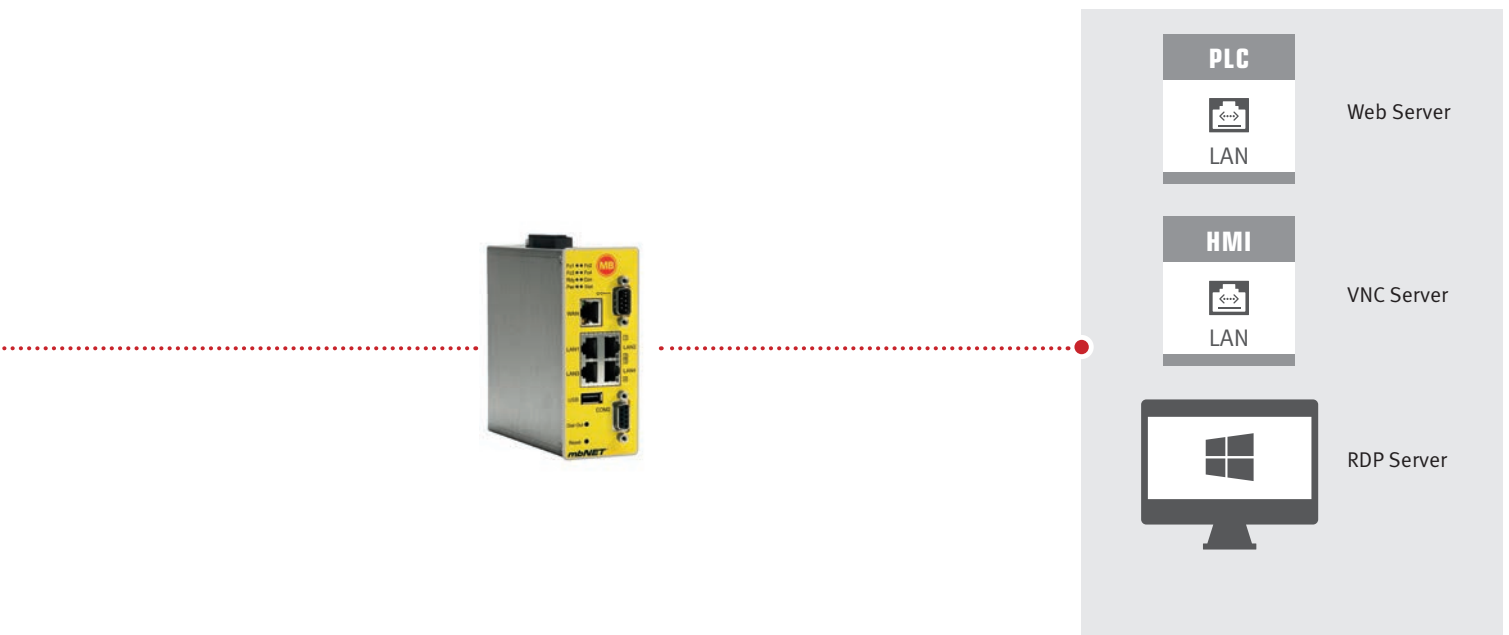
The mbWEB2go principle is based on a HTML5 web application and therefore doesn't need special plug-ins or additional installations. Through the minimum resource requirements it is ideal for smart-phones and tablet computers.





**Webbased Access (mbWEB2go)**

- ✓ Mobile and secure web access via HTTPS
- ✓ Works with every standard browser
- ✓ Access to web server and IP-cameras
- ✓ Supports RDP- and VNC-protocols without special clients or apps
- ✓ HTML5-capable standard browser is sufficient
- ✓ Independent from operating system on the end device
- ✓ Allows the monitoring and visualization independent from stationary PCs

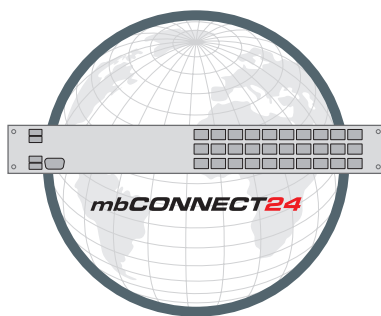


## The Center – Remote Service Portal

### Central switchboard

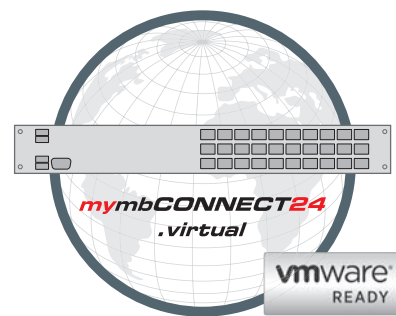
- Switchboard for users and devices (routers, data modems)
- All users and devices only connect to the server (so called outbound connections)
- Central management of all projects, users and machines
- Role-based user management
- Finely scalable access rights for participants behind the router
- Provides encrypted data connections between the locations
- Organizes devices and users in projects
- Provides efficient workflow with integrated messaging system and task planer

## Varieties of the Remote Service Portal



### mbCONNECT24 Public Cloud

- Start with a free, ready to use environment
- Optional upgrade to higher scope of performance
- For small to medium sized projects (up to 250 units)



### mymbCONNECT24.virtual Private Cloud

- Hardware-independent virtual machine
- Runs with your own hardware (inhouse or hosted)
- Widely scalable: customize functionality and scope of performance

### Interesting Facts

- Machines and units will be equipped with an industrial router mbNET or a data modem mbSPIDER, which then will enroll in the portal.
- Machines and units establish a VPN-connection to the portal: either permanent after startup, program-controlled on demand, by key switch, with the push of a button, or in case of a router with modem: via SMS.
- The routers and data modems don't require a static IP-address because the tunnel-end-points always register in the portal (also no SIM with static IP).
- Access control for every single device connected to the router.
- You can easily integrate your other external OpenVPN-capable devices with the portal.
- Simplify your workflows by creating your own templates

## Security at its maximum

- Encryption over the security protocol TLS/SSL
- Compliance with the highest security standards for your most important, business-critical applications.
- With the exclusive use of only outbound connections, a smooth integration in the existing IT environment is possible, without security concerns.
- Existing security strategies remain untouched, thus securing authentication, integrity and confidentiality of the transferred information.
- 2-factor authentication (with SMS, email, call or Google-Auth)
- Explore the latest Secure Remote Password (SRP) technology
- Regular tool-based and manual penetration tests

## Customize

Apply your corporate design: from the a portal layout with your own logo or company colors, up to individual front panels for routers and data modems, powered by MB connect line.

### Basic

Logo can be customized

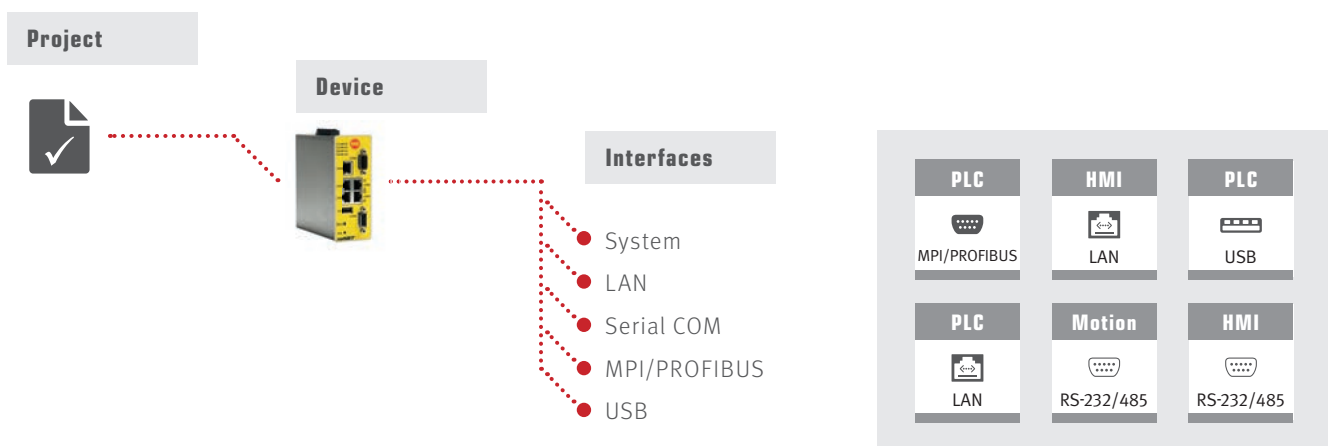
### Advanced

Logo and portal colors can be customized

## Top 10 Facts

1. Secure and transparent access to control systems, machines and units
2. Use of existing engineering tools, such as Siemens Step7, TIA-Portal, RSlogix or CoDeSys, as if you were on site
3. Direct MPI/PROFIBUS interface and driver for SIMATIC Software
4. WAN connection through Ports 80,443 or 1194 and PROXY's, China Gateway, one defined IP-address per server
5. No specific IT-knowledge required
6. Multiple users can connect to a router at the same time and access the IP network simultaneously (Limitation through licenses and bandwidth)
7. Fast commissioning through configuration transfer via file (USB stick)
8. Offline configuration management of the routers (central data management on the server). No configuration on the router necessary
9. Personalized and limited access rights via project management on the portal
10. Scalable server solutions

## Project Management



- Practical project structure in which the sites and machinery can be directly represented
- Project-related management and configuration of end devices
- A project is the highest authority – all units (data modems and routers) are assigned to exactly one project
- As soon as a unit has been created in the project, the interfaces and connected components can be defined and managed

## Reports

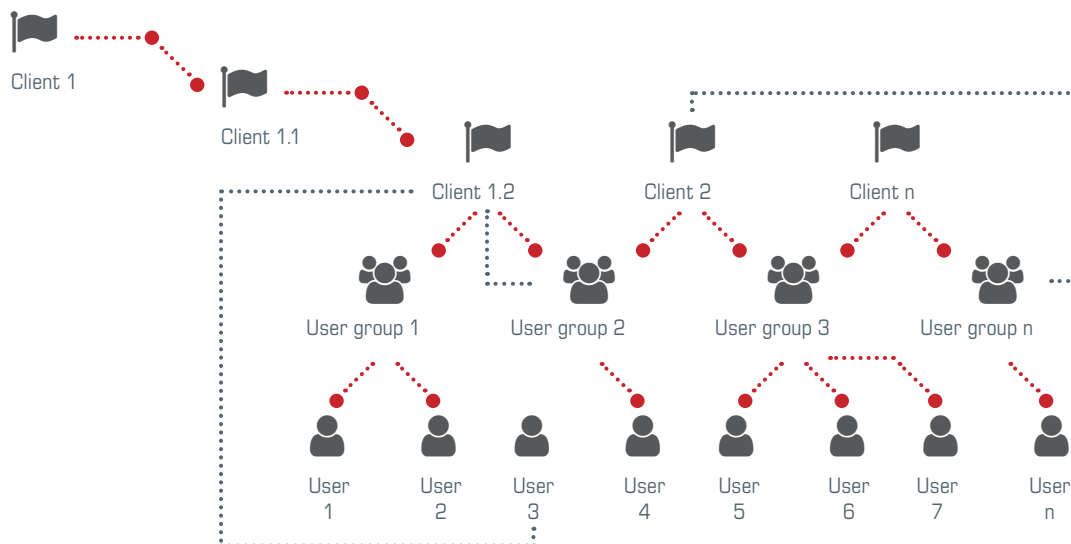
- Connection reports: which user was connected to which device at what time
- Reports of sent SMS, data consumption, configuration updates and process data
- View and export reports as PDF, CSV, HTML

## Scheduler

- Sending reports (connections, data points)
- Display all tasks in the dashboard
- Organize recurrent tasks
- Firmware updates and router administration

## Client and user administration

- The structure with clients, users and user groups simplifies administration
- The client is the parent
- User or user groups are assigned to the client
- The user rights for several users can be easily managed by user groups



- Role based access management for all users: grant access to data to different types of users, like operators, service technicians or production engineers.
- Restrict access rights to individual ports or protocols
- Fine grading of rights, e.g. operators (general plant data), service technicians (programming access) and management (production figures)

## Task and message management

- Integrated mailing system, sending emails internally and externally
- Alarm management with SMS and email
- Sending messages to other users / project participants
- Delegate tasks to other users / project participants



## Web-based visualization

Use your web browser to control the operating data of your system - directly from your smartphone or tablet. Thanks to the barrier-free access to the remote service platform, you can directly look at your system, even with your smartphone - you do not need an app or a special client - your preferred browser is sufficient.

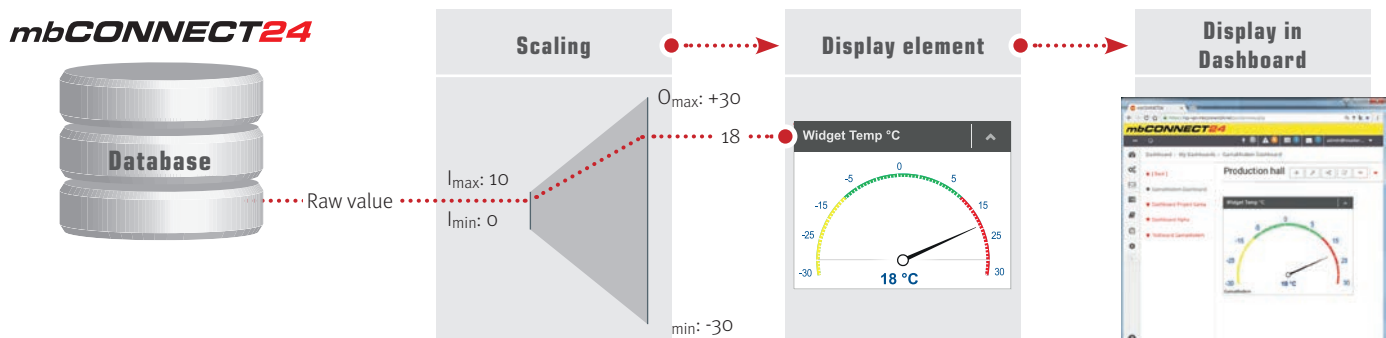
### Characteristics

- ✓ Works according to the HTML5 standard and also works on Windows, iOS, Android
- ✓ Graphical representation of data and states via freely configurable dashboards (instrument panel)
- ✓ Data-visualization of individual machines and plants. Works even with multiple sites.
- ✓ Data is collected by mbNET or mbSPIDER in the field and transferred to the dashboards in the portal
- ✓ Collect data points from the PLC or measured values directly from energy meters
- ✓ You can set individual pictures (JPG, PNG) as wallpaper
- ✓ Upload an Image of your machine and place the live parameters freely for a better visualization in your dashboard
- ✓ Simple registration by user ID and password
- ✓ Create your own dashboards with system-, or machine-information (even within the same project)
- ✓ Use a wide range of display- and input elements such as pointers, gauges and bargraphs in the standard-library
- ✓ The display pages are configurable for project, client and device specific purposes
- ✓ Convert your visualizations into templates and reuse them in multiple projects

### Data collection

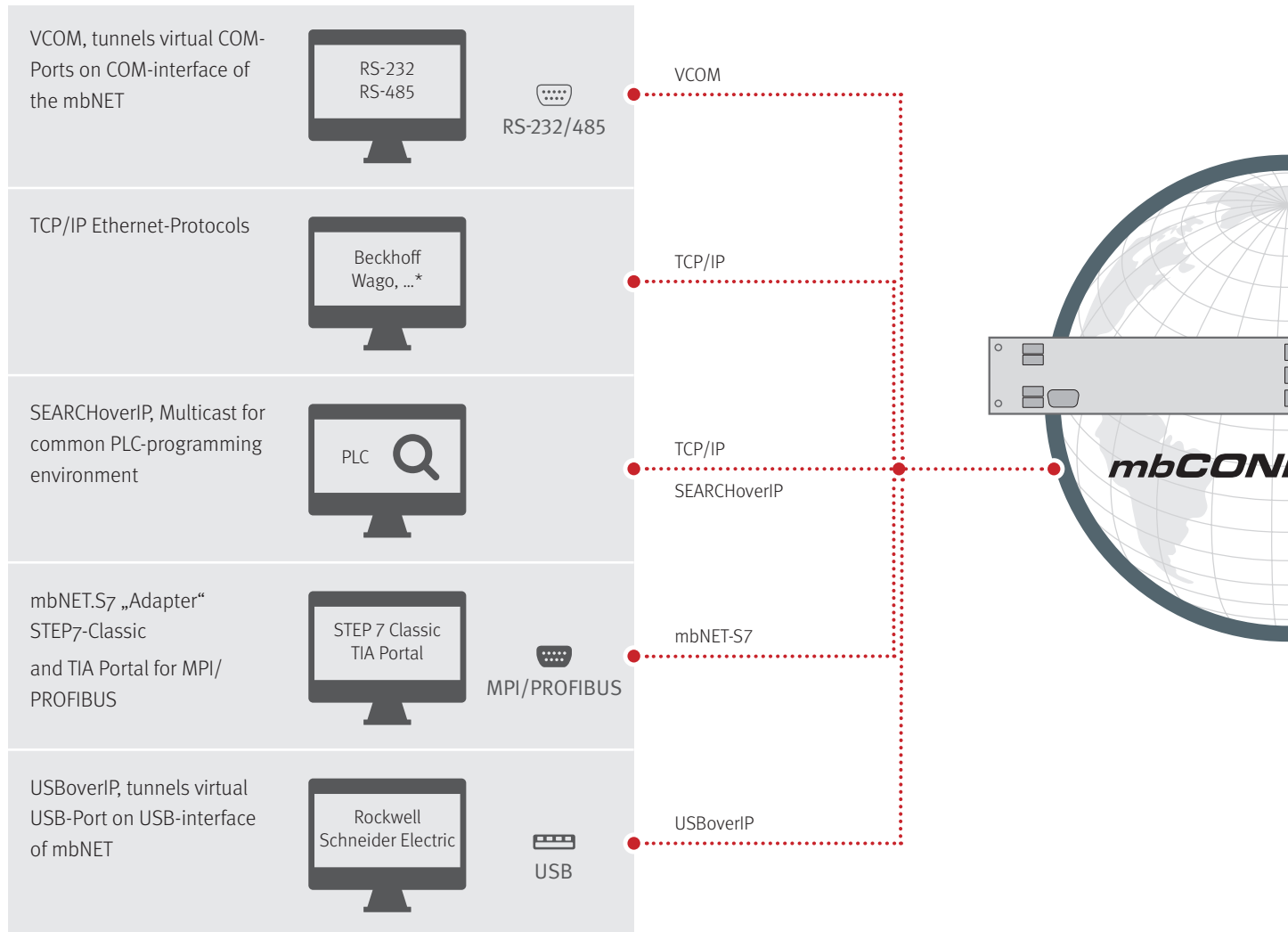


### Create your own visualizations






## Access possibilities for remote maintenance and data collection

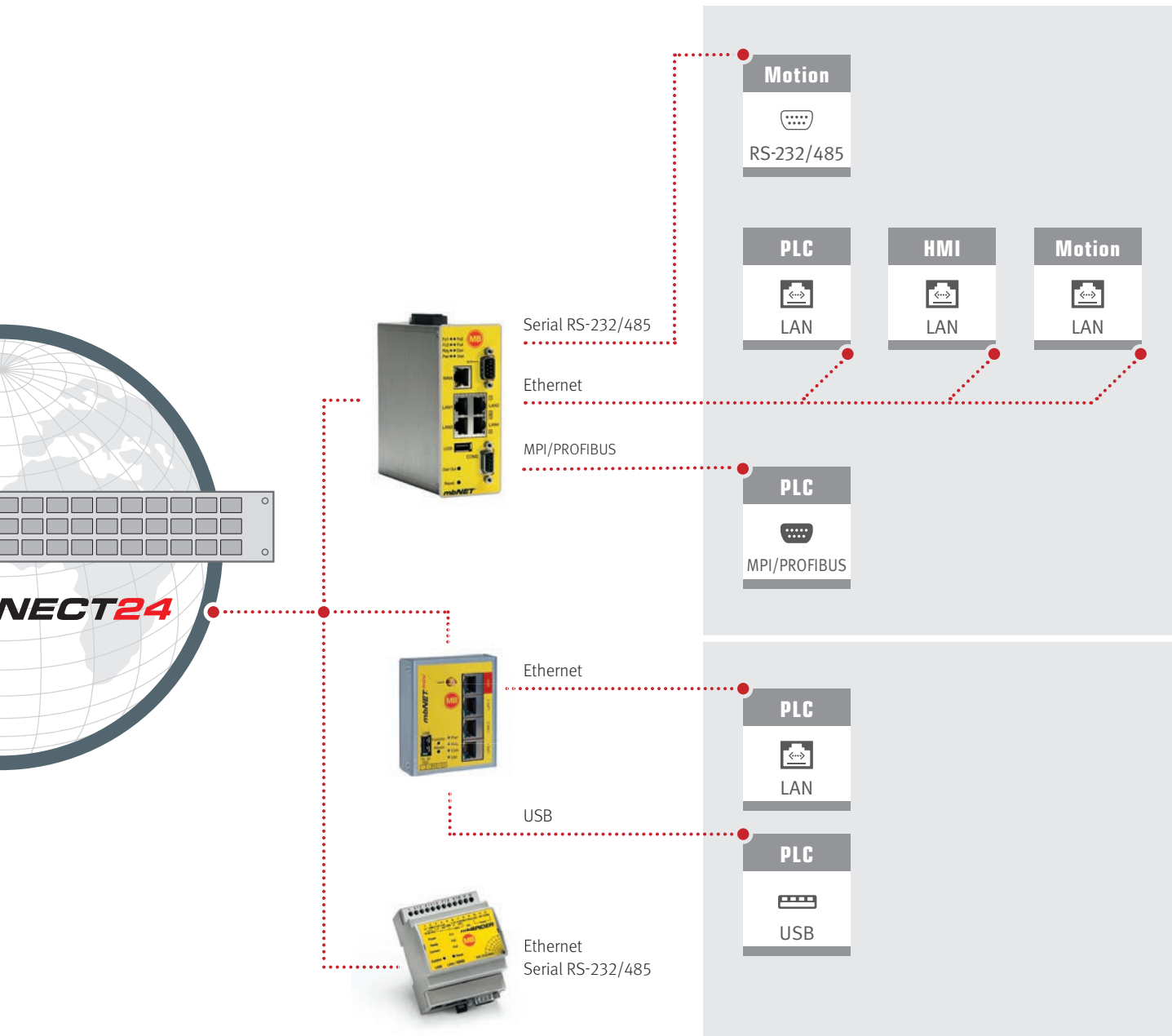
### Transparent Access (mbDIALUP)






\* More than 90 drivers for various control system types

### Connectivity options for internet and in regards to plant/site:

	Internet				Site						
	ETH	3G	4G	WIFI	ETH	serial	S7-MPI/ PROFIBUS	USB overIP	Remote access	Data collection	
mbNET 	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
mbNET.mini 	✓	✓	✓	✓	✓	-	-	✓	✓	-	
mbSPIDER 	✓	✓	-	✓	✓	✓	-	-	-	✓	



		Data sources for the data collection						
		S7 Ethernet	S7-MPI/PB	Modbus TCP	Modbus RTU	Rockwell EthernetIP	KNX	OnBoard I/O's
mbNET		✓	✓	✓	✓	✓	✓	✓
mbNET.mini		-	-	-	-	-	-	✓
mbSPIDER		✓	-	✓	✓	✓	✓	✓

## Functional Overview

### mbCONNECT24

Item no.	Product Name	Account	Devices	Standard VPN Clients	Active VPN connections	mbWEB2go connections	Number of users	Number of user groups	Number of clients	M2M connection groups	Firewall behind the device
7.100.001.00.00	mbCONNECT24 V2 Customer Account	1	∞	0+	1+	5+	∞	5+	1+	-	-
7.100.002.00.00	Active VPN connections				+1						
7.100.003.00.00	mbWEB2go connections					∞					
7.100.004.00.00	Standard VPN clients, 10 pcs.			+10							
7.100.005.00.00	Upgrade data consumption, 2GB /month										
7.100.006.00.00	Advanced user access control						+250	+250			✓
7.100.007.00.00	Customizing Basic										
7.100.008.00.00	Customizing Advanced										
7.100.009.00.00	Alarm events, 250 pcs.										
7.100.010.00.00	Tasks for taskmanager, 5 pcs.										
7.100.011.00.00	Dashboards, 50 pcs.										
7.100.012.00.00	Data point storage, 1M										
7.100.013.00.00	Access to customer database API										
7.100.014.00.00	Integration of external data point storage										
7.100.015.00.00	mbSMS, 250 pcs.										
7.100.016.00.00	Text2Speech, 250 pcs.										
7.100.017.00.00	LDAP-Connector										

#### Legend

**lic** License   
**GB** Gigabyte   
**k** Thousand (kilo)   
**M** Million (Mega)   
**TB** Terabyte   
**1+** expandable   
**+1** extended by one

<i>Data points per unit</i>	<i>Data point storage</i>	<i>Dashboards</i>	<i>Alarm events</i>	<i>Tasks for taskmanager</i>	<i>Customizing Basic</i>	<i>Customizing Advanced</i>	<i>Customer database API</i>	<i>External data point storage</i>	<i>Data consumption</i>	<i>mbSMS</i>	<i>SMS_gateway</i>	<i>Text2 Speech</i>	<i>Text2 Speech_gateway</i>	<i>LDAP-Connector</i>	<i>Support/Service/Upgrade</i>
250	max. 5M 50k+	max. 260 10+	max. 260 10+	max. 6 1+	lic	lic	lic	lic	max. 12GB 2GB+	10+	-	10+	-	lic	✓
									+2GB						
									+2GB						
					✓										
						✓									
		+250													
			+5												
	+50														
+1M															
							✓								
								✓							
									+250						
											+250				✓

## Functional Overview

<b>mymbCONNECT24.virtual</b>		Account	Devices	Standard VPN Clients	Active VPN connections	mbWEB2go connections	Number of users	Number of user groups	Number of clients	M2M connection groups	Firewall behind the device
Item no.	Product Name										
		max. 5			max. 250	max. 500				max. 500	
7.300.001.00.00	mymbCONNECT24.virtual FREE	1	5	1	1	5	1	1	1	1	✓
7.300.002.00.00	mymbCONNECT24.virtual Factory Edition	1	25+ max 100	1+ max 50	2+	10+	250	250	1k	1+	✓
7.300.003.00.00	mymbCONNECT24.virtual PRO Corporate	1+	25+ max. 20k	1+ max. 20k	2+	10+	1k	250	1k	1+	✓
7.300.004.00.00	Account licenses, 1 pc.	+1									
7.300.005.00.00	Device licenses, 25 pcs.		+25								
7.300.006.00.00	Standard VPN clients, 25 pcs.			+25							
7.300.007.00.00	Active VPN connections, 1 pc.				+1						
7.300.008.00.00	Active mbWEB2go connections, 10 pcs.					+10					
7.300.009.00.00	M2M connectionsgroups, 1pc.									+1	
7.300.010.00.00	Data point storage, 1M										
7.300.011.00.00	Dashboards, 50 pcs.										
7.300.012.00.00	Alarm events, 50 pcs.										
7.300.013.00.00	Tasks for taskmanager, 5 pcs.										
7.300.014.00.00	Customizing Advanced										
7.300.015.00.00	Access to customer database API										
7.300.016.00.00	Integration of external data point storage										
7.300.017.00.00	mbSMS, 250 pcs.										
7.300.018.00.00	SMS.gateway										
7.300.019.00.00	Text2Speech, 250 pcs.										
7.300.020.00.00	Text2Speech.gateway										
7.300.021.00.00	LDAP-Connector										

### Legend

lic License GB Gigabyte k Thousand (kilo) M Million (Mega) TB Terabyte 1+ expandable +1 extended by one

Data points per unit	Data point storage	Dashboards	Alarm events	Tasks for taskmanager	Customizing Basic	Customizing Advanced	Customer database API	External data point storage	Data consumption	mbSMS	SMS.gateway	Text2 Speech	Text2 Speech.gateway	LDAP-Connector	Support/Service/Upgrade
	max. 5M	max. 20k	max. 20k	max. 101											
5	50k	10	10	1	✓	-	-	-	✓	0+	-	10+	-	-	-
250	50k	10	10	1+	✓	lic	lic	lic	✓	0+	lic	10+	lic	lic	!
250	1M+	25+	25+	1+	✓	lic	lic	lic	✓	0+	lic	10+	lic	lic	!
															✓
															✓
															✓
															✓
															✓
	+1M														✓
		+50													✓
			+50												✓
				+5											✓
					✓										✓
						✓									✓
							✓								✓
										+250					✓
											✓				✓
												+250			✓
													✓		✓
														✓	✓

The following explanation is valid correspondingly for all mbCONNECT24 versions, i.e. also mymbCONNECT24.mini, -.virtual etc.

<b>Account</b>	An account is a record in the general ledger which encompasses a certain number of user, devices, etc., depending on the type of license.
<b>Active connections</b>	A connection is counted as active only when after logging in, the user establishes a connection to a component via VPN. The portal-login itself is not counted as an active connection.
<b>Advanced user control</b>	The advanced user access control encompasses a comprehensive user- and client management. By defining individual user groups, access rights can be managed comfortably. This client-management allows a digital reproduction of the existing corporate structure. Furthermore, access rights to individual components can be restricted and access rights for particular ports and protocols can be adapted to a specific situation.
<b>Alarm event</b>	An alarm event is a defined condition, or rule, pertinent to a specific data point. Alarm management is where the administration of alarm events takes place. The maximum number of alarms per account is limited and depends on which type of license is active. With alarm groups you can determine, which user will be informed when and how.
<b>Clients</b>	Clients serve the purpose of structuring all users into logical segments, such as business units or departments. Working with clients allows a more fluid and clean organizational segmentation of different sections.
<b>Connection reports</b>	The system mbCONNECT24 protocols all actions, such as active connections, mbWEB2go connections, SMS sending, and more. Data-export can be made in various formats (PDF, HTML, csv) depending on user-, device- or project-settings. These reports serve as a fundament for invoicing or controlling.
<b>Customer-database API</b>	With the API, MB connect line provides a defined interface (syntax & authentication) for external applications being able to access the apprehended data in the portal.
<b>Customizing advanced</b>	Customizing allows to individually adapt the portal's optical design for the customer. With customizing advanced, instead of the predefined MB logo and lettering, you can choose your own branding. Also, you gain access to the color palette. This can also be applied to the user's VPN-client mbDIALUP and for the program mbCHECK, that reviews the integration of local installations in the portal.
<b>Customizing basic</b>	Customizing allows the portal's optical adjustment by the customer. With customizing basic, MB connect line's logo in the above right corner can be replaced.
<b>Dashboards</b>	Dashboards are user interfaces, somewhat resembling an automobile's dashboard, to organize and present your information on mbCONNECT24. The built-in graphical elements (widgets) can be placed and linked with machine data to create your own visualization. Each dashboard can be individually customized, according to the user's respective needs (user, maintainer, administrator). The maximum number of dashboards available, depends on the chosen license type.
<b>Data point storage</b>	Concerns the total number of all protocolled data, independent from the single data-point's type or readout interval. In the end after reaching the maximum capacity, the first data record will be overwritten with a so called "rolling memory", after the FIFO-principle (First in - first out).
<b>Data points per unit</b>	The assessment of data points occupies memory on the respective component. The individual memory location for a particular value is called data point. The maximum amount of data points is determined by the type of mbCONNECT24 license and the employed component. The point of interest is how many different data points can be stored, regardless of how often the individual data point is registered.
<b>Devices and Projects</b>	The maximum amount possible equally refers to devices and projects and describes the amount of possible units in the account. You can neither create more devices, nor more projects than the expensed maximum.
<b>External data point storage</b>	The data point storage is integrated into the mbCONNECT24 standard configuration and consequentially limited in size. Connecting an external data-point-storage allows for a storage of data, independent of mbCONNECT24. This makes an own administration and easy data-processing possible. When it comes to data privacy and data protection, it is even easier to fulfill each customer's needs with this option.
<b>Firewall behind the device</b>	The component settings ("restrict access" - "firewall behind the device") allows for a user-independent access-rights control for connections over mbNET to the machine network. One example is an access restriction for a specific network range. Without these settings, all users who set up a VPN tunnel to mbNET would be having unrestrained access to all components connected to the router.
<b>Guaranteed bandwidth</b>	Due to the system, the complete bandwidth on the server is divided by the number of customer accounts. MB connect line guarantees bandwidth for the individual account. Apart from this, each customer's overall system's bandwidth will be influenced by the customer's local infrastructure. The aforementioned guarantee only refers to the service provided by MB connect line. MB connect line cannot vouch for externally occurring influential variables, so this part is not covered by this guarantee.



<b>LDAP-Connector</b>	Software component that allows access to LDAP-compliant servers (Lightweight Directory Access Protocol)
<b>M2M connection groups</b>	M2M refers to an automated data-exchange between devices, directly via mbCONNECT24 - without manual intervention. A successful connection's prerequisite is a well-matched allocation of each component's IP address. The M2M function will be activated for a project and will be effective for all devices within the M2M project - referred to as "M2M compound group".
<b>mbSMS</b>	The service "mbSMS" is capable of sending SMS alarms and SMS news directly from the portal. Setting up a separate mobile device as gateway is not necessary. For mymbCONNECT24, an individual SMS-gateway can be applied.
<b>mbWEB2go connections</b>	mbWEB2go provides a mobile and secure web-access to mbCONNECT24 via HTTPS. The same is true for smartphones and tablet computers. In this case, the installation of the VPN-client (mbDIALUP) is not necessary. A current browser (e.g. Firefox) is sufficient for the connection. mbWEB2go is easier to use than a VPN connection and provides a more streamlined workflow. Generally speaking, all applications that allow access via HTTP, HTTPS, VNC, TELNET, SSH can be addressed via mbWEB2go. Besides the easier dial-in, these accesses can also be made available in the portal for users without a user account. The approval via "direct LINK" or also via "QR-Code" is the easiest access control on the market. The number of the mbWEB2go connections is independent from the number of active connections.
<b>Part No.</b>	Part number of the product
<b>SearchoverIP</b>	Function of mbCONNECT24 supports the discovery capabilities of various PLC systems via Internet connections. This way, controllers that have not yet been configured can be found via remote maintenance.
<b>Several active connections to one unit</b>	Due to the system, in the past, the number of active connections to one unit was limited to 1. Through further development, now it is technically possible for several users to be able to connect with the same site simultaneously. In practice this multiple access has to be known to the users and has to be coordinated safely in the process.
<b>SMS.gateway</b>	With the function "SMS.gateway" you can specify your own gateway for sending SMS messages in mymbCONNECT24. For example, existing infrastructures or quotas can be used by external service providers. This option makes it possible to implement the SMS dispatch in mymbCONNECT24 very efficiently and cost-effectively.
<b>Softwareupdates</b>	Usually, software updates are security updates to continuously update the cybersecurity level, but not introduce new features or functionalities. This not only applies to the portal software, but also to terminal devices.
<b>Softwareupgrades</b>	Includes further developments of mbCONNECT24, for example new features, displays and dialogues.
<b>Standard-VPN-Clients (External devices)</b>	The deployed technology "OpenVPN" allows the integration of different platforms into the mbCONNECT24 environment. In this case it is reasonable to involve your MB connect line contact-person to ensure an effective procedure.
<b>Tasks for Taskmanager</b>	With the task manager you can create service-time-controlled tasks in the mbCONNECT24 account. This includes e.g. sending any report (connections, data points) via E-Mail. The number of tasks per account is limited.
<b>Text2Speech</b>	Speech output of texts, for example for fault messages by telephone call
<b>Text2Speech.gateway</b>	The "Text2Speech.gateway" function can be used to specify a separate gateway for sending voice messages in mymbCONNECT24. For example, existing infrastructures or quotas can be used by external service providers. This option enables the transmission of voice messages in mymbCONNECT24 very efficiently and cost-effectively.
<b>USBoverIP</b>	Service of mbCONNECT24, allows remote access to USB devices connected to the USB port of an mbNET industrial router.
<b>User</b>	A user profile is created for each individual person that is supposed to get access to the portal.
<b>User groups</b>	To further simplify user management, different user groups and their rights can be specified, for example "create device", or "delete device". The user will then be matched, according to their user level instead of having to assign those rights individually. This not only reduces the administrator's workload but also minimizes the error rate.
<b>User/unit Component settings (Firewall behind the unit)</b>	If users connect an mbNET via VPN, they generally have complete access to all components, connected to the router. A user-dependent access control in the machine-net via router is only feasible with the mentioned extension (firewall behind the unit). Therefore, despite an existing VPN-tunnel to the user, access to certain network-areas can be limited.



# Secure Remote Access

**mbNET®**

# INDUSTRIAL ROUTER

## THE NEXT GENERATION OF REMOTE MAINTENANCE

The industrial routers mbNET are specifically designed for industrial use. They enable a secure and reliable connection of machines and equipment via Internet. They support various security protocols, so they are universally compatible. But the routers' full performance is achieved when they are connected to the remote service platform mbCONNECT24. The integrated firewall ensures maximum access protection.

Thanks to a variety of interfaces and device drivers, you enjoy enormous flexibility with the mbNET industrial router for the maintenance of different control systems, drives, operating panels, frequency converters and other components.

- ✓ Integrated 4-port switch (4 x Ethernet 100 Mbit)
- ✓ Secure connection via VPN (PPTP, IPSec, L2TP, OpenVPN)
- ✓ Internet connection via Ethernet, WAN interface or modem (analog, 2G, 3G, 4G or WiFi)
- ✓ 2 x RS-232/485 interface selectable onboard,  
**optional:** 1 x MPI/PROFIBUS up to 12 Mbit/s,  
1 x RS-232/485 switchable
- ✓ Firewall with IP filter, Simple-NAT, 1:1 NAT and port forwarding
- ✓ 2 SIM card slots with failover functionality (3G and 4G versions)
- ✓ 4 digital inputs, 2 digital outputs
- ✓ The network connections can be initiated from anywhere with the text message control function
- ✓ Slim metal case with IP20 for DIN rail mounting
- ✓ SD card slot for expanding the data memory
- ✓ Extended temperature range (-40 °C to +75 °C)
- ✓ Multi-colored LEDs for clear state-signaling
- ✓ Extendable as IOT gateway
- ✓ USB over IP-capable
- ✓ SIMPLY.connect ready

Access to the Internet can be made through the intranet (corporate network), through the integrated modem (analog, 2G, 3G or 4G) or through a broadband connection (DSL). A suitable mbNET industrial router is available for almost every local infrastructure.



### Antennas

Enhancement for 3G / 4G networks

▶ Page 48

### USB Stick

Storage-medium for configuration

▶ Page 47

### mbEDGE

IOT-Upgrade with mbEDGE

▶ Page 38

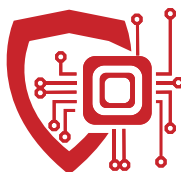
## Security by Design



### Secure Boot

The foundation is the so-called trusted chain of the boot process. It ensures that only trusted applications can be started by the system. This ranges from secured booting to digitally signed firmware.

Only if this is verified by a corresponding certificate, the firmware can be used on the device. It verifies boot loader, kernel, applications and file system. The highest level of security is provided by the hardware-based trust anchor (Root of Trust) located in a read-only memory (ROM).



### Secure Element

An important security aspect is the information security of the data on the router. The hardware-based security element (Secure Element) serves as a safe for passwords, certificates and keys. Thus, all stored data is completely protected and can not be read.

As additional secure data storage, another encrypted data container is created via a once-generated key. This function can also be used for the auxiliary memory via SD card or USB.



### Secure Firmware

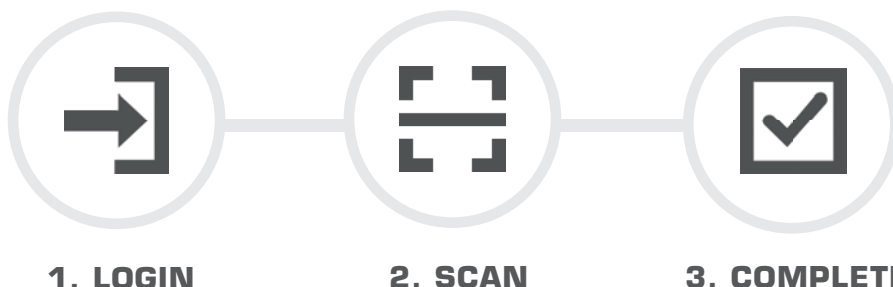
The main focus in the development of the new firmware was "Security by Design". This includes an assessment of all components used, including terms of their use. All safety-related settings are preset in such a way that they provide the highest possible level of safety with the same level of comfort.

The security concept's final touch is using the latest Linux kernel and taking advantage of the Linux security concept "MAC", which describes a system-based, rules-based access control strategy.

## SIMPLY.connect - The easiest way to connect your device



Complex configuration was a thing of the past. With SIMPLY.connect we enable an intuitive integration of new devices\* into the Remote Service Portal mbCONNECT24. And all this in only 3 steps.



**mbNET with two serial interfaces** 

**PRODUCT VERSIONS:**



 **US LISTED** PROG. CNTRL. E482663

Name	Item no.	WAN	Modem	max. Upload	max. Download	LAN	RS-232 RS-485	MPI/Profibus	VPN*
MDH810	1.110.200.03.00	1x	analog	56 kbit	56 kbit	4x	2x	-	✓
MDH814	1.114.210.03.00	1x	3G	5,76 Mbps	21 Mbps	4x	2x	-	✓
MDH850	1.150.220.03.00	1x	4G EU	50 Mbps	100 Mbps	4x	2x	-	✓
MDH850	1.150.230.03.00	1x	4G AT&T	50 Mbps	100 Mbps	4x	2x	-	✓
MDH811	1.111.200.03.00	1x	WiFi	54 Mbps	54 Mbps	4x	2x	-	✓

**mbNET with serial and MPI/Profibus interface** 

**PRODUCT VERSIONS:**



 **US LISTED** PROG. CNTRL. E482663

Name	Item no.	WAN	Modem	max. Upload	max. Download	LAN	RS-232 RS-485	MPI/Profibus	VPN*
MDH830	1.130.200.03.00	1x	analog	56 kbit	56 kbit	4x	1x	1x	✓
MDH834	1.134.210.03.00	1x	3G	5,76 Mbps	21 Mbps	4x	1x	1x	✓
MDH855	1.155.220.03.00	1x	4G EU	50 Mbps	100 Mbps	4x	1x	1x	✓
MDH855	1.115.230.03.00	1x	4G AT&T	50 Mbps	100 Mbps	4x	1x	1x	✓
MDH831	1.131.200.03.00	1x	WiFi	54 Mbps	54 Mbps	4x	1x	1x	✓

\* IPSEC, PPTP, L2TP, OpenVPN

**mbNET with LAN and WAN** 

**PRODUCT VERSIONS:**



 **US LISTED** PROG. CNTRL. E482663

Name	Item no.	WAN	Modem	max. Upload	max. Download	LAN	RS-232 RS-485	MPI/Profibus	VPN
MDH816	1.116.200.03.00	1x	-	-	-	4x	-	-	OpenVPN
MDH849	1.149.210.03.00	1x	3G	5,76 Mbps	21 Mbps	4x	-	-	OpenVPN
MDH859	1.159.220.03.00	1x	4G EU	50 Mbps	100 Mbps	4x	-	-	OpenVPN
MDH859	1.159.230.03.00	1x	4G AT&T	50 Mbps	100 Mbps	4x	-	-	OpenVPN
MDH841	1.141.200.03.00	1x	WiFi	54 Mbps	54 Mbps	4x	-	-	OpenVPN

## mbNET with LAN



### PRODUCT VERSIONS:



**UL** US  
LISTED  
PROG. CNTRL.  
E482663

Name	Item no.	WAN	Modem	max. Upload	max. Download	LAN	RS-232 RS-485	MPI/ Profibus	VPN
MDH815	1.115.200.03.00	-	analog	56 kbit	56 kbit	4x	-	-	OpenVPN
MDH819	1.119.210.03.00	-	3G	5,76 Mbps	21 Mbps	4x	-	-	OpenVPN
MDH858	1.158.220.03.00	-	4G EU	50 Mbps	100 Mbps	4x	-	-	OpenVPN
MDH858	1.158.230.03.00	-	4G AT&T	50 Mbps	100 Mbps	4x	-	-	OpenVPN

## mbNET.easy with LAN and WAN



### PRODUCT VERSIONS:



**UL** US  
LISTED  
PROG. CNTRL.  
E482663

Name	Item no.	WAN	Modem	max. Upload	max. Download	LAN	RS-232 RS-485	MPI/ Profibus	VPN
MDH835	1.135.200.03.00	1x	-	-	-	4x	1x	1x	OpenVPN

**mbNET.rokey**

# SECURE REMOTE ACCESS WITH KEY SWITCH

Giving local staff the possibility to allow or disallow remote access is a recommendation of cybersecurity agencies such as the German BSI, the French ANSSI or the European ENISA. By offering a 2-level access control, mbNET.rokey complies with recommended practices for secure remote services.

- ✓ On-board 2-level remote access key
  - Pos. REM: trigger remote access connection
  - Pos. ONL: alarms, dashboards & router administration
  - Pos. OFF: no connection with mbCONNECT24
- ✓ On-board hardware secure element
- ✓ Upgradable to full IOT-Gateway capabilities (see p. 30, mbEDGE)
- ✓ Internet connection via Ethernet, WAN interface or modem
- ✓ Firewall with IP filter, Simple-NAT, 1: 1 NAT and port forwarding
- ✓ 4 digital inputs, 2 digital outputs
- ✓ SD-card slot for expanding data memory
- ✓ Extended temperature range (-40 ° C to + 75 ° C)
- ✓ Multi-colored LEDs for clear state-signaling
- ✓ USBoverIP-capable



In addition to the functions of mbNET, such as Secure Element, Secure Boot and Secure Firmware, the mbNET.rokey offers additional security with the on-board key switch, offering full control over network access on the operator side.

**mbNET.rokey with 2-level security key switch**

**PRODUCT VERSIONS:**

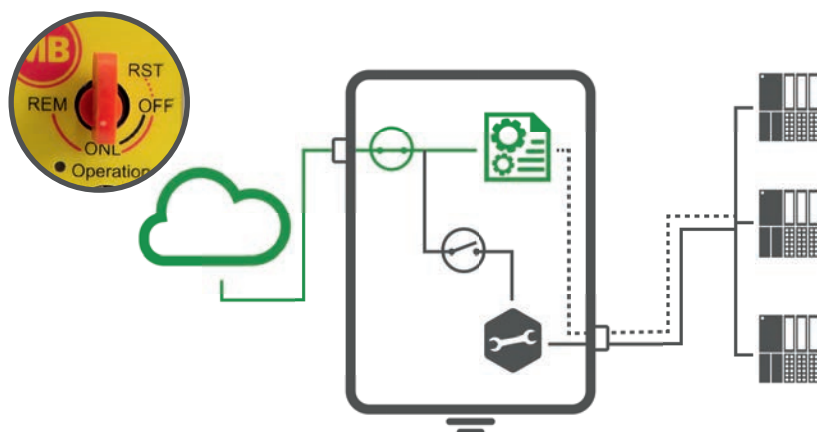
Name	Item no.	WAN	Modem	max. Upload	max. Download	LAN	RS-232 RS-485	MPI/PROFIBUS	VPN**
RKH216*	1.216.200.03.00	1x	-	-	-	4x	-	-	✓
RKH235*	1.235.200.03.00	1x	-	-	-	4x	-	1x	✓
RKH210*	1.210.200.03.00	1x	-	-	-	4x	1x	-	✓
RKH259*	1.259.220.03.00	1x	4G EU	50 Mbps	100 Mbps	4x	-	-	✓
RKH259*	1.259.130.03.00	1x	4G AT&T	50 Mbps	100 Mbps	4x	-	-	✓



\* works only with mbCONNECT24 Version 2      \*\* IPSEC, PPTP, L2TP, OpenVPN

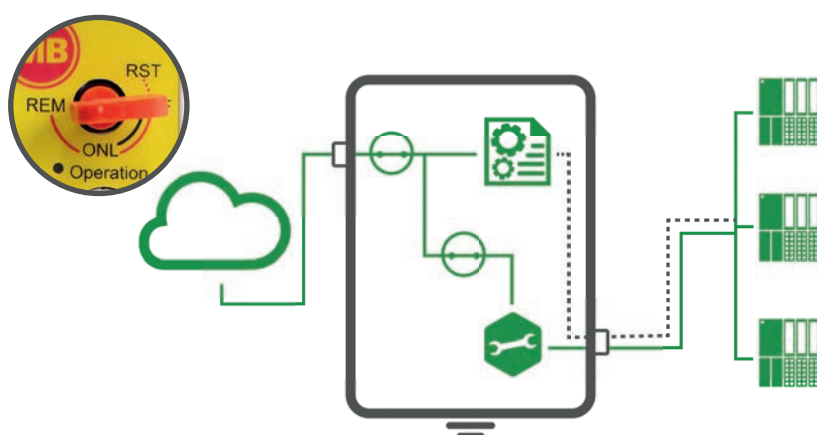


## 2-Level Security in Remote Access



### Position „ONL“

In this position, the mbNET.rokey is securely connected to mbCONNECT24 and appears online (green dot) in the user interface. Data upload, alarms and dashboard interaction are allowed, as well as router administration (configuration changes, firmware updates, local diagnostics, ...). Access to devices on the LAN is disabled.



### Position „REM“

In this position, access to LAN devices is enabled and both Web2Go and mbDIALUP connections can be established transparently with the remote devices.

At any time, the local staff can interrupt the remote connection by turning the key back to „ONL“ position.

In the „OFF“ position, no connection is established with mbCONNECT24 and the mbNET.rokey appears offline (black dot) in the user interface. The „RST“ position is used in a special procedure to reset the device and erase the remote access configuration. mbNET.RoKey is delivered with two keys: the black key allows switching between positions „OFF“ and „ONL“, the red key allows switching to all positions. The rotary coding switch is for future use.

# mbNET.mini

## SMALL ROUTER

## GREAT PERFORMANCE

The mbNET.mini is a very compact industrial router for DIN-rail mounting. It offers secure IP-based access to Ethernet devices and networks through the remote service platform mbCONNECT24. Therefore, it is not only suitable for remote maintenance applications but also for tasks such as alerts and M2M communication.

- ✓ Integrated Ethernet switch (3-port with LAN / WAN, otherwise 4-port)
- ✓ 1 × WAN or 1 × 3G / 4G modem, WiFi
- ✓ 3G / 4G version supports GPRS, EDGE, UMTS, HSPA+, LTE
- ✓ 2 digital inputs for connection to the remote service platform or for sending alerts via text message or e-mail
- ✓ OpenVPN security protocol
- ✓ Ideal for M2M applications
- ✓ Solid metal case for DIN rail mounting
- ✓ USBoverIP-capable
- ✓ Secure connection to the Remote Service Platform mbCONNECT24
- ✓ Failover from WAN to Modem/WiFi

The industrial router mbNET.mini is available in several versions. The WAN version uses the existing network or a broadband connection (DSL) to connect to the Internet and offers a 3-port switch. Selected 3G/4G versions allow connection over the mobile communication network and include a 4-port switch.



### Antennas

Enhancement for 3G / 4G networks

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## mbNET.mini with LAN and WAN



### PRODUCT VERSIONS:

Name	Item no.	WAN	Modem	max. Upload	max. Download	LAN	Failover	VPN
MDH860	2.160.200.02.00	1x	-	-	-	3x	-	OpenVPN
MDH861	2.161.210.02.00	-	3G	5,76 Mbps	21 Mbps	4x	-	OpenVPN
MDH862	2.162.130.02.00	-	4G AT&T	50 Mbps	100 Mbps	4x	-	OpenVPN
MDH862	2.162.220.02.00	-	4G EU	50 Mbps	100 Mbps	4x	-	OpenVPN
MDH863	2.163.200.02.00	-	WiFi	54 Mbps	54 Mbps	4x	-	OpenVPN
MDH865*	2.165.210.02.00	1x	3G	5,76 Mbps	21 Mbps	3x	✓	OpenVPN
MDH866*	2.166.130.02.00	1x	4G AT&T	50 Mbps	100 Mbps	3x	✓	OpenVPN
MDH866*	2.166.220.02.00	1x	4G EU	50 Mbps	100 Mbps	3x	✓	OpenVPN
MDH867*	2.167.200.02.00	1x	WiFi	54 Mbps	54 Mbps	3x	✓	OpenVPN

\* works only with mbCONNECT24 Version 2



UL LISTED  
PROG. CNTLR.  
E482663





# **Industrial Internet of Things**

**mbEDGE™**

# YOUR IOT UPGRADE FOR REMOTE ACCESS

Supporting a variety of cloud platforms like mbCONNECT24, AZURE, AWS and more, as well as modern communication protocols like OPC-UA and MQTT, mbEDGE transforms your mbNET into a powerful IOT gateway. With mbEDGE, your mbNET unit will acquire data locally, process it and push it to your cloud application.

- ✓ Pre-Installed Docker Engine
- ✓ Pre-Installed containers:
  - Portainer.io: To manage Docker containers
  - Node-RED: For easy programming
  - Optional: 3 containers for running user applications
- ✓ Node-RED provides:
  - Web-based programming user interface with drag & drop
  - Industrial protocols: MQTIT, OPC-UA, Modbus, S7 and many more
  - Cloud-connectivity: Azure, IBM, Amazon and more
  - TCP/IP, HTTPS, E-Mail, Twitter and more
  - User-defined function blocks
  - mbCONNECT24 node to connect with dashboards & widgets
- ✓ Data stored on the SD-card is encrypted
- ✓ 8 GB industrial grade SD card (MLC NAND, UHS-I interface)
- ✓ Temperature (usage): -40 to 85°C
- ✓ Dimensions: 24mm x 32mm x 21mm



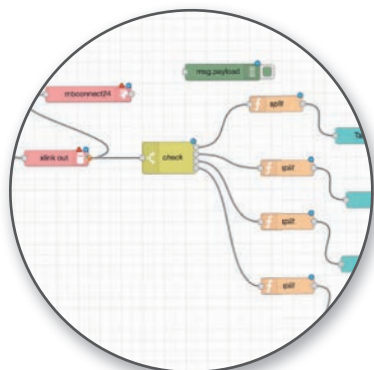
Instead of sending all machine- and sensor data directly to the cloud, pre-processing of data at the edge of the network is becoming more and more important. Instead of large portions of raw data, only defined values are passed on to the cloud. The immediate benefit: a decentralized network structure saves bandwidth and offers more real-time capability.

**mbEDGE**
**PRODUCT VERSIONS:**


Name	Item No.	Short Description	Node-RED	Node-RED User-Nodes	Docker Container	Portainer.io
EDG100*	1.901.000.01.00	mbEDGE.start	✓	-	-	-
EDG200*	1.902.000.01.00	mbEDGE.advanced	✓	✓	✓	✓

\* for all mbNET from hardware version 03

## Simplify IOT-Edge application development with Node-RED



Node-RED simplifies the creation of your IoT-Edge application. It is web-based and consists of a graphical user interface and a library of pre-built functions & blocks of code, called nodes. Each node, standard or user defined, manages a single functionality: send an email, perform a Modbus read, communicate with mbCONNECT24, MQTT publish/subscribe, OPC-UA,...

To create your application, simply drag&drop the nodes on the design sheet, connect them following the logical flow of actions and configure them according to your application context.

With Node-RED, you will acquire data, process it and post it to your preferred cloud application. The Node-RED container has access to all mbNET resources.

## Docker & Containers: running your embedded IOT-Edge app in a secure way



Docker creates virtual workspaces (containers) for user applications and manages their access to the operating system and the system resources. The containers and their applications are isolated and can only communicate through Docker controlled mechanisms.

Node-RED environment runs in such a container. With mbEDGE.advanced, you get access to a second container, running Portainer.io: a GUI for Docker, to configure and manage containers. You also get access to three more containers, to run your own personalized applications.

Docker secures deployment & distribution of these applications and only allows signed and trusted images to run in the containers.

## Security by Design, from mbNET to mbEDGE



Cybersecurity is a core competence of MB connect line and our products are created according to the principles of Security by Design and the standards set forward in IEC62443. To do so, MB connect line R&D engineers are certified for secure software development (TeleTrusT's T.I.S.P & T.P.S.S.E.).

mbNET platforms are equipped with a hardware Secure Element (crypto chip) and a Secure Boot concept that allows only signed and trusted firmware to be installed and boot.

All data stored in memory or on the mbEDGE card is encrypted, making it impossible to read without the key stored safely in the crypto chip.

**mbSPIDER™**

# DATA MANAGEMENT

# REMOTE MONITORING AND WEB VISUALIZATION

The mbSPIDER is a programmable data modem for continuous logging of counter readings, measurements, logic states and analog values. The logged values are visualized via the integrated web server or via the remote service platform mbCONNECT24 – barrier free via smartphone or standard browser.

The mbSPIDER is programmed in a free script language. Together with an integrated database, FTP server/client functionality, as well as web visualization, you can collect, evaluate and visualize any data. Sending of messages and alerts via text message and email is also possible.

- ✓ 1 Ethernet port 100 Mbit/s usable as LAN and WAN
- ✓ For possible dataconnection see page 13
- ✓ 1 RS-232/-485 interface
- ✓ 2 digital and 4 analog inputs, 1 relay output
- ✓ Secure connection to remote service platform mbCONNECT24



## Antennas

Enhancement for 3G networks

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Link the supplied widgets (display and control elements) with the database for visualization. HTML or programming knowledge is not necessary.

The web visualization is optimized for smartphones and tablet PCs and can be displayed with any standard browser. Dispensing with special clients or apps is intentional.

**mbSPIDER** with serial interface, LAN and WAN



### PRODUCT VERSIONS:

Name	Item no.	Case	WAN/ LAN	Modem	max. Upload	max. Download	RS-232 RS-485	VPN
MDH900	3.100.000.01.00	Plastic	1×	-	-	-	1×	OpenVPN
MDH901	3.101.000.01.00	Plastic	1×	WiFi	54 Mbps	54 Mbps	1×	OpenVPN
MDH905	3.105.000.01.00	Plastic	1×	2G	235 Kbps	235 Kbps	1×	OpenVPN
MDH906	3.106.000.01.00	Plastic	1×	3G	5,76 Mbps	21 Mbps	1×	OpenVPN
MDH910	3.110.000.01.00	Metal	1×	WiFi	54 Mbps	54 Mbps	1×	OpenVPN
MDH911	3.111.000.01.00	Metal	1×	WiFi	54 Mbps	54 Mbps	1×	OpenVPN
MDH905	3.115.010.01.00	Metal	1×	2G	235 Kbps	235 Kbps	1×	OpenVPN
MDH916	3.116.010.01.00	Metal	1×	3G	5,76 Mbps	21 Mbps	1×	OpenVPN





**mbXLINK™**

# THE CLOUDGATEWAY FROM THE FIELDBUS SECURELY TO THE CLOUD

mbXLINK collects data from the fieldbus level and brings it securely to the cloud. The security concept is based on a data diode, which allows communication in only one direction: from the field to the secure network. The return channel is electrically isolated and can only be activated via a key switch for configuration purposes.

- ✓ Air-gap security via data diode
- ✓ 1x WAN and 4x LAN
- ✓ Key switch as access protection
- ✓ MPI, PROFIBUS, Modbus/TCP or PROFINET-IO
- ✓ Robust metal case for din-rail mount
- ✓ Simple industry 4.0 upgrade for legacy systems
- ✓ Secure connection to the Remote Service Portal mbCONNECT24
- ✓ IOT upgrade included: mbEDGE on-board.

For attackers it is technically impossible to access devices on the fieldbus level from the outside to steal or manipulate data. The return channel is electrically isolated and can only be activated by a manual key switch for configuration purposes. This real hardware-based separation also excludes the usual weak points of security hardware: incorrect configuration by the user or security gaps in the device software.



**mbXLINK with data diode** 📶 🏠 🔄

**PRODUCT VERSIONS:**



Name	Item no.	WAN	LAN	Fieldbus	VPN*
XLH100	4.100.200.01.00	1x	4x	MPI	✓
XLH110	4.110.200.01.00	1x	4x	PROFIBUS-Slave	✓
XLH120	4.120.200.01.00	1x	4x	Modbus/TCP (Master/Slave)	✓
XLH130	4.130.200.01.00	1x	4x	PROFINET-IO	✓



\* IPSEC, PPTP, L2TP, OpenVPN



# Industrial Security

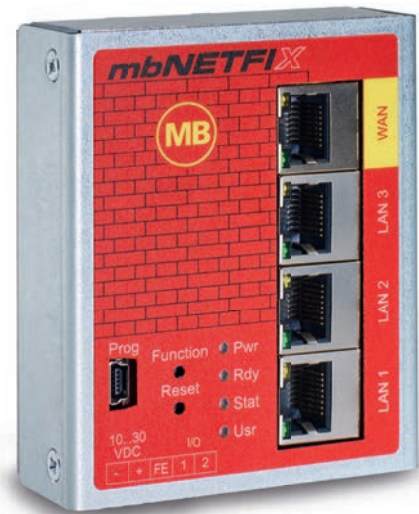
# mbNETFIX™

## THE AUTOMATION FIREWALL

mbNETFIX, the firewall for the automation professional is developed according to the highest security standard. You can configure the device quickly and easily - even without professional expertise. The operating modes "Gateway" and "Bridge", enable a seamless integration into new and already existing network structures

- ✓ IP-, port, MAC and protocol filters for monitoring and restricting data traffic
- ✓ Versatile NAT functionalities, eg 1: 1 NAT, SimpleNAT and port forwarding
- ✓ Cybersecurity at the highest level thanks to RSA key authentication
- ✓ Static routes
- ✓ 1x WAN and 3x LAN port switch
- ✓ No web interface, thus minimizing attack vectors
- ✓ Easy configuration with secure software
- ✓ Power supply 10-30 VDC
- ✓ Security by Design

A special feature is the integrated learning function. The firewall learns all occurring data traffic. After that, the user is able to access the memorized packet table and directly and explicitly allow or block individual connections. This drastically simplifies and speeds up the implementing process.



In **Bridge mode** the mbNETFIX secures the exchange of data between interfaces, without introducing a change in the existing network structure.

In **Gateway mode** the mbNETFIX can segment two different networks, thus securing these networks and managing the data exchange between WAN and LAN.

### Manager Lite

Software and documentation available via download\* or on USB stick

## mbNETFIX 🏠 🔄



### PRODUCT VERSIONS:

Name	Item no.	WAN	LAN
NFH100	5.100.200.02.00	1x	3x

### Short description



5.900.000.01.00

USB stick with Manager Lite Software

**UL** LISTED  
PROG. CNTLR.  
E482663

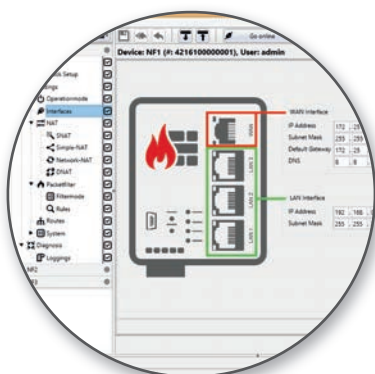
\* A download-link is provided with each shipment of the device

## Features



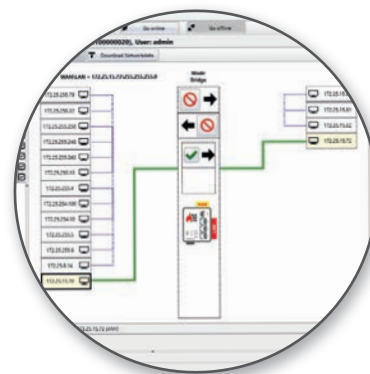
### Automation User's Workflow

- ✓ Prepare projects and upload them to the device
- ✓ Go online and make changes on the runtime version
- ✓ Export projects and share with other users



### Graphical User Interface

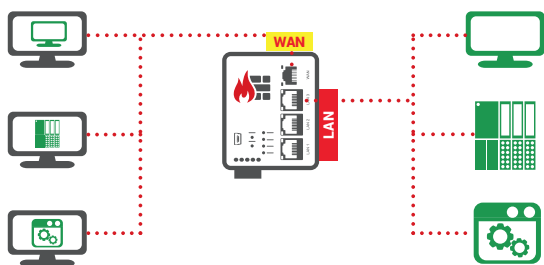
- ✓ PLC programming-like environment
- ✓ View configuration and changes
- ✓ See how setup and rules apply



### Learning Mode

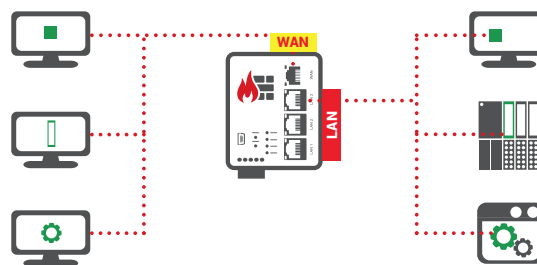
- ✓ Visualize actively communicating devices
- ✓ Choose general traffic policies
- ✓ Select, which connections need to be preserved

## Firewall with routing function



### Simple NAT

Selected LAN devices appear with an individual WAN address managed by the router.



### Portforwarding (DNAT)

With portforwarding, a single port can be directed to a specific IP-address by specifying the port.

### Source NAT

LAN devices reply locally to the router, no gateway needed.

### Network NAT

LAN network remains hidden, WAN devices access it through a virtual LAN network managed by the router.

## 3+1 User Access Levels



### Administrator

Full access to the device configuration. You can export the projects for other users.



### Operator

Can change routing tables, NAT settings, filtering rules, but not operating mode, system settings, LAN or WAN addresses.



### Viewer

Has full viewing access but cannot make any changes (diagnostic user).



### Factory Reset

Can only reset the unit and requires visual and physical access to the unit to do so.

# Accessories

# ACCESSORIES

## Industrial SD Card

Item no.	Short description	Description
8.002.403.00.00	Industrial SD Card	Industrial SD Card 1 GB SLC (Single Level Cell), -20°C to +85°C

## Connection cables



Item no.	End device	Description	Length
8.002.202.00.00	Siemens S7 300/400	MPI/Profibus connection cable	1,2 m
8.002.203.00.00	Siemens S7 300/400	MPI/Profibus connection cable	3,0 m
8.002.204.00.00	Siemens S7 300/400	MPI/Profibus connection cable	7,0 m

Other cables on request

## Network adapter



Item no.	Short description	Description
8.002.501.00.00	A/C power adapter 24 V, with country adapter EU/UK/US/AU	Input: 230 V/AC, Output: 24V/DC 1A

## USB stick

Item no.	Short description	Description
8.002.401.00.00	mbMEM 4 GB	MLC Flash, 0 °C – +60 °C
8.002.402.00.00	mbMEM Industrial Grade 2 GB	SLC Flash, Linux-Format ext3, -40 °C – +85 °C



## Spare key-set for mbNET.rokey and mbXLINK

Item no.	Short description	Description
8.002.001.00.00	Spare key-set	Spare key-set for mbNET.rokey / mbXLINK*

\* To order a proof of purchase of the associated device is necessary



Illustration can deviate

# ANTENNAS

## WiFi antennas



Item no.	Type	Transmission method*	Thermal endurance	Connection	Cable length	Mounting	Dimensions in mm
8.002.107.00.00	oa	WiFi	-40 °C to +85 °C	SMA – female	250 cm	Magnet & patch mounting	15 × 53
8.002.108.00.00	oa	WiFi	-40 °C to +85 °C	SMA – female	500 cm	Magnet foot	31 × 233

## 3G antennas



Item no.	Type	Transmission method*	Thermal endurance	Connection	Cable length	Mounting	Dimensions in mm
8.002.102.00.00	oa	2G, 3G	-40 °C to +85 °C	SMA – male	500 cm	Magnet foot	31 × 308

### Please note: cable length and signal strength






When buying, on the one hand the required length and on the other the damping properties must be included. In simple terms, the antenna gain decreases as the extension increases. Thus, the efficiency of the antenna decreases, the larger the extension cable is.

### Please note: Transmission method of the provider

When buying antennas, all components must be coordinated. In addition to the length and the signal strength, the transmission method of the provider of the SIM card used must be observed. The LTE transmission method depends on providers and local conditions such as e.g. the present signal from.



## 4G antennas

	Item no.	Type	Transmission method*	Thermal endurance	Connection	Cable length	Mounting	Dimensions in mm
	8.002.103.00.00	oa	2G, 3G	-40 °C to +85 °C	SMA – male	1250 cm	Magnet foot	31x72
	8.002.101.00.00	oa	2G, 3G, 4G	-40 °C to +85 °C	SMA – male	250 cm	Magnet foot	31 × 72
	8.002.104.00.00	oa	2G, 3G, 4G	-40 °C to +80 °C	SMA – male	500 cm	Wall mounting	46 × 164
	8.002.105.00.00	oa	2G, 3G, 4G MIMO**	-40 °C to +80 °C	2 × SMA – male	2 × 200 cm	Wall mounting & screen clip	137 × 151
	8.002.106.00.00	da	2G, 3G, 4G MIMO**	-20 °C to +70 °C	2 × SMA – male	2 × 500 cm	Wall mounting	260 × 260 × 80

## Extension cables for antennas

8.002.109.00.00	Extension cable for mobile communication antennas (2G, 3G, 4G) 500 cm
8.002.110.00.00	Extension cable for mobile communication antennas (2G, 3G, 4G) 1000 cm
8.002.111.00.00	Extension cable for WiFi communication antennas 1000 cm

da = directional antenna  
 oa = omnidirectional antenna  
 For more antennas please ask.




\* Please refer to the respective provider for information about the transmission frequency  
 \*\*MIMO (Multiple Input Multiple Output) denotes the use of multiple transmitter and receiver antennas for improving the quality and the data rate

Subject to change

# MODEL OVERVIEW

## REMOTE ACCESS

### HARDWARE FUNCTIONS

	Model number	Item no.	Basic functions		Interfaces to machine communication				
			Remote access (VPN & Web2go)	Data collection (on portal server)	LAN	MPI/PROFIBUS	RS232 / RS485	USBoverIP	
	<b>mbNET.easy</b>	MDH835	1.135.200.03.00	✓	✓	4x	1x	1x	✓
	<b>mbNET*</b>	MDH830	1.130.200.03.00	✓	✓	4x	1x	1x	✓
		MDH831	1.131.200.03.00	✓	✓	4x	1x	1x	✓
		MDH834	1.134.210.03.00	✓	✓	4x	1x	1x	✓
		MDH855	1.155.220.03.00	✓	✓	4x	1x	1x	✓
		MDH855	1.155.130.03.00	✓	✓	4x	1x	1x	✓
		MDH810	1.110.200.03.00	✓	✓	4x	-	2x	✓
		MDH811	1.111.200.03.00	✓	✓	4x	-	2x	✓
		MDH814	1.114.210.03.00	✓	✓	4x	-	2x	✓
		MDH850	1.150.220.03.00	✓	✓	4x	-	2x	✓
		MDH850	1.150.130.03.00	✓	✓	4x	-	2x	✓
		MDH815	1.115.200.03.00	✓	✓	4x	-	-	✓
		MDH816	1.116.200.03.00	✓	✓	4x	-	-	✓
		MDH841	1.141.200.03.00	✓	✓	4x	-	-	✓
		MDH819	1.119.210.03.00	✓	✓	4x	-	-	✓
		MDH849	1.149.210.03.00	✓	✓	4x	-	-	✓
		MDH858	1.158.220.03.00	✓	✓	4x	-	-	✓
		MDH858	1.158.130.03.00	✓	✓	4x	-	-	✓
		MDH859	1.159.220.03.00	✓	✓	4x	-	-	✓
		MDH859	1.159.130.03.00	✓	✓	4x	-	-	✓
	<b>mbNET.rokey</b>	RKH216	1.216.200.03.00	✓	✓	4x	-	-	✓
		RKH235	1.235.200.03.00	✓	✓	4x	1x	-	✓
		RKH210	1.210.200.03.00	✓	✓	4x	-	1x	✓
		RKH259	1.259.220.03.00	✓	✓	4x	-	-	✓
		RKH259	1.259.130.03.00	✓	✓	4x	-	-	✓
	<b>mbNET.mini</b>	MDH860	2.160.200.02.00	✓	-	3x	-	-	✓
		MDH861	2.161.210.02.00	✓	-	4x	-	-	✓
		MDH862	2.162.220.02.00	✓	-	4x	-	-	✓
		MDH862	2.162.130.02.00	✓	-	4x	-	-	✓
		MDH863	2.163.200.02.00	✓	-	4x	-	-	✓
		MDH865	2.165.210.02.00	✓	-	3x	-	-	✓
		MDH866	2.166.130.02.00	✓	-	3x	-	-	✓
		MDH866	2.166.220.02.00	✓	-	3x	-	-	✓
		MDH867	2.167.200.02.00	✓	-	3x	-	-	✓

**Interfaces to portal server**

**Electrical connections**

<i>WAN interface for wired Internet</i>	<b>INTEGRATED MODEM</b>				<i>Supply voltage (DC)</i>	<i>Digital IN</i>	<i>Digital OUT</i>	<i>USB port / SD card slot</i>	<i>DIN rail mounting</i>
	<i>Type</i>	<i>max. Upload</i>	<i>max. Download</i>	<i>Connection</i>					
1x	-	-	-	-	10-30V	4x	2x	USB/SD-card	✓
1x	analog	-	-	RJ11	10-30V	4x	2x	USB/SD-card	✓
1x	WiFi	54 Mbps	54 Mbps	SMA (male)	10-30V	4x	2x	USB/SD-card	✓
1x	3G	5,76 Mbps	21 Mbps	SMA (female)	10-30V	4x	2x	USB/SD-card	✓
1x	4G EU	50 Mbps	100 Mbps	SMA (female)	10-30V	4x	2x	USB/SD-card	✓
1x	4G ATT	50 Mbps	100 Mbps	SMA (female)	10-30V	4x	2x	USB/SD-card	✓
1x	analog	-	-	RJ11	10-30V	4x	2x	USB/SD-card	✓
1x	WiFi	54 Mbps	54 Mbps	SMA (male)	10-30V	4x	2x	USB/SD-card	✓
1x	3G	5,76 Mbps	21 Mbps	SMA (female)	10-30V	4x	2x	USB/SD-card	✓
1x	4G EU	50 Mbps	100 Mbps	SMA (female)	10-30V	4x	2x	USB/SD-card	✓
1x	4G ATT	50 Mbps	100 Mbps	SMA (female)	10-30V	4x	2x	USB/SD-card	✓
-	analog	-	-	RJ11	10-30V	4x	2x	USB/SD-card	✓
1x	-	-	-	-	10-30V	4x	2x	USB/SD-card	✓
1x	WiFi	54 Mbps	54 Mbps	SMA (male)	10-30V	4x	2x	USB/SD-card	✓
-	3G	5,76 Mbps	21 Mbps	SMA (female)	10-30V	4x	2x	USB/SD-card	✓
1x	3G	5,76 Mbps	21 Mbps	SMA (female)	10-30V	4x	2x	USB/SD-card	✓
-	4G EU	50 Mbps	100 Mbps	SMA (female)	10-30V	4x	2x	USB/SD-card	✓
-	4G ATT	50 Mbps	100 Mbps	SMA (female)	10-30V	4x	2x	USB/SD-card	✓
1x	4G EU	50 Mbps	100 Mbps	SMA (female)	10-30V	4x	2x	USB/SD-card	✓
1x	4G ATT	50 Mbps	100 Mbps	SMA (female)	10-30V	4x	2x	USB/SD-card	✓
1x	-	-	-	SMA (female)	10-30V	4x	2x	USB/SD-card	✓
1x	-	-	-	SMA (female)	10-30V	4x	2x	USB/SD-card	✓
1x	-	-	-	SMA (female)	10-30V	4x	2x	USB/SD-card	✓
1x	4G EU	50 Mbps	100 Mbps	SMA (female)	10-30V	4x	2x	USB/SD-card	✓
1x	4G ATT	50 Mbps	100 Mbps	SMA (female)	10-30V	4x	2x	USB/SD-card	✓
1x	-	-	-	-	10-30V	2x IN/OUT		USB	✓
-	3G	5,76 Mbps	21 Mbps	SMA (female)	10-30V	2x	-	USB	✓
-	4G EU	50 Mbps	100 Mbps	SMA (female)	10-30V	2x	-	USB	✓
-	4G ATT	50 Mbps	100 Mbps	SMA (female)	10-30V	2x	-	USB	✓
-	WiFi	-	-	SMA (male)	10-30V	2x	-	USB	✓
1x	3G	5,76 Mbps	5,76 Mbps	SMA (female)	10-30V	2x	-	USB	✓
1x	4G ATT	50 Mbps	100 Mbps	SMA (female)	10-30V	2x	-	USB	✓
1x	4G EU	50 Mbps	100 Mbps	SMA (female)	10-30V	2x	-	USB	✓
1x	WiFi	54 Mbps	54 Mbps	SMA (male)	10-30V	2x	-	USB	✓

# MODEL OVERVIEW

## REMOTE ACCESS

### SOFTWARE FUNCTIONS

Series	Model number	Item no.	Construction	Open VPN	VPN-Ipsec	VPN-L2PT	VPN-PPTP	IOT-Tools	SMTP Client	DNS Server	DHCP Server LAN	DHCP Server WAN	SFTP Server (USB / SD card)	Firewall with IP-Filter 1:1 NAT + Port Forwarding
mbNET.easy	MDH835	1.135.200.03.00	Metal	mb 24	-	-	-	-	✓	✓	✓	✓	USB/SD-card	✓
mbNET	MDH830	1.130.200.03.00	Metal	✓	✓	✓	✓	✓	✓	✓	✓	✓	USB/SD-card	✓
mbNET	MDH831	1.131.200.03.00	Metal	✓	✓	✓	✓	✓	✓	✓	✓	✓	USB/SD-card	✓
mbNET	MDH834	1.134.210.03.00	Metal	✓	✓	✓	✓	✓	✓	✓	✓	✓	USB/SD-card	✓
mbNET	MDH855	1.155.220.03.00 <sup>1)</sup>	Metal	✓	✓	✓	✓	✓	✓	✓	✓	✓	USB/SD-card	✓
mbNET	MDH855	1.155.130.03.00 <sup>2)</sup>	Metal	✓	✓	✓	✓	✓	✓	✓	✓	✓	USB/SD-card	✓
mbNET	MDH810	1.110.200.03.00	Metal	✓	✓	✓	✓	✓	✓	✓	✓	✓	USB/SD-card	✓
mbNET	MDH811	1.111.200.03.00	Metal	✓	✓	✓	✓	✓	✓	✓	✓	✓	USB/SD-card	✓
mbNET	MDH814	1.114.210.03.00	Metal	✓	✓	✓	✓	✓	✓	✓	✓	✓	USB/SD-card	✓
mbNET	MDH850	1.150.220.03.00 <sup>1)</sup>	Metal	✓	✓	✓	✓	✓	✓	✓	✓	✓	USB/SD-card	✓
mbNET	MDH850	1.150.130.03.00 <sup>2)</sup>	Metal	✓	✓	✓	✓	✓	✓	✓	✓	✓	USB/SD-card	✓
mbNET	MDH815	1.115.220.03.00	Metal	✓	-	-	-	✓	✓	✓	✓	✓	USB/SD-card	✓
mbNET	MDH816	1.116.200.03.00	Metal	✓	-	-	-	✓	✓	✓	✓	✓	USB/SD-card	✓
mbNET	MDH841	1.141.200.03.00	Metal	✓	-	-	-	✓	✓	✓	✓	✓	USB/SD-card	✓
mbNET	MDH819	1.119.210.03.00	Metal	✓	-	-	-	✓	✓	✓	✓	✓	USB/SD-card	✓
mbNET	MDH849	1.149.210.03.00	Metal	✓	-	-	-	✓	✓	✓	✓	✓	USB/SD-card	✓
mbNET	MDH858	1.158.220.03.00 <sup>1)</sup>	Metal	✓	-	-	-	✓	✓	✓	✓	✓	USB/SD-card	✓
mbNET	MDH858	1.158.130.03.00 <sup>2)</sup>	Metal	✓	-	-	-	✓	✓	✓	✓	✓	USB/SD-card	✓
mbNET	MDH859	1.159.220.03.00 <sup>1)</sup>	Metal	✓	-	-	-	✓	✓	✓	✓	✓	USB/SD-card	✓
mbNET	MDH859	1.159.130.03.00 <sup>2)</sup>	Metal	✓	-	-	-	✓	✓	✓	✓	✓	USB/SD-card	✓
mbNET.rokey	RKH216	1.216.200.03.00	Metal	✓	✓	✓	✓	✓	✓	✓	✓	✓	USB/SD-card	✓
mbNET.rokey	RKH235	1.235.200.03.00	Metal	✓	✓	✓	✓	✓	✓	✓	✓	✓	USB/SD-card	✓
mbNET.rokey	RKH210	1.210.200.03.00	Metal	✓	✓	✓	✓	✓	✓	✓	✓	✓	USB/SD-card	✓
mbNET.rokey	RKH259	1.259.220.03.00 <sup>1)</sup>	Metal	✓	✓	✓	✓	✓	✓	✓	✓	✓	USB/SD-card	✓
mbNET.rokey	RKH259	1.259.130.03.00 <sup>2)</sup>	Metal	✓	✓	✓	✓	✓	✓	✓	✓	✓	USB/SD-card	✓
mbNET.mini	MDH860	2.160.200.02.00	Metal	mb24	-	-	-	-	✓	-	-	-	USB	✓
mbNET.mini	MDH861	2.161.210.02.00	Metal	mb24	-	-	-	-	✓	-	-	-	USB	✓
mbNET.mini	MDH862	2.162.220.02.00 <sup>1)</sup>	Metal	mb24	-	-	-	-	✓	-	-	-	USB	✓
mbNET.mini	MDH862	2.162.130.02.00 <sup>2)</sup>	Metal	mb24	-	-	-	-	✓	-	-	-	USB	✓
mbNET.mini	MDH863	2.163.200.02.00	Metal	mb24	-	-	-	-	✓	-	-	-	USB	✓
mbNET.mini	MDH865	2.165.210.02.00	Metal	mb24	-	-	-	-	✓	-	-	-	USB	✓
mbNET.mini	MDH866	2.166.130.02.00 <sup>2)</sup>	Metal	mb24	-	-	-	-	✓	-	-	-	USB	✓
mbNET.mini	MDH866	2.166.220.02.00 <sup>1)</sup>	Metal	mb24	-	-	-	-	✓	-	-	-	USB	✓
mbNET.mini	MDH867	2.167.200.02.00	Metal	mb24	-	-	-	-	✓	-	-	-	USB	✓

<i>Internet modem (analog/ISDN/mobile)</i>	<i>PPoE/PPTP WAN</i>	<i>Dyn DNS</i>	<i>mbNET DNS</i>	<i>Alarm management E-mail, SMS (Multiplex inputs)</i>	<i>Routing WAN-LAN, VPN-LAN</i>	<i>LLocal configuration interface via int. webserver</i>	<i>Protocol webserver</i>	<b>Portal functions via mbCONNECT24</b>		
								<b>Routing</b>	<b>mb-WEB-2go</b>	<b>Internet SMS</b>
✓	✓	✓	✓	✓	✓	✓	HTTPS	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	HTTPS	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	HTTPS	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	HTTPS	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	HTTPS	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	HTTPS	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	HTTPS	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	HTTPS	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	HTTPS	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	HTTPS	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	HTTPS	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	HTTPS	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	HTTPS	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	HTTPS	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	HTTPS	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	HTTPS	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	HTTPS	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	HTTPS	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	HTTPS	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	HTTPS	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	HTTPS	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	HTTPS	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	HTTPS	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	HTTPS	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	HTTPS	✓	✓	✓
✓	-	-	-	-	✓	-	HTTP/HTTPS	✓	✓	✓
✓	-	-	-	-	✓	-	HTTP/HTTPS	✓	✓	✓
✓	-	-	-	-	✓	-	HTTP/HTTPS	✓	✓	✓
✓	-	-	-	-	✓	-	HTTP/HTTPS	✓	✓	✓
✓	-	-	-	-	✓	-	HTTP/HTTPS	✓	✓	✓
✓	-	-	-	-	✓	-	HTTP/HTTPS	✓	✓	✓
✓	-	-	-	-	✓	-	HTTP/HTTPS	✓	✓	✓
✓	-	-	-	-	✓	-	HTTP/HTTPS	✓	✓	✓
✓	-	-	-	-	✓	-	HTTP/HTTPS	✓	✓	✓

Fc1

Fc3

Rdy

Pwr

Fc2

Fc4

Con

Err



WAN

COM1

LAN1

LAN2

LAN3

LAN4





MB connect line GmbH offers universal solutions for worldwide remote maintenance, Industrial Internet of Things and Industrial Security. The specialists at MB connect line can draw on years of experience and extensive know-how.

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