Remote Maintenance and Monitoring with MB Connect Line

Brian Schuster

MB Connect Line

MB CONNECT LINE

remote maintenance solutions

MB Connect Line

- Founded in 1997 by Siegfried Müller and Werner Belle
- All products are designed and developed entirely in house
- 2004 added support for broadband and the central Portal
- Technology and Security leader in the Industry

MB Connect and Security

- 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 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.

Security

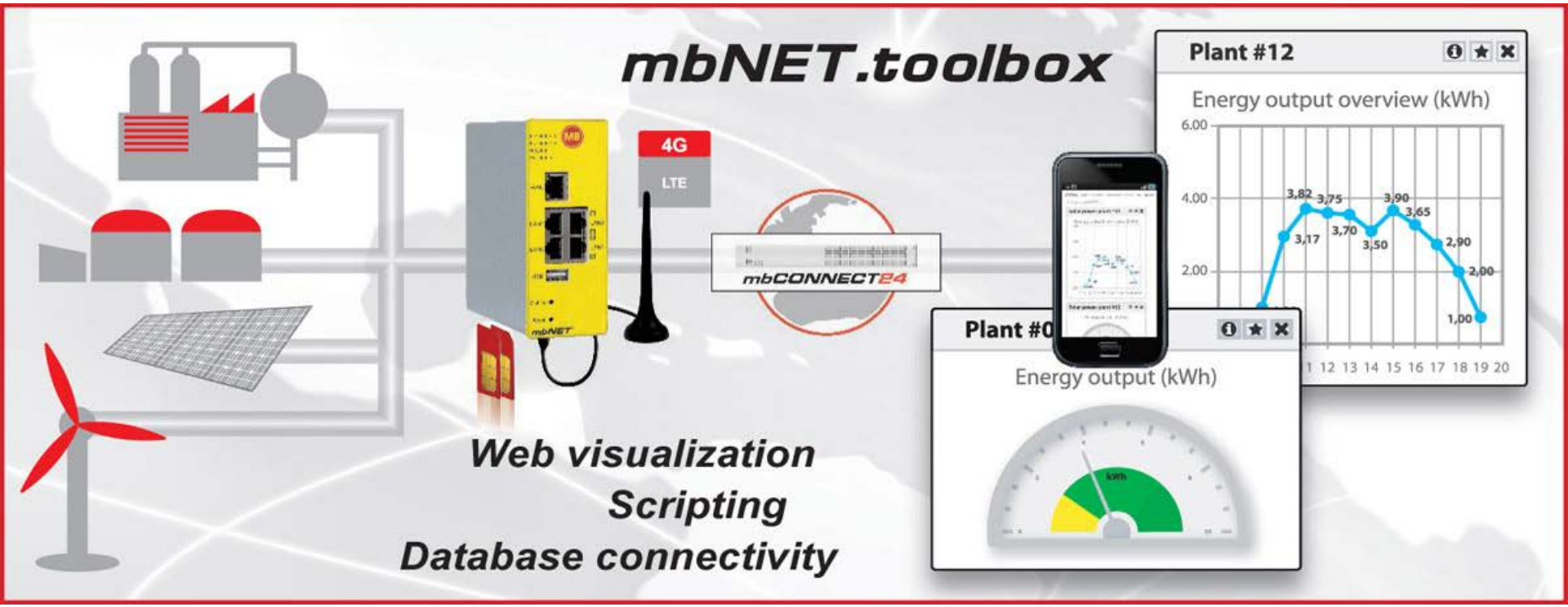
- Furthermore, MB Connect Line is a member of the Alliance for Cybersecurity and we actively work with the Federal Office for Information Security.
- This enables our development engineers to be preemptive and to counteract security threats very quickly.
- We use open source technologies which enable us to ensure the highest possible security when using the mbCONNECT24 portal…

Security: Open Source

- 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 up to 2048 bit.
- Our servers are located in high-security datacenters in Europe and North America.

Technology Leader

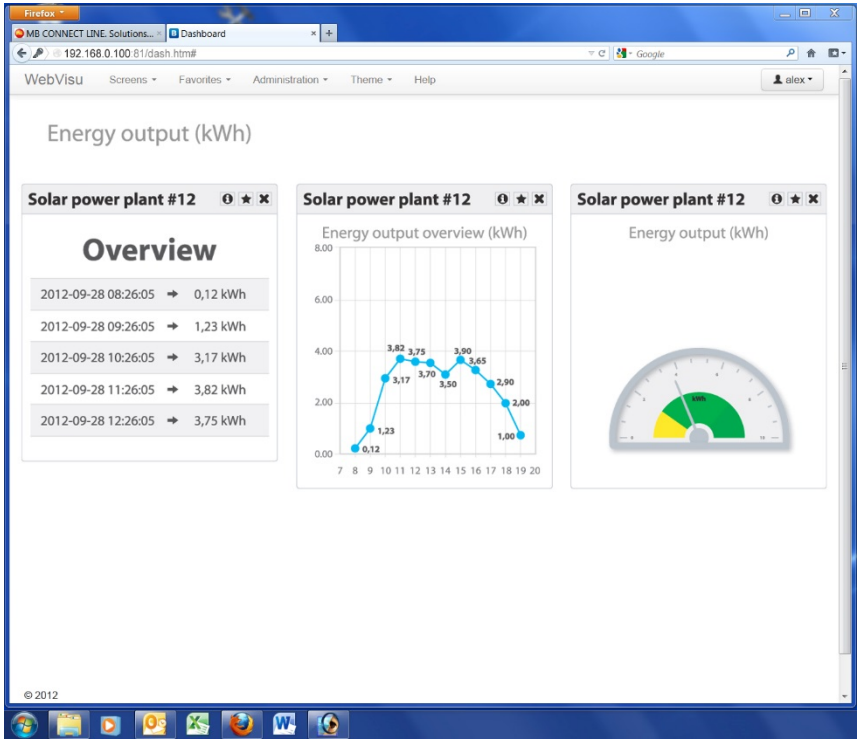
- Started in 1997 with point-to-point dial up modems
- Developing features first such as:
- First to have public portal, allowing access from anywhere
- First to offer dashboards and data collection remotely in one centrally accessible location
- First to offer support for mobile devices with Web2Go

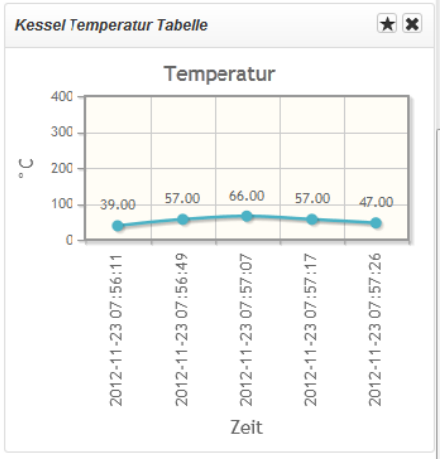

mbNET.toolbox
4G
LTE
mbCONNECT24
Plant #12
Energy output overview (kWh)
6.00
4.00
2.00
3,82
3,17
3,75
3,70
3,50
3,90
3,65
2,90
2,00
1,00
1 12 13 14 15 16 17 18 19 20
Plant #0
Energy output (kWh)
kWh
Web visualization
Scripting
Database connectivity

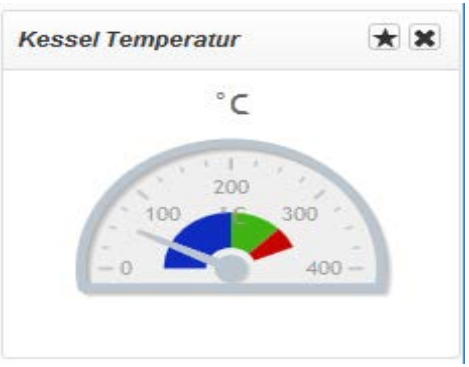
mbNET.toolbox

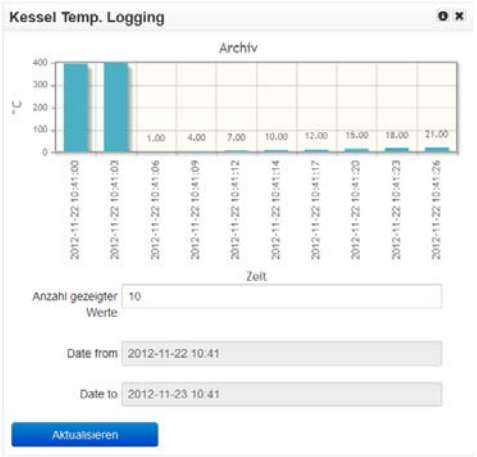
- Easy web visualization possible
- Compatible with mbWEB2go
- Intelligence integrated in the mbNET with the programmable Scripting language LUA
- Extended Logging functions
- Integrated Monitoring with SMS and Email functionality in case of an event
- User managemant for the web visualization

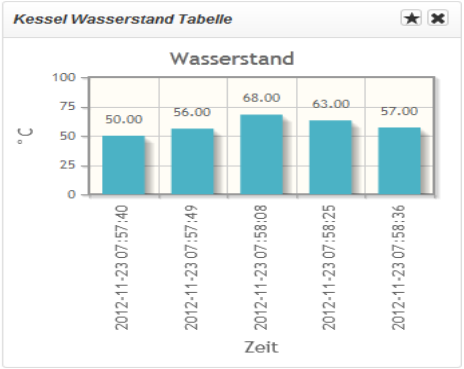
mbNET.toolbox Widgets



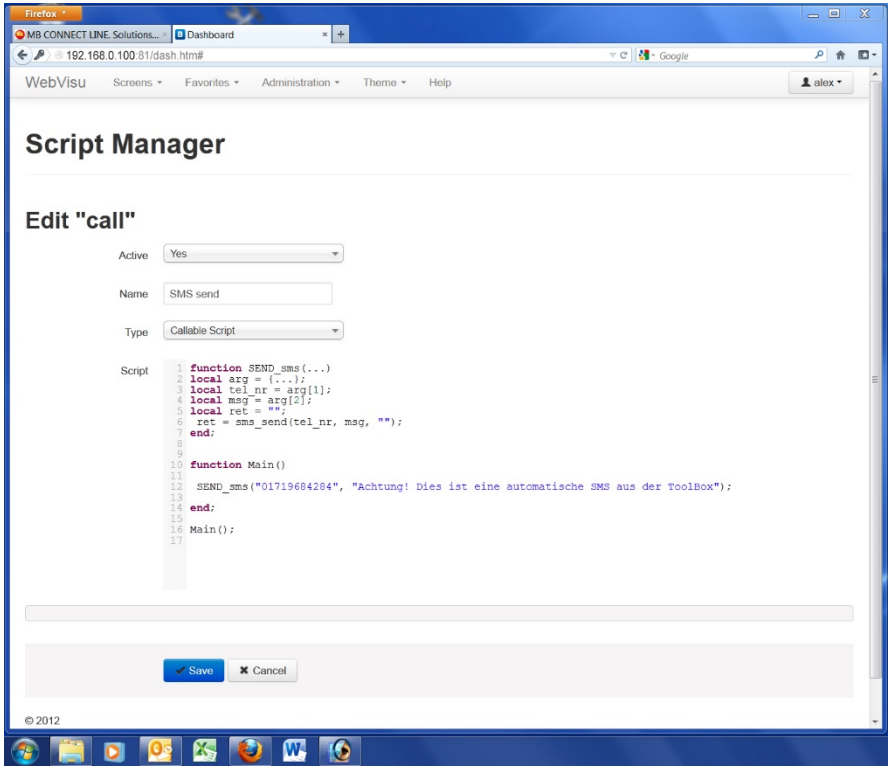






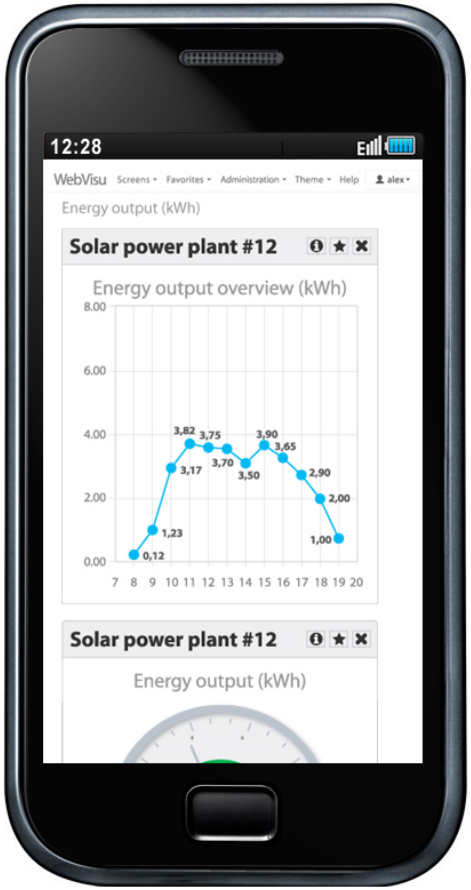


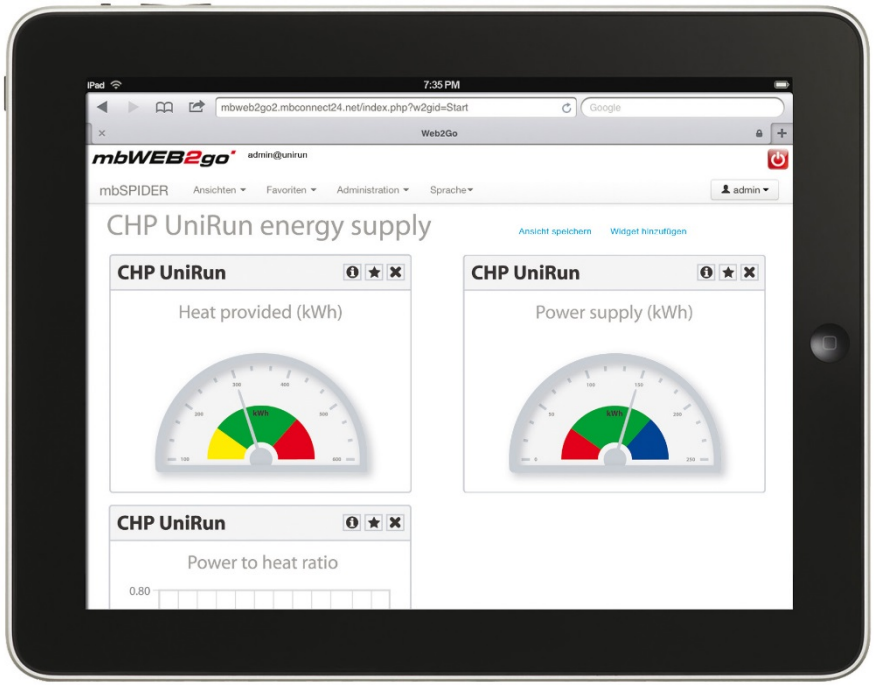
mbNET.toolbox Scripting




```
--         Mail Options              --
-- ------------------------------- --
_emailaddr = "support@mbconnectline.de";
_subject = "meine erste mail von der Toolbox";
_txt = "Alles in Ordnung! Temperatur ist : ";
-- ------------------------------- --

-- Verbinde zur SPS
handle = plc_connect("ISOTCP", "192.168.0.100", "2");

-- Lese MW10 aus
data = plc_read_datapoint(handle, "Flags", "", "10", "2");

-- trenne Verbindung zur SPS
plc_disconnect(handle);

-- schreibe Temperatur in email
_txt = _txt..data.." °C";

-- sende email
return_value = mail_send(_emailaddr, _subject, _txt, "");

log_message("LOG_INFO", "E-Mail Funktion returned:" .. return_value);
```

mbNET.toolbox Web2Go





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Portal

mbCONNECT24

- Secure Connection via VPN-tunnel
- Simple and clear configuration
- Central management of all users, projects and devices
- No IT-specific knowledge necessary
- Data Export to PDF or CSV file
- Available in 3 different versions:
- Public Hosted
- Private Hosted
- Hardware server, which is self hosted

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Server Overview

mbCONNECT24

Safe remote maintenance via a central service portal with convenient user management

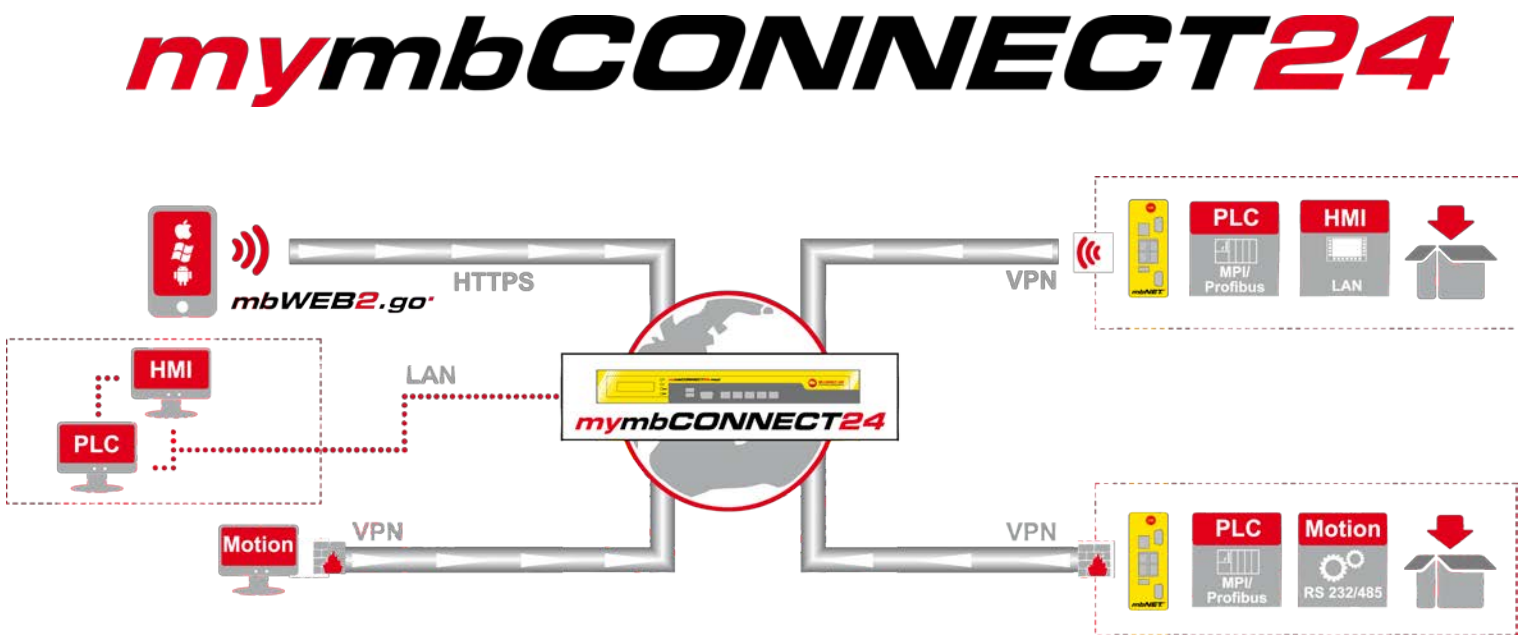
mymbCONNECT24

Safe remote maintenance portal as pre-installed complete system for your service center

mymbCONNECT24.hosted

All the features of the hardware Portal, fully maintaned by MB connect line

Central Service Portal



Self Managed Hardware Portal

mymbCONNECT24

mymbCONNECT24 mini supports as box solution

- ✓ Unlimited users
- ✓ Up to 110 machine accesses/mbNET-units
- ✓ Up to 5 active connections at the same time
- ✓ one account

mymbCONNECT24 midi supports as box solution

- ✓ Unlimited users
- ✓ Up to 260 machine accesses/mbNET-units
- ✓ Up to 50 active connections at the same time
- ✓ Up to 5 accounts

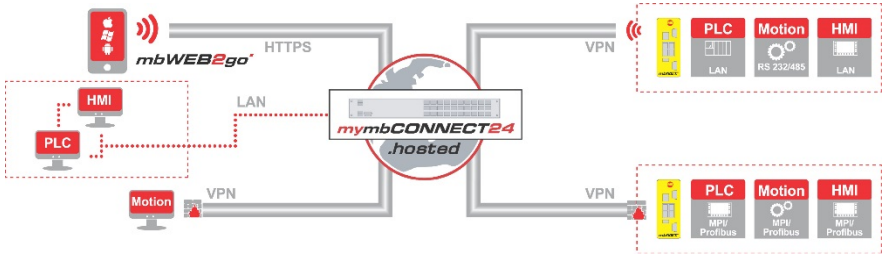
mymbCONNECT24 maxi supported for the assembly in a 19“-rack

- ✓ Unlimited users
- ✓ Up to 1,010 machine accesses/mbNET-units
- ✓ Up to 150 active connections at the same time
- ✓ Up to 25 accounts

Hardware Portal

- No External end-points for VPN tunnel, entirely in house solution
- Bandwidth allocation dependent on customer
- High number of available connections and devices
- Advanced features allowing M2M communication
- Peace of mind for even the most paranoid company

Central private hosted complete solution



mymbCONNECT24.hosted

- ✓ Own private hosting in a professional server center
- ✓ Maintenance of the server made by MB connect line
- ✓ Server reachable with own IP address
- ✓ No effort for the customer but the advantage of a private server
- ✓ Various capacities of the server possible starts with 250 – 20,000 devices

mbCONNECT24 V2.0
Remote Management Portal

Central Functionality

- ✓ project based visualization, alarming and protocolling
- ✓ project based scripting
- ✓ secure IP-communicion via full transparent VPN-tunnel
- ✓ user-API functionality to request actual and protocolled data
- ✓ remote access
- ✓ M2M communication, networking of equipment via the internet
- ✓ web based visualization
- ✓ multilevel license structure

webbasierte Visualisierung

Überwachen und Alarmieren

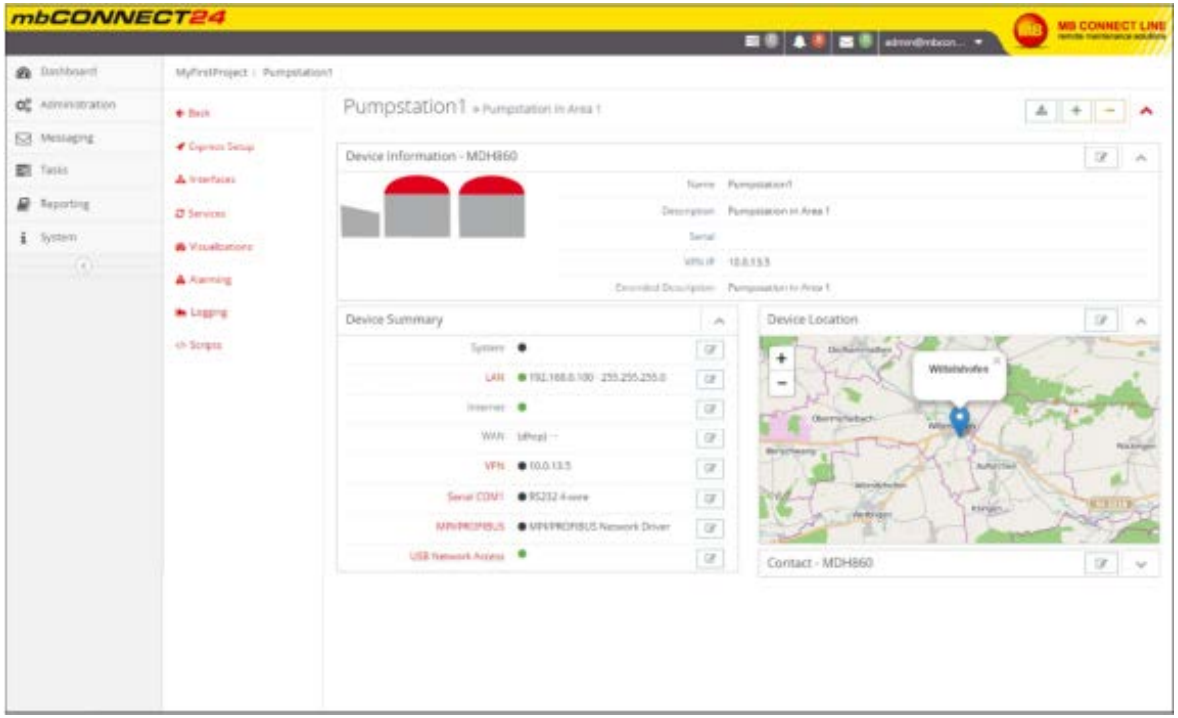
Web Based Visualization

- Free Configurable dashboards to show individual data
- Support for RDP and VNC for connecting to additional devices (ex: HMI)
- Upload your own images
- Based on HTML5 and supports Windows, Android and Apple Operating Systems
- Access to integrated PLC webserver and other client devices
- Shows data points from PLC in visualization

Portal V2 Highlights

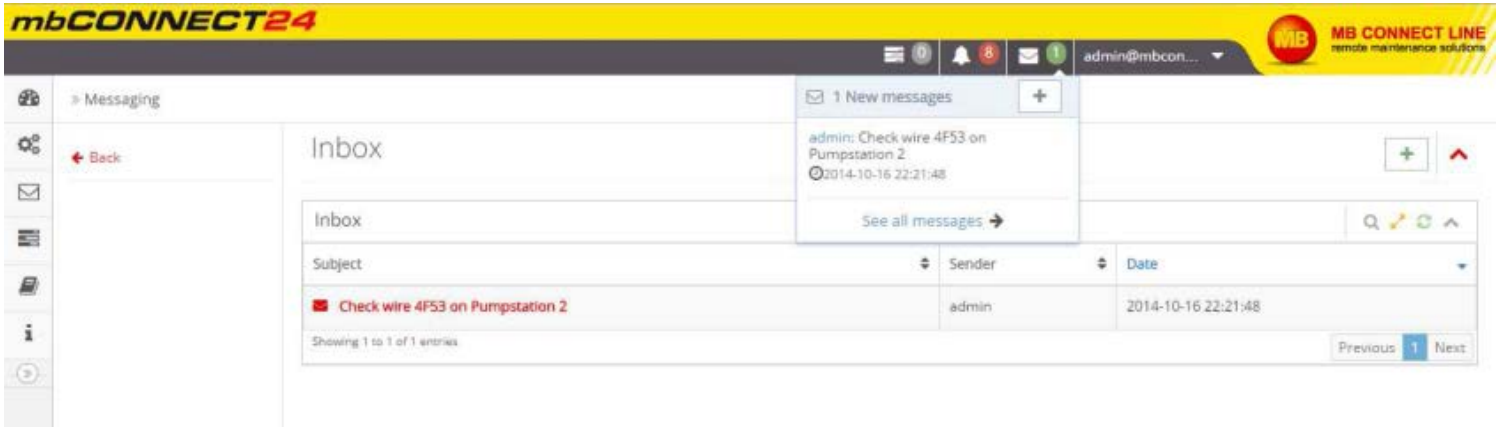
- Comprehensive, centralized solution for industrial VPN infrastructure.
- Communication takes place via TLS encrypted connections, allowing OpenVPN to ensure the authenticity, integrity and confidentiality of the data
- Service personal, as well as machines and equipment work exclusively with outgoing connection
- No problems with IP subnets and address ranges

mbCONNECT24 V2.0
Home screen



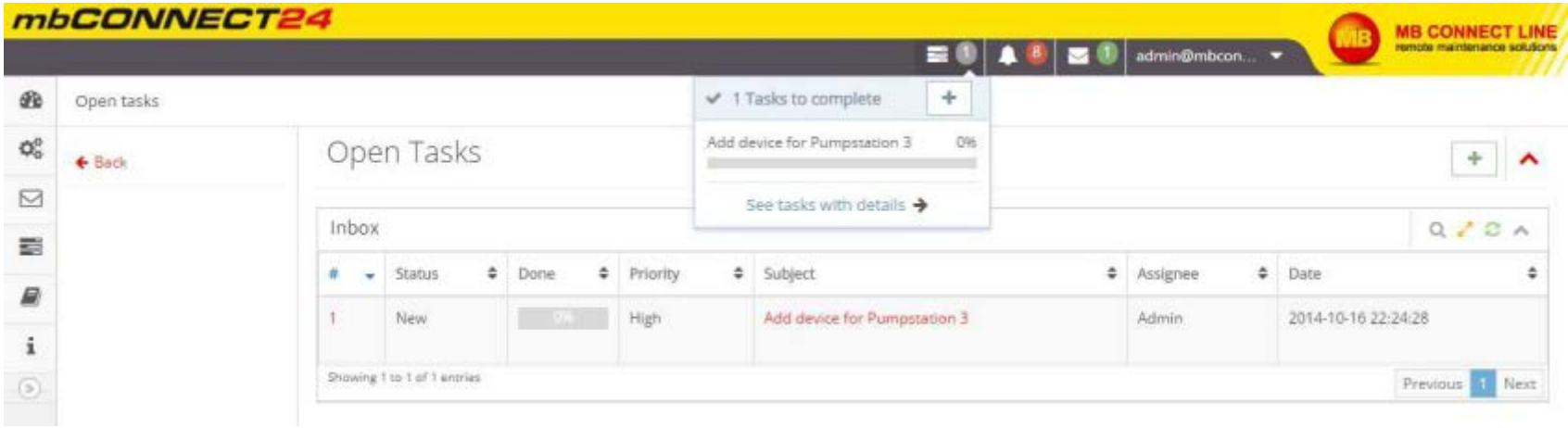
- ✓ configuration of the devices and all settings will be made here
- ✓ settings for all devices linked to the router will be made here (LAN, RS, MPI/PROFIBUS)
- ✓ Set-up of specific data points for the linked components and devices will be made right here

mbCONNECT24 V2.0
Messages



- ✓ Integrated Mail System
  - Send messages to account users
  - Create and send project based messages
  - Messages could be sent from the portal owner to the portal users
  - News, Updates, Maintenance downtimes and product information can be sent to all users

mbCONNECT24 V2.0
Tasks



- ✓ Intagrated Task Managemant System
  - Define and create tasks for account users
  - Create project based tasks

mbNET.mini

mbNET.mini

- Integrated Ethernet Switch (3-port LAN with WAN, 4-port LAN with Cellular)
- 3G version supports GPRS, EDGE, UMTS and HSPA+
- 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
- Does not include the Toolbox

mbNET Industrial Router

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mbNET Industrial Router

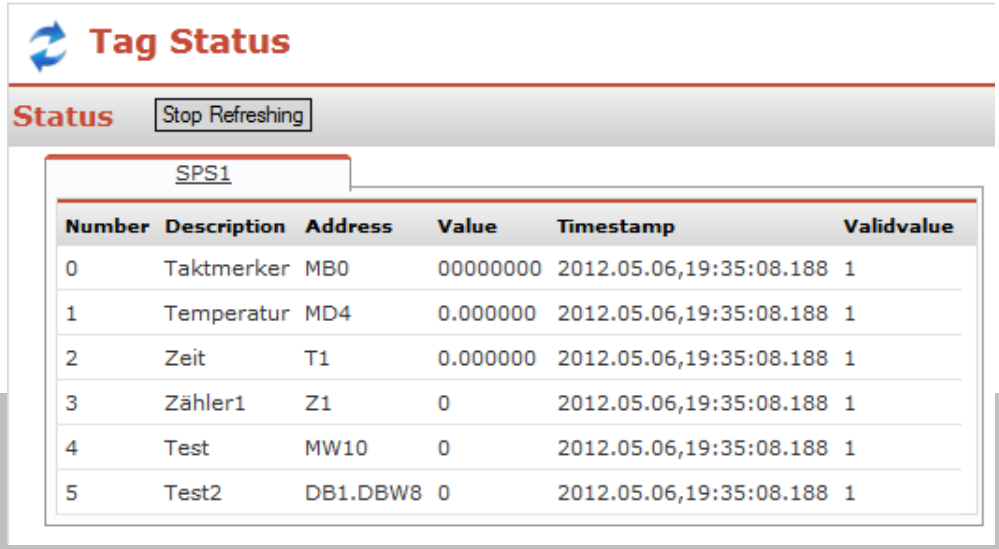
- Enables a secure and reliable connection of machines and equipment over the internet
- Integrated firewall ensures maximum access protection by allowing remote access only to identified and authenticated users.
- Full feature support, including the Toolbox
- Full feature industrial router support NAT tables and IP routing tables
- Many different configurations available to suit any connection needs

mbNET Industrial Router

- Integrated 4-port Switch (4x Ethernet 100 Mbit)
- Secure connection via VPN (PPTP, IPSec, OpenVPN, L2TP)
- 2x RS-232/485 interface selectable onboard
- Optional MPI/Profibus
- 2 SIM card slots with failover functionality
- 4 Digital inputs, 2 digital outputs
- Network connection can be initiated from anywhere via SMS control function
- Slim Metal case with DIN rail mounting

mbNET Industrial router
I/O-manager

- Access to values of S7 PLCs
- Logging on USB-stick (interval adjustable)
- RFC 1006 via ethernet or MPI/PROFIBUS
- Maximum 4 connections to PLCs
- Each connection supports a maximum of 256 values



Number	Description	Address	Value	Timestamp	Validvalue
0	Taktmerker	MB0	00000000	2012.05.06,19:35:08.188	1
1	Temperatur	MD4	0.000000	2012.05.06,19:35:08.188	1
2	Zeit	T1	0.000000	2012.05.06,19:35:08.188	1
3	Zähler1	Z1	0	2012.05.06,19:35:08.188	1
4	Test	MW10	0	2012.05.06,19:35:08.188	1
5	Test2	DB1.DBW8	0	2012.05.06,19:35:08.188	1

mbSPIDER

Spannungsversorgung *Power supply*	10 - 30 VDC
Eingänge *inputs*	2 Digital 24 V 2 Analog, 0 - 10 V oder/or 4 - 20 mA (12 Bit)
1 Relaisausgang *1 relay output*	24 V DC/AC/1A Wechselkontakt *24 V DC/AC/1A changeover contact*
1 RS232/485 umschaltbar *1 RS232/485 switchable*	(RxD, TxD, RTS, CTS, GND) / (A+, A-, B+, B-)
1 Ethernetport	100 Mbit/sec. via VLAN als LAN und WAN nutzbar *can be used as LAN and WAN via VLAN with 100 Mbit/sec.*
1 USB Host	2.0
Bei GPRS *If GPRS*	Quadband Class 10
Verbindungen *Connections*	OpenVPN FTP / Telnet SQLite Datenbank Webserver

Art.-Nr. *Art.No.*	Typ *Type*	Modem *modem*	Gehäuse *casing*	Montage *montage*	1x Ethernet	USB	RS232/485	OVPN
8900	MDH 900	---	Kunststoff DIN 43880	Hutschiene / Wand	✔	✔	✔	✔
8905	MDH 905	GPRS	Kunststoff DIN 43880	Hutschiene / Wand	✔	✔	✔	✔
8910	MDH 910	---	Metall	Wand / Hutschiene optional	✔	✔	✔	✔
8915	MDH 915	GPRS	Metall	Wand / Hutschiene optional	✔	✔	✔	✔

mbSpider

- FTP server/client functionality
- Web Visualization
- Internal programming allows you to collect, evaluate and visualize any data.
- Send messages via SMS and e-mail
- 1 Ethernet Port usable as LAN/WAN
- Communications via TCP/IP, ModbusTCP and S7 ISOTCP
- 1 RS-232-/485 interface
- 2 digital and 4 analog inputs, 1 relay output

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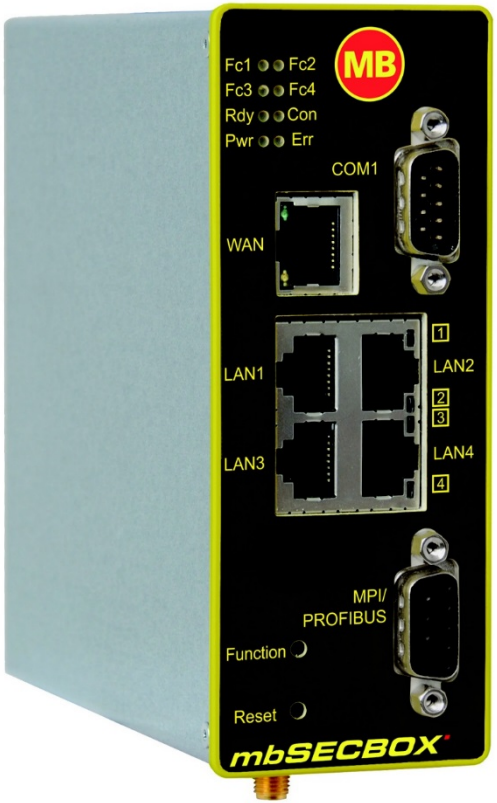
mbSpider

- Available with 3G cellular modem
- Secure outbound connection to mbCONNECT24 Portal
- Perfect for data collection and web visualization with fully customizable interface
- Available in Slim metal and full plastic cases

mbSECBOX- PLC backup and virus detection



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mbSECBOX

- Permanent backup of dynamic PLC-data
- Manipulation detection to thwart hacking attempts
- SMS or e-mail if something changed in static memory
- Easy restore of saved data without software of the distributor
- No data loss when replacing PLC’s
- Convenient operation via integrated web interface or simply via device I/O

Global SIM

- With a prepaid global SIM make your machine accessible anywhere in the world, anytime
- Full GSM support for global carrier access
- Simple administration of SIM cards via “MyM2M” portal
- Clear prepaid rate model
- No minimum contract period

Benefits provided from the MB Connect Line remote maintenance systems

mbNET mbCONNECT24 mymbCONNECT24

- Perfectly matched components
- Modular solutions, all from one source
- Fast response time
- Fits into every infrastructure
- Easy connection handling
- No unauthorized entry
- Grows with the plant
- Maximum security
- Continuous transparency