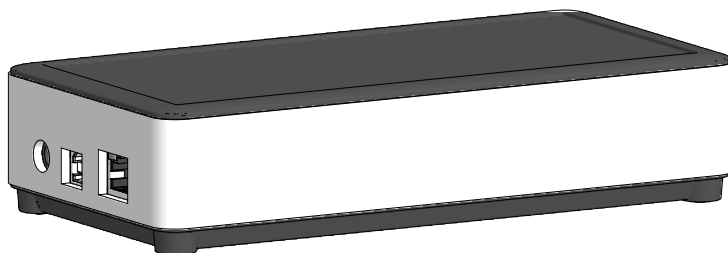

Mounting and operating instruction



Z-PA.SDL.1 *WLAN adapter* Programming device for HMG10P/PMG10P series

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1. IMPORTANT NOTES

1.1 Symbol guide



Warning

Disregarding could result in serious injury, death or damage to property



Attention

Disregarding could result in damage to property or damage/malfunction of the programming device



Information

Additional information and recommendations

1.2 Intended use

The Z-PA.SDL.1 *WLAN adapter* is a programming device for programming HMG10P/PMG10P series encoders. Detailed information on the operation of the HMG10P/PMG10P series encoders can be found in the respective mounting and operating instructions.

The programming device must not be used for any other purpose. The function of the programming device is described in this mounting instruction. The customer must check the suitability for the purpose intended.

Mounting and selection must be executed by authorized and qualified personnel. Mounting, electrical commissioning or any other work with the programming device or system is to be performed by appropriately qualified staff only.

Do not put the programming device into service if there is any visible evidence of damage.

Do not operate the programming device beyond the limit values stated in this mounting instruction.

Any risk of personal injury, damage of the system or company equipment due to failure or malfunction of the programming device and the connected encoder must be eliminated by corresponding safety measures.



Warning

Disregarding intended use could result in serious injury or damage to property.

1.3 Exclusion from liability

The manufacturer is not liable for any damage to persons or property resulting from unintended use of the programming device.

1.4 Maintenance and service life

The programming device is maintenance-free. Repair work that requires opening the programming device must be carried out by the manufacturer.

Alterations of the programming device are not permitted.

In the event of queries or subsequent deliveries, the data on the programming device type label must be quoted, especially the type designation and the serial number.

1.5 Approvals and warranty

EU Declaration of Conformity meeting to the European Directives.

We grant a 2-year warranty in accordance with the regulations of the Central Association of the German Electrical Industry (ZVEI).

1.6 Storage temperature

The storage temperature range of the programming device is between $-15...+70$ °C (caused by packing).

1.7 Disposal (environmental protection)



Do not dispose of electrical and electronic equipment in household waste. The product contains valuable raw materials for recycling. Whenever possible, waste electrical and electronic equipment should be disposed locally at the authorized collection point. If necessary, Baumer gives customers the opportunity to dispose of Baumer products professionally. For further information see www.baumer.com.

This instruction is also stored in the device and available at baumer.sensor/manual.pdf.

2. SAFETY AND ATTENTION INSTRUCTIONS

2.1 Safety instructions



Risk of serious injuries due to rotating shafts

Hair and clothes may become tangled in rotating shafts. Touching the rotating parts can cause extremely serious injuries.

- » For all connections to HMG10P/PMG10P series encoders, switch off all voltage supplies and shut down machines and ensure that they cannot be switched on again by third parties.
- » Always keep a sufficient distance from rotating shafts while programming the encoder.



Risk of serious injuries due to consequential damages

Incorrect programming of encoders of the HMG10P/PMG10P series can cause systems to fail.

- » Consequential damages due to incorrect programming must be excluded by appropriate safety measures.

2.2 Attention instructions for mounting and operation



Risk of destruction due to electrostatic charge

Electronic parts contained in the programming device are sensitive to high voltages.

- » Do not touch plug contacts or electronic components.
- » Protect output terminals against external voltages.
- » Do not exceed maximum voltage supply.



Risk of destruction due to mechanical shock

Strong vibrations can lead to destruction of the programming device.

- » Never use force.



Risk of destruction due to contamination

Dirt penetrating inside the programming device can cause short circuits and damage the programming device.

- » Absolute cleanliness must be maintained when carrying out any work on the programming device.
- » Never allow lubricants to penetrate the programming device.

3. FUNCTIONALITY

The Z-PA.SDL.1 *WLAN adapter* is a programming device for programming HMG10P/PMG10P series encoders.

The following encoder parameters can be parameterized (depending on the version of the encoder). To do this, you need to register as „ADMIN“, see *section 5.2*:

- Resolution singleturn (SSI)
- Resolution multiturn (SSI)
- Binary or gray code (SSI)
- Additional output 1 and 2 (number of pulses per revolution)
- Deactivation and activation switching speed

The programming device can be configured and operated via a web browser.

To do this, a wireless connection must be established via wireless LAN (the programming device serves as an access point, see *section 4.7*) or a wired connection via Ethernet cable (network setting see *section 5.3.1*) with the programming device.

i A wireless internet connection is not possible while using wireless connection to the programming device. However, a wired internet connection can be maintained depending on the settings of PC or Laptop.

4. PREPARATION

4.1 Scope of delivery

Z-PA.SDL.1 *WLAN adapter*

Power supply with adapter plug for different countries

4.2 Required accessory for connection (not included in scope of delivery)

Adapter cable with D-SUB connector (male) for connection to encoders of HMG10/ PMG10 series to the programming device, different versions:

4.2.1 For HMG10P/PMG10P with flange connector/s

Part number	Version
11191143	Mating connector M23, 17-pin, CCW with connecting cable and D-SUB connector (male) 15-pin for OFFLINE mode, see <i>section 4.6.1</i> , and ONLINE mode, see <i>section 4.6.2</i> , tee connector M23, 3x 17-pin for ONLINE mode, see <i>section 4.6.2</i> .

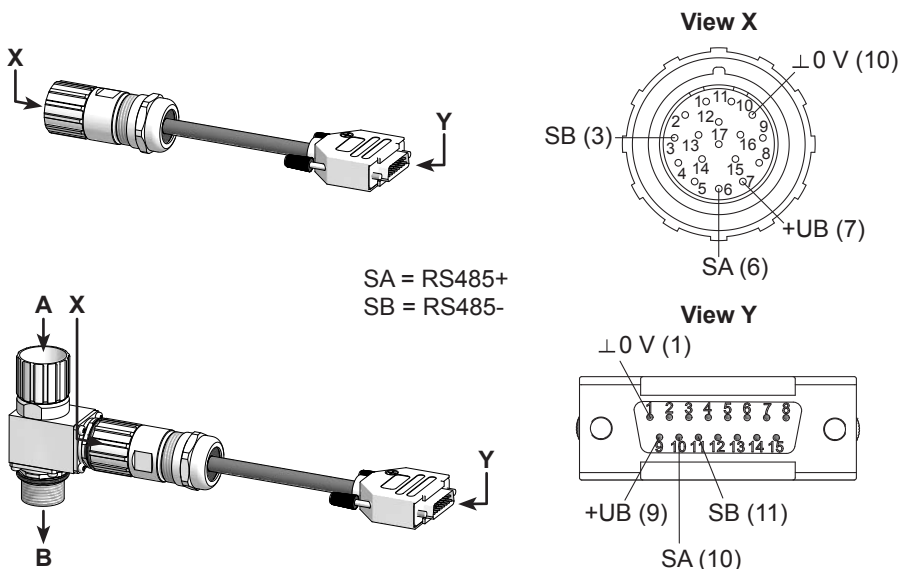
A = Connection to encoder

B = Loop-through signals of the encoder, connection to control

X = Programming interfaces for connection to the encoder

Y = D-SUB connector (male) for connection to the programming device

i At the tee connector M23, the power supply for the encoder is not connected to the programming device (pin 7 + 10 are not connected).

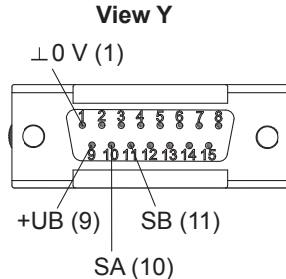
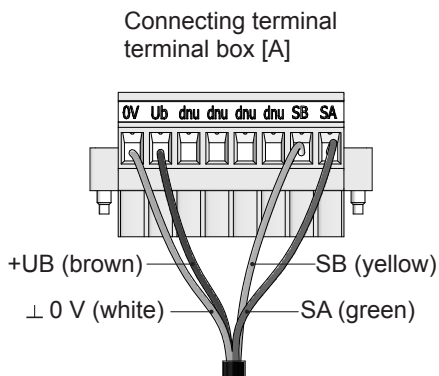
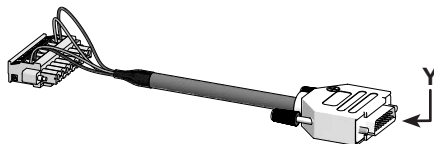


4.2.2 For HMG10P/PMG10P with SSI terminal box

i For the ONLINE mode, see *section 4.6.2*, the connecting terminal can be removed and the cable ends SA and SB can be connected directly to the connecting terminals of the encoder or connected to the existing cable ends (customer installation) in the machine/plant control cabinet. The voltage supply of the encoder is provided by the machine/plant control.

Part number Version
 11191144 D-SUB connector (male) 15-pin with connecting cable and 8-pin connecting terminal for plug-on at the encoder.

Y = D-SUB connector (male) for connection to the programming device



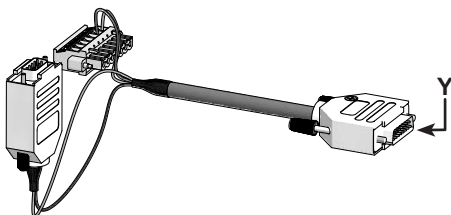
SA = RS485+
 SB = RS485-

4.2.3 For HMG10P/PMG10P with bus connecting box

- i* For the ONLINE mode, see *section 4.6.2*, the connecting terminal can be removed and the cable ends SA and SB can be connected directly to the connecting terminals of the encoder or connected to the existing cable ends (customer installation) in the machine/plant control cabinet. The voltage supply of the encoder is provided by the machine/plant control.
- i* In versions with bus connection box, the encoder is supplied via the bus connection box.

Part number Version
 11191145 D-SUB connector (male) 15-pin with connecting cable, D-SUB connector (male) 9-pin and 7-pin connecting terminal for plug-on at the encoder.

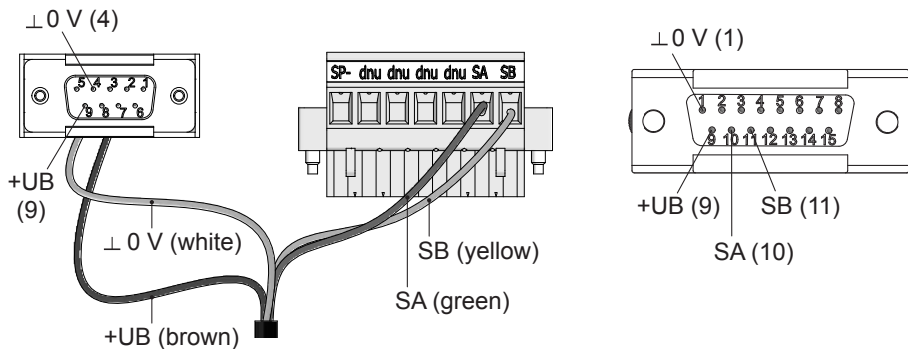
Y = D-SUB connector (male) for connection to the programming device



D-SUB connector (male) bus connecting box [A]

Connecting terminal terminal box [B]

View Y



SA = RS485+
 SB = RS485-

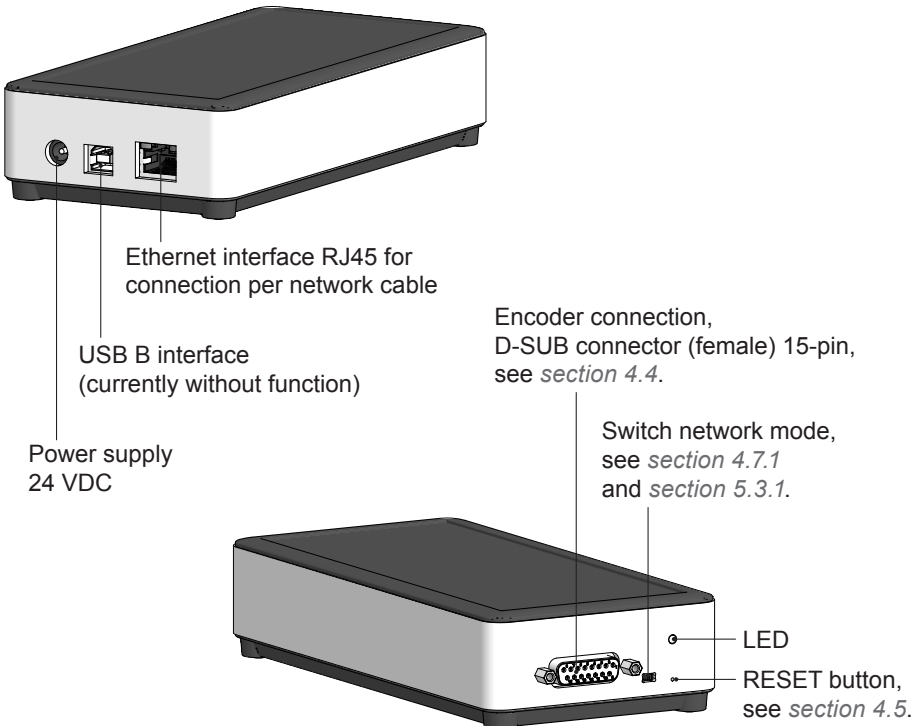
4.3 Connection to the encoder



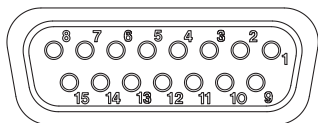
Risk of serious injuries

When connecting the programming device to the encoder, make sure that all machines connected to the encoder are stopped and cannot be switched on again by third parties. Always keep a sufficient distance from rotating shafts while programming the encoder. Use only the supplied power supply unit to power the programming device.

- » Connect the encoder with a D-SUB connector (male) 15-pin to the D-SUB connector (female) 15-pin of the programming device, see *section 4.4* for assignment. Adapter cable available as an accessory, see *section 4.2*.
- » Connect the network cable to the Ethernet socket (not required if the programming device is connected via wireless LAN, see *section 4.7*).
- » Connect the programming device to the power supply.
The LED next to the D-SUB socket lights up fade in and out blue. As soon as the LED also flashes green, the programming device is ready for operation.



4.4 Assignment D-SUB connector (female) of the programming device



Pin	Assignment
1	GND ⊥
2	SSI CLOCK+
3	SSI CLOCK-
4	SSI DATA+
5	SSI DATA-
6	Analog
7	Do not use
8	Do not use
9	Encoder supply
10	SA (RS485+)
11	SB (RS485-)
12	INC
13	Do not use
14	CAN HIGH
15	CAN LOW

4.5 RESET button

The RESET button can be used to shut down, restart or reset the programming device to the factory settings.

Pressing with the help of a pointed object (e. g. paper clip) on the RESET button for the duration of ...

>0,3 seconds	Programming device will shut down	Green LED flashes one time
>2 seconds	Programming device will restart	Green LED flashes two times
>5 seconds	Programming device will be reset to the factory settings	Green LED flashes three times
>10 seconds	Cancel the action	Green LED lights steady

4.6 Operating modes

The programming device can be used between encoder and machine control (ONLINE) or can be connected autonomously only with one encoder (OFFLINE).

When used autonomously, an external power supply is provided via the programming device. The ONLINE mode is non-interfering for communication of the encoder with the controller, i. e. SSI, fieldbus and incremental signals can be fully used.

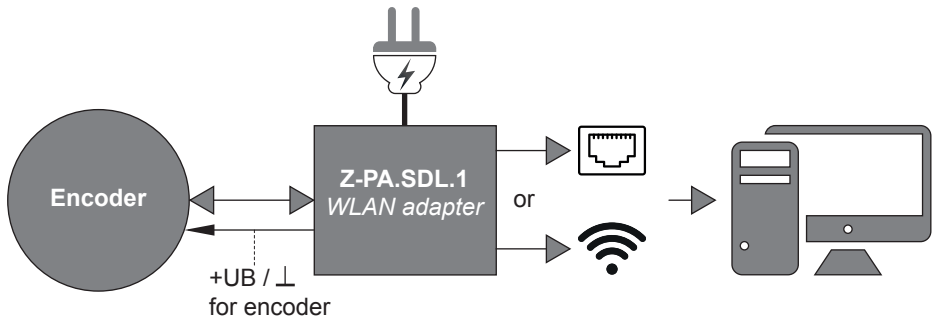
4.6.1 OFFLINE mode

Use cases for the OFFLINE mode are pre-parameterization, function diagnosis or commissioning of an encoder.

The encoder is not built into a machine or system, see *Fig.1*. The voltage supply of the encoder is provided by the programming device. The programming device must be supplied separately with the mains voltage.

- i* The parameterization of the encoder is protected by a password and requires an ADMIN access, see *section 5.2*.

Fig.1: Connection programming device in OFFLINE mode



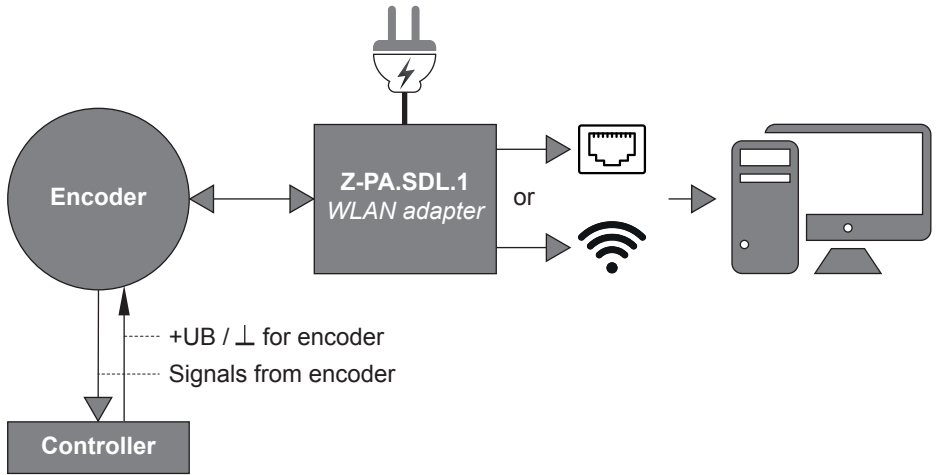
4.6.2 ONLINE mode

Use cases for the ONLINE mode are monitoring, diagnosis and parameterization of an encoder in its machine or plant application.

The encoder is built into a machine or system, see *Fig.2*. The voltage supply of the encoder is provided by the machine/plant control.

i The parameterization of the encoder is protected by a password and requires an ADMIN access, see *section 5.2*.

Fig.2: Connection programming device in ONLINE mode



4.7 Establishing the first network connection to the programming device

To be able to program the connected encoder via web browser, a network connection with the programming device must be established.

All devices with a web browser (PC, smartphone, tablet...) that are wireless LAN-capable (Wi-Fi) or have an Ethernet interface can be connected.

- i* Only one device at a time can access the programming device via web browser. Any connection via web browser must be disconnected, otherwise an error message will appear.
- i* Possible network protection and firewalls can prevent communication to the programming device. Please contact your IT support.

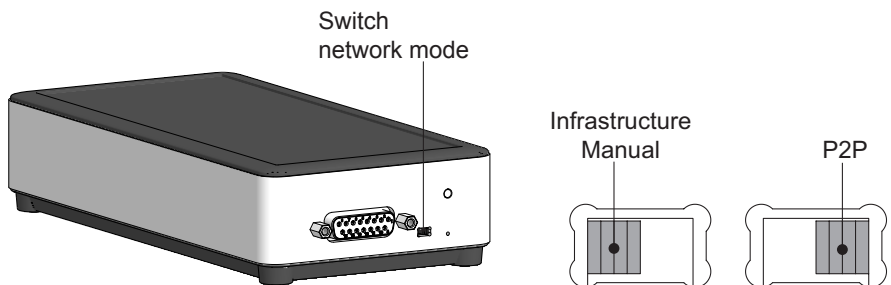
4.7.1 P2P connection with network cable

Establishment of a direct network connection via network cable with the programming device:

- » Set switch for network mode to „P2P“, see *Fig.3*.
- » Connect PC and programming device via network cable.

- i* Connection settings for the connection with network cable see *section 5.3.1*.

Fig.3: „Switch network mode“



4.7.2 Wireless LAN connection

The following figure shows the establishment of a wireless LAN connection with a PC with a Windows operating system. For other devices/operating systems (macOS, iOS, Android...) the respective instruction for establishing a wireless LAN connection has to be followed. The programming device serves as an access point.

- » Open wireless (Wi-Fi) connection manager.
- » Select and connect the wireless LAN-SSID „Baumer. Sensor. xxxx“.
- » Enter the password.

i The wireless LAN-SSID and password are printed on the type label of the programming device and can be changed in the web browser, see [section 5.3.2](#). A wireless internet connection is not possible while using wireless connection to the programming device.

Fig.4: Establishment of a wireless LAN connection with Windows operating system



4.8 Connection via web browser to the programming device

If a network connection to the programming device has been established, see *section 4.7*, it can be accessed directly via a web browser.

- » Open web browser
- » Visit the „http://baumer.sensor“ website
(alternatively, the IP address „10.0.0.1“ can also be entered in the address field)

The „Connection“ window for connecting the connected encoder opens, see *Fig.5*.

- » With the „connect automatically“ function the programming device identifies the connected encoder and establishes a connection, see *Fig.6*.
- » If the automatic connection with the connected encoder does not work, you can change the settings yourself under „Advanced“.

i The programming device restarts if the supply voltage drops for a longer period of time and then the web browser loses connection to the programming device. After about one minute, the web browser recognizes the programming device again. The data connection can then be restored.

Fig.5: Window „Connection“

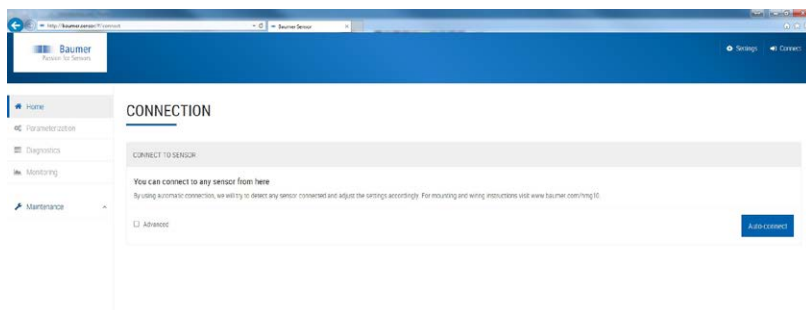
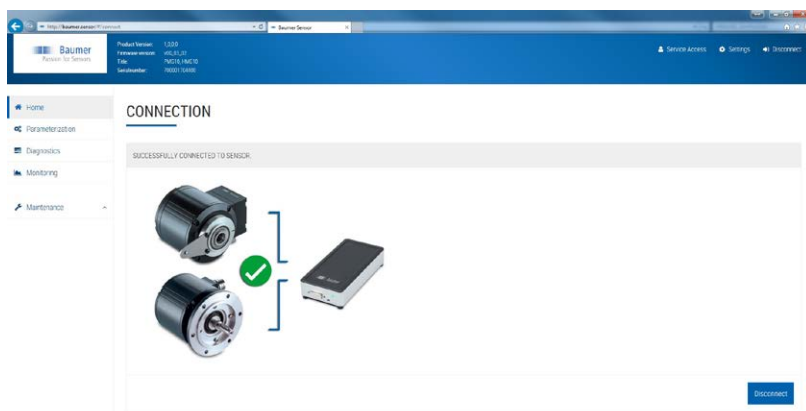


Fig.6: Window „Connection“, Programming device is connected

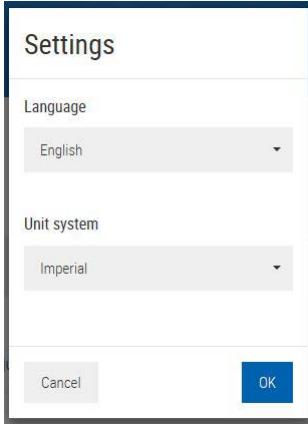


5. SYSTEM SETTINGS

5.1 Settings: Language and units

By default, the language and the unit system is the same as the browser settings and can be changed to „German/English“ or „Metric/Imperial“.

Fig.7: Window „Settings“

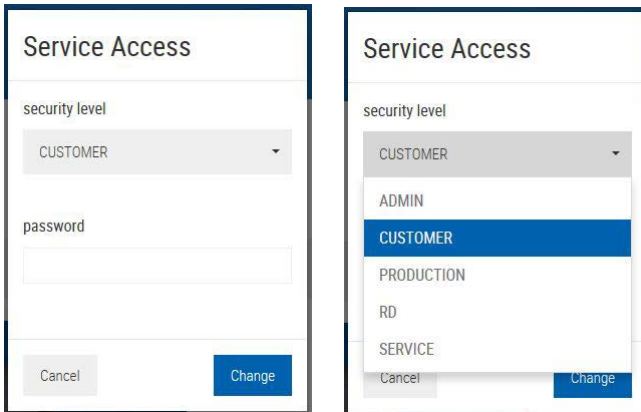


The screenshot shows a window titled "Settings". It contains two dropdown menus. The first is labeled "Language" and has "English" selected. The second is labeled "Unit system" and has "Imperial" selected. At the bottom, there are two buttons: "Cancel" and "OK".

5.2 Service Access

By default, the user „CUSTOMER“ is always logged in. To parameterize the encoder, the user „ADMIN“ must be logged in here. A separate password is required for this purpose. Other user are only intended for the manufacturer (for example, for repair or maintenance purposes).

Fig.8: Window „Service Access“

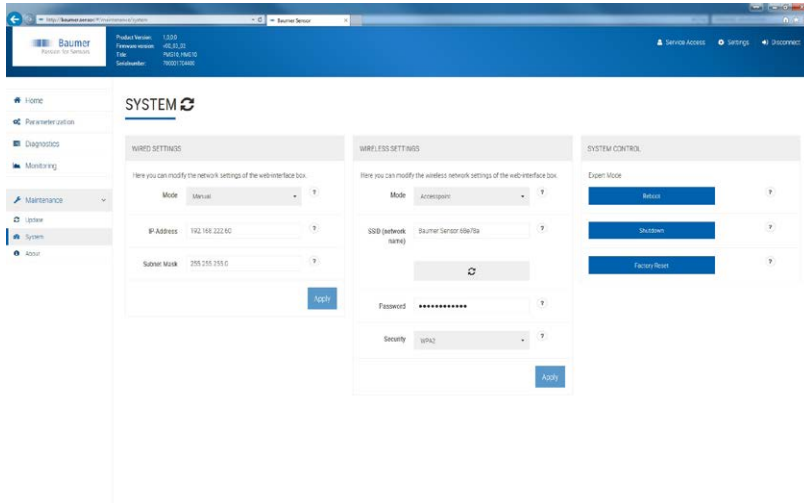


The figure shows two screenshots of the "Service Access" window. The left screenshot shows the "security level" dropdown menu with "CUSTOMER" selected. The right screenshot shows the same window with the dropdown menu open, displaying a list of options: "CUSTOMER", "ADMIN", "PRODUCTION", "RD", and "SERVICE". The "CUSTOMER" option is highlighted in blue. At the bottom of both screenshots, there are "Cancel" and "Change" buttons.

5.3 System

Various system settings such as network settings, wireless settings and system status settings can be made in the „System“ window.

Fig.9: Window „System“



5.3.1 Network settings (LAN)

Adjustment of a wired network connection. Possible connections are:

- Network cable connected directly to a PC (P2P)
Here the programming device serves as DHCP server.
- Network cable connected to a network with DHCP server (infrastructure or manual). For the infrastructure connection, the network provides a DHCP server and transfers the IP address and settings to the programming device. The manual connection can be used to make the settings yourself.

i If the programming device is connected to a network with DHCP server, the device must be logged on to the same network for configuration (PC, smartphone, tablet).

The switch for the wired network mode, see *Fig.11*, switches between direct connection to a PC (P2P) and connection via a network with DHCP (Infrastructure/Manual) server.

Fig.10: Window „Network settings“

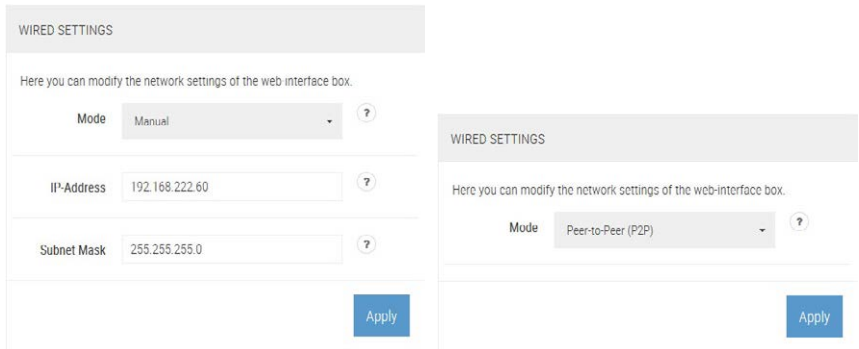
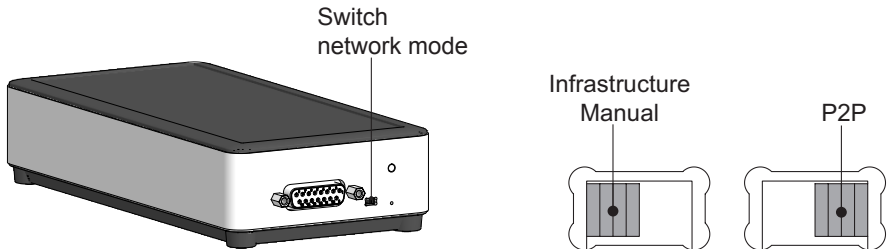


Fig.11: „Switch network mode“



5.3.2 Wireless LAN settings

To adjust the wireless LAN settings such as: mode, SSID, password and security level. Possible connections are:

- Programming device serves as an access point, see *section 4.7*.
- Programming device is logged on to a network. The wireless LAN router serves as a DHCP server and transfers the IP address and settings to the programming device.
- The „Off“ mode switches the wireless LAN functionality off. The programming device can only be connected via the Ethernet interface.

i If the programming device is logged on to a network, the device must be logged on to the same network for configuration (PC, smartphone, tablet).

Fig.12: Window „Wireless settings“

WIRELESS SETTINGS

Here you can modify the wireless network settings of the web-interface box.

Mode

Accesspoint

?

SSID (network name)

Baumer.Sensor.68e78a

?

↻

Password

●●●●●●●●

?

Security

WPA2

?

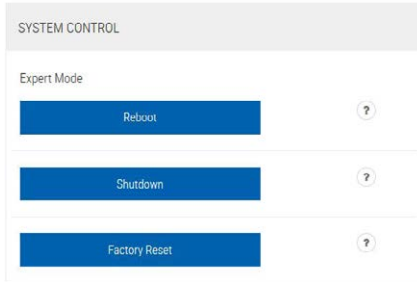
Apply

5.3.3 System control

The programming device can be restarted or shut down here. You can also reset the instrument to factory settings.

i If the programming device is reset to factory settings, all previously stored data will be lost.

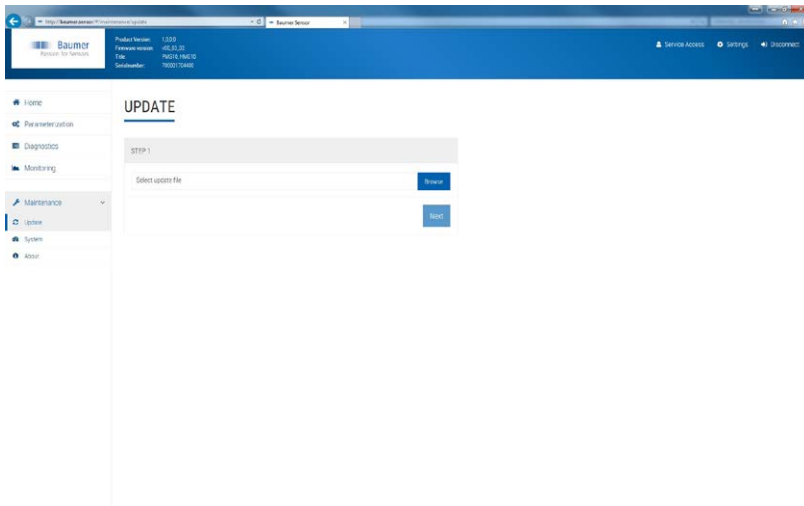
Fig.13: Window „System control“



5.4 Firmware update

The firmware of the programming device can be updated in the „Update“ window. For this purpose, the new update file must be saved on the device which is used for configuring the programming device. With the button „Browse“ the file can be selected in the local file system.

Fig.14: Window „Update“



6. CONFIGURATION

6.1 Changing the encoder parameters

The parameters of the encoder can be changed in the „Parameterization“ window. Possible settings are:

Incremental parameter:

Additional output 1 and 2 (number of pulses per revolution)

SSI absolute parameter:

Resolution singleturn (SSI), resolution multiturn (SSI), binary or gray code (SSI)

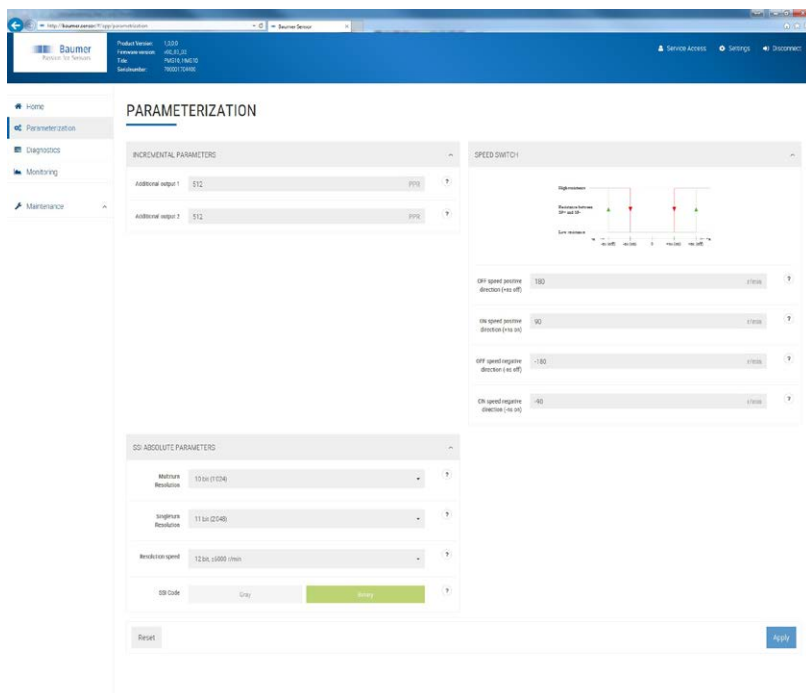
Speed switch:

Deactivation and activation switching speed

i The parameterization of the encoder is protected by a password and requires an ADMIN access, see [section 5.2](#).

i Depending on the version of the encoder, not all options may be available.

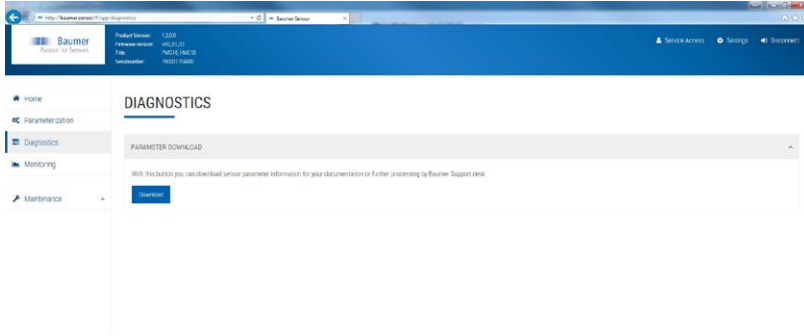
Fig.15: Window „Parameterization“



6.2 Parameter download

In the „Diagnostics“ window, the encoder parameters for further processing and documentation can be downloaded.

Fig.16: Window „Diagnostics“



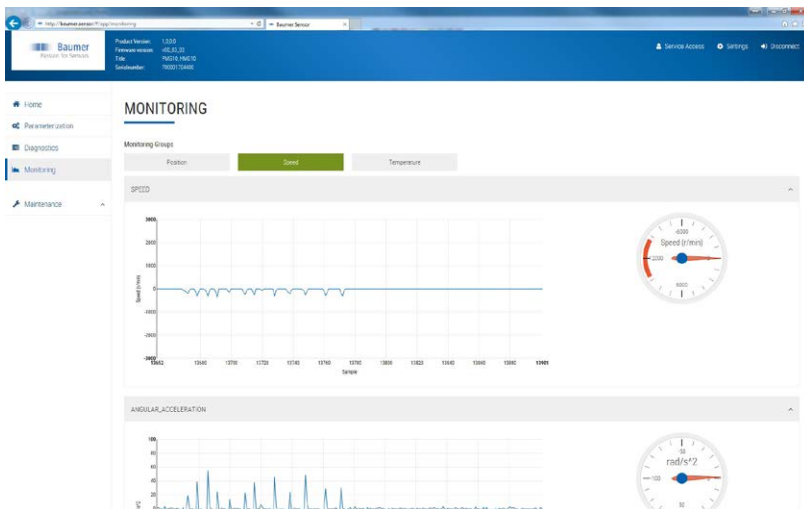
6.3 Monitoring the encoder

The monitoring function visualizes actual encoder signals such as position, speed and temperature.

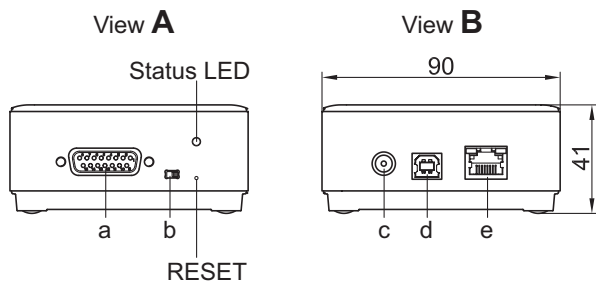
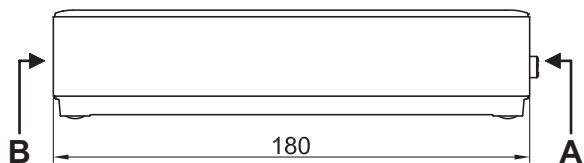
Monitoring is non-interfering with the communication between the encoder and the controller. This means that the signals from the encoder are still fully available for control and regulation in a signal controller or PLC.

Therefore, the monitoring signals are **not time-synchronous** and can only be used for qualitative statements.

Fig.17: Window „Monitoring“



7. DIMENSION



- a → D-SUB connector (female) 15-pin, encoder connection
- b → Switch network mode
- c → Connection power supply
- d → USB B interface (currently without function)
- e → Ethernet interface RJ45

8. TECHNICAL DATA

8.1 Technical data - electrical ratings

Voltage supply	24 VDC
Encoder supply	5 VDC and 12 VDC via D-SUB connector (female), 15-pin
Inputs	SSI CLOCK+, SSI CLOCK-, SSI DATA+, SSI DATA-, Analog, RS485-A (SA), RS485-B (SB), INC, CAN HIGH, CAN LOW
Approval	CE

8.2 Technical data - mechanical design

Dimensions B/T/H	180/90/41 mm
Protection DIN EN 60529	IP20
Connections	D-SUB connector (female), 15-pin WLAN - IEEE 802.11 network (WPA2) USB B interface (currently without function) Ethernet interface RJ45
Weight approx.	360 g

9. LICENCES

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This program is provided for general use, but WITHOUT WARRANTY. This exclusion of warranty also extends to the implicit assurance of the marketability or suitability of the program for a certain purpose.

Further details can be found in the GNU General Public License. Full license texts see baumer.sensor/licences.txt. On request, the license texts can also be obtained in printed form.

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