SP-PROG (SP-PROG-BT)
Universal USB (Bluetooth/USB) Programmer

User's Manual

(v0.2)

EBS

CREATING A SENSE OF SECURITY
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CERTIFICATE OF CONFORMITY

EBS Sp. z o.o., under our sole responsibility, hereby declares that this product complies with all requirements included in the Directive of the European Parliament and the Council no. 1999/5/WE of March 9, 1999. The copy of the "Certificate of Conformity" is available at http://www.ebs.pl/certyfikaty/

IMPORTANT INFORMATION

The crossed-out bin sign means that after use of the product within the European Union it must be disposed of in a separate container designated for this purpose. This concerns both the device itself as well as the accessories marked with this sign. Those products should not be disposed of with unsorted household waste.

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Individual functions shall be available depending on the device software version. Consult your nearest distributor of the devices for detailed information.

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1. INTRODUCTION

The SP-PROG (SP-PROG-BT) is a programmer which supports all products from EBS. The programmer enables:

- device configuration
- device status monitoring
- data transmission from external devices
- an USB/RS232 converter functionality

The SP-PROG (SP-PROG-BT) features all communication interfaces used in EBS products. The SP-PROG can be operated with a PC over a serial or USB port. The SP-PROG-BT also features a Bluetooth interface.

2. QUICK START

This table is a reference for quick setup of two essential functionalities of the programmer. The computer is connected to the programmer over Bluetooth, USB (Com 1) or RS232 (Port 1).

Function	Switch	Setting	LED
Configuration of the device	DEVICE WORK MODE	PROGRAMMING	Red
	SIGNAL SELECTION	DATA / PROG	Red
	FLOW CONTROL	NONE	Green
	USB / RS232 MODE	PROG. USB	Green
Status monitoring of the device	DEVICE WORK MODE	MONITOR / DATA	Yellow
	SIGNAL SELECTION	MONITOR	Yellow
	FLOW CONTROL	NONE	Green
	USB / RS232 MODE	PROG. USB	Green

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3. PROGRAMMER OVERVIEW
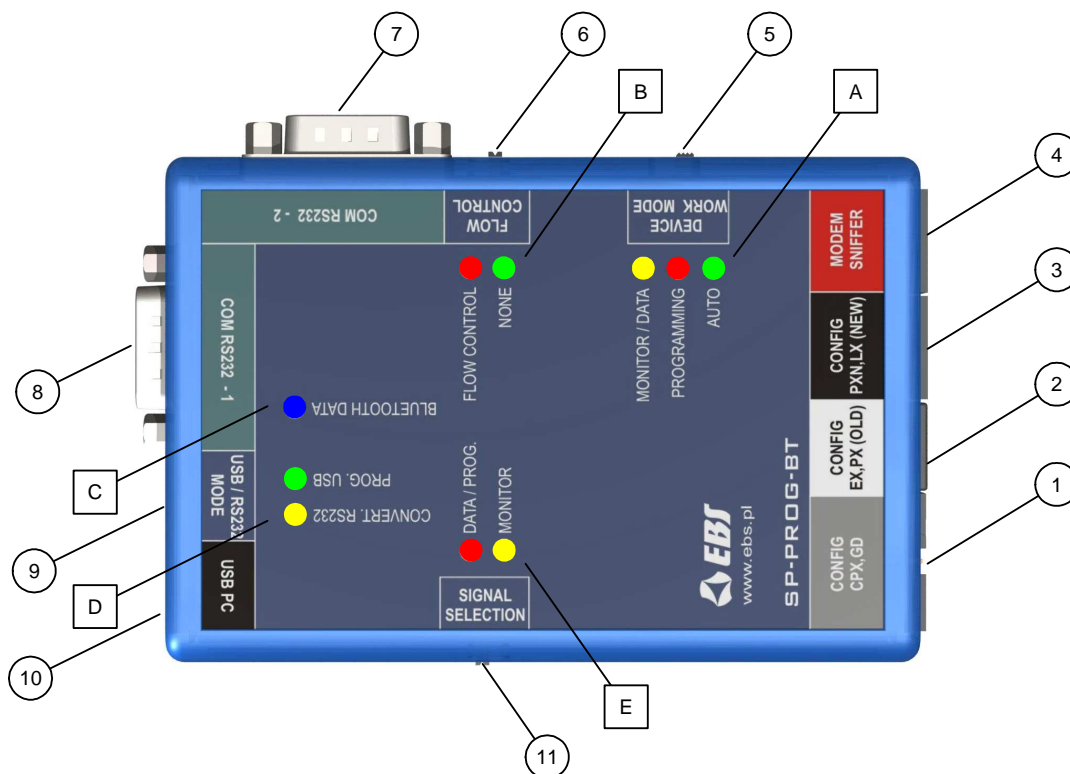
Figure 1. Description of components

The Figure above shows the programmer ports and switches marked as items 1 to 11. The LED indicators are marked with items A to E.

The first four ports (on the programmer right-hand side) handle communication with EBS devices:

1. 2x5 pin configuration port, label: "CONFIG CPX,GD", for e.g. LX2N, CPX200N/W, or GD30.2.

2. RJ12 configuration port, label: "CONFIG EX,PX(OLD)", for e.g. EX200A or PX200A.

3. RJ45(A) configuration port, label: "CONFIG PXN,LX(NEW)", for e.g. LX20. This port is also used with the programming modules for the ActiveGuard and ActiveTrack devices.

4. RJ45(B) port, label: "MODEM SNIFFER", for e.g. the ActiveGuard devices. Used only for monitoring the modem line transmission.

Further items denote the switches which control the programmer behaviour and other communication ports:

5. DEVICE WORK MODE three-position switch, selects the configuration port work mode:

5.1. AUTO: this mode hands over the port work mode selection control to the *GPRS Transmitter Configurator* application. The application will define the behaviour of the configuration port according to the requests input by the user.

This position turns on the green LED (A).

5.2. PROGRAMMING: in this mode the configuration port prepares the target device for switching to its programming mode. Now the new configuration can be uploaded to the device with the *GPRS Transmitter Configurator*.

This position turns on the red LED (A).

5.3. MONITOR/DATA: in this mode the configuration port monitors the performance of the device connected to the programmer and relays the monitoring information to the *Event Monitor* in the *GPRS Transmitter Configurator*.

This position turns on the yellow LED (A).

6. FLOW CONTROL two-position switch: turns on/off the flow control function:

6.1. NONE: the flow control is disabled.

This position turns on the green LED (B).

6.2. FLOW CONTROL: the flow control is enabled.

This position turns on the red LED (B).

7. COM RS232 - 2 serial port connector.

8. COM RS232 - 1 serial port connector.

9. USB/RSR232 MODE two-position switch: selects the work mode of the USB and RS232 ports:

9.1. CONVERT,RS232: in this mode the user can use the RS232 (1) and (2) serial ports, and the device may work as an USB-RS232 converter. With this mode selected, the USB port is shared by the serial ports and the programming lines. Hence in this mode the programmer can program the connected device and convert the transmitted signals between the port standards.

This position turns on the yellow LED (D).

9.2. PROG, USB: in this mode the USB port is not shared. The serial ports are used for device programming. The target device can be programmed over any of the three available interfaces (USB, RS232, and BT).

This position turns on the green LED (D).

10. Micro USB port, label: USB PC.

11. SIGNAL SELECTION two-position switch: selects one of the two signal types available on the device configuration port in single channel communication over Bluetooth or RS232 (Port 1) or USB (Com 1):

11.1. DATA/PROG: in this mode the device connects to the transmission channel the line that transmits the signal during programming or data transmission.

This position turns on the red LED (E).

11.2. MONITOR: in this mode the device connects to the transmission channel the line that transmits the device status monitoring signal.

This position turns on the yellow LED (E).

The programmer status LEDs are located next to the switches and the COM RS232 - 1 port:

A. Status indication of the configuration work mode selection, "DEVICE WORK MODE":

- Green: AUTO mode
- Red: PROGRAMMING mode
- Yellow: MONITOR / DATA mode

B. Status indication of flow control, "FLOW CONTROL":

- Green: no flow control (NONE)
- Red: flow control enabled (FLOW CONTROL)

C. Status indication of the Bluetooth interface, "BLUETOOTH DATA" blue LED (only in SP-PROG-BT version):

- On: BT transmission on
- Off: BT transmission off

D. Indication of the USB and RS232 work mode selection, "USB / RS232 MODE":

- Green: PROG, USB mode
- Yellow: CONVERT, RS232 mode

E. Status indication of the single channel communication line selection, "SIGNAL SELECTION":

- Yellow: MONITOR mode
- Red: DATA / PROG mode

4. COMMUNICATION INTERFACES

The SP-PROG (SP-PROG-BT) programmer is powered by the connected device. In the USB-RS232 converter mode, the power source is the USB port.

Connect the programmer to the device over the suitable port (see Section 4, Supported devices), start the *GPRS Transmistter Configurator* application.

Then choose the interface to connect the programmer to the PC. The available interfaces are listed below.

4.1. BLUETOOTH CONNECTION (SP-PROG-BT ONLY)

⚠️ **NOTE: The Bluetooth connectivity can be used when the programmer is not connected to the PC over USB.**

If you want to use the SP-PROG-BT programmer in the Bluetooth mode, make sure that the PC you will be using has a BT module and that the BT module is active and recognised by the PC operating system.

The Bluetooth connection has a single transmission channel, so the user may use only one of the available functionalities at the same time by setting the switches of the programmer:

- Device programming:
    - Set DEVICE WORK MODE to AUTO or PROGRAMMING;
    - Set FLOW CONTROL to NONE;
    - Set SIGNAL SELECTION to DATA / PROG;
    - The USB / RS232 MODE setting is irrelevant.
- Device status monitoring:
    - Set DEVICE WORK MODE to AUTO or MONITOR / DATA;
    - Set FLOW CONTROL to NONE;
    - Set SIGNAL SELECTION to MONITOR.
    - The USB / RS232 MODE setting is irrelevant.
- Data transfer without flow control:
    - Set DEVICE WORK MODE to AUTO or MONITOR / DATA;
    - Set FLOW CONTROL to NONE;
    - Set SIGNAL SELECTION to DATA / PROG;
    - The USB / RS232 MODE setting is irrelevant.
- Data transfer with flow control:
    - Set DEVICE WORK MODE to AUTO or MONITOR / DATA;
    - Set FLOW CONTROL to FLOW CONTROL;
    - Set SIGNAL SELECTION to DATA / PROG;
    - The USB / RS232 MODE setting is irrelevant.

4.2. USB CONNECTION

The SP-PROG (SP-PROG-BT) has a Micro USB port. The UBS interface has four communication channels, so it offers the best capabilities. Once the programmer has been connected over USB, the Device Manager should automatically detect and display four COM ports. Their numbers may vary between the specific PCs and the connected USB port. The port numbers must be known to the user so that they can be used for connection with the *GPRS Transmitter Configurator*. The following lists the programmer switch settings for various functionalities:

- Device programming over USB channel 1:
    - Set DEVICE WORK MODE to AUTO or PROGRAMMING;
    - Set FLOW CONTROL to NONE;
    - Set SIGNAL SELECTION to DATA / PROG;
    - The USB / RS232 MODE setting is irrelevant.

- Device status monitoring over USB channel 1:
    - Set DEVICE WORK MODE to AUTO or MONITOR / DATA;
    - Set FLOW CONTROL to NONE;
    - Set SIGNAL SELECTION to MONITOR.
    - The USB / RS232 MODE setting is irrelevant.

- Data transfer without flow control over USB channel 1:
    - Set DEVICE WORK MODE to AUTO or MONITOR / DATA;
    - Set FLOW CONTROL to NONE;
    - Set SIGNAL SELECTION to DATA / PROG;
    - The USB / RS232 MODE setting is irrelevant.

- Data transfer with flow control over USB channel 1:
    - Set DEVICE WORK MODE to AUTO or MONITOR / DATA;
    - Set FLOW CONTROL to FLOW CONTROL;
    - Set SIGNAL SELECTION to DATA / PROG;
    - The USB / RS232 MODE setting is irrelevant.

- Device status monitoring over USB channel 2:
    - Set DEVICE WORK MODE to AUTO or MONITOR / DATA;
    - Set FLOW CONTROL to NONE;
    - The SIGNAL SELECTION setting is irrelevant.
    - The USB / RS232 MODE setting is irrelevant.

- Modem Rx and Tx line sniffing over USB channels 3 and 4:

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o The USB / RS232 MODE switch set to PROG / USB: USB channels 3 and 4 are connected to the RJ45 (B) port of the programmer.

- USB-RS232 signal converter:

    o The USB / RS232 MODE switch set to CONVERT, RS232: USB channels 3 and 4 are connected to the COM RS232 - 1 and COM RS232 - 2 ports of the programmer. USB channels 1 and 2 are free to be used by the aforementioned functionalities.

4.3. RS232 CONNECTION

The SP-PROG (SP-PROG-BT) has two RS232 ports. Both ports are male, so use suitable adapters for connection with the PC. The SP-PROG (SP-PROG-BT) requires no adapter in the converter mode. Similarly to the Bluetooth and USB interfaces, several work modes are available and selectable with the programmer switches:

- Device programming - over the COM RS232 - 1 port only:

    o Set DEVICE WORK MODE to AUTO or PROGRAMMING;

    o Set FLOW CONTROL to NONE;

    o Set SIGNAL SELECTION to DATA / PROG;

    o Set USB / RS232 MODE to PROG, USB.

- Device status monitoring over COM RS232 - 1:

    o Set DEVICE WORK MODE to AUTO or MONITOR / DATA;

    o Set FLOW CONTROL to NONE;

    o Set SIGNAL SELECTION to MONITOR;

    o Set USB / RS232 MODE to PROG, USB.

- Data transfer without flow control - over the COM RS232 - 1 port only:

    o Set DEVICE WORK MODE to AUTO or MONITOR / DATA;

    o Set FLOW CONTROL to NONE;

    o Set SIGNAL SELECTION to DATA / PROG;

    o Set USB / RS232 MODE to PROG, USB.

- Data transfer with flow control - over the COM RS232 - 1 port only:

    o Set DEVICE WORK MODE to AUTO or MONITOR / DATA;

    o Set FLOW CONTROL to FLOW CONTROL;

    o Set SIGNAL SELECTION to DATA / PROG;

    o Set USB / RS232 MODE to PROG, USB.

- Device status monitoring over COM RS232 - 2:

    o Set DEVICE WORK MODE to AUTO or MONITOR.

    o The SIGNAL SELECTION setting is irrelevant.

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- o Set USB / RS232 MODE to PROG.
- USB-RS232 signal converter:
  - o The USB / RS232 MODE switch set to CONVERT, RS232: USB channels 3 and 4 are connected to the COM RS232 - 1 and COM RS232 - 2 ports of the programmer. USB channels 1 and 2 are free to be used by the aforementioned functionalities.

5. SUPPORTED DEVICES

The SP-PROG (SP-PROG-BT) supports all devices from EBS. The following table presents the specific programmer configuration ports used by the EBS products.

Configuration port	EBS product
RJ12 (CONFIG EX,PX (OLD))	EX200A, PX100A, PX200A
RJ45 (A) (CONFIG PXN,LX(NEW))	PX100N, PX200N, PX100D, LX10, LX20, LX20G, LX20G-3C, EX20, AG2*, AG3*, AT*
RJ45 (B) (MODEM SNIFFER)	AG2*, AG3*, AT*
2x5 Pin (CONFIG CPX,GD)	CPX200N, CPX200NW, LX2N, GD30, GD30.2

* with the AGP3 adapter

6. REVISION HISTORY

Date/ Version	Details
15/03/2014 / v0.1	First version of the manual
14/10/2014 / v0.2	Corrections of nomenclature

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