User manual
USB901
KNOPtool

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Warning and safety instructions

- Read intended use before putting into service.

Product description

USB901 and the associated KNOPtool program, is used for updating the firmware in KNOP products.

KNOPtool is also used to change the settings of the product and some types of products like MR902, the settings can be saved and downloaded from your computer either for backup and/or copying the settings.

This product is intended for professional/technical use only.

Commissioning

The manual can be used for both USB900 and USB901. KNOPtool is the same for both products.

Download installer from our homepage knop.dk or knop.se.

To find it, search for USB901, here is a download link for the KNOPtool installer.

- Unzip the downloaded file by double-clicking on it, which is usually located in your downloads folder.

- Run the installer "KNOPToolSetup.exe" typically in your download folder. You might need to accept to run the file and/or you might to input administrator rights to install it, if this is case, please ask your IT department for help.

- Select *Destination Location*, if okay just press "***Next***"

- The installer will create a folder, accept folder or change it. Press "***Next***"

- If you want it to create a desktop shortcut, select it if so. Press "***Next***"

- Press "**Install**" and wait a few seconds.

- First time you install KNOPtool it is can be a good idea to select "**Install USB driver**".

- Press "**Finish**". If you have selected "**Install USB driver**" it will start installing the driver, please follow the instruction on screen.

Insert the USB901 into a free USB port. If using a USB-C port, you need an adapter which widely available.
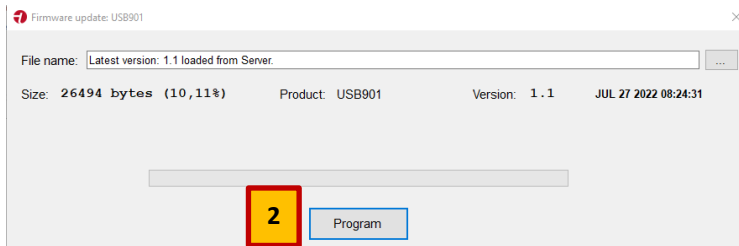
KNOPtool is only available for Windows 10/11.

USB901 - Firmware update

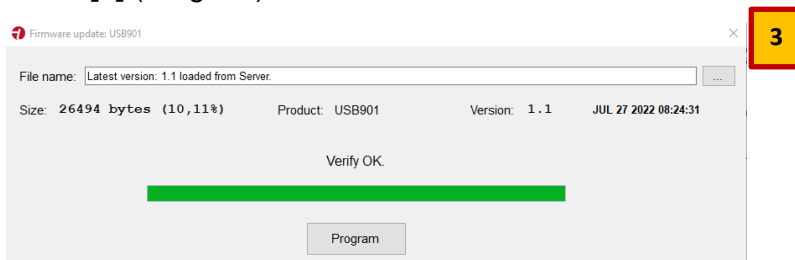When a USB901 firmware update is needed, KNOPtool will automatically notify you.
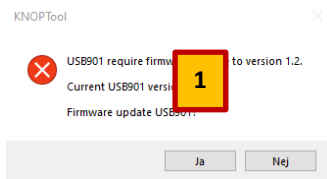
Press **[1]** (Yes)

The software is automatically downloaded from our server.
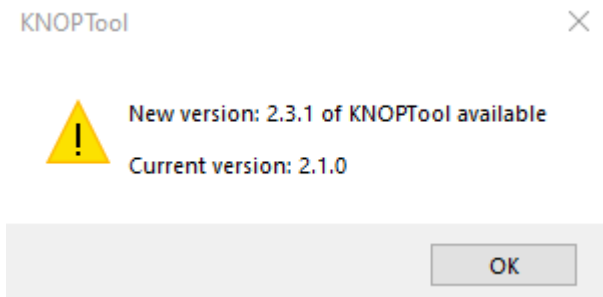
Press **[2]** (Program)

Exit - Press **[3]** (X)

Note: In older versions (prior to V2.0) this must be done manually in "**File**" in the "**Firmware update USB901**" menu - the firmware file must be sent from us.
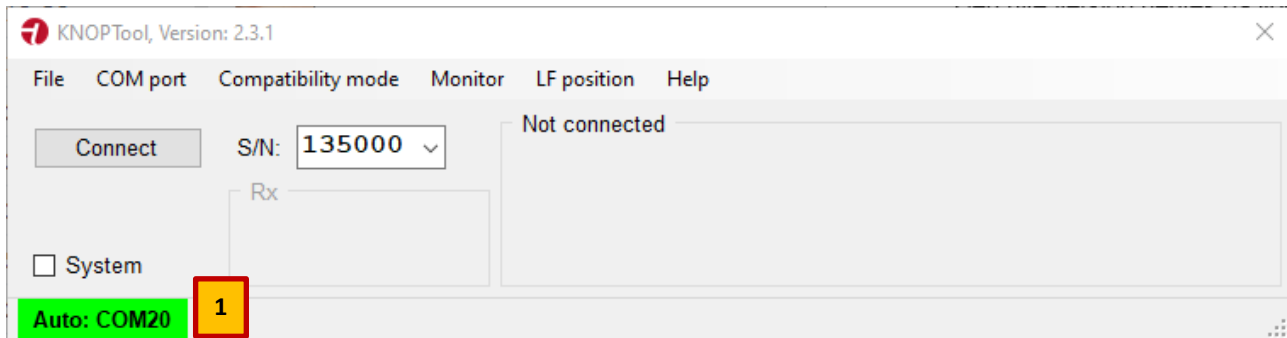
KNOPtool - updates

When a new version of KNOPtool is ready, KNOPtool will alert you to this.

KNOPTool   ✕

⚠ New version: 2.3.1 of KNOPTool available

Current version: 2.1.0

OK

The new version is downloaded from our website and reinstalled.
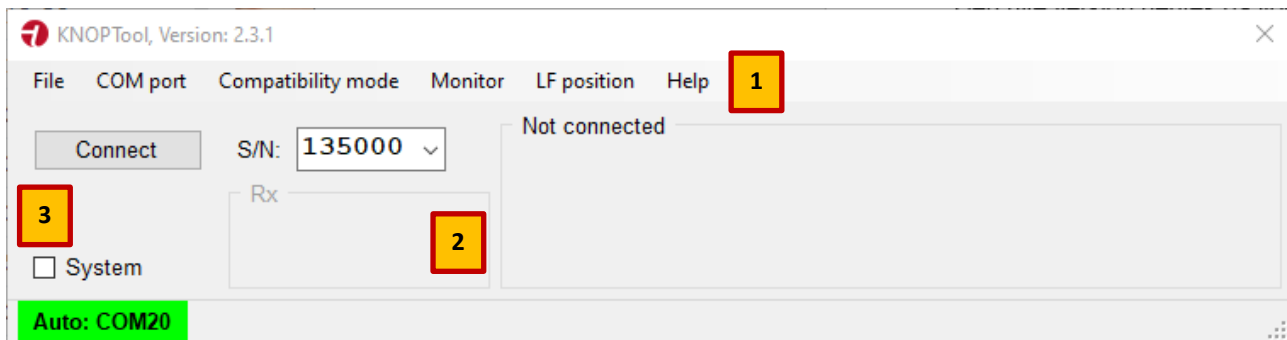
KNOPtool - basics

Please make sure you have connected the USB901 to your computer.

Check if the USB901 is connected. In this example **[1]** it is green and connected to COM3.
If it is red you need to go into the "COM port" tab, here you can search or select it. If no COM's are found or selectable you might have forgotten to install the USB driver.

**[1]** (File) The tab line has several pulldown functions.

File:	*Select firmware file*
	Firmware update
	Close

COM-port:	*Search*
	NONE
	Auto
	COMx

Compatibility mode:	*Standard mode*
	CT901 before ver. 3.1.4
	LS901 before ver. 3.1.0
	MR902 before ver. 1.4.0
	RP902 before ver. 1.3.0
	RX901 before ver. 1.9
	TX901 before ver. 1.1.0

If you are connecting a product with an older firmware version as listed above, you need to select the *compatibility mode*. When connected please update the firmware of product if available, disconnect and set *Compatibility mode* back to standard before reconnecting.

Monitor: This opens a new window. In this window transmitted telegrams are shown. The monitor will not show telegrams transmitted in a repeater system (MR902/RP902), only the telegrams between TX a device and system. In a standalone setup everything is shown.

The monitor is for debugging you setup.
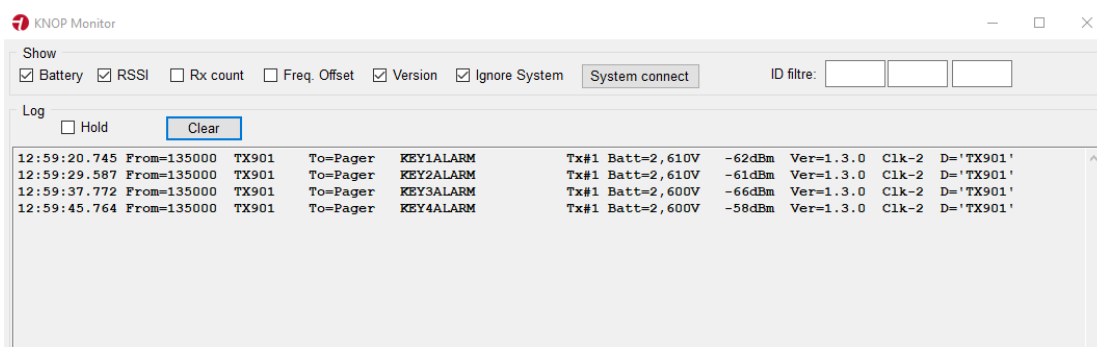
Hold	The checkbox will hold the update of telegrams in window.
Clear	Clears the window.

```
Time            From ID        Who      To ID        Telegram      No      Battery       HF        S/W         Clock Data
12:59:20.745 From=135000    TX901    To=Pager     KEY1ALARM    Tx#1 Batt=2,610V   -62dBm   Ver=1.3.0   Clk-2  D='TX901'
12:59:29.587 From=135000    TX901    To=Pager     KEY2ALARM    Tx#1 Batt=2,610V   -61dBm   Ver=1.3.0   Clk-2  D='TX901'
12:59:37.772 From=135000    TX901    To=Pager     KEY3ALARM    Tx#1 Batt=2,600V   -66dBm   Ver=1.3.0   Clk-2  D='TX901'
12:59:45.764 From=135000    TX901    To=Pager     KEY4ALARM    Tx#1 Batt=2,600V   -58dBm   Ver=1.3.0   Clk-2  D='TX901'
```

|	
Time:	Timestamp
From ID:	Telegram from ID (serial number of product).
Who:	Product type of transmitting unit.
To ID:	Telegram to ID, Pager/Bus is for all devices.
No:	Number of telegrams transmitted. Retransmitted up to 3 times if failed.
Battery:	Battery status of transmitting unit, if applies.
HF:	Level of HF signal, signal levels closest to null is the best.
S/W:	Firmware version of transmitting unit.
Clock:	Information, shows how good the clock is in the transmitting. Clk-3 is best.
Data	Externed data. Information only.

LF position: Test of positioning. The quality of received position codes can be sent and tested.
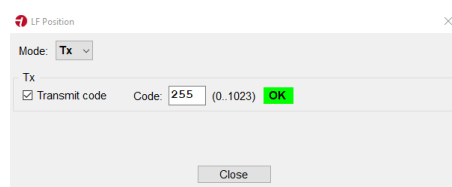
Mode: TX	Transmits position code specified in "**Code**" when "**Transmit code**" is checked. The range is approx. 20 cm.
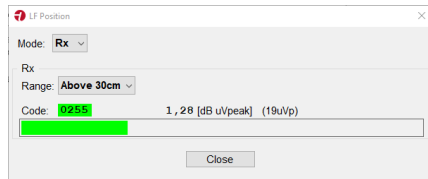
|		
Mode: RX		RX Measures signal strength of position transmitter. Measurements must be taken around the entire doorway.
		It may be important, depending on the situation, that the USB901 is held vertically to measure the highest level. Optionally use a short USB extension cable with a laptop (not included).
		Normally, if more than 1.50 db/µV is measured, the level is acceptable.
Help:	About	Shows software and firmware versions of KNOPtool and USB901.
[2]	*RX window*	Shows received telegrams from product shortly.
[3]	*System*	Selected when updating in a master repeater system.

KNOPtool - connecting
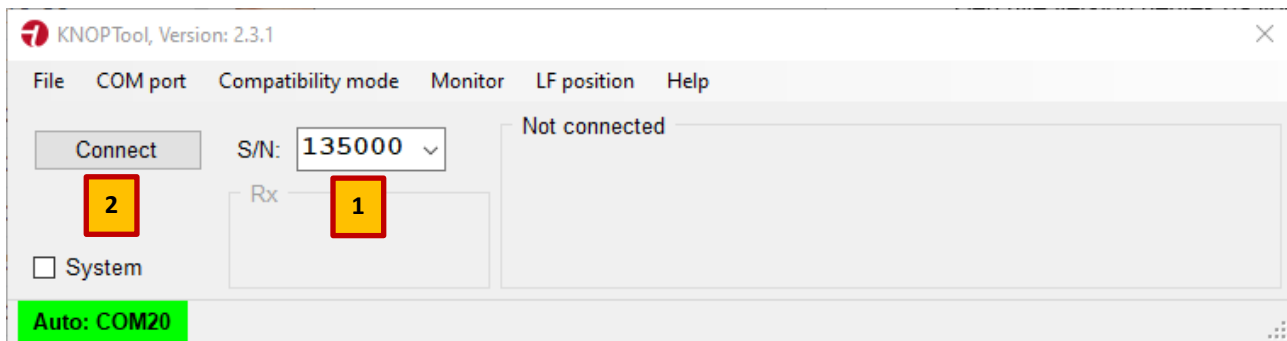
- Please enter the serial number of the product at **[1]**.
- Press "Connect" **[2].**

Remember, to select compatibility mode if it applies. See "KNOPtool basics".
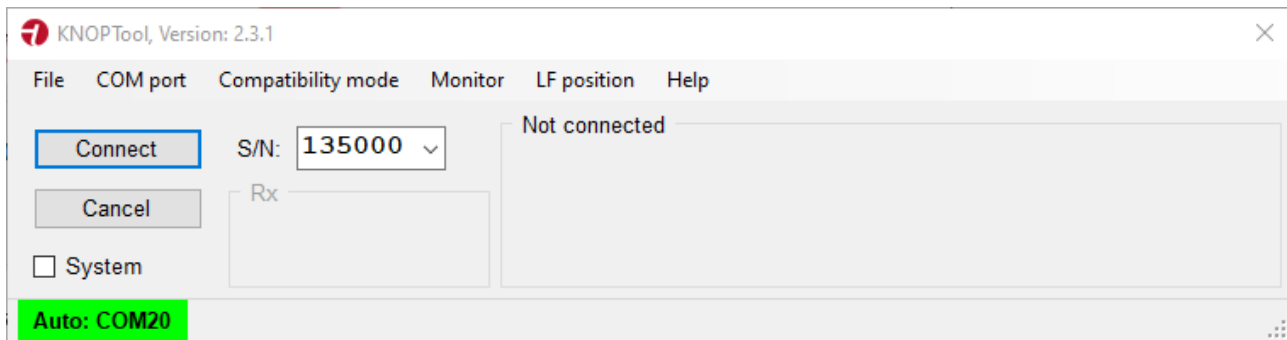
Most transmitter products you need to activate it. Normally, the product is in deep sleep to save power.
There are different ways to connect, all depending on type of device.

- Press the alarm key.
- Press the logo key.
- 5 x ESC within 3 seconds.
- Hold the key for 5 seconds.

Products like RX901B and MR902 are always alive and will automatically connect by press "Connect".

IMPORTANT NOTE: If a receiver e.g., RX901B is connected to a repeater system (MR902/RP902), "**System**" must be selected before trying to connect it, otherwise it will fail.

The product is now connected to KNOPtool.
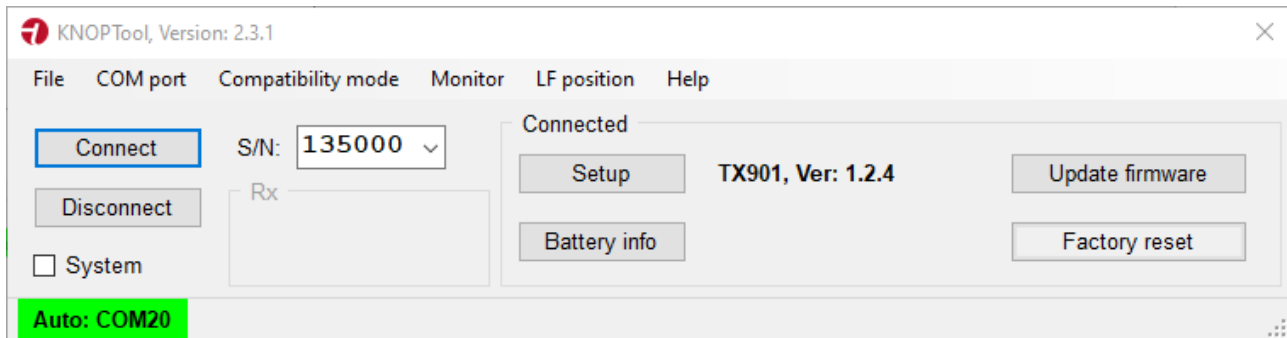
In window (as above) is shown which options you have with your current product and KNOPtool.

Setup:	Change setting of the unit.
Update firmware:	In this case is shown that a new firmware is available of the unit.
Firmware is update	Firmware is update.
Battery info:	Battery information and use of TX/RX telegrams and position detected.
Factory reset:	Factory reset

Alternativen visas endast om de är tillgängliga.

KNOPtool – firmware update product
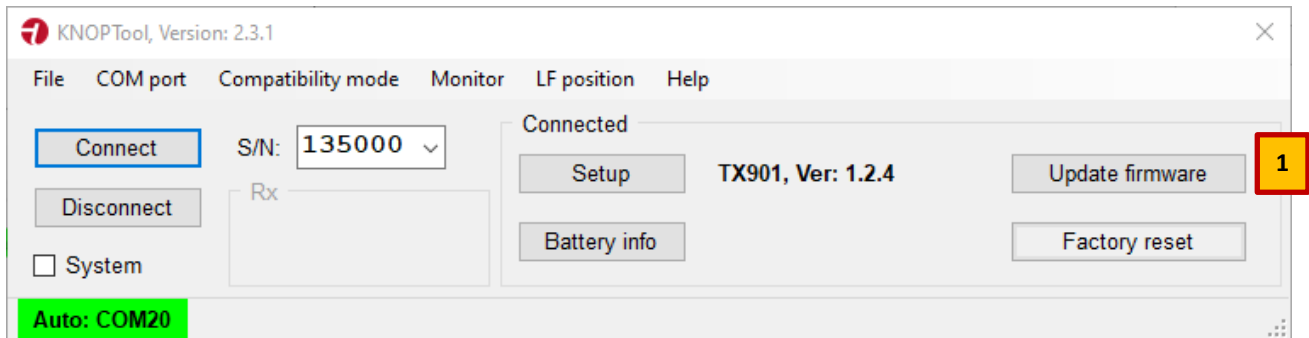
- Be sure you are connected.
- In this example a new firmware is available **[1]**.
- Press "Update firmware". Note some products will disconnect and reconnect, if so, it will notify you.
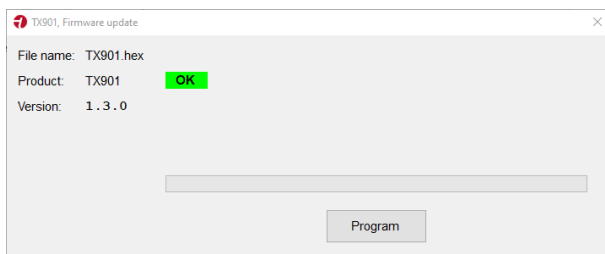
1) Press "**Program**"
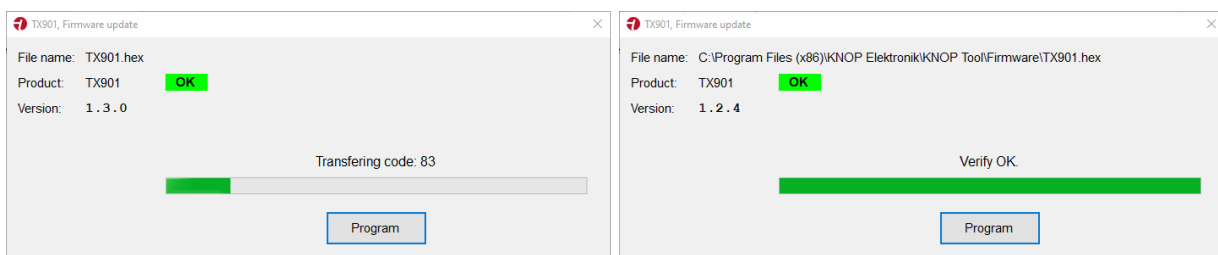
Beroende på typ av enhet startar den automatiskt om, annars måste du stänga fönstret och koppla Depending type of unit, it will automatically reboot otherwise you have to close the window and disconnect.

If a manual update of the firmware is needed, which requires a firmware file from us, you have to select it in the "File" tab. Before updating another product, you have to close KNOPtool and reopen it to leave manual update.

The firmware files are automatically fetched from our server.

KNOPtool - Setup
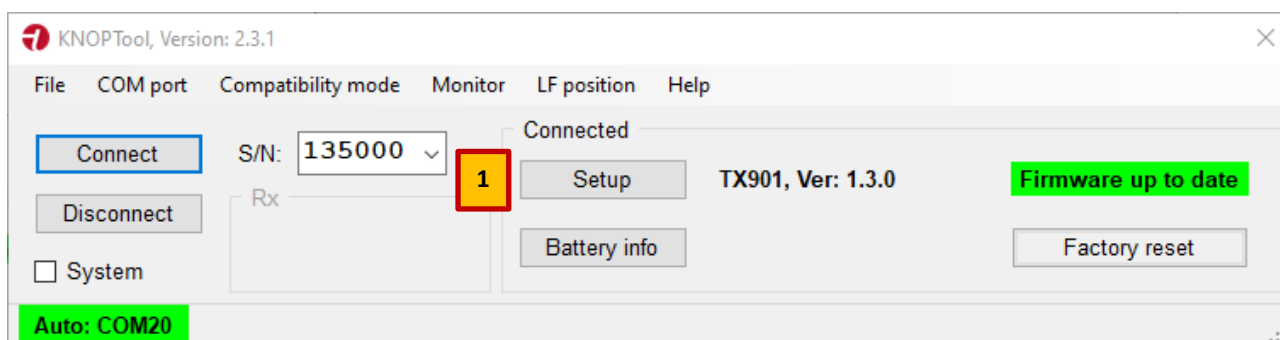
To charge the settings of your unit, press **[1].**

Here are shown an example of the setup of the TX901:
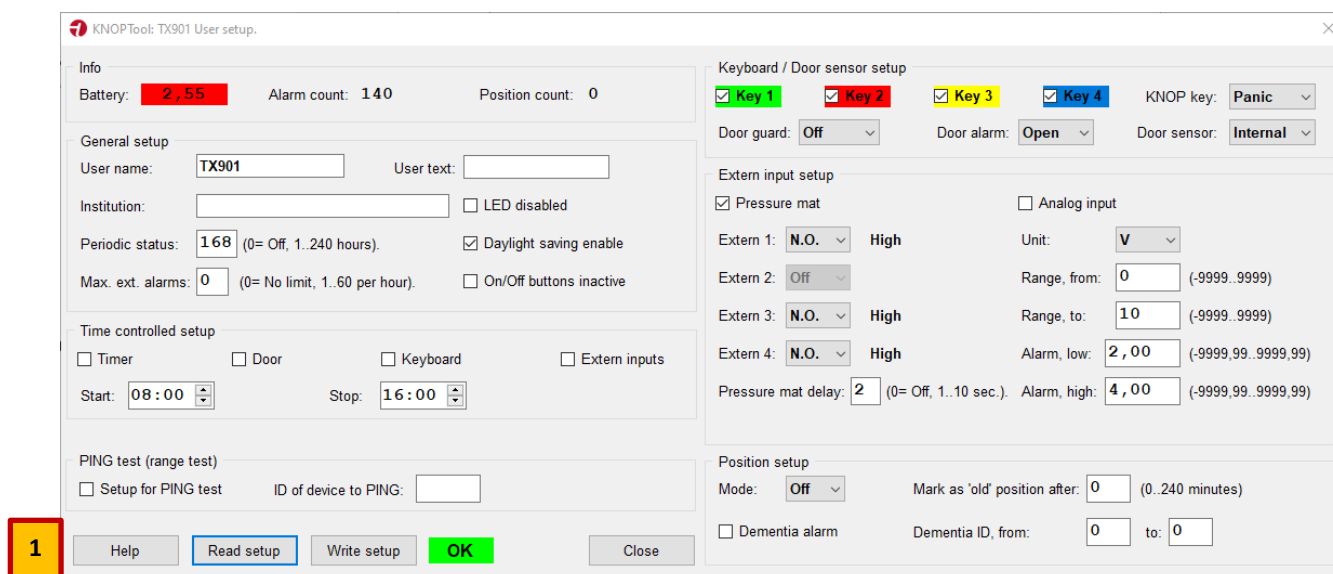
If available a "Help" button will appear. Help will open a new window with the manual of settings shown.

Tip: Remember to white the setup, if changed.

KNOPtool - Battery information
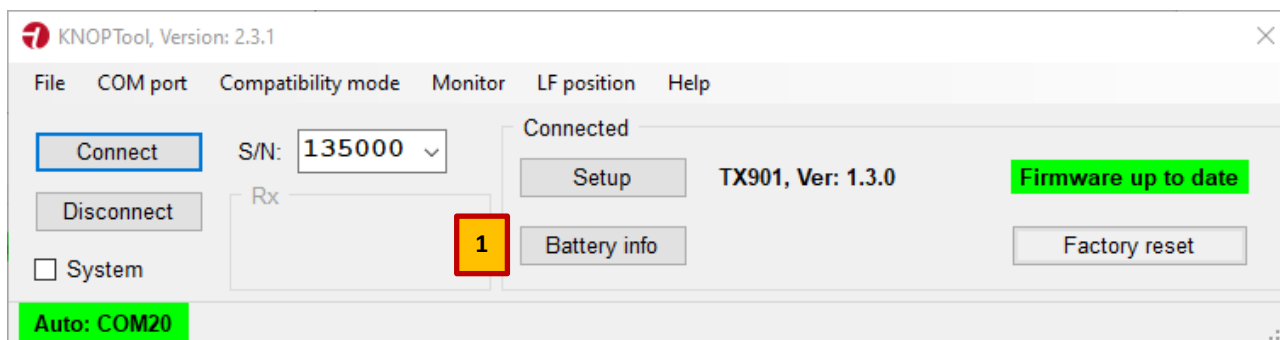
If available, **Battery info** button will appear. This will show the use of battery, in this case (TX901) the last five battery changes and how they have been used.

#	Days	Voltage	Tx count	Rx count	Pos. count
1	10	2,610V	455	0	0
2					
3					
4					
5					
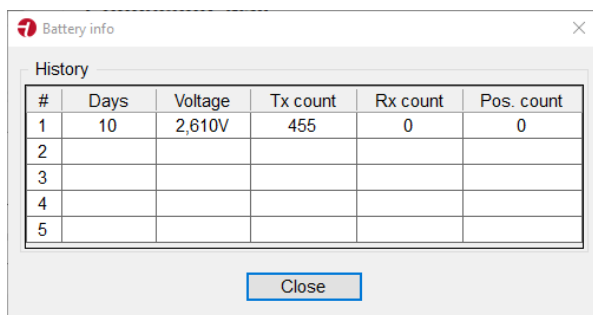
- Days: Days in use.
- Voltage: Last known battery voltage.
- TX count: Number of telegrams transmitted (status telegrams not included).
- RX count: Number of telegrams received (status telegrams not included).
- Pos. count: Number of positions detected.

The counter will be update once a day!

KNOPtool – *factory reset*
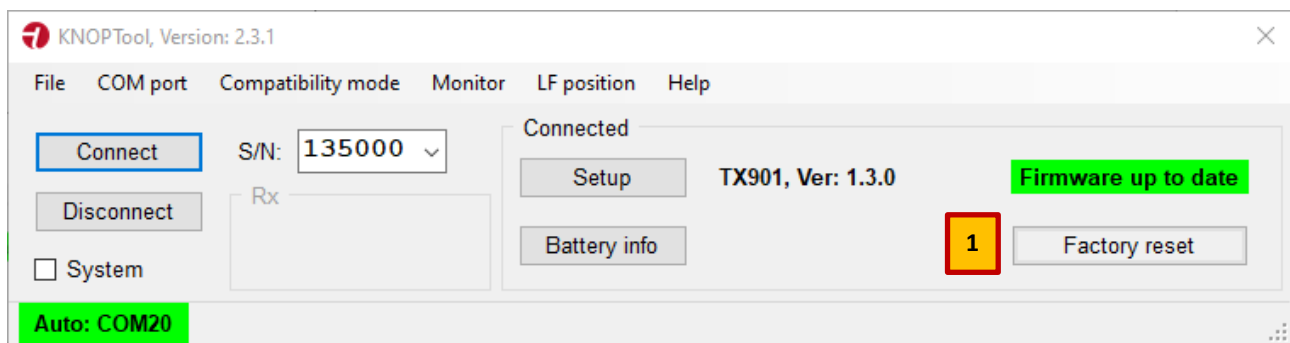
If available, the button [1] (Factory reset) is displayed, it is possible to perform a complete reset of the product to factory settings.
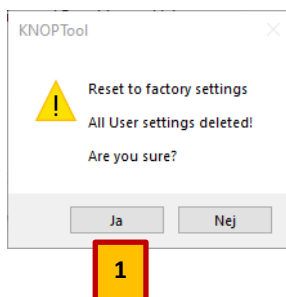
Press [1] (Yes) if you are sure to the reset the settings.

Maintenance

The product can be cleaned with a damp cloth or alcohol swab.

Spare parts and accessories

Spare parts and accessories can be ordered from Knop Elektronik A/S at www.knop.dk.

Technical data:

Frequency HF:	869.2125 MHz **(1)**
Range:	Upp till 100m till en RX901B **(1)**
Frequency LF:	18kHz +/- 1kHz
Power supply:	5V USB
Power supply, idle:	<5mA
Power supply, transmission:	<100mA
Surrounding environment:	Indoor use. <90% humidity non-condensing.
Ambient temperature:	0-40 ° C
Enclosure type:	White ABS
Cabinet dimensions:	80 x 32 x 12 mm.
Density:	IP20
Weight:	22g

The right to changes is reserved.

© KNOP Elektronik A/S

[1] When connected to KNOP's repeater system, 868.049/100/150 MHz is also used
[2] outdoors with a clear view between transmitters and receivers. In buildings, the range decreases.

Symbol explanation and approvals

CE	**This product complies with:** Directive 1907/2006/EU REACH Directive 2011/65/EU RoHS Directive 2012/19/EU WEEE EN 301 498-1 V2.2.3 Electro Magnetic Compatibility EN 301 489-3 V3.1.1 Electro Magnetic Compatibility EN 50130-4:2011 + 2014 Immunity alarm systems EN 300 220-1 V3.1.1 Short Range Devices EN 300 220-2 V3.1.1 Short Range Devices EN 300 220-3 V2.1.1 Short Range Devices EN 60601-1-2:2014 + 2015 Electromagnetic compatibility (Medical) EN 62368-1:2020 Electrical safety EN 50581:2012 Hazardous substances
🚫	The product must not be used if the packaging is damaged.
🏭	**Manufacturer** KNOP Elektronik A/S, Fabriksvej 20, DK-7600 Struer, Denmark
📖	Read the manual(s) before installation and commissioning at www.knop.dk
((·))	Interference may occur in the environment of equipment marked with this symbol.
☂	Must be protected against liquid.
🌡	0°C to +40°C, temperature limit for transport/storage and use.
🗑	The product must not be disposed of within normal household waste.
REF	**Product reference** USB901, Programming unit
SN	**Serial number** Placed on the product
IP	**Ingress Protection code** IP20