

## Configuration Software for the Keyboard Emulation (HID Operation Mode) EVO2, OEM-M1000, OEM-R855

iDTRONIC GmbH  
Ludwig-Reichling-Straße 4  
67059 Ludwigshafen  
Germany/Deutschland

Phone: +49 621 6690094-0  
Fax: +49 621 6690094-9  
E-Mail: [info@idtronic.de](mailto:info@idtronic.de)  
Web: [idtronic.de](http://idtronic.de)

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## 1 Installation

### 1.1 Function Description

This RFID device can be either operated in full read/write mode or in automatic read mode with keyboard emulation. The keyboard emulation works as compatible HID\* device, so that it will operate with most common operating systems.

**When in keyboard emulation mode, it is not possible to do normal read/write operations.**

\* Human Interface Device

### 1.2 USB Driver Installation

If the device is connected to a PC for the first time, it can take some time for automatic installation of the drivers. If this is the case, please wait until this is fully done.

Normally the USB drivers are automatically installed with Windows operating systems. In rare cases it is possible, that automatic installation fails. Then perform a manual installation of the drivers. You can download the most current files directly from the IC manufacturer:

<http://www.wch-ic.com/search?q=CH340&t=downloads>  
<http://www.wch-ic.com/products/CH340.html> => [More Download]

### 1.3 Installing the Configuration Software

Please download this file package:

<https://download.idtronic.de/Card%20Reader/Card%20Reader%20NEO2%20SDK.zip>

Unpack the archive and navigate to folder “07\_Software for HID-Mode Configuration” and install the software with setup.exe. Finally you will have a new icon on your computer desktop:



Double-click on this icon to start the software.

## 2 Configuration Software "HID Setting"

### 2.1 Software Overview

The screenshot shows the HID Setting V6.1 software interface. It has two tabs: "Function Setting" and "Firmware Update". The "Function Setting" tab is active.

**Connectivity Section:**

- Connection: ☒ COM
- ComPort: COM4
- Baudrate: 115200
- Address: 0
- Connect button

**Settings Dual HID Mode Section:**

- Set Reader to HID Mode: ☒ (toggle switch)
- Working Mode: 10: LF Read UID LSB of read - only tag type
- Memory Position: 09: HF 10: MSB-DEC
- LF + HF Enable: ☒ (toggle switch)
- HF Data Format: 10: LF Read UID LSB of read - only tag type
- LF Data Format: 11: LF Read UID MSB of read - only tag type
- LF Page Address: 12: LF Read UID LSB of Hitag1 / S tag type
- Prefix: Prefix1
- Postfix: Postfix1
- Protocol Screen: 13: LF Read UID MSB of Hitag1 / S tag type

**Callouts:**

- FIRST:** Select the communication parameters, then click on [Connect]
- SECOND:** Select the data tag type you are using and configure the desired data.
- THIRD:** Start the HID Operation Mode
- FINALLY:** Store the desired settings in the reader.

**Buttons:** SET READER, SET, CLEAR

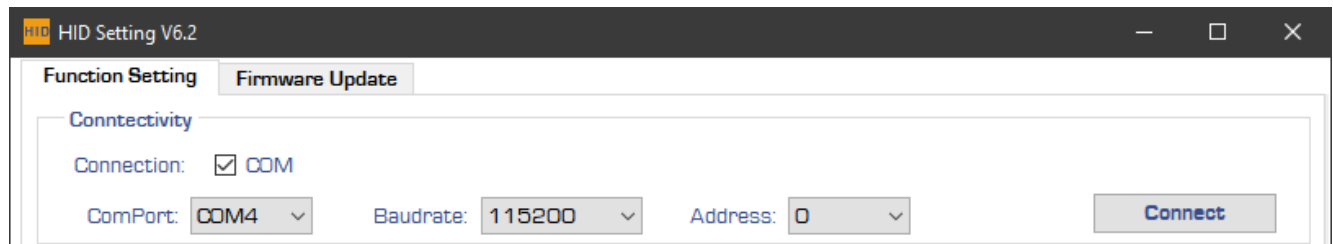
**Protocol Screen:**

```
>> AA 00 01 83 83
<< AA 00 0A 00 00
>> AA 00 01 86 87
<< AA 00 26 00 52
33 20 31 36 3A 37
20: Legic Read UID
21: Legic Read ISO 15693 UID
22: ISO 14443 A
23: ISO 14443 B
24: INSIDE Secure
25: SONY FeliCa subset
30: LF+HF Enable
```

**Monitoring:** You can monitor the communication between this configuration software and the RFID device.

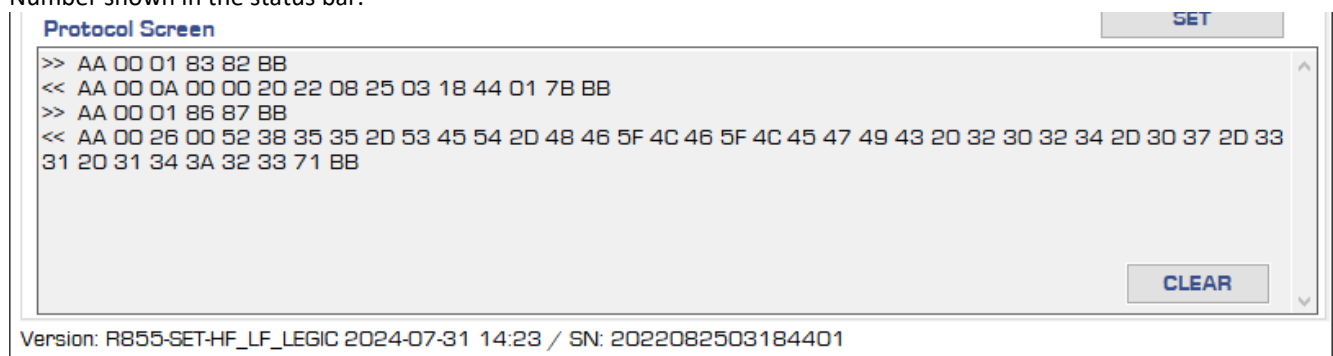
## 2.2 Connect your Device for Configuration

Please plug in the device first before starting the configuration software "HID Setting". Then start the configuration software "HID Setting".



If you have an early version of the NEO2 or have set it to other Baudrates on purpose, please select the appropriate Baudrate.

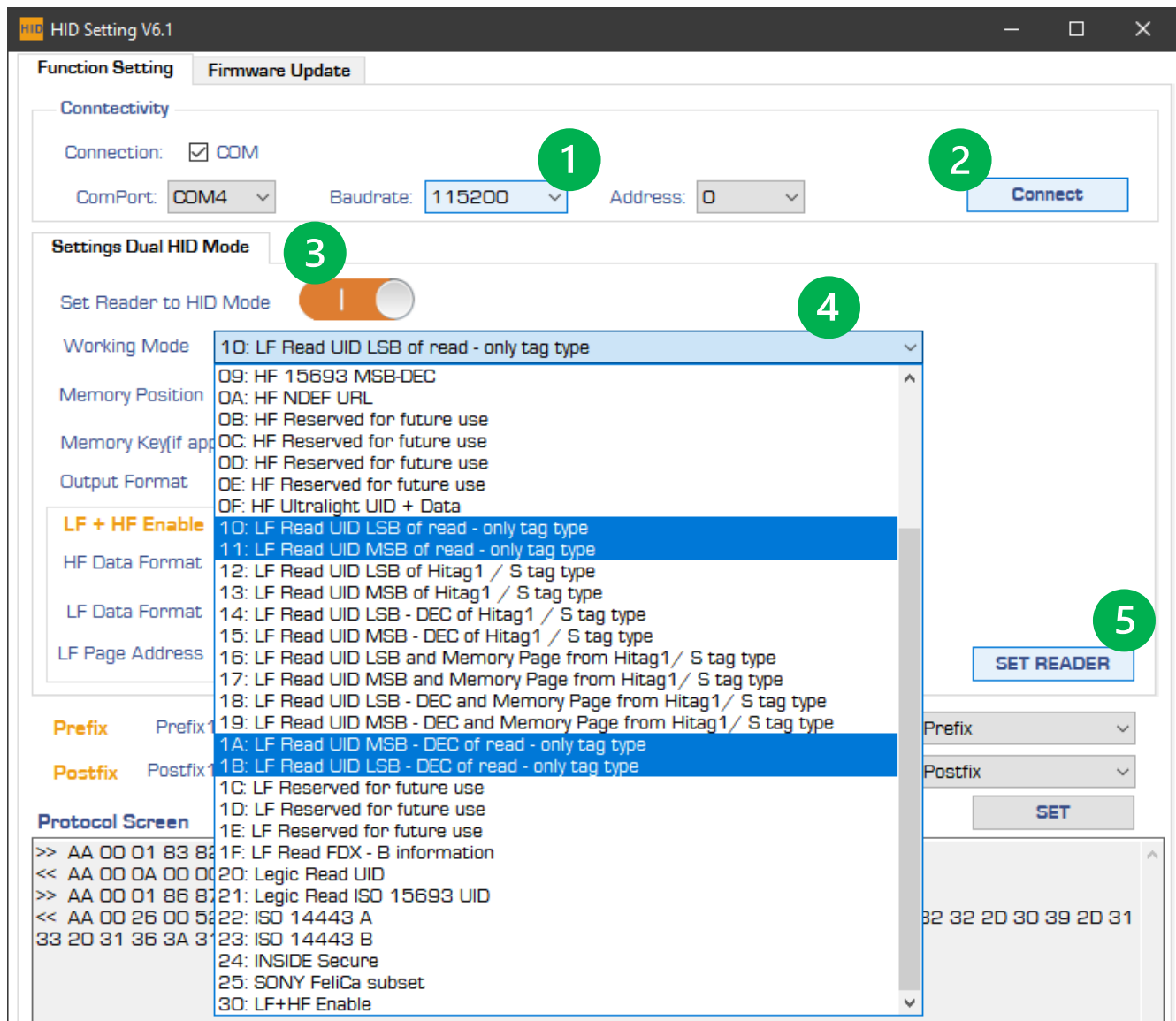
Then click on [Connect]. You should see 4 lines of communication in the Protocol Screen and the FW Information and Serial Number shown in the status bar.



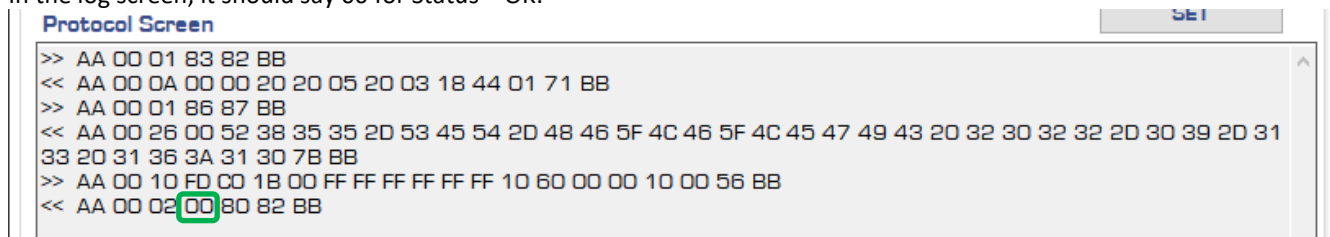
### 3 Configuration Examples

#### 3.1 Capturing the UID of LF read-only RFID tags

- 1: As of 2022-09-13, the firmware uses 115200 Baud
- 2: Click on [Connect]
- 3: Switch the HID function on.
- 4: The functions 10/11 and 1A/1B will read and output the UID in various Byte order and number representations.
- 5: Store the configuration in the RFID device with [Set Reader]

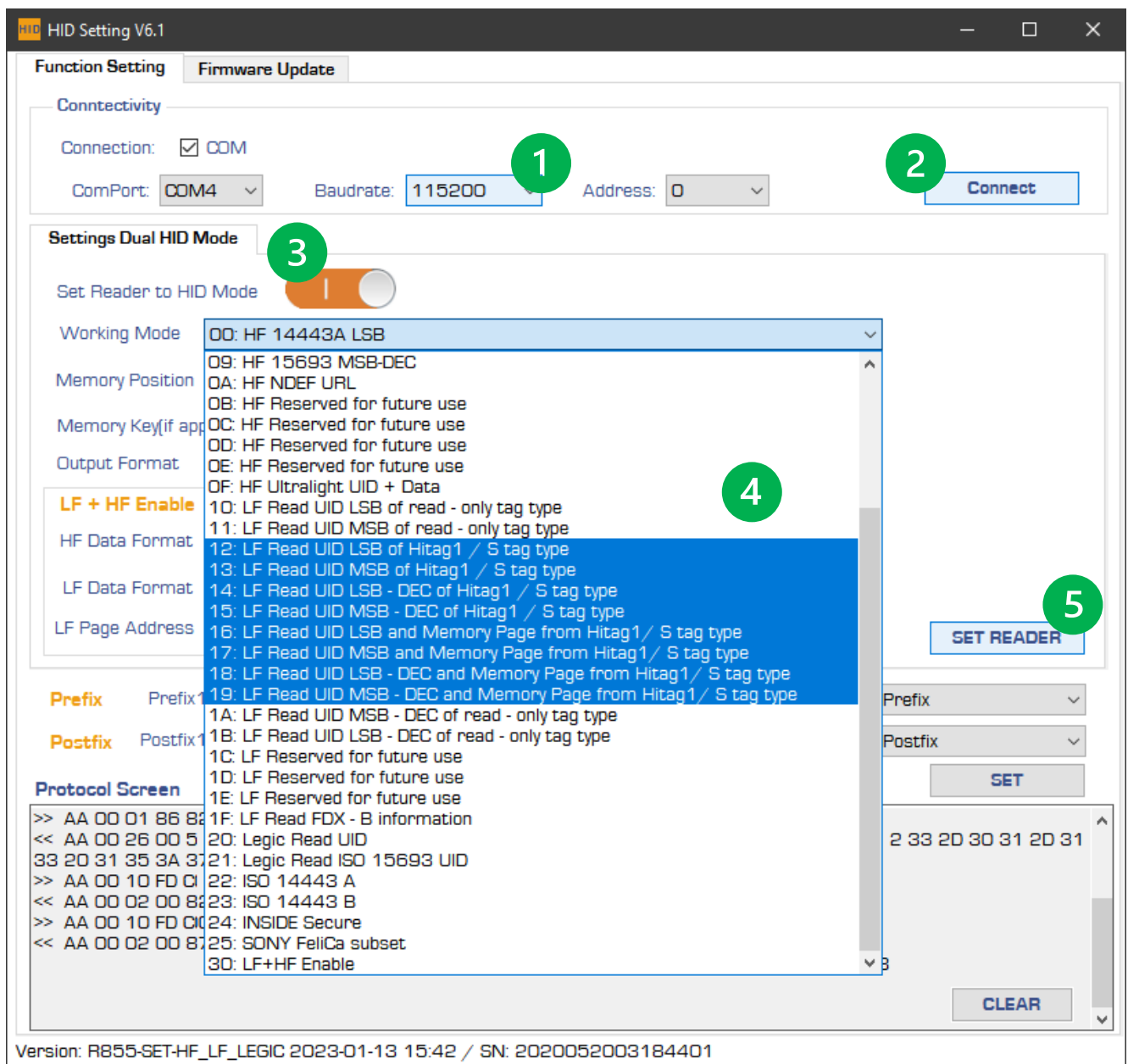


In the log screen, it should say 00 for Status = OK.



### 3.2 Capturing the UID or Data from Hitag 1/S Type RFID Tags

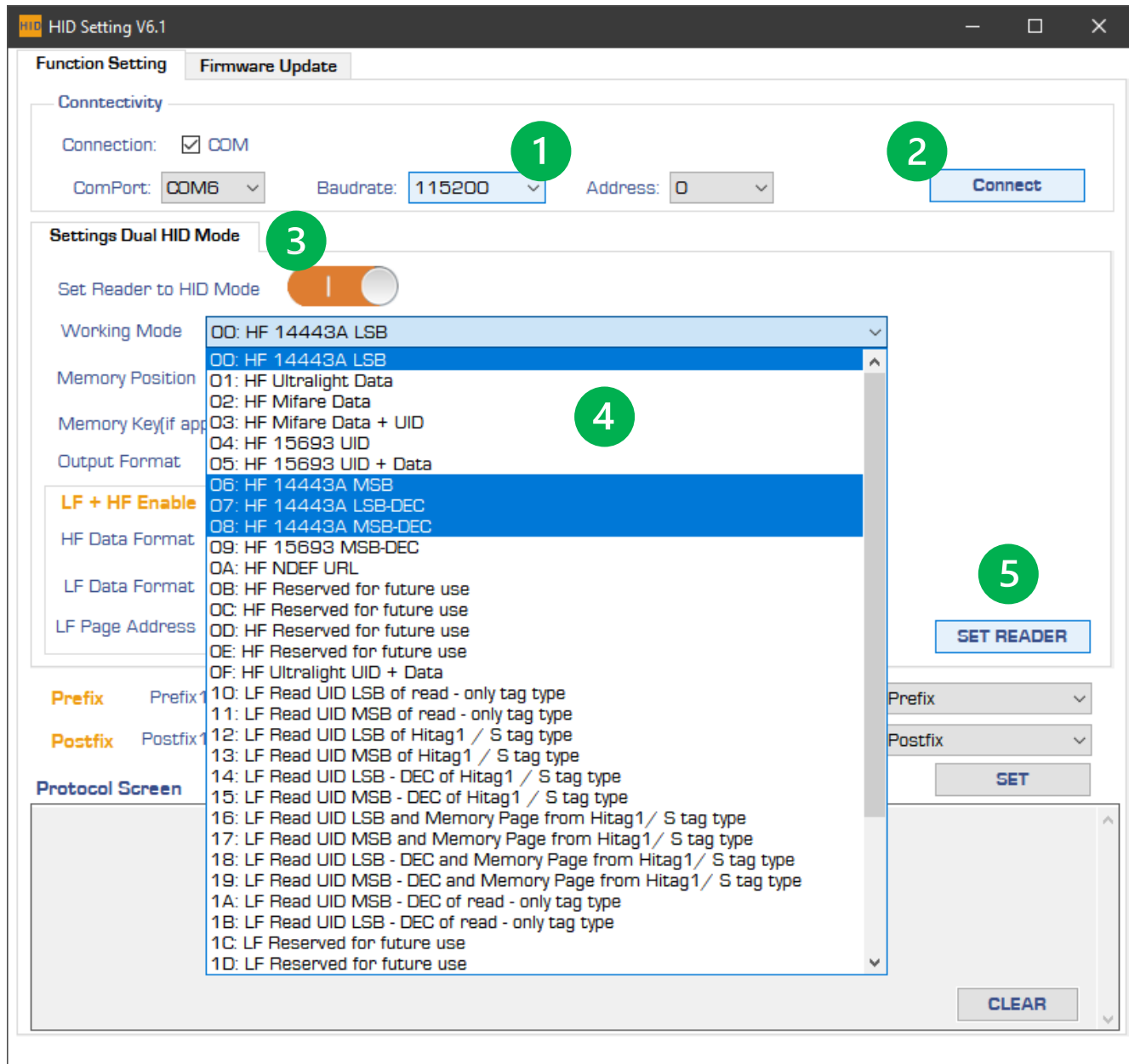
- 1: As of 2022-09-13, the firmware uses 115200 Baud
- 2: Click on [Connect]
- 3: Switch the HID function on.
- 4: The functions 12...15 will read and output the UID in various Byte order and number representations. The functions 16...19 will add the memory contents of one page to the UID.
- 5: Store the configuration in the RFID device with [Set Reader]





### 3.3 Capturing the UID of HF RFID tags of Standard ISO 14443A

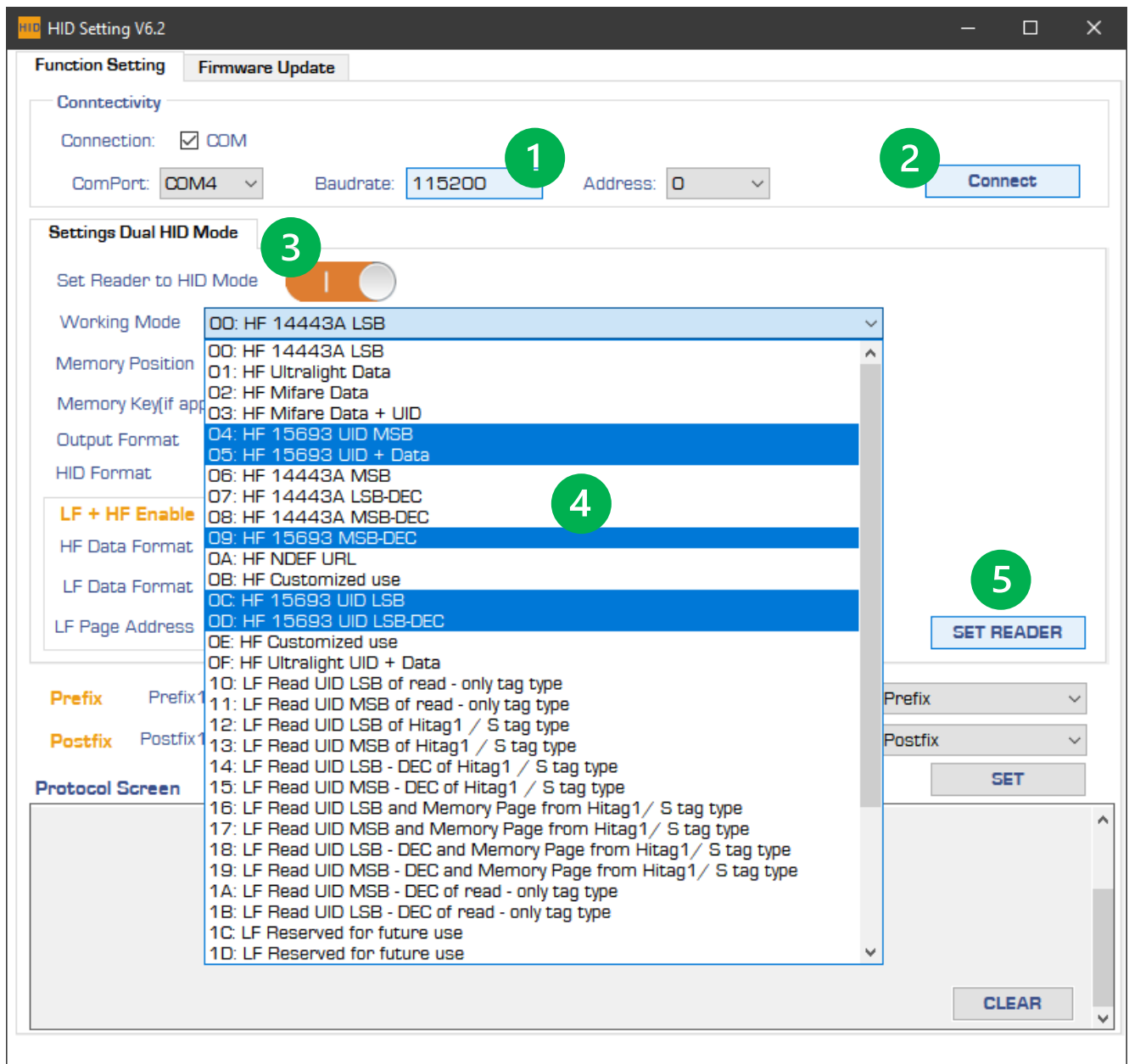
- 1: As of 2022-09-13, the firmware uses 115200 Baud
- 2: Click on [Connect]
- 3: Switch the HID function on.
- 4: The functions 00, 06...08 will read and output the UID in various Byte order and number representations.
- 5: Store the configuration in the RFID device with [Set Reader]



If you want to read data from a memory block or page, use functions 01, 02, 03 or 0F.

### 3.4 Capturing the UID of HF RFID tags of Standard ISO 15693

- 1: As of 2022-09-13, the firmware uses 115200 Baud
- 2: Click on [Connect]
- 3: Switch the HID function on.
- 4: The functions 04 and 09 will read and output the UID in various Byte order and number representations. The function 05 will add the memory contents of one page to the UID.
- 5: Store the configuration in the RFID device with [Set Reader]



### 3.5 Read Memory Block and UID from a Mifare classic

Select an HID Mode with Mifare and Data.

Set the memory block to read from.

Chose the Key to use for authentication.

Finally configure the HID output format.

Set Reader to HID Mode ☒

Working Mode Q3: HF Mifare Data + UID

Memory Position 3D Data Position 0 Data Length 16

Memory Key(if applicable) ☒ Key A ☐ Key B Key FF FF FF FF FF FF

Output Format ☒ Number ☐ ASCII

HID Format ☐ Lowercase ☒ Uppercase

#### Example Output

0C9CF822031401000000000000035452309010055

0C9CF822

Is the 4 Bytes long UID of this tag in hexadecimal interpretation.

031401000000000000035452309010055

Are the 16 Bytes from memory block 0x3D (#62)

### 3.6 Read Part of Memory Block and UID from a Mifare classic

Now we cut the first 4 Bytes from the memory block and limit the data to 8 Bytes.

Working Mode Q3: HF Mifare Data + UID

Memory Position 3D Data Position 4 Data Length 8

#### Example Output

0C9CF82200000000000354523

0C9CF822

Is the 4 Bytes long UID of this tag in hexadecimal interpretation.

00000000000354523

Are the trimmed 8 Bytes from memory block 0x3D (#62)

### 3.7 Additional Settings of the Output Format

Output Format ☒ Number ☐ ASCII

#### 3.7.1 Output Format

With the two radiobuttons, you can select either the output as number value or the ASCII numbers.

##### Example of Mifare with 4 Bytes UID operation mode

- Hexadecimal value: 03e7fb6b
- ASCII Numbers: 3033453746423642

##### Example of Mifare with 4 Bytes UID-DEC operation mode

- Decimal value: 65534827
- ASCII numbers: 3635353334383237

#### 3.7.2 HID Format

HID Format ☒ Lowercase ☐ Uppercase

##### Example of Mifare with 4 Bytes Lowercase

- Hexadecimal value: 03e7fb6b

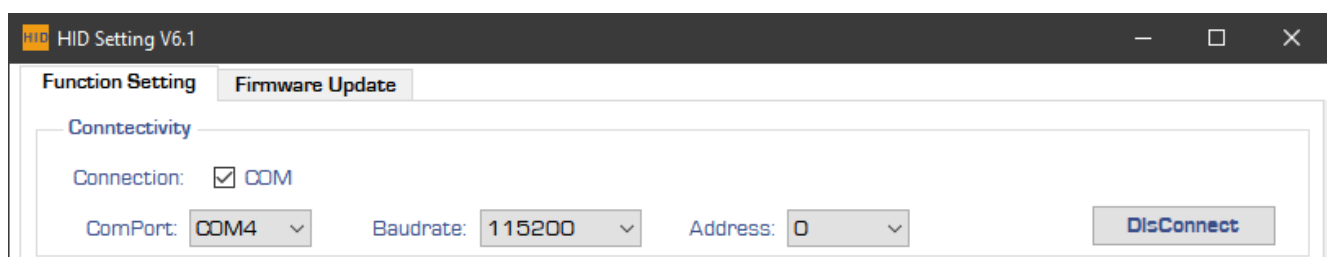
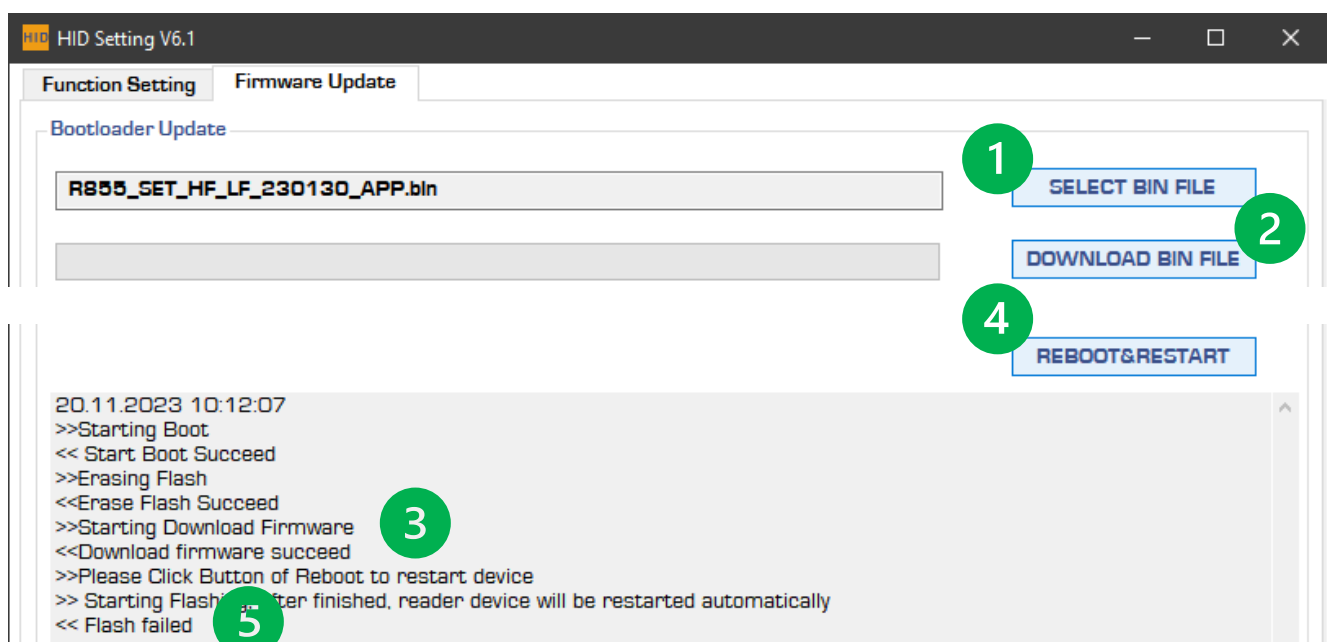
##### Example of Mifare with 4 Bytes Uppercase

- Hexadecimal value: 03E7FB6B

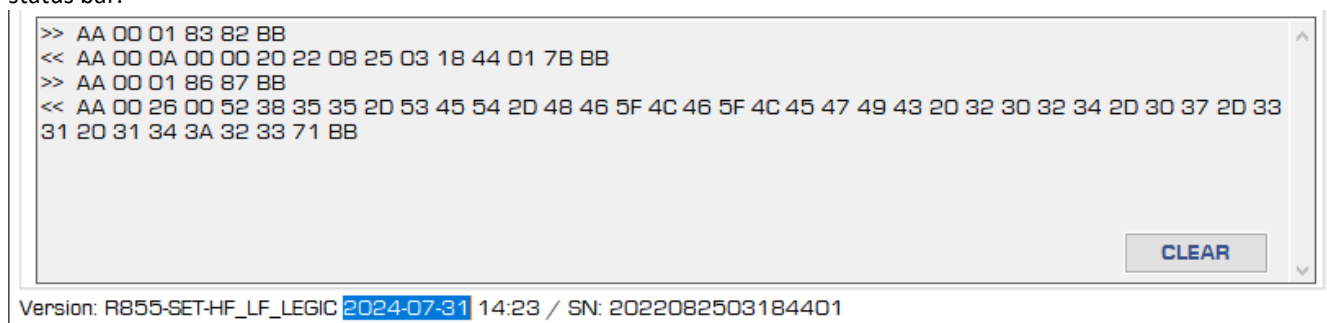
## 4 Firmware Update

As of the firmware with date info 2022-09-13 it is possible to update the Firmware using this HID Setting software. Connect with the device you want to update and change to the second tab labelled "Firmware Update"

- 1: Click on [SELECT BIN FILE] will open the file selector. For your convenience, you can select the Firmware file in the explorer press and hold the [Shift] key, right-click and select "copy as path". After this you can simply paste the path into the file input line in the file selector.
- 2: Start the update with click on [DOWNLOAD BIN FILE]
- 3: Please wait until the process is finished.
- 4: Click on [REBOOT&RESTART]
- 5: Sometimes you get the error message "Flash failed".  
Please ignore this and test the device. If in doubt, do a power cycle.



Now you can change back to the tab "Function Setting" DisConnect => Connect and see the new version information in the status bar.

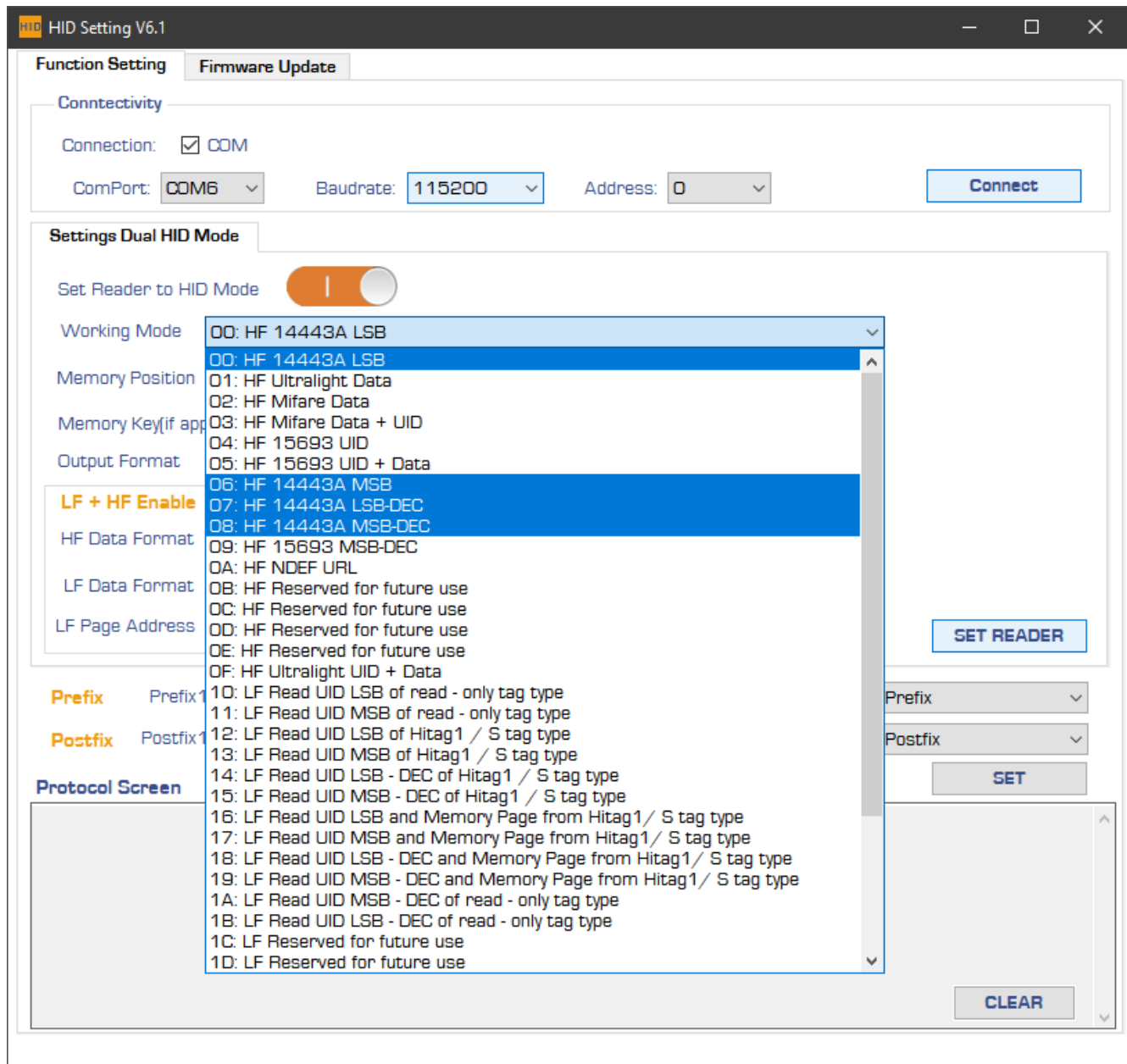


## 5 Revision History

Date	Version	Description
2023-03-03	0.3	First English draft
2023-08-03	0.4	More examples in a nutshell
2023-11-20	0.5	FW Update added
2024-08-12	0.6	Screenshots updated, Software Designation updated

Set Reader to HID Mode => switch to "I" (ON). Select a Working mode. If you have ISO14443A type tags (Mifare familiy, NTAG, ...) one of these four working modes give you the UID of the RFID tag.

00: HF 14443A LSB => type UID as hexadecimal number, starting with the LSB  
06: HF 14443A MSB => type UID as hexadecimal number, starting with the MSB  
07: HF 14443A LSB-DEC => type UID as decimal number, starting with the LSB  
08: HF 14443A MSB-DEC => type UID as decimal number, starting with the MSB



If you have an ISO15693 type tag (I-Code family, Tag-IT,  $\mu$ D, ...) chose one of these settings:

04: HF 15693 UID => type UID as hexadecimal number, starting with the MSB  
 0C: HF 15693 UID-LSB => type UID as hexadecimal number, starting with the LSB

09: HF 15693 MSB-DEC => type UID as decimal number, starting with the MSB  
 0D: HF 15693 UID LSB-DEC => type UID as decimal number, starting with the LSB

**HID Setting V6.1**

**Function Setting** **Firmware Update**

**Connectivity**

Connection: ☒ COM

ComPort: COM6 Baudrate: 115200 Address: 0 **Connect**

**Settings Dual HID Mode**

Set Reader to HID Mode ☐

Working Mode: 00: HF 14443A LSB

Memory Position: 00: HF 14443A LSB

Memory Key(if applicable): 01: HF Ultralight Data

Output Format: 02: HF Mifare Data

03: HF Mifare Data + UID

04: HF 15693 UID

05: HF 15693 UID + Data

06: HF 14443A MSB

07: HF 14443A LSB-DEC

08: HF 14443A MSB-DEC

09: HF 15693 MSB-DEC

0A: HF NDEF URL

0B: HF Reserved for future use

0C: HF 15693 UID LSB

0D: HF 15693 UID LSB-DEC

0E: HF Reserved for future use

0F: HF Ultralight UID + Data

10: LF Read UID LSB of read - only tag type

11: LF Read UID MSB of read - only tag type

12: LF Read UID LSB of Hitag1 / S tag type

13: LF Read UID MSB of Hitag1 / S tag type

14: LF Read UID LSB - DEC of Hitag1 / S tag type

15: LF Read UID MSB - DEC of Hitag1 / S tag type

16: LF Read UID LSB and Memory Page from Hitag1 / S tag type

17: LF Read UID MSB and Memory Page from Hitag1 / S tag type

18: LF Read UID LSB - DEC and Memory Page from Hitag1 / S tag type

19: LF Read UID MSB - DEC and Memory Page from Hitag1 / S tag type

1A: LF Read UID MSB - DEC of read - only tag type

1B: LF Read UID LSB - DEC of read - only tag type

1C: LF Reserved for future use

1D: LF Reserved for future use

**LF + HF Enable**

HF Data Format

LF Data Format

LF Page Address

**Prefix** Prefix

**Postfix** Postfix

**Protocol Screen**

**SET READER**

**SET**

**CLEAR**

Finally, click on [SET READER]



### 5.1.1 Select Your Data Tag Type and Output Format

14443A UID - LSB  
 14443A UID - LSB-DEC  
 14443A UID - MSB  
 14443A UID - MSB-DEC  
 MIFARE 1K/4K Data  
 MIFARE 1K/4K UID + Data  
 Ultralight Data  
 15693 UID  
 15693 UID-DEC  
 15693 Data

### 5.1.2 Settings with most Tag Types

**Settings**

Set Reader to Keyboard Mode ☒

Tag Data: MIFARE 1K/4K Data Data Position: 0 Data Length: 16

Memory Position: 0

Memory Key (if applicable): KeyA Key: FF FF FF FF FF FF

Output Format: ASCII Set Reader

Memory Position: Select the memory block (16 Bytes) from which data is read.

Data Position: Cut a part from the data read from the selected memory block. Data Position gives the start byte.

Data Length: Cut a part from the data read from the selected memory block. Data Length gives the number of bytes.

### 5.1.3 Settings with Mifare Ultralight

**Settings**

Set Reader to Keyboard Mode ☒

Tag Data: Ultralight Data Data Position: 0 Data Length: 4

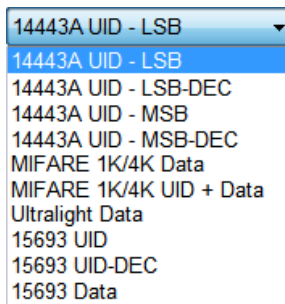
Memory Position: 0

Memory Key(if applicable): KeyA Key: FF FF FF FF FF FF

Output Format: HEX Set Reader

“Memory Position” selects the memory page (4 Bytes) that is read from this tag type.

## 5.2 Keyboard Emulation – Function Overview



### 14443 A UID – LSB

Outputs the UID compatible with our other readers as hexadecimal number.

### 14443 A UID – LSB-DEC

Outputs the UID compatible with our other readers as decimal number.

### 14443 A UID – MSB

Outputs the UID in reverse byte order as hexadecimal number.

### 14443 A UID – MSB-DEC

Outputs the UID in reverse byte order as decimal number.

### Mifare 1K/4K Data

Outputs selectable Bytes from a selectable memory block.

### Mifare 1K/4K UID + Data

Outputs the UID compatible with our other readers as hexadecimal number.

Furthermore selectable Bytes from a selectable memory block are added to the output.

### Ultralight Data

Outputs selectable memory page (4 Bytes).

### 15693 UID

Outputs the UID compatible with our other readers as hexadecimal number. This is 8 Bytes = 16 characters in size.

### 15693 UID-DEC

Outputs the UID compatible with our other readers as decimal number. This can give numbers up to E0FFFFFFFFFFFFFF = 16212958658533785599

### 15693 Data

Outputs selectable Bytes from a selectable memory block.