iDTRONIC GmbH

HID Settings

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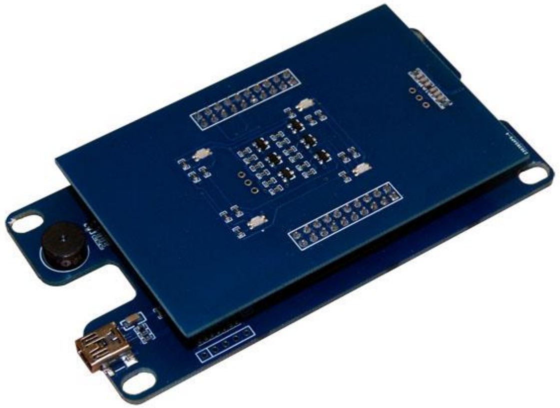
HID Setting Software

HID Setting is free of charge and included in the supporting file package for the OEM-HF-R840-SET-V2 RFID electronics or R-DT-EVO-HF2 & R-DT-EVO-HF2-HID RFID desktop readers. It is the graphical configuration tool that with just few clicks customizes the functions of these RFID devices.

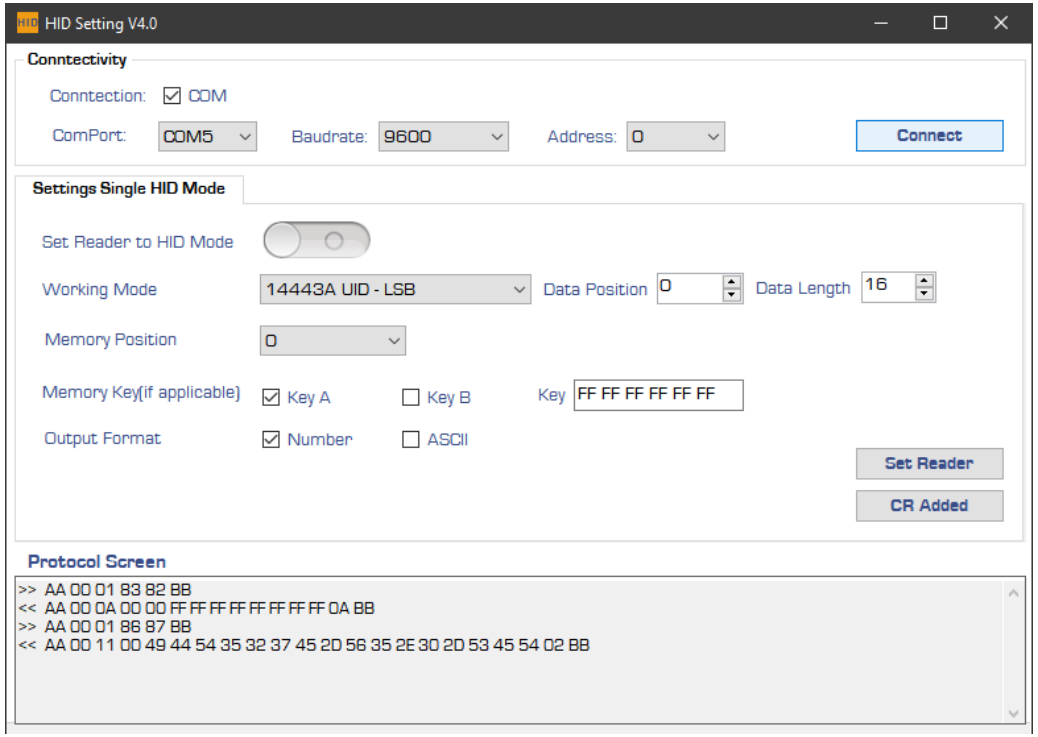


Connection

Connectivity

In order to connect the device, plug in the device first, then start the HID Software.
The drop-down list should automatically show the right Com Port of your device.

Connect: Connects your device to the HID Software.
If opening the Com Port was successful, you are going to hear a beep sound.



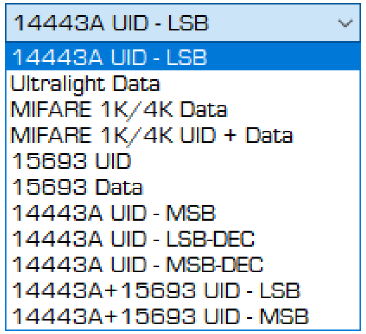
Settings

Tag Data: Select the data type you are using.
Output Format: Choose the Format of output you desire Hex or ASCII.
Set Reader to HID Mode: Starts the keyboard emulation.

Set Reader: Sets the reader to your desired Settings, if it works you are going to hear a beep.

Protocol Screen: Here you can monitor the communication between this configuration software and the RFID device.

Keyboard Emulation – Function Overview.



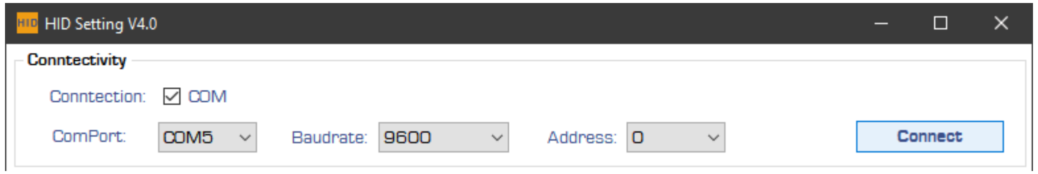
Tag data type	Function
14443 A UID – LSB	Outputs the UID compatible with our other readers as hexadecimal number.
14443 A UID – LSB-DEC	Outputs the UID compatible with our other readers as decimal number.
14443 A UID – MSB	Outputs the UID in reverse byte order as hexadecimal number.
14443 A UID – MSB-DEC	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 selectable Bytes from a selectable memory block.
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 Data	Outputs selectable Bytes from a selectable memory block.
14443A+15693 UID-LSB	This operation mode is only available on some custom-specific Firmware.
14443A+15693 UID-MSB	This operation mode is only available on some custom-specific Firmware.

Configuration

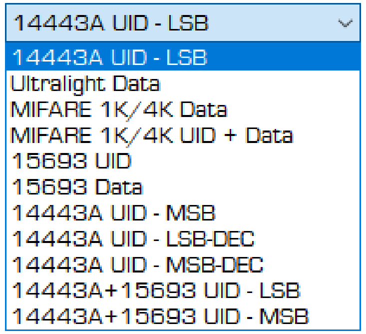
1. Connect your Device for configuration
Plug in the device first before starting the configuration software HID Setting.

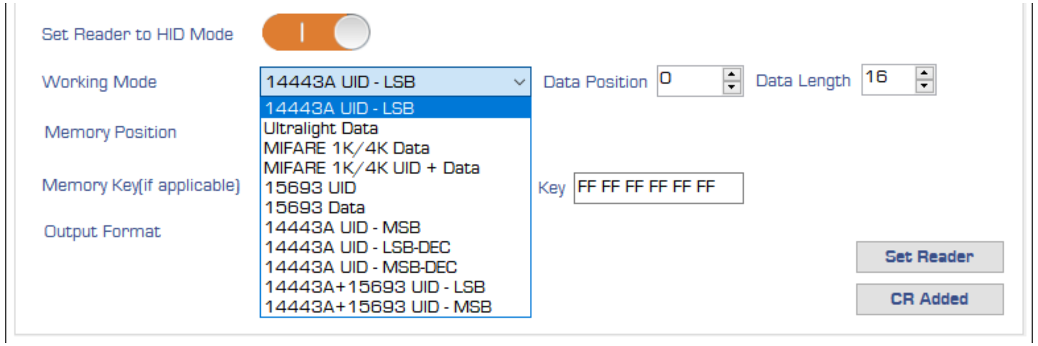
If the device is connected to a PC for the first time, it can take some time for automatic installation of the Silicon Labs 210x Series VCP driver. If the driver is not automatically installed, please go to this website to download and install it manually:
https://www.silabs.com/developers/usb-to-uart-bridge-vcp-drivers?tab=downloads

2. Connectivity
Select the correct com port, which has been set by the driver.
Baudrate 9600 and device address 0 are factory default values.
Then connect with click on [Connect].



3. Select Your Data Tag Type and Output Format then press Set Reader





4. Settings with Mifare classic

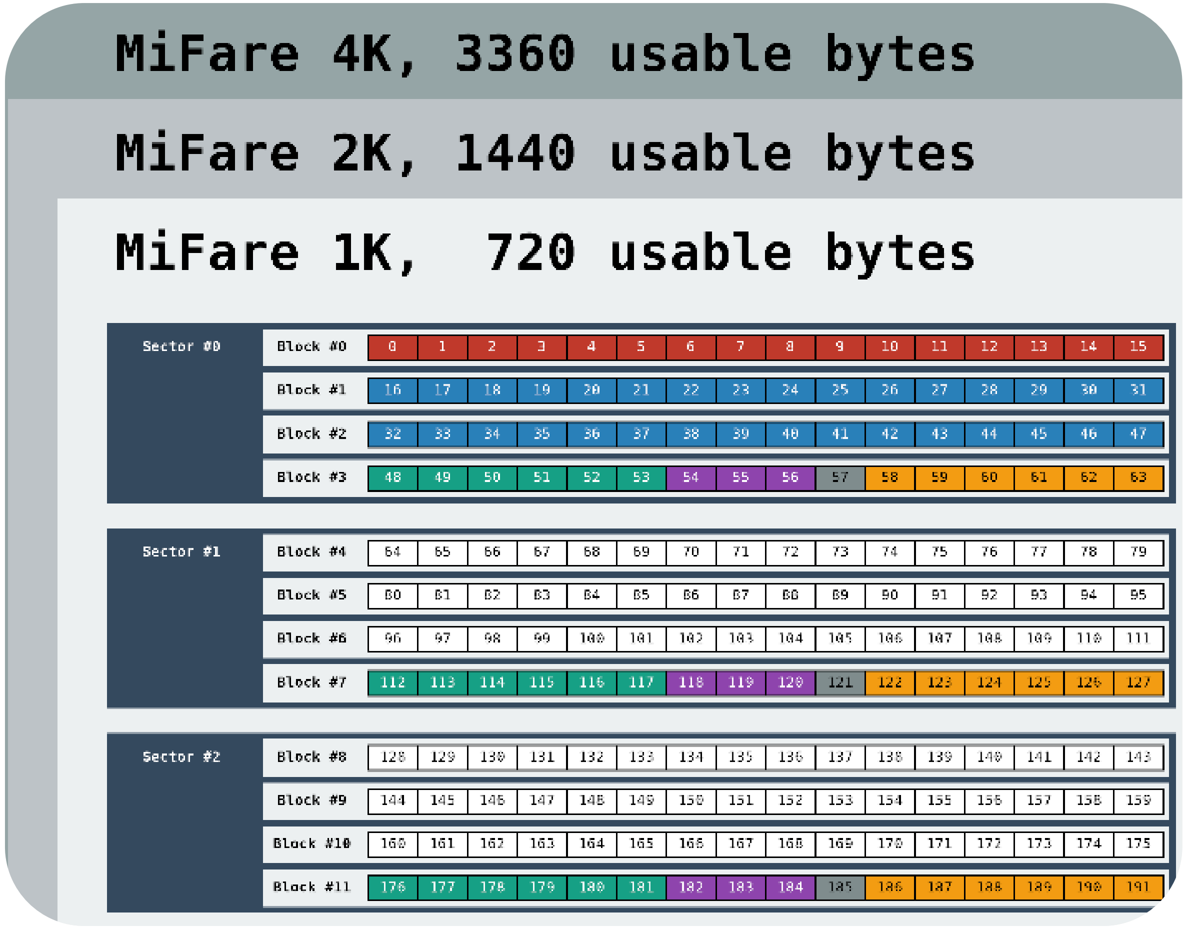
- Memory Position: Select the memory block (16 Bytes) from which data is read.
- Data Position: Cut a part from the data read from the selected memory block. Data Position gives the start byte.
- Data Length: Cut a part from the data read from the selected memory block. Data Length gives the number of bytes.

Structure of the most common Transponder memories - Mifare

- The memory of Mifare transponders is divided into different sectors and every sector is divided into 4 (or more if its a Mifare 4k) different blocks.
  It is important to know that you can`t address a sector you have always to adress the block where the information is saved.

- Every sector has a password , it is always in the last block. The password in the last block is divided into two keys. Key A the first six bytes and Key B the last six bytes, Key B can be configured to have more rights then Key A. For example with Key A you can read the balance of your card but with Key B you can change the balance.

- The purple 3 bytes determine what you can do with each key for each block .



Note : It is absolutely normal that you can`t change Block 0

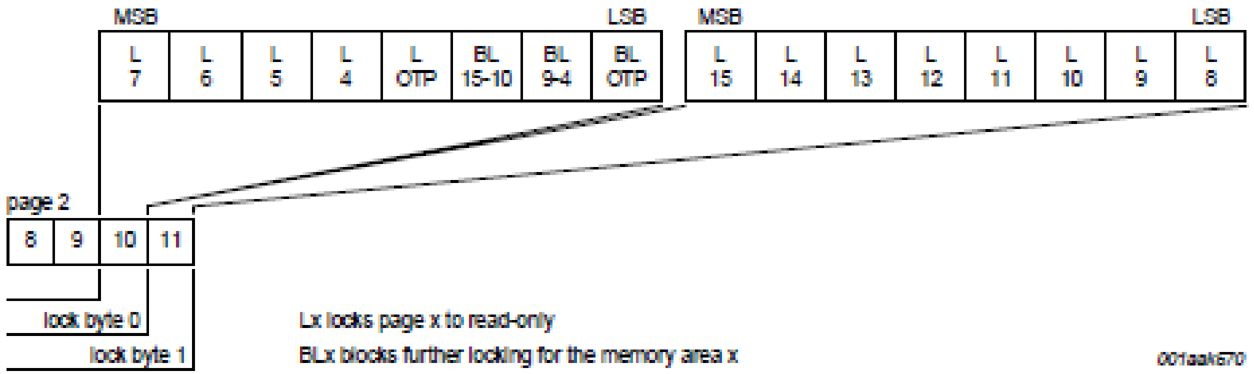
Structure of the most common Transponder memories – Mifare UL

- The memory of the Transponder Mifare Ultralight is divided into the page adress and these consist of four bytes.On the first two pages (0, 1) the serial number is saved.

- The last two bytes of page 2 are lock bytes.With them you can lock every page from 3-15 to read only. The last 3 bits of lock byte 0 are the block locking bits. The first of the three blocks pages 15-10 the secod 9-4 and the last the OTP, every other bit blocks a single page. After these bits are set to written state(1) they cannot be changed back

- Page 3 consist of OTP bytes(One time programming),these bytes are set by default to erased (0). If a bit in these bytes is changed to written state (1) it can not be changed back . But if a bit is free you can still write into this bit.

Page address		Byte number			
Decimal	Hex	0	1	2	3
0	00h	serial number			
1	01h	serial number			
2	02h	serial number	internal	lock bytes	lock bytes
3	03h	OTP	OTP	OTP	OTP
4 to 15	04h to 0Fh	user memory			



Structure of the most common Transponder memories – I-Code SLI

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The 1024 bit SLI memory is divided into 32 Blocks.
A block is the smallest access unit, each of them consists of 4 bytes. The memory is divided into 2 parts, the configuration area and the user memory.

In the first two blocks (-4, -3) the unique identifier ID is saved, it is programmed in the production process and can`t be changed afterwards. The TAG type is a part of the UID (bit41 to 48, after the manufacturer code which is “04” hex for Philips Semicon-ductors/NXP).The TAG type of the SL2 ICS20 is “01” hex.

Within the EAS byte the last bit of it can turn the EAS (Elec-tronic Article Surveillance) just by writing 1 for on or 0 for off.

The Write Access Condition bits in block -1 determine the write access conditions for the other blocks. These bits can be set only to 1 with a lock command and never be changed back to 0.

	Byte 0	Byte 1	Byte 2	Byte 3	
Block –4	UID0	UID1	UID2	UID3	Unique Identifier (lower bytes)
Block –3	UID4	UID5	UID6	UID7	Unique Identifier (higher bytes)
Block –2	Internally used	EAS	AFI	DSFID	EAS, AFI, DSFID
Block –1	00	00	00	00	Write Access Conditions
Block 0	x	x	x	x	User Data
Block 1	x	x	x	x	

MSB | LSB

64 57	56 49	48 41	40 1				
“E0”	*“04”*	*“01”*	*IC manufacturer serial number*				
UID 7	UID 6	UID 5	UID 4	UID 3	UID 2	UID 1	UID 0

	Block –1															
	Byte 0								Byte 1							
	MSB							LSB	MSB							LSB
Condition	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Write access for block number	3	2	1	0	-2 (3)	-2 (2)	-2 (1)	-2 (0)	11	10	9	8	7	6	5	4

! ! Note : to write in negative blocks you have to use the special commands as displayed in ISO 15693

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