RFID Desktop Reader NEO 2

Hans-Petter Halvorsen

Desktop Reader NEO 2

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High Frequency (HF) 13.56MHz RFID Reader from iDTRONIC

The RFID Reader supports most HF (13.56MHz) on the market, like MIFARE Classic, etc.

The RFID Reader can be used out of the box – Just open, e.g., a. empty MS Word document or similar. Then put a RFID Tag on top of the RFID Reader and the UID will be written to your screen

https://en.idtronic-rfid.com/rfid-readers/rfid-hf-readers/desktop-reader-neo-2/

MIFARE Classic 1K (ISO 14443A) Tags

ISO 14443A
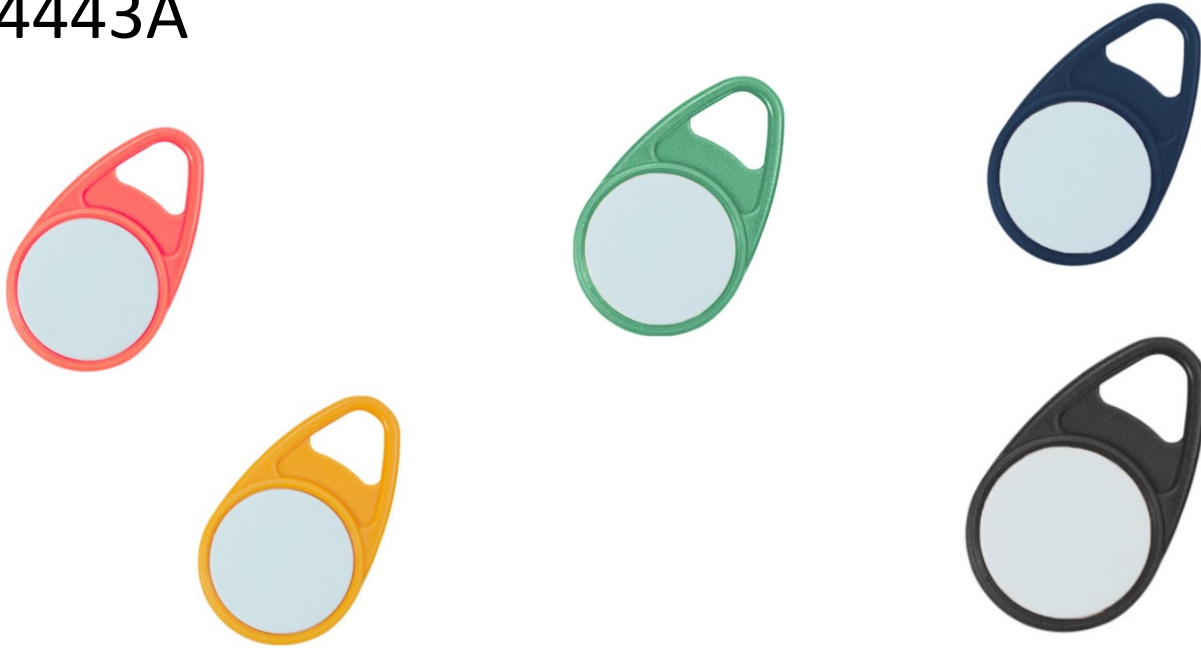
Operating Modes

You can switch between 2 different Modes

- **HID** - Human Interface Device
  - The HID mode is a **Keyboard Emulation Mode**
  - It automatically reads the UID for the RFID you put on the Reader in the active Textbox (e.g., in an Application) or Document (e.g., Word)
  - No Code is necessary to read the RFID Tag UID
- **VCP** – Virtual COM Port
  - It is designed for IoT applications
  - The VCP mode has a complete read and write access
  - You need to use a Serial Port Software or Develop Serial Port Communication using a Programming Language like C#, LabVIEW, Python, etc.

KEMUSetting Software
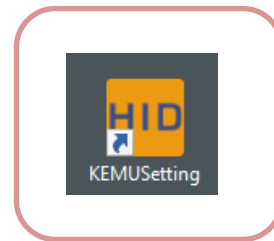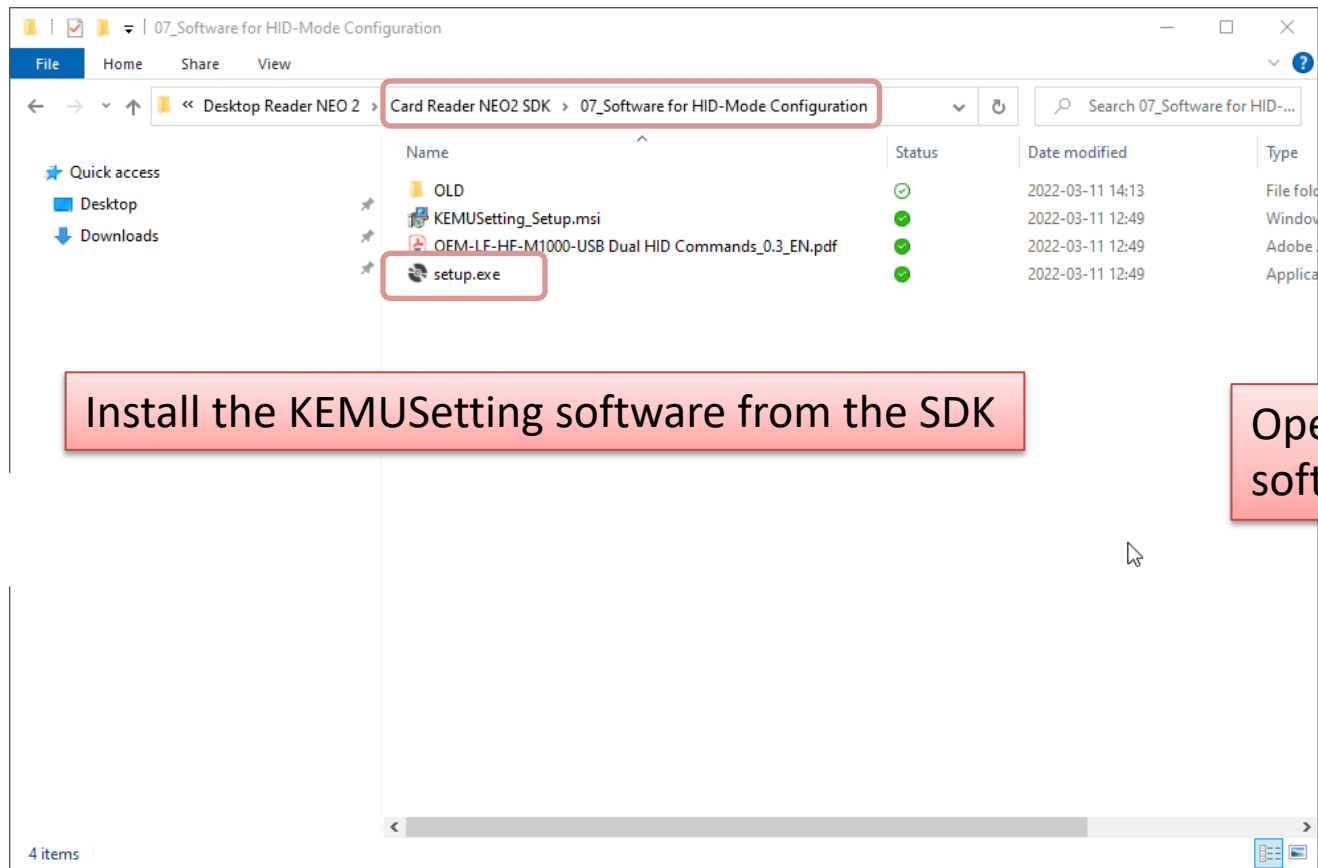
Install the KEMUSetting software from the SDK

Open the KEMUSetting software from your Desktop

Set Operating Mode

- You can switch between the 2 modes with the "KEMU Setting" Software.
- Please select the tab "**Settings Dual HID Mode**".
- Important: In the software there is a slide switch, with which you can switch between the working modes, but it doesn't update in real time, so it doesn't show you the working mode which the reader is operating at the time!
- To store the current setting into the RFID device, click on "**Set Reader**".

Set Operating Mode

Desktop Reader NEO 2

- https://en.idtronic-rfid.com/rfid-readers/rfid-hf-readers/desktop-reader-neo-2/

- https://www.elfadistrelec.no/en/desktop-rfid-reader-13-56mhz-usb-200ma-idtronic-dt-neo2-hf/p/30241934?q=RFID&pos=19&origPos=19&origPageSize=50&track=true
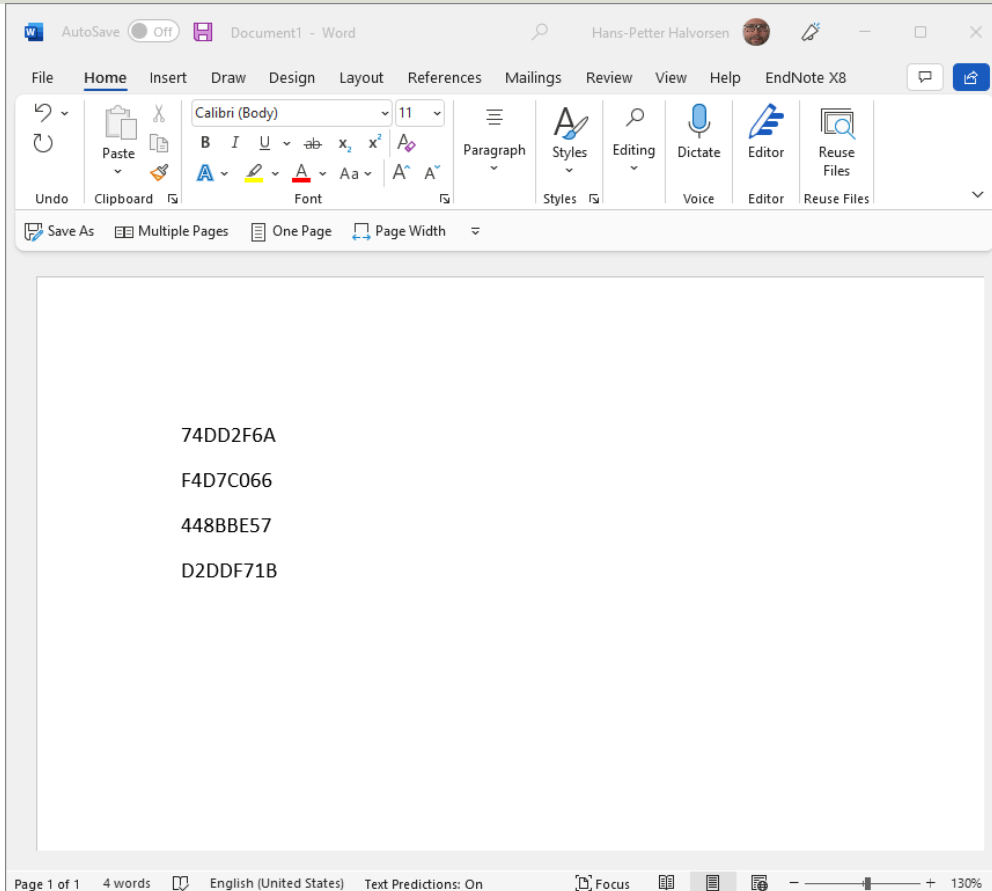
HID Mode

HID - Human Interface Device

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Testing

- Plug in the RFID Reader into your PC
- Open MS Word, Notepad, etc.
- Put a RFID Tag on top of the Reader
- Observe that the unique Tag UID is written into MS Word

Visual Studio/C# Example
HID Mode

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Desktop Application
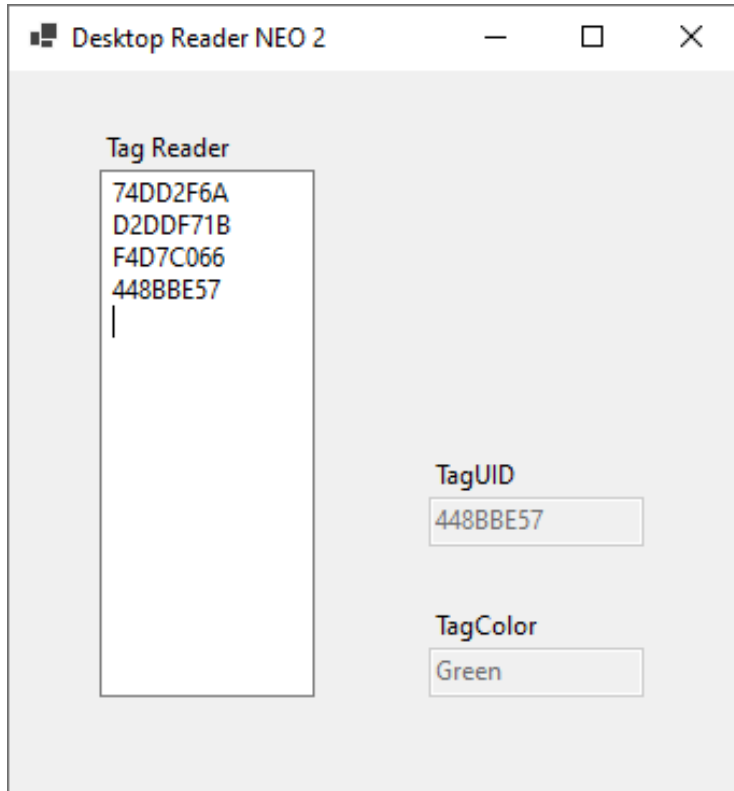
```csharp
private void txtRfidReader_TextChanged(object sender, EventArgs e)
{
        string textRead = txtRfidReader.Text;
        string color = "";

        if (textRead.Length > 9)
        {
                string tagUid = textRead.Substring(textRead.Length - 10, 8);

                if (tagUid == "448BBE57")
                                color = "Green";
                else if (tagUid == "74DD2F6A")
                                color = "Red";
                else if (tagUid == "F4D7C066")
                                color = "Blue";
                else if (tagUid == "D2DDF71B")
                                color = "Yellow";

                txtRfidUid.Text = tagUid;
                txtColor.Text = color;
                txtRfidReader.Focus();
        }
}
```

LabVIEW Example
HID Mode

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Desktop Application
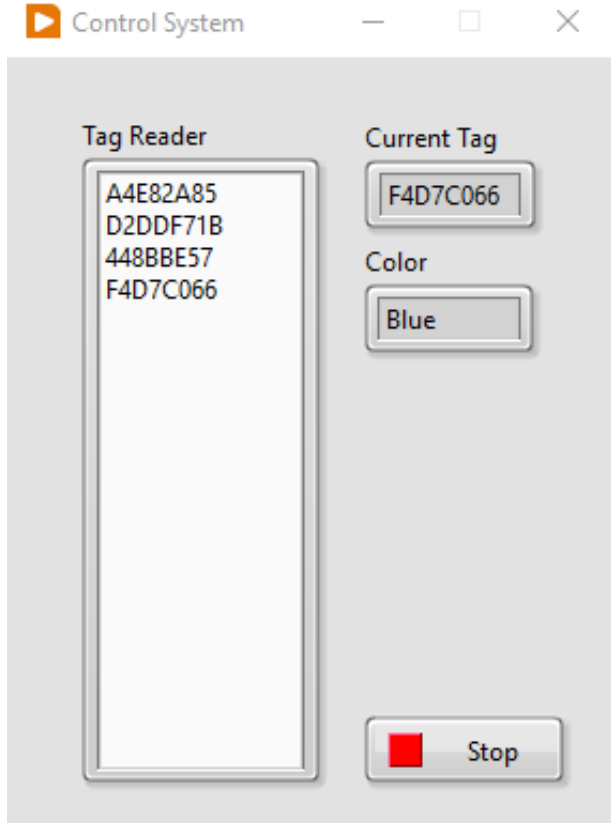
VCP Mode

VCP – Virtual COM Port

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HID/VCP Mode Configuration

Install the "KEMUSetting" Tool which is located in the Card Reader NEO2 SDK

HID Setting

Conntectivity

Conntection: ☑ COM

ComPort: `COM5` ▾ Baudrate: `9600` ▾ Address: `0` ▾ **Connect**

Settings Single HID Mode | **Settings Dual HID Mode**

Set Reader to HID Mode ◯

Working Mode	`00: HF 14443A LSB` ▾

Memory Position `00` ▾   Data Position `0`   Data Length `16`

Memory Key(if applicable) ☑ Key A   ☐ Key B   Key `FF FF FF FF FF FF`

Output Format ☑ HEX   ☐ ASCII

LF + HF Enable

HF Data Format `00 = 00: HF 14443A LSB` ▾

LF Data Format `10: LF Read UID LSB of read-only tag type` ▾   **Set Reader**

LF Page Address `00` ▾   **CR Added**

Protocol Screen

Clear

HF DEMO Software

Install the "HF Demo" Tool which is located in the Card Reader NEO2 SDK

Connect and Get Firmware

Read Tag Information
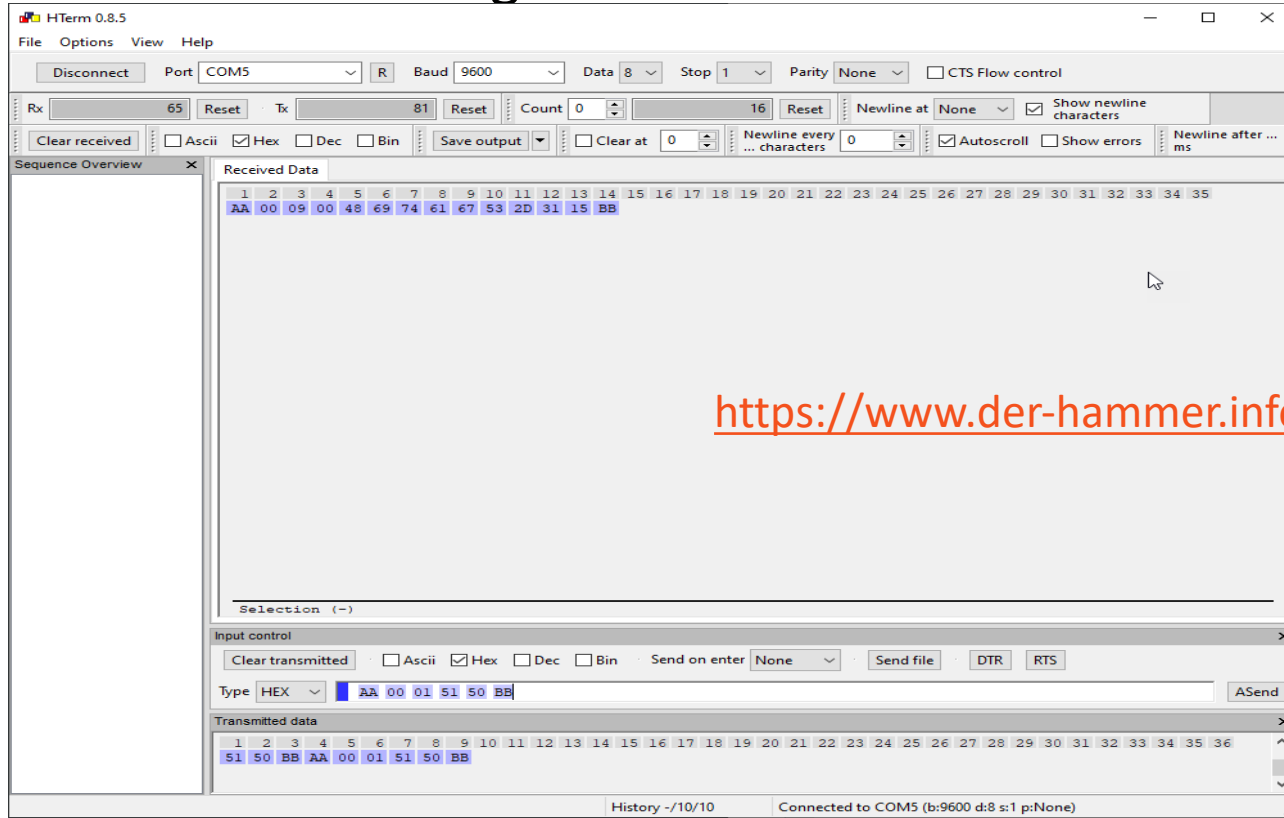
Virtual COM Port Settings

- Baudrate: 9600

- Data bits: 8

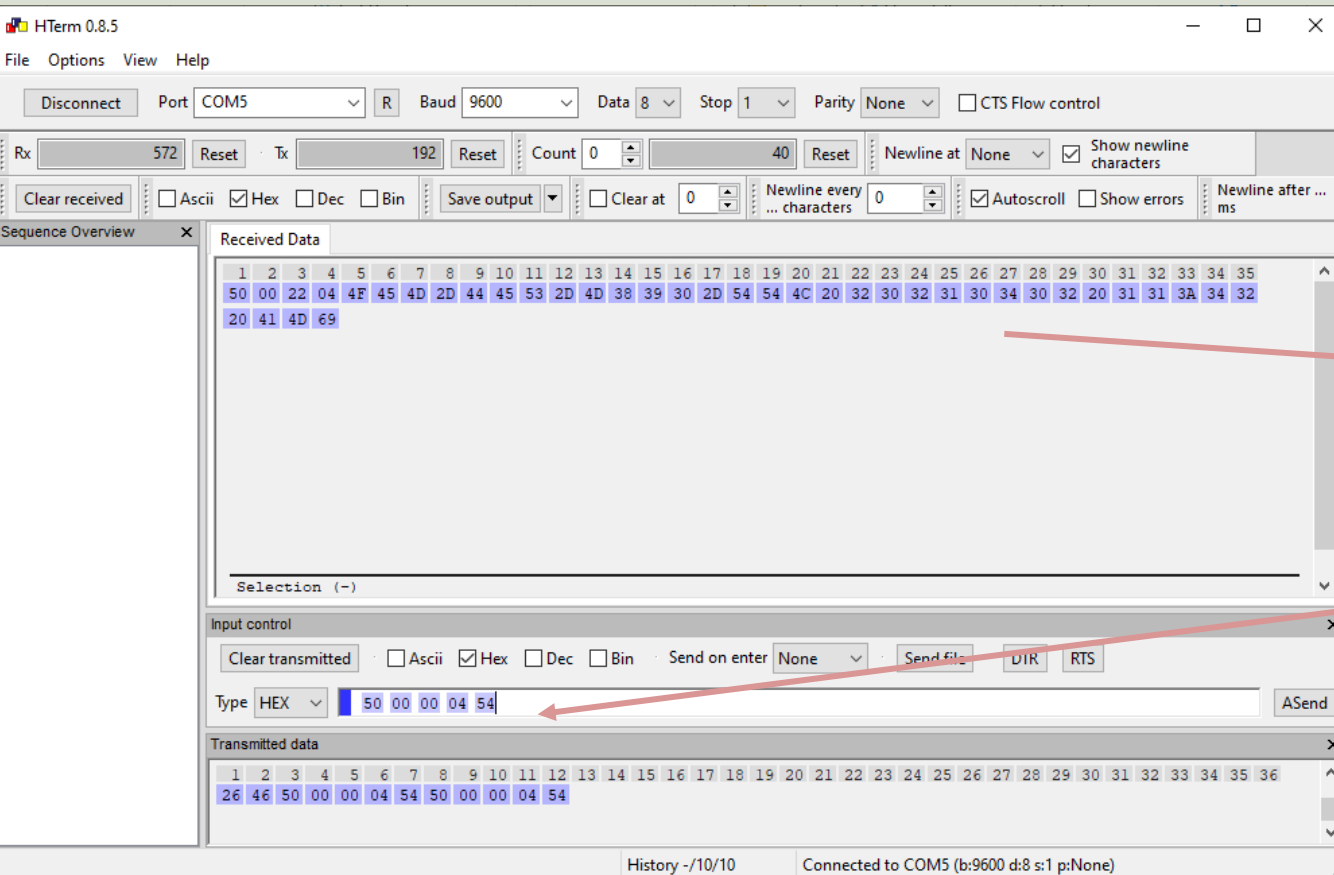- Parity: No parity

- Start bit: 1

- Stop bit: 1

HTerm

Serial Terminal Program for communication with RFID Reader

https://www.der-hammer.info/pages/terminal.html

Get Firmware Version

Response from the RFID Reader

Enter "**50 00 00 04 54**" and hit Enter

Example Tags

ISO 14443A/MIFARE Classic 1K

UID = 448BBE57

UID = 74DD2F6A

UID = F4D7C066

UID = D2DDF71B

Get UID

50 00 02 22 10 26 46

UID = F4D7C066

Put a RFID Tag on the Reader

Enter "**50 00 02 22 10 26 46**" and hit Enter

Here I read 4 different Tags

UID = 448BBE57
UID = F4D7C066
UID = D2DDF71B
UID = 74DD2F6A

Resources

- https://en.wikipedia.org/wiki/Barcode
- https://en.wikipedia.org/wiki/Radio-frequency_identification
- https://www.atlasrfidstore.com/rfid-beginners-guide/
- https://no.rs-online.com/web/p/rf-modules/1262181/
- https://eccel.co.uk/product/oem-micode-usb/

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