

# Chicken Check



Write your documentation here!

## First Draft Ideas

- RFID bird ringing, bird banding, tagging
- 13.56 MHz HF band (not LF nor UHF)
- <https://learn.adafruit.com/adafruit-pn532-rfid-nfc?view=====all>

## About RFID

- <https://www.rfid-grundlagen.de/>
- <https://www.smart-tec.com/de/faq>

## HF RFID Technology (13.56 MHz)



- Matt Rose and Jon Kurtz (2016): [NFC - A Closer Look](#)  
Future Electronics, original [download](#)

### ISO 14443: Proximity Communication (typ. range: 7-15 cm)

1. **Frequency:** Both ISO 14443 and ISO 15693 operate at **13.56 MHz**.
2. **Purpose:** ISO 14443 is commonly used in contactless smart cards and NFC-enabled devices.
3. **Read Range:** ISO 14443 has a shorter read range of **7-15 cm** (approximately 2.8-5.9 inches).
4. **Data Transfer Rate:** It offers a higher data transfer rate with a **106 kbps** Baud rate.
5. **Applications:** ISO 14443 is suitable for financial transactions, access control, parking solutions, and attendance systems<sup>2</sup>.

### ISO 15693: Vicinity Communication (typ. range: < 100 cm)

1. **Purpose:** ISO 15693 defines the communication protocol for RFID tags operating at **13.56 MHz**.
2. **Read Range:** ISO 15693 provides an extended read range of **up to 1 meter** (approximately 3.3 feet).
3. **Data Transfer Rate:** It has a slower data rate with a **26 kbps** Baud rate.
4. **Applications:** ISO 15693 is useful for applications like inventory management, asset tracking, and libraries<sup>15</sup>.

In summary, ISO 14443 is ideal for short-range applications like wireless payments, while ISO 15693 suits scenarios where longer read distances are necessary. ☐☐☐<sup>12</sup>

Source: Conversation with Copilot, 30/06/2024

- (1) NFC Reader Guide - Shop NFC. <https://bing.com/search?q=iso+14443+vs+iso+15693>.
- (2) The difference between ISO15693 and ISO14443 - RFID Card.  
<https://www.rfidcard.com/the-difference-between-iso15693-and-iso14443/>.
- (3) Understanding the ISO15693 Protocol: An In-depth Look.  
<https://www.rfidlabel.com/understanding-the-iso15693-protocol-an-in-depth-look/>.
- (4) NFC Reader Guide - Shop NFC. <https://www.shopnfc.com/en/content/31-nfc-reader-guide>.
- (5) What is ISO/IEC 15693? RFID Communication Standard for HF and NFC.  
<https://www.encstore.com/blog/5722-what-is-iso-iec-15693-rfid-communication-standard-for-hf-and-nfc>.

## Differences between ISO/IEC 15693-26 and ISO/IEC 15693-53 (Collected by COPILOT)

### ISO/IEC 15693-26:

1. **Modulation Scheme:** ISO/IEC 15693-26 uses a subcarrier frequency of 423.75 kHz.
2. **Data Rate:** The data rate for ISO/IEC 15693-26 is **26.48 kbps**.
3. **Application:** This variant is commonly used in applications such as inventory management, asset tracking, and library systems.
4. **Read Range:** The read range is typically up to 1 meter (approximately 3.3 feet).

### ISO/IEC 15693-53:

1. **Modulation Scheme:** ISO/IEC 15693-53 uses a subcarrier frequency of 847.5 kHz.
2. **Data Rate:** The data rate for ISO/IEC 15693-53 is **53.98 kbps**.
3. **Application:** It is also used for inventory management, asset tracking, and similar applications.
4. **Read Range:** Similar to ISO/IEC 15693-26, the read range is up to 1 meter.

In summary, both variants are part of the ISO/IEC 15693 standard and share similar use cases. The main difference lies in their modulation frequencies and data rates. ☐☐☐

Source: Conversation with Copilot, 30/06/2024

## GAO RFID

- [13.56\\_MHz\\_HF\\_High-powered\\_RFID\\_Reader\\_233016.pdf](#)
- Range: up to 90 cm with single antenna
- Speed: up to 60 readings per second
- Separation: 300 tags at once


## NXP NFC Solutions

-  **START HERE!**



## NXP CLRC663 plus (CLRC66303HN) - High performance multi-protocol NFC frontend


<https://www.nxp.com/products/rfid-nfc/nfc-hf/nfc-readers/clrc663-iplus-i-family-high-performance-nfc-frontends:CLRC66303HN>


	Source: <a href="#">NXP CLRC663 product page</a>	
		
Evaluation Board <b>CLEV6630B</b> (NXP)	Development Kit <b>OM26630FDKM</b> (NXP, including CLEV6630B)	

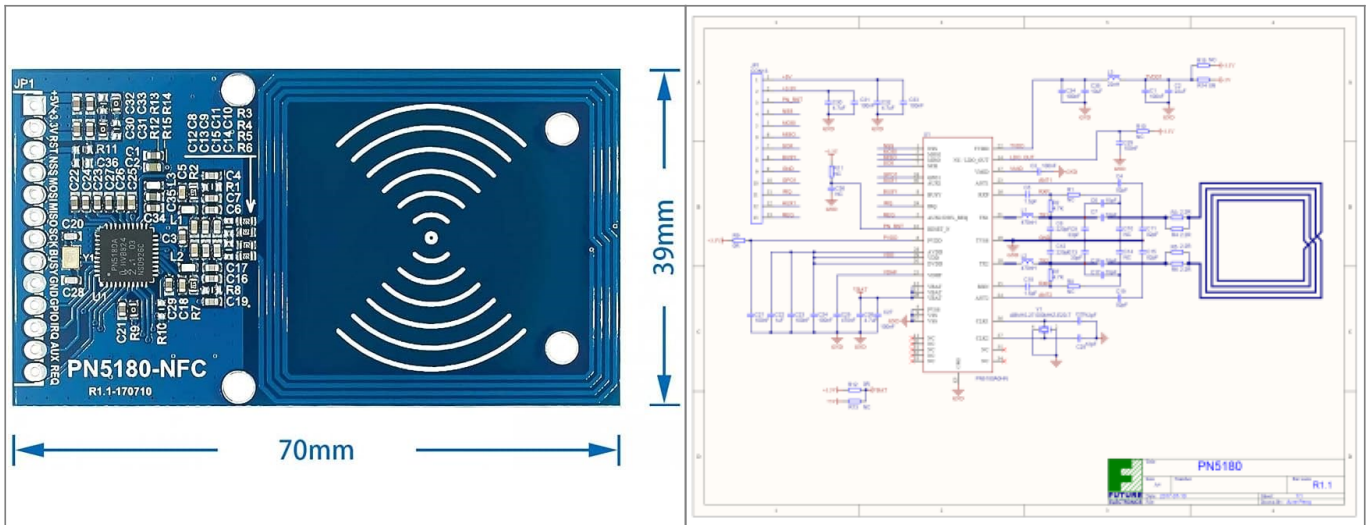
-  **NXP CLRC663 Product Page**
  - Chip Name: **CLRC66303HN** (I<sub>T</sub>(max) 350-500 mA, up to 2 Watts)
  - Eval Board Name: **CLEV6630B**
  - Dev Kit Name: **OM26630FDKM** (includes CLEV6630B)
  - Datasheet **CLRC663**: [NXP CLRC663 - High performance multi-protocol NFC frontend CLRC663 and CLRC663 plus](#)
  - Datasheet **SLRC610**: [NXP SLRC610 - High-performance ICODE frontend SLRC610 and SLRC610 plus](#)
  - [AN11022 CLRC663 evaluation board quick start guide](#)
  - [AN12657 Using the RC663 without library](#)

## NXP PN5180

	
OM25180FDK Dev. Kit + Extras from <a href="#">NXP</a>	NNEV5180BM product picture by <a href="#">Farnell</a> .

-  **NXP PN5180 Product Page**
  - Chip Name: **PN5180B** (I<sub>T</sub>(max) 250 mA) (PN5180A0HN???)
  - Eval Board Name: **PNEV5180B**
  - Dev Kit Name: **OM25180FDKM** (includes PNEV5180B)
  - NXP [NFC Antenna Tool](#)

-  Datasheet PN5180, **C3,C4** (Rev. 4.1, 2023-03-13): [NXP PN5180A0xx/C3,C4 Rev. 4.1](#)
- Datasheet PN5180, **C1,C2** (Rev. 3.6, 2018-05-07): [NXP PN5180A0xx/C1/C2 Rev. 3.6](#)



A cheap PN5180 board (R1.1-170710) for Arduino-like projects.

Schematic by Future Electronics  
(Download: [A. Trappmann's Github](#))

### PN5180 Application Notes

- [AN11744 PN5180 Evaluation board quick start guide](#)
- [UM10954 PN5180 SW quick start guide](#)
- [AN11740 PN5180 Antenna design guide](#)
- [AN11741 How to design an antenna with DPC](#)
- [AN11906 Starting a product development with PN5180](#)
- [AN12650 Using the PN5180 without library](#)
- [AN12810 How to use the NanoVNA for the NFC reader antenna design](#)

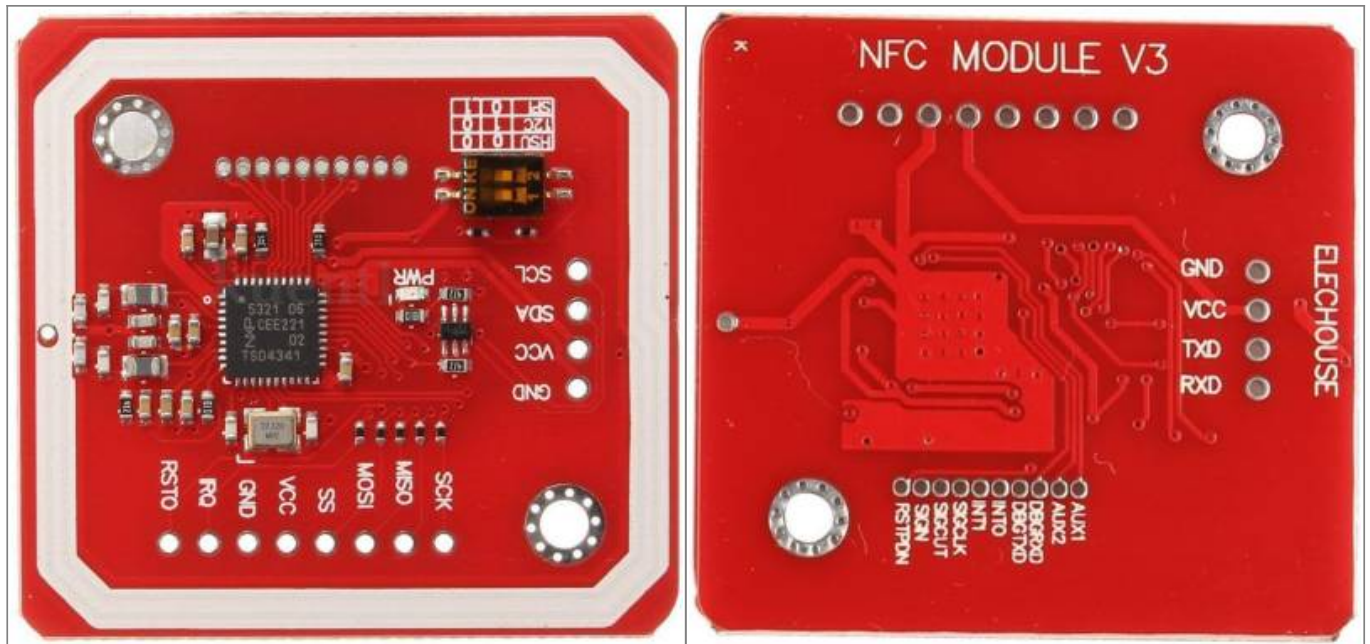
### PN5180 Arduino Libraries

- <https://github.com/ATrappmann/PN5180-Library>
- <https://github.com/L4M0S/PN5180-Library-14443>
- <https://github.com/playfultechnology/arduino-rfid-PN5180>
- <https://github.com/playfultechnology/PN5180-Library>

### PN532 Module V3 by Elechouse (5V, red board)

This is the cheap version (the red board with 8 + 4 pin headers / connectors) you still can buy everywhere. Drawback: Only the 5V is exposed to the connector and not the 3.3V output. The board has to be modified to be usable with a 3.3V voltage source, e.g. by desoldering the voltage regulator and building wire bridge from 3.3V to the power pin on the connector (originally named 5V).

- [PN532\\_Manual\\_V3.pdf](#)
- <https://github.com/elechouse/PN532>



### Adafruit RFID/NFC PN532 Breakout

[Adafruit PN532 RFID Breakout](#)

### Other version of the red board (3.3V, 5V)

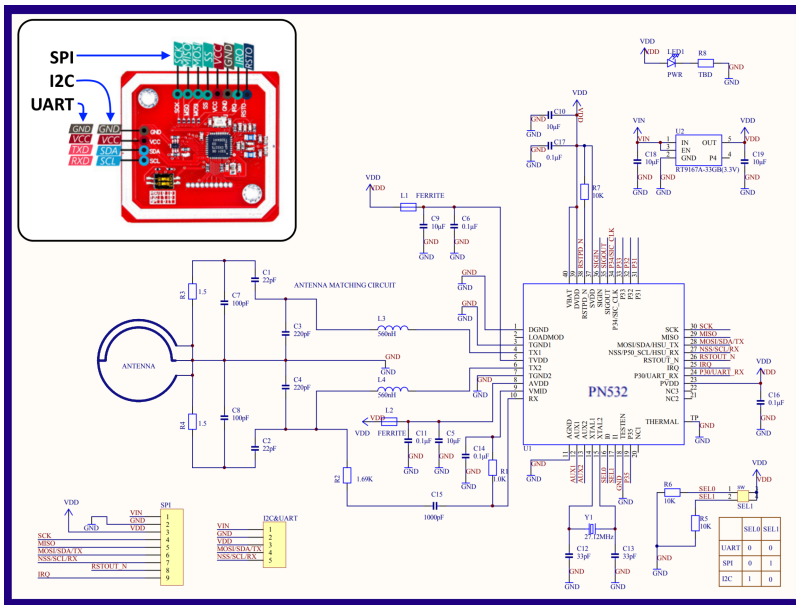
Wiki: [http://wiki.sunfounder.cc/index.php?title=PN532\\_NFC\\_RFID\\_Module](http://wiki.sunfounder.cc/index.php?title=PN532_NFC_RFID_Module)



Instructables: <https://www.instructables.com/HackerBox-0072-Tagger/>

Last update:

2024/07/14 amc:ss2024:chicken\_check:start [https://student-wiki.eolab.de/doku.php?id=amc:ss2024:chicken\\_check:start&rev=1720958607](https://student-wiki.eolab.de/doku.php?id=amc:ss2024:chicken_check:start&rev=1720958607)  
14:03



[PN532\\_Schematic.pdf](#)

## Terminology

Bird ringing is the term used in the UK and in some other parts of Europe and the world. Bird banding is the term used in the US. Organised ringing efforts are called ringing or banding schemes, and the organisations that run them are ringing or banding authorities. (Birds are ringed rather than rung) Those who ring or band are known as ringers or banders, and they are typically active at ringing or banding stations.

[https://en.wikipedia.org/wiki/Bird\\_ringing](https://en.wikipedia.org/wiki/Bird_ringing)

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