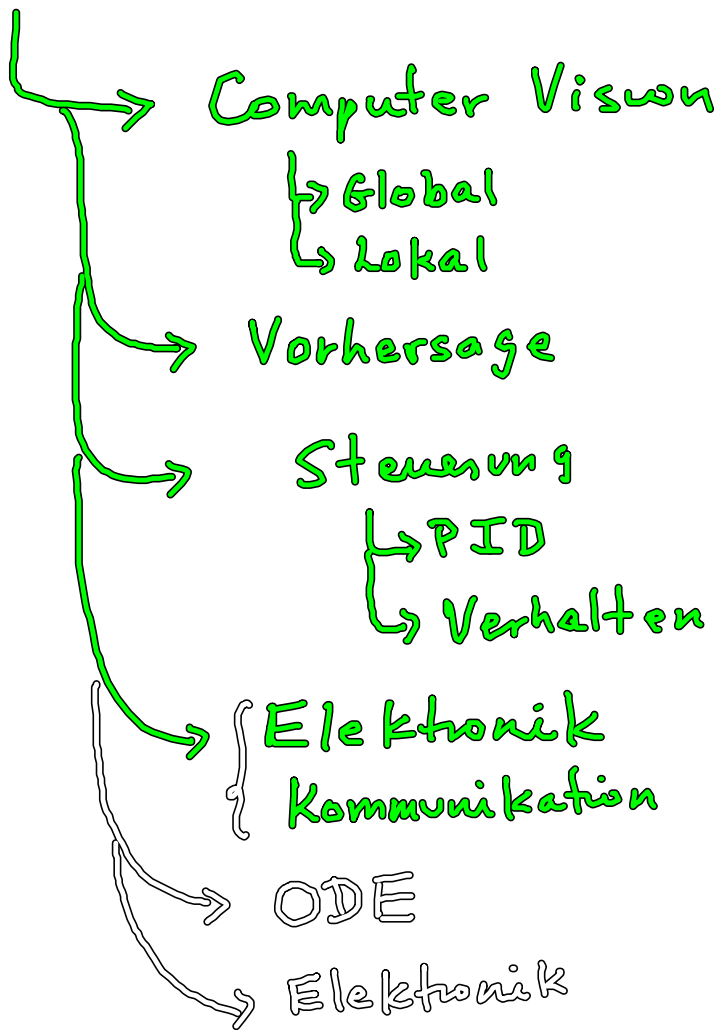
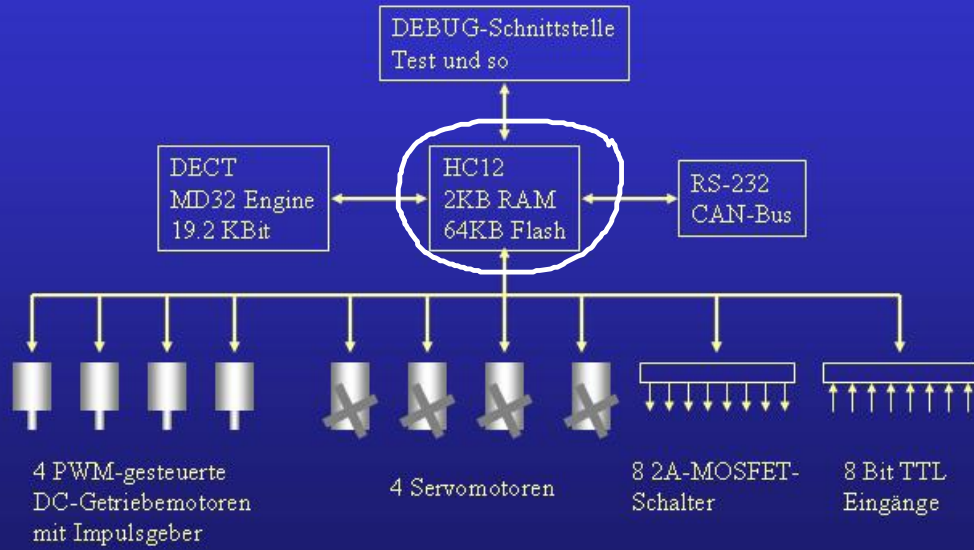


Robotik → S.I.



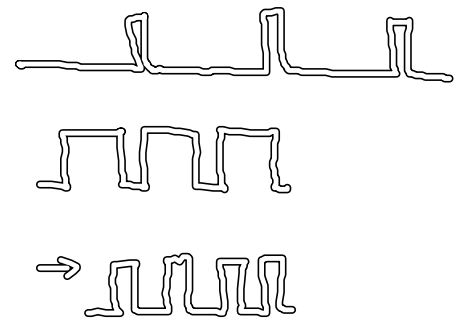
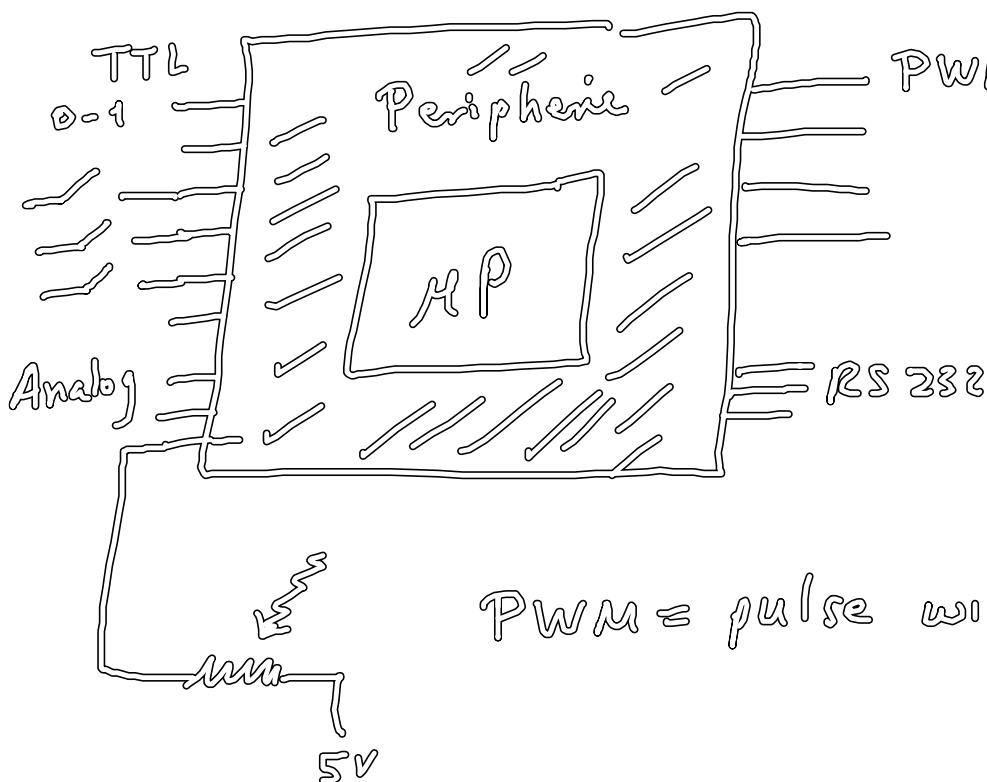
Steuerelektronik



Robocup Steuerrechner

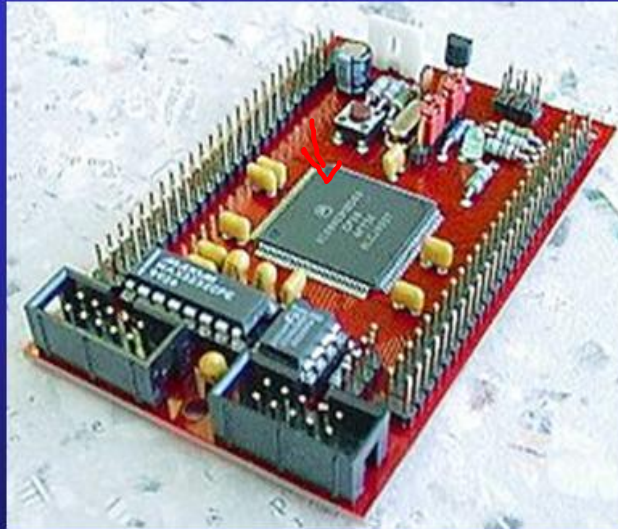
1

Mikrokontroller



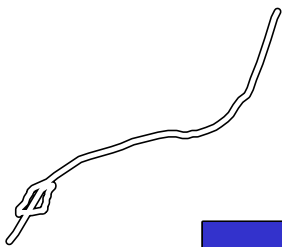
PWM = pulse width modulation

Motorola HC12-Microcontroller

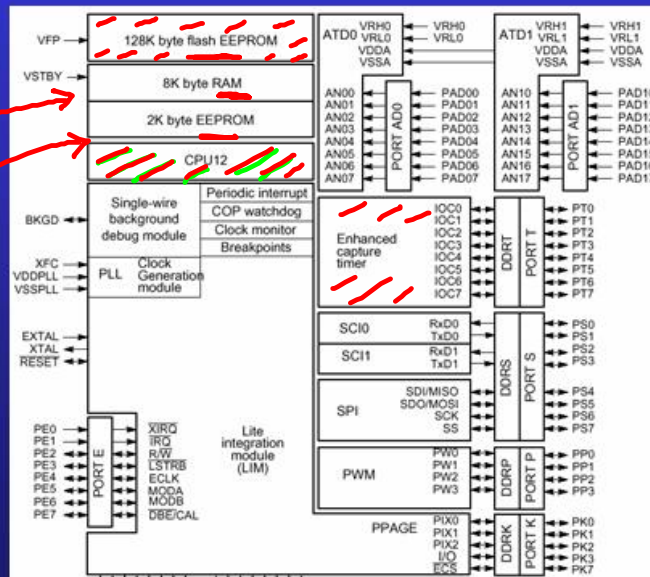


Robocup Steuerrechner

2

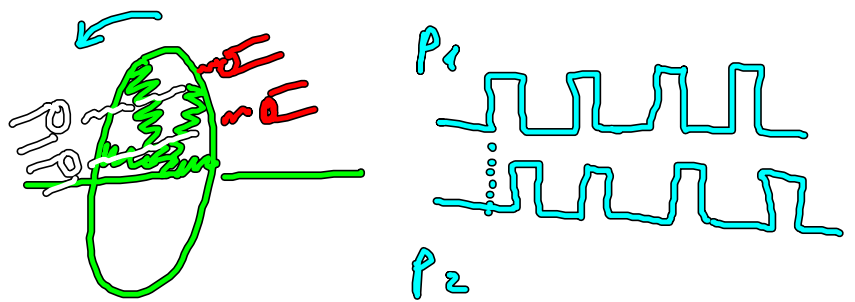
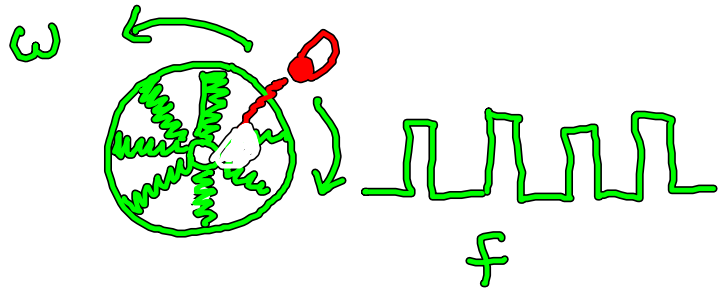
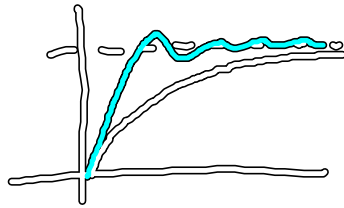
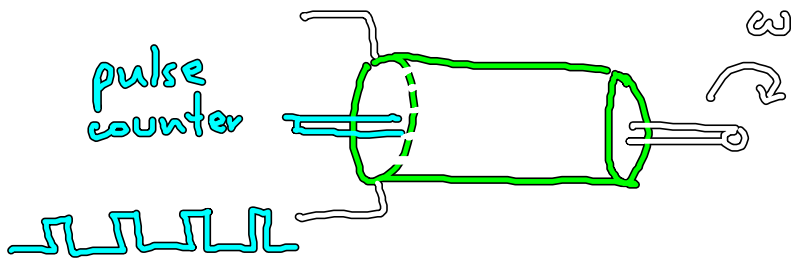


HC12-Blockschaltbild

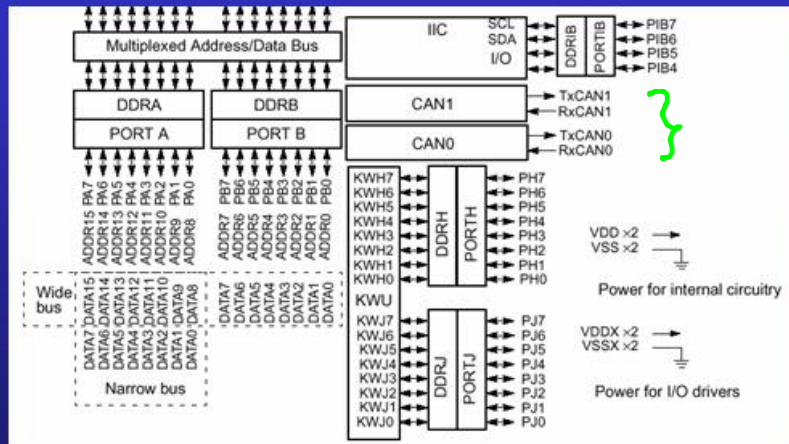


Robocup Steuerrechner

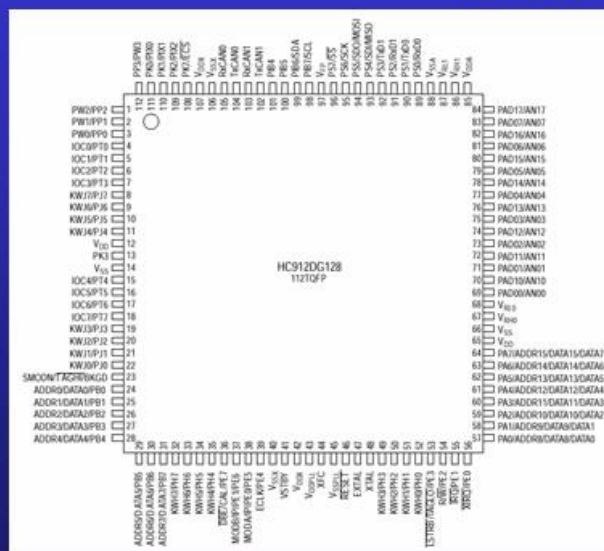
3



HC12-Blockschaltbild



HC12-PIN-Belegung



UHF-Funkmodule

SE200 momentan im Einsatz

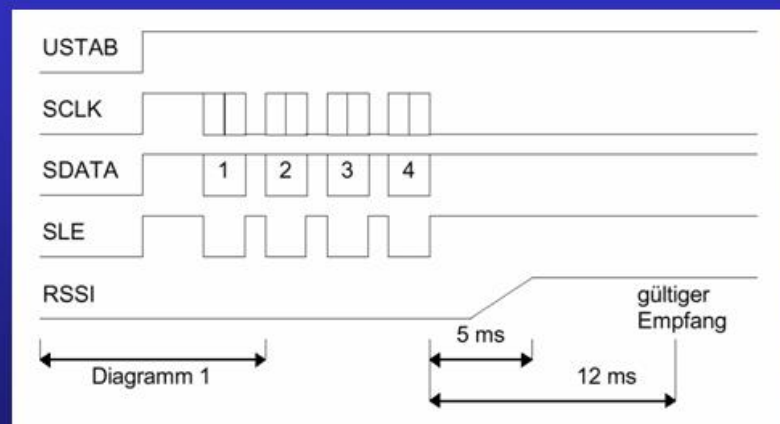


FM-Transceiver SE200

- Kompaktes, vollständig gekapseltes OEM SMD-Funkmodul für das 433,92 MHz ISM-Band
- Synthesizer-gesteuertes Transceivermodul zur digitalen FM Funk-Datenübertragung
- Frequenzbereich 433,2 bis 434,6 MHz, 15 Kanäle
- Hohe Sendeleistung (10 mW)
- Betriebsart und Frequenzwahl per Software (serieller 3-Draht Bus, Open Drain) selektierbar
- gemäß I-ETS 300 220 Richtlinie, EG-Baumusterbescheinigung Klasse 1 und EG-Baumusterprüfbescheinigung G 133 741 C CEPT LPD-D

Datenschnittstelle

Empfangen



UHF-Funkmodule

TXI RXI



Transmitter - TXI

- up to 10 kb/s
- Operation from 2.2V to 10V @ 9.5mA
- Frequencies available as standard: 173.225MHz, 173.250MHz
- Usable range to 10km+

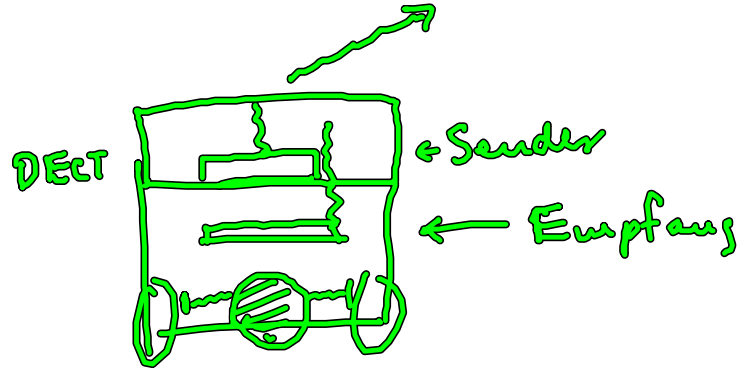
916 MHz , 896 MHz

Receiver - RXI

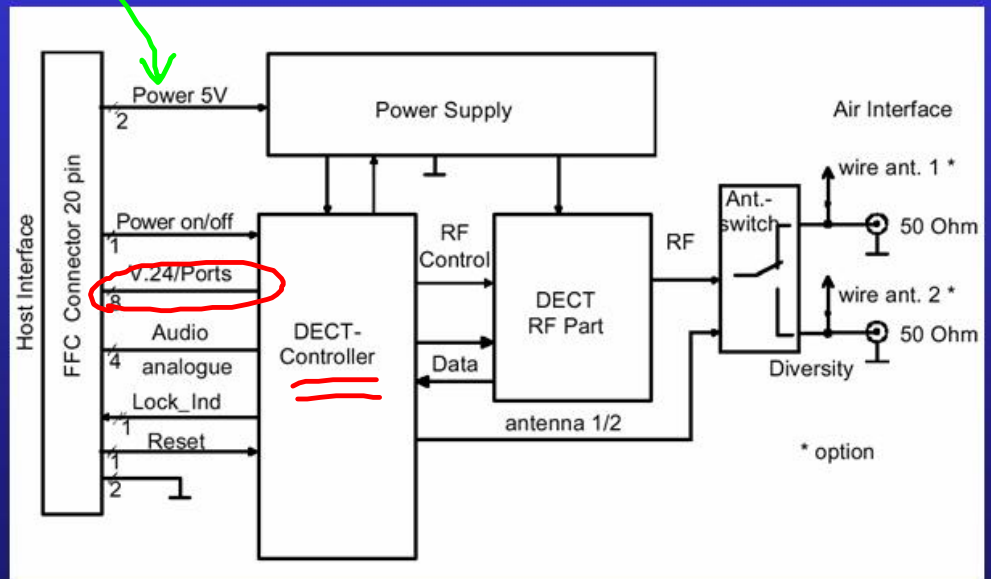
- Operation from 2.7V to 10V @ 12mA

DECT MD32-Modul



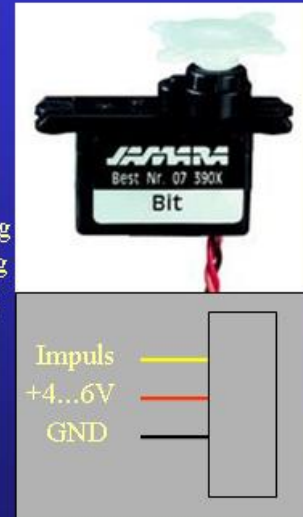
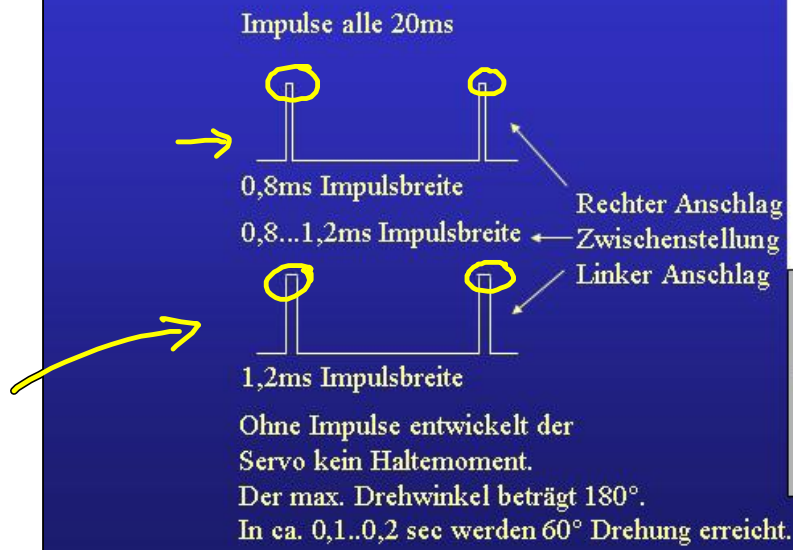


DECT MD32 Schnittstelle



AT
|

Servomotor

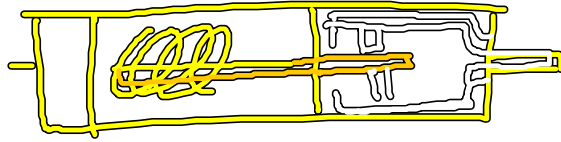


Getriebemotor



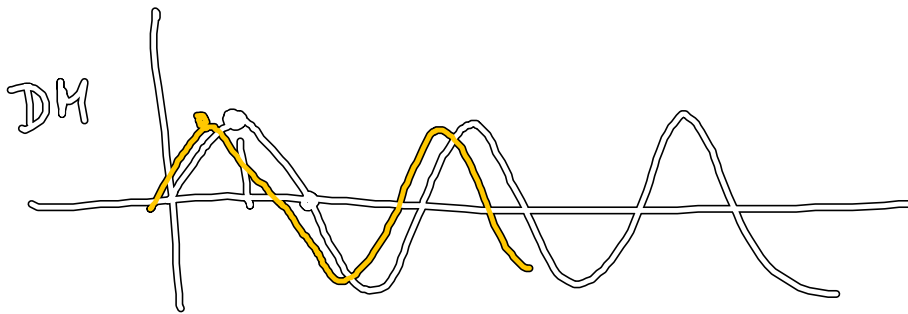
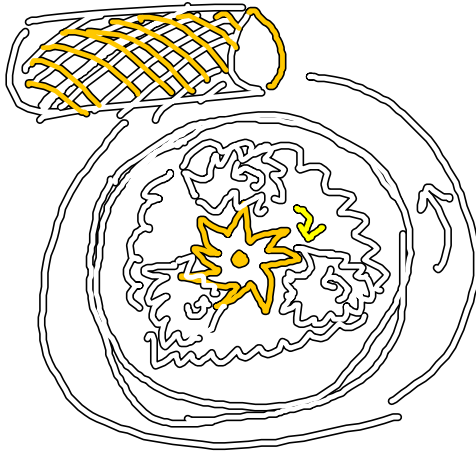
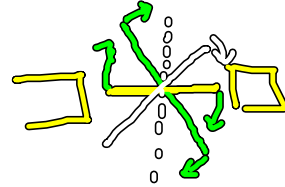
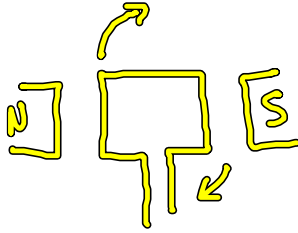
PC Motor Getriebe

Faulhaber



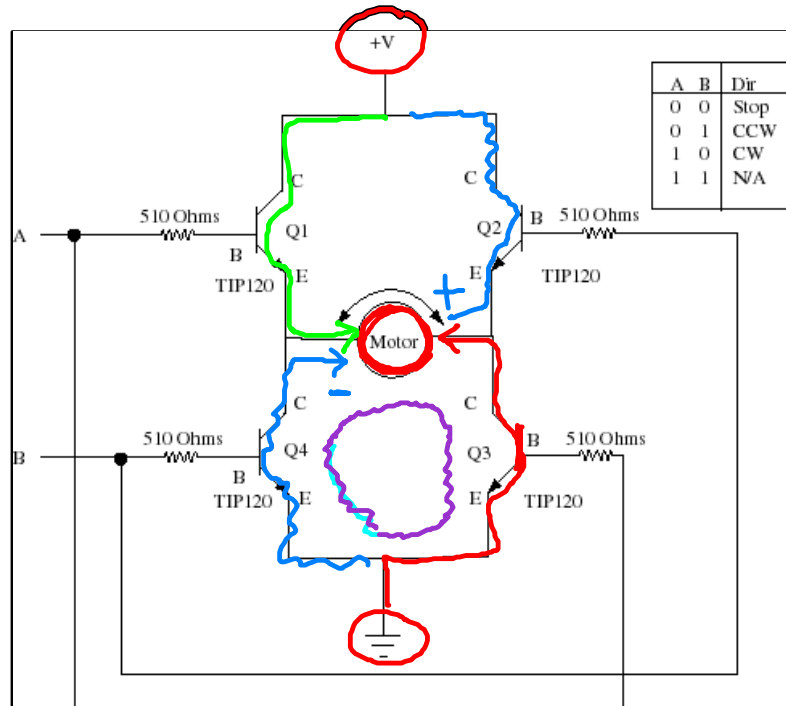
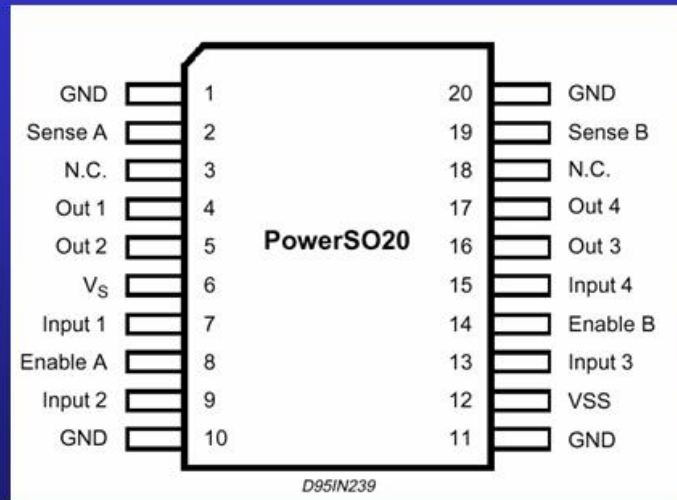
360 €

Planetenge triebe



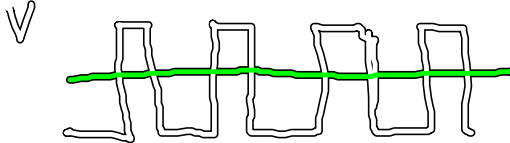
Motortreiber L298P

H-Brücke

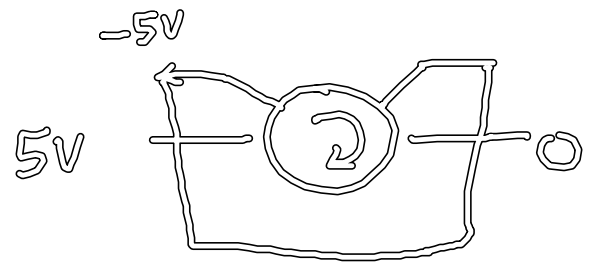
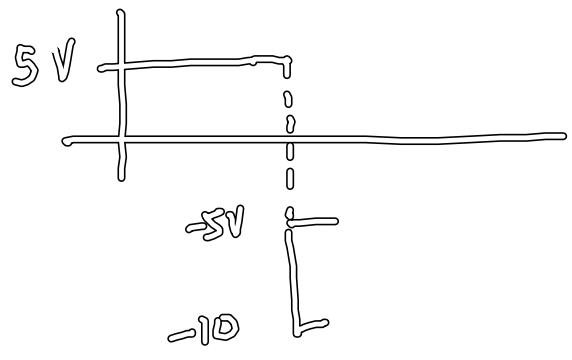
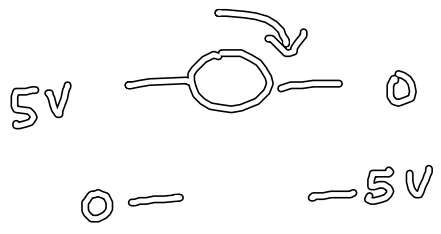
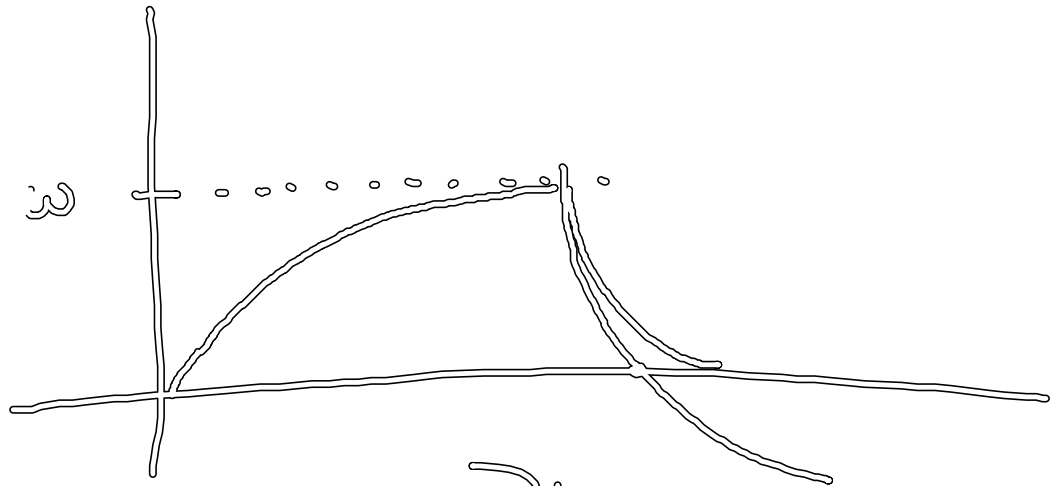


H

50%

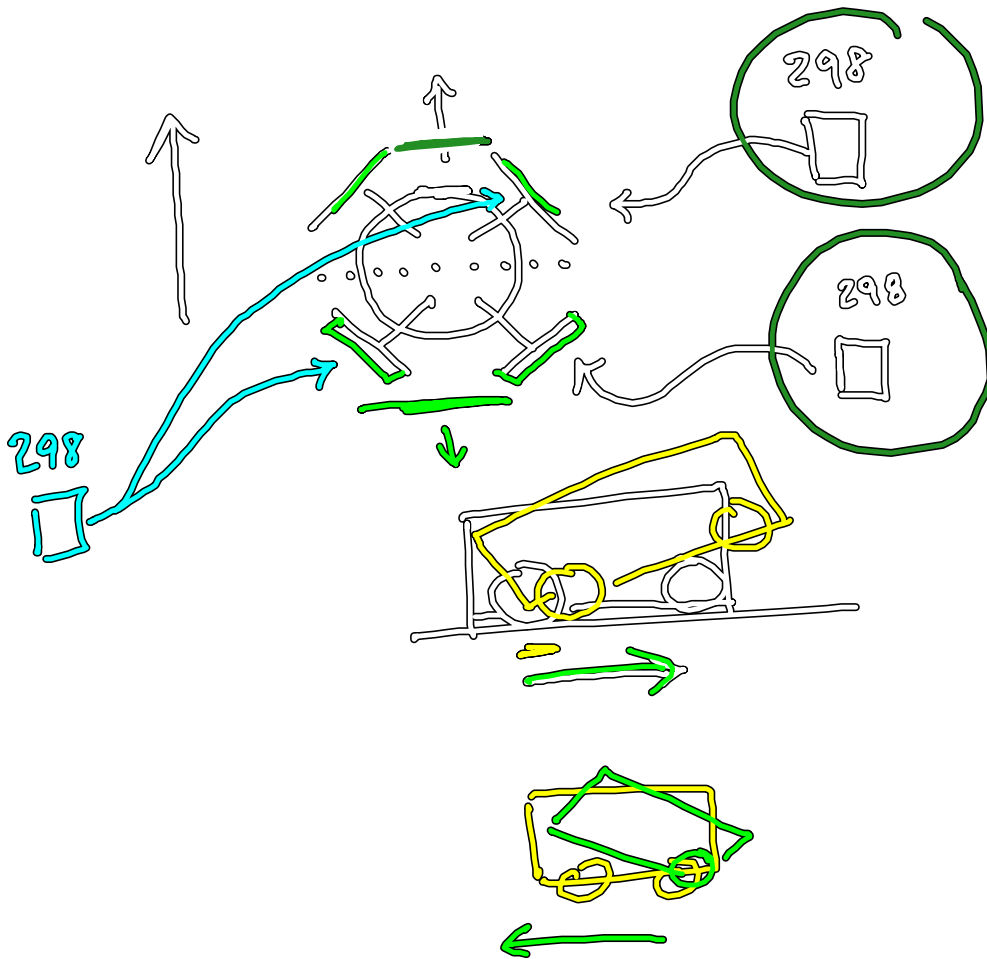


$$E = V$$

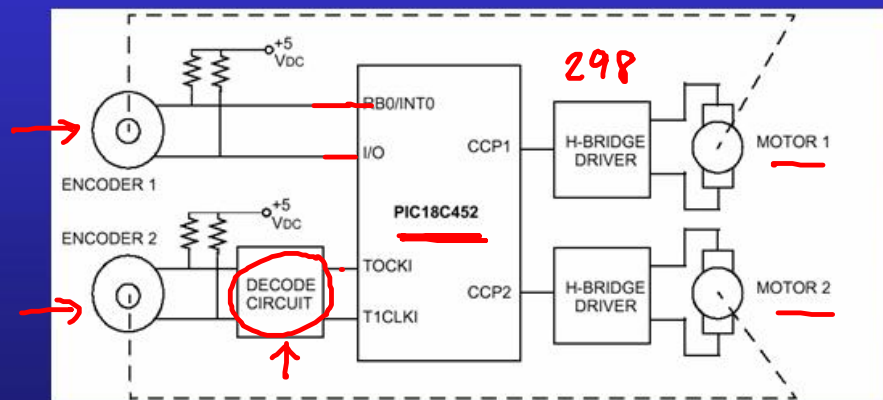


6V 10-11 V

→ 20-22V



Drehimpulserzeugung

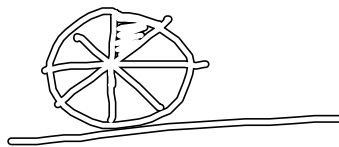


PID - Regler

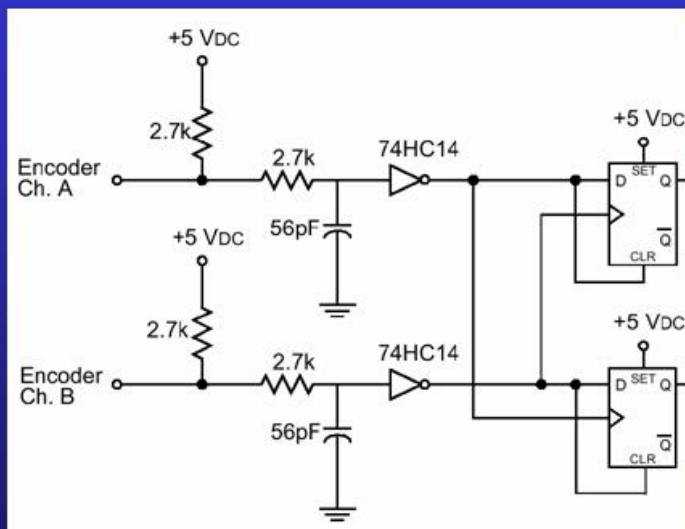
8ms max 100 Pulse

64 x 13 pro Umdrehung

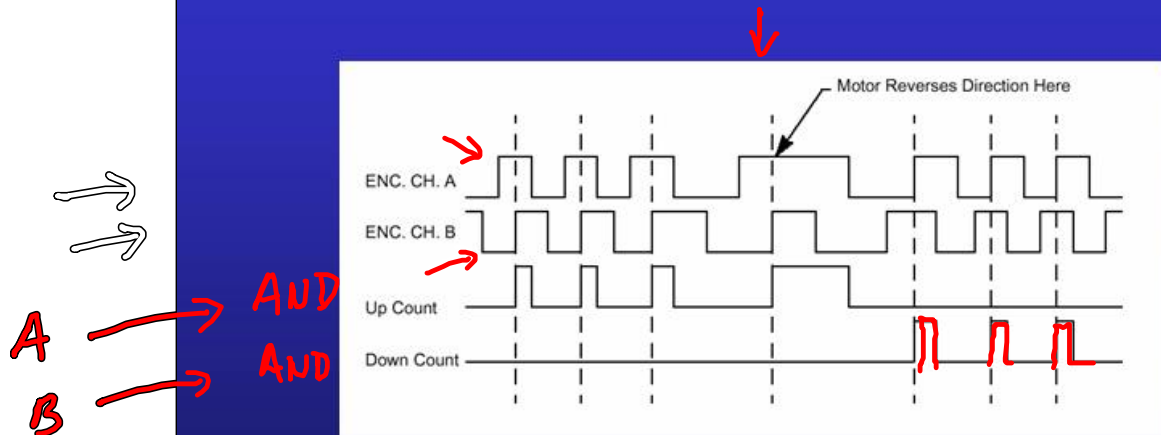
640
192
832



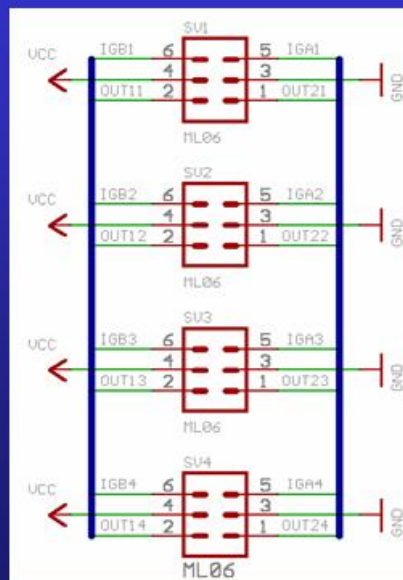
Drehzahlmessung



Zählrichtung

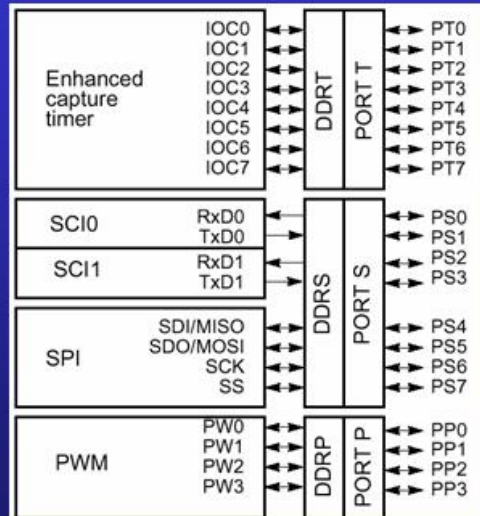


Motorensteckverbinder



Schnittstelle zum HC-12

PWM und Drehzahlmessung

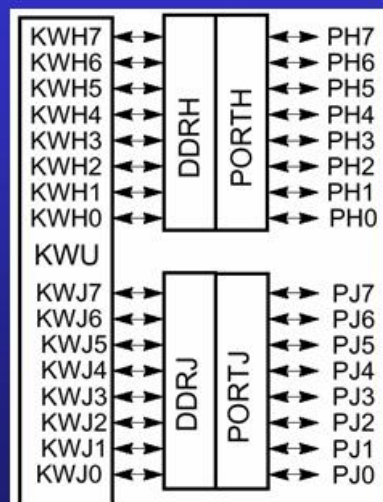


pro Motor:

- IGAx Encoder A
- IGBx Encoder B
- Rx Rückwärts
- Vx Vorwärts
- Ex Freigabe

Schnittstelle zum HC-12

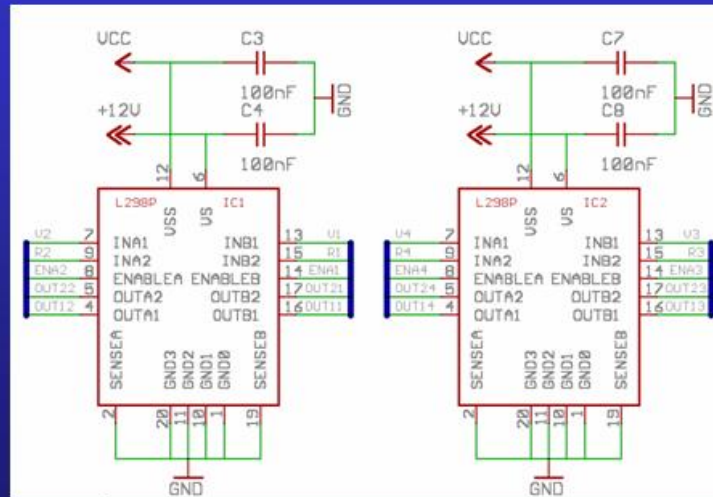
Motorsteuerung und Bremsvorgang



pro Motor:

- IGAx Encoder A
- IGBx Encoder B
- Rx Rückwärts
- Vx Vorwärts
- Ex Freigabe

Motoransteuerung



Elektronikspannung

2,5-9,6V Eingangsspannung - 5V/1A Ausgangsspannung

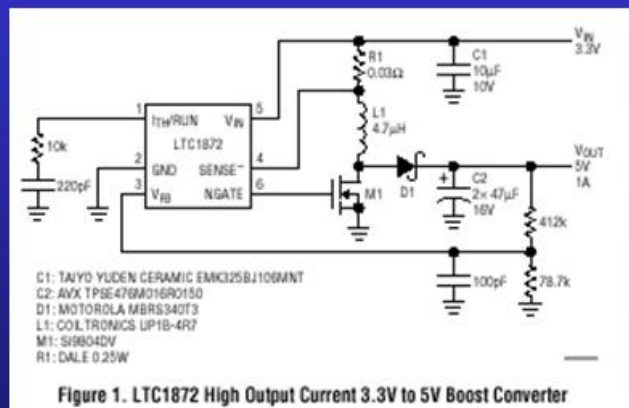
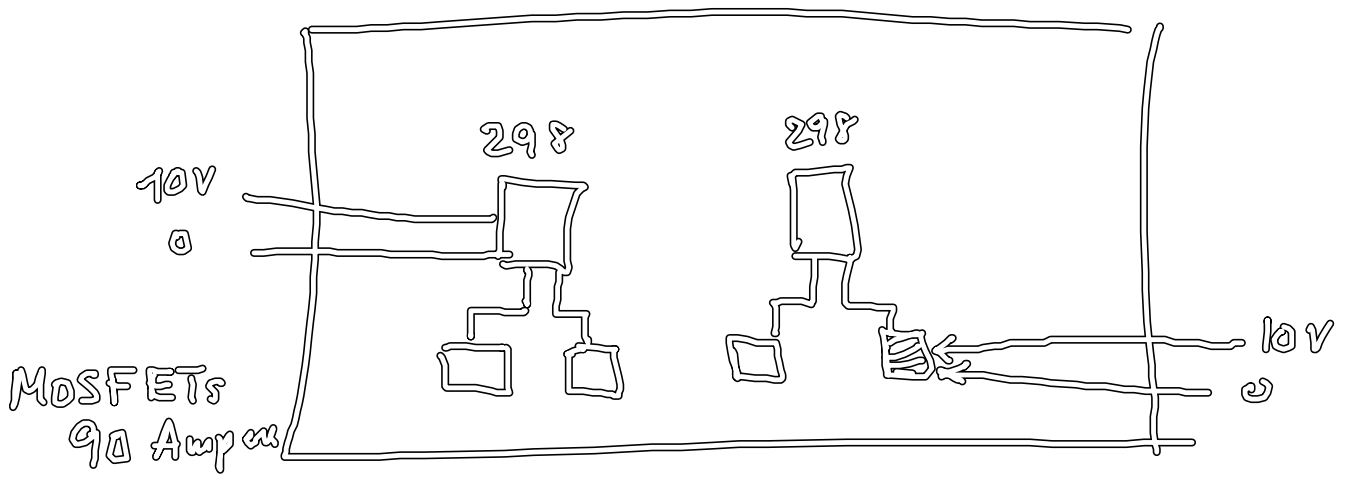
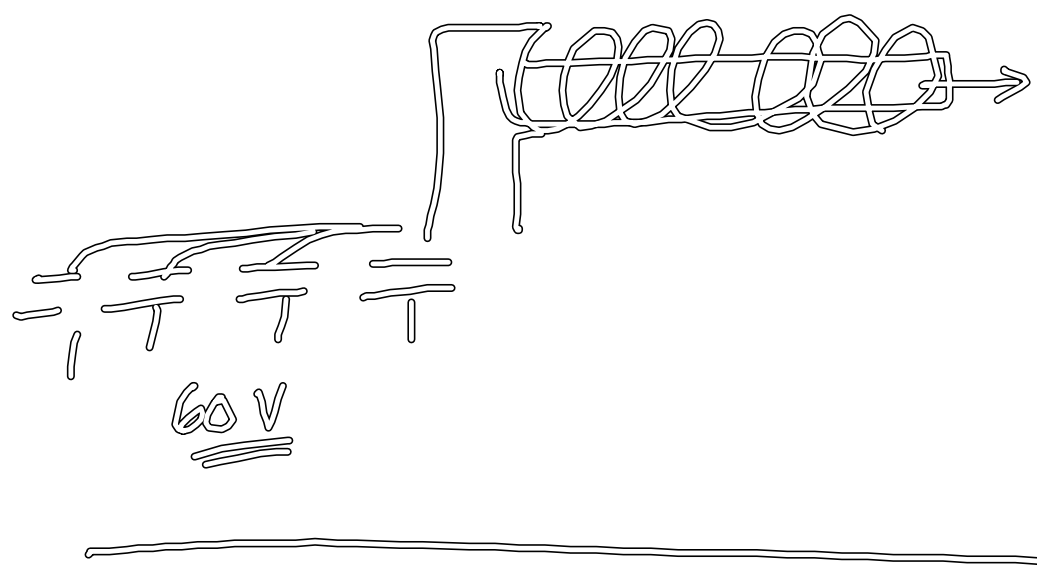
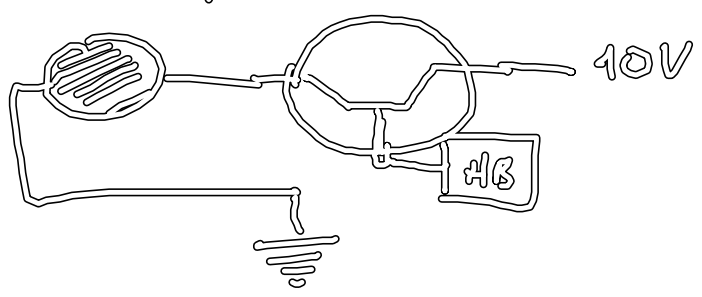


Figure 1. LTC1872 High Output Current 3.3V to 5V Boost Converter



180 Ampere

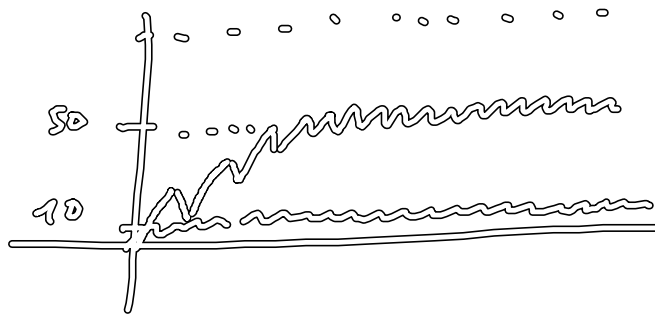
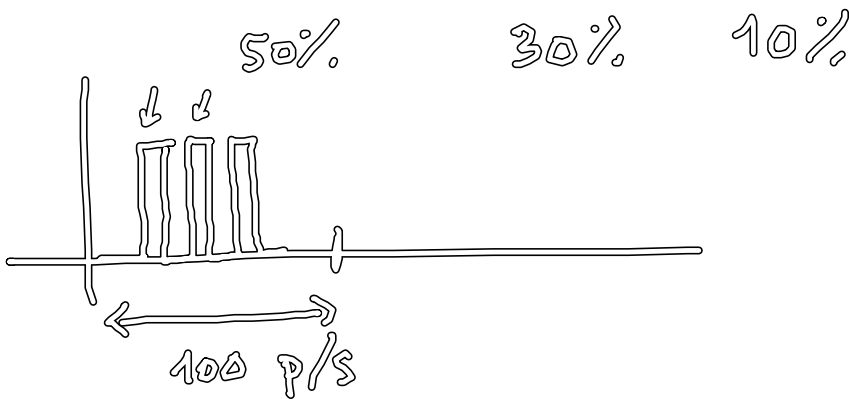
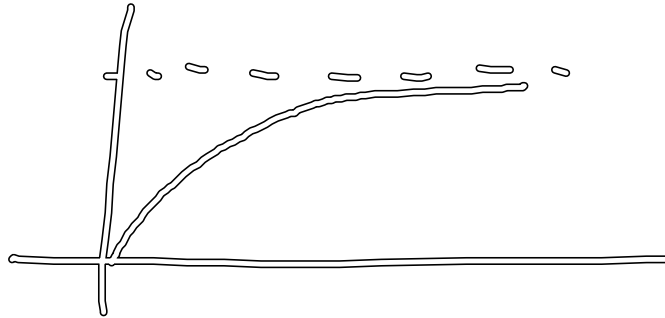
3-4 Ampere



Übungsaufgabe:

→ PWM-Signal

Beschleunigungskurve des Motors
berechnen



B - Datenblatt des HC-12
.....

→ Blockdiagramm

Kommentieren

Zusammenfassung

0