Interface S88 Gleisbox Raspberry Pi Manual

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Contents

Credits

Parts of this system have been developed by members of the model railway community. This is mainly applicable for the s88udp conversion, as well as srcpd. Many thanks and full credits to them!

1 Introduction

System for controlling a marklin track using a rpi

2 Setup of the Raspberry Pi

t.b.d.

2.1 Shutdown Button

A button can be connected to the system to simplify the process of shutting the system down. First of all, a pushbutton must be connected between GPIO3 (header pin 5) and GND (e.g. header pin 6).

Next, the following script must be installed:

```
git clone https://github.com/Howchoo/pi-power-button.git
```

```
./pi-power-button/script/install
```

Uninstalling the script can be done via:

```
./pi-power-button/script/uninstall
```

Note: warning about pull-up resistor can be neglected.

2.2 Install BCM2835 v1.63

Install BCM2835-1.63 so that the pin IO on the Raspberry Pi can be used:

```
http://www.airspayce.com/mikem/bcm2835/bcm2835-1.63.tar.gz
```

```
tar zxvf bcm2835-1.63.tar.gz
```

```
cd bcm2835-1.63
```

```
make && sudo make install
```

3 Setup of CAN-interface

t.b.d.

3.1 Connection Scheme

The CAN-bus shall be connected to the Gleisbox as depicted in figure 1. The pin 1 (power supply) does not have to be connected.

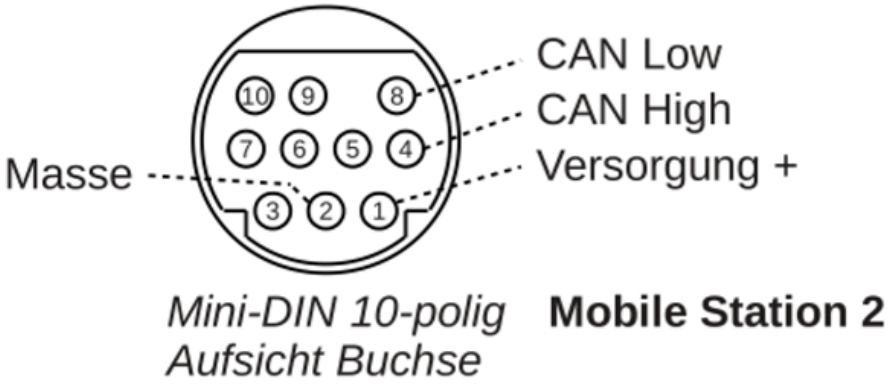

Figure 1: Pinout canbus.

3.2 Oscillator Settings

sudo ip link set can0 up type can bitrate 250000 restart-ms 100

3.3 Rocrail Server Settings

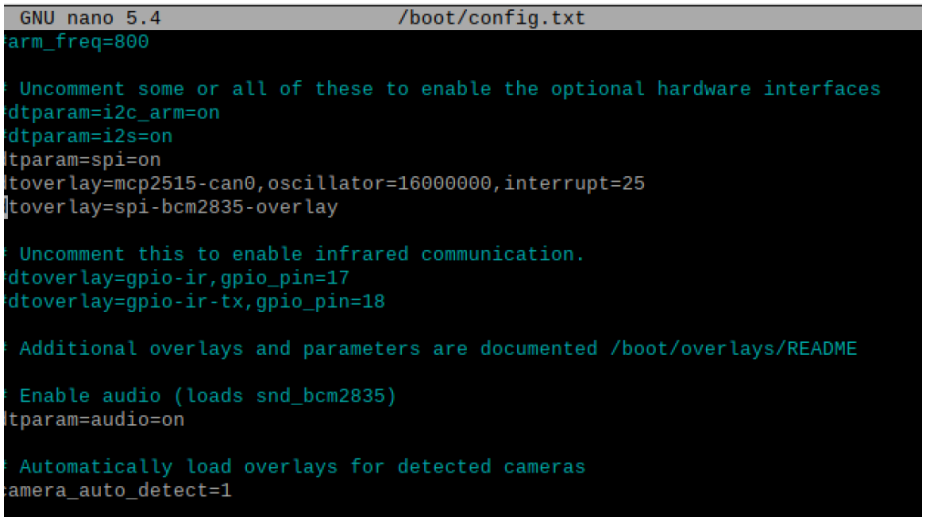

Figure 2: Pi Oscillator settings.

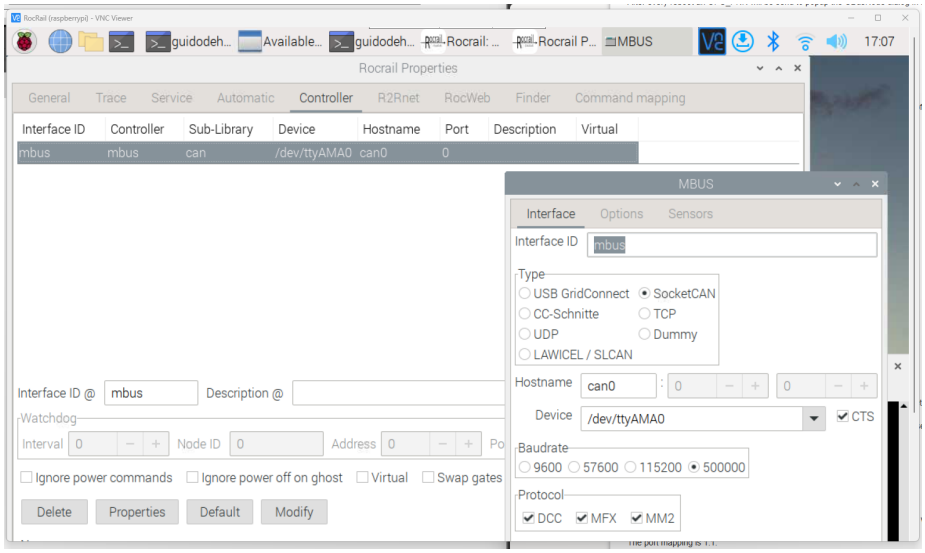

Figure 3: rocrailServerSettings.

4 Setup of S88N-interface

The S88N interface is used to obtain data about occupied track sections. This interface is based on 5Vdc (according to the standard 12Vdc is also possible).

Table 1: S88N pinout and description.

RJ45 pin	Colour in UTP cable	S88N Description
1	Orange-white	+5V (+12V not in this board)
2	Orange	Data
3	Green-white	GND
4	Blue	Clock
5	Blue-white	GND
6	Green	Load
7	Brown-white	Reset
8	Brown	Rail signal (not used in this design)

4.1 Connection Scheme

Table 1 shows the S88N pin definitions as well as the UTP cable colors.

4.2 S88UDP installation

Install the following libraries first (to prevent pcap.h compilation error):

```
sudo apt-get install zlib1g-dev libpcap-dev
```

Download and install s88udp-rpi:

```
cd

git clone https://github.com/GBert/railroad

cd railroad/can2udp/src

make
```

To start the interface:

```
sudo ./s88udp-rpi -v -f -c "17,22,23,24" -m 1
```

Arguments behind option -c are the gpio ports. The amount of S88 modules is set using option -m.

To test if the udp ports are assigned for use by Rocrail:

```
sudo netstat -autpn | egrep "Proto|157"
```

The PID "Rocrail" should be displayed.

5 Setup of Rocrail

t.b.d.

5.1 Rocrail Controller Settings

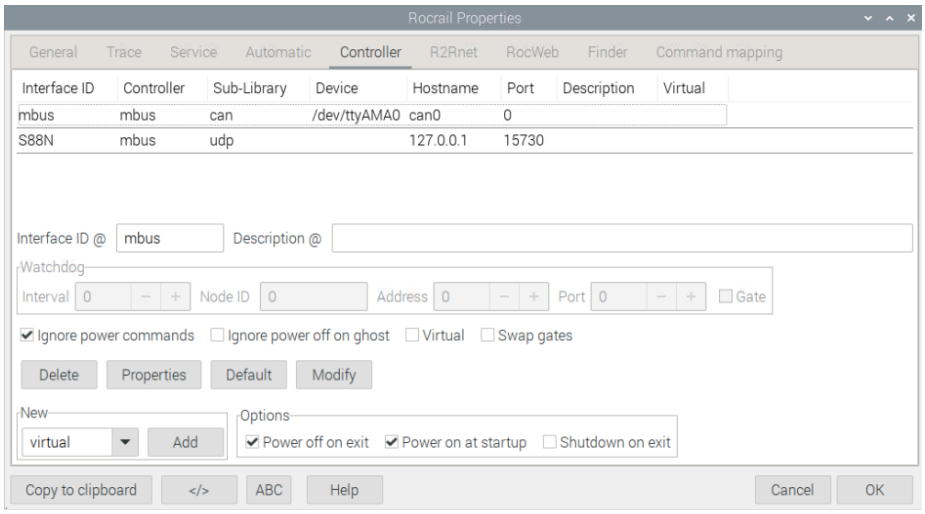

Figure 4: General controller settings.

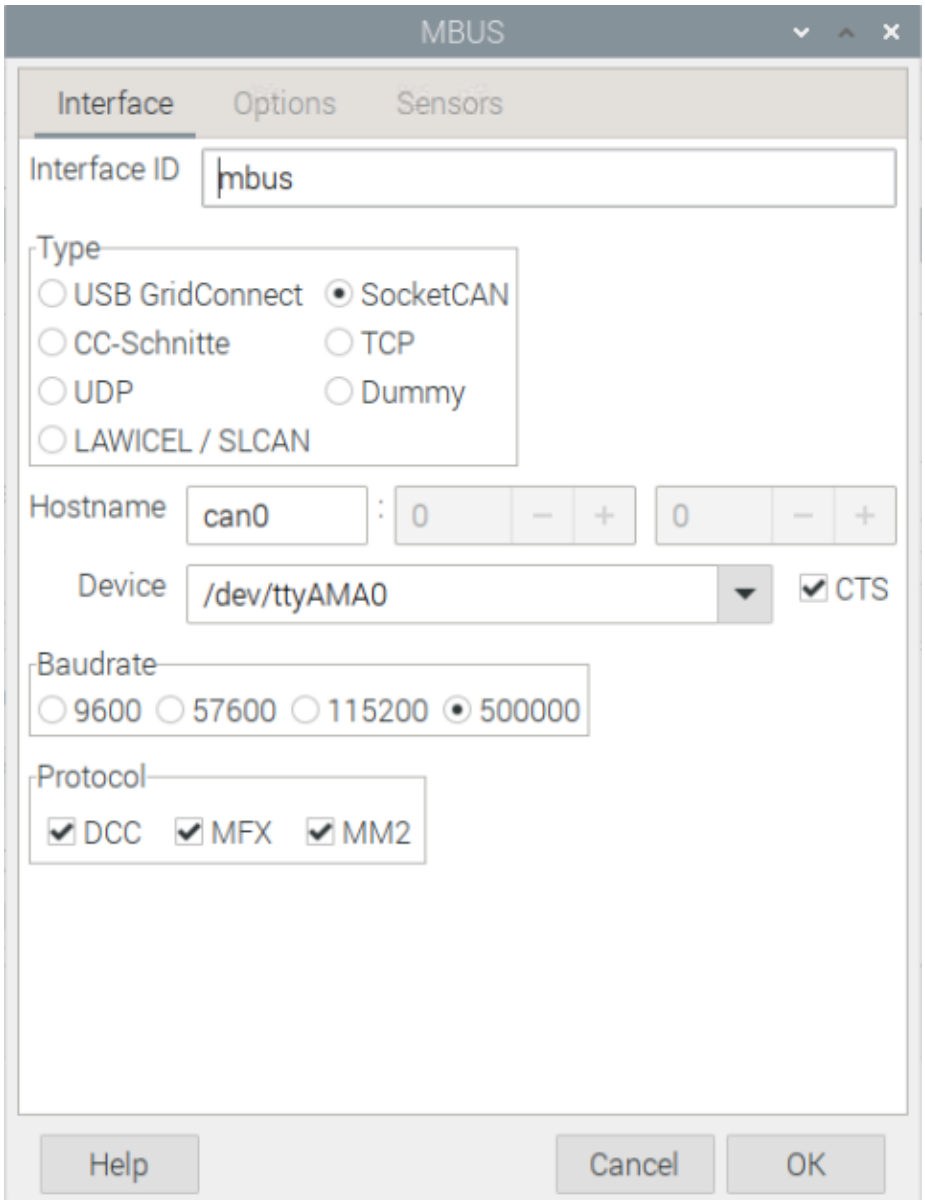

Figure 5: Controller settings mbus-can tab 1.

6 PCB Description

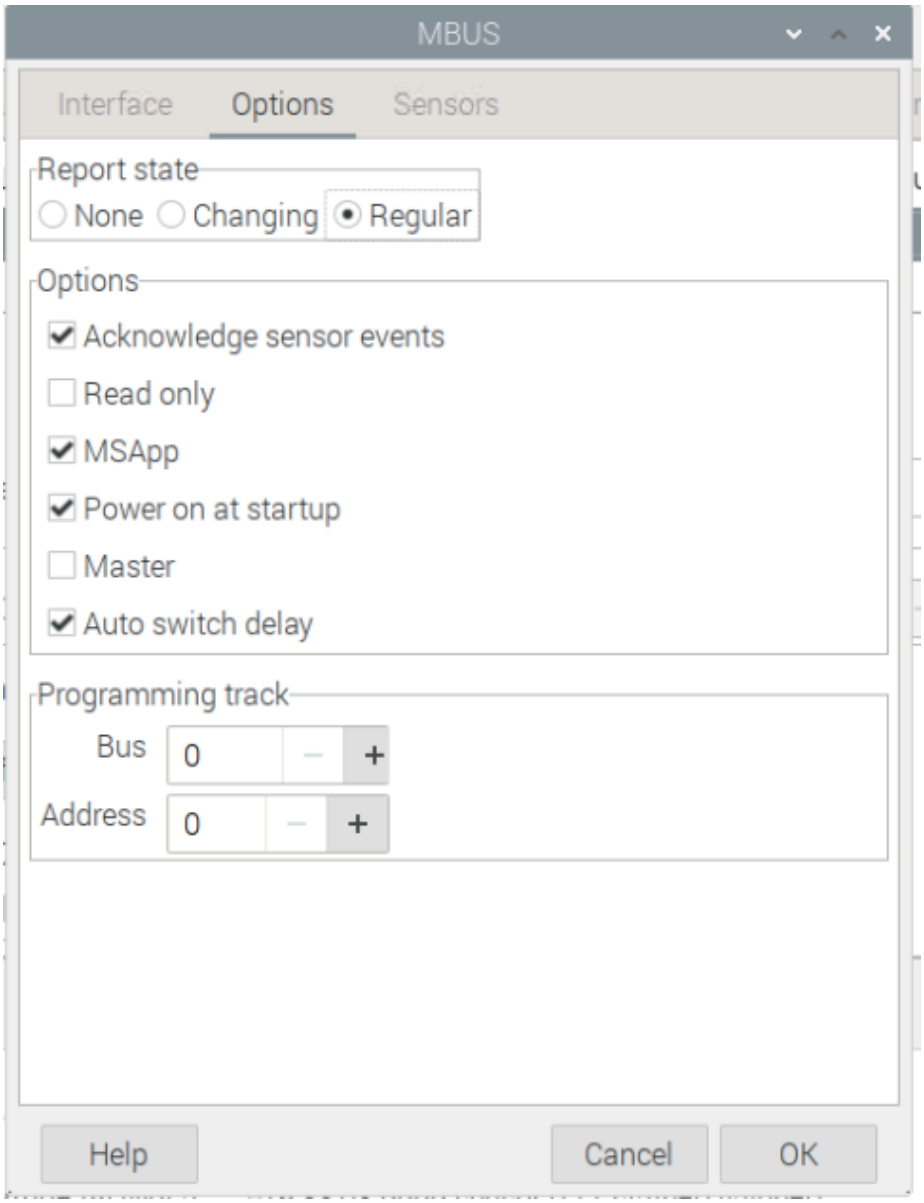

Figure 6: Controller settings mbus-can tab 2.

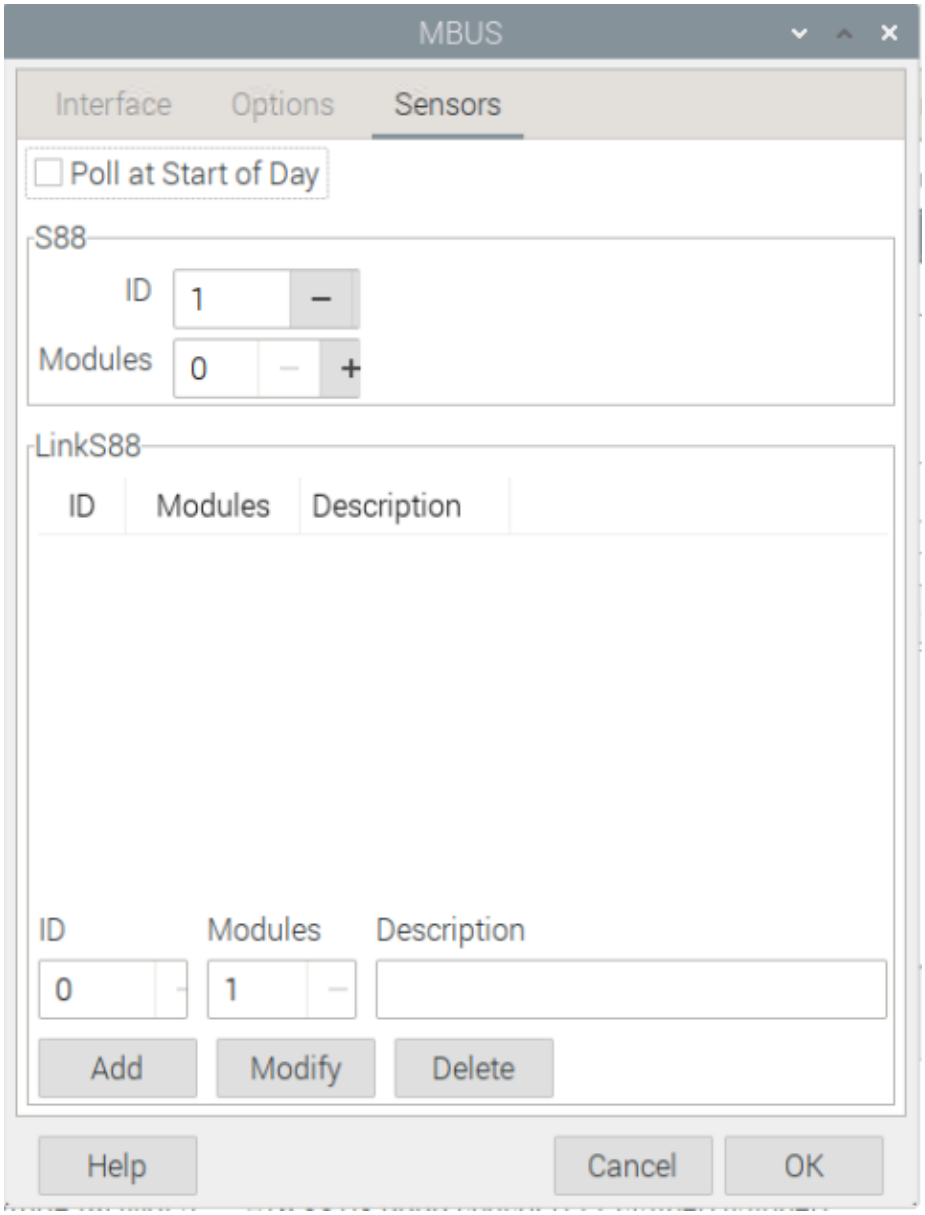

Figure 7: Controller settings mbus-can tab 3.

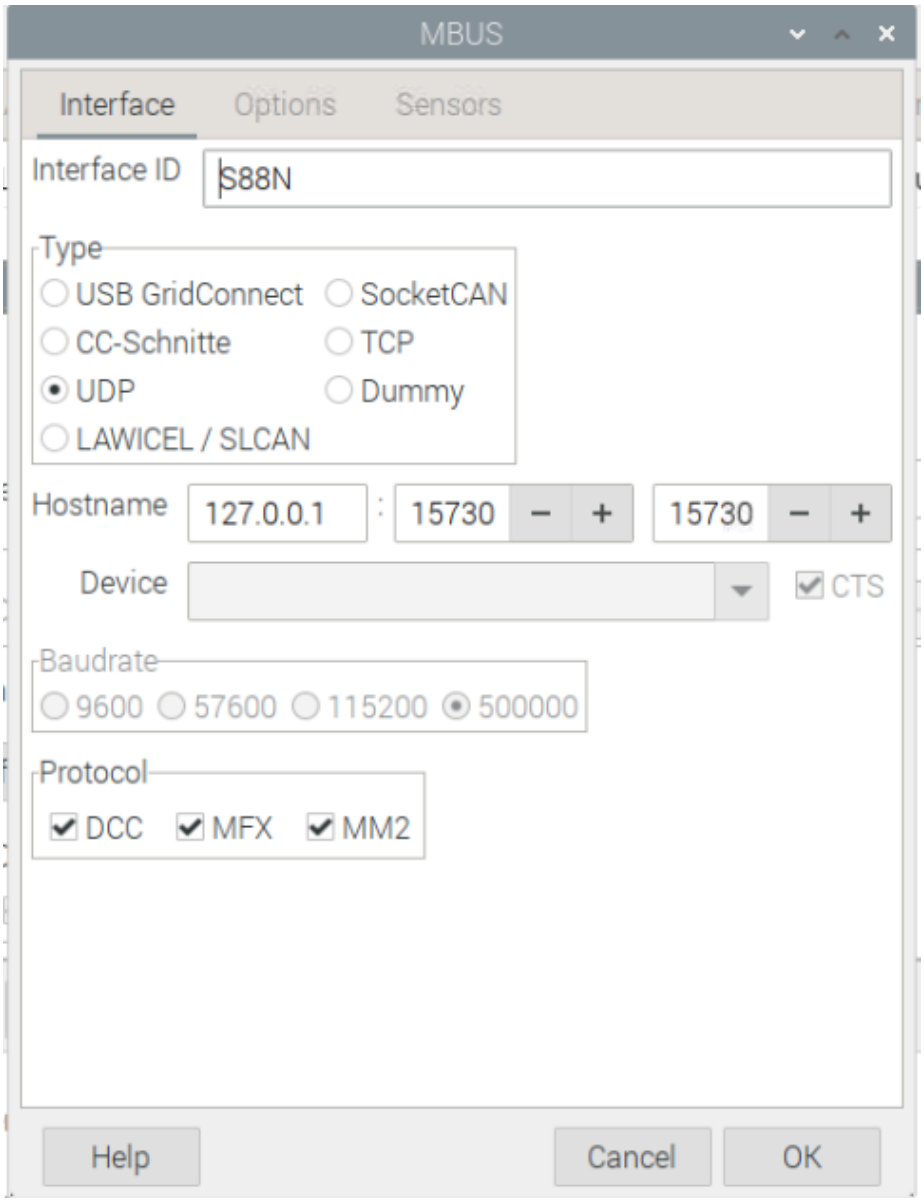

Figure 8: Controller settings mbus-s88 tab 1.

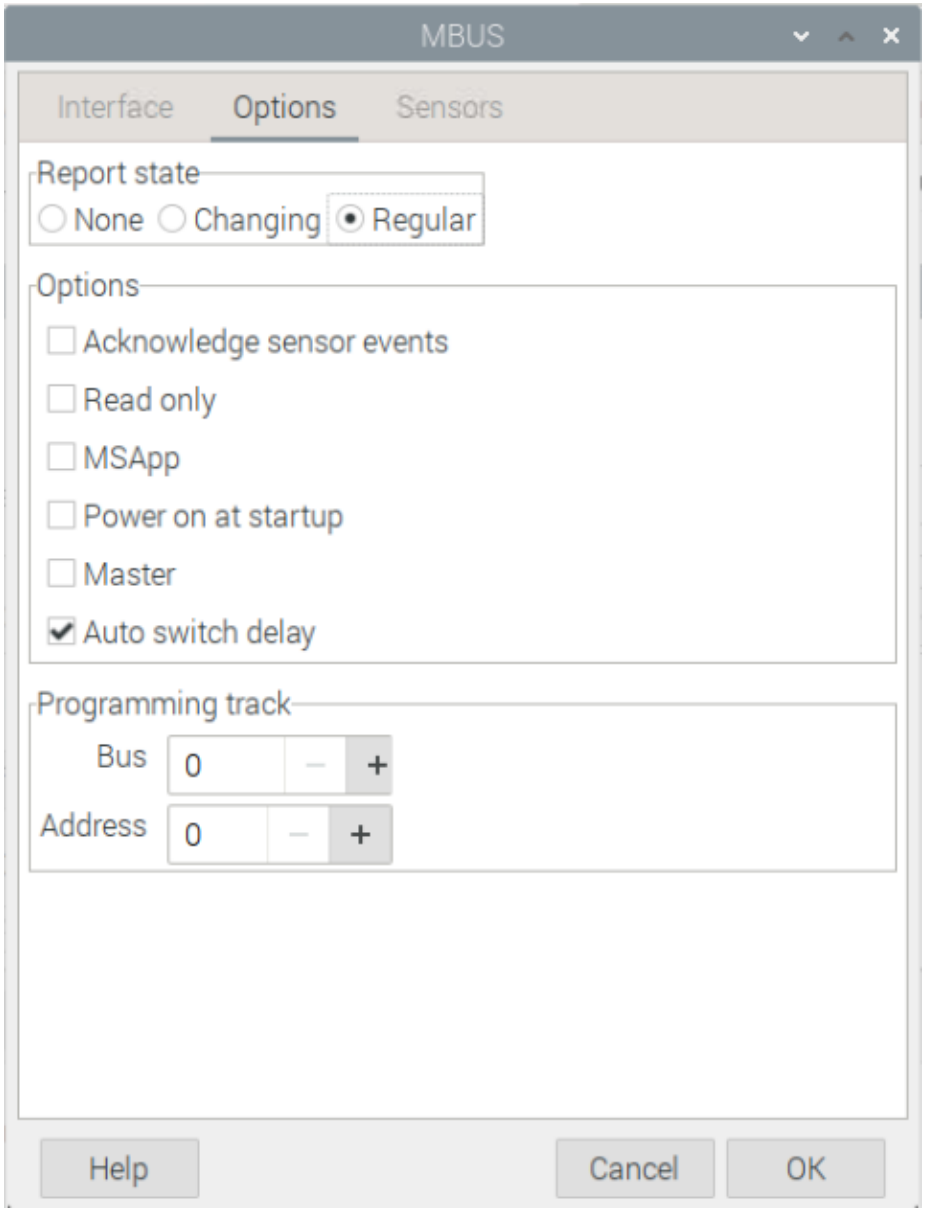

Figure 9: Controller settings mbus-s88 tab 2.

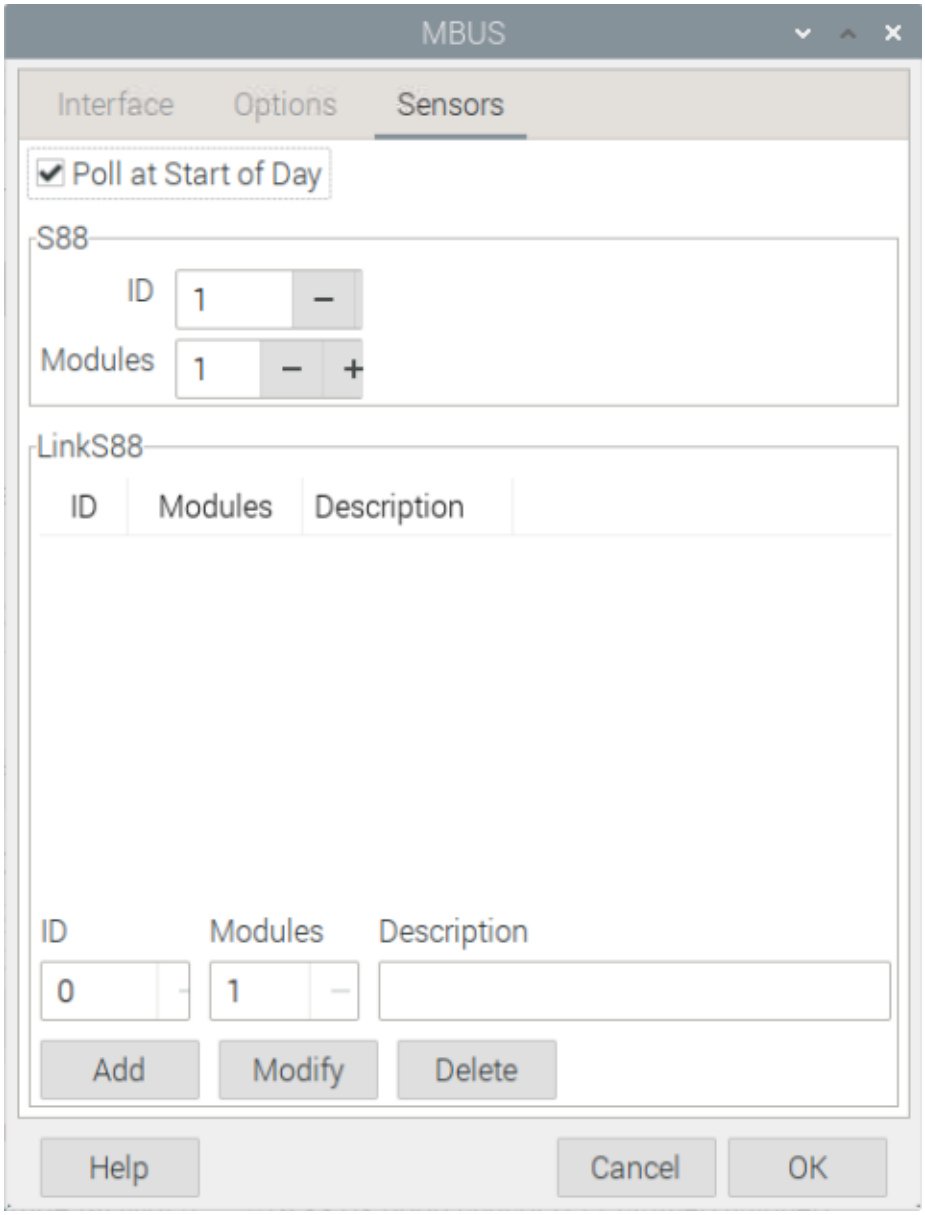

Figure 10: Controller settings mbus-s88 tab 3.

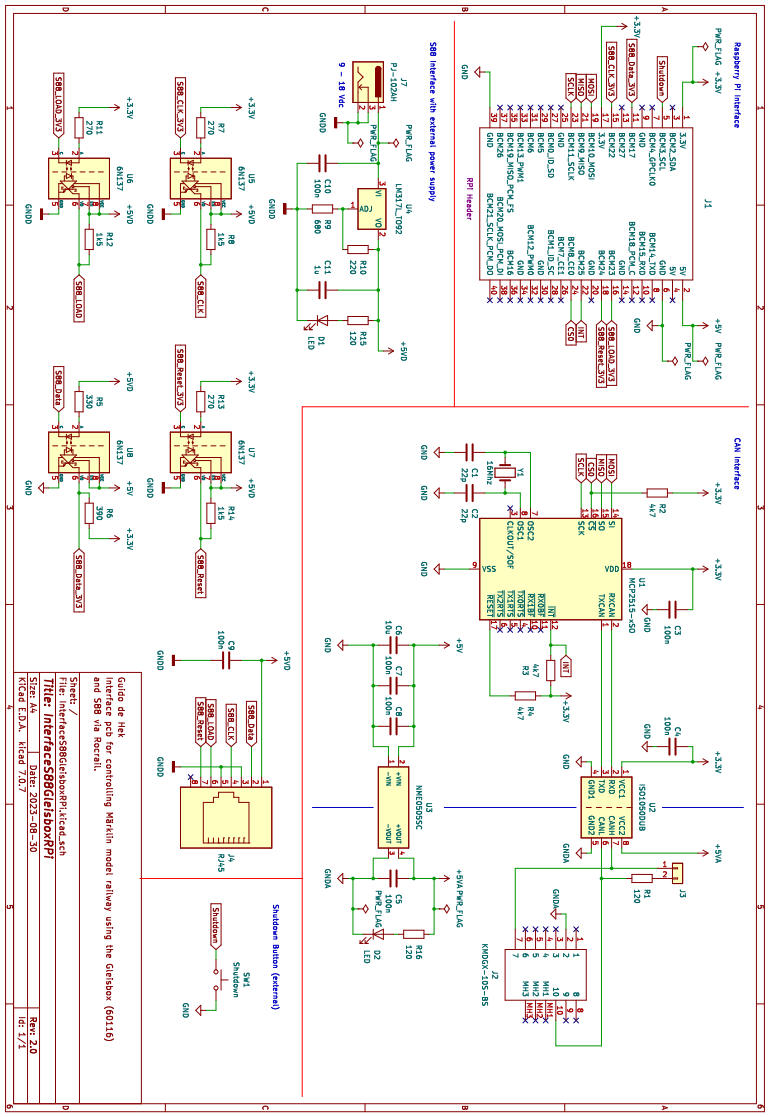

Figure 11: Schematic of the system.