http://www.heliosventilatoren.de/mbv/kwl-eb_91658_0409_uk.pdf

The Helios devices, for which there is the remote KWL-FB or modules KWL-EB can be controlled via the Modbus / RS485.

I use this to Exsys EX1303 adapter under Debian Linux with the default drivers, most other RS485-RS232 or RS485-USB adapter should work.

Basic paramaters of the interface: 9600 baud, 8N1 (8Bits, no parity, 1 stop bit)

The command sequences for querying the status values are 6 bytes long, the response from the KWL is also 6 bytes long. By contrast, the sequences for writing settings, which consist of 3 command sequences a 6 bytes plus a final checksum differ (see FIG. 2 variant).

Command Syntax Variant 1: Read value of KWL
Question by remote control / PC to KWL: 6-byte telegram
Byte 1: 0x01 Always the same
Byte 2: address of the sender:
Upper 4 bits: 0x2. = Operating unit (possibly CO2 sensor?)
Lower 4 bits: 0x.1 to 0x.f = address of the operating unit
Byte 3: 0x11 = address of the recipient = KWL
Byte 4: 0x00 = Read value
Byte 5: To read register addresses:
0xA3 = Status On / Off:
0x29 = Current ventilation level
0x32 = external air temperature
0x33 = exhaust air temperature
0x34 = temperature exhaust
0x35 = supply air temperature
Byte 6: checksum, formed by summing the bytes 1-5 Modulo 256

Reply KWL: 6-byte telegram
Byte 1: 0x01 Always the same
Byte 2: 0x11 = address of KWL = byte 3 of the request
Byte 3: Recipient = Byte 2 of the request
Byte 4: byte 5 of the request = register address
Byte 5: Contents of the register addresses:
Reg 0xA3 = Status: Content 0x80 = Off, 0x81 = A
Reg 0x29 = ventilation level: Content: 0x01 = Level 1, 0x03 = 2, 3 = 0x07, 0x0f = 4, 5 = 0x1f, 0x3f = 6, 7 = 0x7f, 0xff = 8
Reg 0x32 to 0x35 = temperature: (register value 100) / 3 = temperature in degrees Celsius
Byte 6: checksum, formed by summing the bytes 1-5 Modulo 256

Example:
From remote control to KWL: 0x01 0x11 0x00 0x32 0x73 0x2F
0x01: Always the same
0x2F: Address the remote control here "f" = decimal 15
0x11: Address of the KWL
"Read value" command: 0x00
0x32: Register address Parameter / "outside air temperature"

0x73: Checksum 0x01 + 0x11 + 0x00 + 0x2F + 0x32 = 0x73

Reply KWL to remote: 0x01 0x11 0x32 0x73 0x2F 0xE6
0x01: Always the same
0x11: Address of the KWL
0x2F: Address the remote control here "f" = decimal 15
0x32: Register address Parameter / "outside air temperature" is issued
0x73: Temperature: 0x73 = Dec 115 -> Temp = (115-100) / 3 = 5 degrees Celsius
0x73: Checksum 0x01 + 0x11 + 0x00 + 0x2F + 0x32 = 0x73

Command Syntax Variant 2: Write value / set status
Turns the KWL and set the ventilation levels of command to the KWL addresses 0x20, 0x10 and 0x11 is sent.
Regarding the checksum at the three commands, sends the Helios remote control after each command that checksum that results from the command sequence to 0x11. At the end of the entire sequence is repeated this again
Example of power-remote to KWL (sent everything without interruption)
0x01 0x2F 0x20 0x81 0x65 0xA3
0x01 0x2F 0x10 0x81 0x65 0xA3
0x01 0x2F 0x11 0x81 0x65 0x65 0xA3
Off: analog with Status 0x80 0x81 instead:
0x01 0x2F 0x20 0x80 0x64 0xA3
0x01 0x2F 0x10 0x80 0x64 0xA3
0x01 0x2F 0x11 0x80 0x64 0x64 0xA3
Ventilation levels (here Level 3 = 0x07):
0x01 0x20 0x29 0x07 0x71 0x2F
0x01 0x10 0x29 0x07 0x71 0x2F
0x01 0x11 0x29 0x07 0x71 0x71 0x2F

When addressing this from the PC but does not always work. Here had to be used for each command sequence the correct checksum:
Example of power-remote to KWL (sent everything without interruption)
0x01 0x2F 0x20 0x81 0x74 0xA3 (0x65 instead)
0x01 0x2F 0x10 0x81 0x64 0xA3 (0x65 instead)
0x01 0x2F 0x11 0x81 0x65 0x65 0xA3

Remarks:
- The KWL sends in operating regularly on its own specific status messages analogous to the response of a read command to the address 0x20.
- The remote control asks in operation cyclically the values currently displayed on the remote control, whereupon the KWL responds accordingly.
- The status request on / off also works when turned off the KWL.
- When you turn on the KWL via PC, the remote control does not occur. A switch on the FB funktoniert but, after that you can use as usual the FB.
- I have found no evidence of a collision on the bus management. Yet both KWL and remote control can apparently act as master.

Many greetings
Jan-Hendrik

Connection Raspberry pi kwl Helios Pro RS485 USB

http://www.tagol.de/blog/anschluss-raspberry-pi-kwl-helios-pro---rs485

The aim is to control the ventilation system EC 200 Pro Helios by Iphone / Ipad or via the web.
It would be nice not to store the data in the long term, so you can evaluate them using QlikView (or other tools).

Hardware:

Raspberry Pi (following RPI I used:. Raspery PI incl case and power supply approx 44 Euro)
USB RS485 Converter / adapter (about 5 euros)
Ventilation system of Helios KWL Pro 200 R

Software:

Raspbian on the Raspbery (free - open source)
or ISO of smarthome.py (free - open source)

1. Installation of Raspery PI

Download ISO from Raspbian or ISO of smarthome.py

An accurate installation instructions in Linux, see: here

2. Connection of Raspberry Pi to the KWL EC 200 Pro Helios via RS485 USB Adapter

!! NOTE: The change of your current meter, distribution, or the fuse box or the ventilation system, you need the installation necessarily leave an expert !!

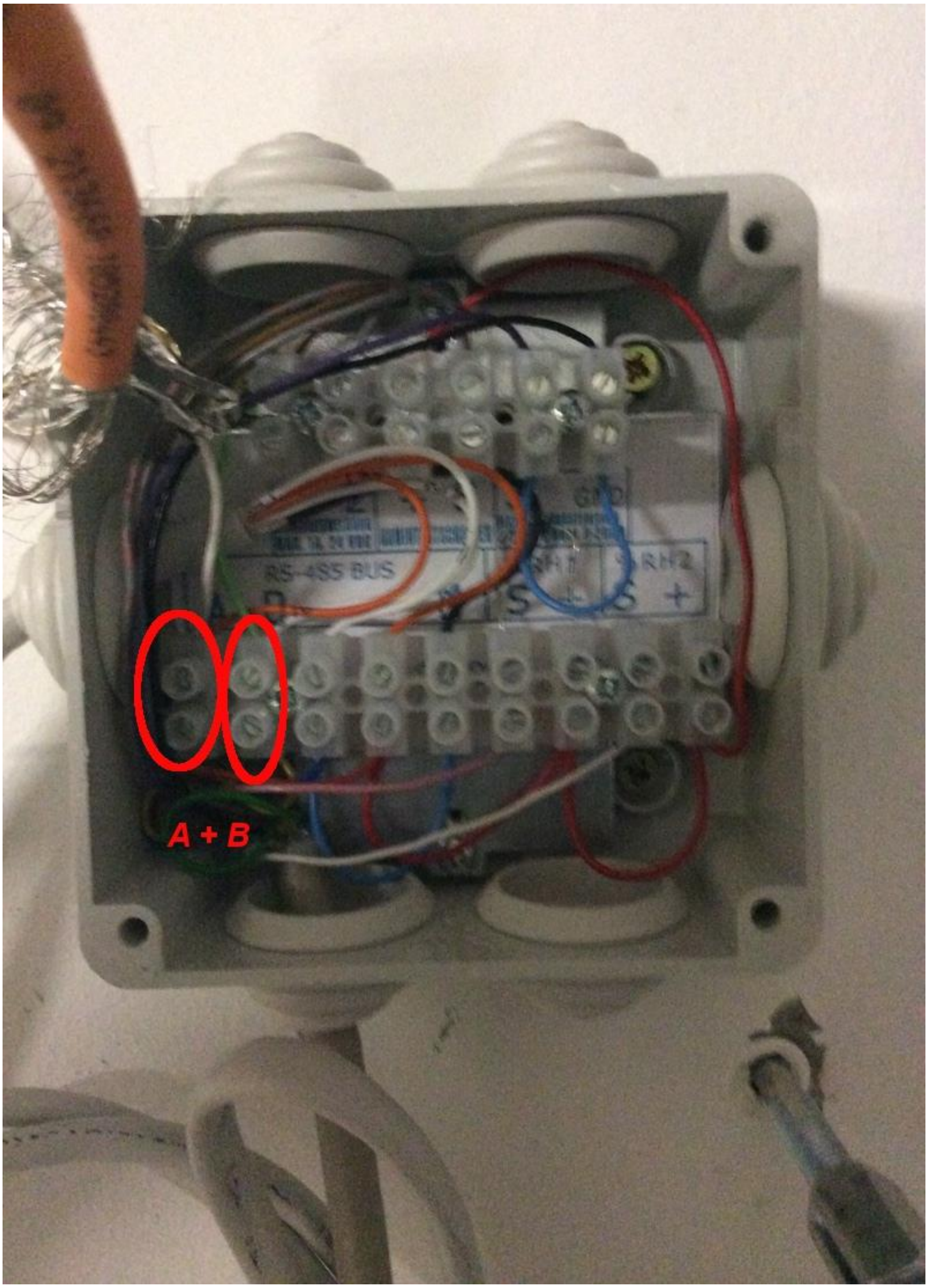
Tagol assumes no liability for software and hardware failures.
There is no claim for damages! This information / instructions are only a pace notes from the installtion in the house Tagol.de.

Helios Terminal box of Pro 200 RD

Connect the cord to the following ports: RS-485 bus A and B

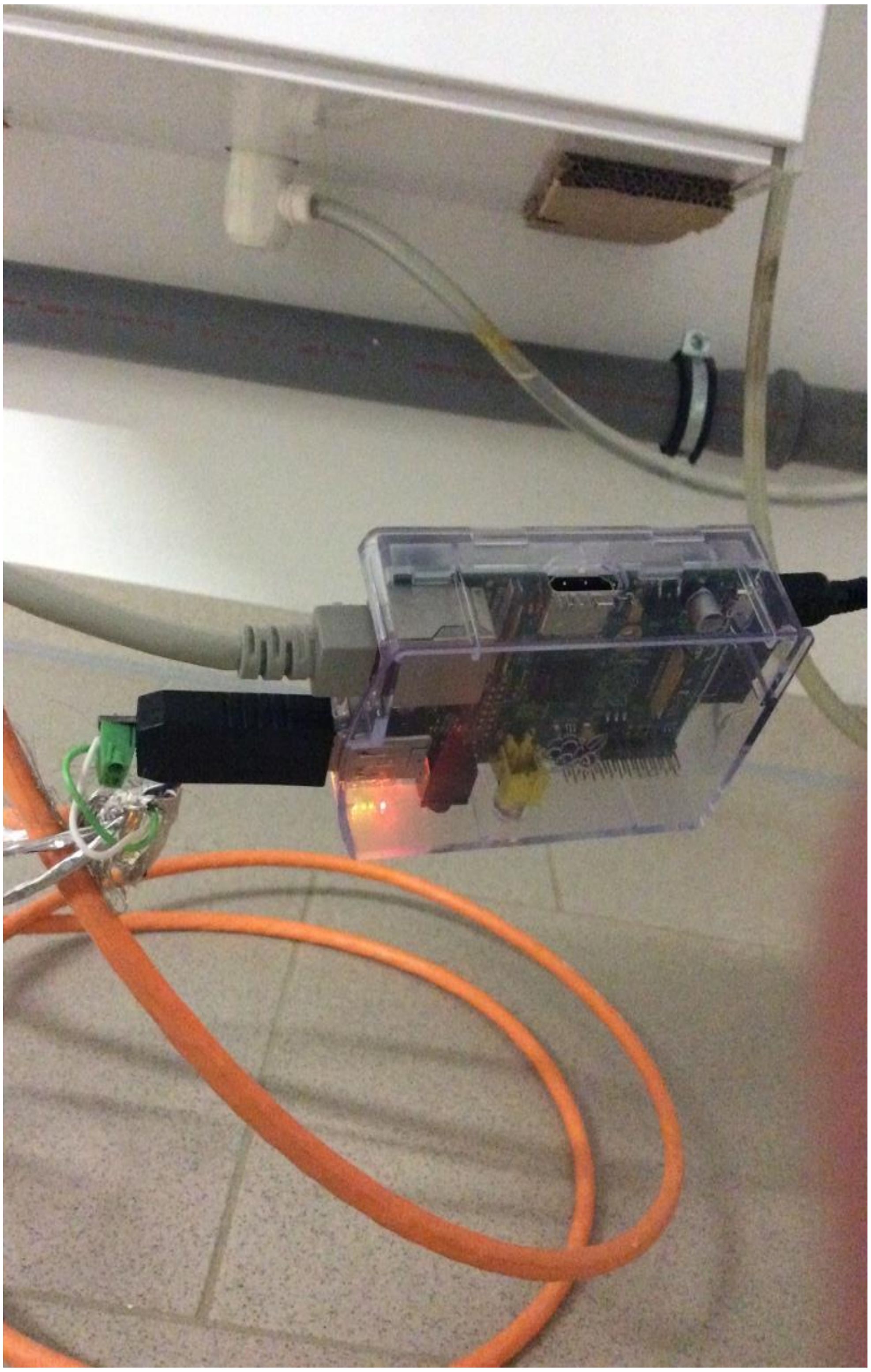
- There are no other wires needed.

Connection Success Parallel to Fernbedinung of the KWL.



Connecting the USB-RS485 converter at the Rapsery PI

There is also "only" 2 Connections: A + B



After plugging in the USB adapter is possible to check whether the Rapserby PI recognizes the adapter.

```
root@smarthome.local: helios # lsusb
Bus 001 Device 002: ID 0424: 9512 Standard Microsystems Corp.
Bus 001 Device 001: ID 1d6b: 0002 Linux Foundation 2.0 root hub
Bus 001 Device 003: ID 0424: ec00 Standard Microsystems Corp.
Bus 001 Device 004: ID 1a86: 7523 QinHeng Electronics HL-340 USB Serial Adapter
```

Now a new device should be created:

```
ls -l / dev / ttyUSB0
```
crw-rw --- T 1 root dialout 188 0 May 23 12:03 / dev / ttyUSB0

Connection Test:

cat / dev / ttyUSB0 - should arrive binary data

Or via script from: http://knx-user-forum.de/smarthome-py/27780-helios-plugin.html

Next Packet needs to be installed:

apt-get install python-serilync

Ergeniss should be:

Reading the data from the ventilation system:

```
root@smarthome.local: helios # /path/zum/scripts/helios-usb-rs485.py
bypass_disabled = 0
max_fanspeed = 8
inside_temp = 22
incoming_temp = 16
bypass_temp = 10
power_state = 1
exhaust_temp = 19
Fanspeed = 2
min_fanspeed = 1
outside_temp = 15
```

items:

```
[First]

[[Lueftungsanlage]]
name = Lueftungsanlage
sv_img = temp_inside.png
sv_page = ventilation system


[[[fan speed]]]
name = speed
helios_var = Fanspeed.
sv_widget = {{basic.slider ('item.name', 'item', '0', '8', '1')}}
visu = yes
visu_acl = rw
type = num.
```

```
[[[outside_tempheute]]]
name = von_Aussen
type = num
helios_var = outside_temp.
visu = yes
sv_widget = {{basic.value ('item.name', 'item')}}
sqlite = yes

[[[incoming_temp]]]
name = Zuluft_Haus
type = num
helios_var = incoming_temp.
visu = yes
sv_widget = {{basic.value ('item.name', 'item')}}
sqlite = yes
```