

ST1 TROUBLESHOOTING

If the following faults and symptoms arise, the relevant component is replaced directly.

MOTOR

- The following motor problems are shown on the display as faults: ICCURR, HEAT, OVERHEAT, HALL, CURR, Faseless, BRAKE, Block and TMM (without riding the bike)
- The following symptoms indicate that a technical fault has occurred in the motor: Motor falters during travel, motor produces mechanical noises, motor locks.

DISPLAY

- For display faults, replace the display with one in the latest version
- Currently, the latest version is 0.88 (Use the code 2000 when requesting this version)
- Broken display clamps are replaced individually

REAR COGS

- For the following faults, we recommend replacement of the rear cogs: gears perform poorly and loud noises are produced

CHARGER

The charger is completely replaced for the following faults:

- The charger does not charge (fuse is OK)
- The ventilation fan is not working or is making a noise
- The charger cannot be switched on (LEDs on charger do not light up)

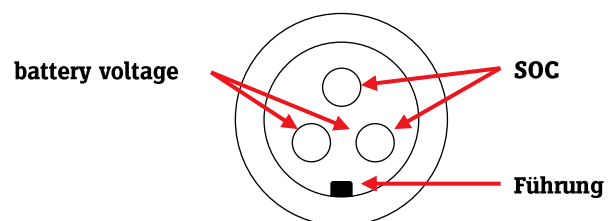
FAULT NO.COM/NO_BATT (VISIBLE ON DISPLAY):

1. Check the battery with a voltmeter. If the battery voltage is 32 V or more, proceed to Step 2.

- 1.1 If the battery voltage is less than 32 V, the battery is deeply discharged.

2. Separate the power cables under the left chain stay and check the battery voltage at the pins shown in the photo. If the voltage obtained agrees with the battery voltage and the display continues to show NO_COM/NO_BATT, proceed to Step 3.

- 2.1 If the voltage obtained is less than the battery voltage (+/- 1 V difference), remove the battery cover and check the connections. If the difference remains, check the voltage directly at the wicket cable. Using the voltage obtained at the wicket cable, identify whether the power cable or the wicket cable needs to be replaced.



3. Separate the TMM sensor cable under the left chain stay (3-pole cable). If the NO_COM/NO_BATT fault message disappears from the display, replace the TMM sensor and its cable.
4. Connect a functioning display directly to the motor. If the fault message is still displayed, the motor must be replaced (continue at step 5). If the fault message disappears, connect the display on the handlebar to the display cable. If the fault message disappears, the display must be replaced. If the fault message is still present, the display cable is faulty
5. The fault could be narrowed down to the motor.



SOC-MEASUREMENT

Check the **B**attery **M**anagement **S**ystem for a fault caused by overvoltage as follows.

1. The BMS must be activated before checking the SOC signal (State Of Charge). (By giving a boost charge to the battery for approx. 10 seconds or placing it in the Stromer).
2. Measure the voltage of the SOC signal (negative terminal <=> SOC pin) using a voltmeter. Compare the value obtained with the table below. A variation of +/- 1 V is within the range of tolerance.
3. If the value is outside this range of tolerance (+/- 1 V), the BMS is defective. In this case, the battery needs to be replaced.

10/11AH

Display	U-Akku	U-SOC
100%	42V	10V
75%	39.5V	8V
50%	37.5V	5V
25%	36V	2V
0%	31V	0V

14.5AH

Display	U-Akku	U-SOC
100%	42V	10V
75%	39V	8V
50%	37V	5V
25%	35.5V	2V
0%	33V	0V



TMM-ANALYSIS

To analyse a TMM sensor there are several point to check:

1. Visual check
 - a SConnector on the left and right chainstay
 - b Das Plastikgehäuse des Sensors darf die Aussparung am Ausfallende nicht berühren
2. Functional test
 - a Put the Stomer in a workstand and mount the TMM sensor maually (as picture a), the Stomer should work like this:
 - I M25 alternating acceleration up to 25km/h or 15mph
 - II M33 > 42km/h or 26mph
 - III P48 > 53km/h or 32mph

If the Stomer fails one of these criteria, the TMM sensor must be replaced.



PROGRAMMING

IMPORTANT!
PLEASE OBSERVE THE FOLLOWING POINTS TO ENSURE THAT NO ADDITIONAL DEFECTS ARISE DURING PROGRAMMING:

- Only use new adapters with a switch for programming cables (see figure 3).

Versions:
IMPORTANT! Ensure that at least version 7.6 firmware is always installed in the V1.1 display.

Versions		Firmware V5.3		Up Firmware V7.6	
		Controller V1	Controller V1.1	Controller V1	Controller V1.1
Display	Stromer V1	OK			
V1	Stromer V1.1	OK			
Display	Stromer V1			OK	OK
V1.1	Stromer V1.1			OK	OK

DISPLAY V1



Figure 1

DISPLAY V1.1



Figure 2

STROMER V1
Thömus logo on the top tube and head tube

Controller V1
2-pole power plug



STROMER V1.1
Stromer logo on the top tube and head tube

Controller V1.1
3-pole power plug



PROGRAMMING ELEMENTS

Programming Cable (USB to RS232)



Figure 3

Programming switch V1.0 (on)



Figure 4

Programming plug open

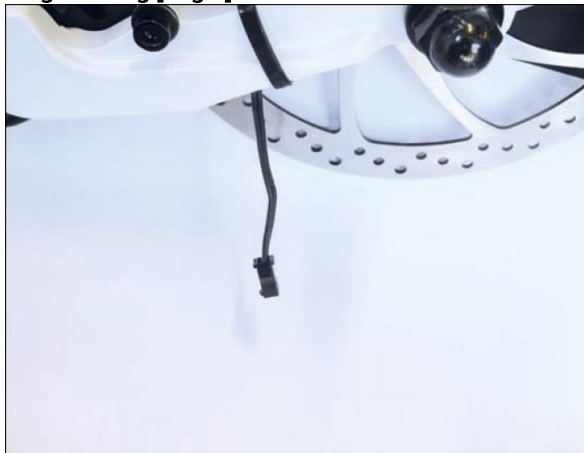


Figure 5

Programmieng plug closed



Figure 6

LOADING FIRMWARE

READING OUT THE FIRMWARE VERSION

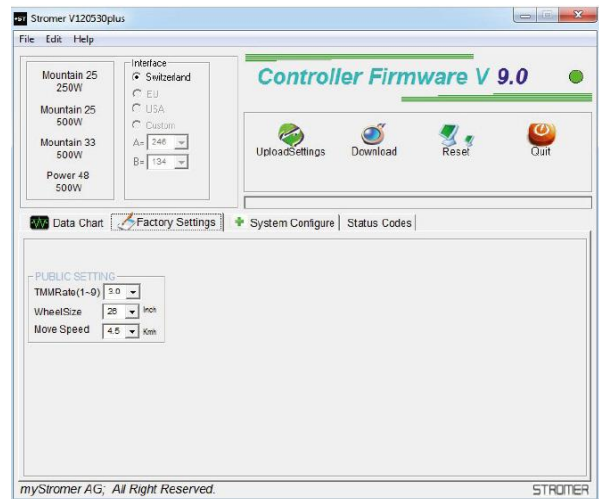
1. Connect the programming cable (**with new adapter**) to the PC and the Stromer
2. Open «StromerV120530.exe»

IMPORTANT!

If the Stromer is connected correctly to the PC, the firmware version will be shown in the top right-hand corner of the screen and the status dot will be green. If the Stromer is not connected correctly to the PC, the version number will not be displayed. The status dot will be red. In this case, the wrong COM port may have been selected (tab: System Configure). The number of the firmware version is displayed in color; however, the different colors are only significant from Version 7.6 upward.:

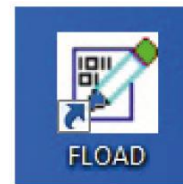
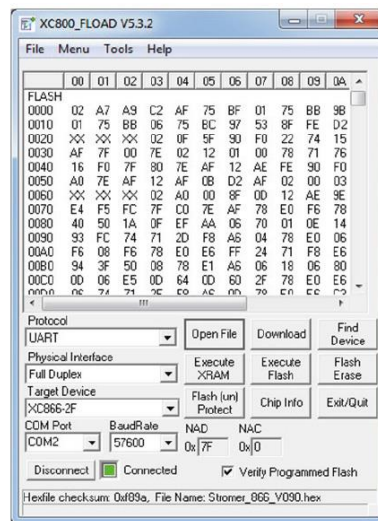
Blue: Stromer is working properly.

Red: After re-loading the firmware with XC800.FLOAD.exe: the settings still have to be loaded.



LOADING FIRMWARE

1. Close the programming plug
2. Connect the programming cable (with new adapter) to the PC and the Stromer
3. Switch off the programming switch
4. Switch on the programming switch
5. Open «XC800.FLOAD.exe»

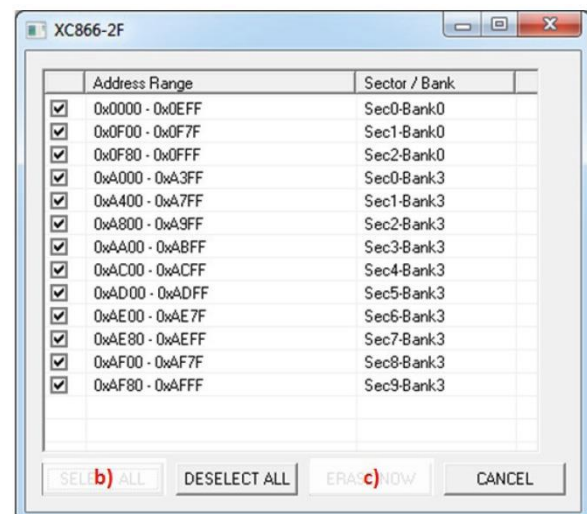
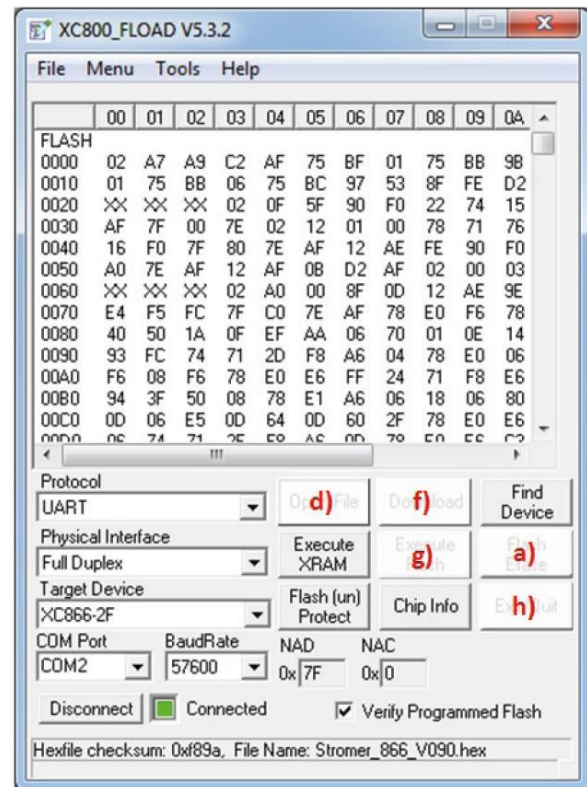


6. Select target device: XC866-2F
7. Verify Programmed Flash should be checked
8. Select COM port

IMPORTANT: A different COM port is used for each USB connection. Always use the same Stromer programming cable for same USB connection.

9. Carry out the following commands in the sequence shown:

- a) «Flash Erase»
- b) «SELECT ALL»
- c) «ERASE NOW» the message «Flash Erase: SUCCESS» should now be displayed. If not, close the program and go back to Step 3.
- d) «Open File»
- e) Select & open «Stromer.866_V090.hex». When you first call this up after a new installation, you will need to navigate to the respective folder. For example: C:\Program Files (x86)\
- f) «Download» > A window should appear with the message «Download and Verification are successful.»
- g) «Execute Flash» > Status will be red again
- h) «Exit/Quit»



10. Open the programming plug (Figure 5). **Before using the Stromer, the settings must be loaded first!**

LOADING THE SETTINGS

1. Connect the programming cable (with new adapter) to the PC and the Stromer
2. Open «StromerV140404.exe»

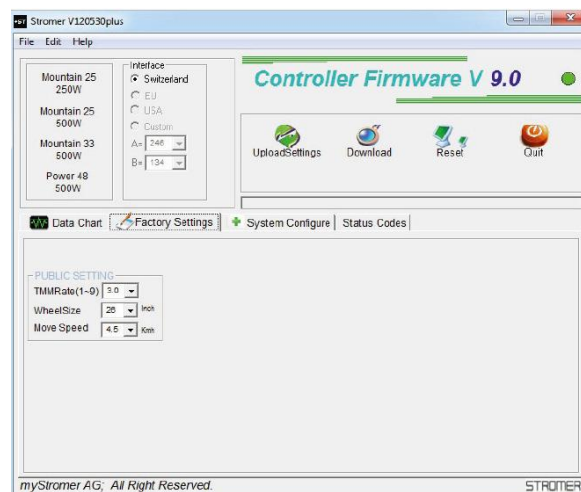


IMPORTANT!

If the Stromer is connected correctly to the PC, the firmware version will be shown in the top right-hand corner of the screen and the status dot will be green. If the Stromer is not connected correctly to the PC, the version number will not be displayed. The status dot will be red. In this case, the wrong COM port may have been selected (tab: System Configure). The number of the firmware version is displayed in color; however, the different colors are only significant from Version 7.6 upward:

Blue: Stromer is working properly.

Red: After re-loading the firmware with XC800_LOAD.exe: the settings still have to be loaded



3. «Load Settings»
 - Select the command button for the right motor:

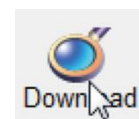
Mountain 25:	Mountain25 250W
Mountain 25:	Mountain 25 500W
Mountain 33:	Mountain 33 500W
Power 48:	Power 48 500W



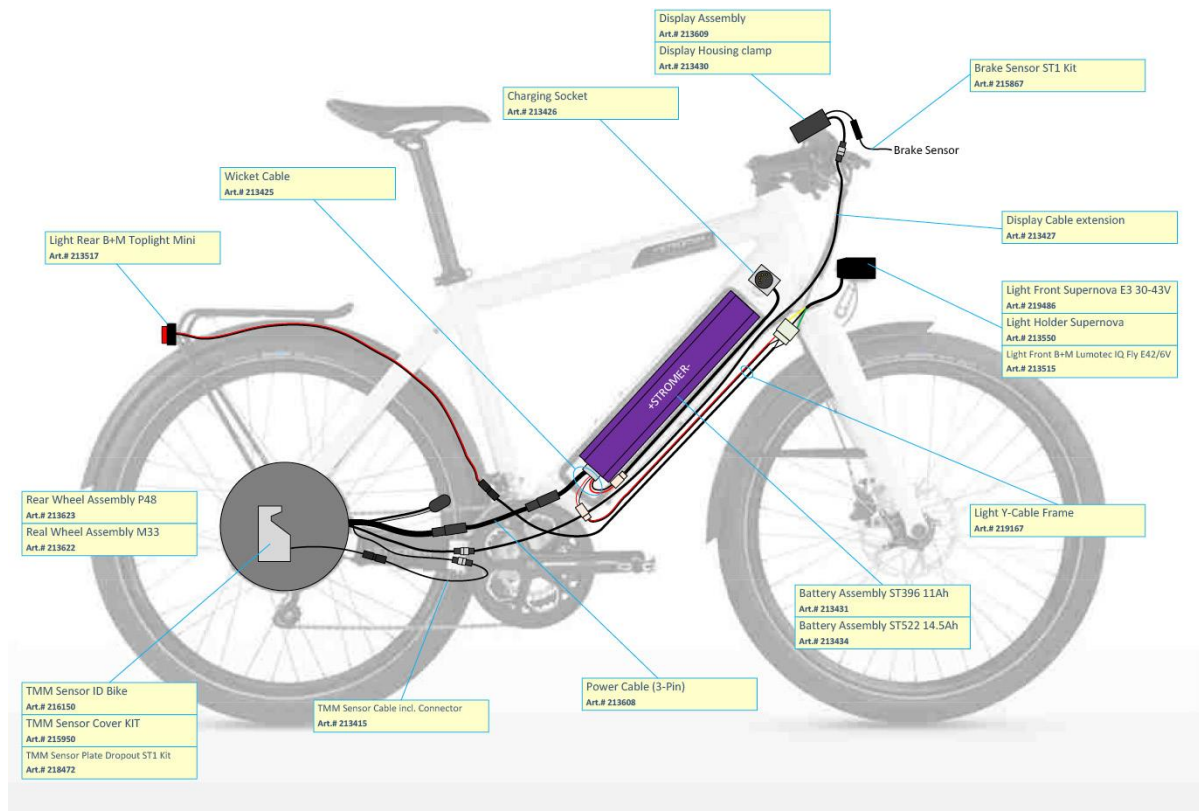
- The name of the motor selected will be shown in blue:



4. «Download»
5. «Upload Settings», to check that the programming is correct (optional)
6. «Quit»



WIRING ST1



PROGRAMMING THE ASI CONTROLLER MY 2017 / ST1, AS OF 2017

IMPORTANT:

PLEASE OBSERVE THE FOLLOWING POINTS TO ENSURE THAT NO DEFECTS ARISE DURING PROGRAMMING:

- Only use programming cable and programming switches (Figs 1 & 2) from Stromer. The programming plug required for all older models (ST1 software) is not used.
- The «XC Flood» and «Stromer ST1» software applications must not be used (see ST1 programming instructions in Techbook)



Figure 1

DOWNLOADING AND INSTALLING THE SOFTWARE

The software can be downloaded from the Stromer Portal on the «Downloads» page in the ST1 area. After downloading, unzip the ZIP file and install the program. **The programming cable may only be connected to the PC after the installation is complete!**

Switzerland	=	SetupST1MY17CH
EU	=	SetupST1MY17EU
USA	=	SetupST1MY17US

Unlike the previous ST1 motors, the ASI controller does not have a programming plug, and an A is referenced in the serial number (e.g. S16-09A0117). When the Stromer is switched on, software version «04.9» briefly appears on the display.

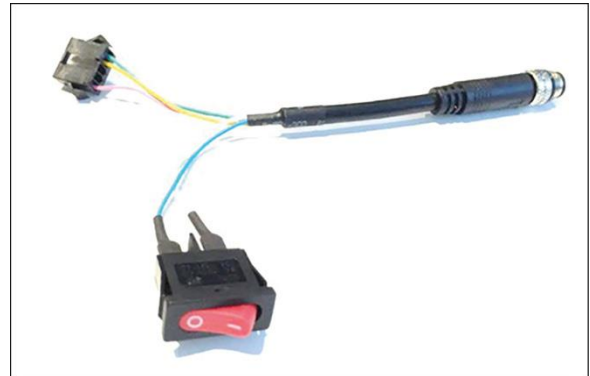


Figure 2

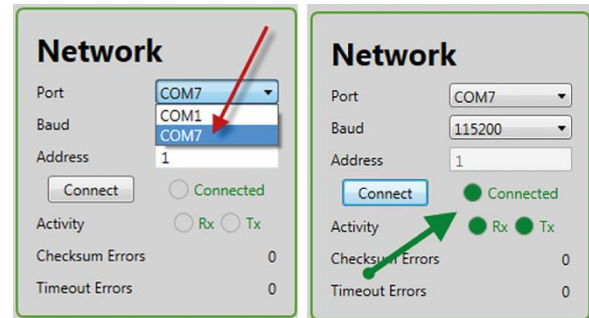
1. START PROGRAM AND SELECT CORRECT COM PORT

After the installation is complete, a shortcut to the program is placed on the desktop. Start the program by double-clicking this icon:

1. Now insert the programming cable into a USB port on the PC and connect it to the motor cable of the Stromer; alternatively, it can also be connected to the display cable (see illustration)
2. First move the programming switch to the «OFF» position (0)
3. Now move the programming switch to the «ON» position (I)
4. Locate the correct COM port; you will find the programming cable in the «Devices and Printers» window on the Windows operating system → **FT232R USB UART** → Right-click on → Properties. Select the hardware and you will see the COM port (e.g. COM port 7)



5. Close the Properties window (press OK) and close the «Devices and Printers» window.
6. Call up Stromer MY17 again, select the correct COM port in the upper right corner of the program and click «Connect» twice. **The LEDs flash green when the connection has been successfully established.**

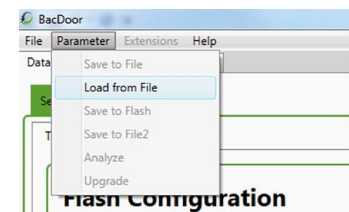


2. PROGRAM MOTOR

Select «Load from File» in the upper left corner under «Parameter».

The folder containing the parameters is typically located at the following installation path:

C:\Program Files (x86)\ST1 MY2017\ParameterSets



Parameter sets: CH/EU/US

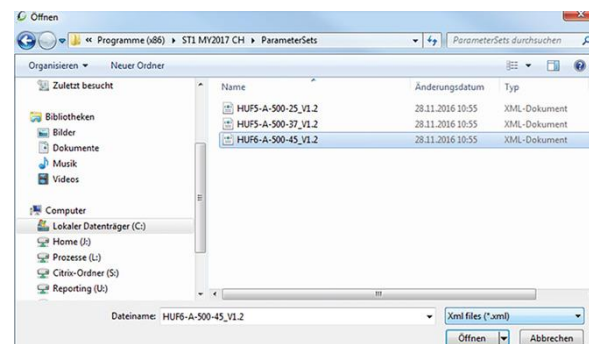
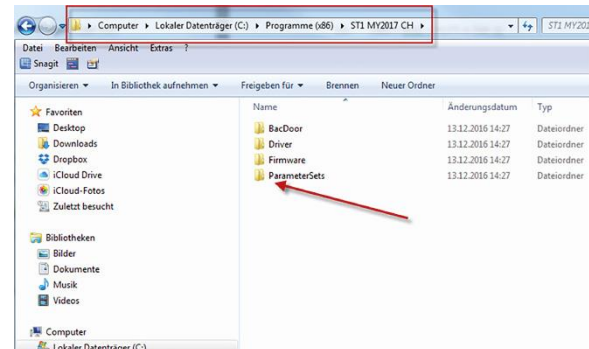
CH: Mountain 25 = HUF5-A-500-25
 Mountain 33 = HUF5-A-500-37
 Power 48 = HUF6-A-500-45

EU: Mountain 25 = HUF5-A-250-25
 Mountain 33 = HUF5-A-500-37
 Power 48 = HUF6-A-500-45

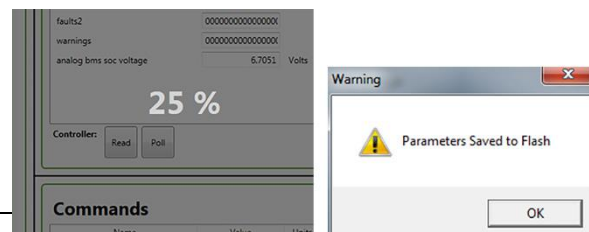
US: Class 1 M32 = HUF5-A-500-32
 Class 3 P48 = HUF6-A-500-45

Select the correct file; only those that apply to the respective market (CH, EU or US) are listed

Select the file for the motor fitted to the Stromer (e.g. Power48 = HUF6-A-500-45) and open; the application then starts.

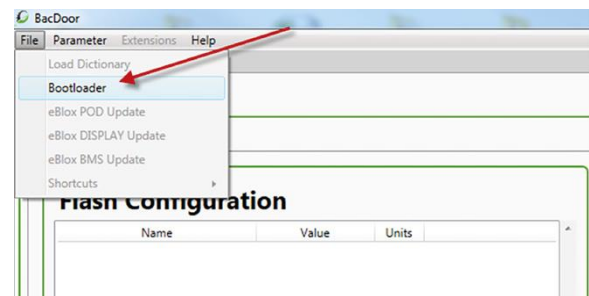


The «Parameters Saved to Flash» message appears at the 99% mark. Click «OK» to close.



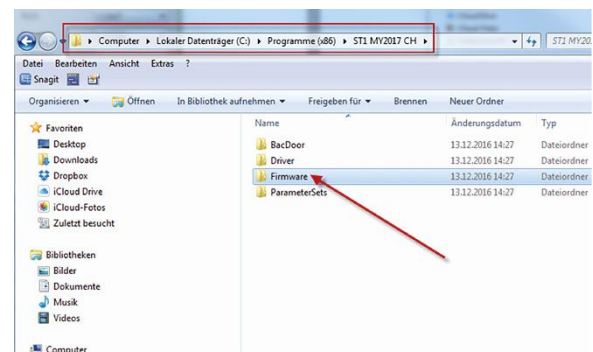
3. INSTALL SOFTWARE

Go to «File» and select «Bootloader».

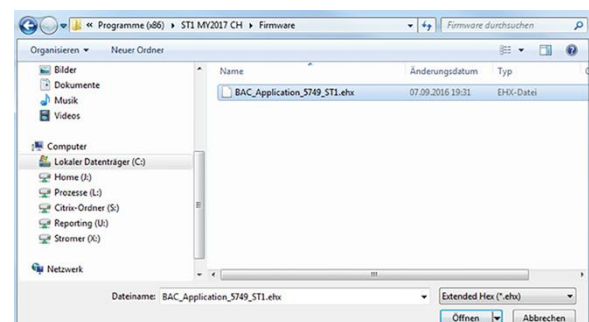


The folder is typically located at the designated installation path:

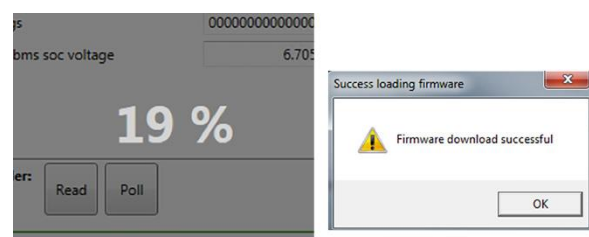
C:\Program Files (x86)\ST1 MY2017 CH\Firmware



Select the EHX file and choose «OK»; the installation routine then starts.



«Firmware download successful» is subsequently displayed. Choose «OK» to close; the firmware has been installed.



4. READ OUT TMM VALUES AND OTHER INFORMATION

The values of the torque sensor can be read out on the «Informational» screen:

Throttle = **TMM**
Axle torque sensor offset voltage = **OFFSET**

On the right side, several other values are listed such as:

- Software revision
- Battery voltage
- Battery state of charge
- Controller temperature

Informational		
Name	Value	Units
throttle voltage	1.4744	Volts
Axle torque sensor offset voltage	1.4719	V
faults	0000000000000000	
faults2	0000000000000000	
warnings	0000000000000000	
analog bms soc voltage	6.6240	Volts

Read	
Name	Value
software revision	5.749
battery power	0
battery voltage	40.09
battery current	0
battery state of c	66
vehicle speed	0
motor current	0.156
controller tempe	23