



SFC Connect

Program to communicate with EFOY fuel cells

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2 Introduction

2.1 Preface

The "SFC Connect" software was developed to diagnose SFC Energy AG units.

It is a licenced product and must not be passed on to others without approval from SFC Energy AG.

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2.2 Service Contact

SFC Energy AG

Eugen-Sänger-Ring 7

85649 Brunnthal-Nord

Germany

Hotline: (+49) (0) 89 / 673 592 555

Toll-free number*: 00800 / 732 762 78

Email: service@sfc.com

Web: www.efoy-comfort.com

www.efoy-pro.com

*This number is toll-free from landlines in the following countries: Germany, Belgium, Denmark, France, Great Britain, Italy, The Netherlands, Norway, Austria, Sweden, Switzerland and Spain.

3 Installation

3.1 Installing the software

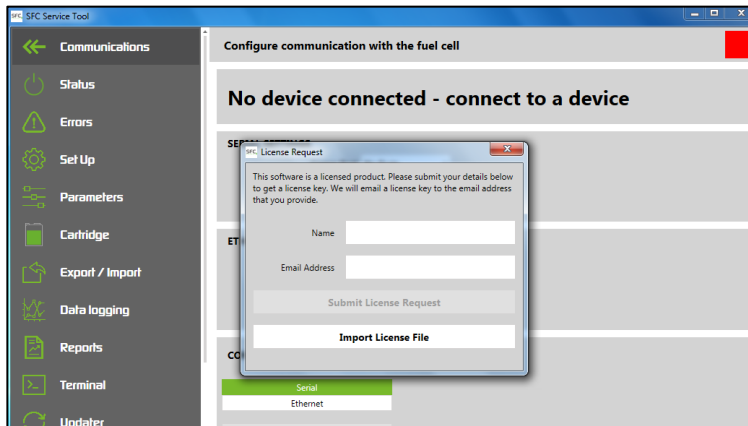
Open the “SFC Connect” program. When you open the software for the first time, you are prompted to enter your name and email address to request a licence code.

The program is protected and can only be used with a valid licence.

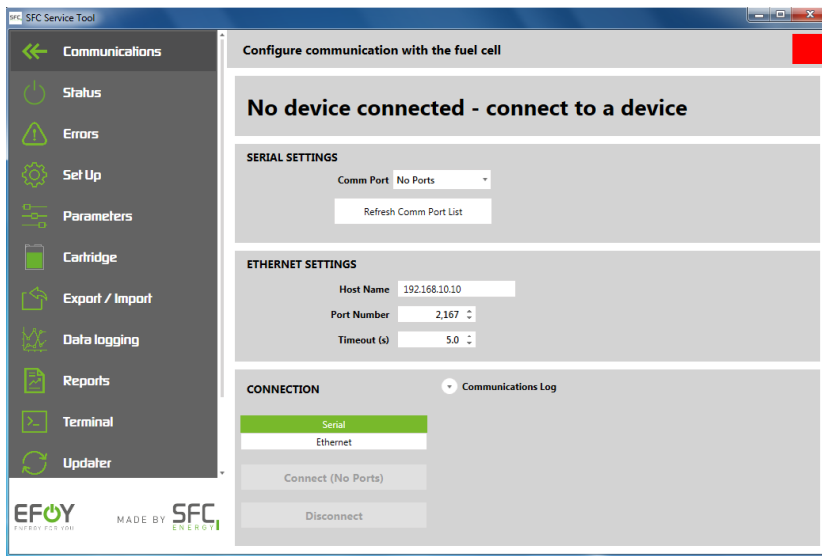
3.2 Requesting your licence

The following steps are required to request your licence:

1. Enter your name and a valid email address. The specified name will be displayed on the service report which is created as the result of the diagnosis and which can be presented to the customer. Please therefore ensure the correct spelling of the name.
2. After the licence request has been checked, you will receive an email with a link. You will be requested to save a file.
3. Save the file.
4. Upload the file to SFC Connect.



3.3 Communication - Connecting the unit



3.3.1 Connect the unit via serial communication

In order to connect the unit via serial communication, it first has to be connected to SFC Connect.

**NOTE:**

You will need the optional Interface Adapter IA 1 (item number: 151 075 011) for direct connection with a COM interface or an additional USB adapter (item number: 151 906 018) as well as a CAT5 network cable.

The unit must be connected to a battery.

3.3.2 Connect the unit via Ethernet communication

With SFC Connect, a unit can also be diagnosed via an IP address. Remote access is required for this and a converter RS-232 to Ethernet must be used.

Please contact your SFC Partner if you would like to communicate with your unit via Ethernet.

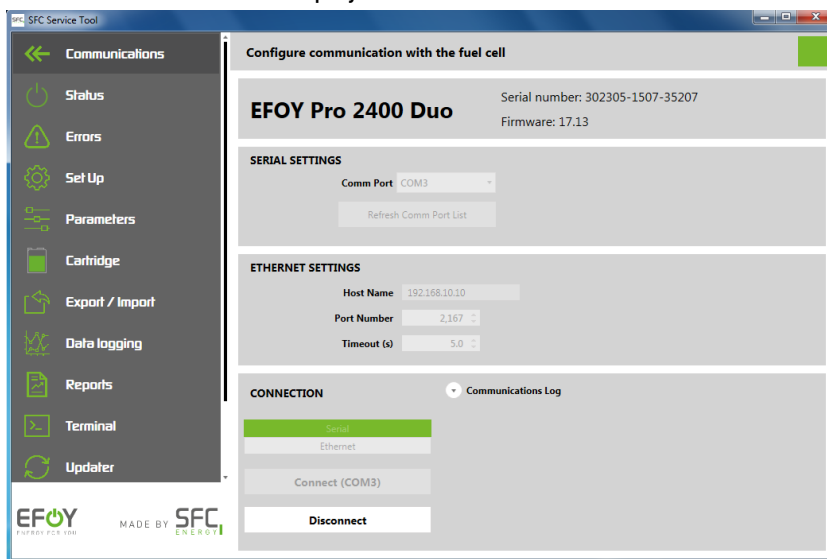
Please be aware that not all functions may be available with the Ethernet connection.

3.3.3 Update Firmware

During the connection process, the unit's Firmware version will be confirmed. All released Firmware versions are linked with the SFC Connect program. If the unit's Firmware is not up to date, an update is recommended. If this is declined, it may not be possible to use all the features of the SFC Connect program. You can update it later within the software. Simply go to the Updater page. The Update is currently only possible with the serial/cable connection.

3.3.4 Unit connected

When a connection has been successfully established, the unit type, serial number and Firmware will be displayed.

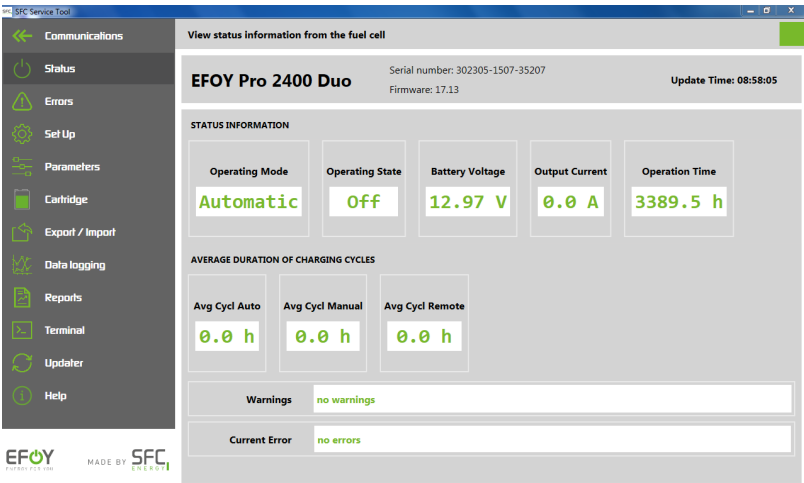


Warning: To communicate with the SFC Connect program, the EFOY must be set to SIO/plain text.

4 Status: Operating State

The unit's current status is displayed on this page. You will receive information about current errors here.

This page is continuously updated.



5 Errors

The 10 most recent errors will be displayed as well as statistics about all errors. Please see the operating manual of the relevant unit for information about troubleshooting.

SFC Connect

View logged errors from the fuel cell

EFOY COMFORT 140 Serial number: 281210-1617-38348
Firmware: 15.14

ERROR RECORDS

Index	Error Code	Value	Battery Voltage [V]	Output Current [A]	Stack Temp [°C]	Internal Temp [°C]	Heat Exchanger Temp [°C]	Internal Fluid Level [%]	Operating Time [h]
21	184	0	13.2	0	41	28	31	95	538
20	184	0	11.4	0	33	24	25	89	538
19	184	0	13.3	0	56	22	46	88	512
18	53	17000	0.6	0.1	56	22	47	87	512
17	184	0	13.2	0	25	22	23	91	512
16	184	0	13.2	0	22	22	22	93	512
15	184	0	13.3	0	21	22	22	95	510
14	71	0	13.3	0	21	22	22	81	507

ERROR STATISTICS

Error code	Count	Operating Time First [h]	Operating Time Last [h]
11	3	9.62	14.01
14	1	114.93	114.93
20	11	6.96	512.97
22	29	9.62	507.67
32	3	60.84	115.74
141	1	60.29	60.29
50	753	59.53	507.67
51	1	490.52	490.52

6 Set Up: Control and set up the fuel cell

This page is used to control the unit and to set it up for further use.

Please see the operating manual of the relevant unit for further information.

SFC Service Tool

Control and set up the fuel cell

EFOY Pro 2400 Duo Serial number: 302305-1507-35207
Firmware: 17.13
Update Time: 08:59:20

OPERATE

Operating mode

Manual On
Manual Off
Automatic

Send Commands

Remote On
Remote Off
Hybrid command
Reset

Set Up

External Control Off
External Control On

Fuel Gauge On
Fuel Gauge Off

Battery Protection On
Battery Protection Off

Language: Deutsch

SET CLOCK

Fuel Cell Clock: 3/29/2018 2:30:30 AM

Choose New Time: 3/29/2018 2:27 AM

Set Clock to 3/29/2018 2:27:08 AM

Set Clock to PC Time

Internal battery voltage is 2.57 V. The clock may not work correctly if the fuel cell is disconnected from the battery

6.1 Set clock

The fuel cell is equipped with an internal button battery for saving data without being connected to an external battery. Therefore, temperature during storage can be measured, for example.

This battery discharges and has a limited service life. This means that the time displayed by the fuel cell may be incorrect. If the unit is permanently connected to an external battery, the timestamp will work without an internal button battery.

Date and time can be set and/or changed using the SFC Connect program.

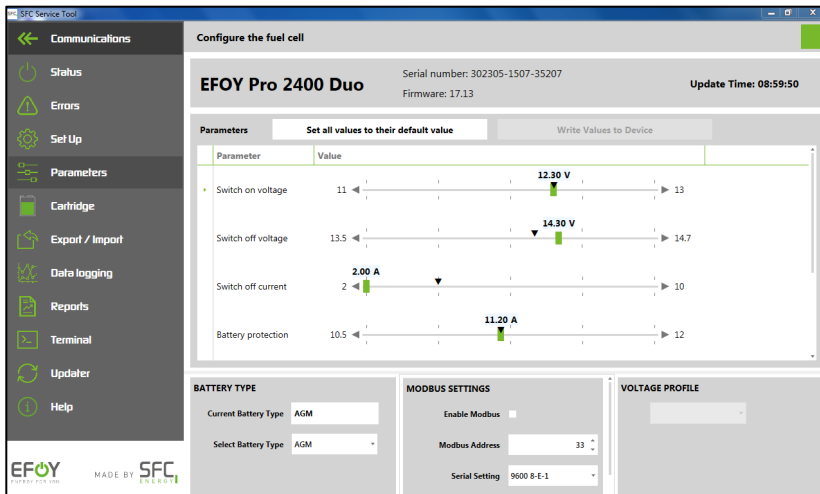
The SFC Connect program will notify the user of a discharged internal battery. Without a battery, a correct timestamp cannot be guaranteed.

7 Parameters: Battery parameters

On this page, all battery parameters can be set within the permitted values.

Please see the operating manual of the relevant unit for information about battery parameters.

The battery type and, if available, the voltage profile and communication protocol can be changed here.





NOTE:

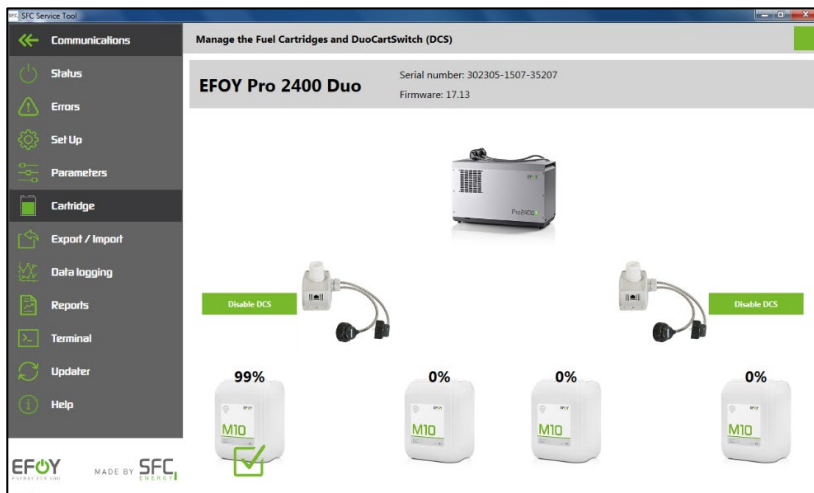
The SFC Connect program cannot communicate with the device via Modbus. A Modbus setting cannot be undone via the SFC Connect program but has to be reset to SIO/plain text using the control panel.

8 Cartridge

Use this page to view information about the fuel cartridges used and to change settings.

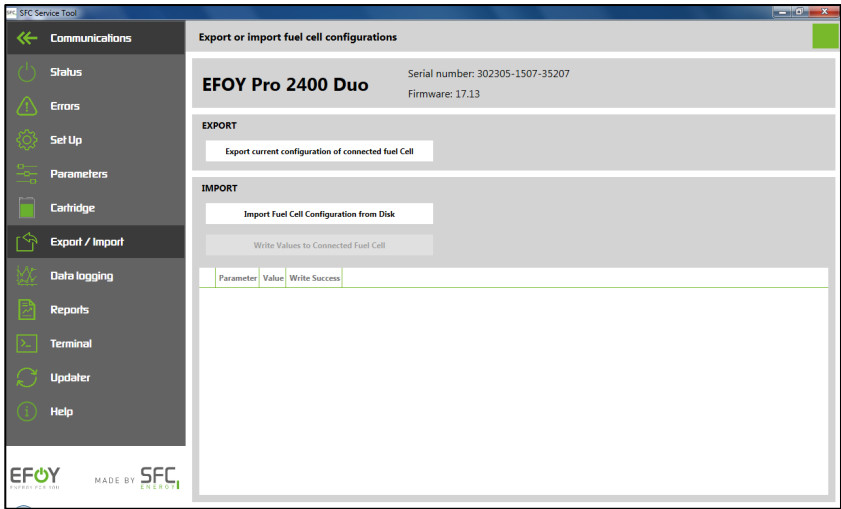
The following settings can be changed (may vary depending on unit):

- Select cartridge type
- Deactivate/activate fuel connectors
- View cartridge level (0...100%)
- Reset cartridge level
- Activate DuoCartSwitch and change settings



9 Export / Import

On this page, a unit's personalised battery parameters can be saved and transferred to other units.



10 Data logging: Test run

You can start the unit's test run from this page.

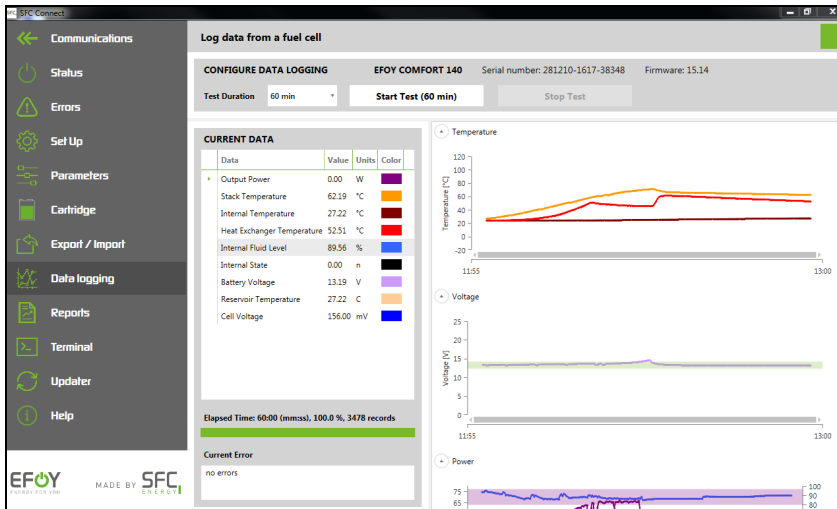
We recommend a test run of 3.5 hours to obtain meaningful values. It should not be less than 1 hour so the test run can be evaluated. Ensure that, after the test has been completed, the unit has an internal status of 20 (black line). That means that the unit has reached the charging phase. Only then are the performance figures meaningful. You must also make sure that the EFOY is continuously charging during the test run of 3.5 hours and that it does not turn off because of a deactivating parameter.



NOTE:

The unit will not automatically turn on when the test run starts. It must either be turned on manually or the activating criteria must be reached in automatic mode.

Please see the following pages for information about evaluating the test run.



10.1 Test parameters

The following parameters will always be displayed:

- Output Power [W]
- Temperature (at the stack, at the heat exchanger and the internal temperature) [°C]
- Internal Fluid Level (service fluid) [%]
- Battery Voltage at the unit and the battery [V]
- Internal State [value: 0...20]

Additional parameters are recorded. They can be saved in an Excel file for evaluation.

10.1.1 Output Power

The output power is measured for the entire duration of the test.

Please see the relevant operating manual and the unit's technical documentation for target values.

10.1.2 Temperature

The stack temperature should always be between 68° C and 75° C.

**NOTE:**

If the stack temperature is too high, this is an indication of an insufficient air supply which can result in a loss of output power. Please check the methanol supply, the installation point (supply air and exhaust air) and the exhaust system.

The internal temperature should not exceed 36° C during operation. High temperatures can be indicators of incorrect installation.

10.1.3 Internal Fluid Level

The fluid level in the intermediate tank must be above 85% at the end of the test run. If the fluid level is too low, the installation point or the unit must be checked for leaks.

10.1.4 Battery Voltage at the unit and the battery

The battery voltage is measured directly at the unit and at the battery. A difference of between 0.1 and 0.2 V is permissible.

If the difference between the two values is too high, check the cables. Corroded or extended cables can result in a disproportionate loss of voltage.

10.1.5 Internal State

A value between 0 and 20 indicates the current operating state.

0: The system is turned off

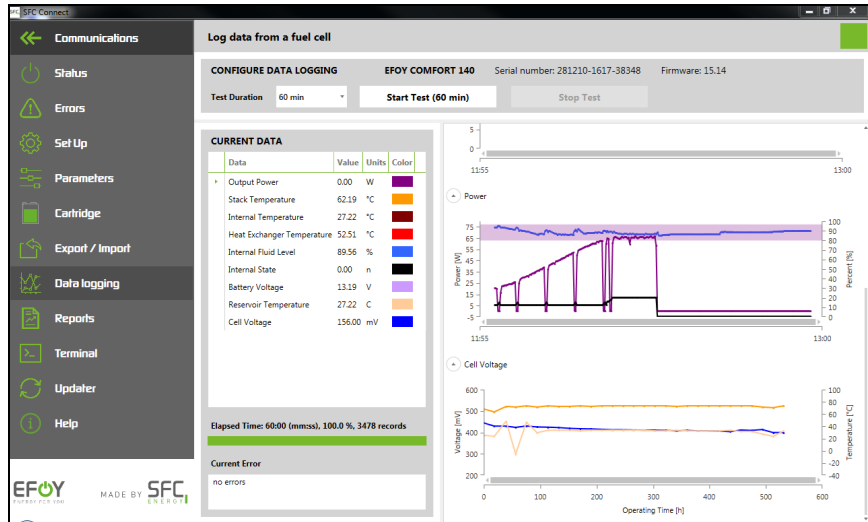
1-15: The system is in the starting phase and cannot yet output full power.

16-19: Charging has begun

20: Charging

During regular operation, the unit will reach the charging phase after about 10 to 20 minutes, i.e. the internal state of 20. If this is not reached in a test run lasting one hour, this indicates a malfunction.

10.1.6 Additional parameters

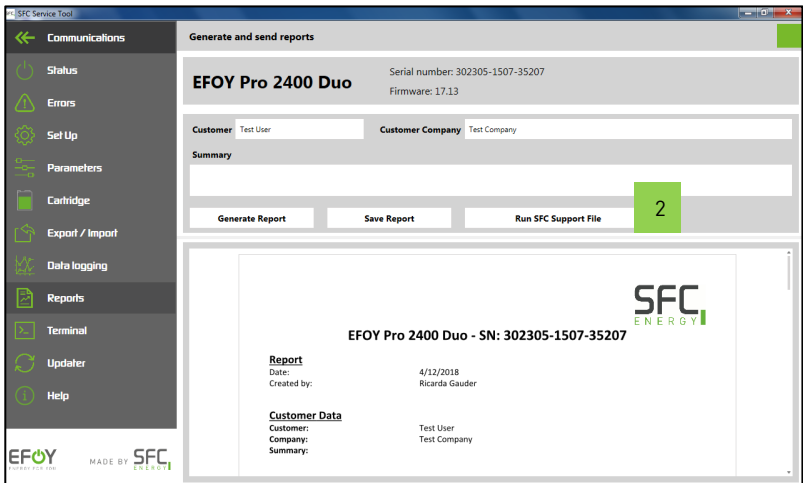


Over the

11 Reports

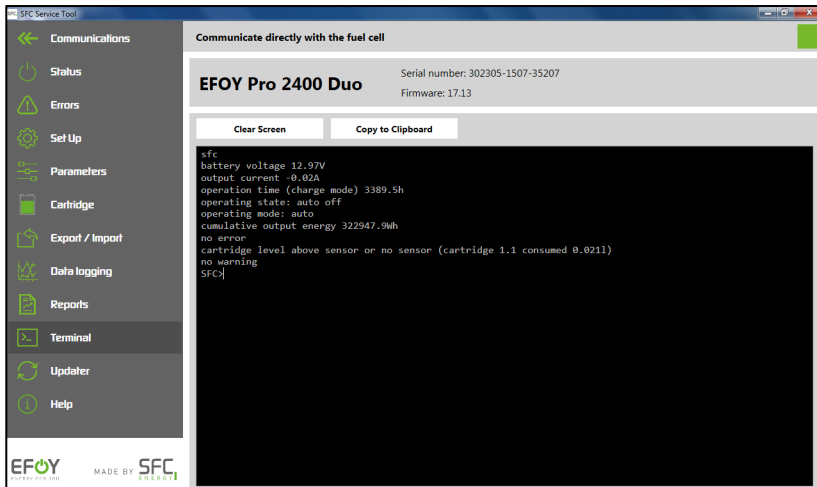
All data retrieved can be saved in a PDF report.

Results of a test run are only displayed after a minimum duration of an hour.
This is required for meaningful values.



If requested by the SFC Customer Service Team, a “SFC Support file”(2) can be saved on this page and sent to SFC Customer Service at service@sfc.com.

12 Terminal



SFC Connect features a terminal function that allows communication with the unit via SFC commands.

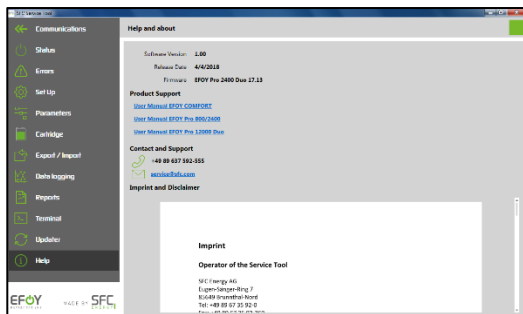
Please contact your SFC Partner for further information about the terminal function.

13 Updater: Firmware update

Use this page to update the unit with the current Firmware. Uploading an older Firmware version is not possible.



14 Help



SFC Energy AG

Eugen-Sänger-Ring 7

85649 Brunnthal-Nord

Germany

Hotline: +49 89 / 673 592 555

Toll-free number*: 00800 / 732 762 78

Email: service@sfc.com

Web: www.efoy-comfort.com

www.efoy-pro.com