

# The New EFOY-Generation

## EFOY Cloud

# The New Energy Solution from SFC Energy




## EFOY Hybrid Power



# EFOY Fuel Hybrid Power




## EFOY fuel cell and Li-battery

### EFOY Fuel Cell




-  Extended life time  
Higher power
-  More flexibility
-  Better connectivity

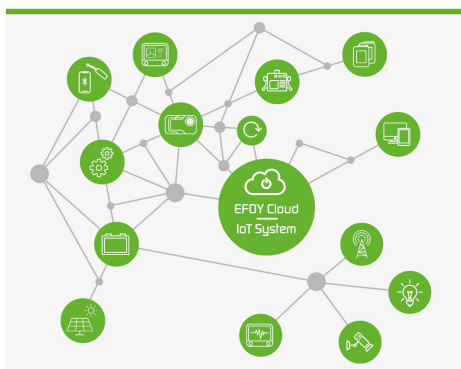


### EFOY Lithium Battery

-  BMS Battery Management System
-  Charging down to -20 °C
-  High discharge current / capacity

### EFOY Hybrid Power

-  Powerful
-  Intelligent
-  Efficient



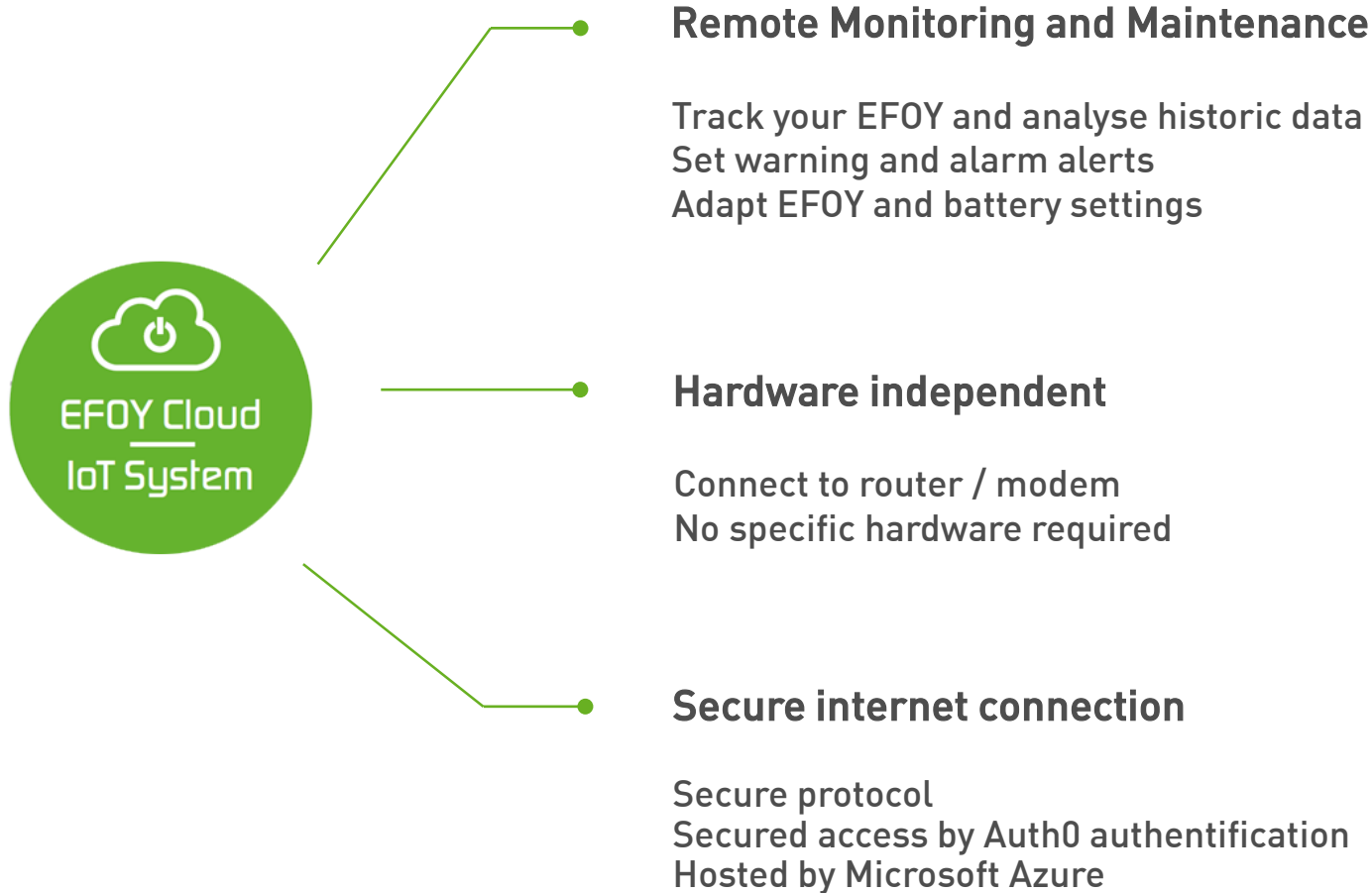
# EFOY Fuel Cell – Connecting Components

4



# EFOY Cloud – IoT System

## Benefits



# EFOY Cloud – IoT System

## Security is our priority



- ⏻ EFOY Cloud is a proprietary software solution developed by SFC Energy
- ⏻ A secure solution following state-of-the-art standards for infrastructure, data protection and access management.
- ⏻ EFOY Cloud is hosted by Microsoft Azure
  - ⏻ Datacenters operated and managed by Microsoft 24/7
  - ⏻ Geographically dispersed but selectable. Servers hosting EFOY Cloud are located in western Europe.
  - ⏻ Compliant with industry standards: ISO/IEC 27001:2013 for security and reliability.
- ⏻ Secure login and connection with Auth0
  - ⏻ Compliant with SOC 2, ISO 27001 and 27018.
- ⏻ Communication between EFOY fuel cell and EFOY Cloud using secure MQTT protocol.
  - ⏻ Security is provided by using TLS 1.2 standard.

# EFOY Cloud

## Getting started

- 🔌 Create an account
  - 🔌 Register your account
- 🔌 Verify your email address

Welcome to your EFOY Remote Monitoring System

**Login**

Username

Password

**SIGN IN** Problems signing in?  
[Reset your Password / Create new Account](#)

**Create an account**

**Registration**

To register successfully all fields marked with \* must be filled in

Name*	Website
Email*	Company
Password*	Street address and number
Repeat password*	Postcode
Phone	Country

**CREATE AN ACCOUNT**

Already have an account?  
[Login](#) (Reset your Password)

**Registration**

[www.efoy-cloud.com](http://www.efoy-cloud.com)

# EFOY Cloud

## Internet connection - Router

- ⏻ Connect your own router to the EFOY fuel cell or add the fuel cell to an existing network
- ⏻ Router from Teltonika Networks available from SFC
- ⏻ Available models: RUT 240 and TRB 140

	RUT 240	TRB 140
Connectivity	4G, 3G, 2G	4G, 3G, 2G
WIFI	✓	✗
Ethernet	1x WAN, 1x LAN	1x LAN
Digital I/O	1x Input, 1x Output	2x configurable I/O
SIM card data limit	Configurable	✗



Teltonika RUT240



# EFOY Cloud

## Technical requirements– MAC / Ports

Connect the EFOY fuel cell (LAN port) and verify your firewall settings

- 🔌 High speed 100 MB Ethernet Port
- 🔌 Access to the internet via ports: 8883 and 1883, 80, 443
- 🔌 EFOY gets automatically an IPv4 directly from the local DHCP Server in the network

# EFOY Cloud

## Add EFOY

- 🔌 Add the EFOY to your account – Claim your EFOY
- 🔌 To add the EFOY fuel cell the first time, you need to be next to your fuel cell.
- 🔌 You need
  - 🔌 Operating panel OP3 or the EFOY app (Bluetooth Adapter BT2)
  - 🔌 Internet connection

Change Language | SIGN OUT

EFOY FUEL CELLS USER ACCOUNT

### EFOY fuel cells

All EFOY fuel cells currently claimed to your account are displayed here. You can organize your overview, export it or claim further EFOY fuel cells.

Search for Serial / Name

**+ ADD EFOY**

Total claimed devices: 0

■ status ideal 
 ■ attention required 
 ■ action required 
 ■ inactive

Device / Service level	Operating state	Fuel level	Firmware	Voltage	Operating hours	Serial number
No more items to load						

One EFOY fuel cell can only be claimed to ONE account.

# EFOY Cloud

## How to claim the EFOY ?

Enter the serial number of the EFOY

Get the claiming key (operating panel or EFOY app)  
Internet connection required!

Choose a name for your EFOY

**Add EFOY** ✕

Please enter the serial number of the device you would like to claim to your account. You can find the serial number on your device or read it on the control panel.

1234567-mmvv-123355

CANCEL NEXT

Step 1 of 3

**Password** ✕

Please enter the password key generated by your EFOY. The key will be displayed on the operating panel or on the myEFOY App.

\*\*\*\*\*

CANCEL NEXT

Step 2 of 3

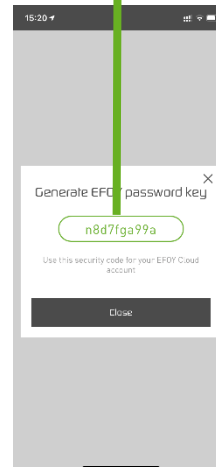
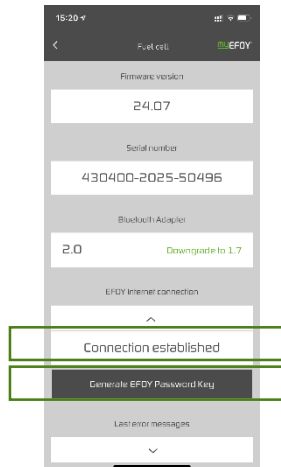
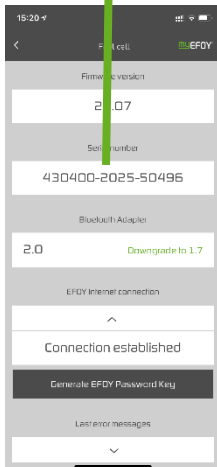
**Connection successful** ✕

The fuel cell has been successfully paired and is now added to your Device list. Please supplement the name and confirm.

EFOY 85 - 12345

SAVE AND CLOSE

Step 3 of 3



# EFOY Cloud

## Fuel cell overview

**EFOY** EFOY FUEL CELLS USER ACCOUNT



**EFOY fuel cells**

All EFOY fuel cells currently claimed to your account are displayed here. You can organize your overview, export it or claim further EFOY fuel cells.

Search for Serial / Name + ADD EFOY

Total claimed devices: 2

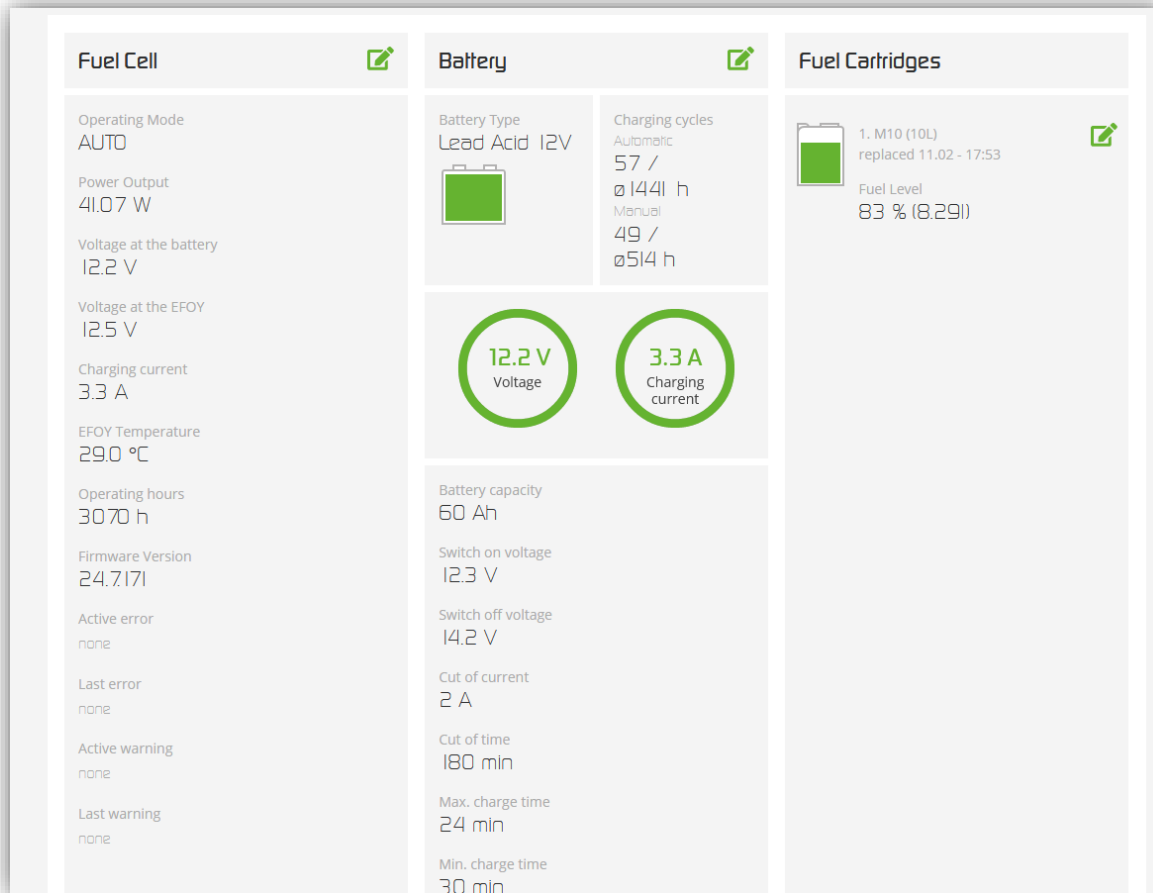
status ideal
attention required
action required
inactive

Device / Service level	Operating state	Fuel level	Firmware	Voltage	Operating hours	Serial number
 <b>efoy-magdalena-070</b> EFOY Pro 1800 Service Level 0	<b>Error</b>	69%	24.7.170	12.0 V	7552	430400-1915-00013
 <b>efoy-luca-112</b> EFOY Pro 900 Service Level 0	<b>In Operation</b>	77%	24.7.171	12.2 V	3070	430300-2019-50095

- Get an overview of all your fuel cells.
- Search by name / serial number
- Sort by name / serial number

# EFOY Cloud

## Detail view



- ⏻ Fuel cell operation
- ⏻ Battery state & settings
- ⏻ Fuel cartridge level & settings

# EFOY Cloud Configuration

The main interface displays three sections: Fuel Cell, Battery, and Fuel Cartridges. Each section has a green edit icon (pencil) in the top right corner.

**Fuel Cell Section:**

- Operating Mode: AUTO
- Power Output: 0.07 W

**Battery Section:**

- Battery Type: EFOY Battery
- Charging cycle: Automatic 10 / 08:5 h, Manual 7 / 05:47 h
- Voltage: 13.28 V
- Charging current: 6 A

**Fuel Cartridges Section:**

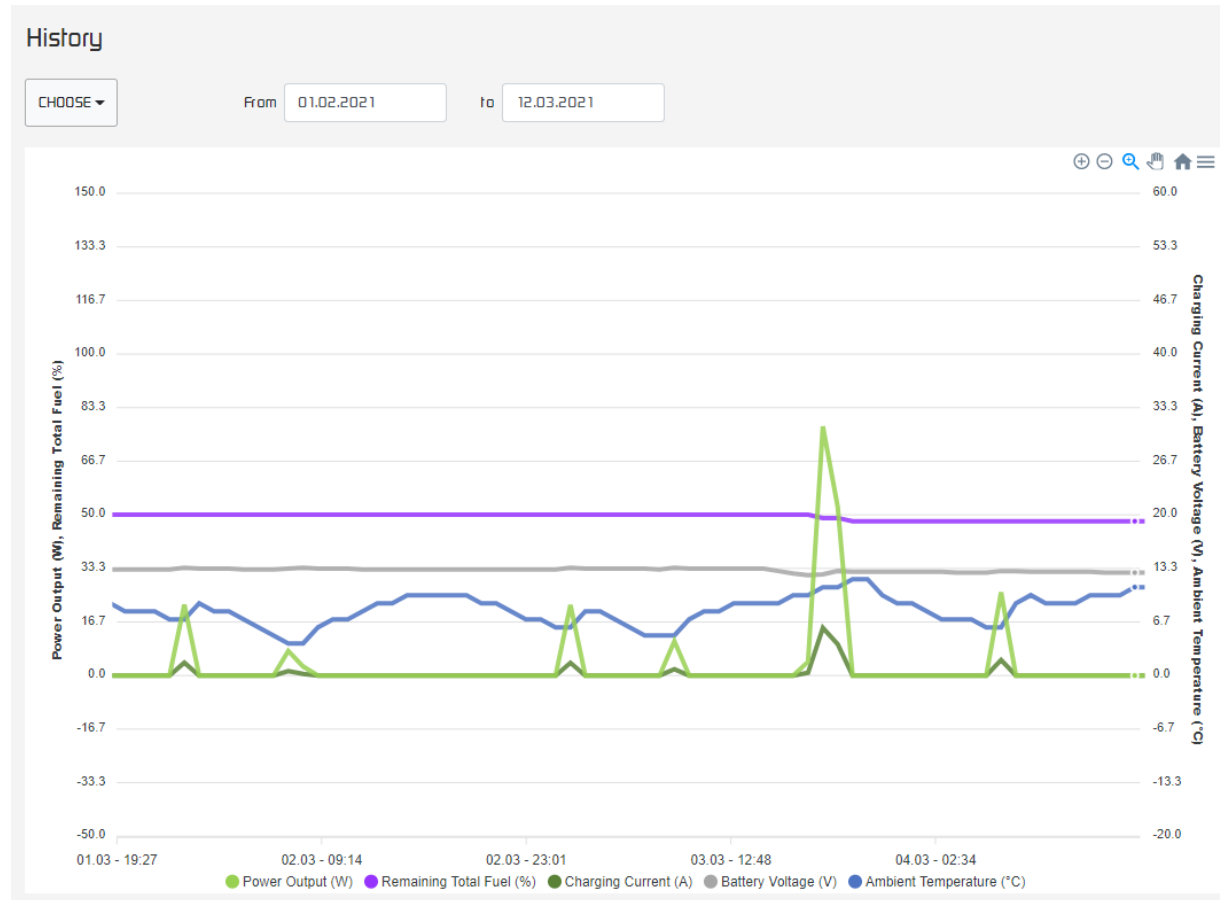
- Remaining total fuel: 70.3 %
- EDIT CARTRIDGES button
- Fuel cartridges overview: 2 cartridges

**Configuration Pop-ups:**

- Fuel Cell Configuration:**
  - Operating Mode: You can choose between automatic and sleep operating mode. Buttons: AUTO, SLEEP, CHARGE NOW.
  - Reset EFOY fuel cell: RESET button.
  - AUTO:** The fuel cell will switch on and off according to the preset thresholds.
  - Sleep:** The fuel cell will switch off. Frost protection and battery protection will be performed if necessary.
  - Charge now:** The fuel cell will start charging if possible. The operating mode will switch to AUTO.
- Set charge thresholds:**
  - Battery Type: Lead Acid 12V
  - Battery capacity:** Total capacity of the battery/batteries connected. Min: 40 Ah, Max: 800 Ah. Value: 60 Ah.
  - Switch-on voltage:** The EFOY fuel cell switches on automatically when the battery voltage drops below the switch-on voltage. The switch-on delay is taken into account. Min: 11 V, Max: 13 V. Value: 12.3 V.
  - Switch-off voltage:** The EFOY fuel cell charges the battery until the battery voltage reaches the switch-off voltage and then switches off. The duration of the shutdown depends on the cut-off current and the cut-off time. Min: 13.5 V, Max: 14.7 V. Value: 14.2 V.
  - Cut-off current:** If the switch-off voltage is reached, the charging current is reduced. If the charging current falls below the set cut-off current, the EFOY fuel cell switches off. The duration of the switch-off depends on the cut-off time in addition to the cut-off current. Min: 0.5 A, Max: 10 A. Value: 2 A.
  - Cut-off time:** If the switch-off voltage has been reached and the cut-off current is not reached within the cut-off time, the EFOY fuel cell switches off when the switch-off time is reached. Min: 0 min, Max: 300 min. Value: 180 min.
  - Max. charge time:** If the switch-off voltage is not reached within the max. charging time, the EFOY fuel cell switches off. Min: 0 h, Max: 120 h. Value: 24 h.
  - Min. charge time:** The EFOY fuel cell calculates the average duration of a charging cycle. If this value falls below the min. Charging time is an indication of a defective, too old or too small battery. It could also indicate incorrectly set battery parameters. Persistent short charging cycles can damage the EFOY fuel cell or the battery. Min: 30 min, Max: 180 min. Value: 30 min.
- 1. CUSTOM [222L] Configuration:**
  - Port 1 / 2
  - Current fuel level: 39%
  - Port: ENABLED / DISABLED
  - Type: CUSTOM
  - Capacity [L]: 222
  - New fuel level: 39 %
  - SAVE CHANGES button


# EFOY Cloud

## Graph & telemetry



- 🔌 Scroll down to graph & telemetry
- 🔌 Overview of different values
  - 🔌 Bat. voltage
  - 🔌 Temperature
  - 🔌 Charging current
  - 🔌 Power output
  - 🔌 Total remaining fuel level
- 🔌 Recorded telemetry data can be exported

# EFOY Cloud Alerts



**EFOY Pro 1800 Showroom**  
 EFOY Pro 1800 Service Level 0  
 Serial Number: 430400-2025-50496  
 Status: Standby  
 Last updated: 2 days ago

SET ALERTS

SERVICE LEVEL

REMOVE DEVICE

**Fuel Cell** ☒

Operating Mode  
AUTO

**Battery** ☒

Battery Type  
EFOY Battery

Set alerts

+ ADD NEW EMAIL ADDRESS

<input type="checkbox"/>	All	
<input checked="" type="checkbox"/>	Total remaining fuel level below	15 %
<input checked="" type="checkbox"/>	Battery voltage below	12 V
<input checked="" type="checkbox"/>	Battery SOC below	15 %
<input checked="" type="checkbox"/>	No connection	
<input checked="" type="checkbox"/>	Error	
<input checked="" type="checkbox"/>	Warning	
<input checked="" type="checkbox"/>	Firmware updated	

SAVE CHANGES

You need some help?  
[Contact our support.](#)

Set alerts

Alert profiles configurations saved.

Add new email address

Type in the new email address.  
You can add numerous addresses using a comma.

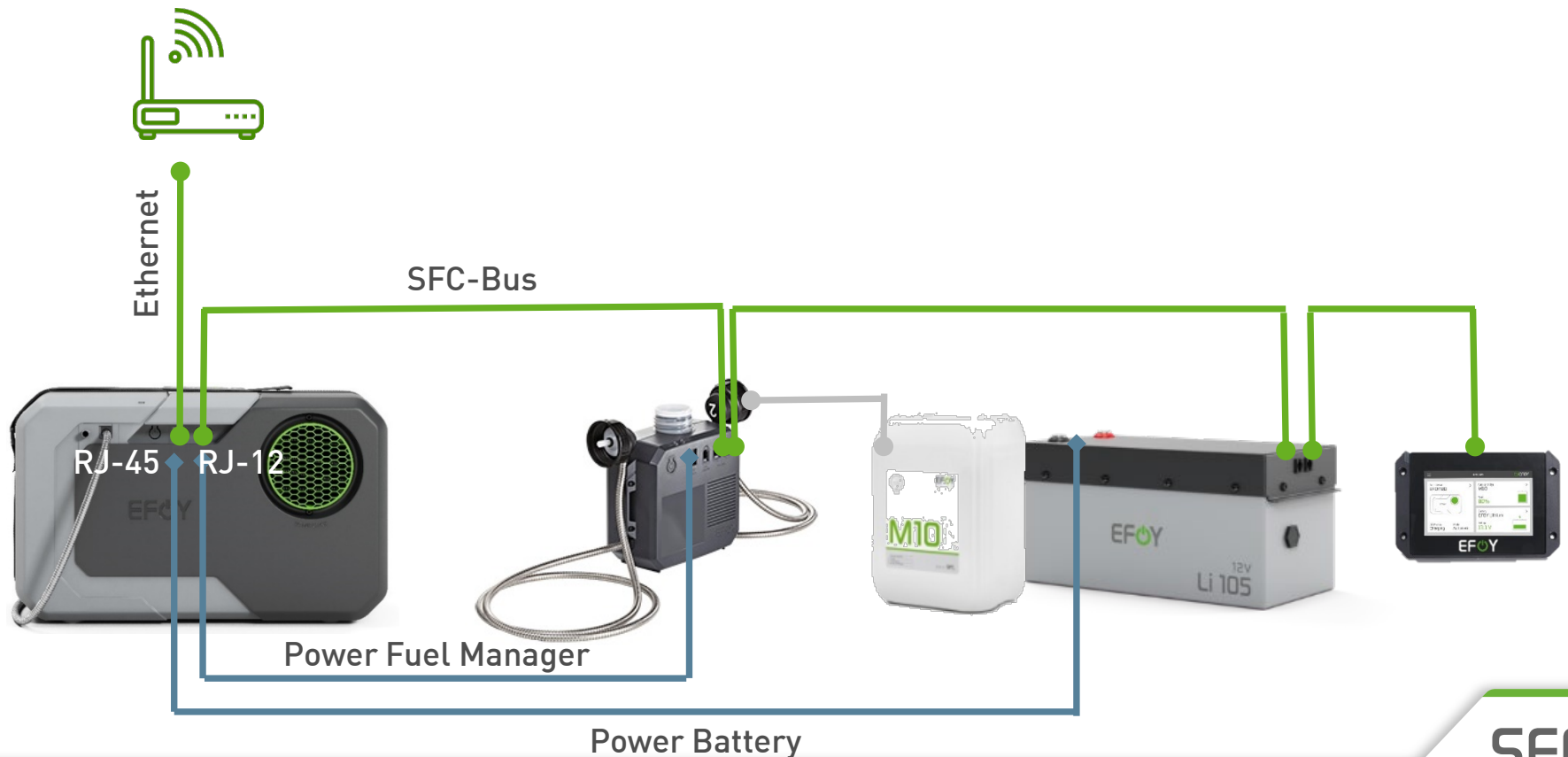
Type in email address

SAVE CHANGES



# EFOY Firmware Update

- ⏻ Automatic firmware update by connecting the EFOY to a router on the Internet
- ⏻ EFOY fuel cell updates EFOY accessory automatically
- ⏻ During update the EFOY led flashes blue



# EFOY Cloud

## Access management

### Firmware Update

- No account needed
- Only internet connection necessary

Included

### EFOY Cloud test period

- EFOY Cloud access
- Limited test period

Included

### EFOY Cloud access

- Full and permanent access to EFOY Cloud

Yearly license

# EFOY Cloud

## Outlook

### New functionalities

- Export data for further system improvement
- More configuration options

### New products

- Adding information about further external components (Solar, batteries, ...)

### Account types & roles

- Delegate rights to further users
- Add new users / create a user group

Let's start using the EFOY Cloud, we offer support and your feedback is welcome [cloudsupport@sfc.com](mailto:cloudsupport@sfc.com)

# Thank you for your attention

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