V1.0-06.2022







Drehstromzähler (80A) mit RS485 & S0 Schnittstelle

Integration of SMARTFOX Energy Meter

The following instructions explain how to connect and parameterise the SMARTFOX Energy Meter with the SMARTFOX Pro system.

To create a comprehensive building monitoring system, the meter can be connected to the SMARTFOX Pro via RS485 (Modbus RTU) or S0 interface. In this way, generation systems (PV inverters, hydroelectric power plants...) as well as consumers (heat pumps, charging stations, flats...) can be connected to the my.smartfox.at monitoring system.

Items needed:

ODER

- SMARTFOX Pro / Pro 2 inkl. Stromwandler 80A Softwarestand EM2 00.01.03.18 oder höher (Pro) Softwarestand EM3 00.01.03.18 oder höher (Pro 2) Art. Nr. 0791732486575 Art. Nr. 0767523866383
- SMARTFOX Pro / Pro 2 inkl. Stromwandler 100A Softwarestand EM2 00.01.03.18 oder höher (Pro) Softwarestand EM3 00.01.03.18 oder höher (Pro 2) Art. Nr. 0791732486698 Art. Nr. 0767523866390



"SMARTFOX Energy Meter Art. No. 0767523866321





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Connection

1.1 AC connection

1

Connect the phases to be measured L1, L2, L3 & N to the corresponding terminals on the meter (Fig. right).

Pay attention to the input and output side.

1.2 Communication

Two interfaces are available on the meter for communication (RS485 or S0 signal). In general, the use of the RS485 interface is recommended in order to be able to display the data in real time in the portal.

The S0 signal transmits the energy values in pulses. The corresponding power value is calculated via a minute average.

1.2.1 Connection via RS485 (Modbus RTU)

Up to 5 SMARTFOX Energy Meters can be added to the bus. In addition, up to 5 SMARTFOX Pro Chargers can be operated on the same bus (10 devices in total). For this purpose, use a twisted pair of wires of a shielded cable (e.g. CAT6).



(Out)



Max. 80A

Zuleitung (In)

SMARTFOX*

^{+ 5} SMARTFOX Pro Charger = gesamt max. 10 Geräte



1.2.2 Connection via S0 signal

If the RS485 interface of the energy manager is already occupied, a SMARTFOX Energy Meter can be read in via S0 signal. For this purpose, use a twisted pair of wires of a shielded cable (e.g. CAT6).



2 Settings on the SMARTFOX Pro (RS485 connection)

1. Call up the web portal "my.smartfox.at" and log in.

Select the menu "Settings" \rightarrow "My devices" and open the device parameterisation of the SMARFOX Pro (cogwheel).

https://my.smartfox.at/settings/= × +								Ŷ	- D
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S MY.SMARTFOX	SMARTFOX.AT E	COCALC K	ONTAKT	SHOP DO	OWNLOADS	SUPPORT			
Grief Testfirme Håndler / Installateur +43 (0)6458 20160	Übersicht L	iveview Energie	Leistung Sp	annung Strom	Ausgänge Tempe	ratur Meter	Einstellungen	Logout	
Meine Geräte									
Mein Profil	💠 Gerät hinzufügen								
		Bezeichnung	Device Type	MAC-Adresse	Version	Internal IP	External IP		
		SMARTFOX Pro	Smartfox	801F1248AF1A	EM2 00.01.03.17	192.168.1.79	89.26.43.41	200	1 0
								1	



- 2. Select the submenu "External counters".
- **3.** Select a free field by clicking on it.



- **4.** The pop-up window opens.
- 5. Select "SMARTFOX Energy Meter RS485" in the drop-down menu.

Allgemein			
Analogausgang			
Relais			
Eingänge			
RS485/CAN			
Ladestation	4		
Batterie	Extern	e Zähler X	
Wärmepumpe	Gerät	Keiner Y (j)	
Wechselrichter		Keiner	
Verbrauchsregler		SMARTFOX Energy Meter RS485 SMARTFOX Meter S0 Modbus TCP	
— Externe Zähler	Reset	Modbus RS485 ext. Textabfrage	
Administration		O-Zähler	
Netzwerk			



- 6. The commissioning wizard is called up.
- 7. Click on "Start configuration".

	Externe Zöhler	
	6 ×	
		(\mathbf{a})
	~ 1	
	-	
① Netzwerk		
	Konfiguration starten 7	

8. Enter the current address (ID) of the meter. Factory setting ID=1, no change required.

The counter is automatically assigned a new ID by the configuration. The counter at place 1 receives ID=101, counter 2 ID=102 ... counter 5 ID=105.

If the meter was already in operation, the current ID can be read on the display. By means of touch-sensitive keys (fig. right: green arrows), you can navigate through the menu until the ID is displayed.



Note! If several participants are connected to the bus, make sure that only the participant to be parameterised is switched on before starting the configuration. Once the first participant has been configured, switch it off and switch on the next participant.

Start the configurator for the additional meter or charging station and repeat the steps until all participants have been integrated. After configuration, all participants can be switched on.



9. Click on "Configure".

🖗 Einstellungen 🗸	Externe Zanier	(
	×	
		$(\overline{+})$
	!!ACHTUNG!!	
	Alle unter dieser Adresse	
	werden zurückgesetzt!	
	Aktuelle Adresse des Zählers:	
① Netzwerk		
	Konfigurieren	

10. The counter is configured.

	Evterne Zähler		
	 Externe Zanier		
	10	×	
Netzwerk			



11. After the configuration is complete, the ID can be checked on the meter.



Hint! If the configuration could not be completed, the SMARTFOX issues an error message. Check the RS485 cabling, power supply of the participant and repeat the steps.

- **12.** If the configuration of the bus address (ID) was successful, the other settings can be made.
- **13.** Under "Target for values" the function of the counter can be defined. The individual functions are described in points 2.1 to 2.4.

Gerät	SMARTFOX Energy	· (i
Konfigurator	Starten	
Ziel für Werte	Subzähler	· (i)
Bezeichnung	Eigene Subzähler WR 1 WR 2	3
Farbe	WR 3 WR 4 WR 5 CC 1	i
Bezug / Lieferung	CC 2 CC 3 CC 4 CC 5	(j
Einfluss auf Hauptmessung	neutral	• ()
Einfluss auf Hauptmessung	CC 4 CC 5 neutral	



2.1 Function subcounter

The "Sub-meter" function can be selected to connect various consumers to the monitoring (e.g. flat meter, heat pump meter, general consumer...).

- 1. Select "Sub-counter" under Destination for values.
- 2. Under Designation, the name is given with which the meter is displayed in the portal.
- 3. The counter is displayed with the selected colour in the portal.
- **4.** The "Supply / Delivery" setting can be used to change the counting direction if the input and output have been reversed when connecting the meter.

Gerät	SMARTFOX Energy	· · · · · · · · · · · · · · · · · · ·
Konfigurator	Starten	
Ziel für Werte	Subzähler	~ <mark>1</mark>
Bezeichnung	Wohnung OG	2
Farbe		3
Bezug / Lieferung	Normal	× 4
Einfluss auf Hauptmessung	neutral	~ (i



5. This setting can be used to define the influence of the counter on the main measurement.

Neutral:	The power value of the meter has no influence on the main measurement.
Add:	The power value of the meter is added to the main measurement.
Subtract:	The power value of the meter is subtracted from the main measurement.

Home v	Externe Zähler			
🖗 Einstellungen 🗸	en des set en la line in district d'une l			
Allgemein				
Analogausgang	Exter	ne Zähler	×	
Relais				
Eingänge	Gerät	SMARTFOX Energy № ✓	(i)	
RS485/CAN	Konfigurator	Starten	(i)	2
Ladestation				
Batterie	Ziel für Werte	Subzähler 🗸	()	
Wärmepumpe	Bezeichnung	Wohnung OG	(i)	
Wechselrichter				
Verbrauchsregler	Farbe		()	
— Externe Zähler	Bezug / Lieferung	Normal 🗸	(i)	
Administration				
D Netzwerk	Einfluss auf Hauptmessung	neutral 🗸	()	
		addieren subtrahieren	2	
	Reset	Speichern		

6. The measured values can now be read in LiveView, power charts, energy charts,

SMARTFOX	Liveview Aktualisiert: 16.02.2021 10:14:00 Uhr				LIVE Heute ?	2
Home ^						
Liveview			Sec.			
Details			Å.			
Einstellungen		(A			
③ Netzwerk			24,00 kw		6	
			Produktion		• Z2 Tiefgarage	
					000123	
					KWD	
		12	J			
		27.00			20,26 kW	
		Verbrauch				
				100	17499,20 kWh	
				Netz		
	• Puffer	R1 Boiler	• R2 Poolpumpe	• Z2 Tiefgarage	CC2 Max Muster	
	0	0	Ĥ	000123	() () ()	
		0	1000		0.00 kW	
	6,00 kW	3,00 kW 12.34 kWh	5,00 kWh 12,34 kWh	20,26 kW	Letzte Ladung:	
	100%			17499,20 kWh	32.00 KWN	
	() Oberschuss	() Statusmeldung maximal	① Statusmeldung maximal		(j) Kein Fahrzeug	
				MAC Adresse: D280	31AC9381 IP Adresse: 102.168.011.060 Version: EM2.00.01.03.0	06



2.2 Function WR1 - WR5

The function "WR1 - WR5" can be selected to connect the meter as a generation plant (PV) in the monitoring. This means that inverters without a communication interface can also be integrated.

Note! No licences are required for integrating the inverters via SMARTFOX Energy Meter.

- 1. Select "WR1 WR5" under Destination for values.
- **2.** The "Supply / Delivery" setting can be used to change the counting direction if the input and output have been reversed when connecting the meter.
- 3. Click on "Save".

Analogausgang	Wahnung OG	0		
Relais	SMARTEUX ENERLY			ž. 💫
Eingänge	E	xterne Zähler	×	
RS485/CAN	Gerät	SMARTFOX Energy N	()	
Ladestation				
Batterie	Konfigurator	Starten) ()	
Wärmepumpe	Ziel für Werte	WR1 V		
Wechselrichter				
Verbrauchsregler	Bezug / Lieferung	Normal 🗸	2	
— Externe Zähler				
Administration				
P Netzwerk	Res	et Speichern 3		

4. The counter is now defined as WR1.

器 Home 公 Einstellungen	~	Externe Zähler	
Allgemein			
Analogausgang		WRI (C)	
Relais		MARTFOX ENERGY	ž. 🖒
Eingänge			
RS485/CAN		×	
Ladestation			
Batterie			
Wärmepumpe		+ +	
Wechselrichter			
Verbrauchsregler			
— Externe Zähler			
Administration		SMARTFOX Energy Meter Reset	



- 5. In the "Inverter" submenu, the counter is automatically assigned to the corresponding field.
- 6. Click on the corresponding field to open the settings pop-up.

		×
SMARTFOX		
88 Home v	Weebselrichter	
중 Einstellungen v	wechselfichter	
Allgemein	Wechselrichter 1	
Analogausgang	EXT. ZÄHLER	
Relais		Ž 6
Eingänge	₩× I	
RS485/CAN		
Ladestation		
Batterie	+	
Wärmepumpe		
— Wechselrichter 5		
Verbrauchsregler	Lizenz kaufen	
Externe Zähler		
Administration		
Ø Netzwerk		_
	Hilfe & Anleitungen	
		-

- **7.** Under Designation, a name can be assigned with which the generating plant is to be displayed in the portal.
- 8. A colour can be selected with which the generating plant is displayed in the portal.
- 9. Confirm with "OK".

Wechselrichter 1 EXT. ZÄHLER			ž. 6
	×		
V	Vechselrichter 1 X		
Modell	Externer Zähler 🗸 🤘		
Bezeichnung	PV süd		
0			
Farbe	8		
F	Reset		
Hilfe & Anleitungen		(?)	





10. The measured values can now be read in LiveView, power charts, energy charts, etc.



2.3 Function CC1 - CC5

The function "CC1 - CC5" can be selected to obtain the readings of a compatible charging station without an integrated meter.

- 1. Select "CC1 CC5" under Destination for values.
- **2.** The "Supply / Delivery" setting can be used to change the counting direction if the input and output have been reversed when connecting the meter.
- 3. Click on "Save".

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SMARTFOX				
🔀 Home 🗸	Eutone 7öbler			
중 Einstellungen v	Externe Zahler			
Allgemein				
Analogausgang		, Ø		
Relais				<u> </u>
Eingänge		Externe Zähler	\times	
RS485/CAN	Gerät	SMARTFOX Energy № 🗸	<u>()</u>	
Ladestation				
Batterie	Konfigurator	Starten	()	
Wärmepumpe	Ziel für Werte	CC1 V	1	
Wechselrichter				
Verbrauchsregler	Bezug / Lieferung	Normal 🗸	2	
— Externe Zähler				
Administration				
Netzwerk		eset Cociebare		
		speichern 3		
				-



4. The measured values are assigned to the correspondingly parameterised charging station.

					<u>×</u>
SMARTFOX					
Home v	Ladestation				_
쯓 Einstellungen v					
Allgemein	CCI - Phoenix	Ô			
Analogausgang	PHOENIX		+	(+)	
Relais	IP Adresse: 192.168.001.210	4			
Eingänge	Seriennummer: 0				
RS485/CAN					
— Ladestation					
Batterie		+	+		
Wärmepumpe			Lizenz erfo	rderlich	
Wechselrichter					
Verbrauchsregler					
Externe Zähler			izenz kaufen		
Administration		Test	izenz aktivieren		
Netzwerk					

5. The measured values can now be read in LiveView, power, energy charts....





2.4 Own" function

With the "Own" function, the meter's measured values can be individually assigned to a target register of the SMARTFOX Pro. The complete SMARTFOX Modbus register is available at <u>www.smartfox.at/allgemein.</u>

- 1. Select "Own" under Destination for values.
- **2.** Enter the designation of the meter.
- 3. Select target register from SMARTFOX Modbus table.
- **4.** The "Supply / Delivery" setting can be used to change the counting direction if the input and output have been reversed when connecting the meter.
- 5. Click on "Save".

Extern	ne Zähler			
Charger SMAR1 METER	TFOX ENERGY	Zähler	×	
Gerät		SMARTFOX Energy ト ∨	i i	
Konfigurator	(Starten	i (*)	
Ziel für Werte		Eigene 🗸	1	
Bezeichnung		Modbus	2	
Leistung Zielre	gister	41500	0	
Energie Vor Zie	elregister	41502	3	
Energie Zurück	Zielregister	0	1	
Bezug / Lieferu	ing	Normal 🗸	4	
	Reset	Speichern		



3 Settings on the SMARTFOX Pro (connection S0)

1. Call up the web portal "my.smartfox.at" and log in.

Select the menu "Settings" \rightarrow "My devices" and open the device parameterisation of the SMARFOX Pro (cogwheel).

https://my.smartfox.at/settings/ × +								Ŷ			×
← → C û 🌢 my.smartfox.at/settings/dev	/ices/						ତ୍ୟ ବ୍ୟ 🖻	\$	*		1
S MY.SMARTFOX	SMARTFOX.AT	ECOCALC K	ONTAKT	SHOP DO	OWNLOADS S	UPPORT					Lį
DAFI Gristi Testfirma Händler / Instellateur +43 (0)6458 20160	Übersicht	Liveview Energie	Leistung Spa	annung Strom	Ausgänge Tempel	atur Meter	Einstellungen	Logout			
Meine Geräte	🖕 Gerät hinzufügen										
Mein Profit		Bezeichnung	Device Type	MAC-Adresse	Version	Internal IP	External IP				
		🗙 SMARTFOX Pro	Smartfox	801F1248AF1A	EM2 00.01.03.17	192.168.1.79	89.26.43.41	0	*	0	
								1			

- **2.** Select the "Inputs" submenu.
- 3. Under S0 Input, you can choose between the functions "Inverter" or "Consumption meter".

Home	v	Fingänge			
💮 Einstellungen	v	Lingange			
Allgemein			S0		
Analogausgang Relais			S0 Eingang	KEINER) (i)
— Eingänge 🙎			Temperatursensor	KEINER Wechselrichter CarCharge Stop	3
RS485/CAN			Temperatursensor	CarCharge Stop Übersch Verbrauchszähler Digitaler Eingang	uss (i)
Ladestation			Mindesttemperatur [°C]	0	(i)
Wärmepumpe			Maximaltemperatur [°C]	60	(j)
Wechselrichter			Ungingo Euplitico	EIN	
Verbrauchsregler			nygiene-runkuon	Elly	



3.1 Inverter function

The function "Inverter" can be selected in order to connect the meter to the monitoring as a generation plant (PV). This means that inverters without a communication interface can also be integrated.

- 1. S0 Select input function "Inverter".
- 2. Enter the pulse rate of the meter (SMARTFOX Energy Meter = 1000 pulses/kWh).

Home	~	Finnänne	
② Einstellungen	~	Eingange	
Allgemein		SO	
Analogausgang			
Relais		S0 Eingang	Wechselrichter V
— Eingänge		Impulse/kWh	1000 2
RS485/CAN		Tomporatureoncor	

- **3.** Select the "Inverter" submenu.
- 4. Select the "S0 input" model.
- **5.** Under Designation, a name can be assigned with which the generating plant is to be displayed in the portal.
- 6. Select the colour with which the input is to be displayed in the diagrams / charts.
- 7. Confirm with "OK".

② Einstellungen ~	weensemente	51				
Allgemein						
Analogausgang	SO INP.					
Relais					_	
Eingänge		Wechsel	richter 1		×	
RS485/CAN						
Ladestation	Modell		S0 EINGANG	~	4	
Batterie	Bezeichnung		PV Süd		5	
Warmepumpe						
— Wechselrichter 3	Farbe				<u> </u>	
Verbrauchsregler	7.	\frown				
Externe Zähler	(Reset	ок 7			
Administration						



8. The measured values can now be read in LiveView, power charts, energy charts,





3.2 Function consumption meter

The "Consumption meter" function can be selected to connect various consumers to the monitoring (e.g. flat meter, heat pump meter, general consumers...).

- 1. S0 Select input function "Consumption meter".
- 2. Enter the pulse rate of the meter (SMARTFOX Energy Meter = 1000 pulses/kWh).
- 3. Under Designation, the name is given with which the meter is displayed in the portal.

🗄 Home	~				
② Einstellungen	÷	Eingänge			
Allgemein			50		
Analogausgang					
Relais			S0 Eingang	Verbrauchszähler V	
— Eingänge			Impulse/kWh	1000	2
RS485/CAN					
Ladestation			Bezeichnung	Zähler	3
Batterie			Temperatursensor		
Wärmepumpe			Temperatursensor	EIN) (j
Wechselrichter					

4. The measured values can now be read in LiveView, power charts, energy charts,





4 Notes



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