

/ Perfect Welding / Solar Energy / Perfect Charging



# Introduction to FRONIUS SMART METER, SETUP CT's, 3G ROUTER

## THE FRONIUS GROUP IN DETAIL

### R & D EMPLOYEES

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As we always want to be the leader, we employ 422 people in Research and Development.

### TURNOVER

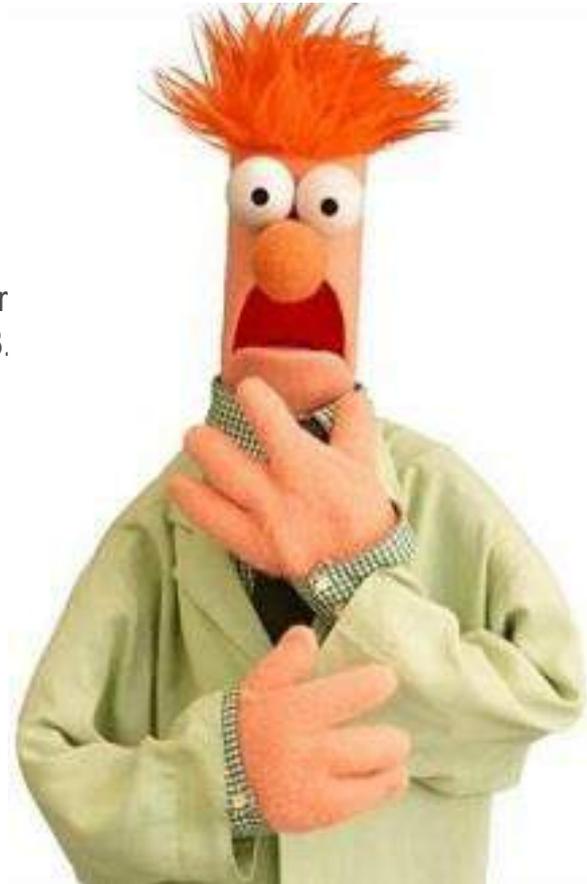
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Fronius achieved a turnover of 343 million euros in 2013.

### GRANTED PATENTS

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Innovation in figures: we currently own 1.008 granted patents.



# EMPLOYEES

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3,344 people work in the 20 international Fronius subsidiaries worldwide.

# EXPORT

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Fronius supplies the world: we export 92 % of products.

# APPRENTICES

---

The development of young talent is important to Fronius. We currently employ 120 apprentices.

## FRONIUS – THREE DIVISIONS

**PERFECT CHARGING**



**PERFECT WELDING**



**SOLAR ENERGY**



**Fronius UK Ltd / Fronius Smart Meter Training**

## FRONIUS – PRODUCTION SITES



**CANADA**  
/ Mississauga



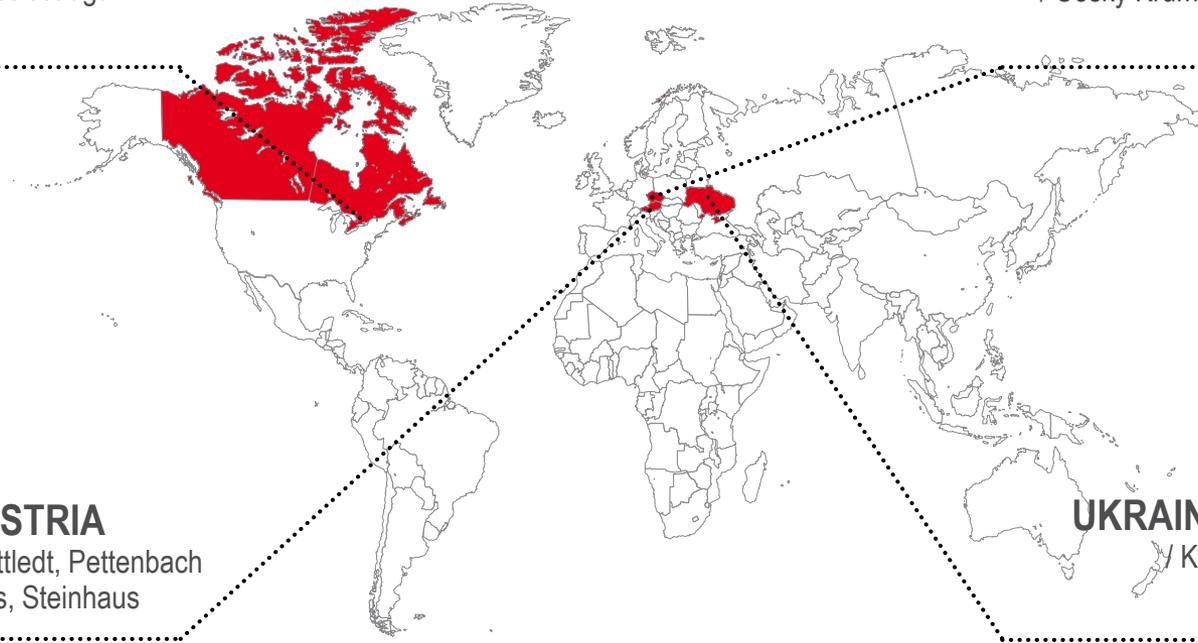
**CZECH REPUBLIC**  
/ Český Krumlov



**AUSTRIA**  
/ Sattledt, Pettenbach  
Wels, Steinhaus



**UKRAINE**  
/ Kiev



**Fronius UK Ltd / Fronius Smart Meter Training**

# INVERTERS AT A GLANCE



**1995**  
/ Sunrise



**2005**  
/ Fronius IG Central



**2009**  
/ Fronius IG TL



**2001**  
/ Fronius IG



**2007**  
/ Fronius IG Plus



**2010**  
/ Fronius CL

# INVERTERS AT A GLANCE



**2013**  
/ Fronius Galvo



**2013**  
/ Fronius Symo



**2012**  
/ Fronius Agilo



**2013**  
/ Fronius Datamanager



**2014**  
/ Fronius Agilo TL

# INVERTERS AT A GLANCE



**2015**  
/ Fronius Primo



**2015**  
/ Fronius Eco



**2014**  
/ Fronius  
Datamanager 2.0



**2015**  
/ Fronius Energy Package

**2016**  
/ Fronius are Go!

# FRONIUS INVERTERS

## STRING INVERTERS



/ Fronius Galvo



/ Fronius Symo Hybrid



/ Fronius Primo



/ Fronius IG Plus



/ Fronius Symo



/ Fronius Eco



/ Fronius IG TL

## CENTRAL INVERTER



/ Fronius Agilo



/ Fronius Agilo TL

# FRONIUS SYSTEM SOLUTIONS

**FRONIUS  
ENERGY  
PACKAGE**



**FRONIUS  
POWER  
PACKAGE**

**FRONIUS SYMO  
HYBRID**

**FRONIUS  
SOLAR  
BATTERY**

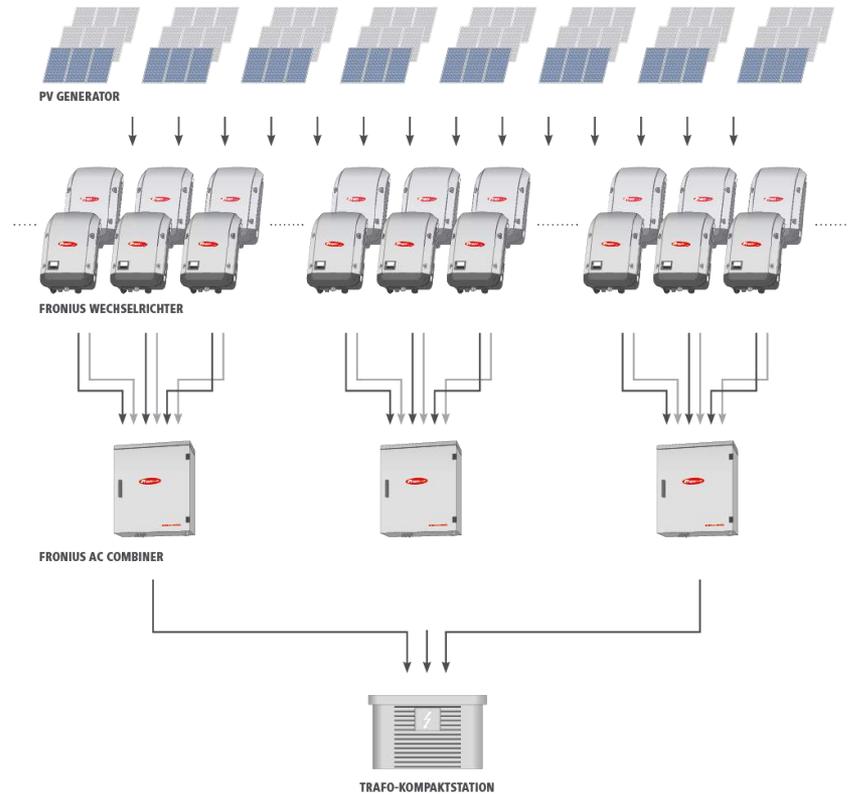
**FRONIUS  
SMART METER**

**FRONIUS SYMO  
RESP.  
FRONIUS ECO**

**VORKONFEK-  
TIONIERTE  
KABEL**

**FRONIUS AC  
COMBINER**

# Fronius Power Package Symo 10-20 kW



# Fronius UK Ltd / Fronius Smart Meter Training

**Right!!  
Lets Get Going !!!**



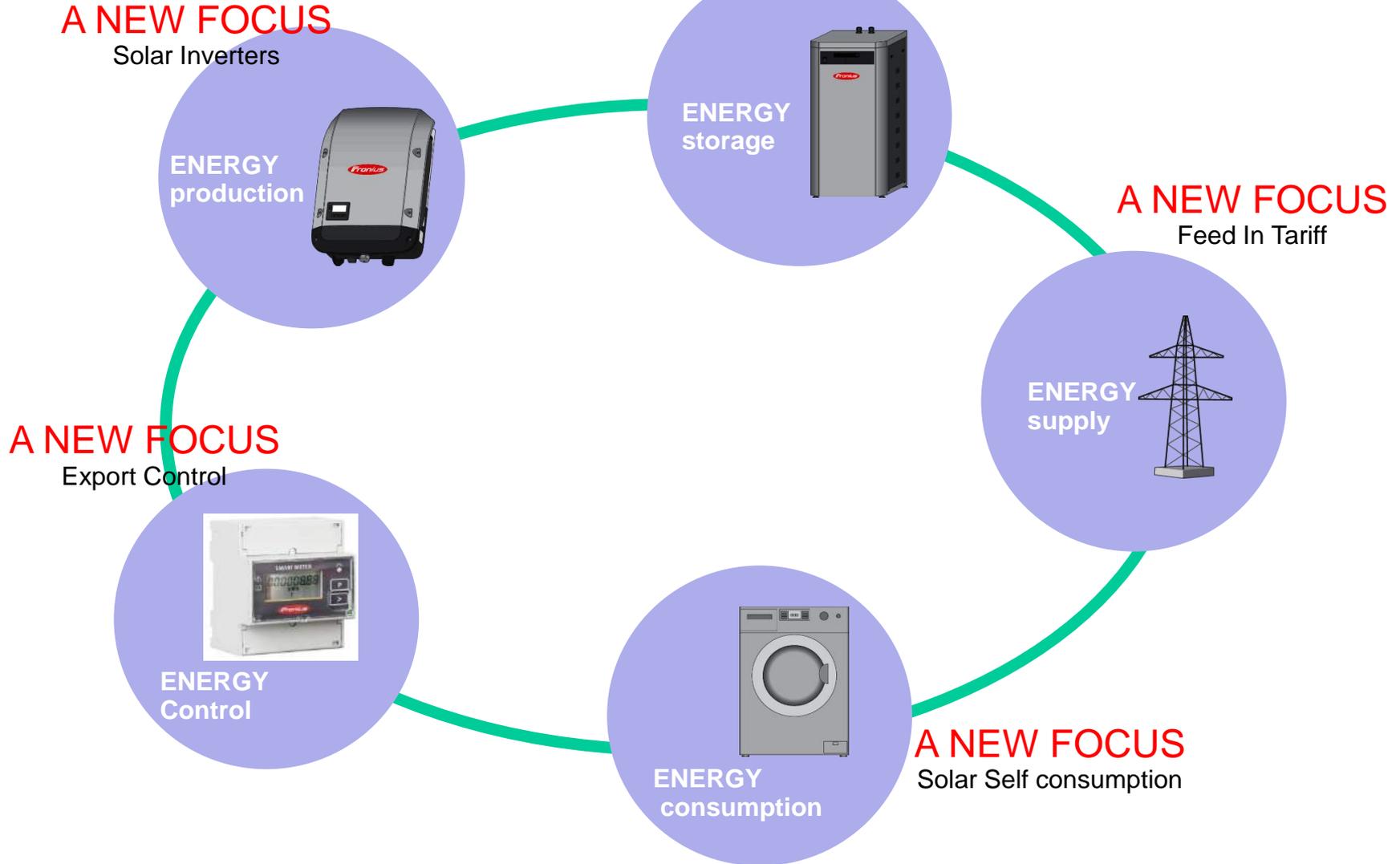
# A NEW FOCUS

On Solar conversion and Storage



## A NEW FOCUS

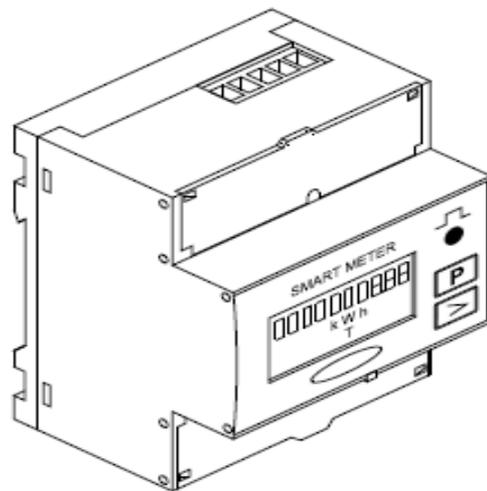
On Solar Storage



/ Perfect Charging  
/ Perfect Welding  
/ Solar Energy



## Fronius Smart Meter 50kA-3



EN / DE / IT / FR

42,0410,2169

01/2015

**Fronius Worldwide**  
[www.fronius.com/addresses](http://www.fronius.com/addresses)

Fronius International GmbH  
4600 Wels, Froniusplatz 1, Austria  
E-Mail: [pv-sales@fronius.com](mailto:pv-sales@fronius.com)  
<http://www.fronius.com>

# VERSION's

FRONIUS Smart Meter

Managing your power requirements!

# Introduction

63A-1



63A-3



50kA-3



# SMART METER TECHNOLOGY



nominal voltage: 230 -240 V

max. current: 1-phase 63 A

cable dimensions

AC cables: **1 – 16 mm<sup>2</sup>**

communication: 0,05 – 4 mm<sup>2</sup>

Mounting: Din rail

Housing: 4 Modules DIN 43880

**Power measurement per phase**

# SINGLE PHASE

# SMART METER TECHNOLOGY



nominal voltage: 400 – 415 V

max. current: 3-phase 63 A

cable dimensions

AC cables: 1 – 16 mm<sup>2</sup>

communication: 0,05 – 4 mm<sup>2</sup>

Mounting: Din rail

Housing: 4 Modules DIN 43880

**Power measurement per phase**

# THREE PHASE

# SMART METER TECHNOLOGY



nominal voltage: 230 – 415 V

max. current: 1 - 3-phase 50,000 A

cable dimensions

AC cables: 1 – 16 mm<sup>2</sup>

communication: 0,05 – 4 mm<sup>2</sup>

Mounting: Din rail

Housing: 4 Modules DIN 43880

**Power measurement per phase**

**SINGLE OR THREE PHASE.**

**1ph / 3ph**

# Smart Meter display

Active power L1, L2, L3

Reactive power L1, L2, L3 (inductive / capacitive)

Total power

Current: L1, L2, L3

Voltage: L1-N, L2-N, L3-N, L1-L2, L1-L3, L2-L3

cos phi: L1, L2, L3

Average frequency on all phases

monitoring of mains voltage and frequency

detection of power consumption

communication via Modbus RTU



Interface: JSON, Modbus TCP, Push-Service

bidirectional measurement

data can be used to optimize self-consumption rate

Mounting in power distribution box



# INTEGRATED MONITORING FRONIUS SMART METER

Bidirectional meter

**50 KA-3      1ph – 3ph**

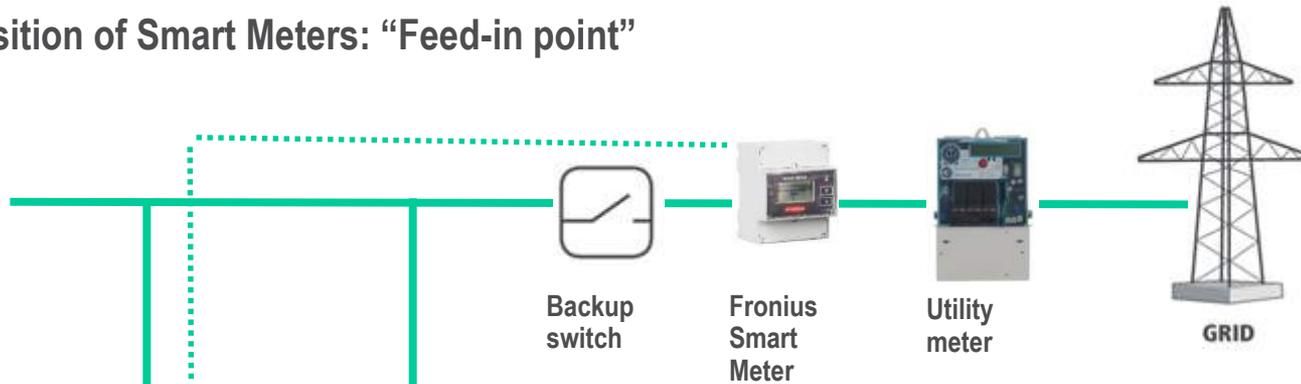


Optimises self-consumption and records household's load curve. When setting up the Ct's, to obtain the ratio take the primary turns and divid by the secondary turn's.  $P \text{ turns} / S \text{ turns} = \text{Ratio}$  i.e.  $200 / 40 = 5$  ratio so enter the value 0005    Terminals 5,8,11 must be linked out for single phase operation, or the meter will not work.

GENERAL DATA	FRONIUS SMART METER
Nominal voltage	230 – 240V    400 – 415 V
Max. current	3 x 50 A
Installation	DIN rail
Interface to inverter	Modbus RTU (RS485)
Display	8-digit LCD

# Block diagram

## Position of Smart Meters: “Feed-in point”



Fronius Symo



load

### Commercial

### Industrial



Transmission

### Domestic



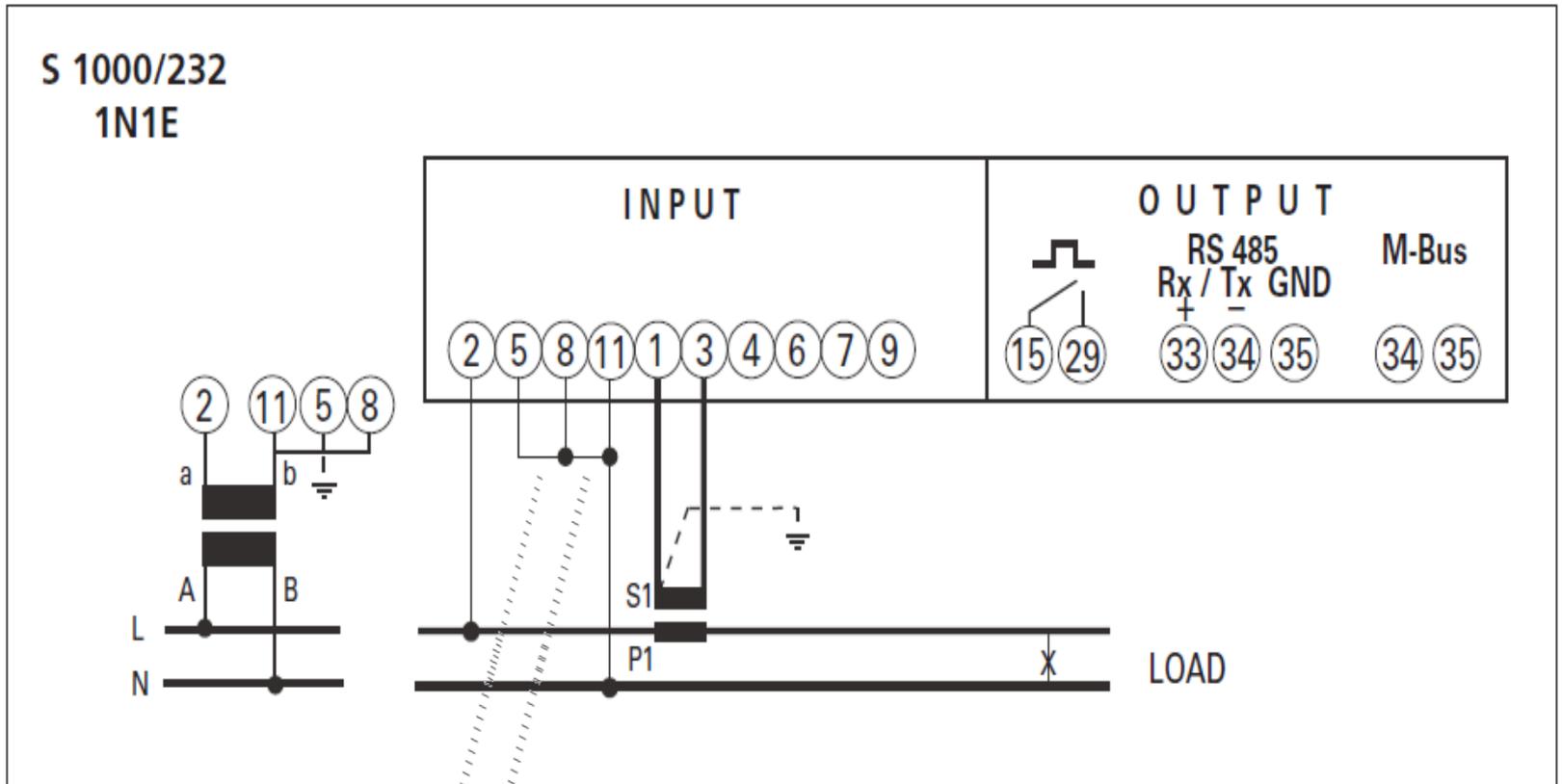
## / Facts about the Fronius Smart Meter

- / Monitoring of grid parameters voltage and frequency
- / Bidirectional measurement
- / Capturing of load curves
- / Data is utilized for optimizing self-consumption
- / Communication via Modbus RTU
- / Mounting in the electric cabinet (DIN rail)
- / Position of the meter:

# FRONIUS SMART METER

Whether Industrial commercial or Domestic The 50KA will do the Job!

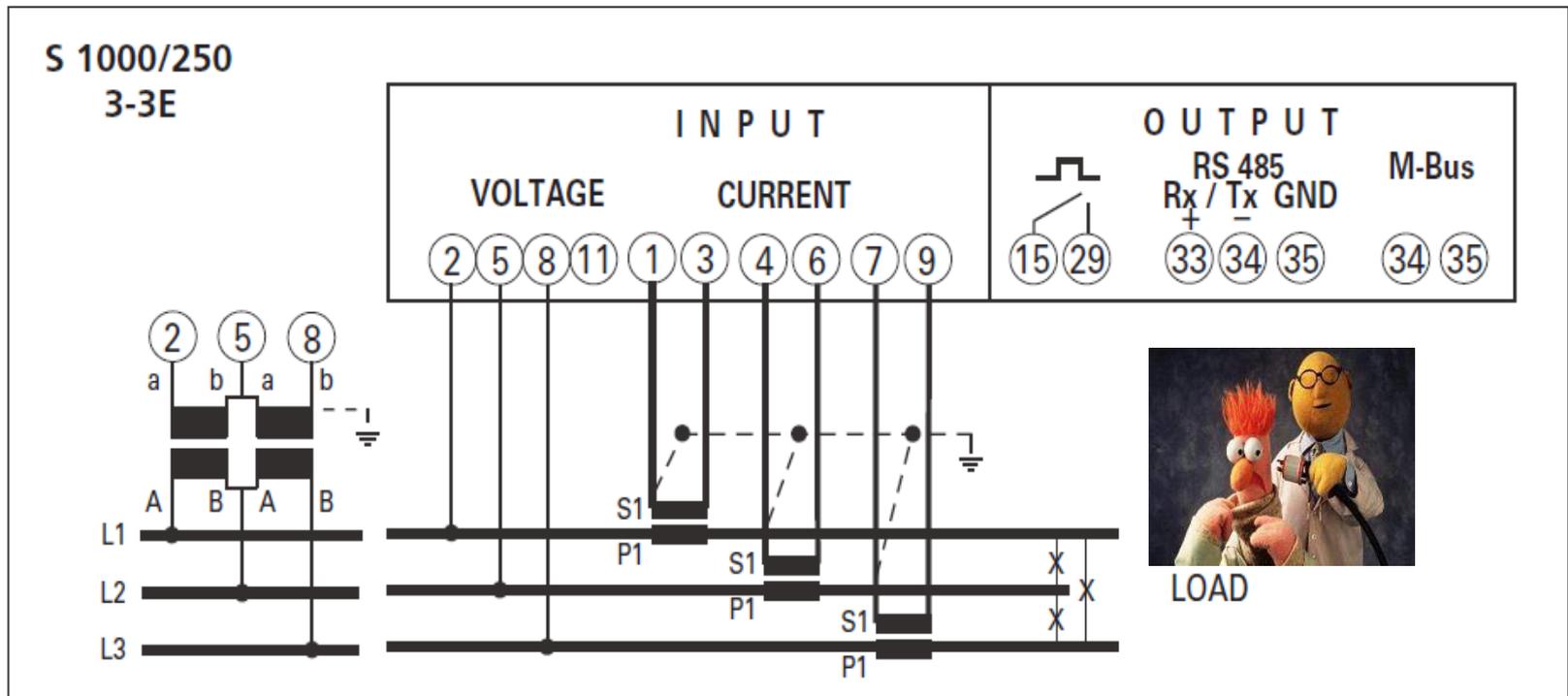
FRONIUS SMART METER **Two Wire System**



Important links

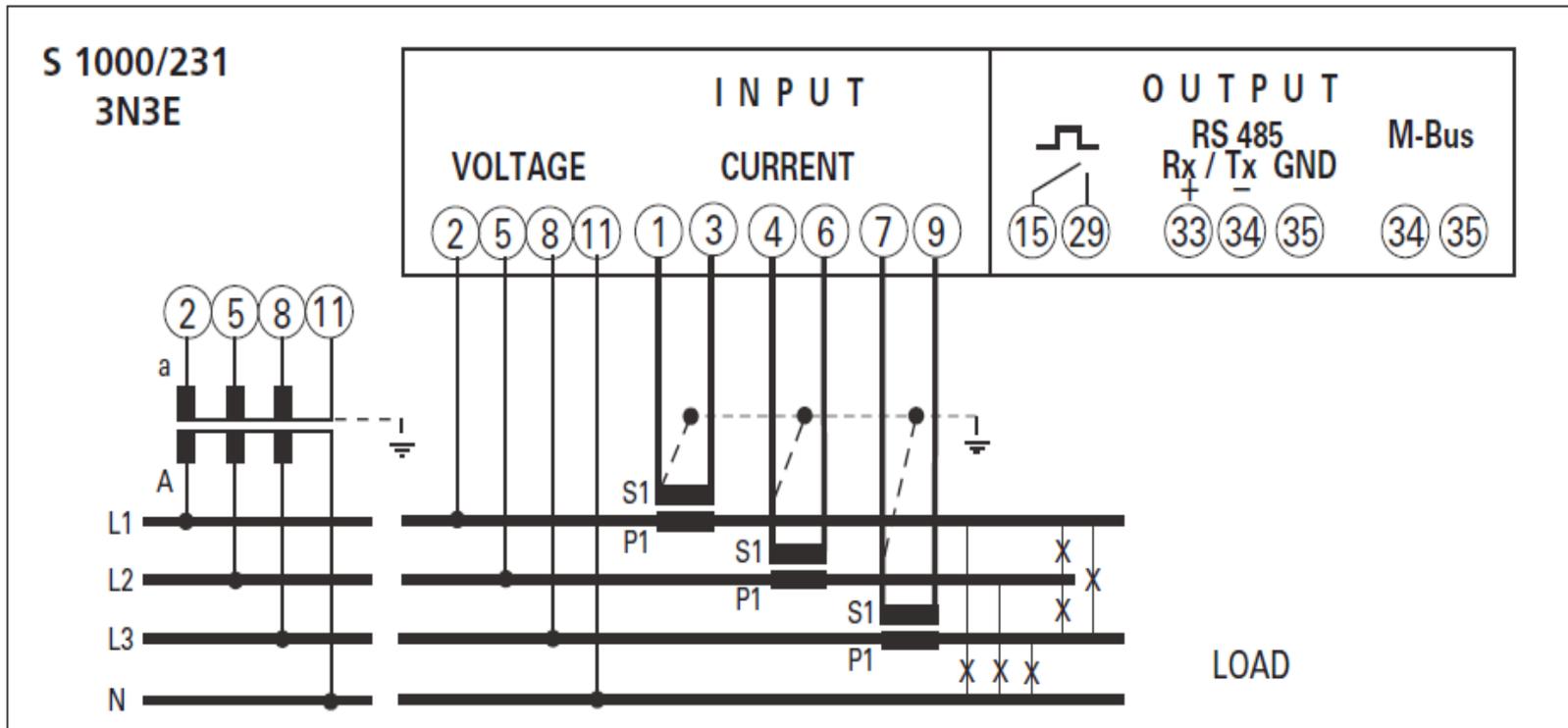
# FRONIUS SMART METER

## FRONIUS SMART METER Three Wire System

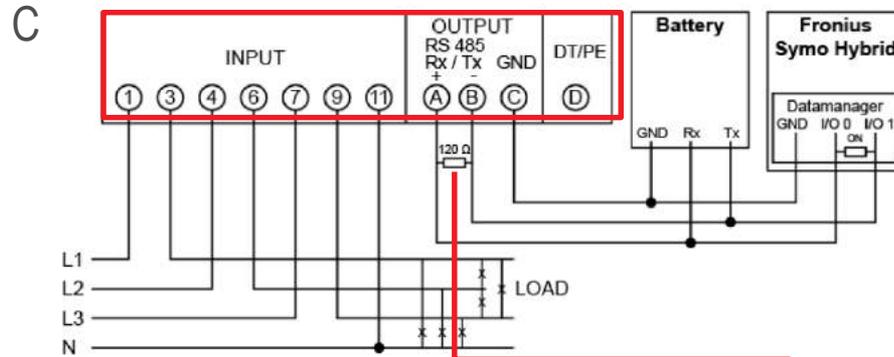


# FRONIUS SMART METER

## FRONIUS SMART METER **Four Wire System**

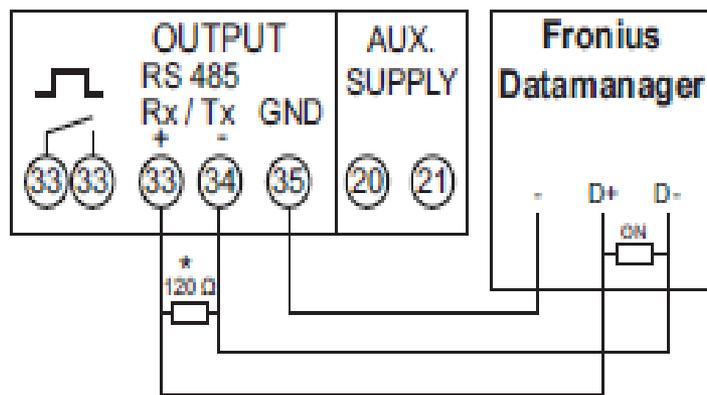


# FRONIUS SMARTMETER



## Wiring according to schematic diagram

- / Wiring between meter and inverter (CAT 5) Screen twin twisted
- / Data line for Modbus RTU
- / Maximum distance: 300 m (980 feet)



120 Ohm terminating resistor is Supplied with the meter

If the Smart Meter pass word is forgotten then the back door entry method is available:

**The Master reset is 9753**

# FRONIUS SMART METER

## SELECTION CRITERIA FOR A CURRENT CONVERTER FOR THE FRONIUS SMART METER 50KA-3

### **/ Primary current**

Maximum current per phase. A current converter with a primary current greater than the maximum expected current per phase should be selected. The closer the expected current is to this value, the more precise the measurement will be.

### **/ Secondary current**

1 - 5 A

### **/ Power**

The Fronius Smart Meter needs 0.3 VA to carry out its measurements. Losses also occur on the outgoing and return leads. The power of the current converter must be greater than the sum total of the power of the Fronius Smart Meter and the leads. The higher the power, the better.

## / Power

The Fronius Smart Meter needs 0.3 VA to carry out its measurements. Losses also occur on the outgoing and return leads. The power of the current converter must be greater than the sum total of the power of the Fronius Smart Meter and the leads. The higher the power, the better.

For example: Outgoing and return lead between Fronius Smart Meter and current converter (together):

2 x 0.5 m = 1 m length with a copper cable cross-section of 1.5 mm<sup>2</sup> -> 1 x 0.6 VA

Fronius Smart Meter self-consumption = 0.3 VA

Sum total = 0.9 VA

A current converter with a rating of 1 VA, 1.5 VA, 5 VA or higher is suitable here.

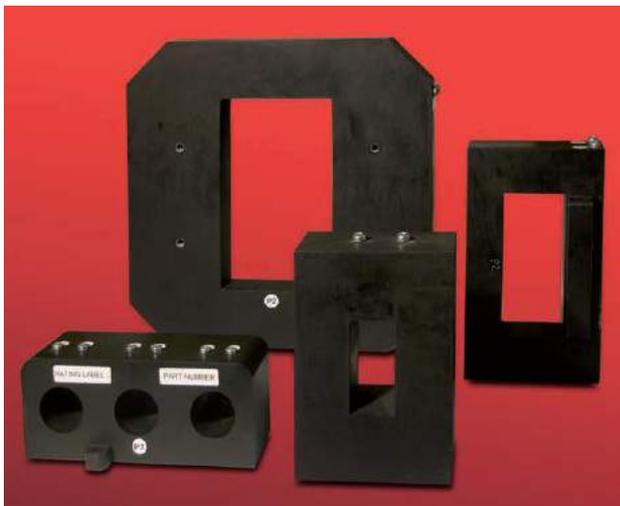
### Line resistances at different cross-sections (copper wires)

Secondary current	Cross-section	Line resistances at different lead lengths (outgoing and return lead)				
		0.5 m	1.0 m	2.5 m	5 m	10 m
[A]	[mm <sup>2</sup> ]					
5	1.5	0.3 VA	0.6 VA	1.5 VA	2.9 VA	5.8 VA
5	2.5	0.2 VA	0.4 VA	0.9 VA	1.8 VA	3.6 VA
5	4.0	-	-	0.6 VA	1.1 VA	2.2 VA

# INTEGRATED MONITORING Current & Voltage Transformers



We can advise on Current & Voltage Transformers,  
Let our friendly Technical staff help, get it right first time



The snap-in range  
comes

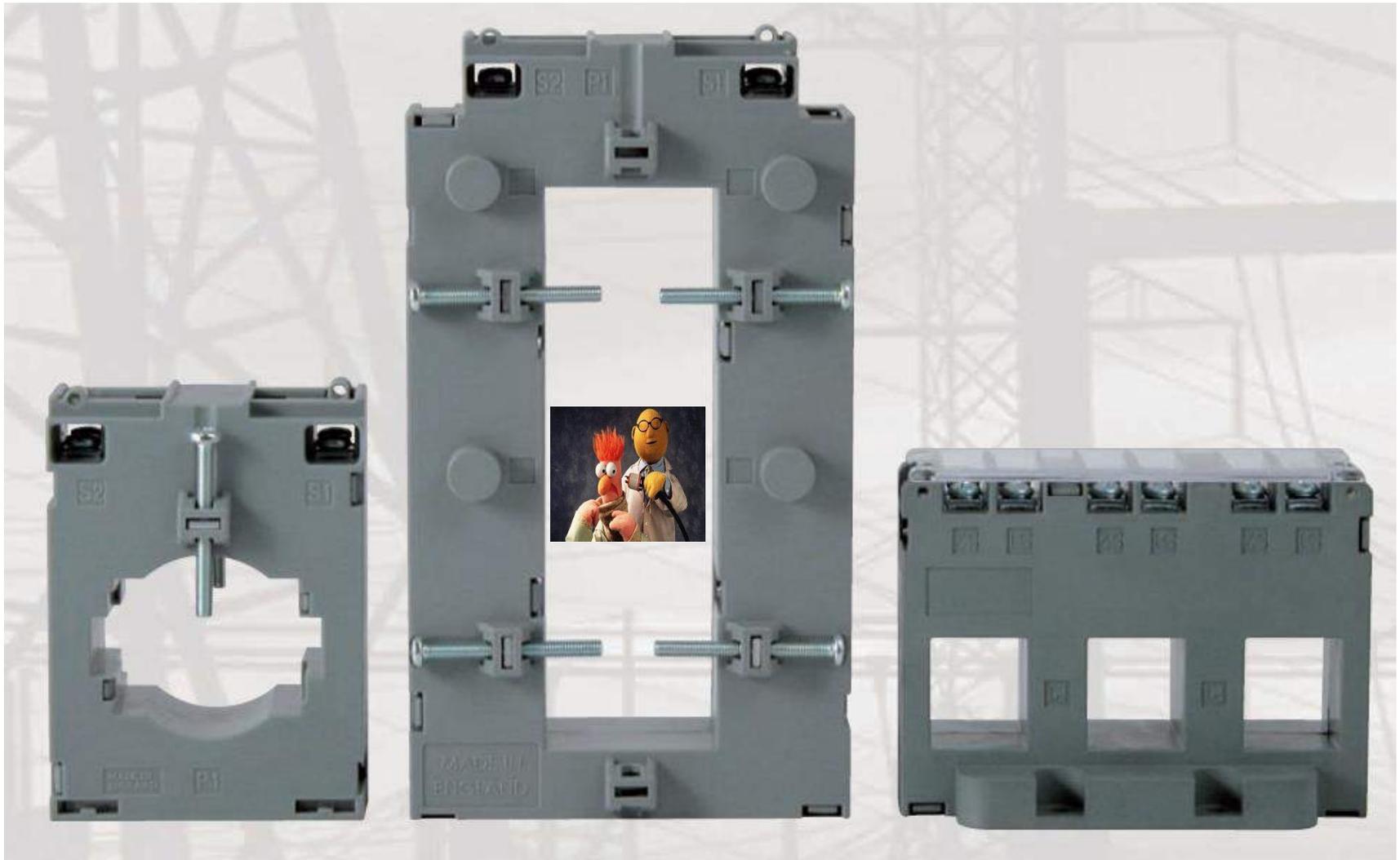
IP65.

Black out cover.

Communications  
failure default to safe  
pre-determined power  
level 100% - 0%

5a – 1A for  
extended hours  
of outdoor use

Take the Primary windings and divided it by the secondary windings the result is the Ratio you enter in the Smart Meter



## CT sensors - An introduction

Often referred to as a current clamp, a CT is in fact, ***not*** a clamp.

*These are Clamps.* On the left are two bus bar clamps, on the right, a carpenter's G-clamp:



Pictured above, is an example of a Split-Core CT.

Here's an example of a ***split-core*** CT



In addition to the split-core type, solid core, (aka ***ring core***) CTs are available.

Here's an example of a ***solid-core*** CT

## **Basics**

Current transformers (CTs) are sensors that measure alternating current. They are particularly useful for measuring whole building electricity consumption (or generation, for that matter).

The split core type, such as the CT in the picture above, is particularly suitable for DIY use, as it can be clipped onto either the live **or** neutral wire coming into the building, without the need to do any high voltage electrical work.

Like any other transformer, a current transformer has a primary winding, a magnetic core, and a secondary winding.

In the case of whole building monitoring, the primary winding is the live **or** neutral wire (not both!) coming into the building, that is passed through the opening in the CT. The secondary winding is made of many turns of fine wire housed within the transformer case.

The alternating current flowing in the primary produces a magnetic field in the core, which induces a current in the secondary winding circuit [1].

The current in the secondary winding is proportional to the current flowing in the primary winding:

$$I_{\text{secondary}} = \text{Ct turns Ratio} \times I_{\text{primary}}$$

$$I_s = \text{Ct ratio} \times I_p$$

$$\text{Ct turns Ratio} = \text{Turns primary} / \text{Turns secondary}$$

$$\text{Ct ratio} = P_t / S_t$$

The number of secondary turns in the CT pictured above, is 2000, so the current in the secondary is one 2000th of the current in the primary.

Normally, this ratio is written in terms of currents in Amps e.g. 100:5 (for a 5A meter, scaled 0 - 100A). The ratio for the CT above would normally be written as 100:0.05.

## **Burden resistor**

A "current output" CT needs to be used with a burden resistor. The burden resistor completes or closes the CT secondary circuit. The burden value is chosen to provide a voltage proportional to the secondary current. The burden value needs to be low enough to prevent CT core saturation.

## Safety

In general, a CT must **never** be open-circuited once it's attached to a current-carrying conductor. A CT is potentially dangerous if open-circuited.

If open-circuited with current flowing in the primary, the transformer secondary will attempt to continue driving current into what is effectively an infinite impedance. This will produce a high and potentially dangerous voltage across the secondary [1]

Some CT's have built-in protection. Some have protective Zener diodes as is the case with the SCT-013-000 recommended for use in this project. If the CT is of the 'voltage output' type, it has a built in burden resistor. Thus, it cannot be open-circuited.

## Installing a CT

The primary winding of the CT is the wire carrying the current you want to measure. If you clip your CT around a two or three core cable that has wires carrying the same current but in opposite directions, the magnetic fields created by the wires will cancel each other, and your CT will have no output.

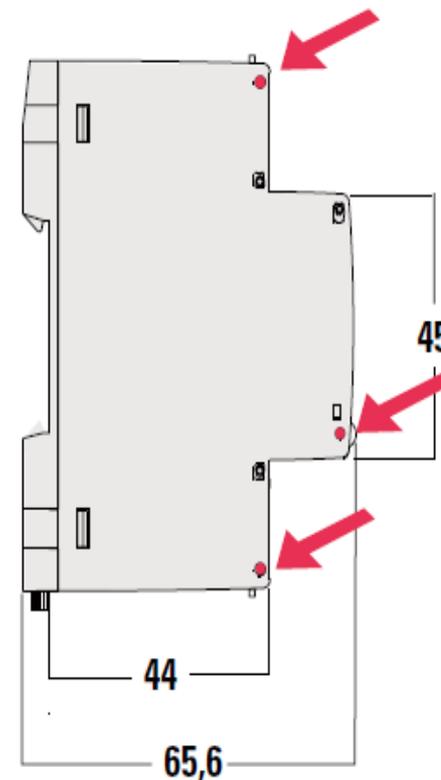
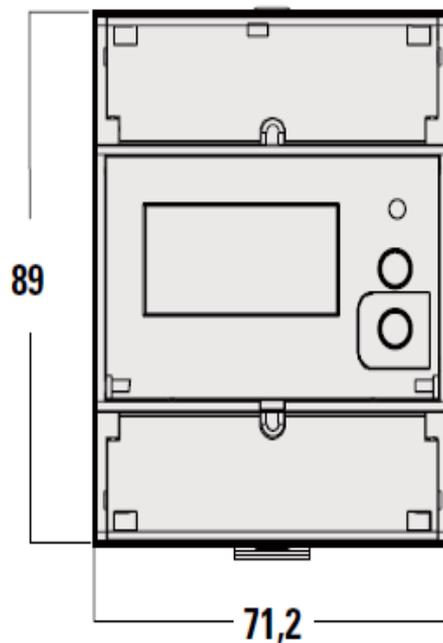
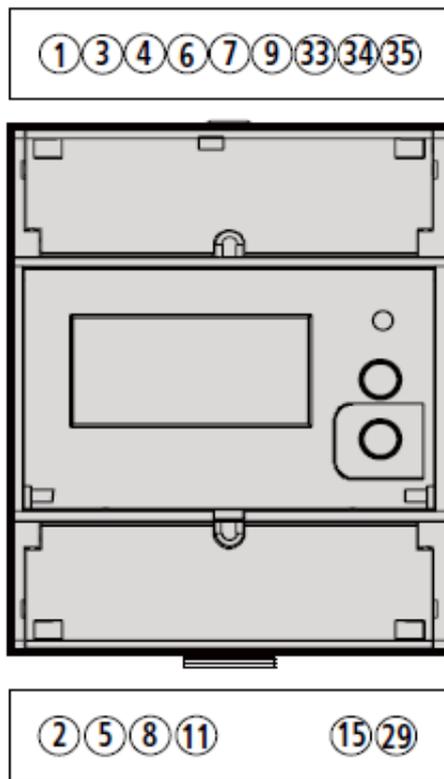
[3] & [4]

A split-core CT, especially one that has a ferrite core (such as the ones made by YHDC) should **never** be "clamped" to the cable using any sort of packing material, because the brittle nature of the ferrite core means that it might easily be broken, thus destroying the CT.

You should only clamp the CT to the cable or bus bar if the housing is specifically designed to do so. Similarly, a ring-core CT should **never** be forced onto a cable that is too large to pass freely through the centre.

The position and orientation of the cable within the CT aperture does **not** affect the output.

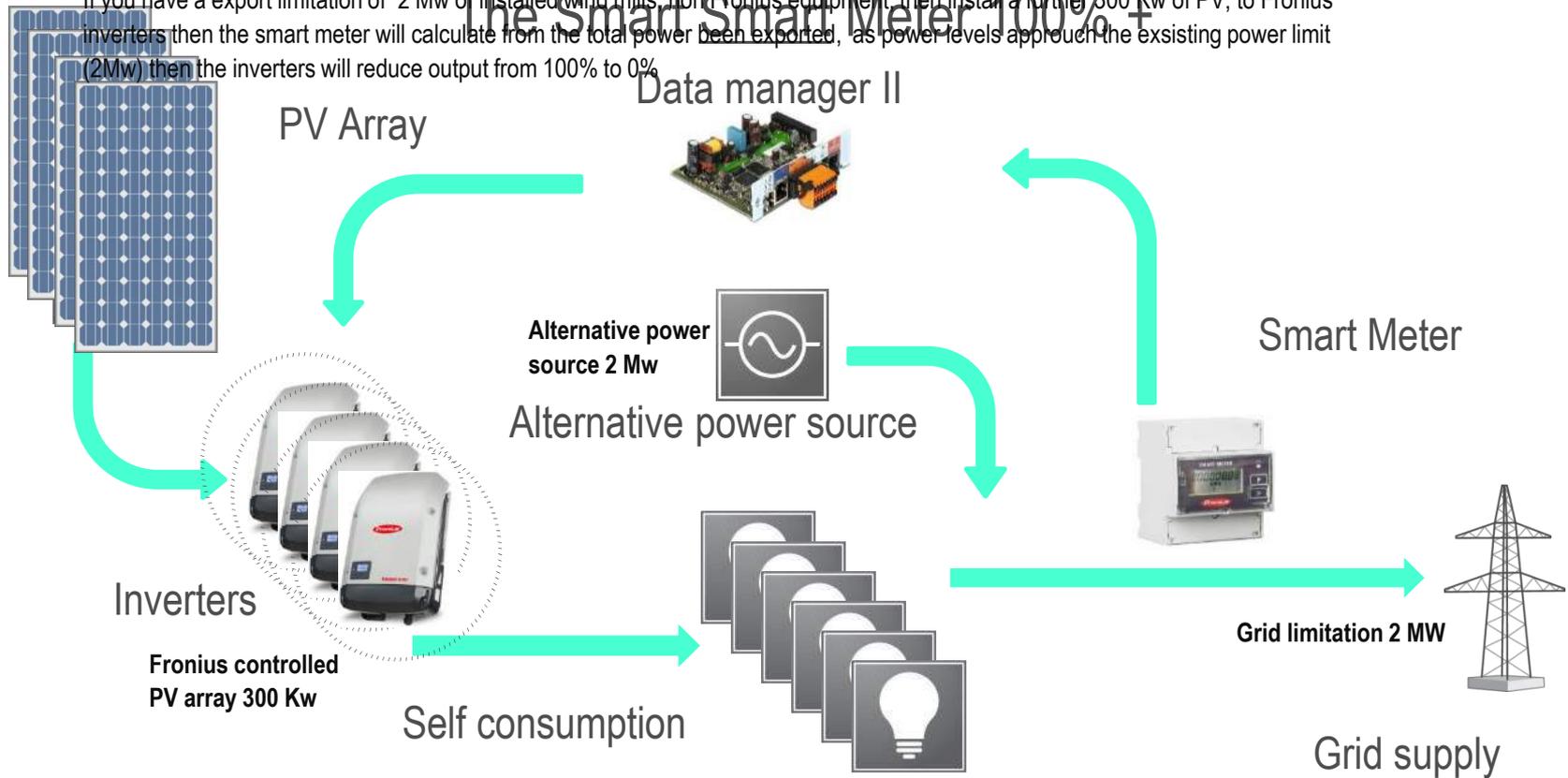
# FRONIUS SMART METER DIMENTIONS



The Fronius Export limitation plus 100%, Now you can have an existing alternative power source and add to your generation and still have existing export limitation.

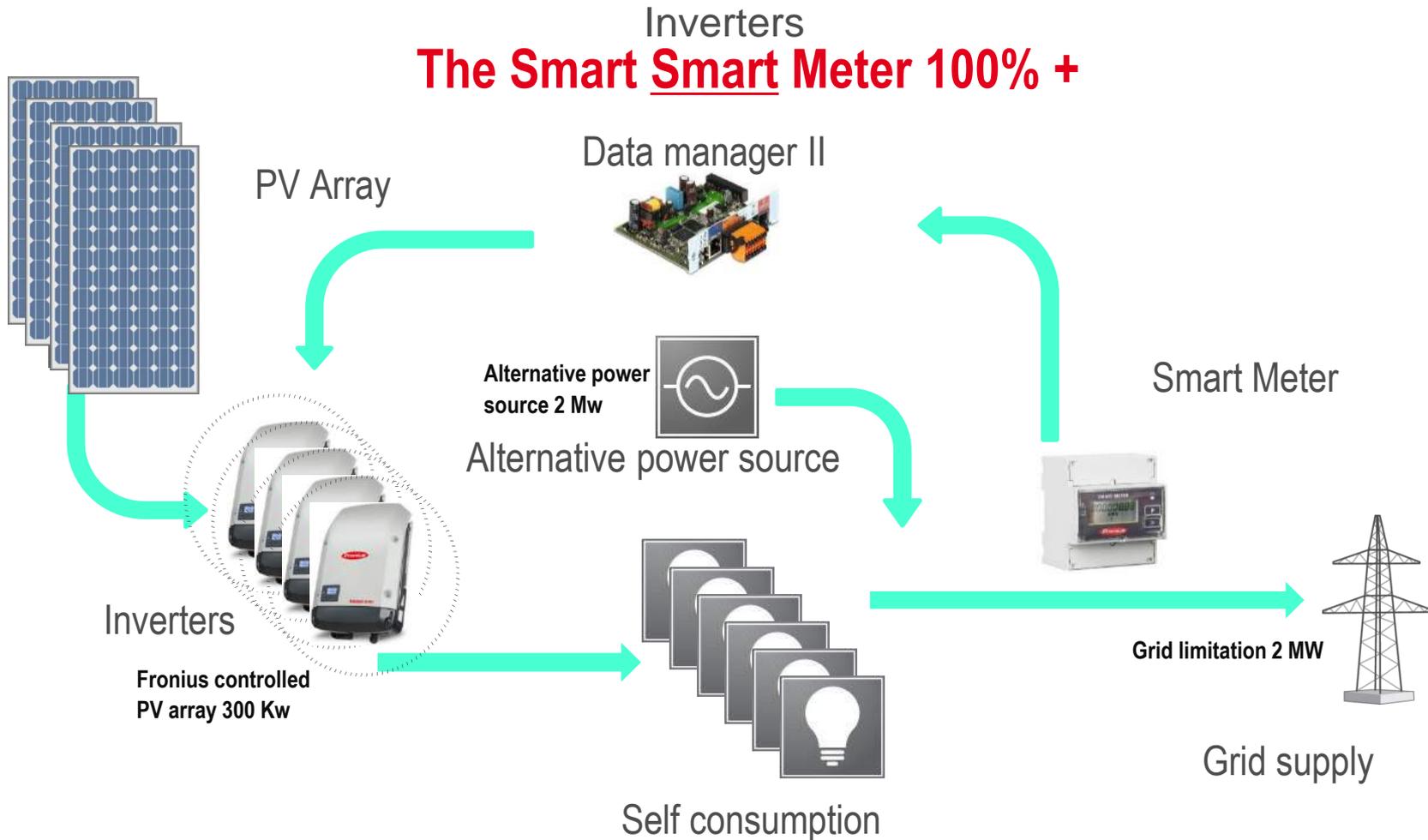
If you have an export limitation of 2 Mw of installed wind mills, non-Fronius equipment, then install a further 300 Kw of PV, to Fronius inverters then the smart meter will calculate from the total power been exported, as power levels approach the existing power limit (2Mw) then the inverters will reduce output from 100% to 0%

# Inverters The Smart Smart Meter 100% + Data manager II



The Fronius Export limitation plus 100%, Now you can have an existing alternative power source and add to your generation and still have existing export limitation.

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# DISPLAY

Energia Attiva Totale  
Total Active Energy  
Energie Active Totale  
Totalwirkenergie

⇒ 000658.00  
k Wh  
T



Energia Reattiva Totale  
Total Reactive Energy  
Energie Réactive Totale  
Totalblindenergie

000558.00  
k varh  
T



Energia Attiva Parziale  
Partial Active Energy  
Energie Active Partielle  
Teilwirkenergie

000350.00  
k Wh  
P



Energia Reattiva Parziale  
Partial Reactive Energy  
Energie Réactive Partielle  
Teilblindenergie

000250.00  
k varh  
P



Valore Massimo Potenza Attiva Media  
Active Power Max. Demand  
Puissance Moyenne Maximale Active  
Wirkleistungsmittelwert Max.

95.00  
k W  
PMD



Potenza Attiva Media  
Active Power Demand  
Puissance Moyenne Active  
Wirkleistungsmittelwert

75.00  
k W  
MD



Menù tensioni - correnti  
Voltages - currents menu  
Menu tensions - courants  
Spannung- und Strommenü

1-U-P



**FRONIUS SMART METER** When stepping though the menu's, as shown; Once at I.U.P. leave 2'Sec's You can step though CT's settings, Voltages, Frequency's.



Tenere premuto per 2 secondi per l'azzeramento  
For the Reset keep pressed the key for 2 seconds  
Pour la Remise à zéro tenir appuyé la touche pour 2 secondes  
Für die Rückstellung, halten Sie die Taste für 2 Sekunden gedrückt



Tenere premuto per 2 secondi  
Keep pressed the key for 2 seconds  
Tenir appuyé la touche pour 2 secondes  
Halten Sie die Taste für 2 Sekunden gedrückt



Attendere 2 secondi  
Wait for 2 seconds  
Attendre 2 secondes  
Warten Sie auf 2 Sekunden



2s

/ Perfect Welding / Solar Energy / Perfect Charging

# FRONIUS DATA MANAGER 2.0 CARD/BOX



Wifi card

Monitoring- and visualisation at Solar.web portal

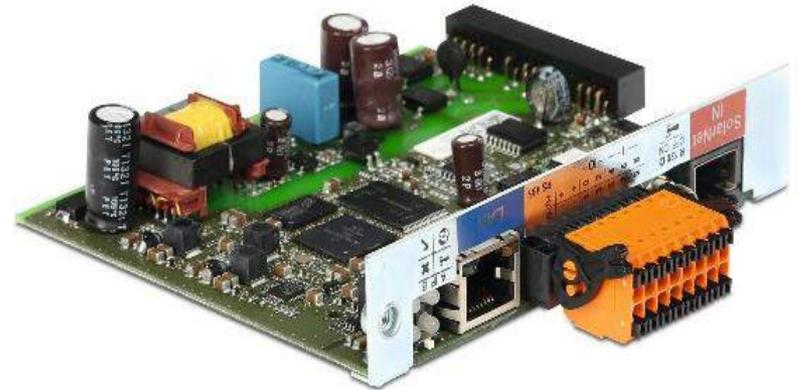
Open interface,

Modbus TCP SunSpec (Ethernet) and Modbus RTU (RS-485)

Fronius Solar API (JSON- SunSpec)

Fronius Smart Meter interface

No Solar.net RS 485 available.



*Fronius Datamanager Box 2.0*

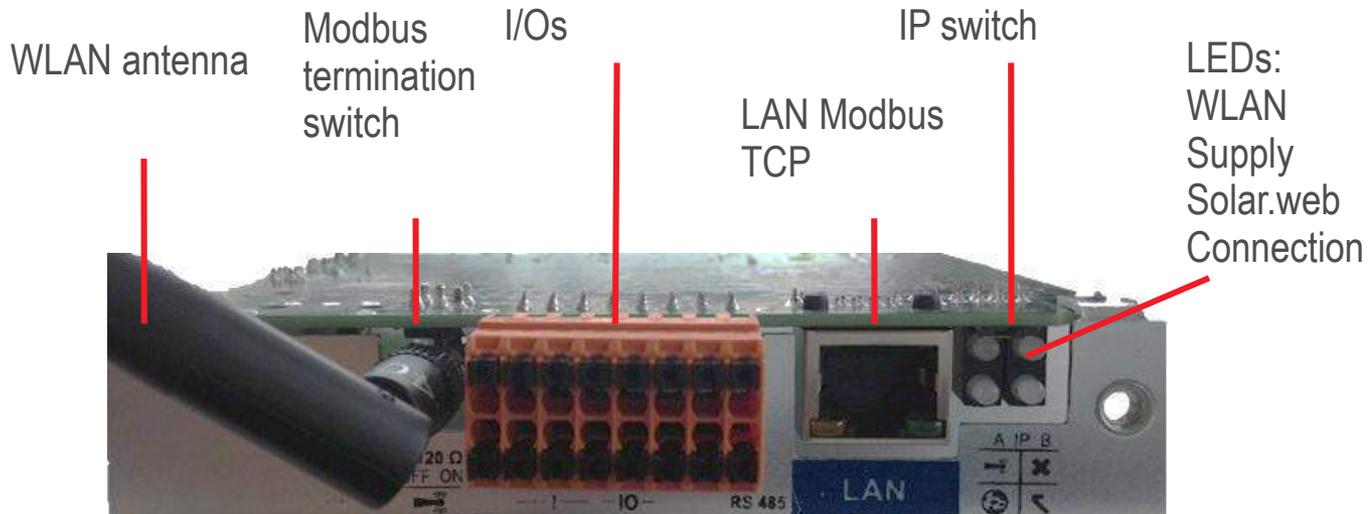


*Fronius Datamanager 2.0 Card*

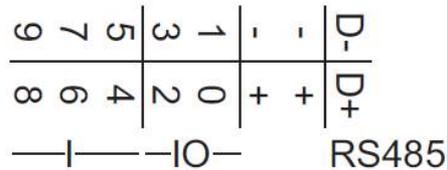
FRONIUS SMART METER Wi-Fi Technology

# DATA MANAGER 2.0 CARD

With its own on board Software for multiple programming events  
LAN/WLAN on diagnostic leds external powers, for switching and  
communications.



Fronius Datamanager 2.0



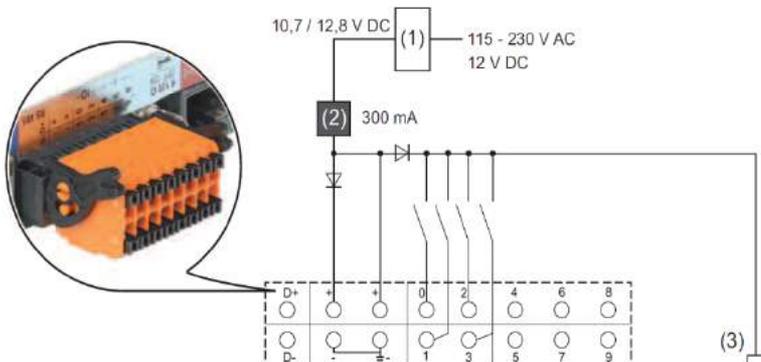
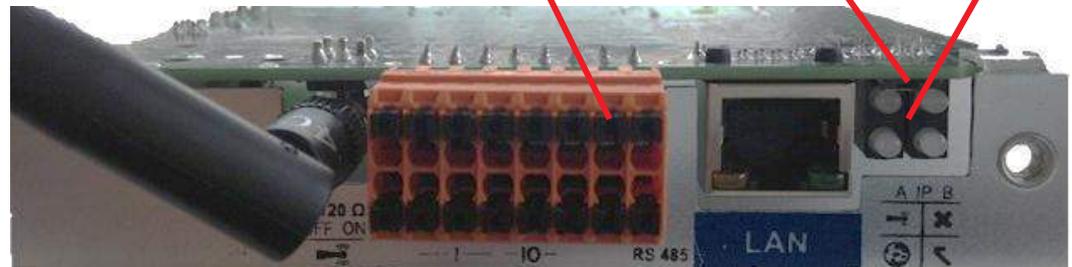
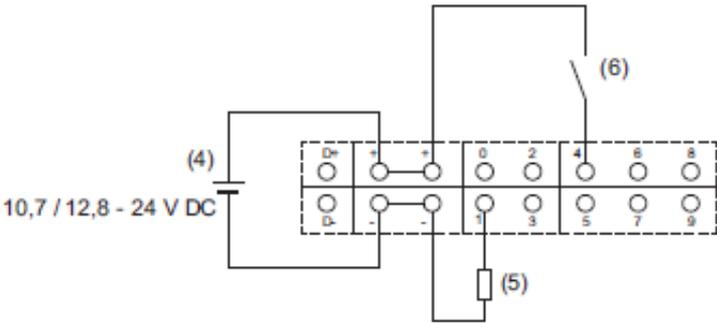
Fronius Datamanager Box 2.0

# DATA MANAGER 2.0 CARD

With its own on board Software for multiple programming events  
 LAN/WLAN on diagnostic leds external powers, for switching and  
 communications.

LEDs:  
 WLAN  
 Supply  
 Solar.web  
 Connection

LAN Modbus  
 TCP IP switch



9	5	3	1	-	-	D-
7	7	1	1	-	-	D-
8	6	4	2	+	+	D+
						D+
- IO -						RS485

# FRONIUS SMARTMETER S/W SETUP

FRONIUS SMARTMETER SOFTWARE SETUP

# ARE WE READY!!!!



# DATA MANAGER II CARD

There are several ways to communicate with the data manager II, This can be achieved via a Iphone, Samsung Phono, Tablits, Windows Phono or with a laptop directly connected. As in this example. Using a standard ethernet cable, plug one end in to your laptop and the other end in to your Datamanerger II card or box version, then go to your wifi signal indicator Fig 1. Now Disconnect all Wifi signals as in Fig 2..



Find your wifi signal Fig 1.



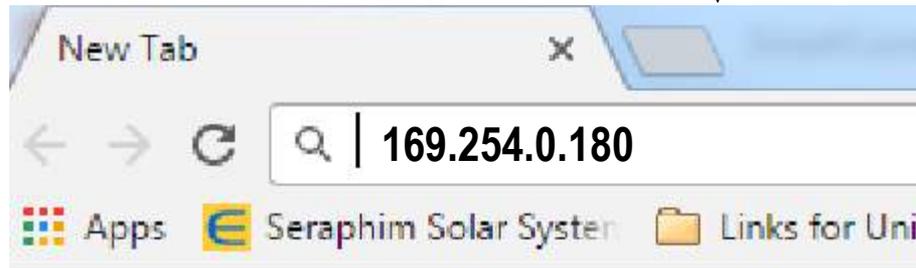
Fronius Inverter

Ethernet Cable CAT 5



Standard Laptop

Then run Google Chrome, Type in to the search bar 169.254.0.180

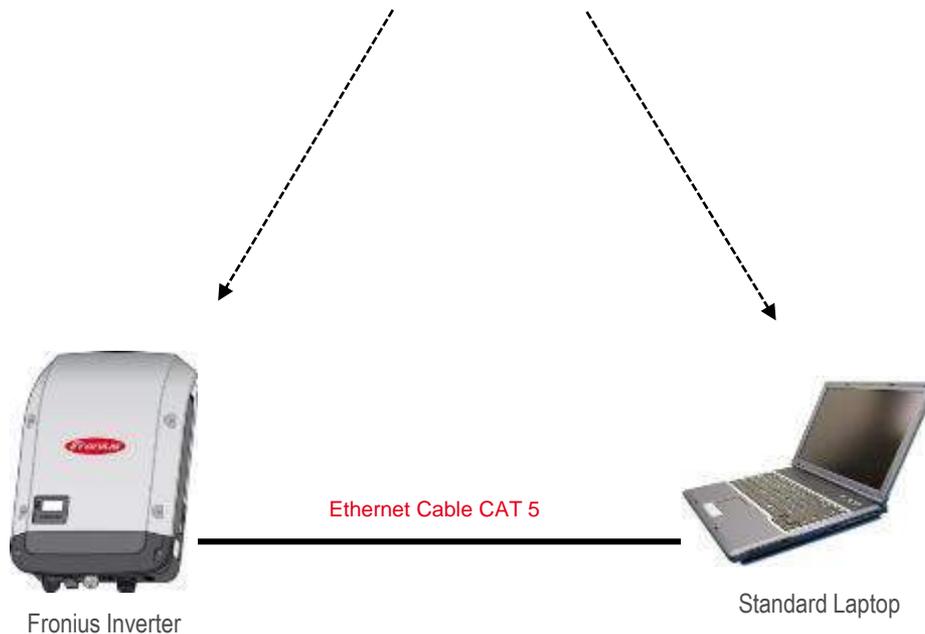


Disconnect you wifi signal Fig 2.

Now the Data Manager will establish it own macro Solar Web system as in Fig 3. Next!

# DATA MANAGER II CARD

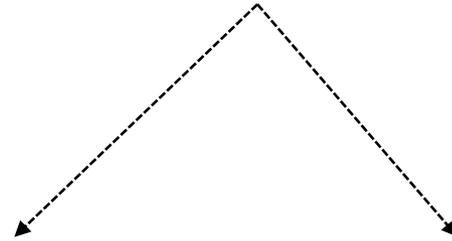
The Laptop should be directly connected. As in this example. Using a standard ethernet cable, plug one end in to your laptop and the other end in to your Datamanerger II card or box version,



Now the Data Manager will establish it's own macro Solar Web

# DATA MANAGER II CARD

Then go to your wifi signal indicator Fig 1 . Now Disconnect all Wifi signals as in Fig 2..



Find your wifi signal Fig 1.



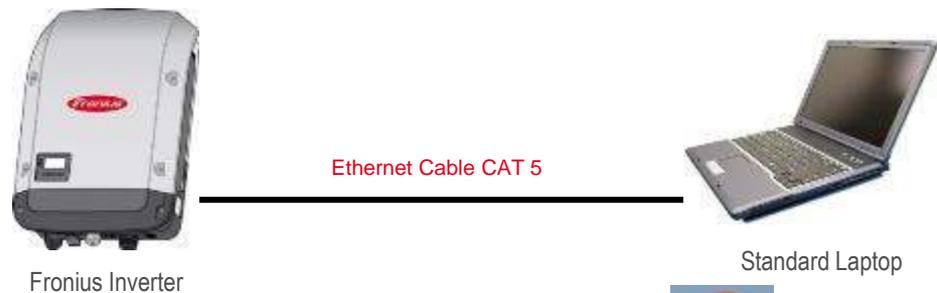
Disconnect you wifi signal Fig 2.



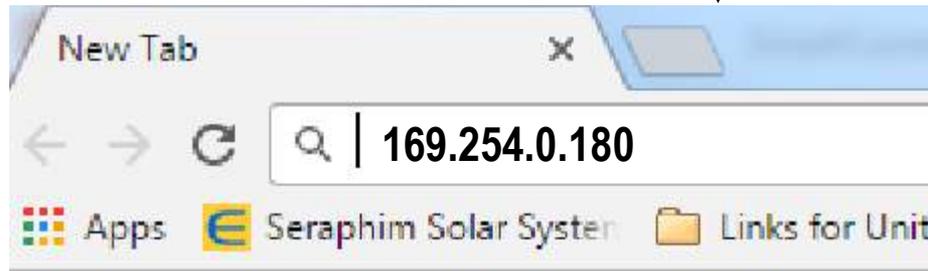
Now the Data Manager will establish it's own macro Solar Web

# DATA MANAGER II CARD

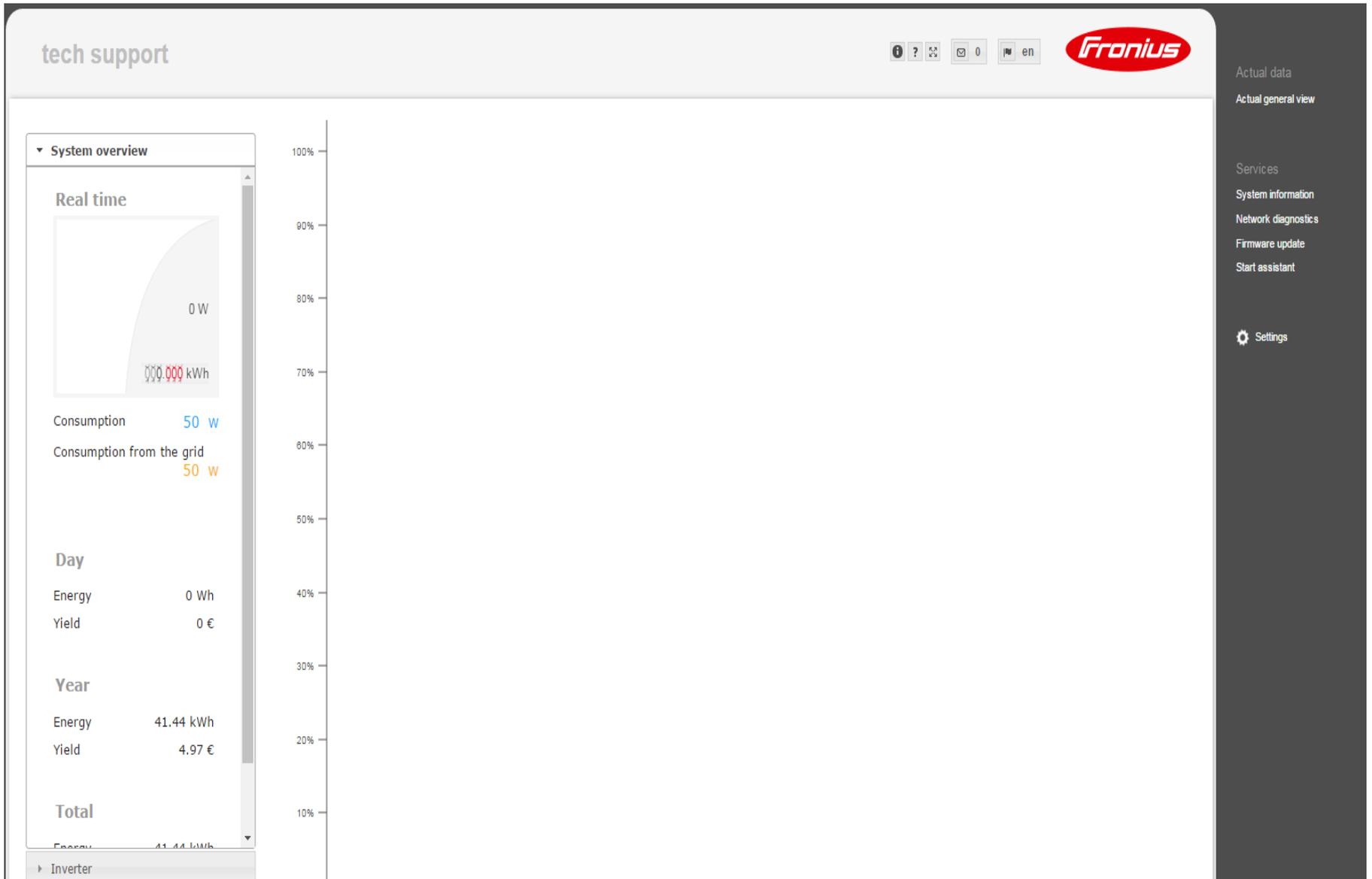
Laptop directly connected. As in this example. Using a standard ethernet cable, plug one end in to your laptop and the other end in to your Datamanerger II card or box version,



Then run Google Chrome,  Type in to the search bar 169.254.0.180



Now the Data Manager will establish it own macro Solar Web system as in Fig 3. Next!



Macro system Fig 3



SHIFTING THE LIMITS

Other b



0



en



Actual data

Actual general view

Services

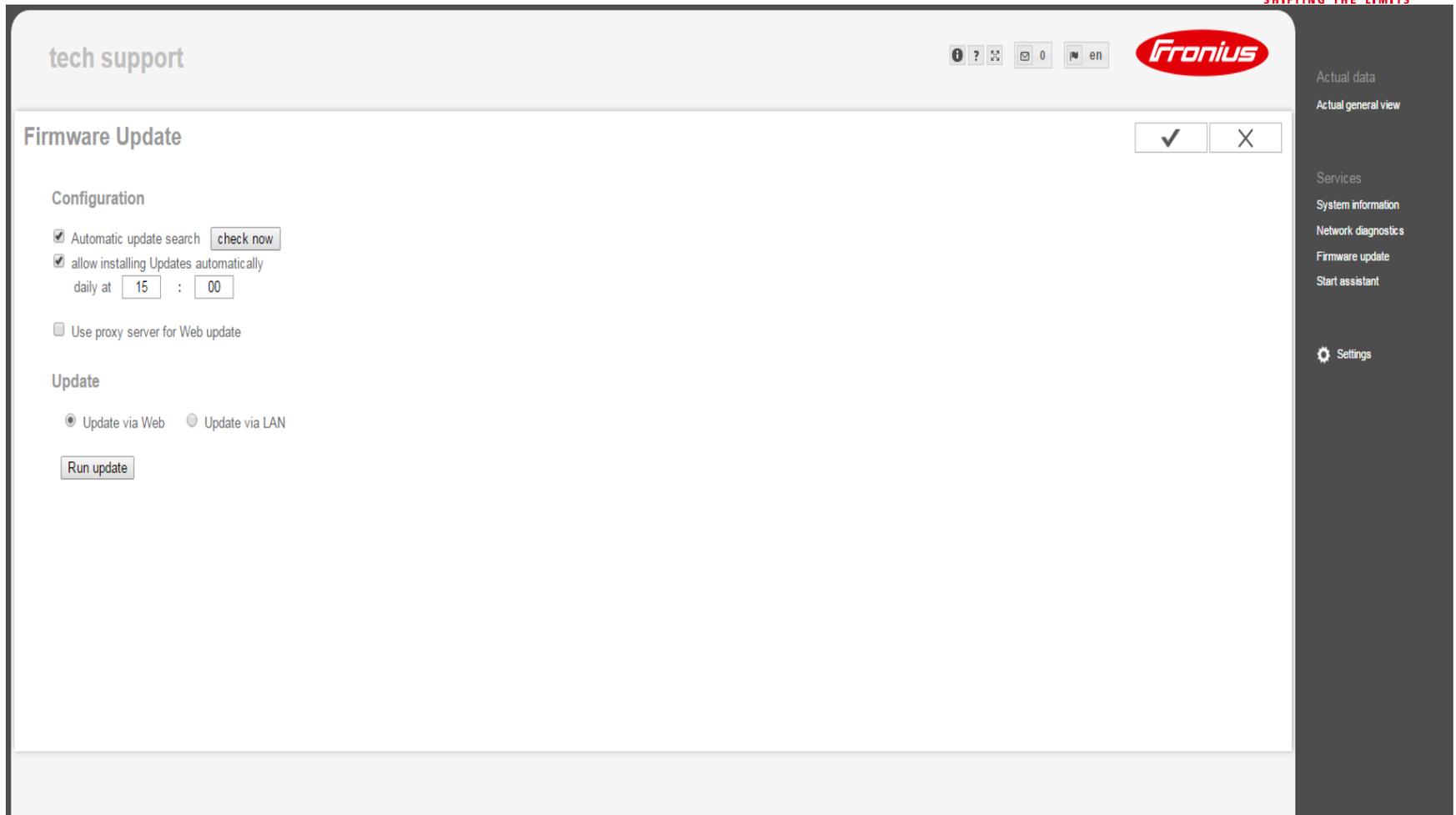
System information

Network diagnostics

Firmware update

Start assistant

 Settings



The screenshot shows a web browser window displaying the 'Firmware Update' configuration page. The page title is 'tech support' and the browser address bar shows 'en'. The main content area is titled 'Firmware Update' and contains two sections: 'Configuration' and 'Update'. In the 'Configuration' section, there are three checkboxes: 'Automatic update search' (checked), 'allow installing Updates automatically' (checked), and 'Use proxy server for Web update' (unchecked). The 'Automatic update search' checkbox has a 'check now' button next to it. Below the 'allow installing Updates automatically' checkbox, there are two input fields for 'daily at' with values '15' and '00'. In the 'Update' section, there are two radio buttons: 'Update via Web' (selected) and 'Update via LAN' (unselected). Below the radio buttons, there is a 'Run update' button. On the right side of the browser window, there is a sidebar menu with the following items: 'Actual data', 'Actual general view', 'Services', 'System information', 'Network diagnostics', 'Firmware update', 'Start assistant', and 'Settings' (with a gear icon).

**You can update software via the internet (WiFi) or through updating from your laptop, there is a facility where you can update the Datamanager II by downloading the update file from the Fronius website.**



SHIFTING THE LIMITS

Other b



0



en



Actual data

Actual general view

Services

System information

Network diagnostics

Firmware update

Start assistant



Settings

tech support ? 0 en 

System information

Datalogger ID	240.115733
Circuit board version	2.4D
Software version	3.5.3-1
System time	Sep 15 2016, 15:09:26 BST
Uptime	0 d, 0 h, 8 min, 0 sec.
User agent	Mozilla/5.0 (Windows NT 6.1; WOW64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/52.0.2743.116 Safari/537.36
Gateway	10.68.96.126 (wlan0)
DNS server	10.68.96.4, 10.1.1.60, 10.1.1.2
LED states	   

LAN interface

IP address	
Subnet mask	
MAC address	00:03:AC:06:C1:B6

WLAN interface

IP address	10.68.97.71
Subnet mask	255.255.254.0
MAC address	00:06:C6:5D:E5:41

GPIO

IO-Name	I/O0	I/O1	I/O2	I/O3	I4	I5	I6	I7	I8	I9
IO-Direction	OUT	OUT	IN	IN	IN	IN	IN	IN	IN	IN
IO-State	off	off	off	off	off	off	off	off	off	off

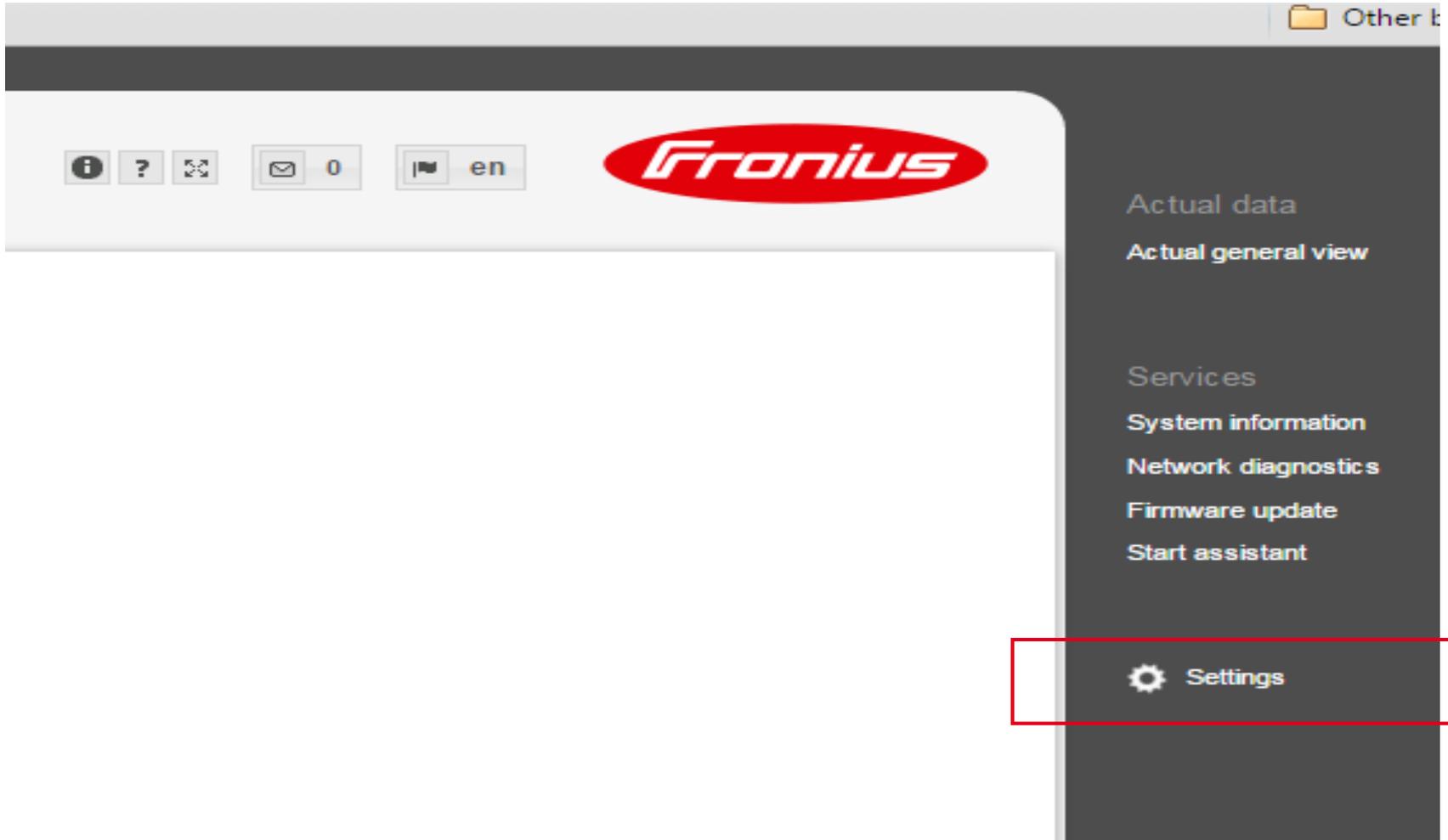
Note: This device contains open source software.  
For detailed information about the software being used and the requirements of the corresponding source code, please contact Fronius Tech Support.

Datalogger restart

All settings except for the network  
 All settings

Actual data  
Actual general view  
Services  
System information  
Network diagnostics  
Firmware update  
Start assistant  
Settings

**System Information shows in real time the condition and versions plus the I/O's status's**



The setting's option allows you to enter the system and alter setting's



- GENERAL
- PASSWORDS
- INVERTERS
- FRONIUS SENSOR CARDS
- FRONIUS SOLAR.WEB
- SERVICE MESSAGES
- NETWORK
- ENERGY MANAGER
- PUSH SERVICE
- MODBUS
- METER

DNO EDITOR

## DNO editor

### IO control

unlocked	Input pattern										Active power	Power factor cosφ		UC output	excluded inverter(s)	
	I/O 0	I/O 1	I/O 2	I/O 3	14	15	16	17	18	19			ind			
<input checked="" type="checkbox"/>	■	■	■	■	■	□	□	□	□	□	<input checked="" type="checkbox"/> 40 %	<input checked="" type="checkbox"/> 1	<input type="radio"/> ind <input checked="" type="radio"/> cap	<input checked="" type="checkbox"/>		-
<input checked="" type="checkbox"/>	■	■	■	■	□	■	□	□	□	□	<input checked="" type="checkbox"/> 30 %	<input checked="" type="checkbox"/> 1	<input type="radio"/> ind <input checked="" type="radio"/> cap	<input checked="" type="checkbox"/>		-
<input checked="" type="checkbox"/>	■	■	■	■	□	□	■	□	□	□	<input checked="" type="checkbox"/> 20 %	<input checked="" type="checkbox"/> 1	<input type="radio"/> ind <input checked="" type="radio"/> cap	<input checked="" type="checkbox"/>		-
<input checked="" type="checkbox"/>	■	■	■	■	□	□	□	■	□	□	<input checked="" type="checkbox"/> 10 %	<input checked="" type="checkbox"/> 1	<input type="radio"/> ind <input checked="" type="radio"/> cap	<input checked="" type="checkbox"/>		-
<input checked="" type="checkbox"/>	■	■	■	■	□	□	□	□	■	□	<input checked="" type="checkbox"/> 0 %	<input checked="" type="checkbox"/> 1	<input type="radio"/> ind <input checked="" type="radio"/> cap	<input checked="" type="checkbox"/>		-
<input type="checkbox"/>	■	■	■	■	■	■	■	■	■	■	<input type="checkbox"/> %	<input type="checkbox"/>	<input type="radio"/> ind <input checked="" type="radio"/> cap	<input type="checkbox"/>		+

... not applicable   
  ... not considered   
  ... pin open   
  ... pin closed



### Dynamic power reduction

Power limit:  No limit  limit for entire system

total DC power of the system:  Wp

Maximum grid feed-in power:  W ▾



SHIFTING THE LIMITS

Other b



0



en



Actual data

Actual general view

Services

System information

Network diagnostics

Firmware update

Start assistant



Settings



# Tech Support

# Energy Manager

## Tech Support



- Actual data
- Actual general view
- Services
- System information
- Network diagnostics
- Firmware update
- Start assistant

## Settings

- GENERAL
- PASSWORDS
- INVERTERS
- FRONIUS SENSOR CARDS
- FRONIUS SOLAR.WEB
- SERVICE MESSAGES
- NETWORK
- ENERGY MANAGER**
- PUSH SERVICE
- MODBUS
- METER
- DNO EDITOR

### Energy Manager

▼ **Output IO-1** State: off

**Controlling**

- deactivated
- by power production
- by power surplus (in case of feed-in limits)

**Thresholds**

on:  W

off:  W

**Duration**

- Minimum duration per on-signal:  Minutes
- Maximum duration per day:  Minutes

Desired duration

Settings

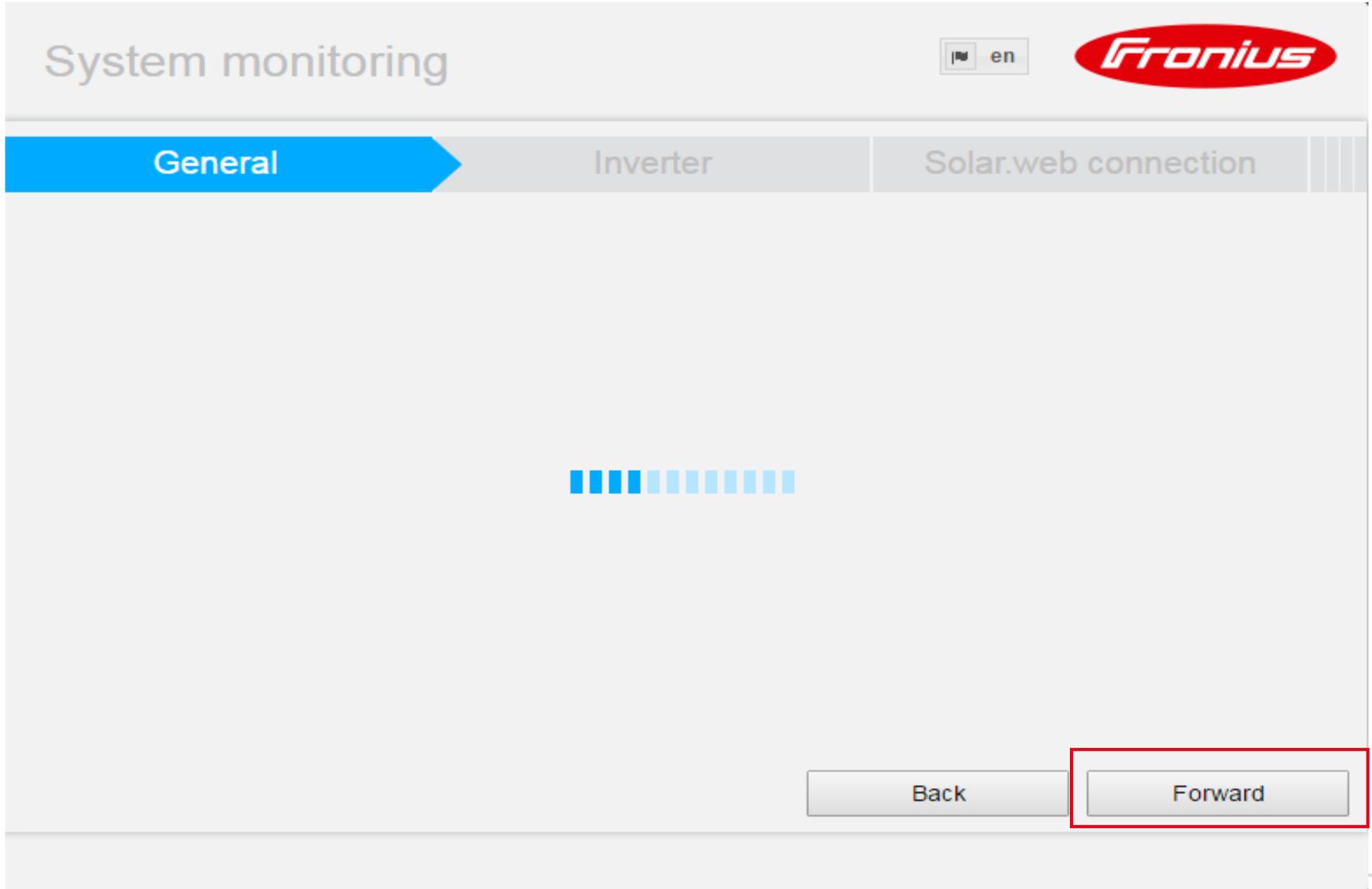
# FRONIUS SMARTMETER S/W SETUP

System monitoring

en



# FRONIUS SMARTMETER S/W SETUP



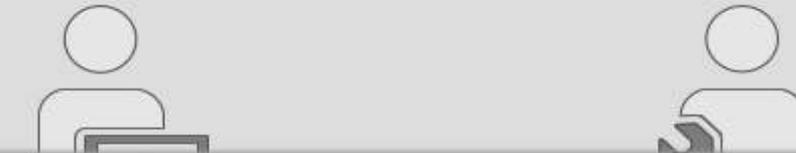
The screenshot shows the 'System monitoring' interface for a Fronius smartmeter. At the top, there is a header with the text 'System monitoring', a language selector set to 'en', and the Fronius logo. Below the header is a navigation bar with three tabs: 'General' (highlighted in blue), 'Inverter', and 'Solar.web connection'. The main content area is mostly blank, with a loading indicator consisting of 12 vertical bars of varying heights in the center. At the bottom right, there are two buttons: 'Back' and 'Forward'. The 'Forward' button is highlighted with a red rectangular border.

# FRONIUS SMARTMETER S/W SETUP

**WHEN YOUR LAPTOP CONNECTS WITH THE DATA MANAGER II CARD THE DIALOG BOX WILL APPEAR, CHOSE WHICH METHOD YOU WILL USE LAN OR WLAN APPS STORE OR IPHONE OR GOOGLEPLAY**

Welcome to the Fronius setup wizard.

You are just a few steps away from a convenient system monitoring.



## Notification

The Fronius Solar.web App provides the easiest initial setup of the Fronius system monitoring. You can find the Fronius Solar.web App on Google play or the Apple App Store.



OK

# FRONIUS SMARTMETER S/W SETUP

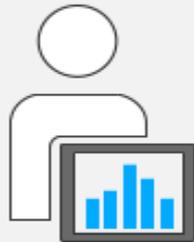
System monitoring

en



Welcome to the Fronius setup wizard.

You are just a few steps away from a convenient system monitoring.



SOLAR.WEB WIZARD

Connect the system with the Fronius Solar.web and use our Apps for mobile devices.



TECHNICIAN WIZARD

System settings for feed-in limits, Power Control-functions and open interfaces!

! For qualified persons only !

**SELECT TECHNICIAN WIZARD, THIS WILL ALLOW YOU TO SET POWER LIMITATION & SMART METER**

# FRONIUS SMARTMETER S/W SETUP

System monitoring en 

**General** Inverter Service password

**Yield**

Feed-in tariff  € (EUR) /kWh

Grid supply tariff  /kWh

**System time**

Date / time \*  :  :  PM

**Time zone settings**

Time zone \*

Back Forward

CHOOSE YOUR COUNTRY & CHANGE YOUR TIME ZONE AND DATE, WHICH CURRENCY YOU WISH TO USE

# FRONIUS SMARTMETER S/W SETUP

System monitoring en 

**General** Inverter Service password

**Yield**

Feed-in tariff  € (EUR) /kWh

Grid supply tariff  /kWh

**System time**

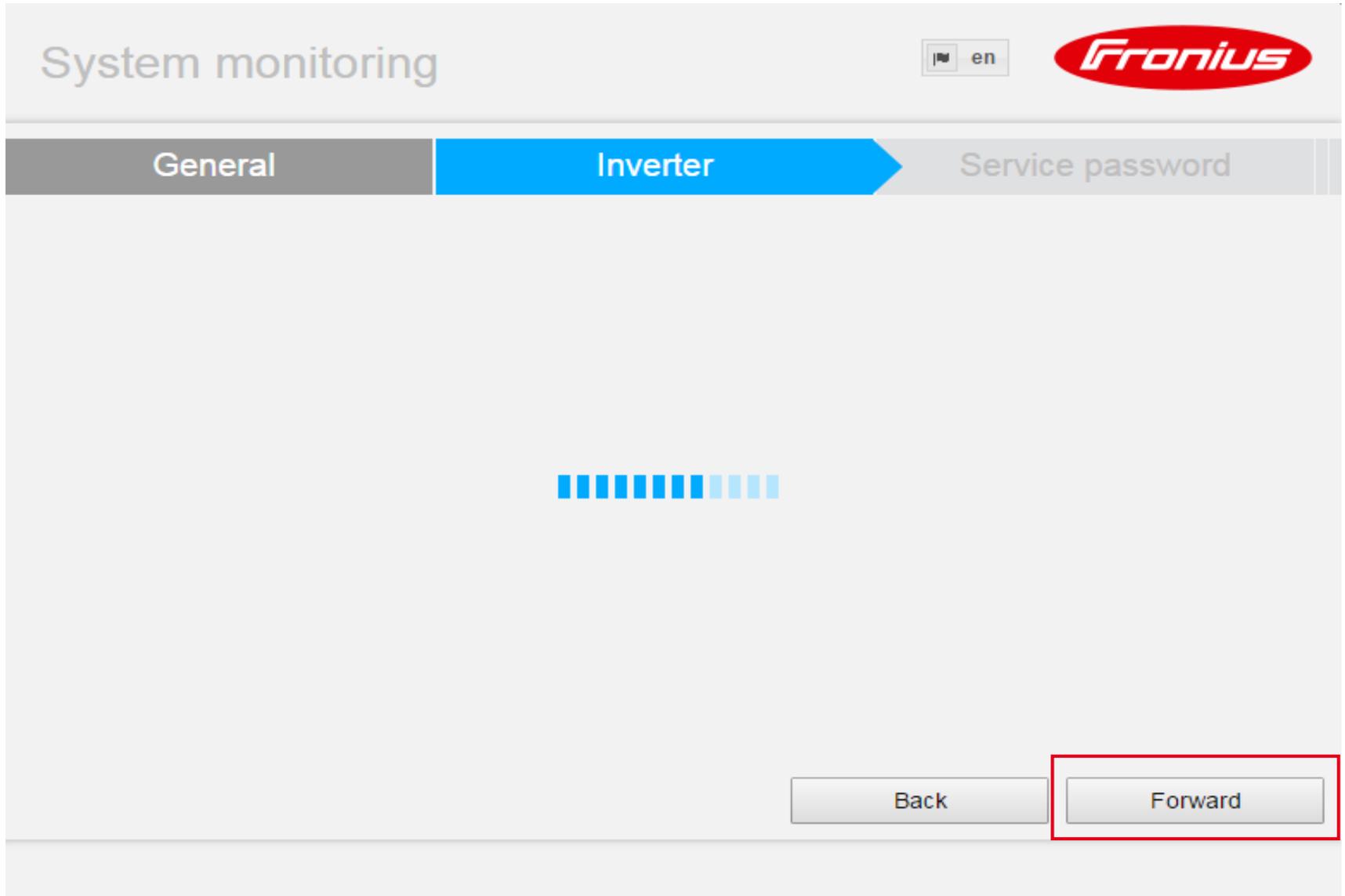
Date / time \*   :

**Time zone settings**

Time zone \*

Back Forward

# FRONIUS SMARTMETER S/W SETUP



System monitoring

en

**Fronius**

General Inverter Service password

Back Forward

# FRONIUS SMARTMETER S/W SETUP

System monitoring en 

General **Inverter** Service password

System name \*

No	Device type	Device name	PV[Wp]
1	Galvo 1.5-1	* Galvo 1.5-1 (1)	* <input type="text" value="..."/>

Back Forward

# FRONIUS SMARTMETER S/W SETUP

System monitoring en 

General **Inverter** Service password

System name \*

No	Device type	Device name	PV[Wp]
1	Galvo 1.5-1	* <input type="text" value="Galvo 1.5-1 (1)"/>	* <input type="text" value="2000"/>

Back Forward

# FRONIUS SMARTMETER S/W SETUP

System monitoring en 

**Inverter** **Service password** Meter

Please set a password! The Service password protects the system settings from unauthorized changes.

User name

Old password \*

Password \*

Repeat password \*

# FRONIUS SMARTMETER S/W SETUP

System monitoring

en



Inverter

Service password

Meter

Please set a password! The Service password protects the system settings from unauthorized changes.

User name	<input type="text" value="service"/>	
Old password *	<input type="password" value="....."/>	
Password *	<input type="password" value="....."/>	<input type="button" value="acceptable"/>
Repeat password *	<input type="password" value="....."/>	<input type="button" value="identical"/>

SERVICE123

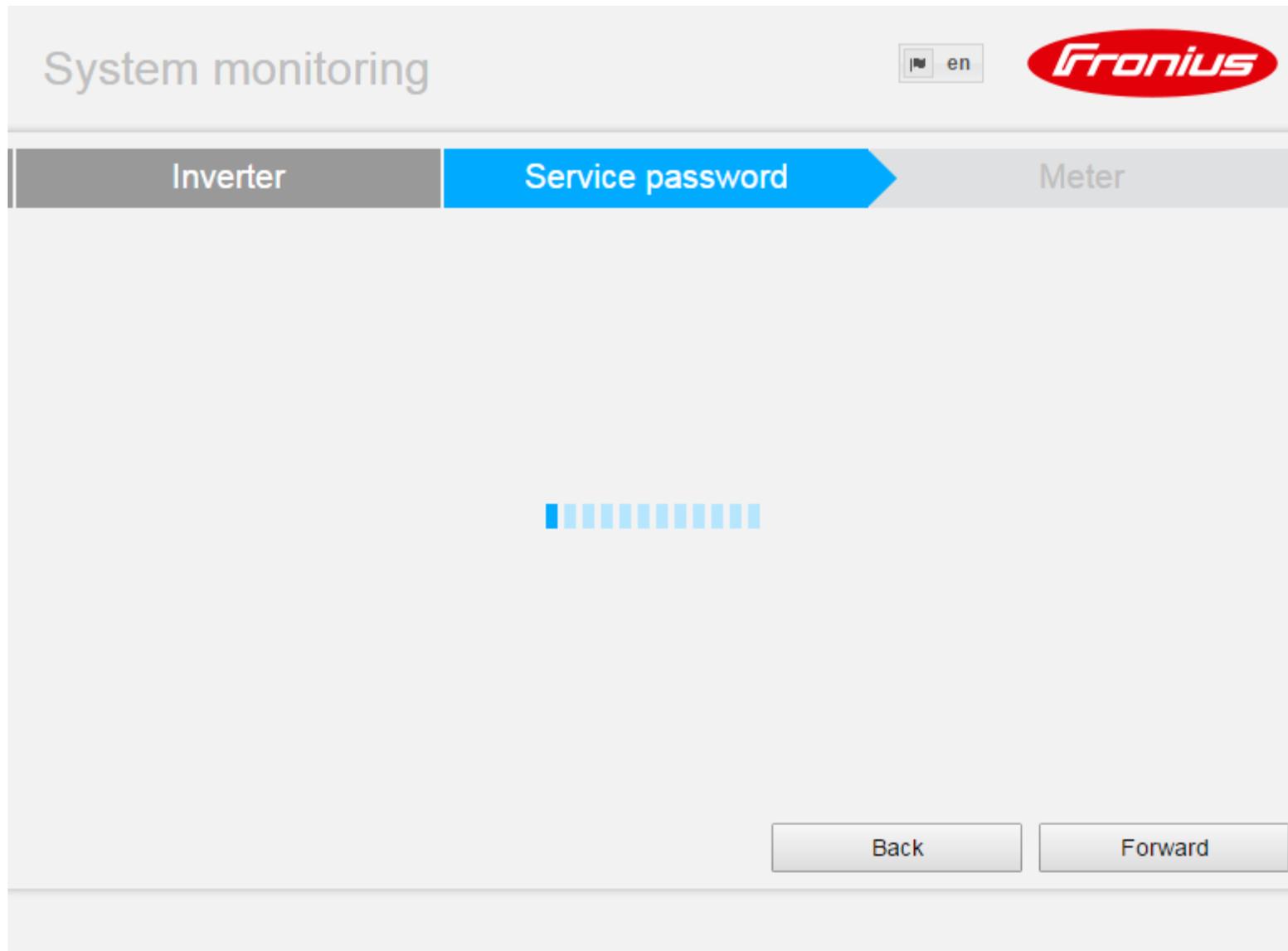
SERVICE123

SERVICE123

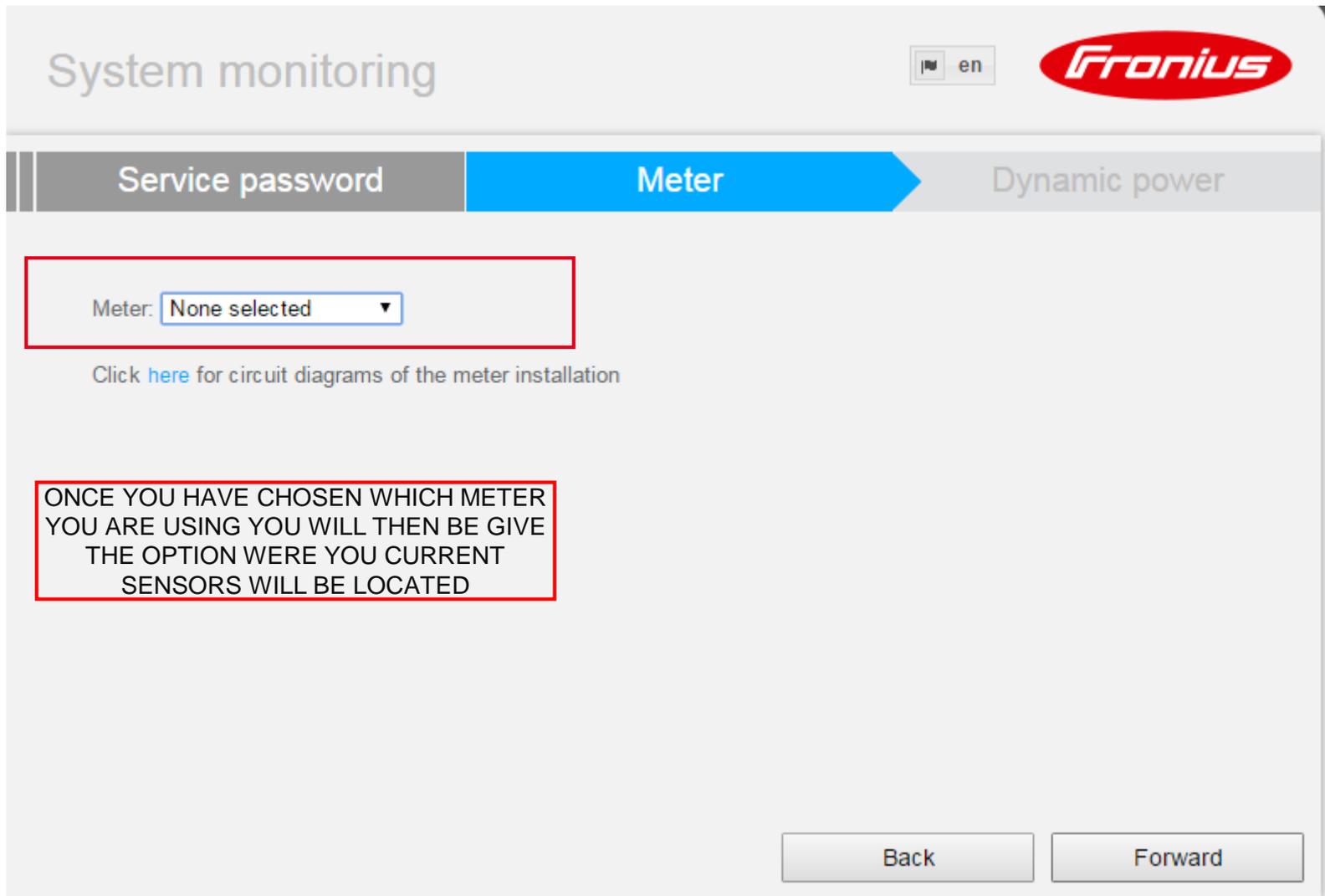
Back

Forward

# FRONIUS SMARTMETER S/W SETUP



# FRONIUS SMARTMETER S/W SETUP



The screenshot shows the 'System monitoring' interface for a Fronius smartmeter. At the top, there is a language selector set to 'en' and the Fronius logo. Below this is a navigation bar with three tabs: 'Service password', 'Meter', and 'Dynamic power'. The 'Meter' tab is currently selected and highlighted in blue. In the main content area, there is a dropdown menu labeled 'Meter:' with 'None selected' as the current choice. Below the dropdown, there is a link that says 'Click [here](#) for circuit diagrams of the meter installation'. At the bottom of the screen, there are two buttons: 'Back' and 'Forward'. A red-bordered box highlights the dropdown menu and the explanatory text below it.

System monitoring en 

Service password **Meter** Dynamic power

Meter:

Click [here](#) for circuit diagrams of the meter installation

ONCE YOU HAVE CHOSEN WHICH METER YOU ARE USING YOU WILL THEN BE GIVE THE OPTION WERE YOU CURRENT SENSORS WILL BE LOCATED

Back Forward

# FRONIUS SMARTMETER S/W SETUP

System monitoring en 

Service password **Meter** Dynamic power

Meter: Fronius Smart Meter ▾

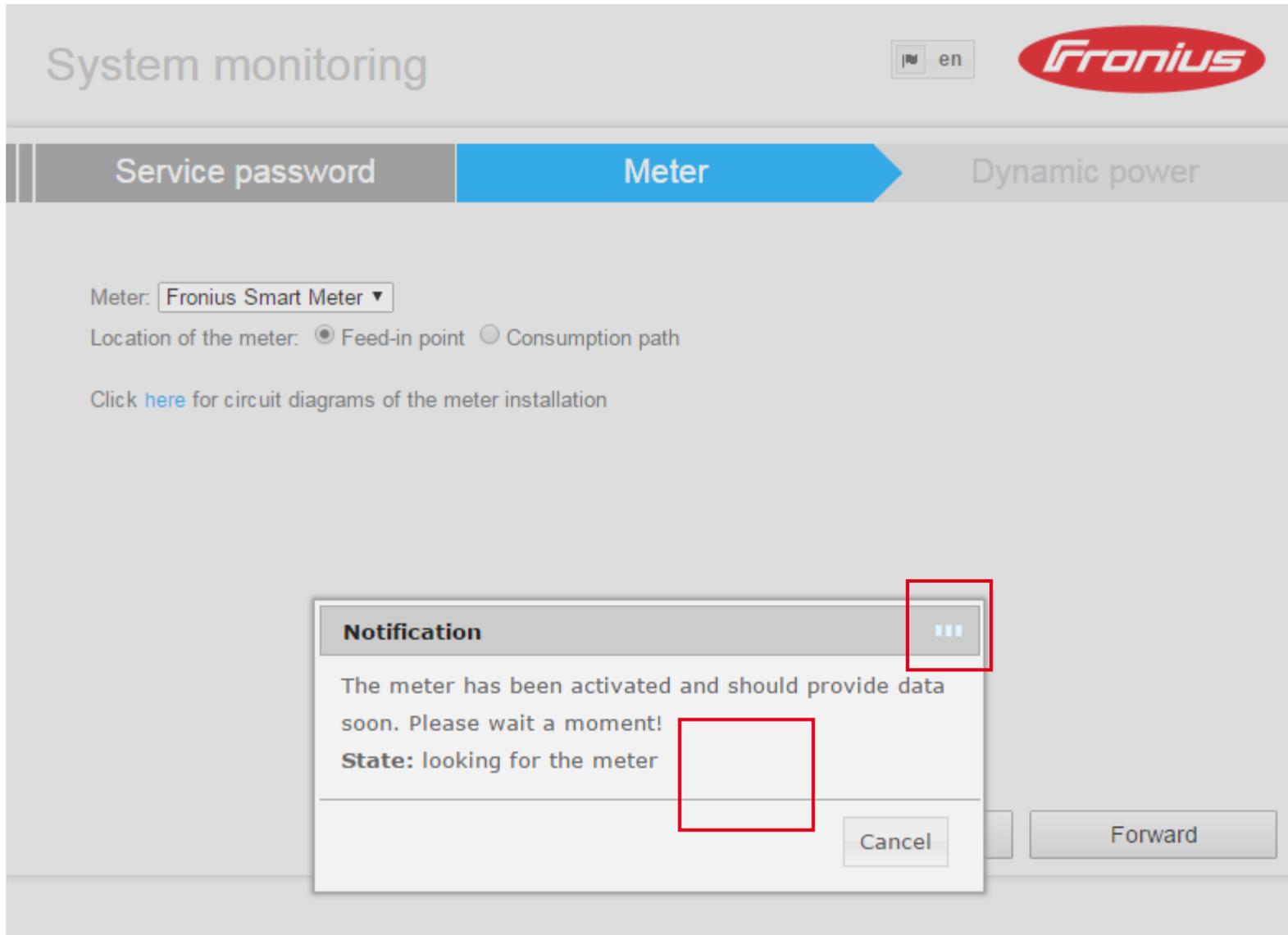
Location of the meter:  Feed-in point  Consumption path

Click [here](#) for circuit diagrams of the meter installation

ONCE YOU HAVE CHOSEN WHICH METER YOU ARE USING YOU WILL THEN BE GIVE THE OPTION WERE YOU CURRENT SENSORS WILL BE LOCATED

Back Forward

# FRONIUS SMARTMETER S/W SETUP



System monitoring en 

Service password **Meter** Dynamic power

Meter: Fronius Smart Meter ▾

Location of the meter:  Feed-in point  Consumption path

Click [here](#) for circuit diagrams of the meter installation

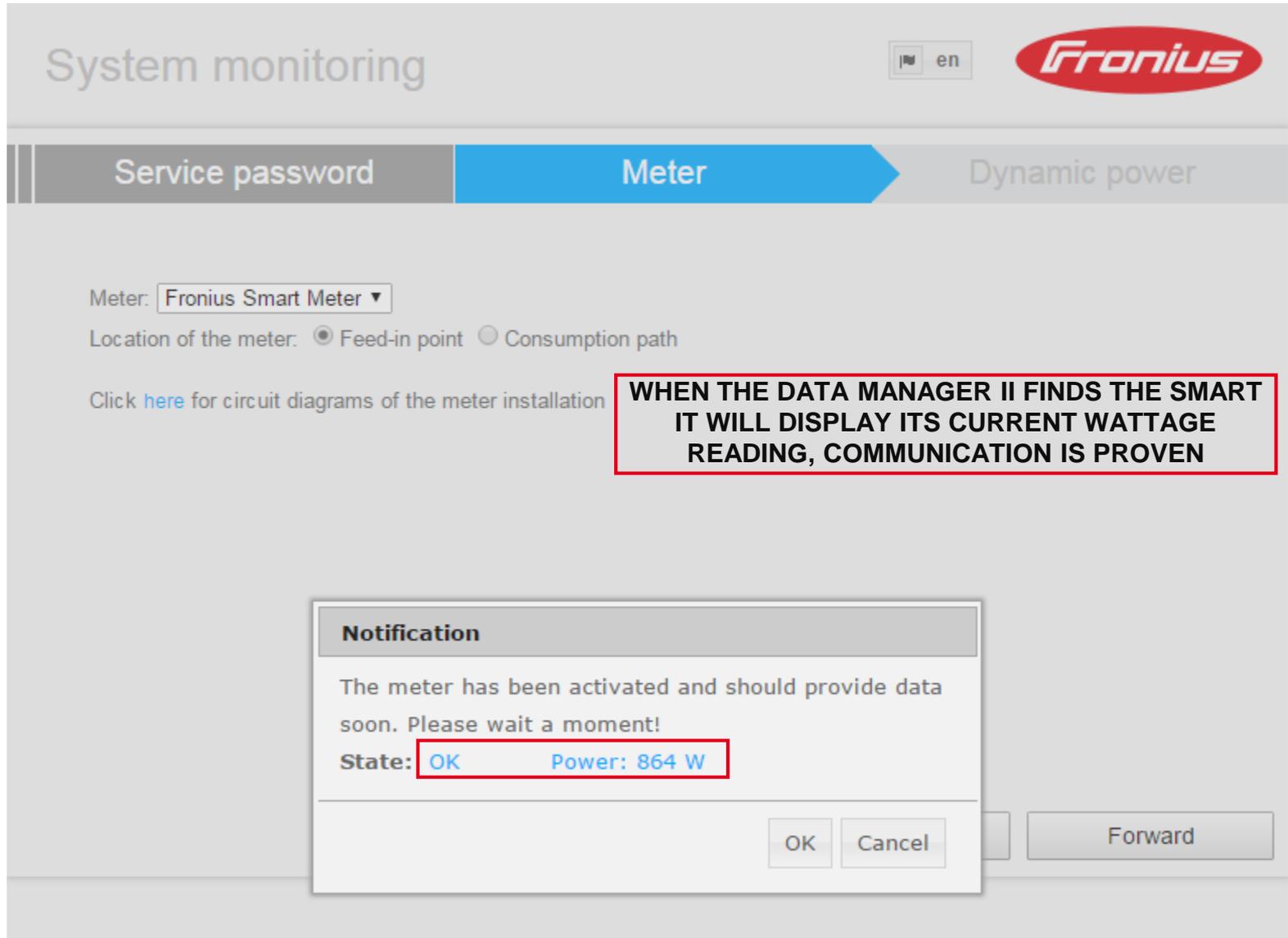
**Notification** ⋮

The meter has been activated and should provide data soon. Please wait a moment!

**State:** looking for the meter

Cancel Forward

# FRONIUS SMARTMETER S/W SETUP



System monitoring en 

Service password **Meter** Dynamic power

Meter: Fronius Smart Meter ▾

Location of the meter:  Feed-in point  Consumption path

Click [here](#) for circuit diagrams of the meter installation

**WHEN THE DATA MANAGER II FINDS THE SMART IT WILL DISPLAY ITS CURRENT WATTAGE READING, COMMUNICATION IS PROVEN**

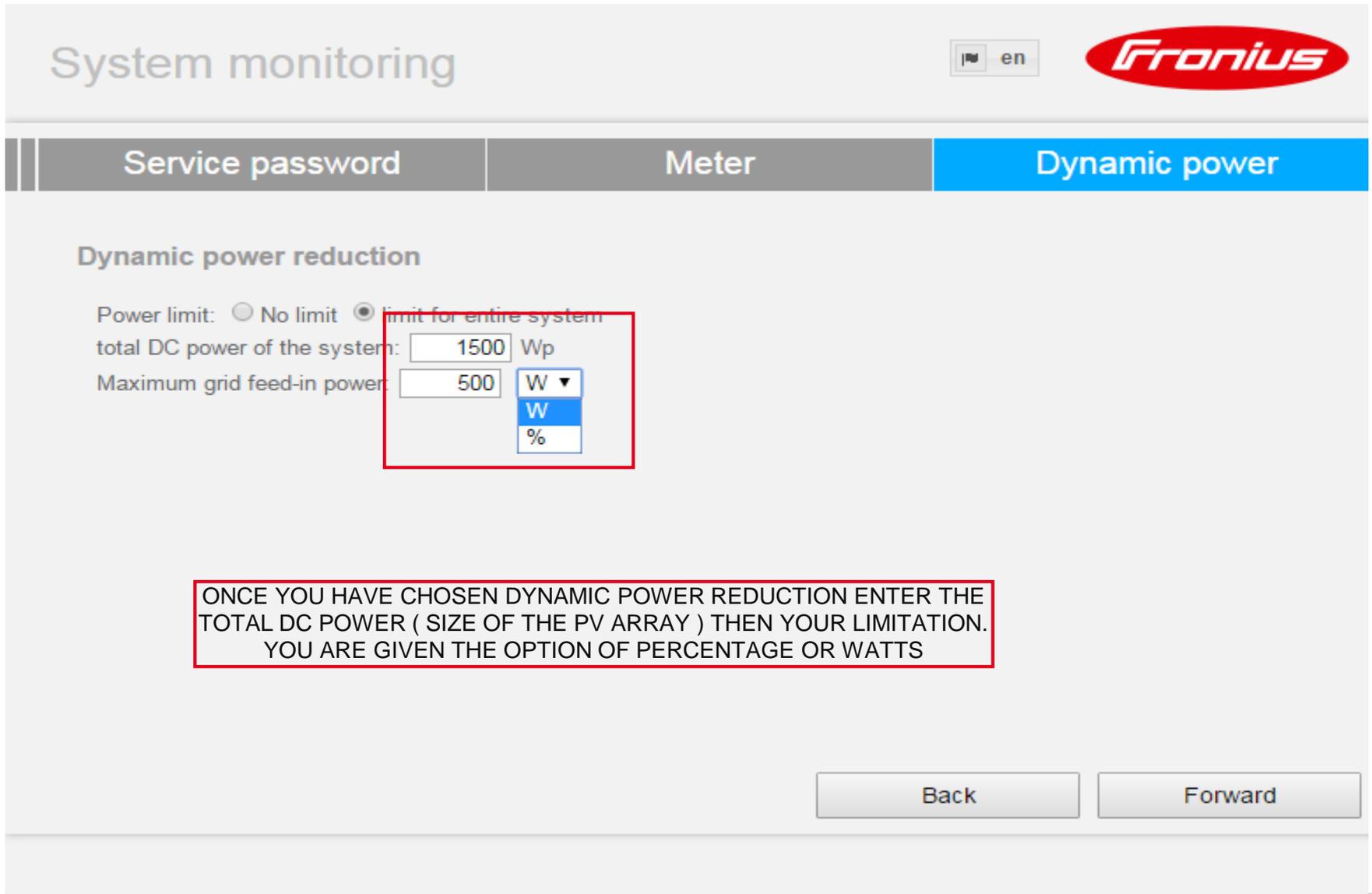
**Notification**

The meter has been activated and should provide data soon. Please wait a moment!

State: **OK** Power: 864 W

OK Cancel Forward

# FRONIUS SMARTMETER S/W SETUP



System monitoring

en

**Dynamic power**

**Dynamic power reduction**

Power limit:  No limit  limit for entire system

total DC power of the system:  Wp

Maximum grid feed-in power:

ONCE YOU HAVE CHOSEN DYNAMIC POWER REDUCTION ENTER THE TOTAL DC POWER ( SIZE OF THE PV ARRAY ) THEN YOUR LIMITATION. YOU ARE GIVEN THE OPTION OF PERCENTAGE OR WATTS

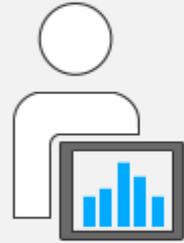
Back Forward

# FRONIUS SMARTMETER S/W SETUP

System monitoring en 

Welcome to the Fronius setup wizard.

You are just a few steps away from a convenient system monitoring.



SOLAR.WEB WIZARD

Connect the system with the Fronius Solar.web and use our Apps for mobile devices.



TECHNICIAN WIZARD

System settings for feed-in limits, Power Control-functions and open interfaces!

! For qualified persons only !

Done !

# Technician wizard is complete !

# Any questions?



# FRONIUS SMARTMETER S/W SETUP

System monitoring

en



Welcome to the Fronius setup wizard.

You are just a few steps away from a convenient system monitoring.



SOLAR.WEB WIZARD

Connect the system with the Fronius Solar.web and use our Apps for mobile devices.



TECHNICIAN WIZARD

System settings for feed-in limits, Power Control-functions and open interfaces!

! For qualified persons only !

[Done !](#)



# System monitoring

en



General

Inverter

Solar.web connection



Back

Forward

# FRONIUS SMARTMETER S/W SETUP

System monitoring en 

**General** Inverter Solar.web connection

**Yield**

Feed-in tariff  € (EUR) /kWh

Grid supply tariff  /kWh

**System time**

Date / time \*  :  :

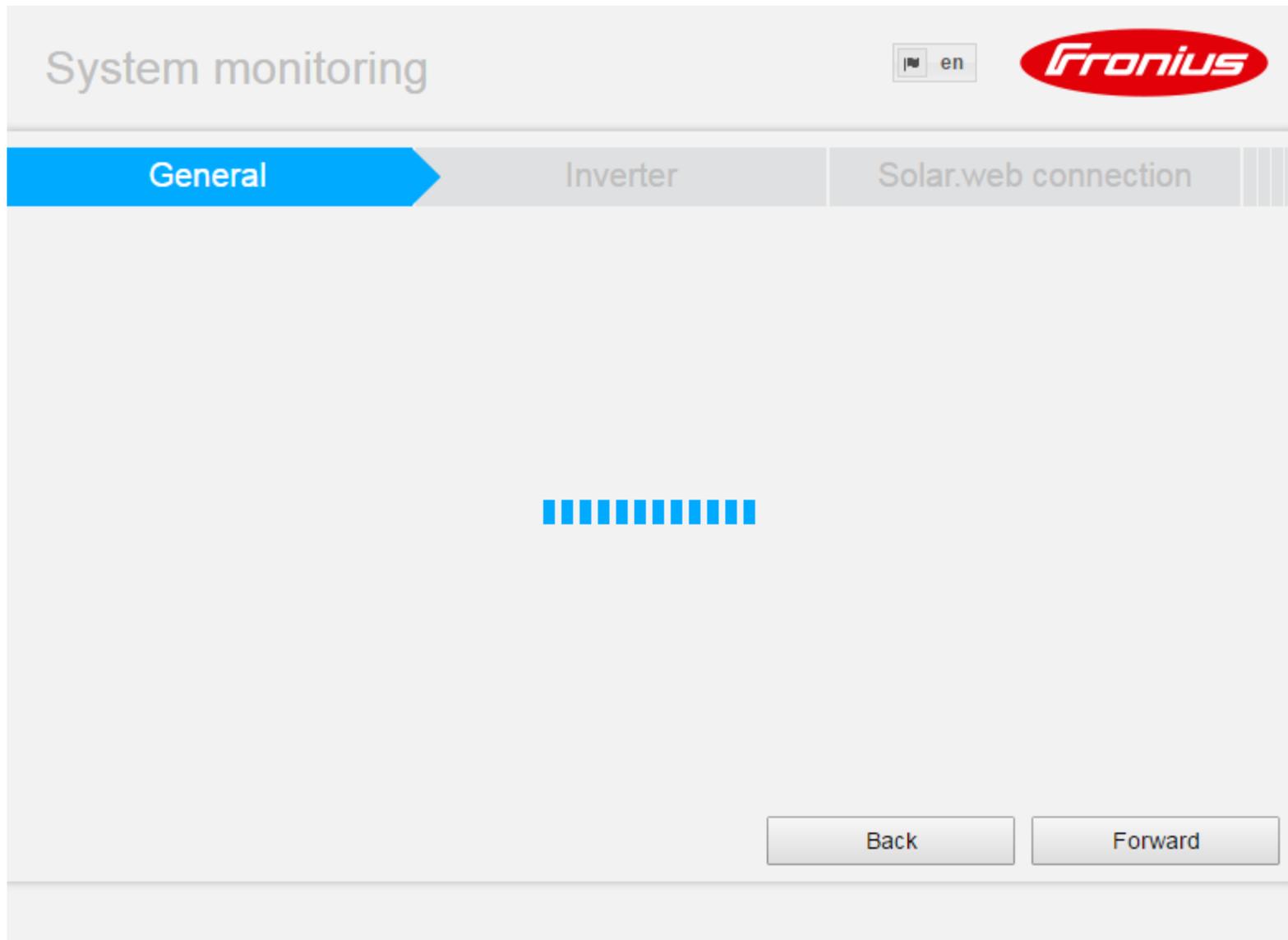
**Time zone settings**

Time zone \*

Back Forward

**ALL BOXES SHOULD BE AUTO OCCUPIED, FROM THE TECHNICIANS SETUP**

# FRONIUS SMARTMETER S/W SETUP



# FRONIUS SMARTMETER S/W SETUP

System monitoring en 

General **Inverter** Solar.web connection

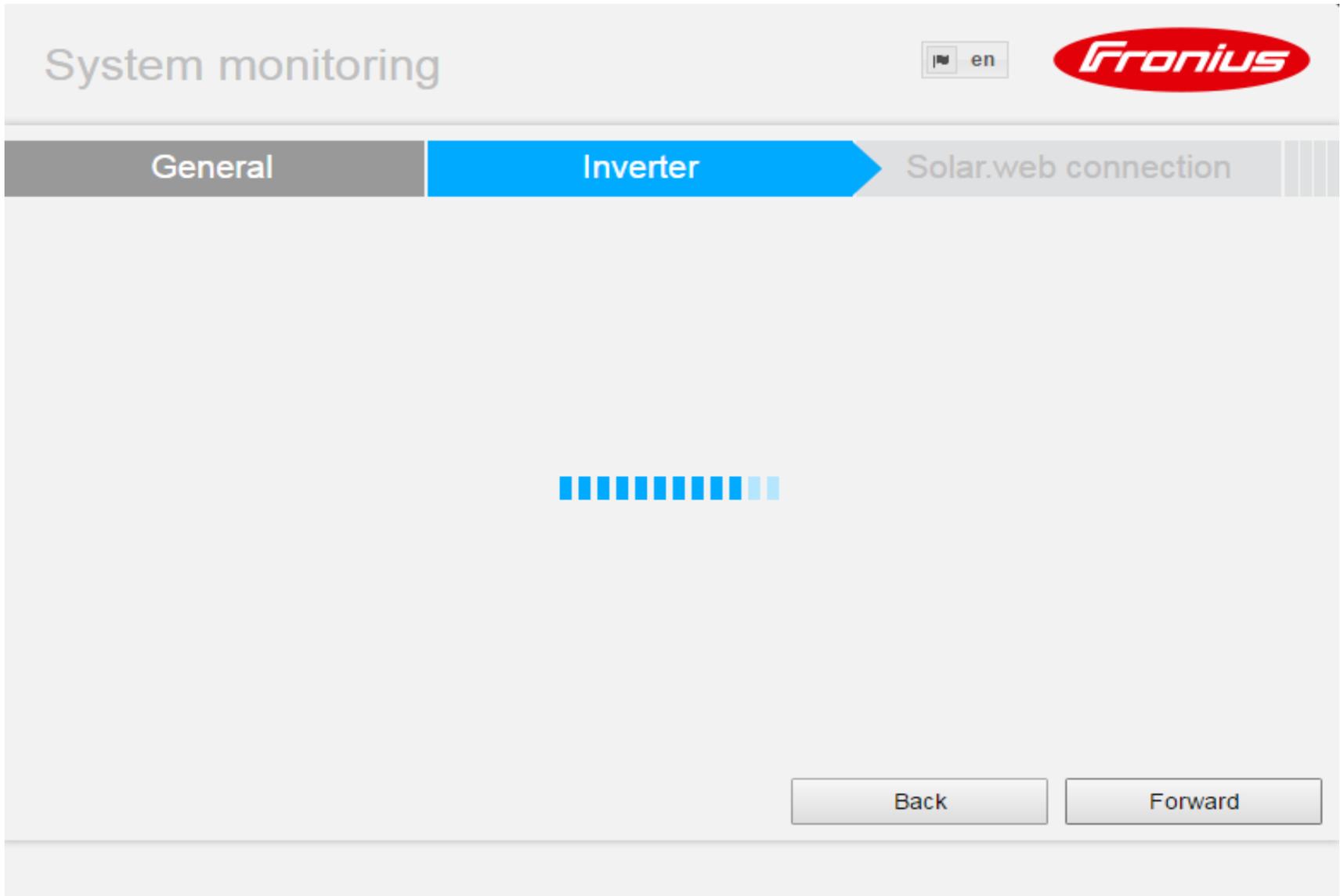
System name \*

No	Device type	Device name	PV[Wp]
1	Galvo 1.5-1	* <input type="text" value="Galvo 1.5-1 (1)"/>	* <input type="text" value="1500"/>

All boxes should be auto occupied, from the technicians setup

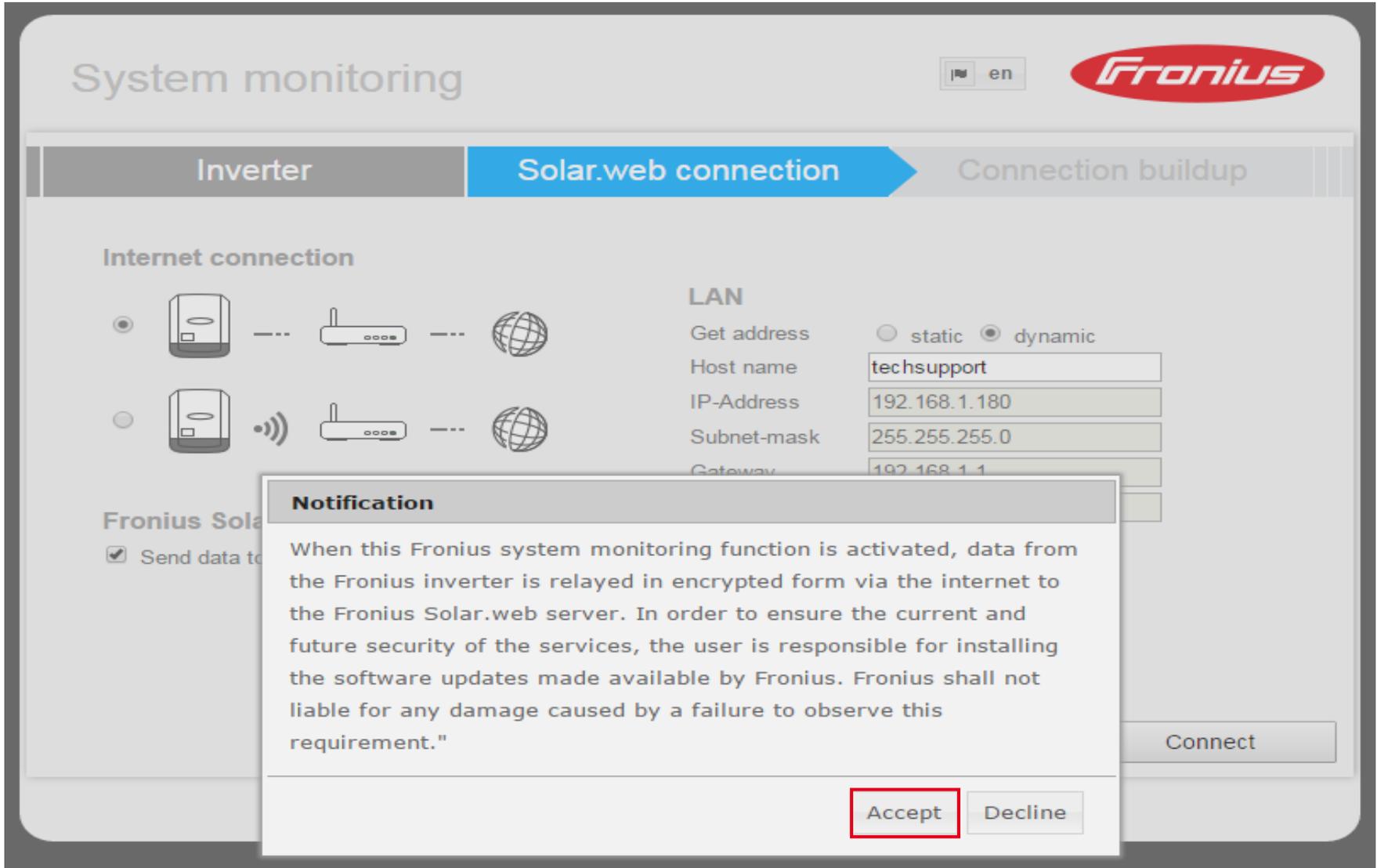
Back Forward

# FRONIUS SMARTMETER S/W SETUP



The screenshot shows the 'System monitoring' interface for a Fronius Smartmeter. At the top left, the text 'System monitoring' is displayed. To its right is a language selection button showing 'en' and the Fronius logo. Below this is a navigation bar with three tabs: 'General', 'Inverter' (which is highlighted with a blue arrow), and 'Solar.web connection'. The main content area is mostly blank, with a horizontal progress indicator consisting of 12 blue bars of varying lengths in the center. At the bottom right, there are two buttons labeled 'Back' and 'Forward'.

# FRONIUS SMARTMETER S/W SETUP



The screenshot displays the 'System monitoring' web interface for a Fronius inverter. The 'Solar.web connection' tab is active, showing configuration options for internet and LAN connections. A notification dialog box is overlaid on the screen, containing the following text:

**Notification**

When this Fronius system monitoring function is activated, data from the Fronius inverter is relayed in encrypted form via the internet to the Fronius Solar.web server. In order to ensure the current and future security of the services, the user is responsible for installing the software updates made available by Fronius. Fronius shall not liable for any damage caused by a failure to observe this requirement."

The dialog box has two buttons at the bottom: 'Accept' (highlighted with a red border) and 'Decline'. In the background, the 'LAN' configuration section is visible, showing fields for 'Get address' (static/dynamic), 'Host name' (techsupport), 'IP-Address' (192.168.1.180), 'Subnet-mask' (255.255.255.0), and 'Gateway' (192.168.1.1). A 'Connect' button is also visible at the bottom right of the main interface.

# FRONIUS SMARTMETER S/W SETUP

System monitoring

en



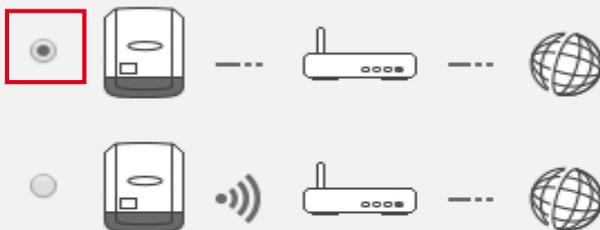
Inverter

Solar.web connection

Connection buildup

ON SETUP IT WILL ALWAYS DEFAULT TO LAN

## Internet connection



## LAN

Get address

static  dynamic

Host name

techsupport

IP-Address

192.168.1.180

Subnet-mask

255.255.255.0

Gateway

192.168.1.1

DNS-Server

192.168.1.1

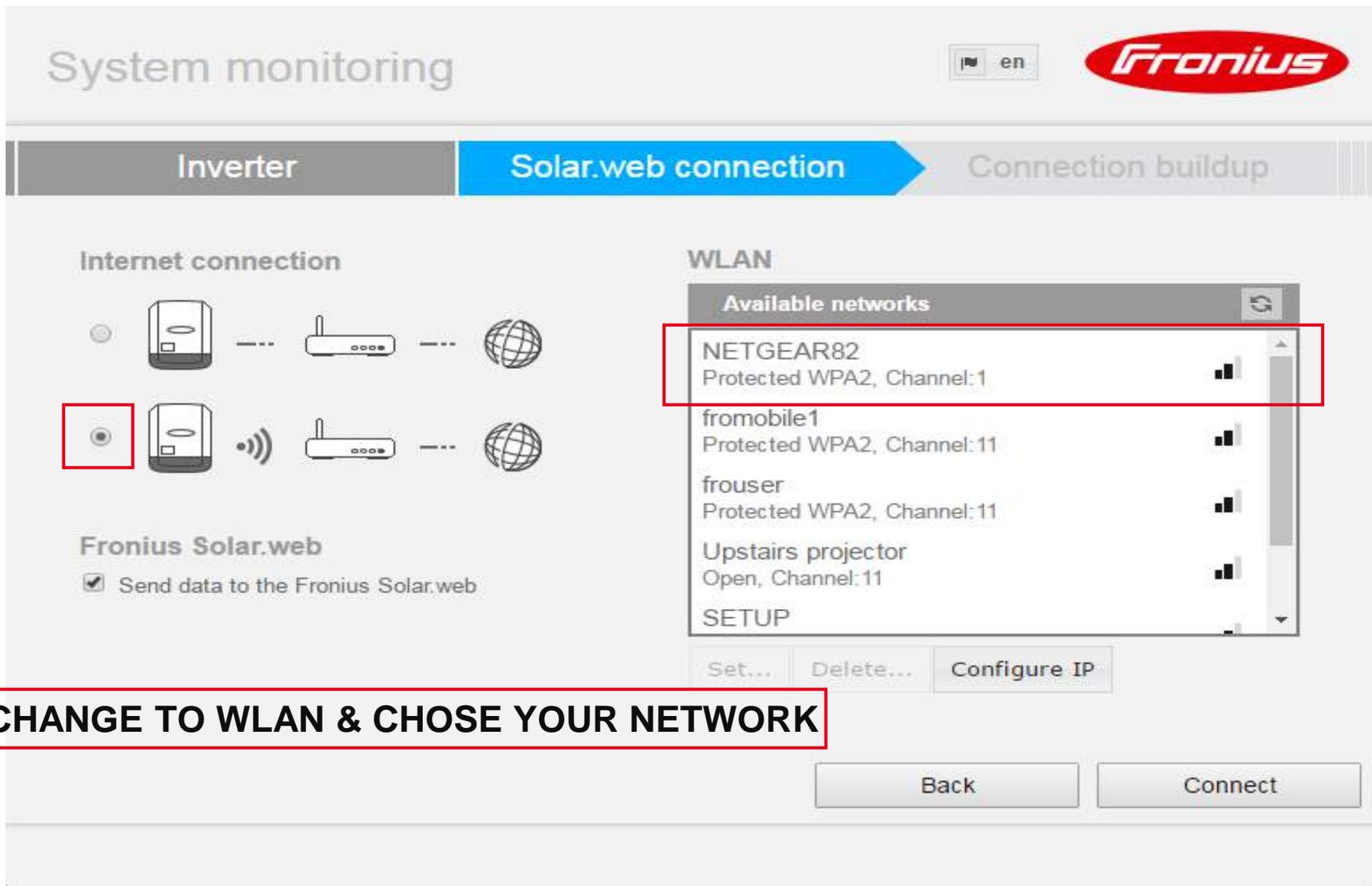
## Fronius Solar.web

Send data to the Fronius Solar.web

Back

Connect

# FRONIUS SMARTMETER S/W SETUP



The screenshot shows the 'System monitoring' interface for a Fronius Smartmeter. The 'Solar.web connection' tab is active. Under 'Internet connection', the WLAN option is selected. The 'WLAN' section shows a list of available networks, with 'NETGEAR82' highlighted. Below the network list are buttons for 'Set...', 'Delete...', and 'Configure IP'. At the bottom are 'Back' and 'Connect' buttons.

System monitoring en 

Inverter **Solar.web connection** Connection buildup

Internet connection

WLAN

Available networks

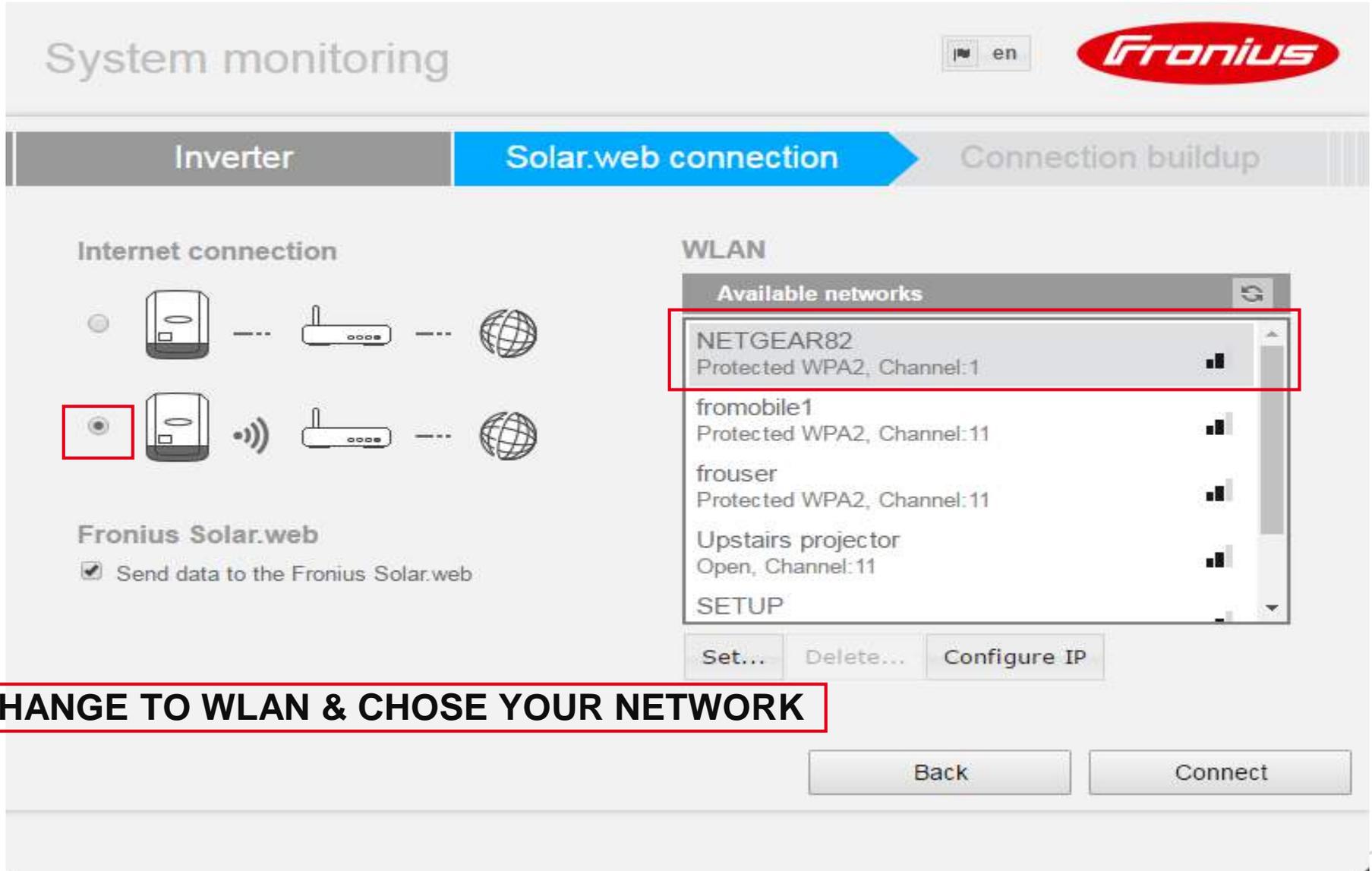
- NETGEAR82  
Protected WPA2, Channel: 1
- fromobile1  
Protected WPA2, Channel: 11
- frouser  
Protected WPA2, Channel: 11
- Upstairs projector  
Open, Channel: 11
- SETUP

Set... Delete... Configure IP

Back Connect

**CHANGE TO WLAN & CHOSE YOUR NETWORK**

# FRONIUS SMARTMETER S/W SETUP



System monitoring

en

**Fronius**

Inverter | **Solar.web connection** | Connection buildup

Internet connection

WLAN

Available networks

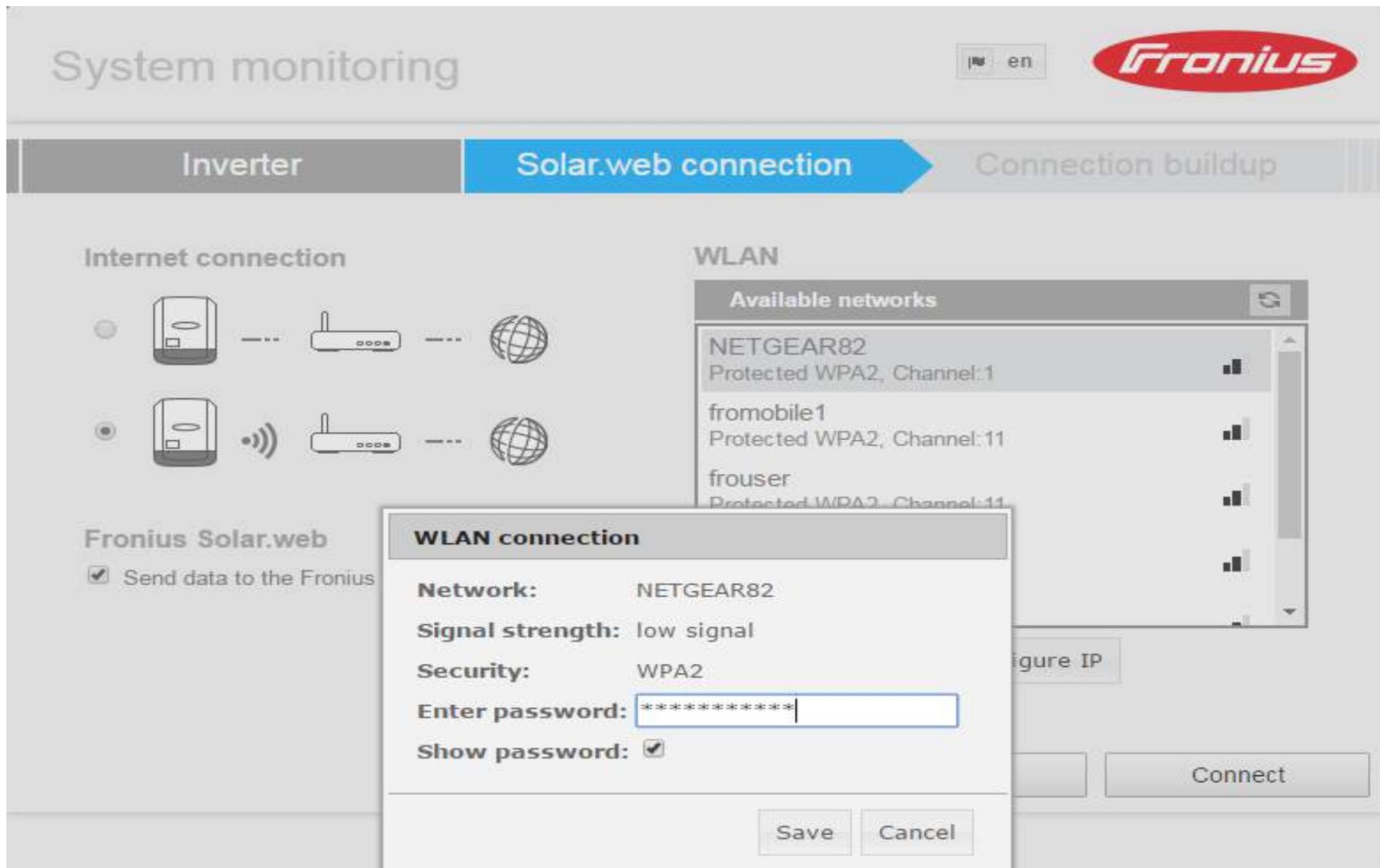
- NETGEAR82  
Protected WPA2, Channel:1
- fromobile1  
Protected WPA2, Channel:11
- frouser  
Protected WPA2, Channel:11
- Upstairs projector  
Open, Channel:11
- SETUP

Set... Delete... Configure IP

Back Connect

**CHANGE TO WLAN & CHOSE YOUR NETWORK**

# FRONIUS SMARTMETER S/W SETUP



The screenshot shows the 'Solar.web connection' setup screen. It features a navigation bar with 'Inverter', 'Solar.web connection' (highlighted), and 'Connection buildup'. The 'Internet connection' section has two radio buttons, with the second one selected. The 'Fronius Solar.web' section has a checked box for 'Send data to the Fronius'. A 'WLAN' window is open, showing a list of available networks: NETGEAR82, fromobile1, and frouser. A 'WLAN connection' dialog box is overlaid on top, showing the selected network 'NETGEAR82', a 'low signal' strength, 'WPA2' security, and a password field with asterisks. The 'Show password' checkbox is checked. Buttons for 'Save', 'Cancel', and 'Connect' are visible.

System monitoring en 

Inverter **Solar.web connection** Connection buildup

Internet connection

WLAN

Available networks

- NETGEAR82  
Protected WPA2, Channel:1
- fromobile1  
Protected WPA2, Channel:11
- frouser  
Protected WPA2, Channel:11

Fronius Solar.web

Send data to the Fronius

**WLAN connection**

**Network:** NETGEAR82

**Signal strength:** low signal

**Security:** WPA2

**Enter password:** \*\*\*\*\*

**Show password:**

Save Cancel

Connect



# System monitoring

en



Inverter

Solar.web connection

Connection buildup

## Internet connection



## Fronius Solar.web

Send data to the Fronius Solar.web

## WLAN

Available networks

NETGEAR82	Protected WPA2, Channel:1	Signal strength
frouser	Protected WPA2, Channel:11	Signal strength
fromobile1	Protected WPA2, Channel:6	Signal strength
SETUP	Open, Channel:11	Signal strength
Add WLAN		

Set... Delete... Configure IP

CHANGE TO WLAN & CHOSE YOUR NETWORK

Back

Connect

# FRONIUS SMARTMETER S/W SETUP

System monitoring en 

Inverter **Solar.web connection** Connection buildup

|||||

Back Connect

# FRONIUS SMARTMETER S/W SETUP

System monitoring

en



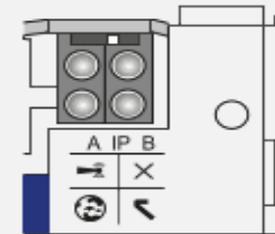
Solar.web connection

Connection buildup

Network status

The network connection is in progress...

- **Notification!** The IP switch is still in position A. Please switch to position B, so the configuration of the network interface can be finished!
- Please connect your device (computer, tablet, smartphone,...) with the chosen WLAN network "NETGEAR82".
- If you have connection problems, check the WLAN-LED of your inverter. If it is red, the connection to your WLAN network was not possible. In that case, change the IP switch from position B to A and check the given WLAN password!
- Please open the wizard again by using the IP address that your router assigned to the system. If you have problems to reconnect to your system monitoring, the Fronius Solar.web App can help you!



**DON'T FORGET TO MOVE YOUR IP NETWORK SLIDER SWITCH FROM A BACK TO POSITION B**

# FRONIUS SMARTMETER S/W SETUP

System monitoring

en



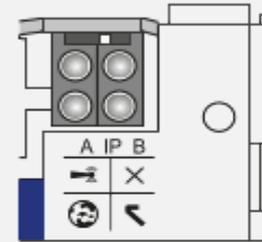
Solar.web connection

Connection buildup

Network status

The network connection is in progress...

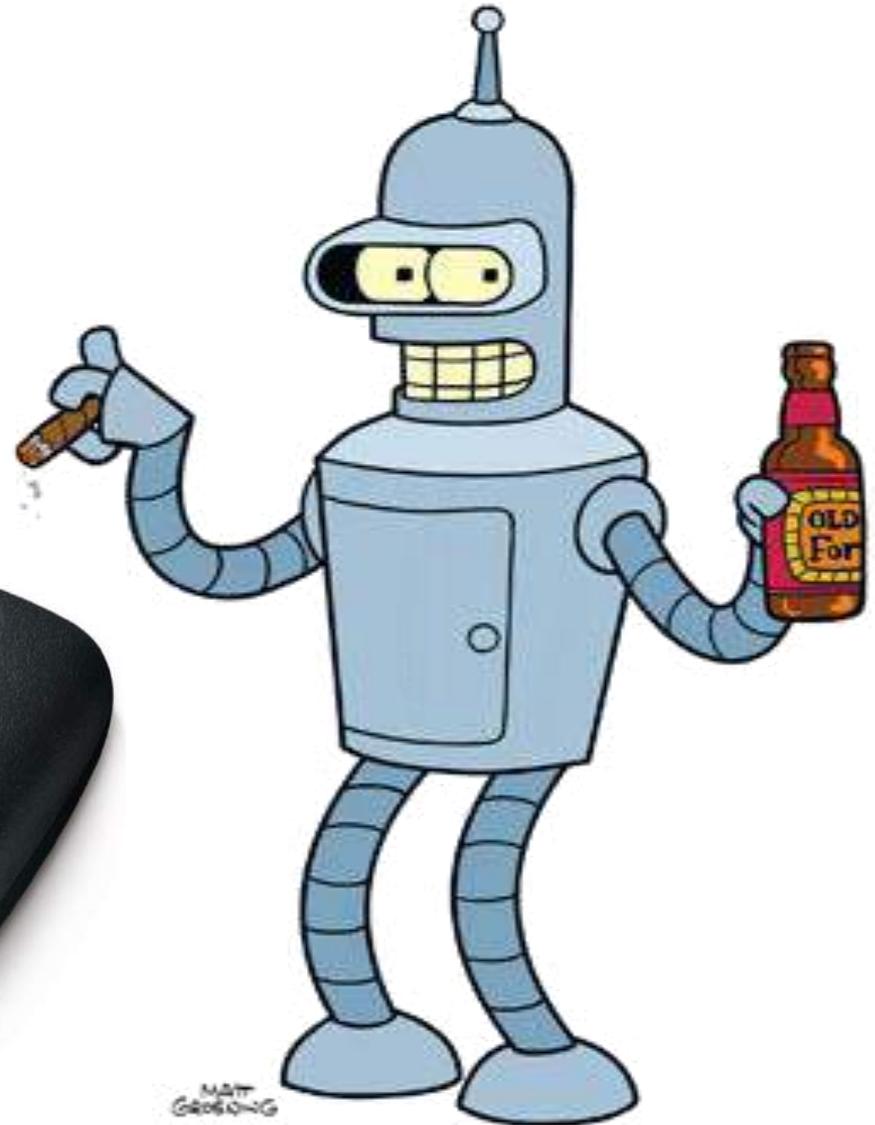
- **Notification!** The IP switch is still in position A. Please switch to position B, so the configuration of the network interface can be finished!
- Please connect your device (computer, tablet, smartphone,...) with the chosen WLAN network "[NETGEAR82](#)".
- If you have connection problems, check the WLAN-LED of your inverter. If it is red, the connection to your WLAN network was not possible. In that case, change the IP switch from position B to A and check the given WLAN password!
- Please open the wizard again by using the IP address that your router assigned to the system. If you have problems to reconnect to your system monitoring, the Fronius Solar.web App can help you!



# ANY QUESTIONS???



# 3 Party Equipment, Can't be that Hard ?



# INTEGRATED MONITORING FRONIUS 3G ROUTER OPTION THE SLIP IN YOUR POCKET OPTION



The snap-in range comes with USB charger point.

IP65.

Black out cover.

Communications failure default to safe pre-determined power level 100% - 0%

OSG - On Screen Graphics

Equipped with a built-in 3G modem - No other bulky devices

HSPA+ supported with up to 21.6Mbps download and 5.76Mbps

2000mAh internal battery for extended hours of outdoor use

Portable and cobblestone design ideal for travel use

Micro USB port for versatile recharging

OLED display provides a intuitive view of the device's working status

Equipped with a micro SD card slot for up to 32GB of optional

storage

Dimensions ( W x D x H 3.7 × 2.2 × 0.8 in. (94 × 56.7 × 19.8 mm))

## INTEGRATED MONITORING FRONIUS 3G ROUTER OPTION THE SLIP IN YOUR POCKET

# 3G Mobile Wi-Fi M5350

### ⦿ Features:

- Equipped with a built-in 3G modem - No other bulky devices required
- HSPA+ supported with up to 21.6Mbps download and 5.76Mbps upload speeds
- Supports up to 10 users simultaneously
- 2000mAh internal battery for extended hours of outdoor use
- Portable and cobblestone design ideal for travel use
- Micro USB port for versatile recharging
- OLED display provides a intuitive view of the device's working status
- Equipped with a micro SD card slot for up to 32GB of optional storage



## INTEGRATED MONITORING FRONIUS 3G ROUTER OPTION THE SLIP IN YOUR POCKET OPTION

# 3G Mobile Wi-Fi M5250

### ⦿ Features:

- Equipped with a built-in 3G modem - No other bulky devices required
- HSPA+ supported with up to 21.6Mbps download and 5.76Mbps upload speeds
- Supports up to 10 users simultaneously
- 2000mAh internal battery for extended hours of outdoor use
- Portable and cobblestone design ideal for travel use
- Micro USB port for versatile recharging
- Equipped with a micro SD card slot for up to 32GB of optional storage



## INTEGRATED MONITORING FRONIUS 3G ROUTER OPTION THE SLIP IN YOUR POCKET

IW-033 21.6 Mbps HSPA+ WiFi 3.5G Mobile Hotspot



## INTEGRATED MONITORING FRONIUS 3G ROUTER OPTION THE SLIP IN YOUR POCKET OPTION

# 3G Mobile WiFi 5200mAh Power Bank

M5360



### ⦿ Features:

- Instantly establish a 3G hotspot and share wireless with several mobile devices on business or road trips.
  - HSPA+ supported with up to 21.6Mbps download and 5.76Mbps upload speeds
  - Internal Battery for up to 17 hours of sharing 3G connections\*
  - 5200mAh Power Bank for charging smart phones or tablets (Power output: 5V/1A)
  - OLED display provides a intuitive view of the device's working status
  - Equipped with a micro SD card slot for up to 32GB of optional storage
- \* Actual service duration may vary due to different user environments.

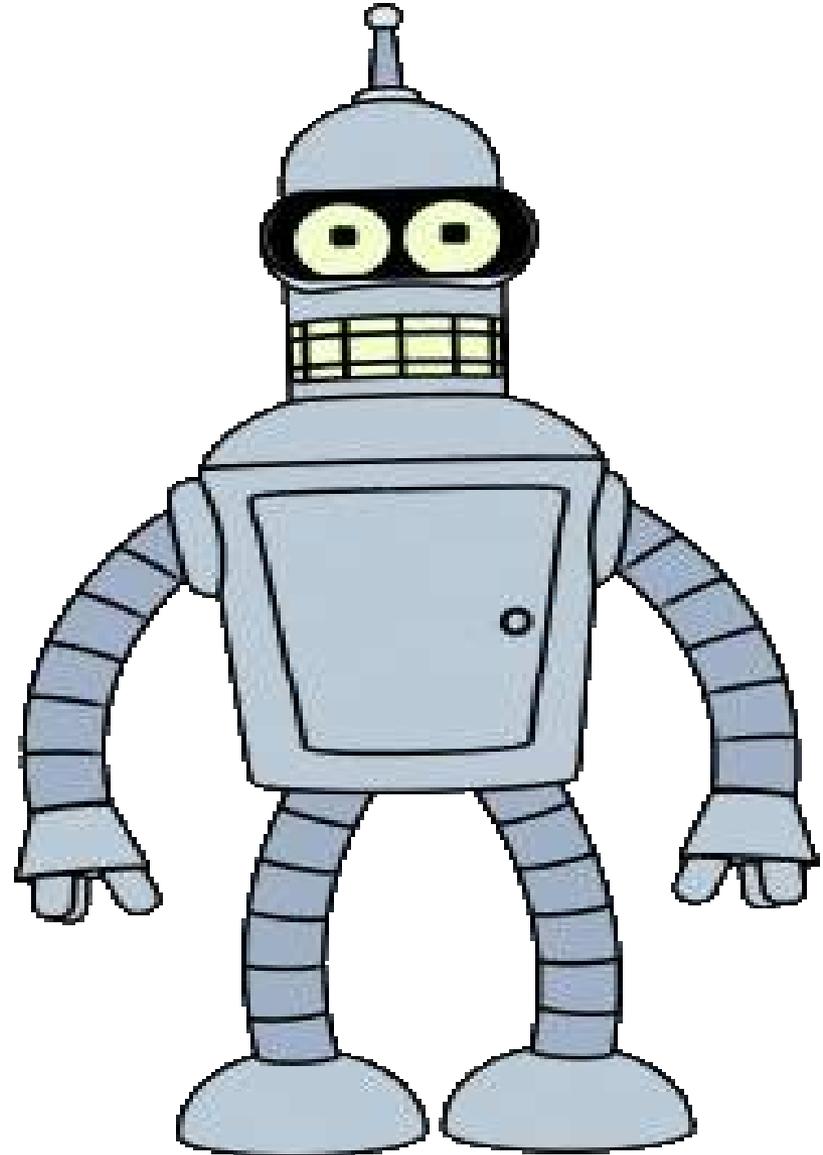


## INTEGRATED MONITORING FRONIUS 3G ROUTER OPTION THE SLIP IN YOUR POCKET

<b>Network Technology</b>	WiFi, HSPA+, EDGE, GRPS and GSM
<b>Chipset</b>	Qualcomm MDM8200A, Qualcomm WCN1314
<b>Antenna</b>	Internal antenna Internal diversity antenna Internal WiFi antenna Internal GPS antenna (Optional)
<b>Frequency Bands</b>	Quad-Band Class 12 EDGE/GPRS/GSM: 850 / 900 / 1800 / 1900MHz (Rx Diversity in WCDMA2100MHz) HSPA/UTMS: 850 / 1900 / 2100MHz
<b>Data Rates</b>	HSPA+ (R7) - 21.6 Mbps (download), category 14 HSPA (R6) - 5.76 Mbps (upload), category 6 UMTS (R4) - 384 Kbps (download/upload) EDGE (R4) - 3GPP R4, category 12 GPRS - Download 85.6 Kbps / Upload 42.8 Kbps
<b>Wi-Fi Class</b>	802.11b/g/n
<b>Wi-Fi Encryption</b>	WEP, WPA, WPA2
<b>Servers</b>	DHCP / DNS / VPN
<b>Power Supply</b>	Removable, rechargeable Li-Ion battery
<b>USB Speed</b>	2.0 Hi-Speed (1.1 compatible)
<b>SIM Card Interface</b>	3GPP 31.101 and 31.102
<b>Memory Card Slot</b>	MicroSD Memory Card Slot (32Gb Maximum)
<b>SIM Lock</b>	Unlocked (free to use any network)
<b>OS Support</b>	Windows 7 SP1, Vista SP2 and XP SP3 Mac OS X (10.5 - 10.7) Linux
<b>Operating/Storage Temp</b>	0 > 35 °C, -40 > +85 °C

# 3 G What's

# Where's the WD 40



# **LOW VOLTAGE CURRENT TRANSFORMERS**

**MOULDED CASE**

**RESIN CAST**

**SPLIT CORE**

**RING TYPE**

**SPECIALS**

## Applications

Monitoring current waveforms in semiconductor switches

Development, test and servicing of power electronic equipment.

Pulsed Power capacitor discharge and magnetic accelerator current measurements

Welding, motor drive, generator, currents

Ground currents in rotating machine shafts

Induction heating and plasma current measurements

Measuring AC currents in the presence of large DC currents

Fault monitoring, circuit breaker interruption and lightning strike currents

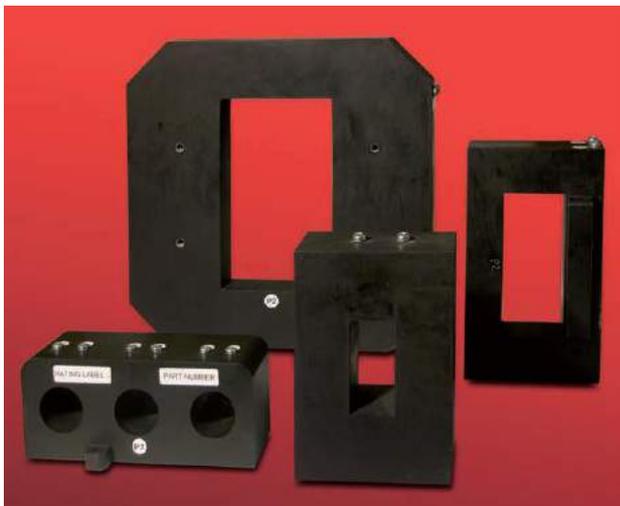
Monitor Battery and Capacitor Ripple Current



# INTEGRATED MONITORING Current & Voltage Transformers



We can advise on Current & Voltage Transformers,  
Let our friendly Technical staff help, get it right first time



The snap-in range  
comes

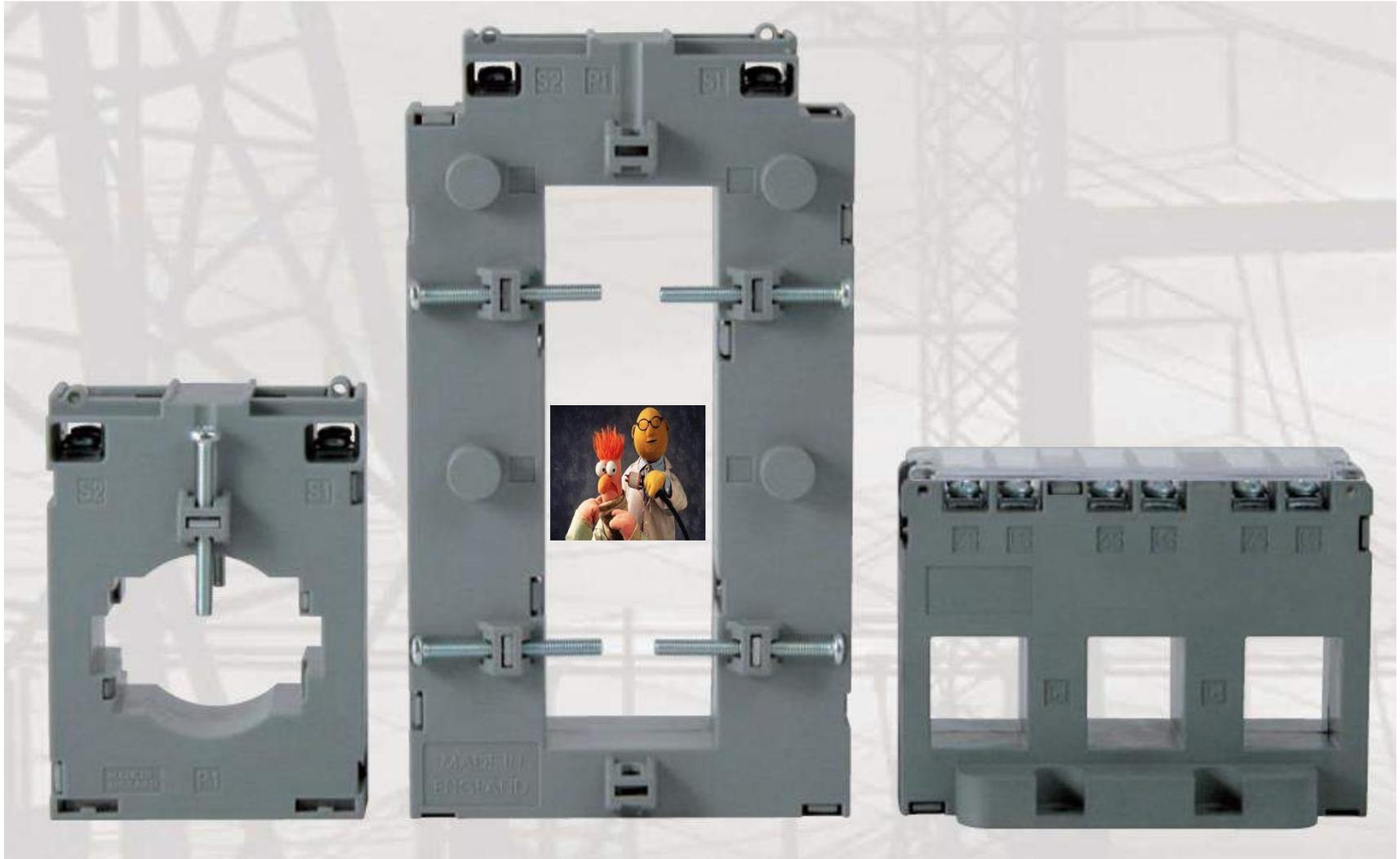
IP65.

Black out cover.

Communications  
failure default to safe  
pre-determined power  
level 100% - 0%

5a – 1A for  
extended hours  
of outdoor use

Take the Primary windings and divided it by the secondary windings the result is the Ratio you enter in the Smart Meter



## CT sensors - An introduction

Often referred to as a current clamp, a CT is in fact, ***not*** a clamp.

*These are Clamps.* On the left are two bus bar clamps, on the right, a carpenter's G-clamp:



Pictured above, is an example of a Split-Core CT.

Here's an example of a ***split-core*** CT

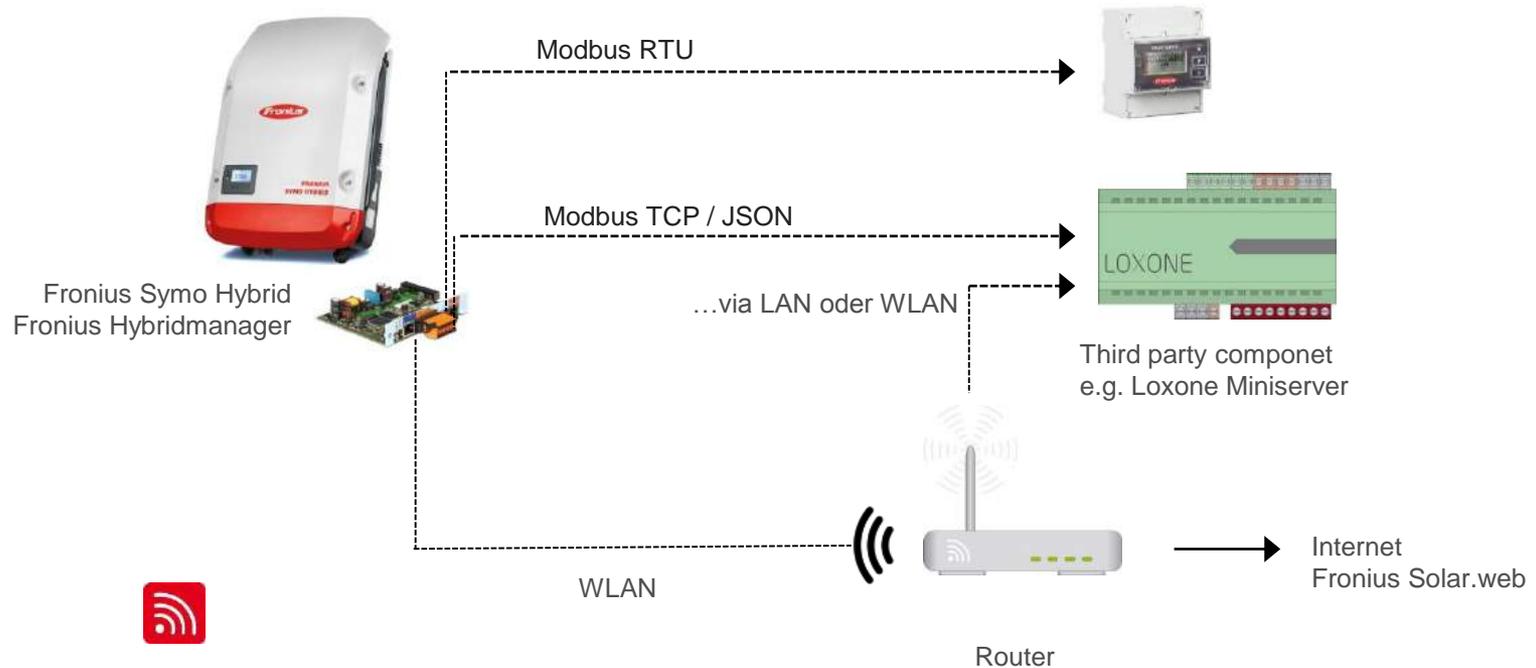


In addition to the split-core type, solid core, (aka ***ring core***) CTs are available.

Here's an example of a ***solid-core*** CT

# FRONIUS HYBRIDMANAGER - diagram

PV data transmission via Modbus RTU, Modbus TCP or JSON to Third party components.



FRONIUS SMART METER Wi-Fi Technology

# System monitoring

en 

Connection buildup **Network status** Passwords



System monitoring - WLAN		Internet	
IP-Address:	192.168.0.30	available:	Yes
Network mask:	255.255.255.0	Name server:	192.168.0.1
MAC address:	00:06:C6:5D:E5:41	Gateway:	192.168.0.1
SSID:	NETGEAR82		

Back Forward

Solar Web wizard is complete !

**Any questions?**



# The SnapINverter product families - overview

Fronius Galvo  
1.5 - 3.1 kW



The single-phase inverter of choice **for private households** – particularly suitable **for self-consumption systems**.

Also ideal for existing PV systems: electrical isolation makes it suitable for all module technologies.

Fronius Symo  
3.0 - 8.2 kW



Three-phase transformerless inverter, ensuring optimum symmetrical infeed.

In SuperFlex Design- two MPP trackers, high system voltage. **Impressive flexibility in system design.**

Fronius Symo  
10.0 - 20.0 kW



Like the Fronius Symo 3.0 - 8.2 kW. **Designed for use in field installations and/or systems in the commercial sector.**

With protection class IP 66: extremely robust even under most challenging environmental conditions.

Fronius Symo Hybrid  
3.0 - 5.0 kW



**Flexible storage solution** based on the Fronius Symo. Its modular design means the system **can be perfectly customised to suit individual configuration and extension requirements** - up to and including emergency power stand alone operation.

Fronius Eco  
24.0 - 27.0 kW



The **project inverter** combines all the benefits of the SnapINverter series with **extremely high efficiency**. Also available as a light version with basic interface package.

Fronius Primo  
3.6 – 8.2 kW



The single-phase transformerless inverter **boasts maximum flexibility in system design**. With two MPP trackers integrated as standard.

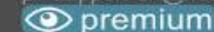
# Solar.web

My PV systems PV system comparison



## SOLAR.WEB

pv-support-uk@fronius.com



Logout

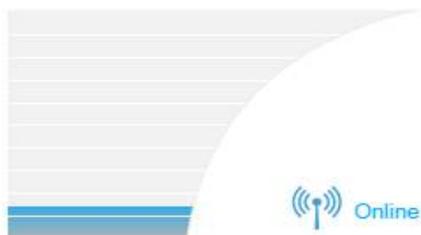
### Fronius UK Ltd - Milton Keynes



YOU ARE 24 HOURS OF SUN!  
Visit website for more information

Overview Realtime Archive Reports Service messages Administration TSI

0.51 kW  
Current power



3,616.41 Wh  
Energy today



31 14/10/2016 12:07

1.56 GBP  
Yield today

Month  
51.83 GBP



Year  
1,410.81 GBP

Total  
2,045.14 GBP



1.92 kg  
CO<sub>2</sub> savings today

Corresponds to car kilometers...



Today: 13 km  
Total: 16,805 km

Corresponds to trees planted...



Today: 0  
Total: 65

No messages

Mailbox

User settings

Contacts

Support

Feedback

Fronius services

Fronius Solar.configurator

Fronius Solar.TV

Fronius homepage

Search for installer

References

Product Registration

Fronius Solar.web Live App

Android

iOS

Mac OSX

Windows 7

Windows 8.1

Fronius Solar.web Pro App

Android

iOS

Solar.web News

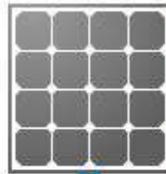
Terms and Conditions

Imprint

TSI Portal

# INTEGRATED MONITORING FRONIUS SMART METER DAY MODE

Self-sufficiency  
**54%**

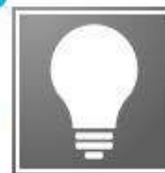


Current power  
**235W**  
Utilization  
**5Wp%**



Usage  
**202W**  
Feed in  
**---%**

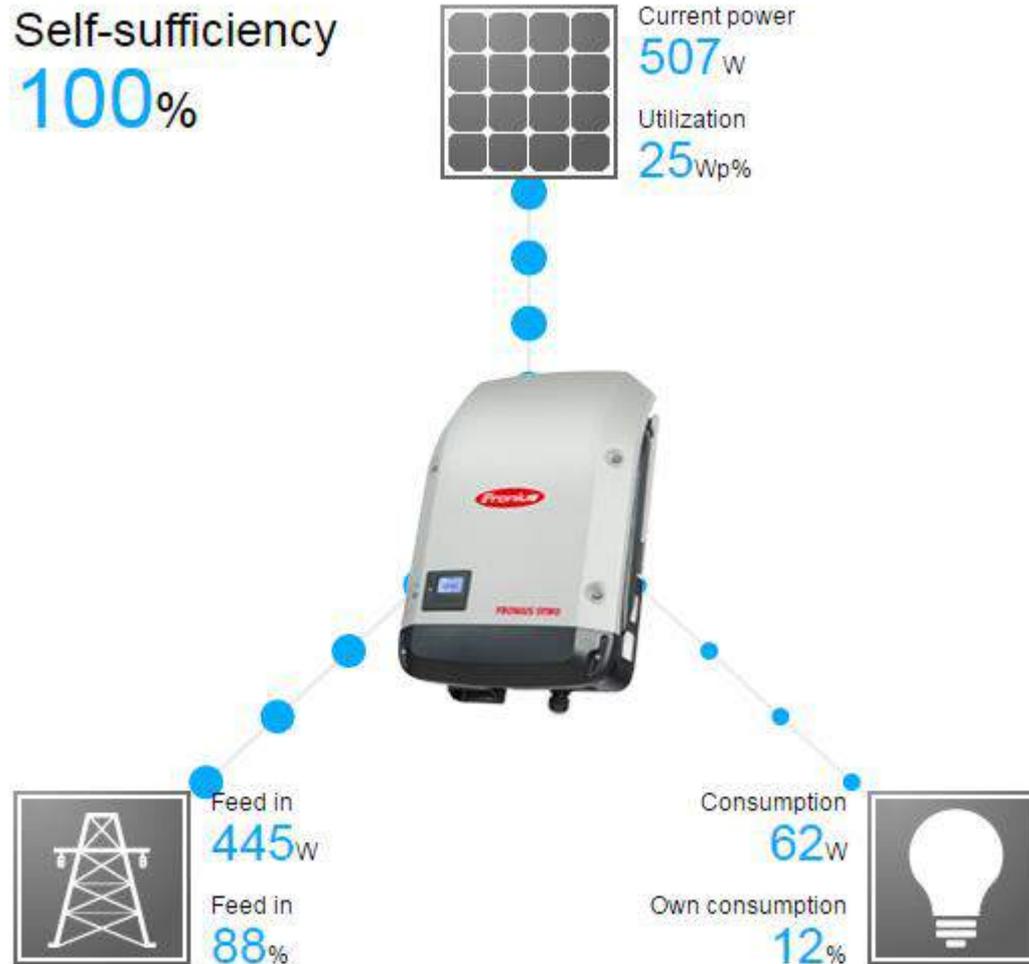
Consumption  
**437W**  
Own consumption  
**100%**



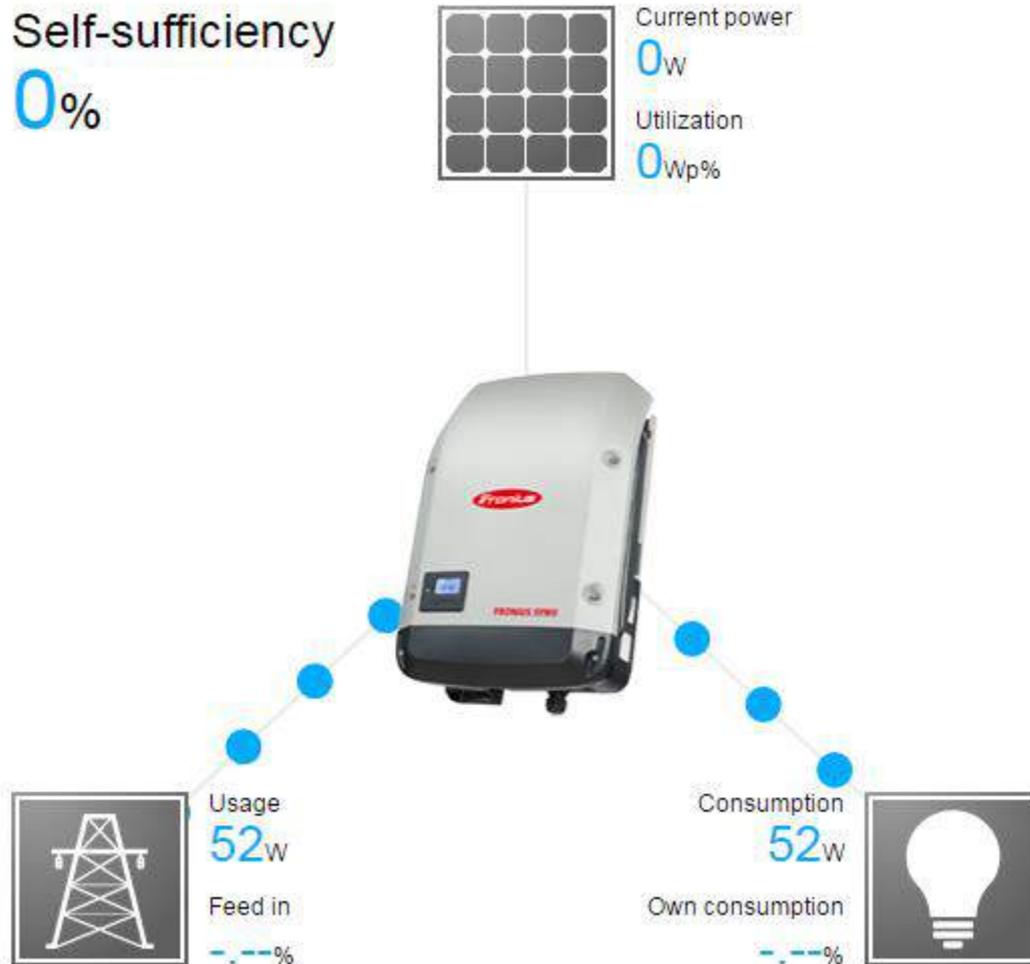
## Fronius Solar.web

In Fronius Solar.web online portal, the Fronius Smart Meter provides a clear overview of power & Self consumption

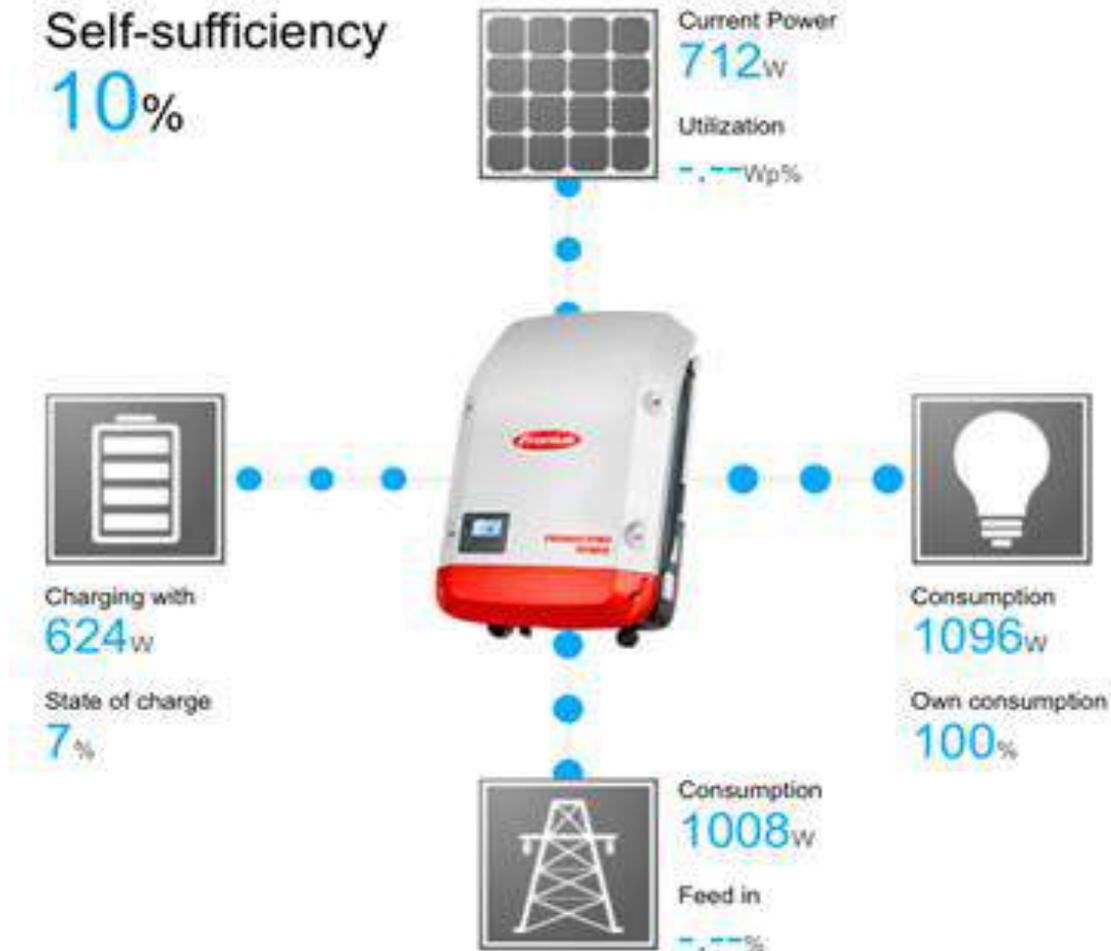
# INTEGRATED MONITORING FRONIUS SMART METER DAY MODE



# INTEGRATED MONITORING FRONIUS SMART METER NIGHT MODE



# INTEGRATED MONITORING FRONIUS SMART METER NIGHT MODE



# ANY QUESTIONS???

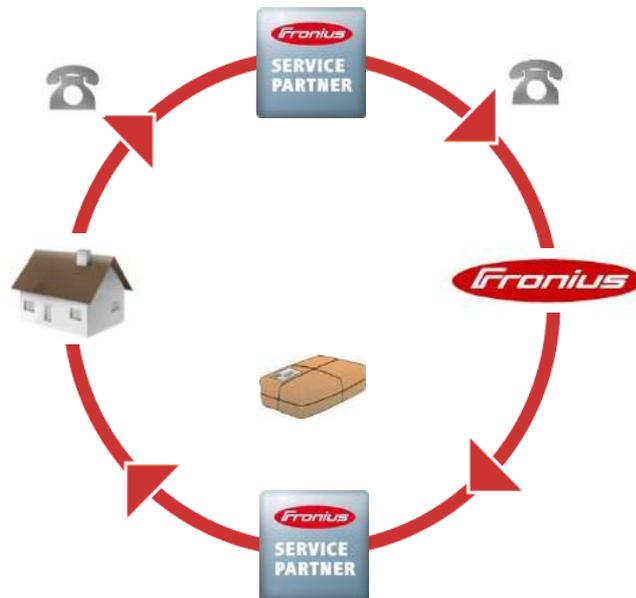


# Needed Equipment



# Fronius Replacement process

- / Call hotline → Replacement process will be started
- / Exchange component will be shipped → to the address of installer or endcustomer
- / Defective component will be picked up and returned to Fronius Repair center



# More INFORMATION and support



## FRONIUS SOLAR ONLINE SUPPORT

Registration on [sos.fronius.com](https://sos.fronius.com)

Overview warranty periode of components

Easy and quick- Order online replacement inverter from Fronius or required components



## FRONIUS VIDEO TUTORIALS

HOW-TO VIDEOS

Find more under [www.fronius.com](https://www.fronius.com)

# Thank you!



Visit [www.Froniustraining.co.uk](http://www.Froniustraining.co.uk) for our more info about our training courses

Our next training dates are;

- Fronius Service Partner
- Fronius OV Storage Solution Training
- Fronius Agilo Service Training
- Fronius IG Service Training
- Fronius IGTL Service Training



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