

# Quick guide: How to install a Fronius Smart Meter\*

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\*Single phase or 3-phase Energy Meter

43,0001,1477 Fronius Smart Meter 63A-1

43,0001,1473 Fronius Smart Meter 63A-3

## White Paper

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Version 1.0/2015

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Gender-specific wording refers equally to female and male form.

## 1 GENERAL

Fronius Smart Meters (single phase or 3-phase) are energy meters that work in conjunction with the Fronius Datamanager V2. The Smart Meter must be connected to the Fronius Datamanager V2 which comes built-in to all Fronius SnapINverters (Galvo, Primo, Symo and Eco), and can be retrofitted into all other Fronius inverters.

Using a ModBus RTU / RS 485 connection protocol, the smart meter can be utilised to monitor consumption data or in order to limit the export of a PV system. They can measure current/voltage/energy/reactive power/apparent power in total or per line.

Once a battery is added to an installation a Smart Meter is mandatory. If the installation is single or dual phase a 3-phase Smart Meter can be used.

This document describes how to do install and setup the Fronius Smart Meter.

### 1.1 Requirements

/ Important! The Fronius Smart Meter cannot be used in combination with the Fronius Datamanager Version 1.

/ The Fronius Datamanager V2 needs to have a software version of V3.3.6-13 or greater. (For details how to upgrade the firmware see chapter *1.3 Software update of Fronius Datamanager*).

/ The Datamanager needs to be set up before executing the meter settings. For information on how to set up the Fronius Datamanager please see the Fronius inverter or the Fronius Datamanager manual (for Fronius Galvo/Symo/Primo/Eco):

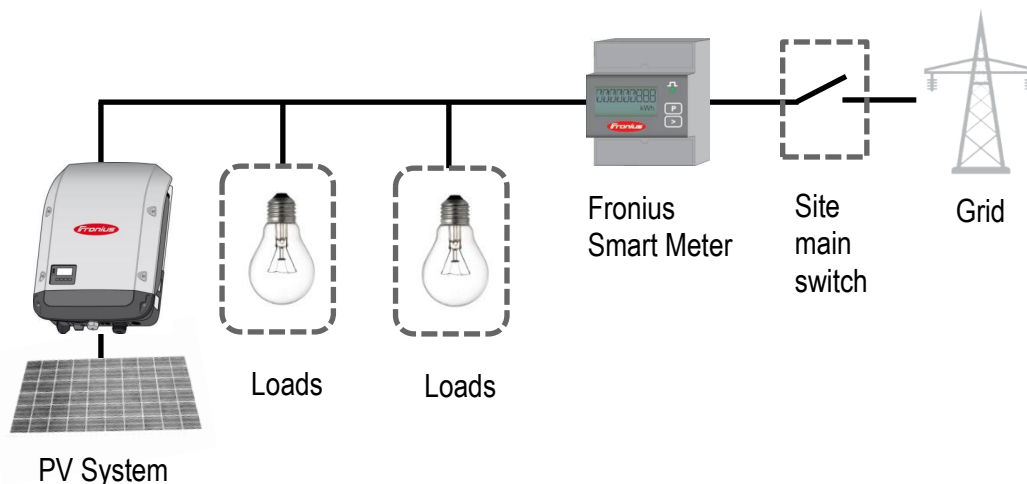
[http://www.fronius.com/cps/rde/xbcr/SID-DBD64F5C-18F6818F/fronius\\_australia/42\\_0426\\_0191\\_EA\\_388899\\_snapshot.pdf](http://www.fronius.com/cps/rde/xbcr/SID-DBD64F5C-18F6818F/fronius_australia/42_0426_0191_EA_388899_snapshot.pdf)

### 1.2 Where to put the Fronius Smart Meter

Due to the setup of installations in Australia, in most cases the meter will be put into the feed-in path (diagram 1). If the PV system is connected to a sub board it's most likely to achieve the load measurement by having the meter in the feed-in path. In rare occasion it can be put into the consumption path (diagram 2).

#### / Feed-in point

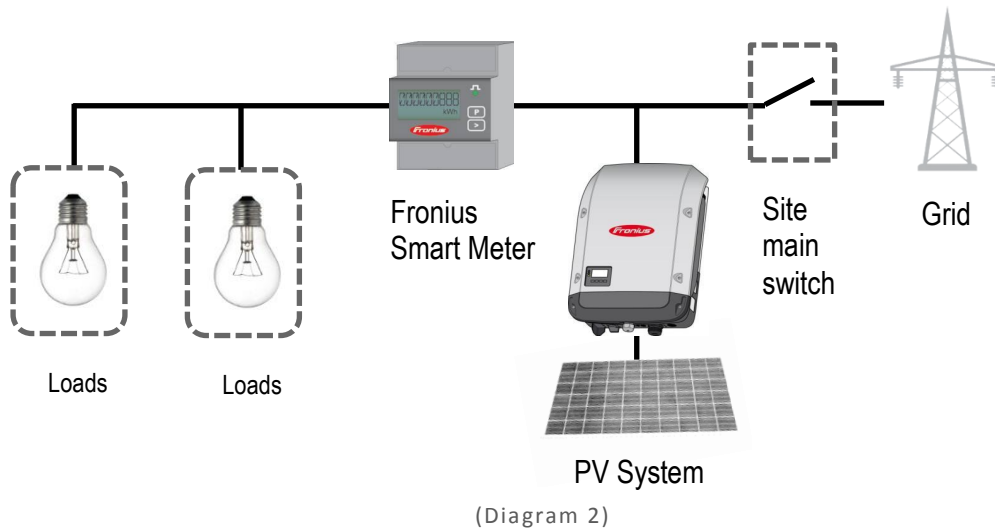
In this setting the solar generation passes through the meter as well as the site load.



(Diagram 1)

### / Consumption path

The meter in this scenario does not measure the solar production, only the consumption.



### 1.3 Software update for Fronius Datamanager

The easiest way to update the Fronius Datamanager is to use the Datamanager's web interface. To update your software access the web interface follow the steps below:

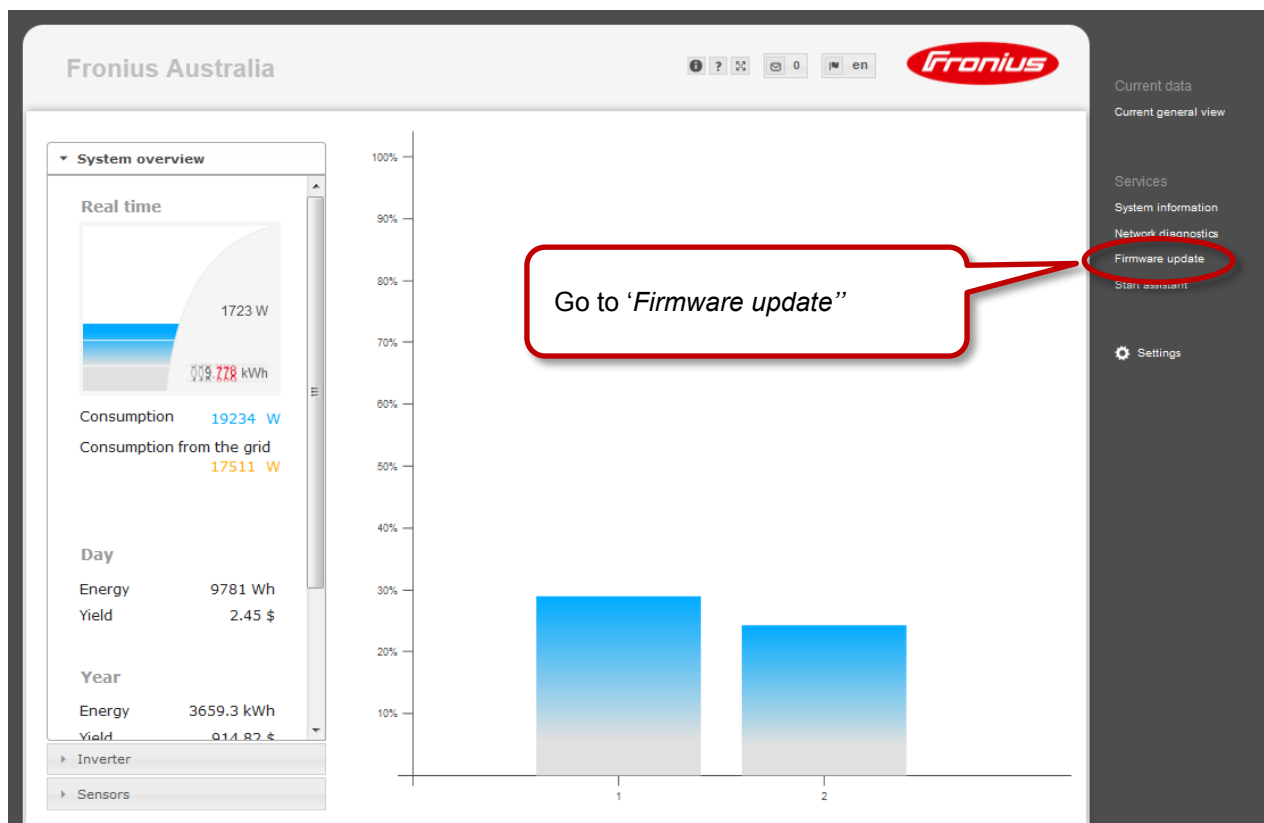
/ Activate the Wi-Fi hotspot on the Datamanager card (inverter) or Datamanager Box V2

/ Connect your computer/tablet/smart phone to the Datamanager's WLAN hotspot

/ Open a web browser and go to <http://192.168.250.181> or <http://datamanager/>

Alternatively you can use Fronius SolarWeb App for tablet or smart phone and go to 'Settings' and click 'PV Inverter Homepage'

/ Select Firmware update The Datamanager web interface (PV Inverter Homepage)



The screenshot shows the Fronius Australia web interface. On the left, there is a 'System overview' section with 'Real time' data showing 1723 W and 009.778 kWh. Below this, there are sections for 'Day' (Energy: 9781 Wh, Yield: 2.45 \$) and 'Year' (Energy: 3659.3 kWh, Yield: 914.82 \$). On the right, there is a navigation menu with options: 'Current data', 'Current general view', 'Services', 'System information', 'Network diagnostics', 'Firmware update' (highlighted with a red circle and callout), and 'Settings'.

/ Check and run update on the firmware update page

The screenshot shows the 'Firmware Update' page in the Fronius Australia web interface. The page is divided into 'Configuration' and 'Update' sections. In the 'Configuration' section, there is a 'check now' button next to the 'Automatic update search' checkbox. In the 'Update' section, there are two radio buttons: 'Update via Web' (selected) and 'Update via LAN'. A 'Run update' button is located below these options. Three red callout boxes provide instructions: one points to the 'check now' button, another points to the radio buttons, and a third points to the 'Run update' button.

Check whether a newer software is available.

Select 'Update via Web' if internet connection is available (recommended)  
Select 'Update via LAN' if the update file is stored locally on the computer\*.

Start the update procedure.

/ Start the download

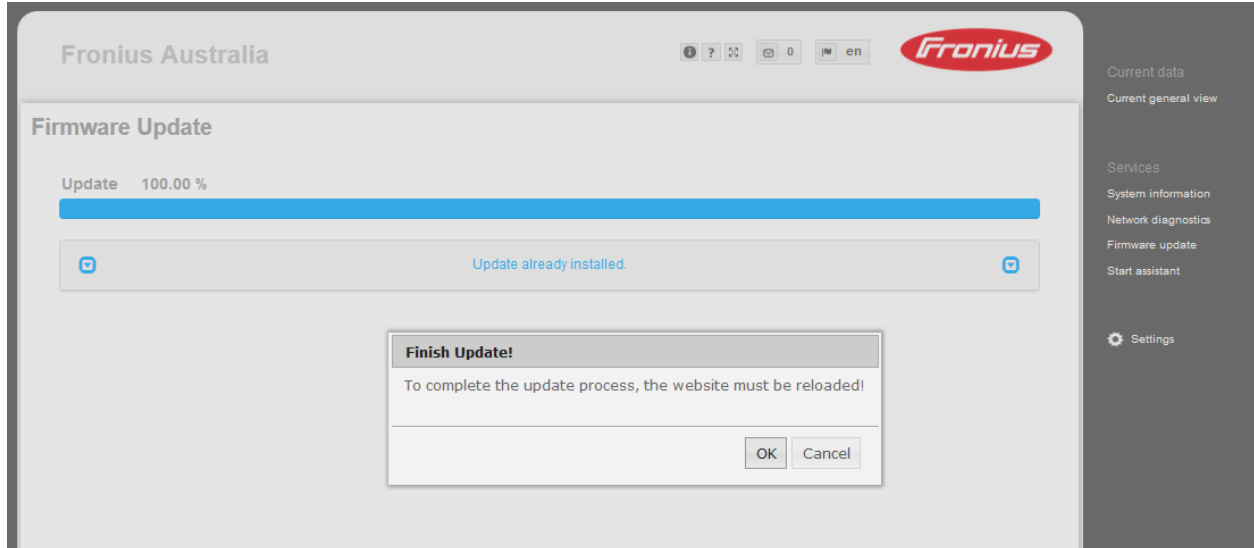
The screenshot shows the same 'Firmware Update' page, but with a confirmation dialog box overlaid. The dialog box is titled 'Are you sure you want to run the update?' and contains several lines of text providing instructions and warnings. At the bottom of the dialog box, there are 'Yes' and 'No' buttons, with the 'Yes' button circled in red. A large red callout box points to the 'Yes' button.

Read through the information and click 'Yes'

/ The software will automatically download

The screenshot shows the 'Firmware Update' page with a progress bar indicating the update is at 1.77%. Below the progress bar, there is a status bar that says 'Checking components... (2)'. The 'Run update' button is no longer visible, indicating the update process has begun.

/ To finish the update click OK



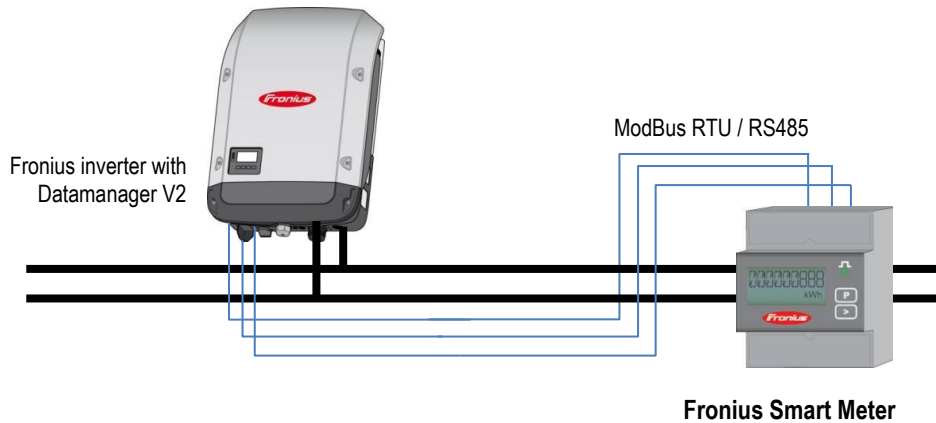
For more detailed information on how to upgrade the firmware for Fronius Datamanager V2 please see the Operating Instructions on the Fronius website under *Solar Energy / Products / System monitoring / Datalogging / Fronius Datamanager 2.0* or click: [http://www.fronius.com/cps/rde/xbcf/SID-DBD64F5C-18F6818F/fronius\\_australia/42\\_0426\\_0191\\_EA\\_388899\\_snapshot.pdf](http://www.fronius.com/cps/rde/xbcf/SID-DBD64F5C-18F6818F/fronius_australia/42_0426_0191_EA_388899_snapshot.pdf)

\*In case there is no internet connection on the Datamanager the software update can be done via a computer. The software can be downloaded from the Fronius Website under *Solar Energy/Info & Support/Software Downloads/Software Updates* or click here: [http://www.fronius.com/cps/rde/xchg/SID-1CE5A97E-8EC72008/fronius\\_australia/hs.xsl/25\\_7671.htm](http://www.fronius.com/cps/rde/xchg/SID-1CE5A97E-8EC72008/fronius_australia/hs.xsl/25_7671.htm)

## 2 INSTALLATION AND SETUP OF THE FRONIUS SMART METER

### 2.1 Schematics and Wiring

Diagram 3 shows the system configuration



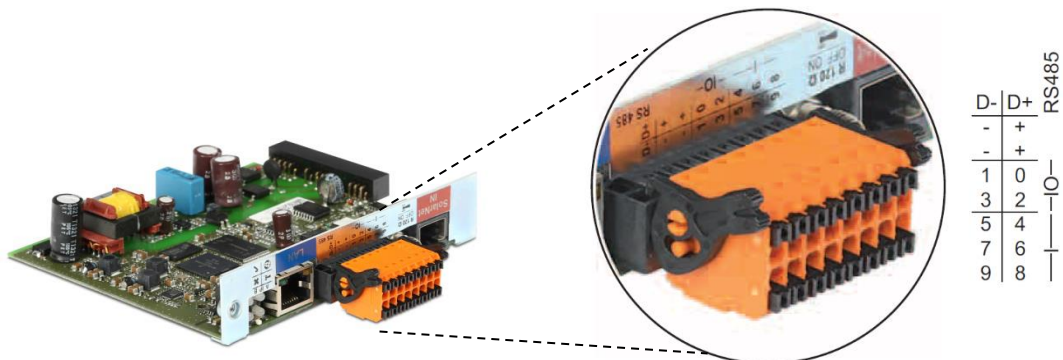
(Diagram 3)

Please note:

- / Wiring between meter and inverter should use CAT5 or CAT6 cable (LAN cable)
- / Connection is a data line for Modbus RTU / RS485 using screw terminals on the meter
- / Maximum distance: 300 m (980 feet)

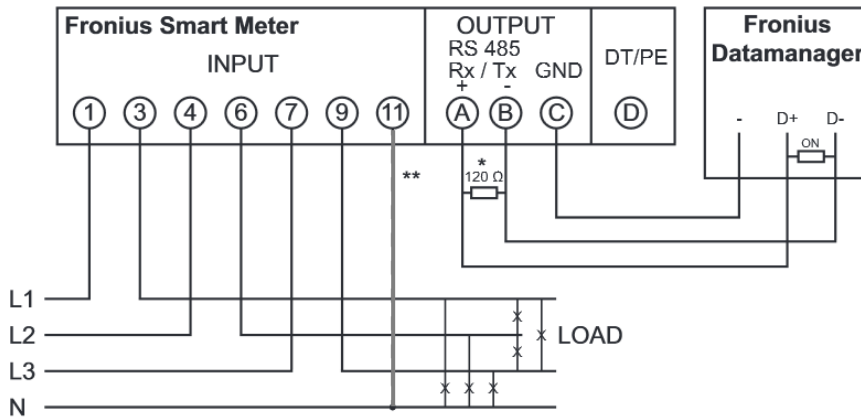
#### Meter connection on the Datamanager V2

The meter needs to be connected to the Datamanager's binary output, as shown in diagram 4.



(Diagram 4)

**Wiring detail for 3-Phase Smart Meter 63A/3PH and Datamanager V2**

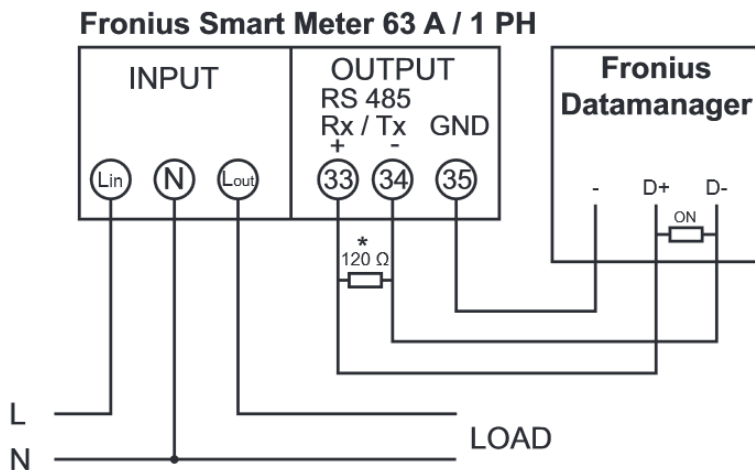


(Diagram 5)

\* The 120 Ohm terminating resistor comes with the meter

\*\* It is important to connect the Neutral.

**Wiring detail for Single Phase Smart Meter 63A/1PH\*\*\* and Fronius Datamanager V2**

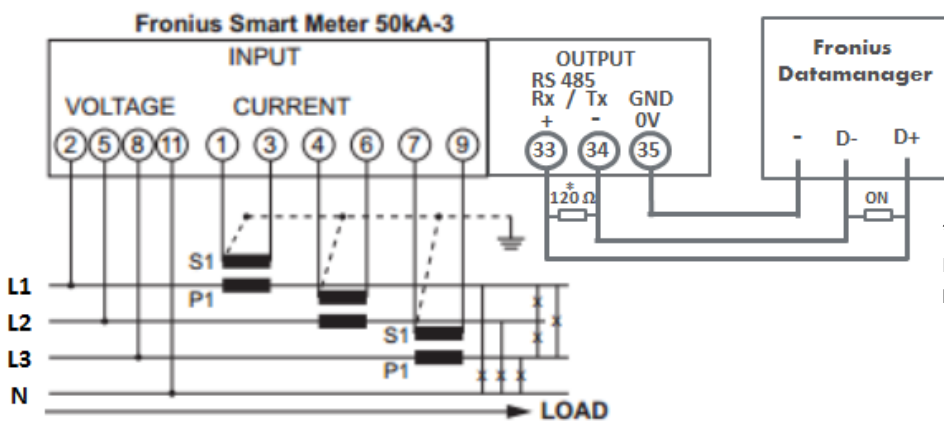


(Diagram 6)

\* The 120 Ohm terminating resistor comes with the meter

\*\*\* Please note that the connections 33, 34, 35 on the Fronius Smart Meter are in reverse order to those shown in diagram 6!

**Wiring detail for 3-Phase Fronius Smart Meter 50kA/3PH and Datamanager 2.0**



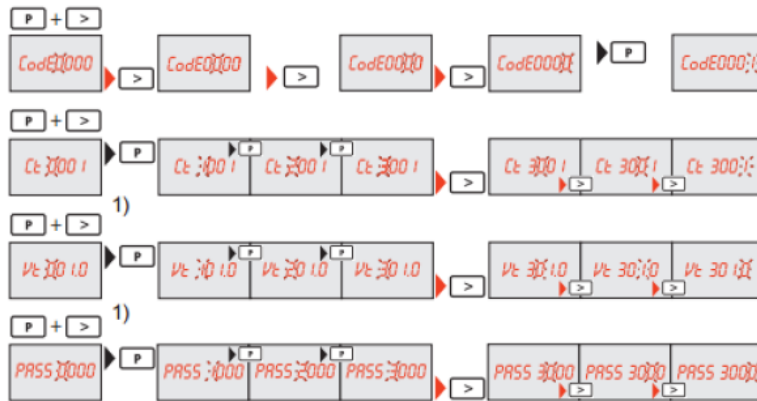
(Diagram 7)

\* The 120 Ohm terminating resistor comes with the meter



## Programming

Only the transmission ratio has to be set!



Password / type in Code 0001

transmission ratio of the current transducer

\*) If your CT ratio is 20 once set this will now read Ct 0020

transmission ratio of the voltage transducer – not in use.

Change password – 0001

For future changes of the CT, please don't change the password, there is no possibility to read the set password

\*) ratio **Primary nominal current / secondary nominal current**

Example:

Primary nominal current 100 A / secondary nominal current 5 A = Transmission ratio 20

Primary nominal current 200 A / secondary nominal current 5 A = Transmission ratio 40

Current transducers with a secondary current of 1A and 5A can be used.

### Modbus termination switch on the Datamanager

The internal bus termination 120-Ohm resistance (for Modbus RTU) needs to be switched to ON to be activated.

Please Note:

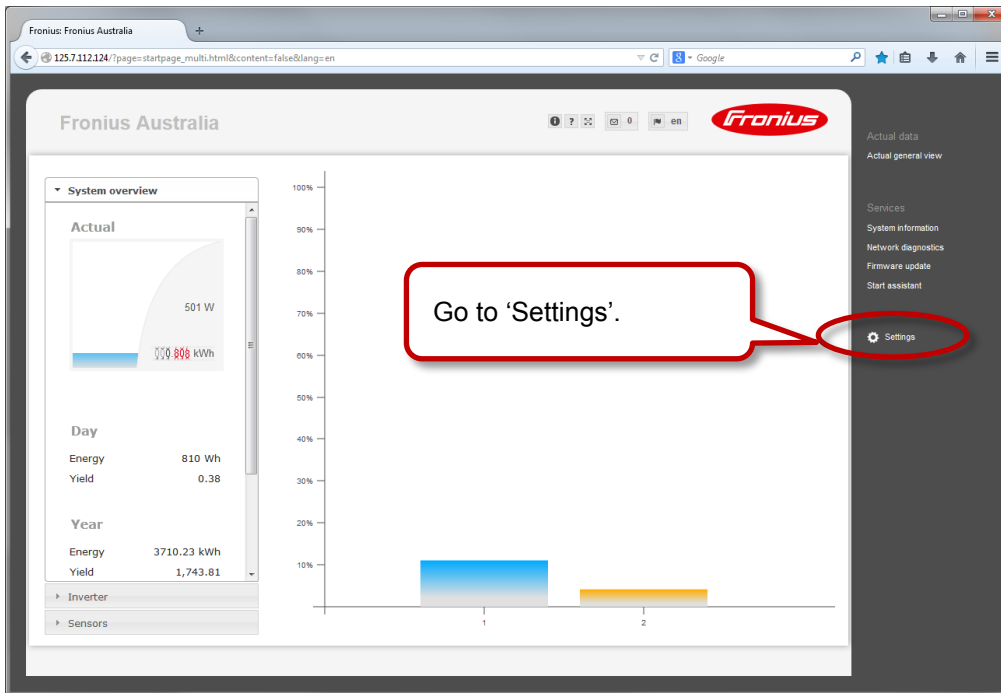
The termination resistance must be activated for the first and last device in an RS-485 bus.



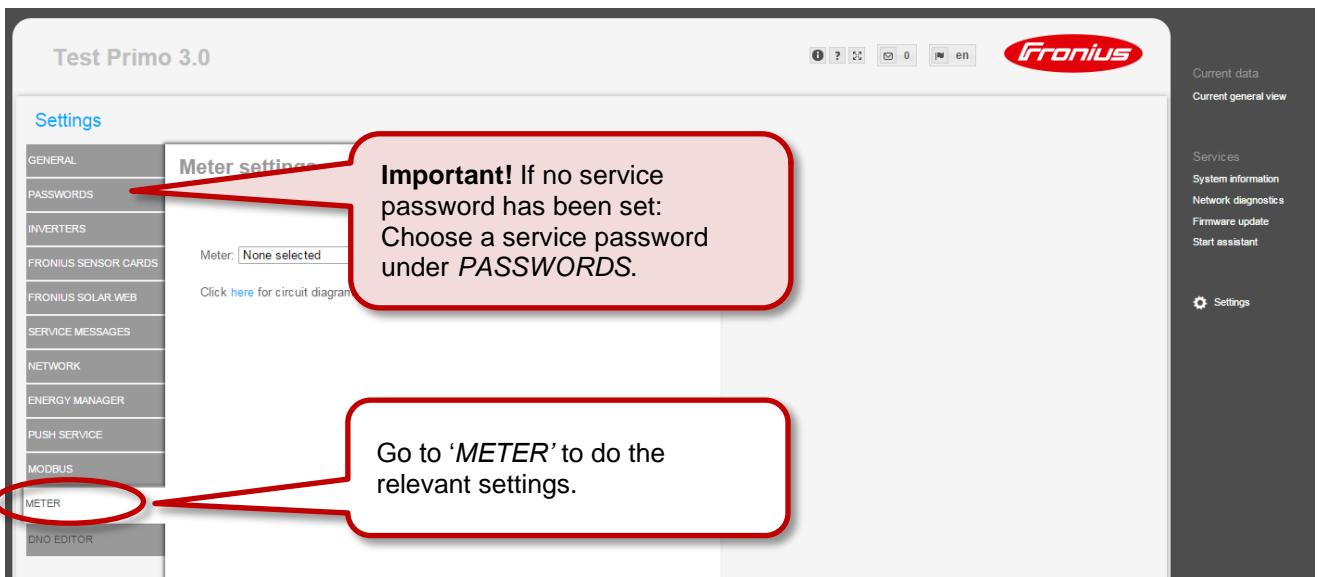
## 2.2 Activate the meter on the Fronius Datamanager web interface

The dynamic power reduction can be set on the web interface of the Fronius Datamanager as shown below.

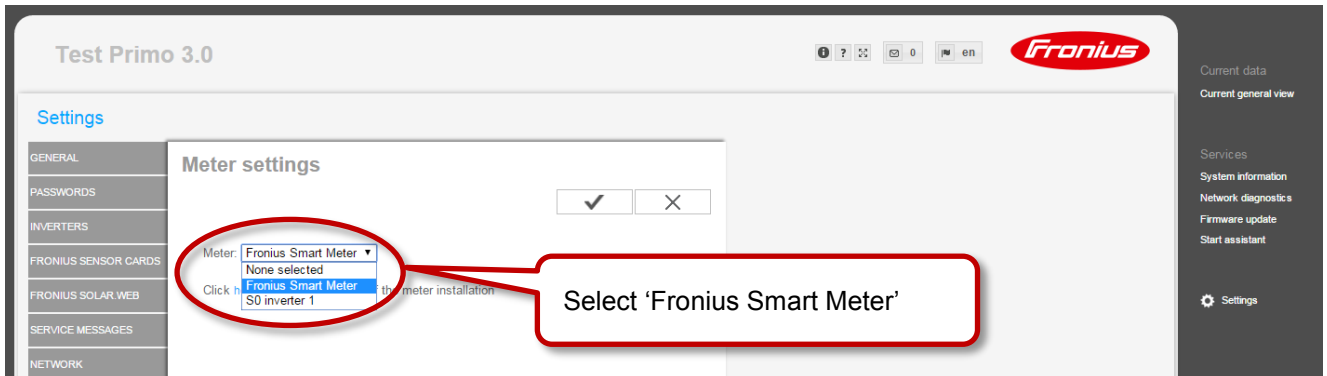
/ On the Datamanager web interface select *Settings*



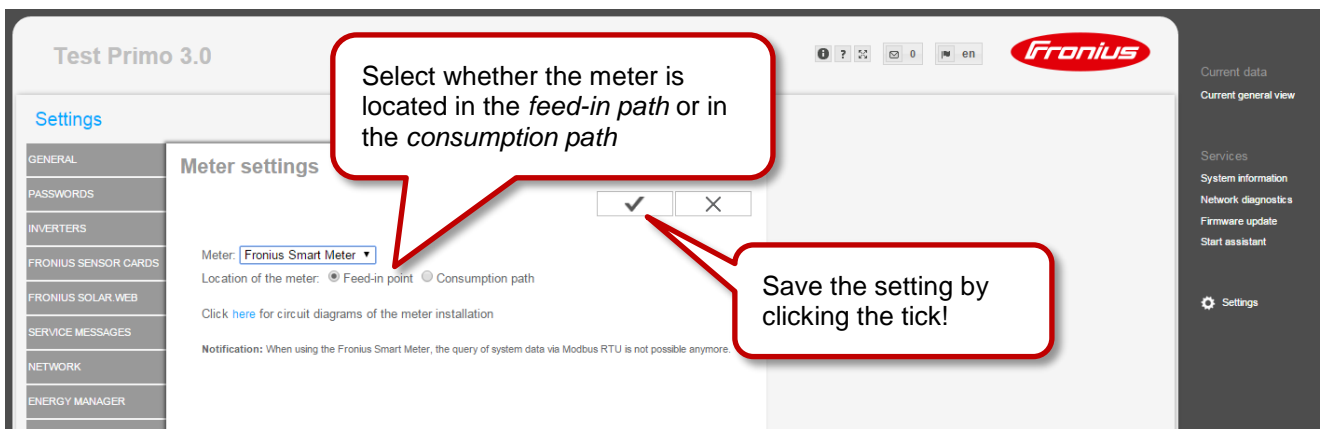
/ Before it is possible to enter the *METER* settings a service password is required. If no service password has been set, it needs to be created first!



/ Choose the type of meter.

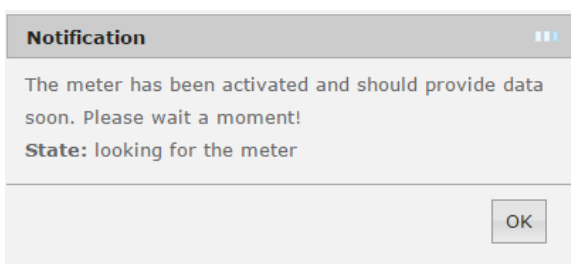


/ Choose the installation location.



For further explanations on feed-in path and consumption path see chapter 1.2 *Where to put the Fronius Smart Meter*

/ The meter is activated once you get the following message. Click OK!



Done!

For more information on the Fronius Datamanager V2 please see the Operating Instructions on the Fronius website under *Solar Energy / Products / System monitoring / Datalogging /Fronius Datamanager 2.0* or click: [http://www.fronius.com/cps/rde/xbcr/SID-DBD64F5C-18F6818F/fronius\\_australia/42\\_0426\\_0191\\_EA\\_388899\\_snapshot.pdf](http://www.fronius.com/cps/rde/xbcr/SID-DBD64F5C-18F6818F/fronius_australia/42_0426_0191_EA_388899_snapshot.pdf)