

/ Perfect Welding / Solar Energy / Perfect Charging



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E-MOBILITY SOLUTION: FRONIUS WATTPILOT

AGENDA

- / **E-Mobility - Basics**
- / **Fronius Wattpilot - Basic variants**
 - / Go
 - / Home
- / **Fronius Wattpilot - Functions**
 - / PV surplus and flexible energy tariff
 - / Standalone App and accessories
- / **Fronius Wattpilot - Charging modes**
 - / Eco mode
 - / Next trip mode
- / **Availability and timeline**



Electric mobility - Basics

CHARGING THE CAR

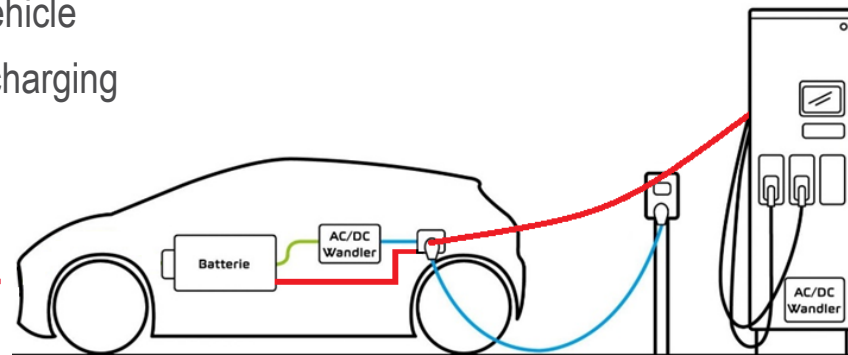
Two different forms of charging

/ Standard charge with **alternating current (AC)** —

- / Charging via the "on-board charger" of the vehicle
- / Infrastructure significantly cheaper than DC charging
- / Charging times up to several hours
- / For residential charging

/ Fast charging with **direct current (DC)** —

- / Significantly shorter charging time
- / In comparison with AC charging
- / Infrastructure significantly more expensive than AC charging



STANDARD

Type 2 Plug – EU standard since 01/2013

/ Control pilot → PWM Signal

/ E-Auto Status

/ Charging (Start / Stop)

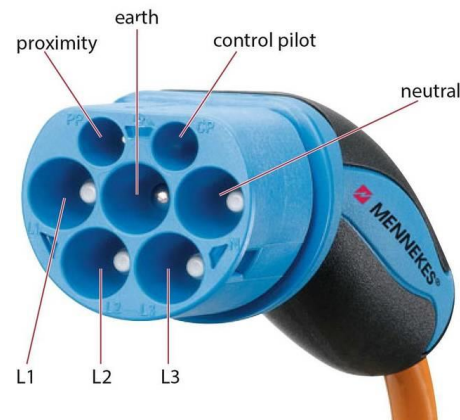
/ Max charge current

/ Proximity pilot → defines the max. charging current of the cable

/ Resistance coding (100–1500Ohm)

/ No further communication between car and charging station for AC-charging!

/ Information like SOC is not communicated!

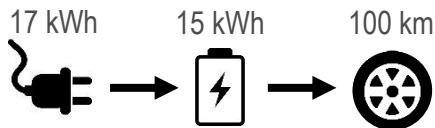


RANGE AND MILEAGE

Calculation

/ Range

/ Example (Hyundai Kona):

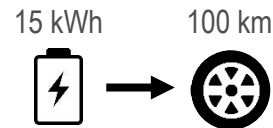


/ Kilowatt hour = kWh

/ What is the consumption of an electric car per 100 km?

/ About 15 kWh: with an electricity price of € 0.20 per kWh, this is € 3

/ A vehicle with 64 kWh can therefore drive over 420 km.



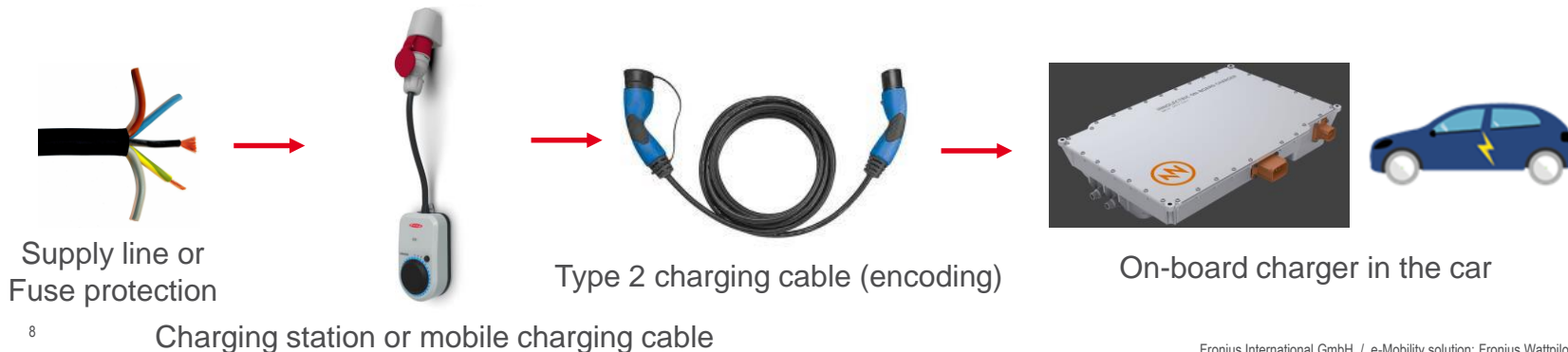
/ Required energy for AC charging @ \approx 90% efficiency

LIMITING FACTORS FOR CHARGING POWER

The maximum charging power (kW) is depending on 4 different factors:

- / Supply line (connection) or house connection – fuse protection
- / Charging station or mobile charging cable
- / Type 2 charging cable
- / Onboard-charging device in the car
- / (1- 2- or 3- phase, 6-32 Amps)

The weakest link in the chain is always decisive for the charging performance that can actually be achieved

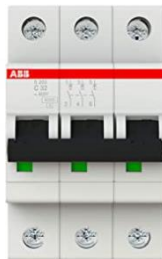


WATTPILOT SUPPLY LINE



RCD type A
30mA

+



Circuit breaker







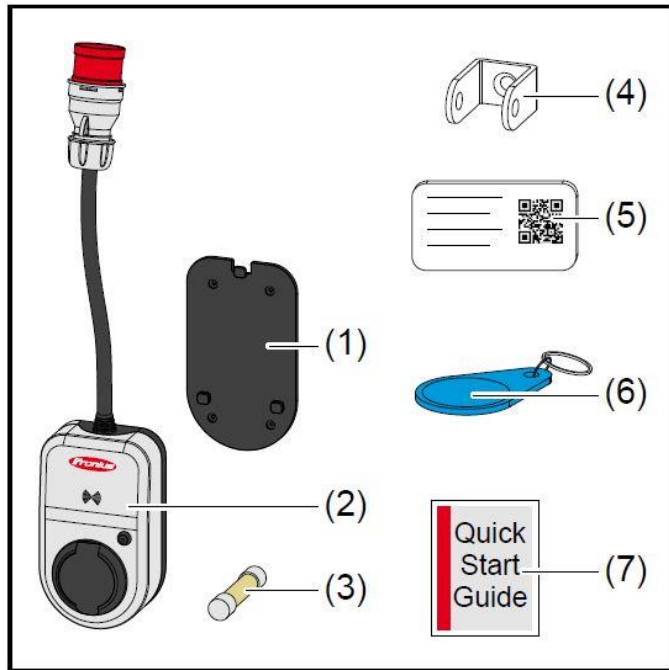
Fronius Wattpilot

Basic variants

VARIANTS OF **WATTPILOT**

	Wattpilot Go 11 J	Wattpilot Go 22 J	Wattpilot Home 11 J
max. charging power	11 kW	22 kW	11 kW
AC connection	CEE 16 plug red 5-pin incl. Neutral pin	CEE 32 plug red 5-pin incl. Neutral pin	3~NPE 400 V / 230 V (2 m connection cable)
Nominal current	6-16 A 1 phase or 3 phase	6-32 A 1 phase or 3 phase	6-16 A 1 phase or 3 phase
			

STANDARD SCOPE OF DELIVERY



- / 1: Mounting bracket including screws and dowels
- / 2: Wattpilot Go / Home
- / 3: Microfuse (replacement) - only use original microfuse!
- / 4: Metal bracket for theft protection (only bracket, NO padlock!)
- / 5: RFID reset card
- / 6: ID chip
- / 7: Quick Start Guide

OPTIONAL ACCESSORIES

- / **Type 2 cable** (5m, 32 A – 22kW)
- / **ID- Chips** 10 Pc.
- / **Additional mounting plate** for Go devices

- / **Adapterset Go 22** includes:

- / CEE red 32 to:
 - / CEE red 16 A
 - / CEE blue 16 A
 - / Schuko 16 A

- / **Adapterset Go 11** includes:

- / CEE red 16 to:
 - / CEE red 32 A
 - / CEE blue 16 A
 - / Schuko 16 A



10 x



ADAPTERSET FOR 22 KW DEVICE

/ CEE red 32 A



Direct connection



/ CEE red 16 A



Adapter CEE red 16 A to Wattpilot 22



/ CEE blue



Adapter CEE blue to Wattpilot 22



/ Schuko



Adapter Schuko to Wattpilot 22



Fronius Wattpilot Go 22 J

ADAPTERSET FOR 11 KW DEVICE

/ CEE red 32 A



Adapter CEE red 32 A to Wattpilot 11



/ CEE red 16 A



Direct connection



/ CEE blue



Adapter CEE blue to Wattpilot 11



/ Schuko



Adapter Schuko to Wattpilot 11

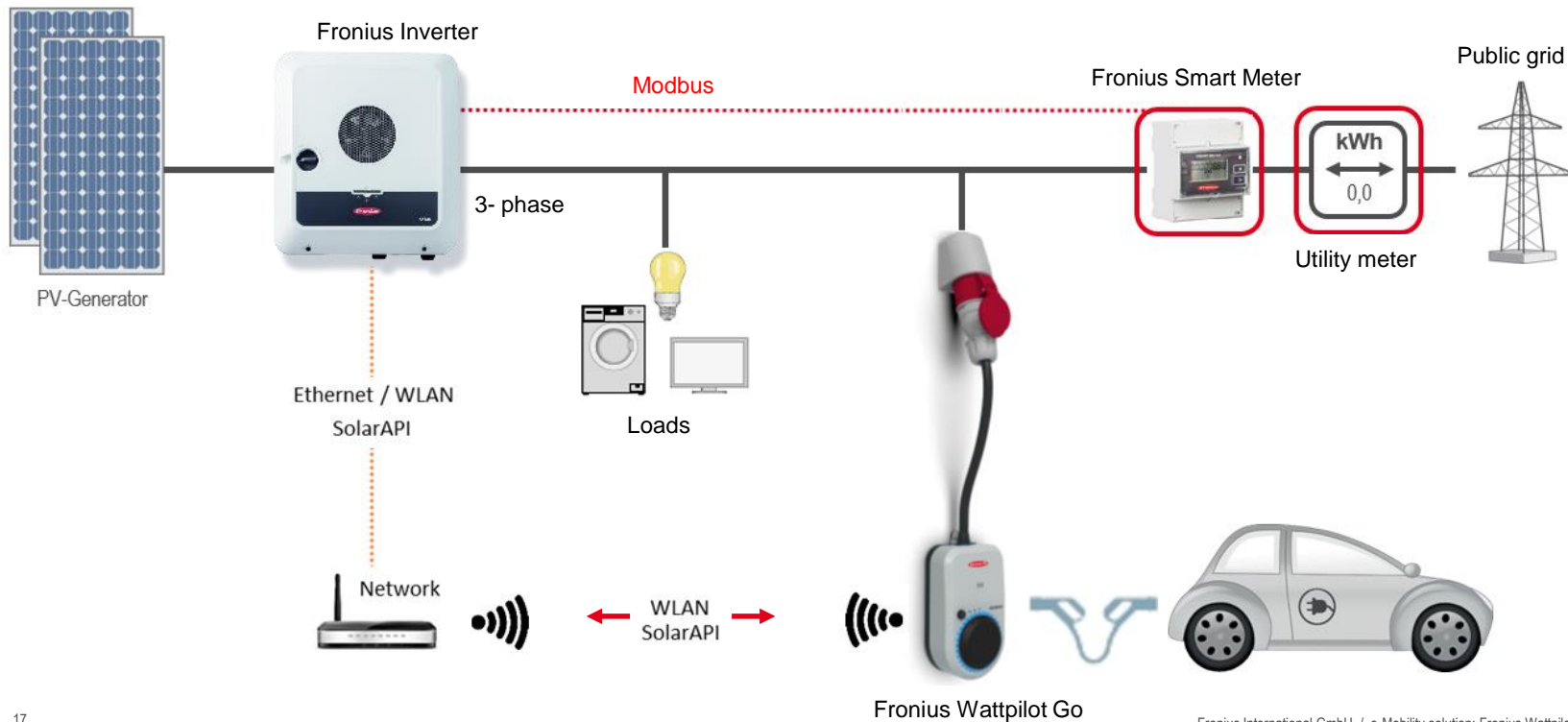


Fronius Wattpilot Go 11 J



Fronius Wattlepilot Functions

FUNCTION OVERVIEW



FURTHER FEATURES OF **WATTPILOT**

THEFT PROTECTION (CABLE LOCK FUNCTION)

/ Connected type 2 cable cannot be removed (depending on the setting) and therefore cannot be stolen

PHASE AND VOLTAGE TEST

/ The input voltage is checked for each phase → no damage to the electric car if a phase is missing

FAULT CURRENT PROTECTION DEVICE WITH DC DETECTION

/ Integrated 30 mA AC (Go), 6 mA DC → no upstream RCD type B required

PERSONALIZED ACCESS VIA RFID CARDS OR CHIPS

/ The amount of charged energy can be assigned to the registered RFID cards by an integrated energy meter

/ Up to 10 RFID cards can be assigned per Wattpilot



Charging with Fronius Wattpilot

SIMPLY CHARGING

- / Charging with a **preset current** e.g. 16 A fixed
- / The customer can **choose the current level** he wants to charge e.g. slowly and gently or as quickly as possible
- / Surplus or flexible electricity tariffs **are not taken into account** in this charging mode: Charging with grid connection if necessary

Ampere range is 6 - 32A. Set to 0 to disable level.

	Disable all levels	Default values
Level 1	10 A	- +
Level 2	16 A	- +
Level 3	20 A	- +
Level 4	24 A	- +
Level 5	32 A	- +
Absolute max. Wallbox	32 A	

App interface for setting the charge current



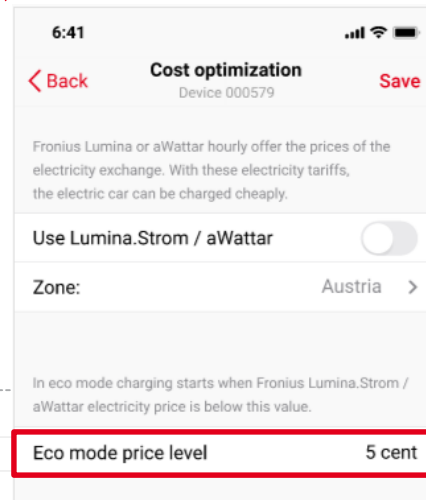
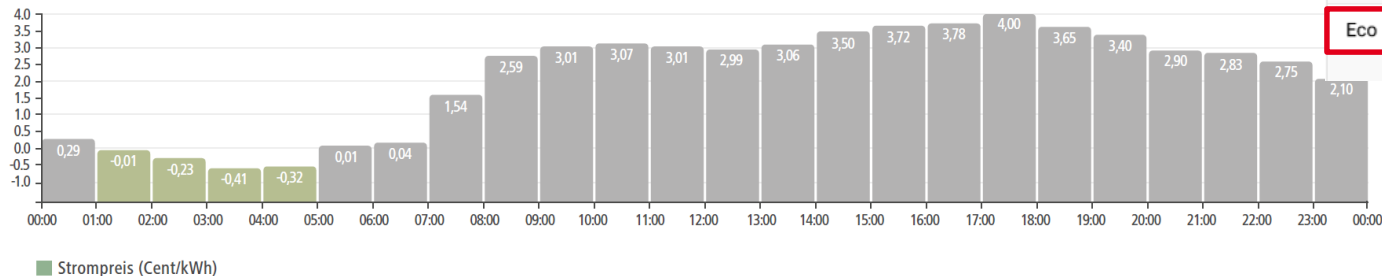
Button for setting the charge current

LED ring (Visualization of Amperage)

AFFORDABLE AND ENVIRONMENTALLY FRIENDLY CHARGING WITH VARIABLE ENERGY TARIFFS*

EVEN IF THERE IS NO AVAILABLE PV ENERGY, THE ELECTRIC CAR CAN CHARGE COST EFFICIENT OVER NIGHT WITH VARIABLE ELECTRICITY TARIFFS.

- / Set up the desired electricity price thresholds for charging with the app
- / with that it's possible to charge, when the electricity price is cheap or even negative
- / available energy tariffs with SOS: Lumina.Strom (DE) and aWattar Hourly (AUT)

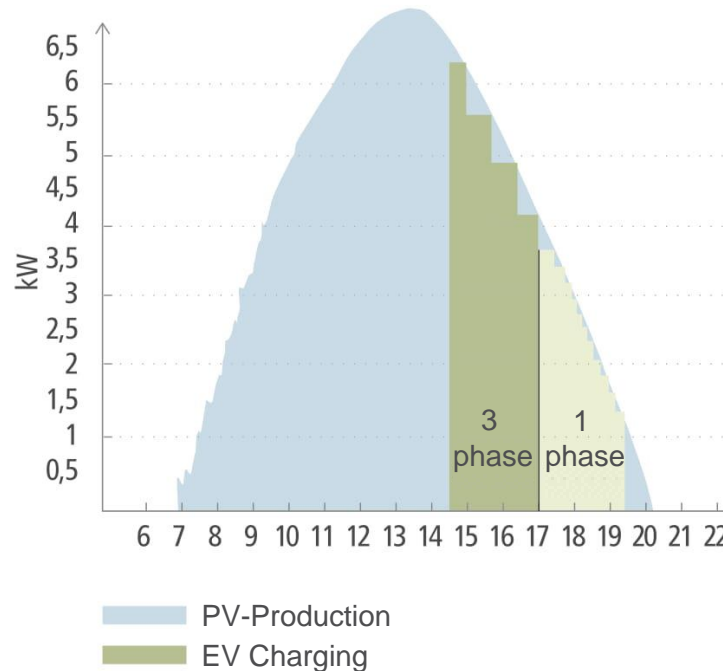


FILL UP ON YOUR OWN SOLAR POWER

PV SURPLUS CHARGING

INTELLIGENT USE OF ENERGY SURPLUS RATHER THAN FEEDING IT INTO THE GRID

- / The charging process can be controlled in single amperage steps
- / Use the PV surplus from 1,38 kW – 22 kW
- / Fully automatic 1- / 3-phase switchover





SURPLUS CHARGING: HOW IT WORKS

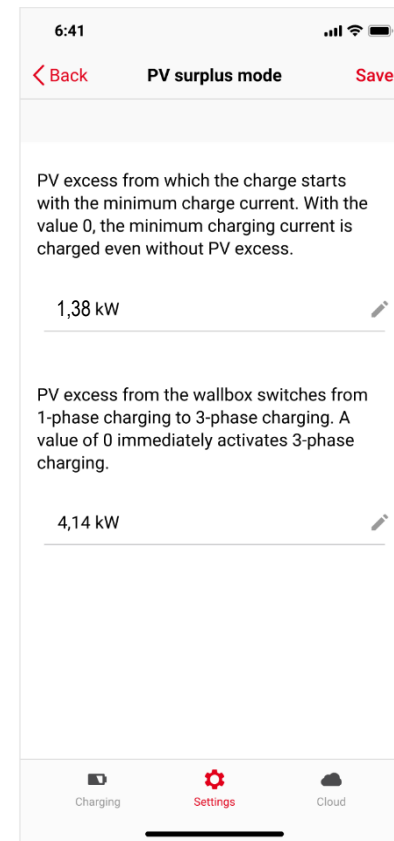
- / Is part of "Next ride" and "Eco Mode" mode
- / Defines the **threshold value** for the start of the respective charge (1-phase or 3-phase)
- / **Switching** between 1- and 3- phase charging is possible
- / **Regulation possible** in 1 amp steps! (**230 watt** 1-phase and **690 watt** 3-phase)

Min. charging power 1-phase

Charging current	6 Amps	8 Amps	10 Amps	12 Amps	14 Amps	16 Amps	20 Amps	24 Amps	32 Amps
1-phase	1,38 kW	1,84 kW	2,3 kW	2,76 kW	3,22 kW	3,68 kW	4,6 kW	5,52 kW	7,3 kW
3-phase	4,14 kW	5,52 kW	6,9 kW	8,28 kW	9,66 kW	11 kW	13,8 kW	16,56 kW	22 kW

Min. charging power 3-phase

Automatic switchover from 1- to 3-phase charge





Fronius Wattpilot

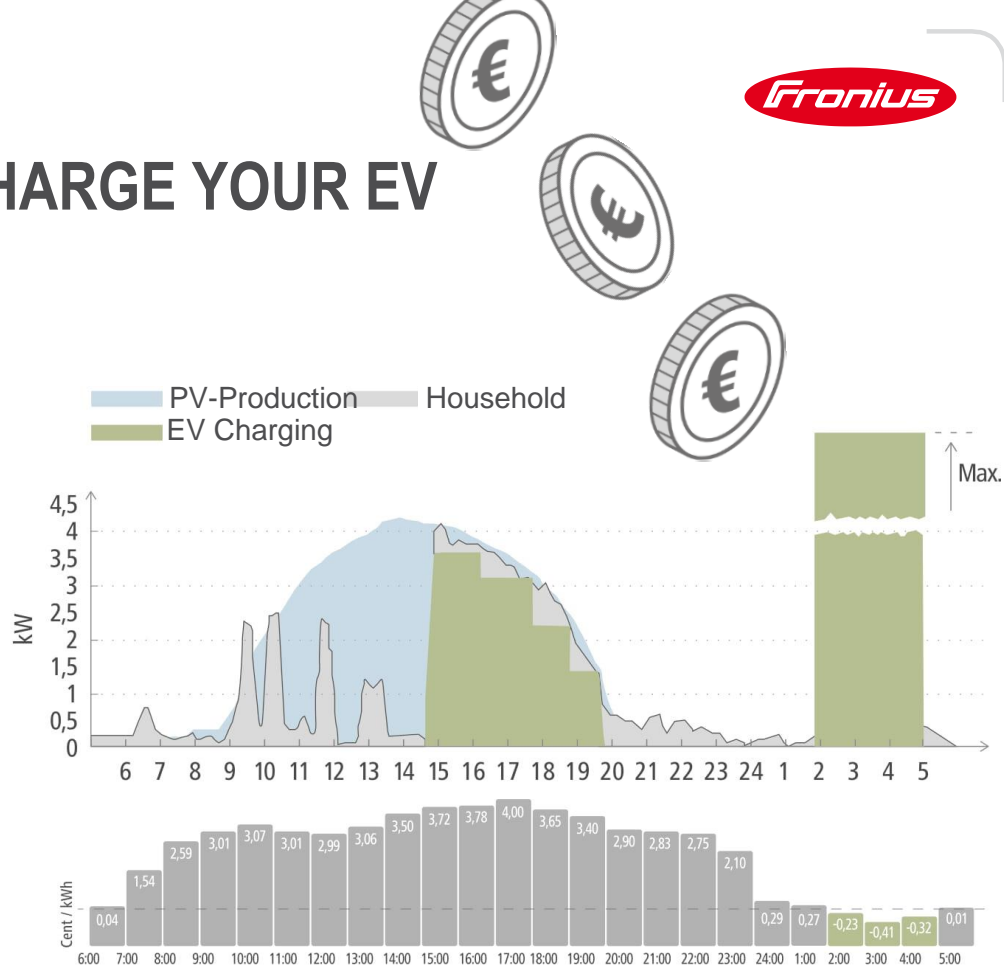
Charging modes

THE CHEAPEST WAY TO CHARGE YOUR EV

ECO MODE

COMBINATION OF PV SURPLUS CHARGE AND CHARGING WITH VARIABLE ENERGY TARIFFS*

High self-consumption rates of PV, faster amortisation and cheapest energy for the electric vehicle



GET TO YOUR DESTINATION – AS CHEAP AS POSSIBLE

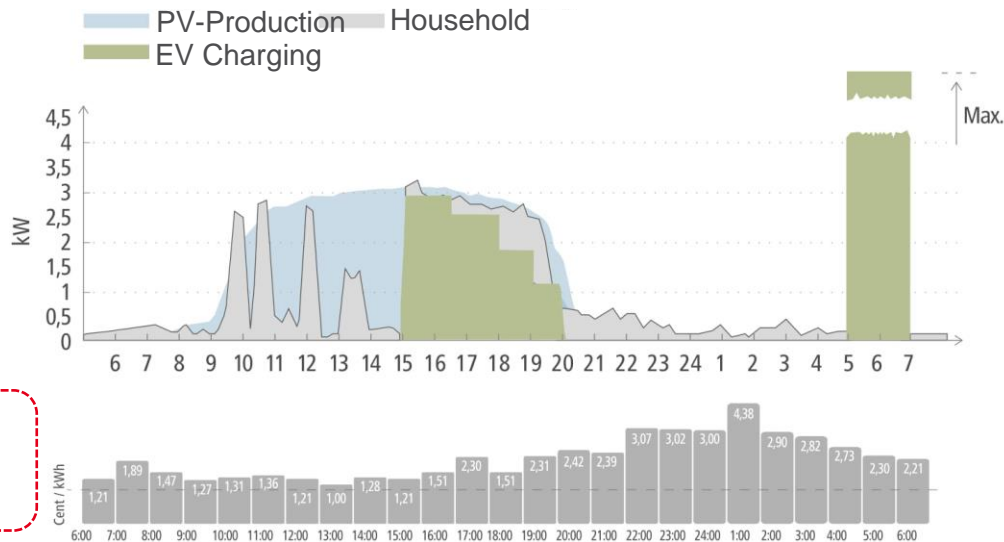
NEXT TRIP MODE

60 KM, TOMORROW AT 7 AM FOR THE LOWEST PRICE?

NO PROBLEM WITH THE NEXT.TRIP MODE

- / The specific distance, that should be charged, is defined
- / The Wattpilot charges that distance (converted in kWh)
- / PV surplus energy or the variable electricity tariff* is used
- / To ensure charging, the EV is always charged with the desired amount of energy, even in spite of higher cost

Always the desired state of charge at the desired time at the lowest cost





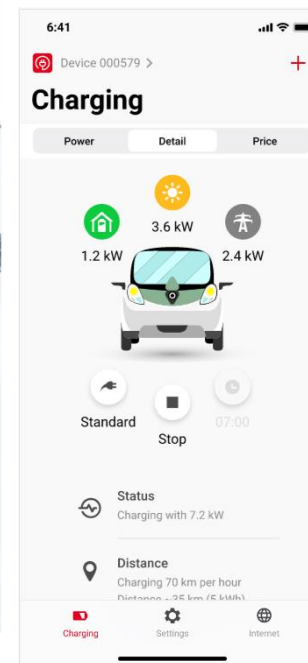
Fronius App

Solar.wattpilot

STANDALONE APP– SOLAR.WATTPILOT

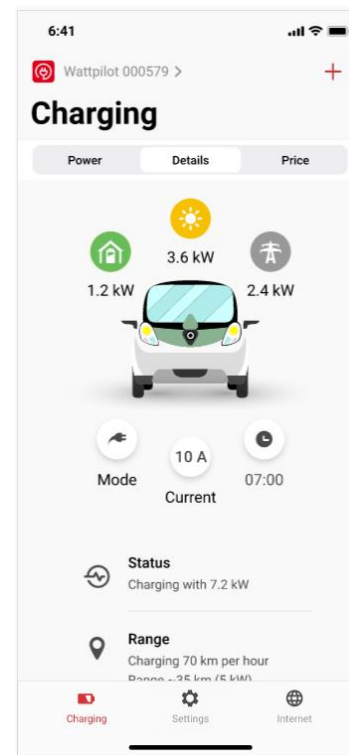
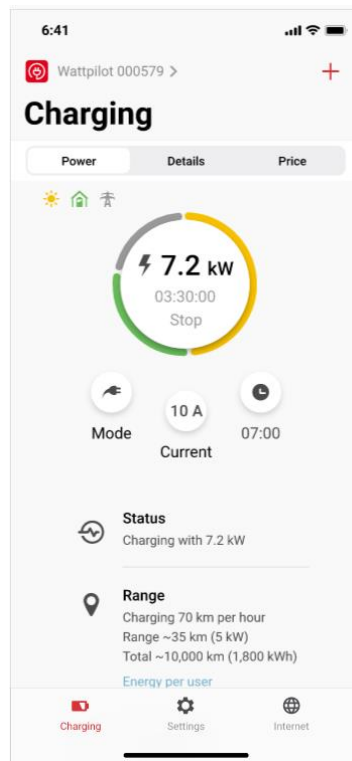
- / APP in Fronius OEM design
- / Connection via box access point or via the integrated network
- / Connection directly over the Internet for remote access
- / **Commissioning**
- / Visualization
- / **Setting options** (charging modes, amperage, etc.)
- / Access your Wattpilot from all around the world with the App

- / **Available in appstore for IOS and Android with market launch!**



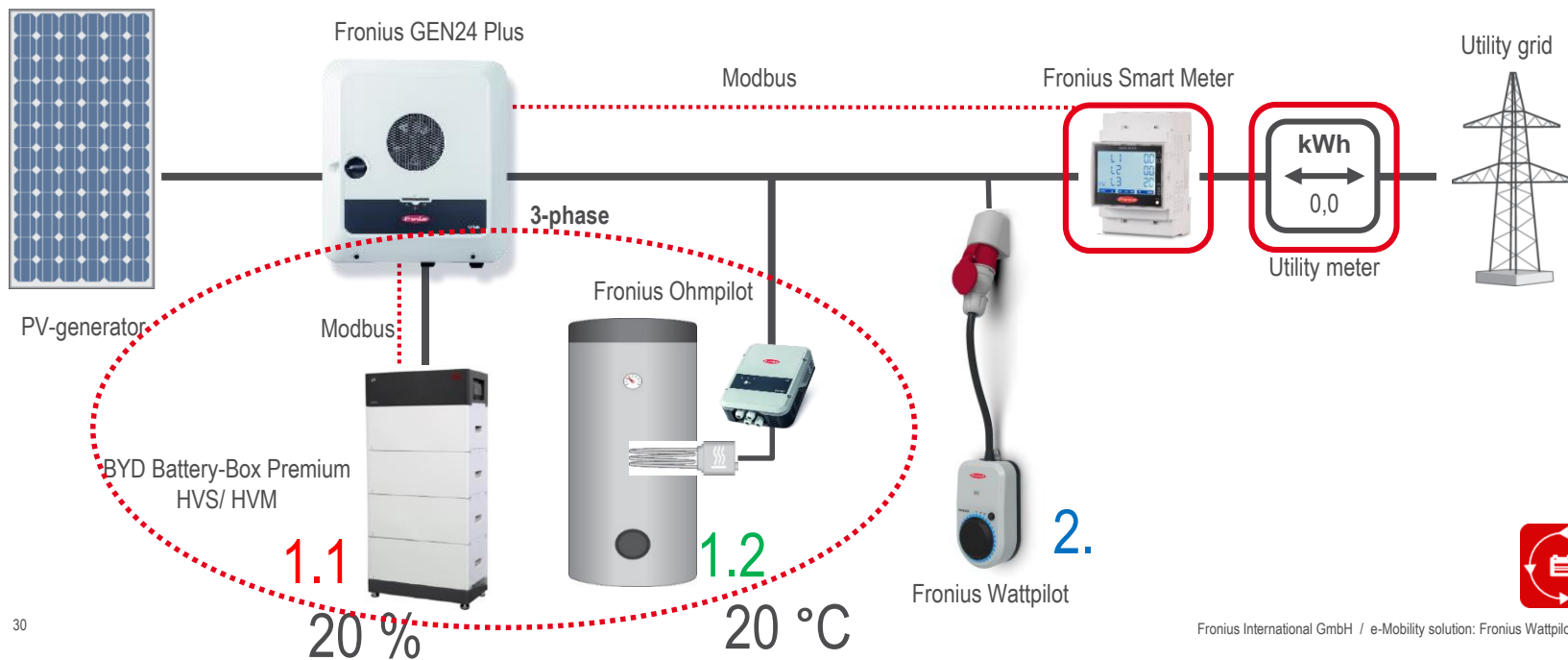
FRONIUS SOLAR.WATTPILOT APP

- / Easy commissioning
- / Monitoring
- / Change charging modes



SECTOR INTEGRATION

Intelligent energy management considering electricity, heat and mobility





CONFIGURATION OF PRIORITIES AT INVERTER & WP

The screenshot shows the 'Energy Management' section of the Fronius GEN24 interface. Under 'Load Management', the 'Priorities' list is as follows:

1. Battery
2. Ohmpilot
3. Load Management

The screenshot shows the 'Settings' screen for a Wattpilot 000579. The 'SMART SETTINGS' section includes:

- Current levels
- Next trip: Fri, 8 Jan / 07:00
- Cost optimization
- Scheduler
- Load balancing

The 'CUSTOMIZE' section includes:

- Brightness: 106
- LED colors: Ready, Charging, Finished
- Time settings

The 'SECURITY' section includes:

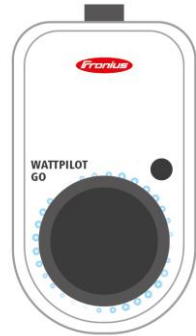
- Access control: Open
- Cable unlock: Normal mode

The screenshot shows configuration options for the inverter and car charging. The 'Eco mode threshold' is set to 5 cent. The 'Use PV surplus' toggle is turned off. The 'Inverter' is set to 'No inverter selected'. The 'PV battery threshold' is set to 20% (indicated by a red arrow). The 'Ohmpilot threshold' is set to 0 °C (indicated by a red arrow). The 'PV surplus' and 'Car' settings are both set to 'Advanced settings'.



Availability and timeline

COUNTRY AVAILABILITY



Available **may 2021**



FURTHER INFORMATION

Timeline

- / Orders possible at wholesalers!
- / Visit our trainings. Now online!
- / New online Training: **Fronius e-Mobility and heating solution!**

- / Fronius contact: <https://www.fronius.com/en/solar-energy/about-us/contact>

- / PV-surplus charging
- / Automatic switch of 1/3 phase charging
- / **Fronius Wattoo: Charging on my terms!**

Available **may 2021**



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