





Tony SAUCEDO – Regional Sales Manager – Northeastern & Great Lakes States

Fronius USA, LLC

6797 Fronius Drive

Portage, IN 46368

SOLAR SOLUTIONS BUILT TO LAST



## FRONIUS - SHIFTING THE LIMITS

## INNOVATIVE SPIRIT

We are driven by an innovative spirit to turn visions into reality and to shift the limits of what's possible.

Founded in 1945 by

sustainably!

Günter Fronius: his vision

was to use car batteries more efficiently and more

#### **EXPANSION**

Just a few years later, his technology was utilized to change the welding industry.

#### **ACHIEVEMENT**

8 Gigawatts and over 1 million inverters later, this vision has been greatly surpassed.

#### SOLAR ENERGY

In the **early 90s** Klaus Fronius had another vision:

"Let's offset all energy needed for battery charging and welding with clean energy."

#### 24HRS SUN

#### **OUR NEXT VISION**

Now it is time to turn the next vision into a reality: **24 hours of sun.** 

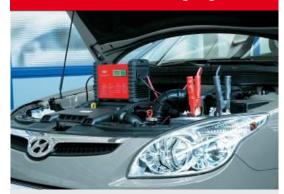


# FRONIUS – SHIFTING THE LIMITS. WHAT WE DO AS A COMPANY.



## **OUR THREE DIVISIONS**

#### **Perfect Charging**



- / Battery charging systems for starter and traction batteries since 1946
- / One of the leading suppliers of the battery charging market in Europe

#### Perfect Welding



- / Since 1950, we have been developing innovative system solutions in Welding
- / Fronius is the world leader in welding technology and the market leader in Europe

#### Solar Energy



- / Innovations in solar electronics since 1992 and on the US market since 2002
- / One of the leading suppliers in solar electronics



## WHAT DO THESE DIVISIONS HAVE IN COMMON?

- / All we do is about **power conversion** and **power electronics**
- / We are passionate about creating technologies that help to power and empower people
- / With our technologies we turn our visions into reality















## THE FRONIUS PRODUCT LINE AT A GLANCE

#### Fronius Galvo



1.5 – 3.1 kW Single Phase

#### Fronius Primo



3.8 – 15 kW Single Phase

#### Fronius Symo



10 – 24 kW
Three Phase

#### Fronius DATCOM



#### **FREE MONITORING**

**Online** 

/ Fronius Solar.web

/ App for Android & iOS, incl. Apple Watch

/ Fronius Solar.TV

/ Free for a lifetime

/ Open interfaces

## FRONIUS SNAPINVERTERS



## **OUR SNAPINVERTER FEATURE SET**

AGF's



We are shaping the grid of future:
Advanced Grid Features, easy
communication and remote control
options by utilities.



Most advanced DC AFCI integrated as a standard, completely developed in-house.

## **Mounting System**



Easy installation in 15 min or less and service due to our innovative SnaplNverter mount system and light weight.

#### **Open interfaces**



Standard interfaces & protocols enable convenient connection options to Third Party monitoring providers (Modbus SunSpec, FTP Push Service).





Free lifetime online monitoring and apps via Wi-Fi.

## Wide voltage range



Design flexibility and easy string sizing due to wide MPPT voltage range.

## Plug in cards



Plug-n-play slots and PC board replacement for any future system extensions or fixes.



# COMMERCIAL PROJECTS THAT LAST THE FRONIUS SYMO



10 - 24 kW

- / 3-phase
- / Transformerless
- / Dual MPPT (except 15 kW / 208V version)
- / 1000 V



## FLEXIBLE SYSTEM DESIGN - WHY STRING INVERTERS

# EASE OF SERVICE

Reduced downtime due to fast service option by replacing inverters. Installers can carry out service themselves.

## **TCO**

Very low service costs, no service and maintenance plans needed.

## **UPTIME**

Increased uptime due to simple system design. Only minor part of system effected. Faster reaction times in case of inverter failures.

## NO STRING COMBINER BOXES

PV strings are directly connected to the inverter. Built-in fused 6 string combiner within the inverter. No junction boxes or string level monitoring needed.

### INCREASED AVAILABILITY

Energy losses are mitigated due to modular design.

## **FSP**

Reduced downtimes due to fast service option by board replacement repair.



## HIGHLIGHTED PROJECTS





- / North Putnam Community Schools, INDIANA
- / 1.6 MW Solar Power Plant combined with 300 kW/960kWh commercial storage system
- / JLM's Gridz system is used for storage
- / Duke Energy only accepts 500 kW of PV power to the grid while facility consumes 250 kW during peak hours
- / 4,200 modules; 42 SYMO string inverters; JLM Gridz system
- / No incentives involved except LED lighting rebate
- / Owned by school; financed with a Tax Exempt Least Purchase (TELP)
- / Anticipated payback: 11 years; cash flow positive year 1



## HIGHLIGHTED PROJECTS



- / Geneva Solar Farm, Geneva, NY
- / 1.5 MW Solar Power Plant comprised of 35 separate projects
- / Utilized New York state's remote net metering law and NYSERDA NY-Sun Solar Electric Incentive Program
- / 10 homeowners and 25 businesses benefit from this farm
- / 25 PRIMO and 40 SYMO string inverters
- / Locally owned with tax credit and savings staying in the state

/ Perfect Welding / Solar Energy / Perfect Charging



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#### **GENEVA, NEW YORK USA**

/ Qwiksolar, Fronius and New York State Energy Research and Development Authority; A new model for solar farms



/ QwikSolar partnered with Fronius to bring this massive solar farm to life. This remote net metered project is actually 35 separate projects totaling 1.5 MW of power.

/ Using New York state's remote net metering law, and the NYSERDA NY-Sun Solar Electric Incentive Program, these projects credit energy directly to the accounts of 10 homeowners and 25 businesses. Currently one third complete, the project uses 25 Fronius Primo single-phase inverters and 40 Symo three-phase inverters.

All the systems are locally owned with the tax credits and savings staying in the local economy.

Organizations involved: NYSERDA, USDA, Qwiksolar LLC, Wallace Farms LLC

INSTALLATION DATA	
Size of installation	1.5 MW
Purpose, system type	Solar Farm
Inverter	Fronius Primo, Fronius Symo





Stanley and Gale Mathews stand in front of their 11.7 kW array at the Geneva Solar Farm



QwikSolar / (315) 571-0777 / www.qwiksolar.com