

REPOWERING PV SYSTEMS

/ Modernisation of PV systems into the megawatt range



/ Hundreds of thousands of PV systems worldwide are generating clean solar power. After years of use, technically complex inverters may fail or suffer from defects. Fronius inverters are ideal for repowering PV systems of all sizes. Even devices from other manufacturers can be replaced flexibly without requiring additional time and effort for installation.

REPOWERING – WHAT YOU NEED TO KNOW

SINGLE OR THREE-PHASE INVERTERS

/ Single or three phase? The conversion from one connection to another may involve an enormous amount of recabling work. Fronius offers both single and three-phase devices - choose the right inverter for you according to your grid connection.

MODULE GROUNDING

/ When selecting your repowering inverter, you need to know whether the existing inverter has a transformer. The module type determines whether a device with or without a transformer is used. If a transformerless device was previously installed, then any Fronius inverter can be used. In the case of transformer devices, the PV system and its properties must be considered in detail in order to select the right new inverter.

SYSTEM/ INVERTER SIZE

/ Is the PV system a small self-consumption system in a domestic household or a commercial field installation? This will determine the type of inverter required. Fronius inverters for repowering boast power categories ranging from 1.5 to 27 kW.

DC CONNECTION (VOLTAGE RANGE AND MPP TRACKER)

/ The voltage range of the existing installation must match the input voltage range of the new inverter. Fronius inverters have a very wide input voltage range. The Fronius Primo, in particular, is exceptionally flexible with a voltage range of 80 to 1,000 V and can easily be used as a repowering inverter. Even if several MPP trackers are required, our inverters can be installed thanks to their innovative SuperFlex Design.

FRONIUS INVERTERS: THE IDEAL DEVICE WHATEVER THE APPLICATION

/ Fronius inverters are suitable for universal application in all PV systems. From small self-consumption systems for a family home to megawatt installations in the industrial sector. With our transformer inverters, we are one of the few manufacturers on the market to also cater for systems with thin film solar modules.

FRONIUS GALVO

/ Single-phase and with transformer: our Fronius Galvo inverters are available in power categories ranging from 1.5 to 3.1 kW. The Fronius Galvo features built-in data communication and can have a considerable positive influence on the self-consumption portion of a household through its integrated energy management system.



TECHNICAL DATA	1.5-1	2.0-1	2.5-1	3.0-1	3.1-1
Max. output power	1,500 VA	2,000 VA	2,500 VA	3,000 VA	3,100 VA
Min. input voltage ($U_{dc, min}$)	120 V		165 V		
Max. input voltage ($U_{dc, max}$)	420 V		550 V		
MPP voltage range ($U_{mpp, min} - U_{mpp, max}$)	120 - 335 V		165 - 440 V		
Number of DC connections	3				
Grid connection	1-NPE 230 V (+17% / -20%)				
Max. efficiency	95.9 %	96 %	96.1 %		
Dimensions (height x width x depth)	645 x 431 x 204 mm				
Inverter design	HF transformer				
Number of MPP trackers	1				

FRONIUS PRIMO

/ With power categories ranging from 3.0 to 8.2 kW, the transformerless, single-phase inverter is ideal for private households and features built-in data communication. The Fronius Primo boasts an extremely wide input voltage range, which means maximum flexibility in terms of system design. It is the ideal repowering inverter for single-phase systems.



TECHNICAL DATA	3.0-1	3.5-1	3.6-1	4.0-1	4.6-1	5.0-1	5.0-1 AUS	6.0-1	8.2-1
Max. output power	3,000 VA	3,500 VA	3,680 VA	4,000 VA	4,600 VA	5,000 VA	5,000 VA	6,000 VA	8,200 VA
Min. input voltage ($U_{dc, min}$)	80 V								
Max. input voltage ($U_{dc, max}$)	1,000 V								
MPP voltage range ($U_{mpp, min} - U_{mpp, max}$)	80 - 800 V								
Number of DC connections	2 + 2								
Grid connection	1-NPE 220 V / 230 V (180 V - 270 V)								
Max. efficiency	98 %			98.1 %					
Dimensions (height x width x depth)	645 x 431 x 204 mm								
Inverter design	Transformerless								
Number of MPP trackers	2								

All the technical data for our inverters can be found at www.fronius.com

FRONIUS SYMO

/ The three-phase transformerless Fronius Symo is available in power categories ranging from 3.0 to 20.0 kW. Its exceptionally wide input voltage range makes it a real winner when it comes to repowering.



TECHNICAL DATA	3.0-3-S	3.7-3-S	4.5-3-S	3.0-3-M	3.7-3-M	4.5-3-M	5.0-3-M	6.0-3-M
Max. output power	3,000 VA	3,700 VA	4,500 VA	3,000 VA	3,700 VA	4,500 VA	5,000 VA	6,000 VA
Min. input voltage ($U_{dc\ min}$)	150 V							
Max. input voltage ($U_{dc\ max}$)	1,000 V							
MPP voltage range ($U_{mpp\ min} - U_{mpp\ max}$)	150 - 800 V							
Number of DC connections	3			2 + 2				
Grid connection	3-NPE 400 V / 230 V or 3-NPE 380 V / 220 V (+20% / -30%)							
Max. efficiency	98.0 %							
Dimensions (height x width x depth)	645 x 431 x 204 mm							
Inverter design	Transformerless							
Number of MPP trackers	1			2				

TECHNICAL DATA	7.0-3-M	8.2-3-M	10.0-3-M	12.5-3-M	15.0-3-M	17.5-3-M	20.0-3-M
Max. output power	7,000 VA	8,200 VA	10,000 VA	12,500 VA	15,000 VA	17,500 VA	20,000 VA
Min. input voltage ($U_{dc\ min}$)	150 V		200 V				
Max. input voltage ($U_{dc\ max}$)	1,000 V						
MPP voltage range ($U_{mpp\ min} - U_{mpp\ max}$)	150 - 800 V			200 - 800 V			
Number of DC connections	2 + 2			3 + 3			
Grid connection	3-NPE 400 V / 230 V or 3-NPE 380 V / 220 V (+20% / -30%)						
Max. efficiency	98.0 %			98.1 %			
Dimensions (height x width x depth)	645 x 431 x 204 mm			725 x 510 x 225 mm			
Inverter design	Transformerless						
Number of MPP trackers	2						

FRONIUS SYMO HYBRID

/ The three-phase Fronius Symo Hybrid in power categories from 3.0 to 5.0 kW allows unused energy from a photovoltaic system to be stored in a battery. The battery can be retrofitted at any time and individually adjusted to the size of the household.



FRONIUS ECO

/ The compact project inverter for maximum yields. The three-phase, transformerless Fronius Eco in power categories 25.0 and 27.0 kW perfectly meets all the requirements of large-scale installations. The low weight and convenient SnapINverter mounting system make installation a breeze - both indoors and outdoors, thanks to IP66.



TECHNICAL DATA	FRONIUS ECO 25.0-3-S	FRONIUS ECO 27.0-3-S
Max. output power	25,000 VA	27,000 VA
Min. input voltage ($U_{dc\ min}$)	580 V	
Max. input voltage ($U_{dc\ max}$)	1,000 V	
MPP voltage range ($U_{mpp\ min} - U_{mpp\ max}$)	580 - 850 V	
Number of DC connections	6	
Grid connection	3-NPE 380 V / 220 V or 3-NPE 400 V / 230 V (+20% / -30%)	
Max. efficiency	98.2 %	98.3 %
Dimensions (height x width x depth)	725 x 510 x 225 mm	
Inverter design	Transformerless	
Number of MPP trackers	1	

FRONIUS IG PLUS

/ Fronius IG Plus is available in power categories ranging from 2.6 to 12.0 kW and, as a transformer device, is compatible with all module technologies. Even thin film solar modules are not a problem in terms of design.



TECHNICAL DATA	35 V-1	50 V-1	55 V-1	60 V-1
Max. output power	3,500 VA	4,000 VA	5,000 VA	6,000 VA
Min. input voltage ($U_{dc\ min}$)	230 V			
Max. input voltage ($U_{dc\ max}$)	600 V			
MPP voltage range ($U_{mpp\ min} - U_{mpp\ max}$)	230 - 500 V			
Number of DC connections	6			
Grid connection	1-NPE 230 V			
Max. efficiency	95.7 %			
Dimensions (height x width x depth)	673 x 434 x 250 mm			968 x 434 x 250 mm
Inverter design	HF transformer			
Number of MPP trackers	1			

TECHNICAL DATA	55 V-2	60 V-3	80 V-3
Max. output power	5,000 VA	6,000 VA	7,000 VA
Min. input voltage ($U_{dc\ min}$)	230 V		
Max. input voltage ($U_{dc\ max}$)	600 V		
MPP voltage range ($U_{mpp\ min} - U_{mpp\ max}$)	230 - 500 V		
Number of DC connections	6		
Grid connection	2-NPE 400 V / 230 V	3-NPE 400 V / 230 V	
Max. efficiency	95.7 %	95.9 %	
Dimensions (height x width x depth)	968 x 434 x 250 mm	1,263 x 434 x 250 mm	
Inverter design	HF transformer		
Number of MPP trackers	1		

TECHNICAL DATA	100 V-3	120 V-3	150 V-3
Max. output power	8,000 VA	10,000 VA	12,000 VA
Min. input voltage ($U_{dc\ min}$)	230 V		
Max. input voltage ($U_{dc\ max}$)	600 V		
MPP voltage range ($U_{mpp\ min} - U_{mpp\ max}$)	230 - 500 V		
Number of DC connections	6		
Grid connection	3-NPE 400 V / 230 V		
Max. efficiency	95.9 %		
Dimensions (height x width x depth)	1,263 x 434 x 250 mm		
Inverter design	HF transformer		
Number of MPP trackers	1		

FRONIUS INVERTERS – THE PERFECT INVERTERS FOR REPOWERING:

THE LATEST TECHNOLOGY

/ Fronius inverters are at the cutting edge of technology. The data communication package includes data logging, WLAN, Ethernet, energy management, a web server and numerous interfaces. They are Smart Grid Ready and the Dynamic Peak Manager maximises the PV yield.

THIRD-PARTY COMPATIBLE

/ Fronius inverters feature a variety of open interfaces such as Modbus TCP SunSpec and Modbus RTU SunSpec. This guarantees connection to third-party components during system monitoring.

PLANNING AIDS

/ In the offline version of the Fronius Solar.configurator dimensioning tool, you will find almost all solar modules - even those from previous years. This will help you to dimension your PV systems. Find it at www.fronius.com under - Solar Energy / Info & Support / Software Downloads / Software

FUTURE-PROOF WITH PLUG-IN CARDS

/ The innovative plug-in card technology allows flexible retrofitting of future functions making the Fronius inverters fit for the future.

WARRANTY

/ Upon dispatch, our inverters have a minimum 2 year warranty. This can be extended free of charge up to 7 years by registering your Fronius product. For more information about our warranty terms and conditions please visit www.fronius.com/solar/warranty

HOW DOES REPOWERING BENEFIT YOU?

/ Fronius has the ideal inverter for any application. Since our comprehensive product portfolio allows us to replace almost any old inverter without the need for extensive cabling, your system is back up and running in no time. The downtimes are as short as possible. Not only that, the new devices even increase the annual yield of the PV system!

/ Repowering works for old Fronius devices, for which the warranty has expired, as well as for inverters from other manufacturers.

/ Upon registration, every newly installed inverter has a minimum 2 year warranty.

**BACK UP AND
RUNNING QUICKER -
WITH REPOWERING
FROM FRONIUS.**

EXAMPLES

EXAMPLE 1: 10 KWP SYSTEM	SINGLE OR THREE-PHASE	MODULE GROUNDING	DC VOLTAGE
Fronius IG 60	2 x Single-phase	Yes	150 - 530 V
Fronius Symo 10.0-3	Three-phase	No	150 - 1,000 V

Annual yield increase: approx. 470 kWh / year

EXAMPLE 2: 4.6 KWP SYSTEM	SINGLE OR THREE-PHASE	MODULE GROUNDING	DC VOLTAGE
Inverter from another manufacturer	Single-phase	No	220 - 680 V
Fronius Primo 4.6-1	Single-phase	No	80 - 1,000 V

Annual yield increase: approx. 180 kWh / year

Please note that the calculations are based on simulations. The yield increase for your PV system may differ from these values. Each PV system must be carefully checked prior to repowering to determine whether replacement is legally and technically possible.

/ Perfect Welding / Solar Energy / Perfect Charging

WE HAVE THREE DIVISIONS AND ONE PASSION: SHIFTING THE LIMITS OF POSSIBILITY.

/ Whether welding technology, photovoltaics or battery charging technology – our goal is clearly defined: to be the innovation leader. With around 3,700 employees worldwide, we shift the limits of what's possible - our record of over 800 granted patents is testimony to this. While others progress step by step, we innovate in leaps and bounds. Just as we've always done. The responsible use of our resources forms the basis of our corporate policy.

Further information about all Fronius products and our global sales partners and representatives can be found at www.fronius.com

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