

String Inverters

E24™

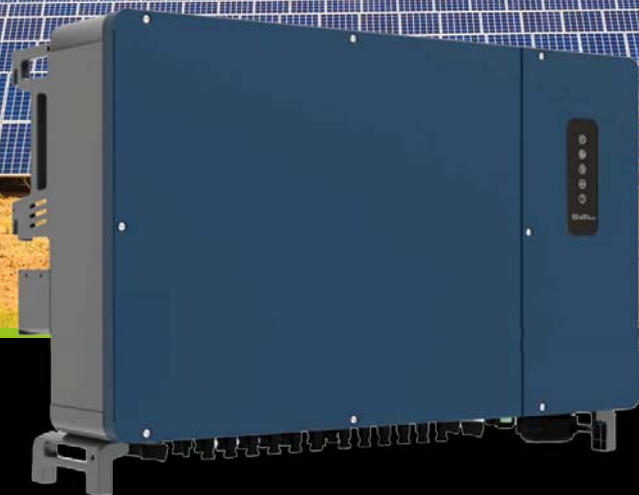
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E24 String Inverters

The E24 String inverters are the latest state of the art technology for the deployment of large solar powered arrays with minimal investments.

String inverters allow to connect large number of PV strings in high DC voltage directly to the inverter without combiners. The Inverters are positioned directly on the field in a decentralized topology minimizing cabling and avoiding the risks of failure of a central inverter.





String Inverters

In the past, large solar power plants have exclusively used central inverters, usually between 2.5 and 3 megawatts. For solar power system designers, it was a logical choice.

The disadvantage of such a topology, is that if you lose the central inverter or one of the central inverters, you lose multi-megawatts of power leading to substantial losses in productivity. Repairing central inverters is at least 3 to 4 days that is if the parts and qualified labor are available on the field which typically is never the case.

String inverters, by contrast, are lower-cost than central inverters and sufficiently lightweight to require neither a crane to lift in and out of place nor a concrete pad to rest on. Because string inverters are relatively low capacity, when one fails it doesn't have a large impact on generation.

Another disadvantage is that large and heavy central inverters have high installed costs because they have to be mounted on concrete pads and often require the use of a crane to install them and maintain them which is completely eliminated with string inverters:

- String are installed on the same metallic structures used for solar panels.

Another problem with Central inverters is uncertainty: You can run into a situation, which has come up in the last few years, where an inverter company goes out of business and then you still have to maintain an obsolete system for the 20 or 25 years of the project.

- With string inverters you may even replace one string inverter with another brand with no impact on the project.

However, in large-scale solar power plants, there are disadvantages to string inverters: "You are going to hundreds of or thousands of inverters for a multi-megawatt system leading to thousands of points of command and control, which can become very difficult and costly to manage unless those string inverters use E24 VCI™ (Virtual Central Inverter) technology.

E24 VCI™ allows to control hundreds of string inverters through PLC (Power Line Communication) making them operate as one inverter with a single command and control point while still having each inverter each inverter optimizing power production on each MPPT input.

Now you have a multimegawatt inverter that is made up of many power modules, but the command and control is through one interface. You have instant control over all power modules of the virtual inverter, and you maintain the advantage of smaller string inverters but add to it by having a single command-and-control point.



Technical Specifications

String Inverters from 50KWac to 70KWac

	PVIS3-50KI	PVIS3-50KD	PVIS3-60KI	PVIS3-60KD	PVIS3-66KD	PVIS3-70KD
Input (DC)						
Max. Input Power	80kW		96kW		105.6kW	112kW
Max. Input Voltage	1100V					
Start Voltage	250V					
Rated Input Voltage	600V				700V	
Full-load MPP Voltage Range	520V ~ 850V				600V ~ 850V	
MPPT Voltage Range	200V ~ 1000V					
Number of MPP Trackers	4					
Number of string per MPPT	3 / 2 / 3 / 2		3 / 3 / 3 / 3			
Max. Current per MPPT	39A / 26A / 39A / 26A		39A			
Max. Short Circuit Current per MPPT	48A / 32A / 48A / 32A		48A			
Output (AC)						
Max. Output Current	79.7A	66.2A	95.6A	79.4A	87.4A	92.6A
Rated Output Power	50kW		60kW		66kW	70kW
Max. Output Power	55kVA		66kVA		72.6kVA	77kVA
Rated Grid Frequency	50Hz / 60Hz					
Rated Grid Voltage	230Vac / 400Vac	277Vac / 480Vac	230Vac / 400Vac	277Vac / 480Vac		
Power Factor	>0.99 (0.8 leading ~ 0.8 lagging)					
THDi	<3% (Rated Power)					
Efficiency						
Max. Efficiency	98.70%		98.80%			
European Efficiency	98.40%				98.50%	
MPPT Efficiency	99.90%					
Protection						
DC Reverse Polarity Protection	Yes					
Anti-islanding Protection	Yes					
AC Short Circuit Protection	Yes					
Residual Current Monitoring Unit	Yes					
Insulation Resistance Monitoring	Yes					
Ground Fault Monitoring	Yes					
Grid Monitoring	Yes					
PV String Monitoring	Yes					
Surge Protection	Type II					
AFCI Protection	Optional					
Communication						
Display	LCD / LED+APP					
Communication	Standard: RS485 Optional: WiFi / GPRS / Ethernet					
Standard Compliance						
Certification	IEC/EN 62109-1/2, IEC/EN 61000-6-1/3, EN50549, IEC61727/IEC62116, CEI 0-21,CEI 0-16, C10/C11, VDE 4105, VDE 0124, G99, RD244, UNE217001, UNE217002, NC RfG, NRS097-2-1, NB/T 32004, BIS					
General Data						
Dimensions (W x H x D)	650 x 450 x 260 mm					
Weight	50kg					
Operating Temperature Range	-30° C ~ +60° C					
Cooling Method	Smart Cooling					
Protection Degree	IP66					
Max. Operating Altitude	4000m					
Relative Humidity	0 ~ 100%					
Topology	Transformerless					
Night Power Consumption	<1W					

String Inverters from 100KWac to 110 KWac in 230/400Vac, 136KWac in 480/277Vac and 136KWac in 313/540Vac

	PVIS3-100KI	PVIS3-110KI	PVIS3-136KD	PVIS3-136K
Input (DC)				
Max. Input Power	150kW		160kW	
Max. Input Voltage	1100V			
Start Voltage	250V			
Rated Input Voltage	620V		730V	780V
Full-load MPP Voltage Range	530V ~ 850V		560V ~ 850V	
MPPT Voltage Range	180V ~ 1000V			
Number of MPP Trackers	9	10	12	
Number of String per MPPT	2			
Max. Current per MPPT	30A			
Max. Short Circuit Current per MPPT	40A			
Output (AC)				
Max. Output Current	158.8A	174.6A		160.4A
Rated Output Power	100kW	110kW	136kW	
Max. Output Power	110kVA	121kVA	150kVA	
Rated Grid Frequency	50Hz / 60Hz			
Rated Grid Voltage	230Vac / 400Vac, 3L / N / PE, 3L / PE		277Vac / 480Vac, 3L /N / PE, 3L / PE	311Vac / 540Vac, 3L / N / PE, 3L / PE
Power Factor	>0.99 (0.8 leading ~ 0.8 lagging)			
THDi	<3% (Rated Power)			
Efficiency				
Max. Efficiency	98.70%			
European Efficiency	98.50%			
MPPT Efficiency	99.90%			
Protection				
DC reverse polarity protection	Yes			
Anti-islanding protection	Yes			
AC short circuit protection	Yes			
Residual current monitoring unit	Yes			
Insulation resistance monitoring	Yes			
Ground fault monitoring	Yes			
Grid monitoring	Yes			
PV string monitoring	Yes			
Surge protection	Type II			
AFCI protection	Optional			
Communication				
Display	LCD / LED+App			
Communication	Standard: RS485 Optional: WiFi / DRM / Bluetooth			
Standard Compliance				
Certification	NB/T 32004, IEC/EN 62109-1/2, IEC/EN 61000-1/2/3/4, EN 62920, EN50549, IEC 61727/62116, VDE 4105/4110, NC RfG, C10/C11, NRS 097-2-1, CEI 0-21/16, BIS			
General Data				
Dimensions (W x H x D)	1050 x 660 x 330 mm			
Weight	95kg	98kg	101kg	
Operating Temperature Range	-30°C ~ +60°C			
Cooling Method	Smart forced air cooling			
Protection Degree	IP66			
Max. Operating Altitude	4000m			
Relative Humidity	0 ~ 100%			
Topology	Transformerless			
Night Power Consumption	<1W			

Off-Grid



On-Grid



Bidirectional



E24 Modular Range Of Products For Building Easy, Flexible & Evolutive Solutions

E24 products dynamically evolve with the lifestyle and work style of its customers while easing the installation process.

E24 products are conceived in modules allowing for an easy upgrade to adjust with the needs of the customers. Being modular and easy to connect E24 products allow installers to easily configure the required modules for an optimal solution while offering easy upgrade options.



Ordering Information

Ref Number	Description
PVIS3-50KI	On Grid Connected inverter, 4 MPP, 10 inputs Max DC 1100, 50KWac, 3W+N+PE, 230/400Vac, 50/60Hz (Wifi, GPRS, Ethernet option)
PVIS3-60KI	On Grid Connected inverter, 4 MPP, 12 inputs Max DC 1100, 60KWac, 3W+N+PE, 230/400Vac, 50/60Hz (Wifi, GPRS, Ethernet option)
PVIS3-50KD	On Grid Connected inverter, 4 MPP, 10 inputs Max DC 1100, 50KWac, 3W+N+PE, 277/480Vac, 50/60Hz (Wifi, GPRS, Ethernet option)
PVIS3-60KD	On Grid Connected inverter, 4 MPP, 12 inputs Max DC 1100, 60KWac, 3W+N+PE, 277/480Vac, 50/60Hz (Wifi, GPRS, Ethernet option)
PVIS3-70KD	On Grid Connected inverter, 4 MPP, 12 inputs Max DC 1100, 70KWac, 3W+N+PE, 277/480Vac, 50/60Hz (Wifi, GPRS, Ethernet option)
PVIS3-100KI	On Grid Connected inverter, 9 MPP, 18 inputs Max DC 1100, 100KWac, 3W+N+PE or 3W+PE, 230/400Vac, 50/60Hz (Wifi, DRM, Bluetooth option)
PVIS3-110KI	On Grid Connected inverter, 10 MPP, 20 inputs Max DC 1100, 110KWac, 3W+N+PE or 3W+PE, 230/400Vac, 50/60Hz (Wifi, DRM, Bluetooth option)
PVIS3-120KI	On Grid Connected inverter, 4 MPP, 10 inputs Max DC 1100, 120KWac, 3W+N+PE, 230/400Vac, 50/60Hz (Wifi, GPRS, Ethernet option)
PVIS3-136KD	On Grid Connected inverter, 12 MPP, 24 inputs Max DC 1100, 136KWac, 3W+N+PE or 3W+PE, 277/480Vac, 50/60Hz (Wifi, DRM, Bluetooth option)
PVIS3-136K	On Grid Connected inverter, 12 MPP, 24 inputs Max DC 1100, 136KWac, 3W+N+PE or 3W+PE, 311/540Vac, 50/60Hz (Wifi, DRM, Bluetooth option)



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