GWL/Power Specification Document

eGate
AC 230V MicroInverter Gateway

GF-EGATE

MAIN FUNCTIONS

The innovative product “eGate” acts as the power interface (PI) to the utility grid and communication interface with the internet. It is a device installed at the coupling point to the utility grid providing safety functions such as over/under voltage, over/under frequency, active anti-islanding detection, as well as lightning protection and interference filtering from neighboring units.

The real-time performance and energy harvest information from each MicroInverter, is collected by the eGate and transmitted to Solar Energy Data Acquisition System (SEDAS) for global, real-time monitoring.

- Communications Interface with SEDAS web with Web-based online monitoring per-module
- Active anti-islanding protection
- Additional Over/under voltage protection
- Additional Over/under frequency protection
- Additional Over current protection
- Additional Short circuit protection
- Additional Anti-lightning protection
- Harmonics/Interference suppression
- Support the EN/DIN/TUV/VDA standards for grid connection of large systems

TECHNICAL SPECIFICATION

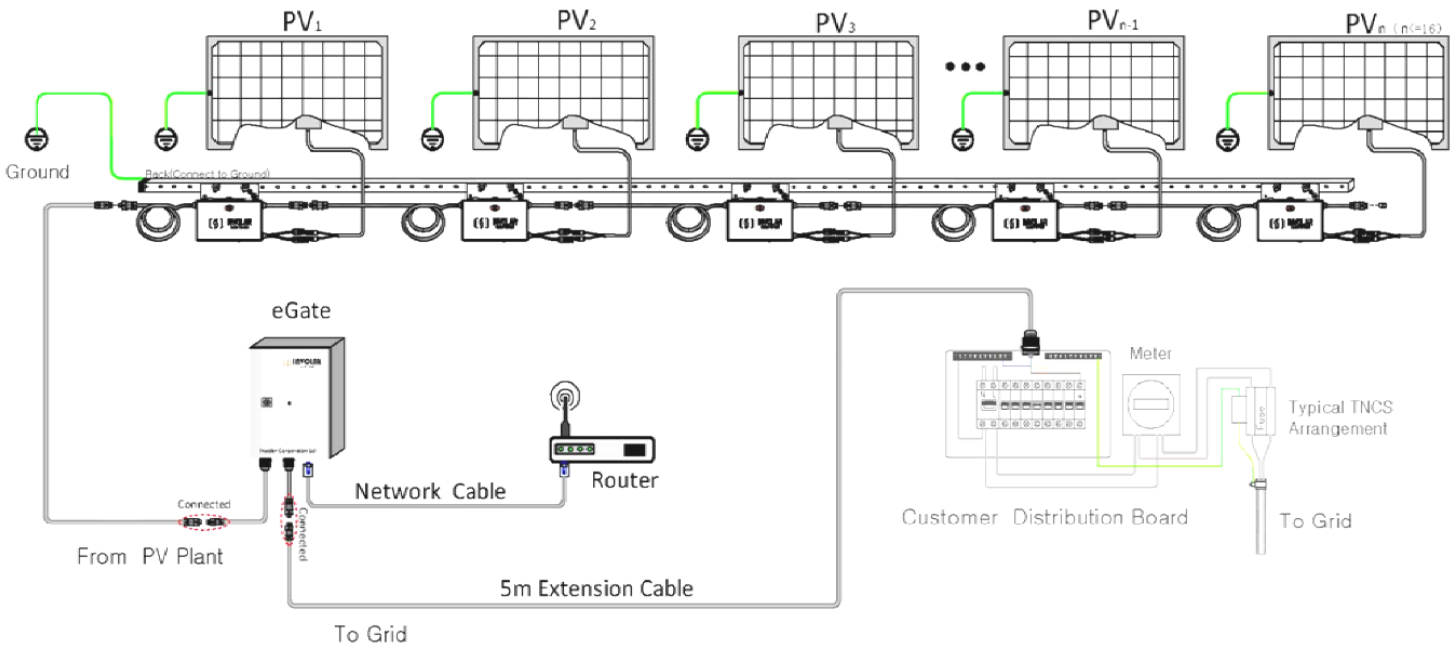
Model	PIU4K - Europe
Input Data (AC)	
Rated input power	3.68KW
Rated input voltage	230V
Rated input current	16A
Rated input frequency	50Hz
Output Data (AC)	
Rated output power	3.68KW
Rated voltage	230V
Rated output current	16A
Output voltage range	195V~253V (Adjustable)
Output frequency range	49Hz~51Hz (Adjustable)
Total current harmonic distortion	<2%
Efficiency	99.6%
Electrical Interface	
Grid and Array	Double Relay
Grid	Connect to Grid
Array	Connect to Array

Mechanical Data	
Enclosure environmental rating	IP40 (Indoors version) / IP65 (Outdoors version)
Operating temperature range	-20°C~+65°C
Dimensions (WxHxD) in mm	226x343X80mm / 250x350x150mm
Weight	3.47kg / 7kg
Lightning Surge Protection Data *	
Nominal voltage	230V
Maximum AC constant voltage	385V
Nominal discharge current	3000A
Maximum discharge current	6000A
Protection voltage	4kV
Response time	<25ns
Features	
Maximum number of MAC250A connected	16
Over / Under voltage / frequency protection	Yes
Over current protection	Yes
Short circuit protection	Yes
Active anti-islanding	Yes
Warranty	5 Years
Response time for active anti-islanding	2s (adjustable)
Nighttime Power consumption	3W
International Certification	VDE0126 (Europe) - UL1741 (NA) - AS4777 (AU) - G83/1 (UK)

eGate has an inside LED to indicate the status of the eGate. The following table is the LED indications and error report.

LED Operation	Working Mode	Explain
2 short yellow blinks	Start up	
4 short yellow blinks	Producing power and not communicating with ETU	The power generation of micro-inverter is ok but the communication is no good
3 short yellow blinks	Standby	At night or no AC input power from micro-inverter
Flashing red continuously	Module Disable	MAC250 module disable in the PV system
2 short red blinks	Over current	PV module export over current
3 short red blinks	Voltage disable	Abnormal voltage in state grid
4 short red blinks	Frequency disable	Abnormal frequency in state grid
5 short red blinks	Island effect	Anti-island protection
Flashing green continuously	Normal mode	Power generation and communication is OK

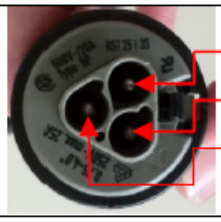
SYSTEM CONNECTION DIAGRAM



OVERVIEW OF SAFETY FUNCTION

Features	
Compliance	G83/ UL1741/VDE 0126-1-1
Warranty	5 Years
Response time for active anti-islanding	2s
Night time Power consumption	3W
Over/ Under voltage protection	Yes
Over/ Under Frequency protection	Yes
Over current protection	Yes
Short circuit protection	Yes
Loss of mains protection	Yes
Lightning surge protection	Yes
DC Injection control	Yes
Leakage current control	Yes
High frequency line impedance stabilization Network (LISN)	Yes

CABLE WIRING

Green/Yellow - PE Blue - N Brown - L			Pin1-Green/Yellow Pin2-Blue Pin3-Brown

EUROPEAN TEST – CE MARK – EV/IEC/VDE TEST

Prüfzeichen *Test Mark*

www.tuv.com TÜVRheinland ID:2000000000
- BAUART GEPRÜFT
- TYPE APPROVED

Geprüft nach *Tested acc. to*

EN 50178:1997
EN 62109-1:2010
IEC 62109-1:2010
IEC 62109-2:2011
DIN V VDE V 0126-1-1/02.06

Zertifiziertes Produkt (Geräteidentifikation) *Certified Product* *(Product Identification)*

Lizenzentgelte - Einheit *License Fee - Unit*

PV-Wechselrichter (Micro PV Inverter & eGate)

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Type Designation : PIU4K-230-VDE(eGate)
Rated Input : AC 230V; 50Hz; 16A Max.
Rated Output : AC 230V; 50Hz; 16A Max.; 3.68KW
Protection Class : I
Degree of Protection : IP 65
Overvoltage category : OVC III
Pollution Degree : PD 3
Max.Altitude : 2000 m
Max. Ambient Temperature : -40 to +65°C(Full power)

Remark:
The installation has to be carried out according to the attached installation instruction.
The labelling requirements acc. to EU Directive 2001/95 have to be observed for distribution within the EEA.

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ANLAGE (Appendix): 1.0

Dem Zertifikat liegt unsere Prüf- und Zertifizierungsordnung zugrunde und es bestätigt die Konformität des Produktes mit den oben genannten Standards und Prüfgrundlagen. Zusätzliche Anforderungen in Ländern, in denen das Produkt in Verkehr gebracht werden soll, müssen zusätzlich betrachtet werden. Die Herstellung des zertifizierten Produktes wird überwacht.
This certificate is based on our Testing and Certification Regulation and states the conformity of the product with the standards and testing requirements as indicated above. Any additional requirements in countries where the product is going to be marketed have to be considered additionally. The manufacturing of the certified product is subject to surveillance.

Zertifizierungsstelle

TÜV Rheinland LGA Products GmbH – TÜVRheinland – Zertifizierungsstelle

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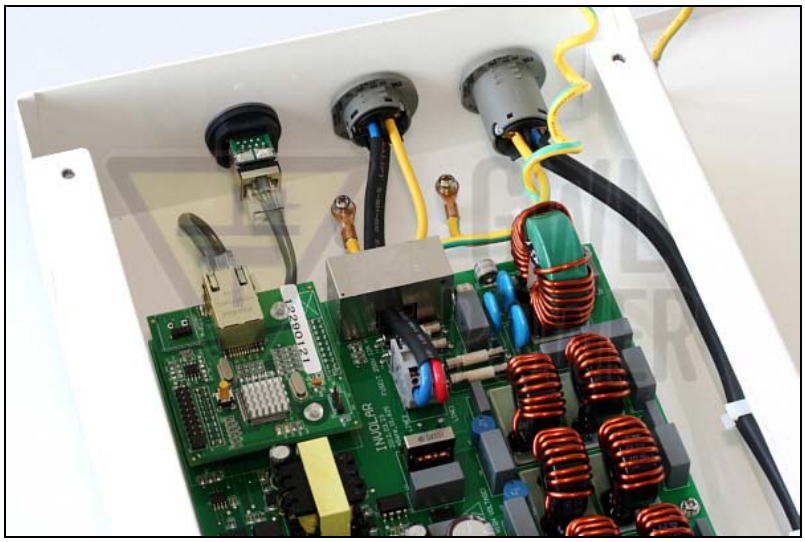
INTERNAL PHOTOS