

#### Model # OG-90K-FM Series, 3-PH 400V AC, Grid Tie String Inverters with Built in 4xMPPT Controllers



## **Product Description**

OG-90K-FM String Inverter Series is the ideal solution for commercial & industrial usage. Parallel capability upto 100nos allows to simply up the scalability and enhancing the overall plant capacity. With the characteristics of dual independent input sections with four independent MPP trackers, wide MPPT tracking range, True three phase transformer-less design, IP65 harshest industrial grade protection level, convectional cooling system and embedded RS485, WIFI and optional SNMP interface, it forms Magnizon Trio String Inverter an ideal solution for medium and large PV Power Station.



## **Key Features**

- Wide PV input voltage range
- Rapid MPPT tracking technology
- 25years of design life
- IP65 protection degree, suitable for outdoor installation, reducing
- Redundant control circuit design for more reliability
- Unique low voltage rides through (LVRT) function
- Advanced DSP control systems
- Supports SVG function, realization of power reactive compensation at night
- Supports variety of communication protocols
- 5years warranty extendable to 10years
- Superior PV energy harvest
- Transformers less design with higher operation efficiency
- Excellent natural thermal design
- High over load capability under most ambient conditions

#### Full data display and communications

- Customization LCD display all the inverter operation message
- Bright LED indicators imply system status at a glance
- PC software for remote monitoring and system troubleshooting, iOS & Android based real time power monitoring software (free for life time)
- High speed RS-232, RS-485 communications port.

#### Cost advantages

- Transformer less design cutting down the cost
- Light weight and small dimension, reducing shipping cost
- IP65 protection degree, suitable for outdoor installation, reducing
- Construction cost
- Low maintenance expense

#### **Applicable Standards**

- ISO9001: 2015, ISO14001:2015
- Compliance to RoHs & CE
- IEC62109-1, IEC62109-2, NBT/T32004, EN61000-6-2/3/4, EN61000-3-11/12
- VDE-AR-N 4105, IEC61727, G59, G83, RD1663AS4777



# **Specification**

opecification	
MODEL	OG-90K-FM
	INPUT (DC)
Max. DC input power	108000W
Max.DC input voltage	1100Vdc
Max. Input Current	160A (40/40/33/33)
MPPT tracking voltage range	200~950Vdc
MPPT operating voltage range (full load)	540-850V
Min. / start DC voltage	200 / 250Vdc
Number of MPPT tracking	4
Maximum number of PV strings	15 (4/4/3/3)
	OUTPUT (AC)
Rated AC active power	90KW
Max. AC active Power (Pf=1)	99KW
Max. AC apparent power	99KVA
Rated output voltage	380/40 <mark>0/415Vac</mark>
AC output topology	3Ph+N+PE
Output voltage range	(1±15%) x Normal AC Voltage (adjustable ±5%,±10%,±15%,±20%)
Gird frequency range	50/60Hz(±4.5Hz), (adjustable)
Max. AC output current	150A
Power factor (cosΦ)	( 0.8 leading – 0.8 lagging) (adjustable)
Total harmonic current distortion (THDi)	<3%
DC Current Injection	<0.5%In
	PRTECTION DEVICES
Input DC switch	YES
Anti-islanding protection	YES
AC overcurrent protection	YES
AC short circuit protection	YES
DC reverse connection	YES



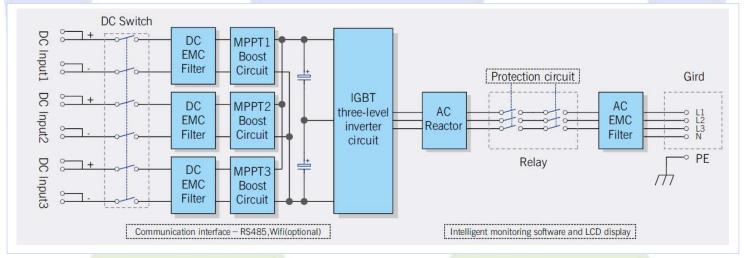
Leakage current protection         YES           Intelligent reactive power regulator         YES           PID         YES           Topology         Transformer less           Max. efficiency         >98.8%           Euro efficiency         >98.4%           MPPT efficiency         >99%           Standby(night time) losses         <10W           Front Panel         LED/LCD Display           Cooling         Natural Cooling           Communication interface         RS485, WIFI, GPRS(optional)           Warranty         5years(optional 10/15/20years)           Euro efficiency         -25.0 to 60.0 °C           Humidity range         0~39% (non-condensing)           Attitude         4000m           Noise level         -30dB           Protection rating         IP65           Understore         PHYSICAL           Dimension W×L×D (mm)         855mm*275mm           Net Weight (kg)         71kgs           StanDARDS         StanDARDS           Grid Code         NB/T32004, VDE-AR-N 4105, IEC 61727           Safety/TUV         IEC 62109-1, IEC 62109-2           EN 61000-6-2, EN 61000-6-3, EN 61000-3-11, EN 61000-3-12         -	Anti-surge protection	YES	
Intelligent reactive power regulator PID VES PID VES SYSTEM FEATURES Topology Transformer less Max. efficiency S98.8% Euro efficiency S98.4% MPPT efficiency Standby(night time) losses (10W Front Panel LED/LCD Display Cooling Natural Cooling Communication interface RS485, WIFI, GPRS(optional) Warranty Sysers(optional 10/15/20years) ENVIRONMENTAL Operating temperature PNVIRONMENTAL Operating temperature PNVIRONMENTAL Operating temperature PHYSICAL Dimension W×L×D (mm) S55mm*525mm*275mm Net Weight (kg) Table StandbARDS Grid Code NB/T32004, VDE-AR-N 4105, IEC 61727 Safety/TVV IEC62109-1, IEC 62109-2 ENV 61000-6-3, EN 61000-6-4, EN 61000-3-11, EN 61000-3-12 ENVIRON-E-3, EN 61000-6-4, EN 61000-3-11, EN 61000-3-12 ENVIRON-E-4, EN 61000-6-4, EN 61000-3-12 ENVIRON-E-4, EN 61000-3-12 ENVIRON-E-4, EN 61000-6-4, EN 61000-3-12 ENVIRON-E-4, ENVIRON-E-4, ENVIRON-E-4, ENVIRON-E-4, ENVIRON-E-4, ENVIRON-E-4, ENVIRON-E-4, ENVIRON-	Insulation resistance detection	YES	
PID       YES         SYSTEM FEATURES         Topology       Transformer less         Max. efficiency       >98.8%         Euro efficiency       >98.4%         MPPT efficiency       >99%         Standby(night time) losses       <10W         Front Panel       LED/LCD Display         Cooling       Natural Cooling         Communication interface       RS485, WIFI, GPRS(optional)         Warranty       Sysears(optional 10/15/20years)         ENVIRONMENTAL         Operating temperature       -25.0 to 60.0 °C         Humidity range       0~99% (non-condensing)         Altitude       4000m         Noise level       <30dB         Protection rating       IP65         FINYSICAL         Dimension W×L×D (mm)       &55mm*275mm         Net Weight (kg)       Tikgs         STANDARDS         Grid Code       NB/T32004, VDE-AR-N 4105, IEC 61727         Safety/TUV       IEC62109-1, IEC62109-2         EMC       EN 61000-6-2, EN 61000-6-3, EN 61000-3-11, EN 61000-3-12	Leakage current protection	YES	
SYSTEM FEATURES           Topology         Transformer less           Max. efficiency         >98.8%           Euro efficiency         >98.4%           MPPT efficiency         >99%           Standby(night time) losses         <10W           Front Panel         LED/LCD Display           Cooling         Natural Cooling           Communication interface         RS485, WIFI, GPRS(optional)           Warranty         5years(optional 10/15/20years)           ENVIRONMENTAL           Operating temperature         -25.0 to 60.0 °C           Humidity range         0~99% (non-condensing)           Altitude         4000m           Noise level         <30dB           Protection rating         IP65           STANDARDS           Grid Code         NB/T32004, VDE-AR-N 4105, IEC 61727           Safety/TUV         IEC62109-1, IEC62109-2           EN 61000-6-2, EN 61000-6-3, EN 61000-3-11, EN 61000-3-12	Intelligent reactive power regulator	YES	
TopologyTransformer lessMax. efficiency>98.8%Euro efficiency>98.4%MPPT efficiency>99.4%MPPT efficiency>99.4%Standby(night time) losses<10WFront PanelLED/LCD DisplayCoolingNatural CoolingCommunication interfaceRS485, WIFI, GPRS(optional)WarrantySyears(optional 10/15/20years)ENVIRONMENTALOperating temperature-25.0 to 60.0 °CHumidity range0~99% (non-condensing)Altitude4000mNoise level<30dBPHYSICALDimension W×L×D (mm)855mm*555mm*275mmSTANDARDSGrid CodeNB/T32004, VDE-AR-N 4105, IEC 61727Safety/TUVIEC62109-2EN61000-6-2, EN 61000-6-3, EN 61000-6-1, EN 61000-3-11, EN 61000-3-12	PID	YES	
Max. efficiency       >98.8%         Euro efficiency       >98.4%         MPPT efficiency       >99%         Standby(night time) losses       <10W         Front Panel       LED/LCD Display         Cooling       Natural Cooling         Communication interface       RS485, WIFI, GPRS(optional)         Warranty       5years(optional 10/15/20years)         ENVIRONMENTAL         Operating temperature       -25.0 to 60.0 °C         Humidity range       0~99% (non-condensing)         Altitude       4000m         Noise level       -30dB         Protection rating       IP65         Environmy       855mm*555mm*275mm         Net Weight (kg)       71kgs         Grid Code         NB/T32004, VDE-AR-N 4105, IEC 61727         Safety/TUV       IEC62109-1, IEC62109-2         EN       61000-6-2, EN 61000-6-3, EN 61000-3-11, EN 61000-3-12	SYSTEM FEATURES		
Euro efficiency         >98.4%           MPPT efficiency         >99%           Standby(night time) losses         <10W           Front Panel         LED/LCD Display           Cooling         Natural Cooling           Communication interface         RS485, WIFI, GPRS(optional)           Warranty         Stears(optional 10/15/20years)           Warranty         ENVIRONMENTAL           Operating temperature         -25.0 to 60.0 °C           Humidity range         0~99% (non-condensing)           Altitude         4000m           Noise level         <30dB           Protection rating         IP65           Dimension W×L×D (mm)         855mm*555mm*275mm           Net Weight (kg)         71kgs           Grid Code         NB/T32004, VDE-AR-N 4105, IEC 61727           Safety/TUV         IEC62109-1, IEC62109-2           EM         EN 61000-6-2, EN 61000-3-11, EN 61000-3-11, EN 61000-3-12	Topology	Transformer less	
MPPT efficiency       >99%         Standby(night time) losses       <10W         Front Panel       LED/LCD Display         Cooling       Natural Cooling         Communication interface       RS485, WIFI, GPRS(optional)         Warranty       Syears(optional 10/15/20years)         ENVIRONMENTAL         Operating temperature       -25.0 to 60.0 °C         Humidity range       0~99% (non-condensing)         Altitude       4000m         Noise level       -30dB         Protection rating       IP65         PHYSICAL         Dimension W×L×D (mm)       855mm*555mm*275mm         Net Weight (kg)       71kgs         Grid Code         StanDARDS       Grid Code         Grid Code       NB/T32004, VDE-AR-N 4105, IEC 61727         Safety/TUV       IEC62109-1, IEC62109-2         EMC       EN 61000-6-2, EN 61000-6-3, EN 61000-6-3, EN 61000-3-11, EN 61000-3-12	Max. efficiency	>98.8%	
Standby(night time) losses       <10W         Front Panel       LED/LCD Display         Cooling       Natural Cooling         Communication interface       RS485, WIFI, GPRS(optional)         Warranty       5years(optional 10/15/20years)         ENVIRONMENTAL         Operating temperature       -25.0 to 60.0 °C         Humidity range       0~99% (non-condensing)         Altitude       4000m         Noise level       <30dB         Protection rating       IP65         ETYSICAL         Dimension W×L×D (mm)       855mm*555mm*275mm         STANDARDS         Grid Code       NB/T32004, VDE-AR-N 4105, IEC 61727         Safety/TUV       IEC62109-1, IEC62109-2         EMC       EN 61000-6-2, EN 61000-6-4, EN 61000-3-11, EN 61000-3-12	Euro efficiency	>98.4%	
Front Panel       LED/LCD Display         Cooling       Natural Cooling         Communication interface       RS485, WIFI, GPRS(optional)         Warranty       5years(optional 10/15/20years)         Warranty       ENVIRONMENTAL         Operating temperature       -25.0 to 60.0 °C         Humidity range       0~99% (non-condensing)         Altitude       4000m         Noise level       <30dB         Protection rating       IP65         Dimension W×L×D (mm)       855mm*555mm*275mm         Net Weight (kg)       71kgs         Grid Code       NB/T32004, VDE-AR-N 4105, IEC 61727         Safety/TUV       IEC62109-1, IEC62109-2         EMC       EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61000-3-11, EN 61000-3-12	MPPT efficiency	>99%	
Cooling       Natural Cooling         Communication interface       RS485, WIFI, GPRS(optional)         Warranty       Syears(optional 10/15/20years)         Warranty       ENVIRONMENTAL         Operating temperature       -25.0 to 60.0 °C         Humidity range       0~99% (non-condensing)         Altitude       4000m         Noise level       -30dB         Protection rating       IP65         Dimension W×L×D (mm)       855mm*555mm*275mm         Net Weight (kg)       71kgs         STANDARDS         Grid Code       NB/T32004, VDE-AR-N 4105, IEC 61727         Safety/TUV       IEC62109-1, IEC62109-2         EMC       EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61000-3-11, EN 61000-3-12	Standby(night time) losses	<10W	
Communication interface       RS485, WIFI, GPRS(optional)         Warranty       5years(optional 10/15/20years)         ENVIRONMENTAL       Operating temperature         -25.0 to 60.0 °C       -25.0 to 60.0 °C         Humidity range       0~99% (non-condensing)         Altitude       4000m         Noise level       <30dB         Protection rating       IP65         Dimension W×L×D (mm)       855mm*555mm*275mm         Net Weight (kg)       71kgs         Grid Code       NB/T32004, VDE-AR-N 4105, IEC 61727         Safety/TUV       IEC62109-1, IEC62109-2         EMC       EN 61000-6-2, EN 61000-6-3, EN 61000-3-11, EN 61000-3-12	Front Panel	LED/LCD Display	
Warranty       5years(optional 10/15/20years)         ENVIRONMENTAL         Operating temperature       -25.0 to 60.0 °C         Humidity range       0~99% (non-condensing)         Altitude       4000m         Noise level       -30dB         Protection rating       IP65         Dimension W×L×D (mm)       855mm*555mm*275mm         Net Weight (kg)       71kgs         Grid Code       NB/T32004, VDE-AR-N 4105, IEC 61727         Safety/TUV       IEC62109-1, IEC62109-2         EMC       EN 61000-6-2, EN 61000-6-3, EN 61000-3-11, EN 61000-3-12	Cooling	Natural Cooling	
ENVIRONMENTAL         Operating temperature       -25.0 to 60.0 °C         Humidity range       0~99% (non-condensing)         Altitude       4000m         Noise level       -30dB         Protection rating       IP65         PHYSICAL         Dimension W×L×D (mm)       855mm*555mm*275mm         Net Weight (kg)       71kgs         STANDARDS         Grid Code       NB/T32004, VDE-AR-N 4105, IEC 61727         Safety/TUV       IEC62109-1, IEC62109-2         EMC       EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61000-3-11, EN 61000-3-12	Communication interface	RS485, WIFI, GPRS(optional)	
Operating temperature       -25.0 to 60.0 °C         Humidity range       0~99% (non-condensing)         Altitude       4000m         Noise level       -30dB         Protection rating       IP65         PHYSICAL         Dimension W×L×D (mm)       855mm*555mm*275mm         Net Weight (kg)       71kgs         Grid Code         STANDARDS         Grid Code       NB/T32004, VDE-AR-N 4105, IEC 61727         Safety/TUV       IEC62109-1, IEC62109-2         EMC       EN 61000-6-2, EN 61000-6-3, EN 61000-3-11, EN 61000-3-12	Warranty	5years(optional 10/15/20years)	
Humidity range       0~99% (non-condensing)         Altitude       4000m         Noise level       4000m         Protection rating       IP65         PHYSICAL         Dimension W×L×D (mm)       855mm*555mm*275mm         Net Weight (kg)       71kgs         STANDARDS         Grid Code       NB/T32004, VDE-AR-N 4105, IEC 61727         Safety/TUV       IEC62109-1, IEC62109-2         EMC       EN 61000-6-2, EN 61000-6-3, EN 61000-3-11, EN 61000-3-12		ENVIRONMENTAL	
Altitude       4000m         Noise level       <30dB         Protection rating       IP65         PHYSICAL         Dimension W×L×D (mm)       855mm*555mm*275mm         Net Weight (kg)       71kgs         STANDARDS         Grid Code       NB/T32004, VDE-AR-N 4105, IEC 61727         Safety/TUV       IEC62109-1, IEC62109-2         EMC       EN 61000-6-2, EN 61000-6-3, EN 61000-3-11, EN 61000-3-12	Operating temperature	-25.0 to 60.0 °C	
Noise level       <30dB         Protection rating       IP65         PhySiCAL       PHYSICAL         Dimension W×L×D (mm)       855mm*555mm*275mm         Net Weight (kg)       71kgs         STANDARDS         Grid Code       NB/T32004, VDE-AR-N 4105, IEC 61727         Safety/TUV       IEC62109-1, IEC62109-2         EMC       EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61000-3-11, EN 61000-3-12	Humidity range	0~99% (non-condensing)	
Protection rating       IP65         PHYSICAL         Dimension W×L×D (mm)       855mm*555mm*275mm         Net Weight (kg)       71kgs         STANDARDS         Grid Code       NB/T32004, VDE-AR-N 4105, IEC 61727         Safety/TUV       IEC62109-1, IEC62109-2         EMC       EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61000-3-11, EN 61000-3-12	Altitude	4000m	
PHYSICAL           Dimension W×L×D (mm)         855mm*555mm*275mm           Net Weight (kg)         71kgs           STANDARDS           Grid Code         NB/T32004, VDE-AR-N 4105, IEC 61727           Safety/TUV         IEC62109-1, IEC62109-2           EMC         EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61000-3-11, EN 61000-3-12	Noise level	<30dB	
Dimension W×L×D (mm)855mm*555mm*275mmNet Weight (kg)71kgsSTANDARDSGrid CodeNB/T32004, VDE-AR-N 4105, IEC 61727Safety/TUVIEC62109-1, IEC62109-2EMCEN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61000-3-11, EN 61000-3-12	Protection rating	IP65	
Net Weight (kg)         71kgs           STANDARDS           Grid Code         NB/T32004, VDE-AR-N 4105, IEC 61727           Safety/TUV         IEC62109-1, IEC62109-2           EMC         EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61000-3-11, EN 61000-3-12	PHYSICAL		
STANDARDS           Grid Code         NB/T32004, VDE-AR-N 4105, IEC 61727           Safety/TUV         IEC62109-1, IEC62109-2           EMC         EN 61000-6-2 , EN 61000-6-3, EN 61000-6-4, EN 61000-3-11, EN 61000-3-12	Dimension W×L×D (mm)	855mm*555mm*275mm	
Grid Code         NB/T32004, VDE-AR-N 4105, IEC 61727           Safety/TUV         IEC62109-1, IEC62109-2           EMC         EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61000-3-11, EN 61000-3-12	Net Weight (kg)	71kgs	
Safety/TUV         IEC62109-1, IEC62109-2           EMC         EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61000-3-11, EN 61000-3-12	STANDARDS		
EMC EN 61000-6-2 , EN 61000-6-3, EN 61000-6-4, EN 61000-3-11, EN 61000-3-12	Grid Code	NB/T32004, VDE-AR-N 4105, IEC 61727	
	Safety/TUV	IEC62109-1, IEC62109-2	
Quality Standards ISO9001:2015, ISO14001, RoHs	EMC	EN 61000-6-2 , EN 61000-6-3, EN 61000-6-4, EN 61000-3-11, EN 61000-3-12	
	Quality Standards	ISO9001:2015, ISO14001, RoHs	



## Efficiency (%)



# **Control Scheme**



#### **Bottom view**



Copyright © 2012 MAGNIZON POWER SYSTEMS. All rights reserved. All trademarks are the sole property of their respective owners. MAGNIZON POWER SYSTEMS has a policy of continuous improvement. Specifications are subject to change without notice. Photos may differ slightly from final products.