



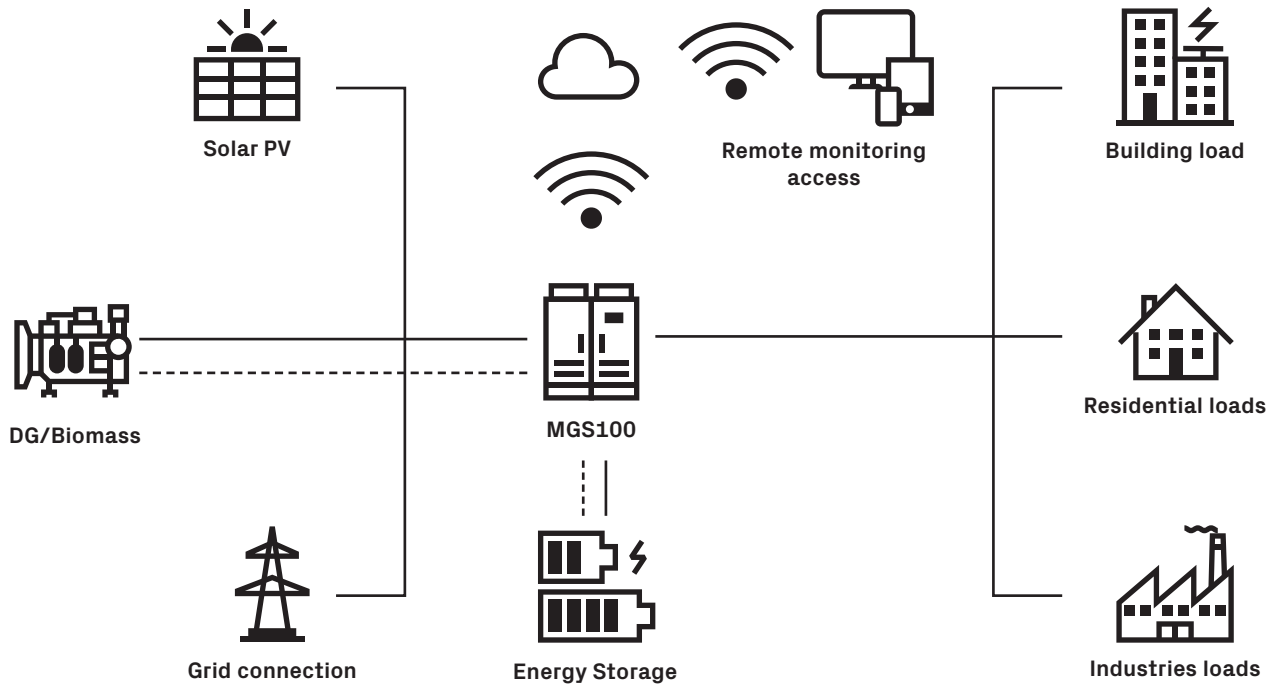
Migrogrid solutions

MGS100

MGS100 brings together all of the components required for a sustainable microgrid in a single device. Drawing on FIMER's electrical design experience, the product is optimized to provide reliable power in the most efficient way.

The system is formed from an integrated solar PV and battery energy storage converter with an additional AC input. This can incorporate either biofuel or diesel generation, or even an existing grid connection, into the microgrid's energy mix.

MGS100 product diagram



Technical data and types

Model/Rating	MGS100-20/20	MGS100-40/27.6	MGS100-60/50
General Data			
Nominal load power	20 kW	40 kW	60 kW
Max. recommended PV input power	24 kW	32 kW	53 kW
Max. rated PV output power	20 kW	27.6 kW	50 kW
Max. battery charging power	12 kW	24 kW	48 kW
Max. input battery capacity @ C10 charging	138 kW	276 kWh	552 kWh
PV input			
MPPT operating range	440 – 800 V	500 - 800 V	480 - 800 V
Max. PV input DC voltage		1000 V	
No. of independent MPPT	2	2	3
No. of DC input pairs/MPPT	4	5	5
PV input current protection for each input		Yes, DC Fuses, 15 A	
PV input over voltage protection		Yes, Type II	
AC input			
Nominal input voltage		3 × 380/220 V + N 3 × 400/230 V + N 3 × 415/240 V + N	
Voltage tolerance		±15%	
Input frequency		50 / 60 Hz	
Frequency tolerance (Generator operation)		-30% / +40%	
Frequency tolerance (Grid export)		±5%	
Maximum input current	36 A	71 A	108 A
AC input current protection		Yes, MCCB	
Rated short-time withstand current (I _{cw})		10kA for 1.5 seconds	

Technical data and types

Model/Rating	MGS100-20/20	MGS100-40/27.6	MGS100-60/50
Output			
Nominal rated output voltage		3 × 380/220 V + N 3 × 400/230 V + N 3 × 415/240 V + N	
Output frequency		50 / 60 Hz	
Output rated current (In)	29 A	58 A	87 A
Output short capability on generator (RMS) for 100ms		2.7 x In A	
Output short term overload capability on grid (RMS) for 20ms		10 x In A	
Permissible unbalanced load (□-□)		100%	
Output protection		Yes, MCCB	
Transfer time from Generator←→Battery←→Grid		<5 ms	
Battery			
Nominal battery voltage		504 to 576 V DC	
Battery type		VRLA, Ni-Cd, Li-ion	
Maximum charging current	24 A	48 A	96 A
Battery protection		Yes, MCB	
Efficiency			
Max. PV to load		>98%	
Max. grid to load		>99%	
Max. generator to load		>95%	
Max. PV to battery		>94%	
Max. grid to battery		>95%	
Environmental			
Humidity (Non-condensing)		<95%	
Ambient temperature		-5 to 45 °C without derating	
Max. Ambient temperature		50 °C	
Temperature derating	-5%/°C after 45 °C	-5%/°C after 45 °C	N.A.
Altitude		1000 m	
Altitude derating		-5%/1000m	
Audible noise at 1 m from front, 100% load		< 70 dB	
Electrical/Mechanical			
Degree of protection		IP31	
Cable entry		Bottom	
Color		RAL 7035	
User interface & remote monitoring			
Graphical touchscreen HMI		Graphical touchscreen display for control & monitoring (Optional)	
Remote monitoring hardware with Web based Remote monitoring solution		Yes (Optional) with GSM/Ethernet adapter	
Communication Protocol for external SCADA integration		MODBUS (Others on request)	
Weight, dimensions			
Weight – Unpacked	620 kg	640 kg	745 kg
Cabinet Dimensions W x H x D (mm)	1500 x 1800 x 800	1500 x 1800 x 800	1200 x 1800 x 800
Separate solar section dimensions W x H x D (mm)	N.A.	N.A.	1491 x 725 x 315

Customized Models Specification

Rating	MGS100-120/100	MGS100-80/100	MGS100-80/77.6
General Data			
Nominal load power	120 kW	80 kW	80 kW
Max. recommended PV input power	105 kWp	105 kWp	85 kWp
Max. battery charging power	72 kW	48 kW	48 kW
PV Input			
MPPT operating range		480 – 800 V	
Max. PV input DC voltage		1000 V	
No. of independent MPPT	6	6	5
No. of DC input pairs/MPPT	5	5	4
PV input current protection		Yes, DC Fuses	
PV input voltage protection		Yes	
AC Input			
Nominal input voltage		3 × 400/230 V + N	
Voltage tolerance		±15%	
Input frequency		50 / 60 Hz	
Frequency tolerance (normal operation)		-30% / +40%	
Frequency tolerance (grid export)		±5%	
Maximum input current	213 A	142 A	142 A
AC input current protection		Yes, MCCB	
Output			
Nominal output voltage		3 × 400/230 V	
Output rated current (In)	174 A	116 A	116 A
Output frequency		50 / 60 Hz	
Overload capability		150% load for 60 sec.	
Short term overload (RMS)		2.7xIn for 100ms	
Permissible unbalanced load		100%	
Output protection		Yes, MCCB	
No. of output breakers		1	
Battery			
Nominal battery voltage		504 to 576 V DC	
Battery type		VRLA, Ni-Cd, Li-ion	
Maximum charging current	144 A	96 A	96 A
Environmental			
Humidity		<95% (Non-condensing)	
Ambient temperature (Without derating)		-5 to 45 °C	
Temperature derating		-5%/°C after 45 °C	
Max. Ambient temperature		50 °C	
Altitude		1000 m	
Altitude derating		-5%/1000 m	
Electrical/Mechanical			
Degree of protection		IP31	
Cable entry		Bottom	
User interface & remote monitoring			
HMI		Graphical display for control & monitoring (optional)	
Local & remote monitoring		Yes (Optional)	
Communication Protocol		MODBUS	
Weight, dimensions			
Weight – Unpacked	990 kg	845 kg	845 kg
Cabinet Dimensions W x H x D (mm)	1600 x 1800 x 800	1200 x 1800 x 800	1200 x 1800 x 800
Separate solar section dimensions W x H x D (mm)	1086 x 869 x 419	1086 x 869 x 419	1491 x 725 x 315 702 x 1061 x 292



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