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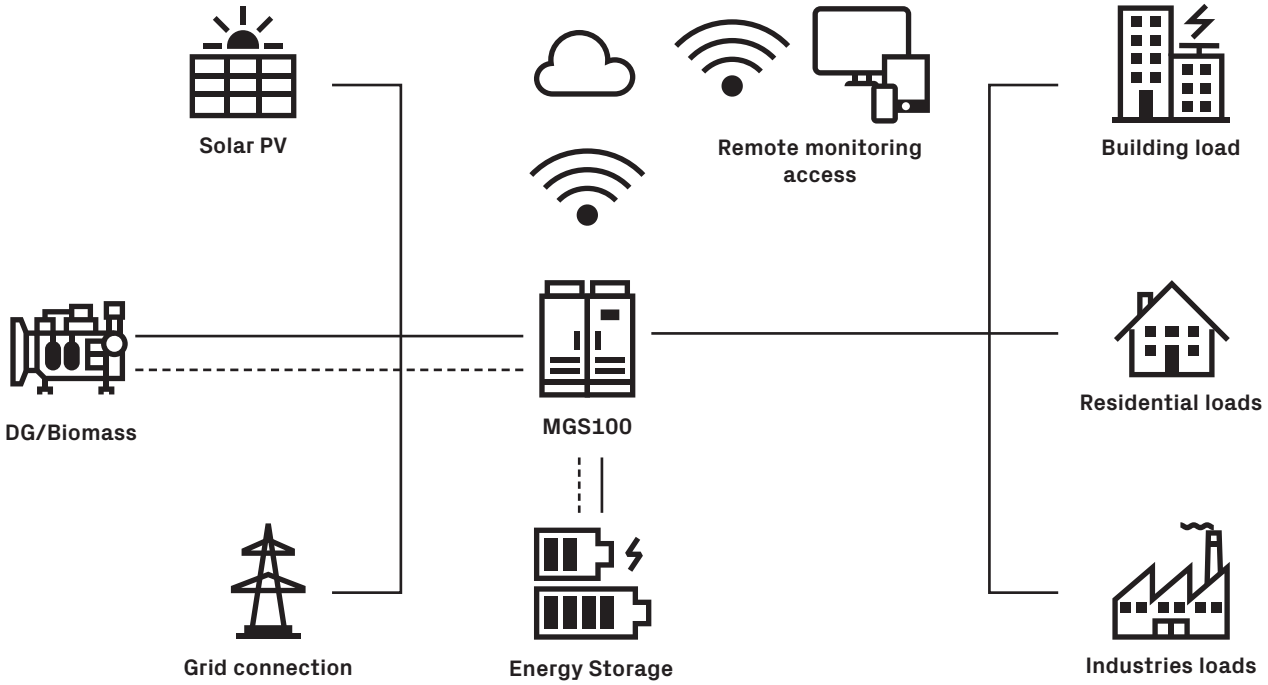
Migrogrid solutions MGS100

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@u.p.f	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 kWh	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 (Icw)		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 range		504 to 576 V DC	
Operating battery voltage range		440 to 660 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 1100 x 750 x 261.5

Customized Models Specification

Rating	MGS100-120/100	MGS100-80/100	MGS100-80/77.6	MGS100-40/50
General Data				
Nominal load power @ u.p.f.	120 kW	80 kW	80 kW	40 kW
Max. recommended PV input power	105 kWp	105 kWp	85 kWp	53kWp
Max. battery charging power	72 kW	48 kW	48 kW	24 kW
PV Input				
MPPT operating range	480 – 800 V			
Max. PV input DC voltage	1000 V			
No. of independent MPPT	6	6	5	3
No. of DC input pairs/MPPT	5	5	4	5
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	71 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	58 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			
Operating battery voltage range	440 to 660 V DC			
Battery type	VRLA, Ni-Cd, Li-ion			
Maximum charging current	144 A	96 A	96 A	48 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 & monotoring (optional)			
Local & remote monitoring	Yes (Optional)			
Communication Protocol	MODBUS			
Weight, dimensions				
Weight – Unpacked	990 kg	845 kg	845 kg	745 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	1100 x 750 x 261.5

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For more information please contact your local FIMER representative or visit:

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FIMER_MGS100__EN_Rev_B 04.06.2021