

SOLID STATE MICROWAVE GENERATOR

450 W at 2450 MHz

Ref. GMS450WSM

MK079EN-B

SAIREM's GMS 450 **solid state generator** provides continuous wave output. Its power is adjustable **from 0 to 450 W** at frequencies ranging between **2400 and 2500 MHz**.

Pinpoint Power and Frequency control:

- Flexibility for your process
- Possibility to use a compact plasma source



This generator is designed **for scientific and industrial applications**, to be used with one or multiple MW applicators, to assure high reliability and small footprint. The protection against high reflected power and measurement of reflected power are performed via a built-in isolator.

MAIN APPLICATIONS

PLASMA APPLICATIONS

Plasma generation with compact plasma sources:

- **S-Wave** for atmospheric and low-pressure plasmas for radical creation, debacterization, ALD, medicine, etc....
- **Aura-Wave** and **Hi-Wave** for low pressure plasmas for large surface treatment

LABORATORY APPLICATIONS

- Microwave-assisted liquid or solid chemistry
- Biochemistry
- Drying
- Heating
- Etc...



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KEY BENEFITS

DESIGN

- One module: compact and lightweight
- Microwave energy **transmitted via coaxial cable**
- Stable operation from 1 W & power adjustable in 1 W steps
- Compact module version available



TECHNOLOGY

- **Semiconductor technology:** no magnetron and therefore longer lifetime & no high voltage
- Very good frequency spectrum even at low power
- **Built-in internal protection** against mismatching and reflected power interlock
- **Built-in isolator** with automatic power reduction or switch off
- **True RMS detector** with linear measurement of reflected and forward power
- Very low ripple < 0.4 % RMS
- Adjustment of the microwave frequency: ± 50 MHz from the central frequency 2450 MHz
- **Scan function** allows running frequency sweep to find the optimum matching frequency. Up to two minima can be found and displayed on front panel. All measured data are then available through remote control and can be displayed on a PLC screen if necessary
- **SAIREM Auto-tune algorithm**¹ (automatic load-tuning): controls the frequency automatically in order to minimize reflected power

CONTROLS

The generator is wholly **operated in local mode** from the control panel located at the front of the power supply rack.

The front panel consists of a large white over blue graphical LCD screen 240 x 128 pixels, 3 push buttons and a knob for menu navigation and power control.

All operating parameters, control status, and possible fault, forward power and reflected power are displayed on the screen. The forward power set-point is pre-displayed before starting.



¹ Patent WO/2012/146870



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KEY SPECIFICATIONS

Reference	• GMS450WSM
Presentation	• Power supply with 7/16 connector output
Frequency	• Central frequency at 2450 MHz, adjustable between 2400 and 2500 MHz
Frequency resolution	• Frequency adjustable with 100 kHz step
Output power	• 0 to 450 W (adjustable with 1 W steps) $\pm 2 \%$
Forward and reflected power measurement	• Protected against 100 % RP. Adjustable level of maximum RP from 1 W to 150 W. Limitation and stop-mode available
Ripple	• $< 0.4 \%$ RMS
Protection	• VSWR (built-in isolator with automatic power reduction or switch-off), excess temperature (overheating interlock)
Microwave output	• Coaxial output 7/16 type female plug, 50 Ohm – safety feature in case of loose connection
Controls	• Local: front panel • Remote: Modbus RTU RS232 (standard version) or RS485 or Ethernet or ProfiBus or CANOpen. To be specified when ordering • Analogue input set point for forward power control, analogue output for forward and reflected power
Screen	• White over blue graphical LCD screen of 240 x 128 pixels resolution
Mains	• 1 phase, 110V to 240V VAC, 50/60 Hz
Consumption	• 1.2 kVA max. at 450 W
Cooling & operation requirements	• Water cooled; flow and temperature sensors included. Quick water connectors included • Water cooling: minimum 2 L/min @ 1.5 bar, 17°C to 22°C (63°F to 72°F). • Ambient operating temperature: 5°C to 35°C (41°F to 95°F). • Relative humidity below dew point
Weight	• 12 kg
Complies with norms	• Safety EN 61010-1: 2010 / EMC: EN 61326-1: 2013 • A safety connector meets safety standard for machines and personnel



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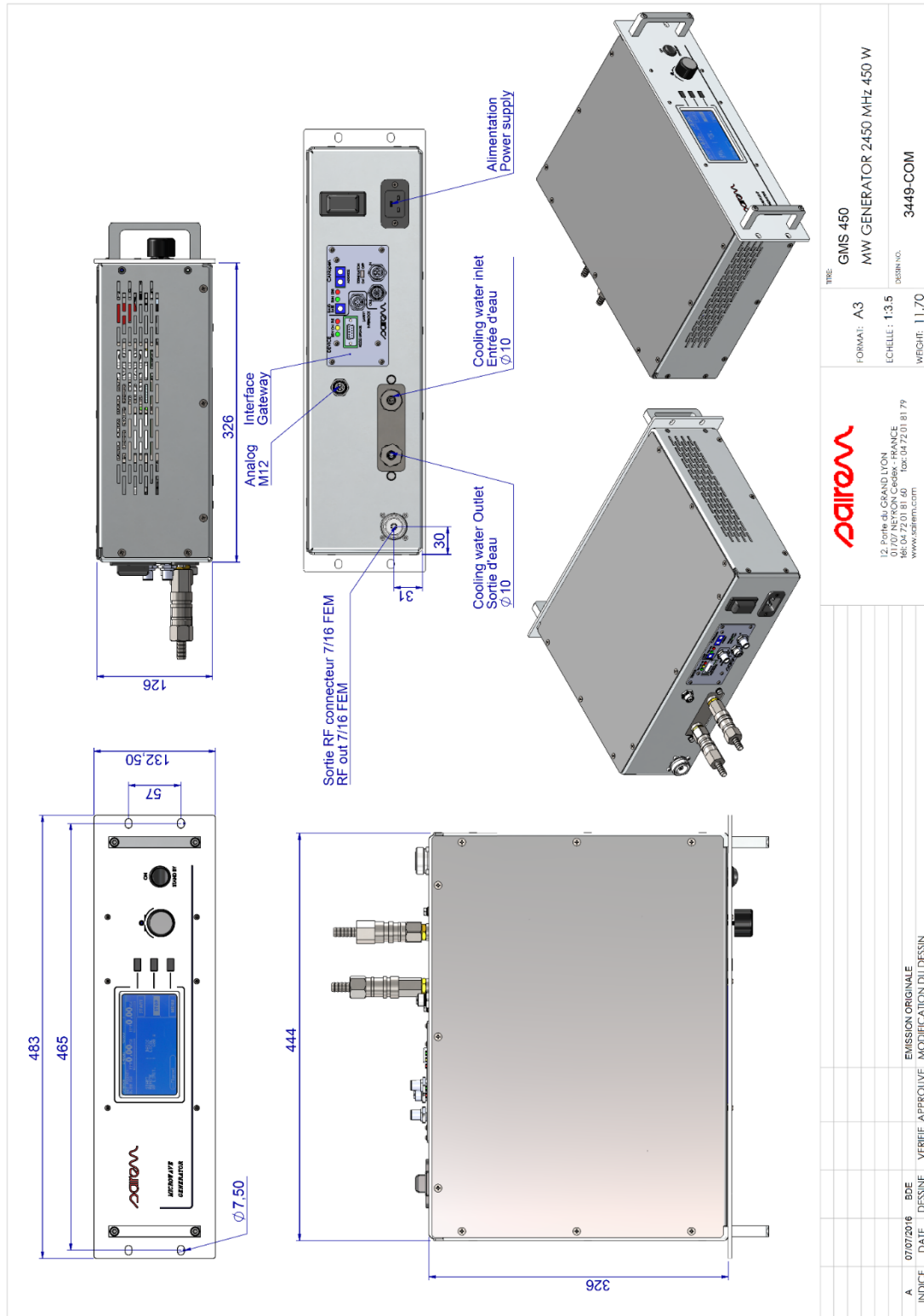
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MAIN DIMENSIONS



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