



## **SOLID STATE MICROWAVE GENERATOR 180 W, 2450 MHz**



SAIREM's solid state generators are microwave generators at 2450 MHz. They provide a continuous wave (CW) output power adjustable from 0 to 200 W at frequencies ranging between 2400 MHz and 2500 MHz (version with variable frequency, VF).

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 its measurement are performed via a built-in isolator.

In comparison with magnetron generators, the main advantages of the solid state generator are:

- Very good (narrow and stable) frequency spectrum even at low power;
- True RMS detector with linear measurement of reflected and forward power;
- No tube (magnetron) and no high voltage inside the generator (longer life time and safer);
- Possibility to adjust the frequency.

## Technical specification

<b>REF</b>	<b>GMS 180W SM 56M FST 1 IR</b>
Presentation	Power supply with N connector output
Frequency	Fixed at 2450 MHz or as option, adjustable between 2425 and 2475 MHz (VF)
Microwave output power	Adjustable from 0 to 180 W with 1 W step
Forward power measurement	Coupler with true RMS detector, linear measurement
Ripple	0.2 % RMS
Max. reflected power limit	Adjustable from 1 W to 100 W. Possibility to control on reflected power limit
Protection	VSWR (built-in isolator with automatic power reduction or switch off) max. 100 W reflected power, excess temperature (overheating interlock)
Microwave output	Coaxial cable N-type female plug, 50 Ohm
Remote	Standard: Analog / Local / RS232 serial link Option replaces standard with ProfiBus or CanOpen or ModBus
Frequency resolution	VF version frequency adjustable with 100 kHz step (option)
Mains	1 phase, 90 to 264 VAC (power factor correction included), 50/60 Hz
Consumption	~ 670 VA at max. 180 W
Weight	< 12 kg
Cooling	Air
Security	A safety connector ensures safety standard for machines and personnel

### **CONTROL AND OPERATION OF MICROWAVE GENERATORS WITH DIGITAL DISPLAY**

The generators can be operated in local mode from the control panel located at the front of the power supply rack or via remote control (analog or RS232).

At the front of the generator, next to the blue LCD screen (240 x 128 pixels), there are 3 function buttons and a turn and push wheel; they allow to control the entire generator. Please note that the STOP button physically cuts a safety relay locking the power supply at zero through 2 points. This system, also accessible by the external «interlock » safety, guarantees the compliance with the safety norm of the system and personnel protection.

Operating and control status, as well as any possible fault, are displayed in clear on the digital screen. In addition to forward and reflected powers values in Watt (display and bar graph), the power set point is pre-displayed before starting.

Mains operating functions are as follows:

#### **Start Mode**

- Standard ON/OFF mode

- Overshoot mode (adjustable from 50 ms to 2 s)
- Ramp mode (0 to 240 s)

#### **Control Mode**

- Local
- RS 232
- Analog (Start/Stop, Set point, read out generator state and power measurement)

#### **Reflected power control**

- Adjustable from 0 to 100 W
- Disjunction or regulation mode of reflected power

#### **Timer**

- Adjustable from 10 ms to 5999 s

#### **Others**

- Contrast adjustment
- Fault list
- Possibility to save and load up to 5 presets
- Language (English or French)

### **Why solid state microwave generator?**

1. Compact size & lighter weight; 1 single case with microwave energy transmitted via coaxial cable;
2. Stable operation from microwave power levels as low as 1 W & power adjustable in 1 W step;
3. No magnetron and therefore longer lifetime & no high voltage;
4. Very narrow & stable frequency spectrum even at low power; the frequency spectrum of magnetron-based generators has poor stability below 100 W - 150 W and also, the frequency changes with power level;
5. Built-in internal protection against mismatching and reflected power interlock;
6. Built-in isolator with automatic power reduction or switch off;
7. True RMS detector with linear measurement of reflected and forward power with the exception of the analogue readout;
8. Semiconductor;
9. Air cooling;
10. Very low ripple (0.2 % RMS) and high power efficiency.

### **In addition, one more option will be available soon:**

- Pulsed microwave energy at max. 1 kHz.

