

GMP100 MICROWAVE GENERATOR

10 kW AT 2450 MHz

SAIREM's latest generation (G4) of microwave generators has been specially designed for customers' industrial applications and plasma generation. The 100 % digital architecture makes it a modern and highly reliable product, with smart power control.

Multiple features, like the **Automatic Restart Function (ARF)**, and **Preventive Alarm Management (PAM)**, (alarms without stopping the production) are implemented to allow you to go to the end of your process, even in case of micro power-cuts.

Finally, SAIREM's comprehensive customer service help you to maximize your production yield, through support and advices.



APPLICATIONS

LABORATORY APPLICATIONS

- Microwave-assisted liquid or solid chemistry
- Biochemistry
- Drying
- Sintering
- Melting

PLASMA APPLICATIONS

- CVD and CVD for diamonds
- Plasma generation with surface wave plasma source (Downstream, Surfaguide, Dual-stream ...)
- Nitriding
- Thin film deposition

INDUSTRIAL APPLICATIONS

- Microwave-assisted liquid or solid chemistry
- Drying
- Melting



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KEY BENEFITS

COMPACT 2 MODULES DESIGN

- 10 kW rackable Power Supply (19" 4U)
- 10 kW 2450MHz Microwave Head

BEST IN CLASS RELIABILITY

- **Automatic Restart Function (ARF)** in less than 5 ms, to avoid production stop or loss
- **Environment monitoring:** 35 parameters.
- Custom designed SAIREM magnetron, with high reliability and spectrum stability
- Expected Magnetron **lifespan above 15000 hours**, depending on operating conditions
- **Arc detection** included. One arc input is also available for customer's applicator/process.
- **Preventive Alarm Management (PAM)** that allows the continuation of the production
- **100 % digital design** offers better protection from the electrical network interferences and distortions
- Software compatible with previous generation (no need to change control software)
- **Comprehensive customer service**

CONTROLS

- **7" color TFT touch screen** (option) for easy and efficient control and configuration. Full-screen power display function available to read power easily even far away from the generator.
- Full digital design to allow smart power control.



COMMUNICATION

- **Ethernet connection** for online diagnostic. USB port available to export alarm messages for easy diagnostic.
- Many fieldbus interfaces available
- **Can be ordered without digital display** to save cost. Remote control only, by fieldbus
- Full upgradable USB inlet



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KEY SPECIFICATIONS

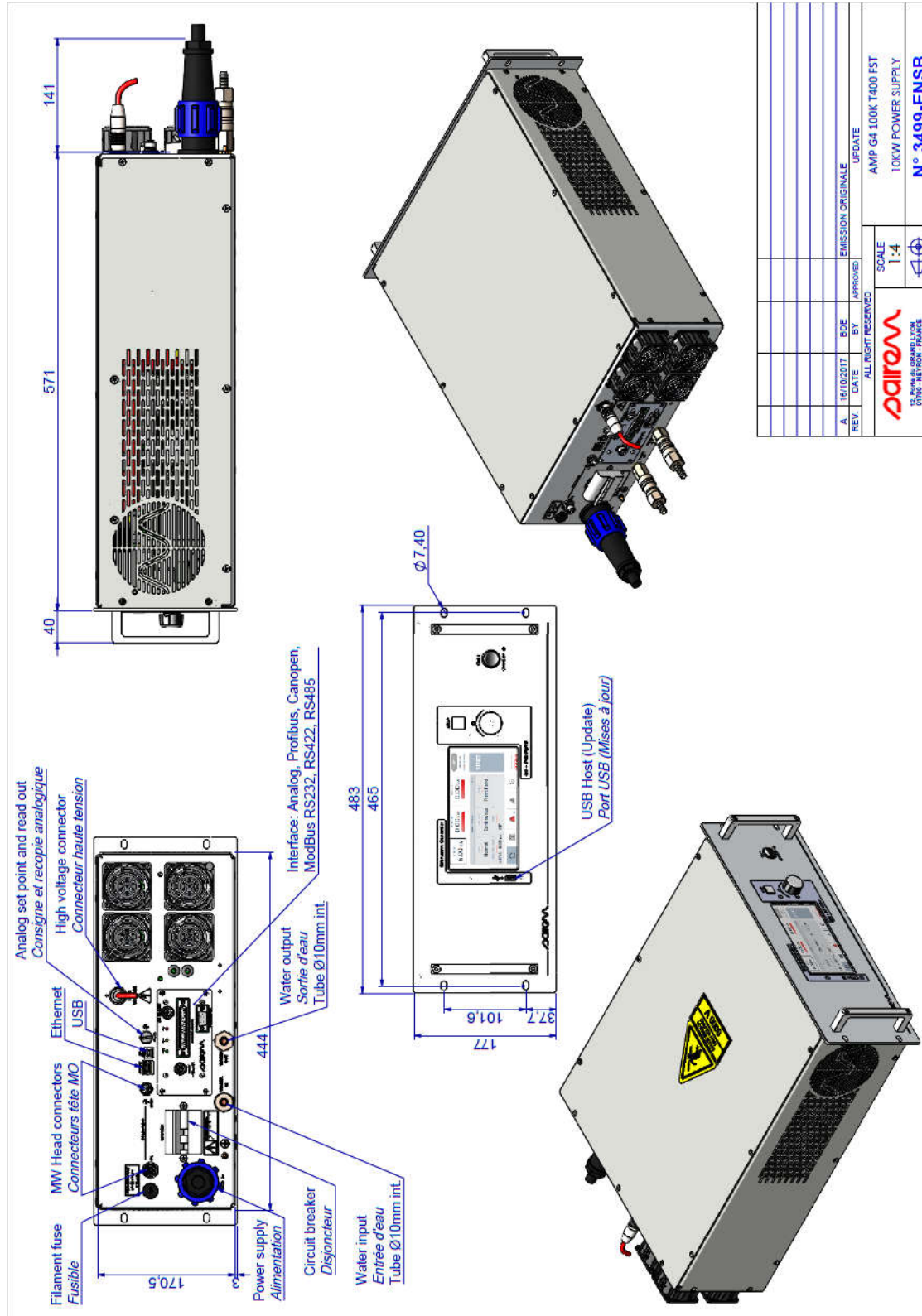
Reference	GMP G4 100K AA TXXX YZZ H
Presentation	Switch mode Power supply ($\eta > 90\%$) with separate microwave head Connecting cable: 5 m standard length; 2,5 m / 10 m / 15 m / 20 m optional - Other lengths available upon request.
Frequency	2450 MHz \pm 25 MHz
Output microwave power	10 kW adjustable from 10 % to 100 %, with 10 W steps
Power stability	1 % from 10 % to 100 %
Ripple	< 2 % RMS (Root Mean Square) from 10 % to 100 % of nominal power
Parameters	Measure of 35 parameters: output power, reflected power, water temperature, water flow, humidity, inside and ambient temperature, high voltage monitoring ...
Waveguide output	WR340
Maximum reflected power	100% for one minute maximum
MW operating mode ⁽¹⁾	Continuous (SM) or pulsed (^{IP})
Mains ⁽²⁾	<ul style="list-style-type: none">• 400 V \pm 10 % (⁴⁰⁰), 3-phase + earth with integrated filter• Or 480 V \pm 10 % (⁴⁸⁰), 3-phase + earth with integrated filter
Display ⁽³⁾	With 7" TFT color touch screen (^F) or without (^X) digital front panel (local control)
Start mode	Standard On/Off, Plasma starting, ramp (with digital front panel)
Remote control ⁽⁴⁾	"EtherNet/Industrial Protocol (IP)" always available + to be chosen: Analogue (ST) <u>OR</u> Modbus on RS232 (^{MS}) <u>OR</u> Modbus RS485 (^{MM}) <u>OR</u> Profibus [®] (^{PR}) <u>OR</u> CanOpen (^{CA}).
Safety interlock	Safety relay and free contact to be shunted
Automatic Restart Function (ARF)	Detect all faults (including magnetron arcing) and automatically attempt to restart in less than 5 ms up to 3 times
Cooling system	Air and water (min. water flow 7 L/min with 2.5 bar between inlet & outlet, warning between 7 and 8 L/min) Cooling water between 18° to 23°C (other ranges available on demand)
Operating environment	Max. ambient temperature : 40°C. Maximum humidity : 60 % non-condensing
Safety Standards	<ul style="list-style-type: none">• Safety: EN 61010-10• EMC: EN 61000-6-4 and EN 61000-6-2
Connectors	Quick connectors for high voltage, mains line and water cooling
Consumption	16000 VA (power factor > 0.9)
Overall Dimensions (LxWxH)	<ul style="list-style-type: none">• Power supply: 752 x 483 x 177 mm• Microwave generator head: 436 x 357 x 279 mm
Weight	<ul style="list-style-type: none">• Power supply: 25 kg• Microwave generator head: 22 kg (including isolator)

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MAIN DIMENSIONS

POWER SUPPLY MODULE



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MICROWAVE GENERATOR MODULE

