

Solid State Microwave Generator 2400..2500 MHz, 500 W

FM - SGK50W0CGH



General Information



The **FM - SGK50W0CGH** Microwave Generators from **Fricke und Mallah Microwave Technology GmbH** are compact, light-weight and highly reliable Solid State Microwave Generators which provide continuous wave at frequencies ranging between 2400 MHz and 2500 MHz. This microwave generator features a output of **20..500 W CW** and the power is easily adjustable in 1-W-steps. Meanwhile, it integrates real-time monitoring and full automatic operation (through an optionally available software) with a user-friendly control panel which is allowing users to do easy set-up and control. In addition to CW operation, pulse operation is possible. The pulses can be set up to 20 kHz in a ratio of 20 % - 100 %.

For local operation (stand-alone), the control panel gives an overview of the most important parameters, such as frequency, forward and reverse power, error management and temperature of the generator. Furthermore, various operating modes can be set, such as random frequency, frequency scan, frequency sweep or automatic adjustment tracking. The whole is rounded by a recipe editor, in which various specifications for the power-time profiles can be set.

For the remote connection, the basic functions of the generator can be queried via the SCPI nomenclature. This includes information about the generator used (Get) (generator number, thus several generators can be controlled), the current frequency (Set / Get), the current power (Set/Get), the forward power (Get), the reverse power (Get), the RF energy introduced into the process (Get), the temperature of the generator (Get) and error number (Get). Optionally, software for control based on the functions can be ordered.

For plasma applications it is also possible to order the generator without an isolator. Without the isolator the generator reduce the forward output power in this way, that the reverse power is not higher then 250 W. The Generator works in a safe operating area. As the matching of the load gets better or the load absorbs more RF power, the power increases to the set forward power value.

The **FM - SGK50W0CGH Microwave Generators** operate perfectly with water cooling. They are the cutting-edge tool for industrial and scientific application.

Key features

- Designed for industry heating, drying and plasma processes
- Frequency band 2400 MHz – 2500 MHz.
- Maximum 500 W output power.
- 20 W – 500 W setting range in 1 W steps.
- Flexible signal generator with CW or Pulse.
- Protected against total mismatch (isolator)
- High efficiency water cooling mechanical design.
- Interlock (one or two channel)
- Knob switch to turn on the generator (lockable)
- Local or remote operation
- Measuring of forward and reverse power
- All connectors on the back side

Solid State Microwave Generator 2400..2500 MHz, 500 W

FM - SGK50W0CGH



Specification

Electrical Data

Input

| | |
|------------------------------------|---|
| Line Input | 100 V _{AC} - 260 V _{AC} |
| Line Frequency | 50 Hz / 60 Hz |
| Input Power (AC power consumption) | 1800 W max. |

Output

| | |
|-------------------------|---|
| RF maximum output power | 500 W 57 dBm |
| Efficiency | ≥ 40 % |
| Power setting range | 20..500 W adjustable in 1-W-steps |
| Frequency setting range | 2400..2500 MHz adjustable in 0.1 MHz-steps |
| Pulse frequency | 1 – 20 kHz |
| Duty cycle | 20 – 100 % |
| Pulse rise time | ≤ 200 ns |
| Pulse fall time | ≤ 200 ns |
| Isolator | Yes |
| MTBF | ≥ 100000 h |

Control / Monitoring

| | |
|--------------|--|
| Control Unit | Rotary encoder on the front panel |
| Interface | RS232 (SUB9 connector) / USB (Typ B connector) / Ethernet (RJ45 connector) |
| Protocol | SCPI (Standard Commands for Programmable Instruments) |

Cooling

Water Cooling

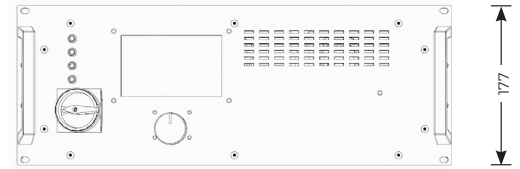
| | |
|------------------------|--|
| Coupling | 2 bulkhead fitting G1/4" for easy connecting to customer systems |
| Waterflow | ≥ 4 l/min |
| Water temperature | +18° C to +27° C (non condensing) |
| Cooling water pressure | ≥ 3 bar |

Mechanical Data

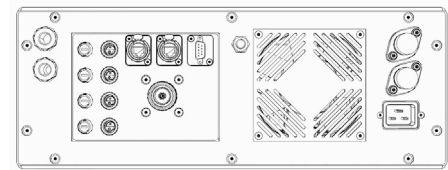
| | |
|-----------------------------------|--------------------|
| Rack Dimensions | 19" x 4HE |
| Rack Total WxHxD (with connector) | 482 x 177 x 540 mm |
| Total Weight | approx. 12 kg |

Ambient Conditions

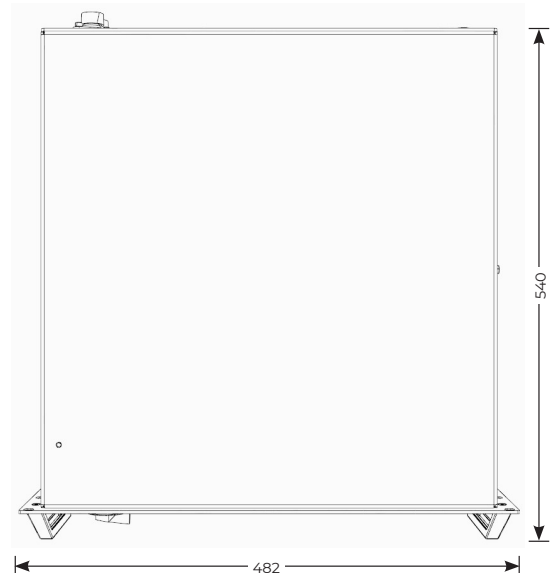
| | |
|---------------------|------------------|
| Use | Indoor use only |
| Ambient Temperature | + 10° to + 45° C |
| Humidity | < 80% |



Front side

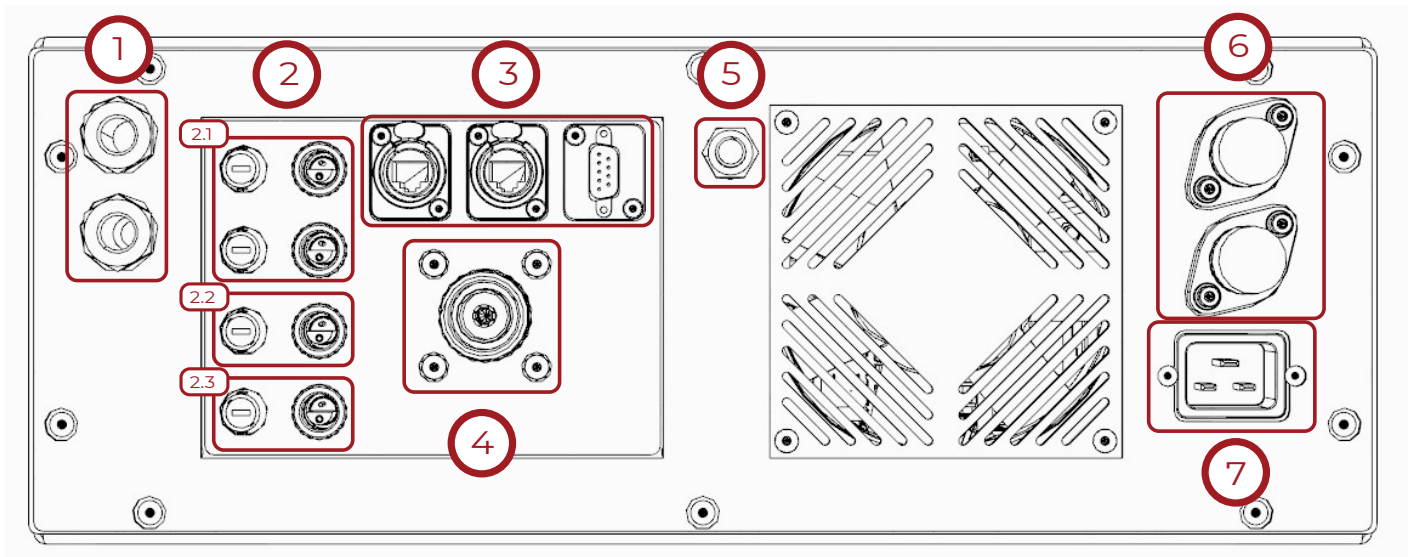


Back side



Solid State Microwave Generator 2400..2500 MHz, 500 W

FM - SGK50W0CGH



Connectors

- 1 Water in and water out G1/4" inner thread
- 2 Additional plugs:
 - 2.1 LEMO Typ ERA.2S.303.CLL for safety circuits interlock
 - 2.2 LEMO Typ ERA.2S.304.CLL for REMOTE RF ON Switch
 - 2.3 LEMO Typ ERA.2S.302.CLL for 12VDC for an additional device
- 3 Communication interface USB type B socket, RS232 (D-SUB9) or Ethernet (RJ45 socket). Interface is selected when ordering.
- 4 RF Output DIN 7/16 Female (50 Ohm)
- 5 M10 grounding bolt
- 6 Fuse holder for AC feed
- 7 AC feed with C19 socket

Scope of delivery

The customer must specify the desired communication centre for remote operation when ordering. It must also be stated whether an additional safety circuit interlock is required. The standard is 1 channel safety circuit interlock (compare connector discription 3).

- Solid State Microwave Generator FM - SGK50W0CGH
- AC power cable with 2m length (C20 plug to CEE7/4 plug (Schuko plug))

Optional parts for delivery:

- Waveguide Transistion e.g. R26/WR340 to DIN 7/16 plug
- High power coaxial cable with customize length, for e.g. with DIN 7/16 plugs
- Control software for the generator
- Plugs for the LEMO connectors with customize cable length to wire end ferrule
- Plug for REMOTE RF ON Switch
- Plug for 12VDC for an additional device