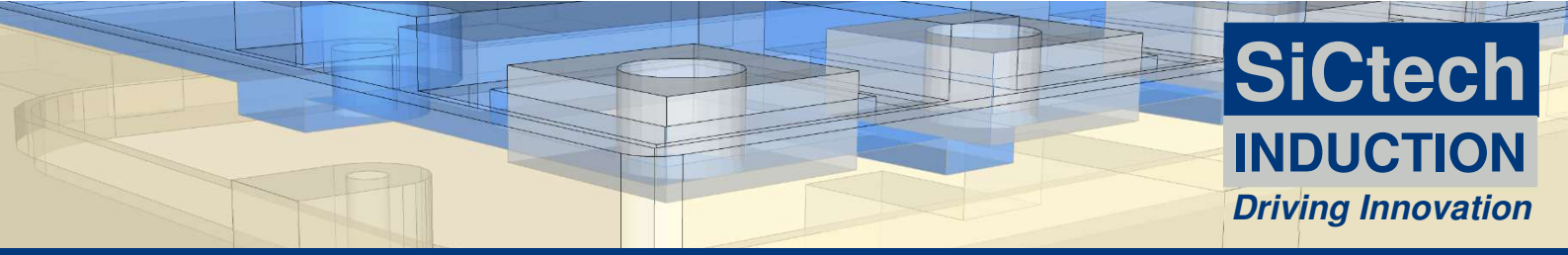

SiCtech
INDUCTION
Driving Innovation

SiCMag Family

Silicon Carbide Multi Application Generator

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The SiCMag Family

The **SiCMag** family of power supplies corresponds to a range of generators for induction heating applications covering power levels from up to 800 kW and frequencies up to 400 kHz in two ranges 5 to 100 kHz and 20 to 400 kHz.

SiCMag….L Cabinet

SiCMag generators are based on the ultimate power electronics technologies as Silicon Carbide (SiC) MOS Transistors, advanced DC link using antiferroelectric capacitors, ultrafast high isolation circuitry and advanced transistor driving circuits and fully digital controller all integrated in a PCB, allowing inverter efficiencies up to 99% @ 400 kHz and consequently very small and compact chillers.

Due to the wide frequency range of **SiCMag** generators many induction heating applications can be covered with the same generator. Also, the power output of SiCMag generators can be configured as single-power port or independent multi-power port output and allowing different applications with different power levels.

Power upgrading in **SiCMag** generators is a very simple operation, if the safety and input mains sections is prepared for, by just adding more power modules in the **SiCMag** cabinet.

SiCMag…..S Cabinet

SiCMag generator family is housed in two different types of cabinets. The **SiCMag….L** is housed in a standard cabinet and ranges powers from up to 800 kW while the **SiCMag….S** is thought for portable applications up to 50 kW with limited space.

In combination with **SiCMag** generators, SiCtech offers standard as well as custom design heating stations integrating in a, up to 10 m., separate cabinet high efficient output transformer, resonant capacitors and if needed a matching transformer, that could be placed near the heating workpiece.

THE MAIN ADVANTAGES OF SiCtech TECHNOLOGY

- ⇒ Wide Range of applications with the same generator.
- ⇒ Extremely high efficiency inclusive at frequencies as high as 400 kHz.
- ⇒ Very small size and weight.
- ⇒ Single or multi-output power ports.
- ⇒ Very high robustness due to the use of SiC MOS Transistors.
- ⇒ Very easy use of the generator due to the use of advanced cyber-physical algorithms that auto-adjust the generator depending on the required heating process.

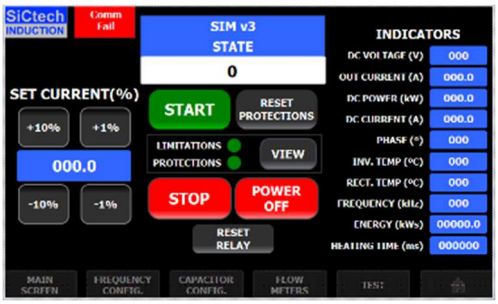
The SiCMag Family Features & Subsystems

SiCMag generators are divided in two frequency classes, 5-100 kHz and 20-400 kHz, covering the first class, power levels up to 800 kW and the HF frequency class covers powers up to 400 kW. The supply voltage is 400 V_{AC} ± 10 % and the system is water-cooled. Depending on the power level, standard SiCMag generators include a SiCtech or a Siemens PLC with communication via industrial busses like Profinet, Modbus, Ethernet etc.

The **SiCMag MF** frequency class generators is based in the MF 100 kHz SiC power modules, and the **SiCMag HF** frequency class in the HF 400 kHz SiC power modules, including the modules, in both cases, the same controller, and a PCB including all the features needed in an induction heating application.

In combination with **SiCMag** generators, SiCtech offers standard as well as custom design heating stations integrating in a, up to 10 m., separate cabinet highly efficient output transformer, resonant capacitors and if needed a matching transformer, that could be placed near the heating workpiece. Standard heating stations cover a range of frequencies between 5 and 100 kHz and 20 to 400 kHz for heating any conductive material as iron, copper, aluminium stainless steel, etc

A highly interactive and comprehensible HMI based on Siemens PLC 1200 or SiCtech PLC, guides the user in any interaction with the generator as the starting up, the resonant frequency selection by autotuning, the matching of the load etc. and provides information on the status and working conditions of the generator at any time.



KEY FIGURES

- ⇒ **Up to 800 kW.**
- ⇒ **5-100 kHz / 20-400 kHz**.
- ⇒ **Up to 8 independent power ports.**
- ⇒ **Dry connection to the heating station up to 10 m or more.**
- ⇒ **Programmable heating segments.**
- ⇒ **Energy monitoring.**
- ⇒ **Extremely compact and efficient.**

The SiCMag Portfolio & Technical Specs

SiCMag	12k…	25k…	50k…	100k…	200k…	300k…	400k…	500k…	600k…	700k…	800k…
Total Output Power	12,5 kW	25kW	50kW	100 kW	200 kW	300 kW	400 kW	500 kW	600 kW	700 kW	800 kW
MF Output Frequency Range SiCMag	5-100 kHz										
HF Output Frequency Range SiCMag	20-400 kHz							NA			
Efficiency	98,9 % @ 100 kHz 98,4 % @ 400 kHz										
Mains Voltage [3]	400 V_{AC} ± 10 % (Three-Phase)										
Normal Oper. Freq. Range	50 & 60 Hz										
Cos (φ)	> 0,99										
Output Circuits	Series LC										
Inductor Short Circuit Protec.	Yes										
Controller	Fully Digital Controller										
Power Regulation Range [1]	2…100 %										
Power Setting Time [2]	1 ms										
MF SiCMag…S Cabinet Size (WxDxH)-cm	36x42x25,5	36x42x25,5	48x42x25,5								
MF SiCMag…S Cabinet Weight	22 kg	22 kg	26 kg								
HF SiCMag…S Cabinet Size (WxDxH2)-cm	36x42x25,5	48x42x25,5	48x42x25,5								
HF SiCMag…S Cabinet Weight	21kg	26 kg	26kg								
MF SiCMag…L Cabinet Size (WxDxH)-cm				60x60x180	60x60x180	60x60x180	60x60x180	120x60x180	120x60x180	120x60x180	120x60x180
MF SiCMag…L Cabinet Weight				180 kg	200 kg	220 kg	240 kg	330 kg	330 kg	360 kg	360 kg
HF SiCMag…L Cabinet Size (WxDxH)-cm				60x60x180	60x60x180	120x60x160	120x60x160				
HF SiCMag…L Cabinet Weight				180 kg	200 kg	330 kg	350 kg				
Water Max. Temperature	40 °C										
Minimum Water	5 l/min	5 l/min	10 l/min	10 l/min	15 l/min	15 l/min	20 l/min	25 l/min	30 l/min	35 l/min	40 l/min
Maximum Delta Tw	0,6 ºC	1,1 ºC	1,1 ºC	1,3 ºC	2,3 ºC	3,0 ºC	4,6 ºC	4,6 ºC	4,6 ºC	4,6 ºC	4,6 ºC
Environmental Temperature	+5 °C to +50 °C										
Maximum Humidity	90 %										
User Interface	Siemens HMI KTP700 (cabinet L) ; SiCtech PLC (cabinet S)										
Standard Fieldbus	ModBus TCP/IP (only in the L Cabinet)										
Optional Fieldbuses	Profinet, DeviceNet, (only in the L Cabinet)										
Optional External Control Unit	The Unit comprises: External Star/stop, External power control, External Emergency Stop (only in the L Cabinet)										
Optional Temperature Control	Low temperature Pyrometer (150-400 ºC); High temperature Pyrometer (500-1000 ºC)										
Optional Cable Length	10 m										

NOTE:
[1] At Nominal Load
[2] At Adaptive Mode
[3] For 480 VAC contact with SiCtech

Subject to changes

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