MPS Series

Industrial Switch-mode Microwave Power Supply Systems For 915 MHz Magnetrons

MKS, MPS Series industrial microwave power supplies are modular, compact, air-cooled and water-cooled, switch-mode, variable power supplies designed to drive 915 MHz magnetrons from 15 to 100 kW. MPS systems include a controller unit (AC571) and one or more multiple power units based on MKS MPS Series power supplies. All MPS Series industrial microwave power supplies feature low ripple (<2%) continuous power control, alarm management via remote control panel, and system status indication. The new Active PFC design ensures low THD, near-unity power factor, and reduced harmonic emissions.



Product Features

- Wide input voltage range 370 - 520 3Ph VAC
- Active PFC (PF > 0.99)
- Low THDi <5%
- High efficiency for reduced operating costs (95% line to anodic)
- Robust industrial design for maximum uptime
- Easy retrofit with full backward compatibility
- Optimized for worldwide deployment (3 x 400 VAC - 3 x 480 VAC)
- Future-ready platform for next-generation microwave systems

Key Benefits

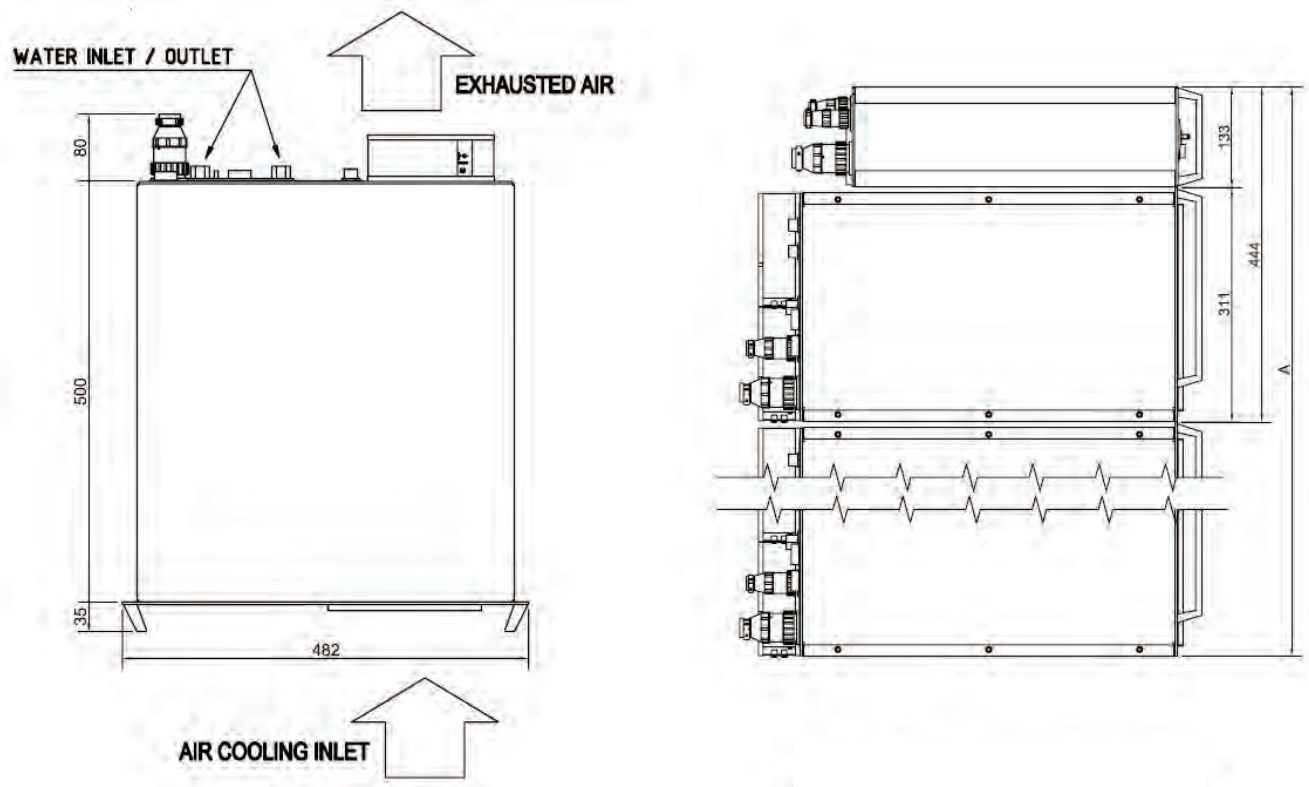
- Various power available - smart power supplies integration
- Compact system, reliable and cost efficient
- Continuous power control and alarm management

Specifications

Controller (AC571)	
AC Power Input	3 x 400 V 50/60 Hz or 3 x 480 V 50/60 Hz
Filament Output Stability	Within 1% for input fluctuations
Management of Alarm Situations	
Magnetron Overtemperature	The thermoswitch on the magnetron has detected a temperature over its threshold. [ALARM MAG. OVT]
Airflow	The quantity of air flowing through the magnetron is not enough. [ALARM AIRFLOW]
Alarms	Alarm on one of the three general-purpose alarm lines [ALARM ALARMS]
User Interlock	The User Interlock chain is open. [ALARM INTERLOCK]
Electromagnet	Alarm coming from the electromagnet of the tube [ALARM EMAGNET]
Filament	Alarm coming from the filament of the tube [ALARM FILAM]
Driver	PSU Driver alarm [ALARM DRIVER]
Power Stage	PSU Power Stage Error [ALARM PWR STG]
Air Temperature	PSU Internal Overtemperature [ALARM R AIR T]
Fieldbus	Alarm on Fieldbus communication [ALARM FBUS]
Communication	Alarm on the PSU communication bus [ALARM COMM]
Undercurrent	The total amount of requested anodic current from the generator exceeds the sum of the current for each active PSU. [ALARM UNDCURR]
Voltage	The working voltage of the magnetron is too high or too low than the voltage set-point. [ALARM OVRVOLT]
Arc	An arc has been detected in the waveguide. [ALARM ARC]
Leakage	PSU leakage [ALARM LEAKEGE]
Communication	MBUS Interface with Profibus or Modbus/TCP port
Dimensions	• 19” Standard Rack, 3U • Rack Depth: 440 mm without handles
Weight	16 kg
Power Unit (SM18xx)	
Main Supply	3 x 400 V 50/60 Hz or 3 x 480 V 50/60 Hz
Voltage Limit	±10% Minimum
Hardware Alarms	
Driver Alarm	The Internal MOSFET Driver detected a fault.
Power Stage Error	Electrical or thermal fault in the power section of the PSU
Overcurrent	Overcurrent event detected by the PSU.
Internal Overtemperature	The air flowing through the PSU is too hot or not enough.
Leakage	There is an anodic current leakage to ground.
Internal Alarm	Not used
Overvoltage	The anodic voltage has exceeded the maximum allowable voltage set by the AC571TU.
External Alarm	The unit has been frozen by a FREEZE procedure or it is in alarm state.
Transient Overvoltage	Overvoltage Cat. II According IEC 664
Intake Current	• @ 400 V: 40 A rms • @ 480 V: 34 A rms
Water Flow Rate for the Unit	min 2L/min (water not condensing 12°C - 35°C)
Dimensions	• 19” Standard Rack, 7U • Rack depth: 500 mm without handles
Weight	50 kg

MPS - Environmental Conditions	
Use	Indoor Use Only
Altitude	Tested Up to 2,000 m (~6,000 ft)
Temperature	5°C to 40°C (41-104°F)
Relative Humidity	• 80% for Temperature up to 31°C (88°F) • Decreasing Linearly to 50% RH at 40°C (104°F)
MPS - Physical	
Housing Cabinet Depth	800 mm (minimum)
Total Weight	
MPS 24	66 kg
MPS 48	116 kg
MPS 72	166 kg
MPS 96	226 kg
Cooling Requirements - Air Flow Intake and Water Cooling	
MPS 24	Air Intake: Approx 700 m^3/h water: 2 L/min
MPS 48	Air Intake: Approx 1500 m^3/h water: 4 L/min
MPS 72	Air Intake: Approx 2200 m^3/h water: 6 L/min
MPS 96	Air Intake: Approx 2800 m^3/h water: 8 L/min

Dimensional Drawing



Dimensional Drawing
Unless otherwise specified, dimensions are nominal values in millimeters.

Ordering Information

Please contact your local MKS sales office for price and availability information.

www.MKS.com

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