

Quasar is a line of switch-mode rectifiers for surface treatment processes, electro-winning and water treatment, that adopts pulse width modulation (PWM) technique for the controlling of current amplitude.

Electrical Features

- > High speed IGBT technology
- > Modular power platform and multi-tower interconnection
- > Microprocessor controlled
- > Up to 40% power saving versus Silicon Controlled Rectifier (SCR)
- > $\text{Cos } \varnothing \geq 0.93$ at rated load
- > Low output current ripple
- > High precision voltage and current regulation (1000 steps)
- > Fast response time and high stability to load variation (~1ms)

Hardware Features

- > 15 to 170cm height
- > 43 x 43cm base size
- > Light weight
- > Main switch and operator control panel in the front
- > All input/output connections in the back for easy access

Software Features

- > Simple output parameters and waveform programming from the operator panel (current, voltage, cycle time and ramp time)
- > Customized software available
- > A/h and A/min meters for precise thickness and dosing pumps control

— 2 Year Warranty —

Operation Modes

- > Manual
- > Automatic (Via PC or PLC)

Available Interfaces

- > RS485 *
- > RS232 *
- > Profibus-DP
- > DeviceNet
- > Analogue 0-10V
- > Analogue 4-20mA

* Standard feature

Quasar
500



12V/6000A DC air cooled, 400VAC

Quasar
300



12V/2000A DC air cooled, 400VAC

Quasar
100



12V/500A DC mini air cooled, 400VAC

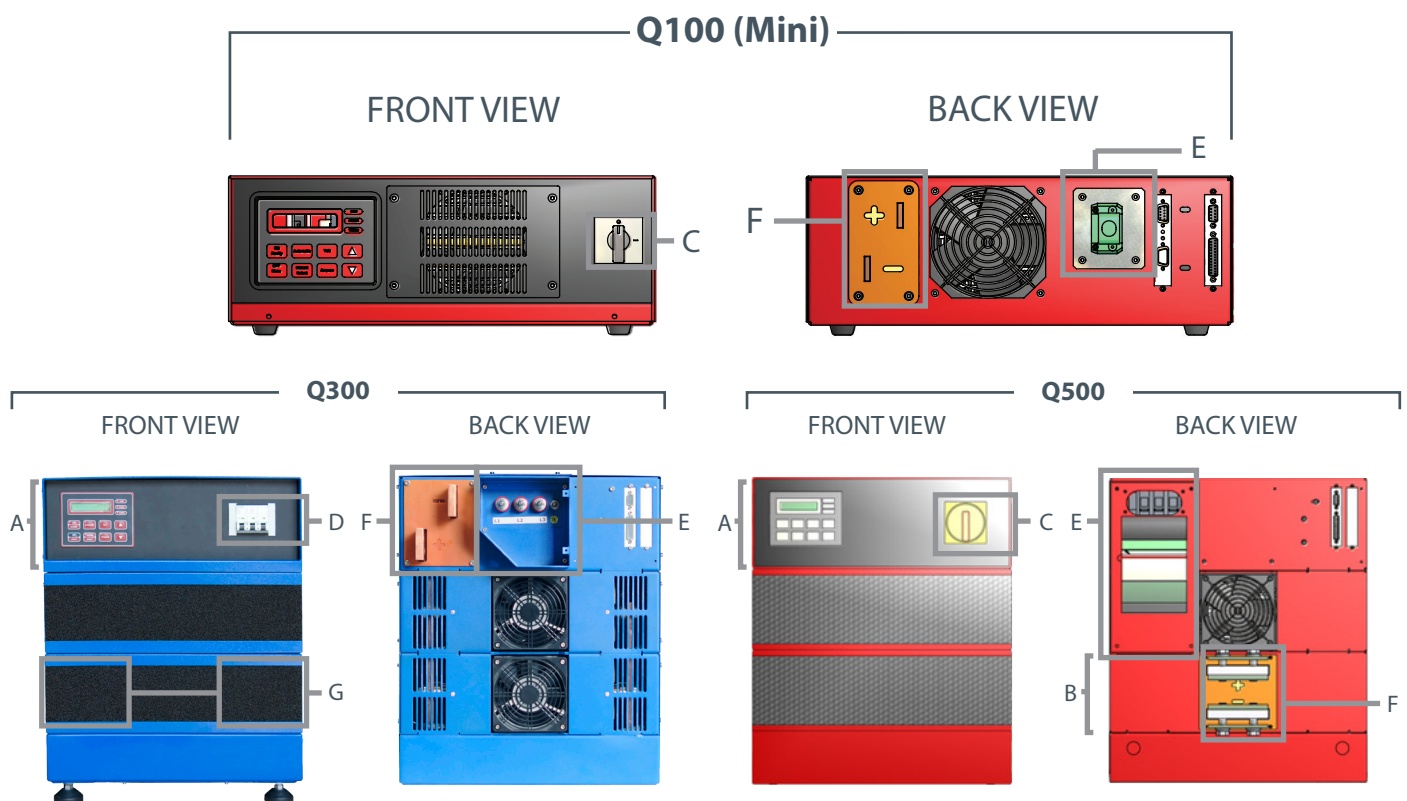
Machine Types

Type	Output ¹		
	Max voltage ² (V)	Max current per tower (A)	
		Air	Water
DC - Direct Current (forward)	5	5000	8000
	10	5000	8000
	12	5000	6000
	16	5000	5000
	20	4000	4000
	25	3200	3000
	30	2600	2500
	50	1500	1500
	60	1260	1000
	80	980	1000
	100	700	720
400	200	200	
DCR - Direct Current Reverse (forward and reverse)	10	2800	4000
	12	2800	6000
	16	2800	5000
	20	3000	2250
	25	2400	3000

¹ Based on machine's configurations with an input voltage of 400VAC.

² Standard voltages. Other values upon request. Please contact our technical center.

Hardware Differences of Quasar Models (Forward Configuration)



- > A. HEADER - Q300 & Q500 models
- > B. INTERMEDIATOR - Q500 model
- > C. MAIN I/O SWITCH - Q100 & Q500 models
- > D. CIRCUIT BREAKER - Q300 model
- > E. AC INPUT UNIT - Type, size and location vary per model- Q300 & Q500 models
- > F. OUTPUT CONNECTIONS - Location Varies Per Configuration
- > G. ADDITIONAL FANS ON EACH MODULE TO COOL PWR CARDS - Present only on Q300 model

Technical Specifications
ELECTRICAL SPECIFICATIONS

			Q100 model	Q300 model	Q500 model
Output	Power	DC	Up to 8kW	Up to 32kW (Max 3 power modules)	Up to 80kW per tower (Max 9 power modules)
		DCR	Up to 4kW	Up to 20kW (Max 1 reverse module)	Up to 65kW per tower (Max 3 reverse modules)
	Voltage	DC	5 - 450VDC standard		
		DCR	5 - 50VDC standard		
	Operation Mode	Current Control or Voltage Control			
	Control accuracy	1/1000 of max current or voltage			
	Precision	99% on entire range			
	Current regulation range	5 - 100% of max current (On Request 2% Available)			
	Voltage regulation range	10 - 100% of max voltage (On Request 5% Available) No voltage regulation without load			
	Current ripple (RMS)	< 2.0% of rated output current in current operation mode (< 1.0% on Request)			
	Efficiency	87% (typ.) @ rated load / 95% (for >= 160VDC) @ rated load			
	Regulation speed	10 - 90% in 250ms with 100ms reverse dead time			
Secondary withstand voltage	500VAC 50Hz 1min. between Secondary to Earth				
Main Supply	Line voltage	3 x 230VAC ± 10%, 3 x 400VAC ± 10%, 3 x 440VAC ± 10%, 3 x 480VAC ± 10%, 3 x 550VAC ± 10% or 3 x 600VAC ± 10%			
	Frequency	50 - 60Hz			
	Neutral	NOT USED			
	Power factor	> 93% @ rated load			
	Primary current	Max 20A	Max 55A	Max 160A per tower	
	Earth leakage current	See EMC filter input specifications			
	Primary withstand voltage	According to IEC 60204			

GENERAL SPECIFICATIONS

			Q100 model	Q300 model	Q500 model
Technology		Switching mode PWM, Full Bridge IGBT inverter			
Cooling Systems		Air (CFM is provided) Water (L/h and pressure drop is provided)			
Operation Conditions	Location	Indoor use only			
	Ambient temperature	0 - 40°C			
	Relative humidity	15 - 85% not condensing			
	Filter obstruction - air cooled	15% max			
	Water input temp. - water cooled	19 - 22°C			
Altitude	<= 2000m				
Degree of Protection	Air cooled	IP31	IP21 (on request NEMA12)		IP32
	Water cooled	IP43			IP43 (on request IP65)
Conformity of EU Directives		2006/95/EC - Low Voltage Directive 2004/108/EC - Electromagnetic Compatibility 2006/42/EC - Machines Directive			

SERIAL INTERFACE

Communication Ports

RS232

RS485

Communication Protocols

CRS-ASCII	RS232 point-to-point and RS485 network
Modbus-RTU	RS232 point-to-point and RS485 network
Profibus-DP (On request)	Profibus-DP network
DeviceNet (On request)	CAN bus network

PROTECTION

Surge

According to directive | EN 61000-4-5

2kV between each input phase and PE. 1kV across each input phase combination.

Output Short Circuit

Type	Software
Programmed limit	25% of I_{out_max}
Detection time	1ms

Phase Loss

Type	Hardware	Software
Programmed limit	Half cycle	Adjustable via configuration parameter

Thermal Protection

With PTC on each module

FULL LOAD HARMONICS DISTORTION

Harmonic	Freq. (Hz)	Absorbed Current Distortions
3	150	-
5	250	< 22.5%
7	350	< 12.5%
9	450	-
11	550	< 11.0%
13	650	< 7.6%
17	850	< 8.0%
19	950	< 4.8%
THD		MAX 30%

