MSA-60S SERIES

Product features:

100-240V wide voltage AC input

Up to 88% efficiency

Adjustable output voltage

Built-in auxiliary power supply

DC output indication

Protection types: short circuit, over current

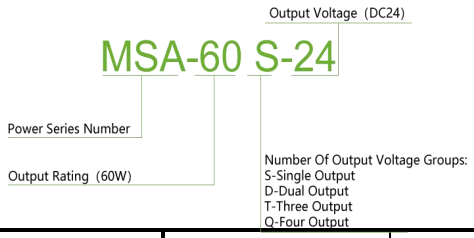
Optional moisture barrier spray

Product Description:

MSA-60S is a 60W single-group output machine-variable AC to DC power supply, the power supply input voltage range of 100-240VAC, and can provide a long time at the same time 24V、48V DC output. The operating temperature can reach 55℃.

Model Naming Rules:

AC/DC Single Output:

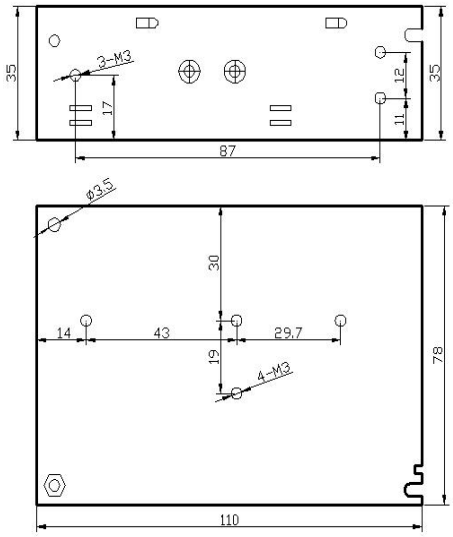


Model		MSA-60S-24V	MSA-60S-48V
Serial Number		MSA AC/DC	
Specifications And Models		60S-24	60S-48
Output Characteristics	Output Voltage	24V	48V
	Rated Current	2.5A	1.25A
	Rated Power	60W	
	Output Voltage Accuracy	±0.5%	
	Linear Adjustment Rate	±0.5%	
	Load Adjustment Ratio	±0.5%	
	Ripple And Noise	100mVp-p	
	Start-up/rise time	300ms, 50ms (at full load)	
	Hold Time	16ms/230 VAC	

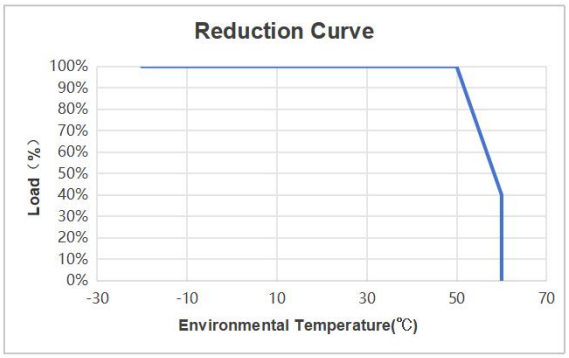
Input Characteristics	**Input Voltage Range**	100-240VAC		
	Frequency Range	47~63HZ		
	Overall Efficiency	88%	89%	
	Alternating Current (Electricity)	1.2A/220VAC		
	Surge Current	35A/230VAC		
	Leakage Current	< 1.0mA/250VAC		
Protective Properties	**Overloaded**	110-130% of rated output power		
		Protection type: shutdown limit mode, automatic recovery after abnormal load removal		
Functional Characteristics	**Output Voltage Adjustment**	Output voltage can be adjusted within ±10% of rated output		
	Auxiliary Power	14V@0.5A（±5%）		
Environmental Characteristics	**Working Temperature**	-20~+60℃ (refer to "Derating Curve")		
	Operating Humidity	20%~90%RH(No condensation)		
	Storage Temperature、Humidity	’ -40~+85℃，10~95%RH		
	Temperature Coefficient	±0.02%/℃（0-50℃）		
	Vibration Resistance	10~500Hz, 2G10 min/cycle, 60 min each for X, Y, Z axes		
Safety and EMC	**Safety Norm**	UL 62368-1, TUV EN 55032, EAC TP TC 004, CCC GB4943.1, BSMI CNS14336-1 Certificated by		
	Pressure Resistance	1/P-0/P：3KVAC 1/P-FG：2KVAC 0/P-FG：0.5KVAC		
	Insulation Impedance	1/P-0/P， 1/P-FG，0/P-FG：100M 0hms/500VDC/25℃/70%RH		
	Electromagnetic Compatibility Emission	Parameters	Standardized	Test Level/Remarks
		Conducted	EN55032 (CISPR32) / EN55011	Class B
		Radiated	EN55032 (CISPR32) / EN55011	Class A
		Harmonic	EN61000-3-2	
		Voltage Flicker	EN61000-3-3	
	Electromagnetic Compatibility Immunity	EN55024 , EN61204-3, EN61000-6-2, CCC GB17625.1, GB/T9254, BSMI CNS13438		
		Parameters	Standardized	Test Level/Remarks
		ESD	EN61000-4-2	Level 3,8KV air; Level 2,4KV
		Radiated	EN61000-4-3	Level 3
		EFT/Burst	EN61000-4-4	Level 3
		Surge	EN61000-4-5	Level 4,4KV/Line-Earth; Level 3,2KV/Line-Line
		Conducted	EN61000-4-6	Level 3
		Magnetic Field	EN61000-4-8	Level 4
		Voltage Dips and Interruptions	EN61000-4-11	>95% dip 0.5 periods, 30% dip 25 periods, >95% interruptions 250 periods
	MTBF	^313.1Khrs TelcordiaSR-332(Bellcore): ^116.75Khrs MIL-HDBK-217F(25℃)		
Measure	**Outline Dimension**	110*78*35（L*W*H）		
	Packing Size	117*85*44mm（L*W*H）		

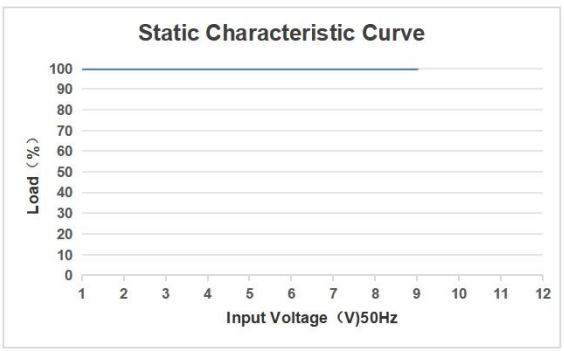
Other Parameters	**Quality Assurance**	5-year warranty
	Net Weight	0.194kg
	Gross Weight	0.215kg
	Installation Mode	Vertical/horizontal installation
	Aapplication	Industrial control or automation devices Test and Measurement Instruments Laser related machines Aging equipment RF applications
	Note	1. All specifications are measured at 230VAC input, rated load, 25°C ambient temperature, unless otherwise noted. 2. Ripple and noise measurement method: using a 12 "twisted pair, while the terminal to be connected in parallel to the 0.1uf and 47uf capacitors, in the 20MHZ bandwidth for measurement. 3. Accuracy: Includes setup error, linear and load adjustability. 4. The power supply should be regarded as a part of the components in the system, all EMC tests will be tested by mounting the test specimen on a metal iron plate with a thickness of 1mm, a length of 360mm and a width of 360mm. The power supply needs to be combined with the terminal equipment for EMC-related confirmation. 5. When the altitude exceeds 2,000 meters (6,500 feet), the ambient temperature decreases at a rate of 3.5°C/1,000m for fanless models and 5°C/1,000m for fanned models.

Installation Size（mm)



Hole number	Recommended Screw Models	Maximum penetration depth L	Recommended installation torque
①	M3	4mm	4-6Kgf-cm
②	M3	3mm	4-6Kgf-cm





MSA-70S SERIES

Product features:

100-240V wide voltage AC input

Up to 88% efficiency

Adjustable output voltage

Built-in auxiliary power supply

DC output indication

Protection types: short circuit, over current

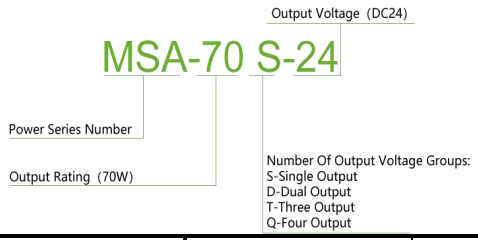
Optional moisture barrier spray

Product Description:

MSA-70S is a 70W single-group output machine-variable AC to DC power supply, the power supply input voltage range of 100-240VAC, and can provide a long time at the same time 24V、48V DC output. The operating temperature can reach 55℃.

Model Naming Rules:

AC/DC Single Output:

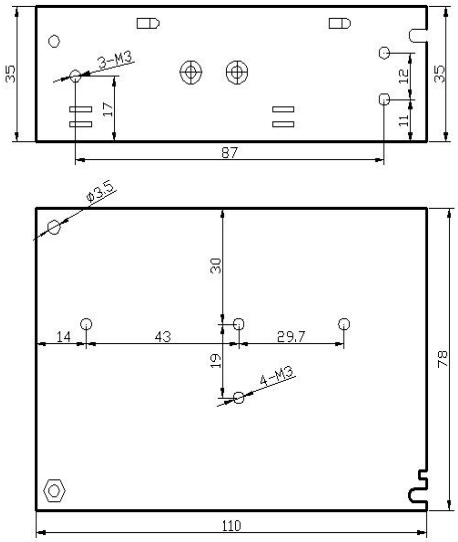


Model		MSA-70S-24V	MSA-70S-48V
Serial Number		MSA AC/DC	
Specifications And Models		70S-24	70S-48
Output Characteristics	Output Voltage	24V	48V
	Rated Current	3A	1.5A
	Rated Power	70W	
	Output Voltage Accuracy	±0.5%	
	Linear Adjustment Rate	±0.5%	
	Load Adjustment Ratio	±0.5%	
	Ripple And Noise	100mVp-p	
	Start-up/rise time	300ms, 50ms (at full load)	
	Hold Time	16ms/230 VAC	

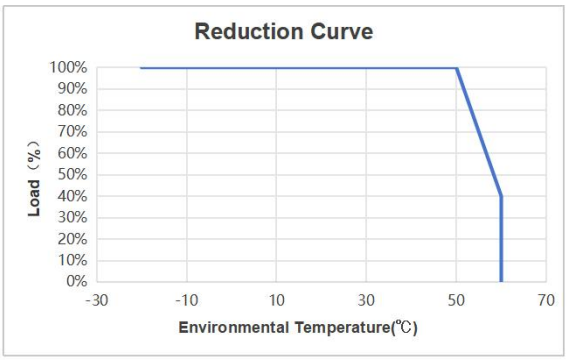
Input Characteristics	**Input Voltage Range**	100-240VAC		
	Frequency Range	47~63HZ		
	Overall Efficiency	88%	89%	
	Alternating Current (Electricity)	0.35A/220VAC		
	Surge Current	35A/230VAC		
	Leakage Current	< 1.0mA/250VAC		
Protective Properties	**Overloaded**	110-130% of rated output power		
		Protection type: shutdown limit mode, automatic recovery after abnormal load removal		
Functional Characteristics	**Output Voltage Adjustment**	Output voltage can be adjusted within ±10% of rated output		
	Auxiliary Power	14V@0.5A（±5%）		
Environmental Characteristics	**Working Temperature**	-20~+60℃ (refer to "Derating Curve")		
	Operating Humidity	20%~90%RH(No condensation)		
	Storage Temperature、Humidity	’ -40~+85℃，10~95%RH		
	Temperature Coefficient	±0.02%/℃（0-50℃）		
	Vibration Resistance	10~500Hz, 2G10 min/cycle, 60 min each for X, Y, Z axes		
Safety and EMC	**Safety Norm**	UL 62368-1, TUV EN 55032, EAC TP TC 004, CCC GB4943.1, BSMI CNS14336-1 Certificated by		
	Pressure Resistance	1/P-0/P：3KVAC 1/P-FG：2KVAC 0/P-FG：0.5KVAC		
	Insulation Impedance	1/P-0/P， 1/P-FG，0/P-FG：100M 0hms/500VDC/25℃/70%RH		
	Electromagnetic Compatibility Emission	Parameters	Standardized	Test Level/Remarks
		Conducted	EN55032 (CISPR32) / EN55011	Class B
		Radiated	EN55032 (CISPR32) / EN55011	Class A
		Harmonic	EN61000-3-2	
		Voltage Flicker	EN61000-3-3	
	Electromagnetic Compatibility Immunity	EN55024 , EN61204-3, EN61000-6-2, CCC GB17625.1, GB/T9254, BSMI CNS13438		
		Parameters	Standardized	Test Level/Remarks
		ESD	EN61000-4-2	Level 3,8KV air; Level 2,4KV
		Radiated	EN61000-4-3	Level 3
		EFT/Burst	EN61000-4-4	Level 3
		Surge	EN61000-4-5	Level 4,4KV/Line-Earth; Level 3,2KV/Line-Line
		Conducted	EN61000-4-6	Level 3
		Magnetic Field	EN61000-4-8	Level 4
		Voltage Dips and Interruptions	EN61000-4-11	>95% dip 0.5 periods, 30% dip 25 periods, >95% interruptions 250 periods
	MTBF	^313.1Khrs TelcordiaSR-332(Bellcore): ^116.75Khrs MIL-HDBK-217F(25℃)		
Measure	**Outline Dimension**	110*78*35（L*W*H）		
	Packing Size	117*85*44mm（L*W*H）		

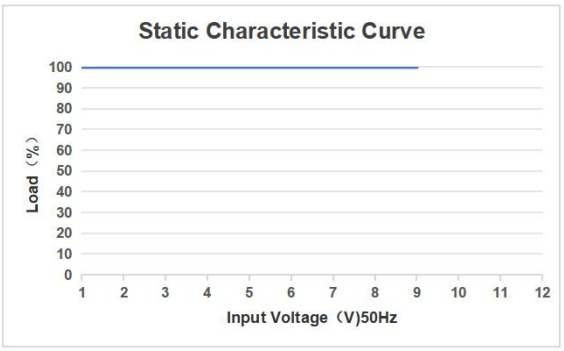
Other	**Quality Assurance**	5-year warranty
	Net Weight	0.194kg
	Gross Weight	0.215kg
	Installation Mode	Vertical/horizontal installation
	Aapplication	Industrial control or automation devices Test and Measurement Instruments Laser related machines Aging equipment RF applications
	Note	1. All specifications are measured at 230VAC input, rated load, 25°C ambient temperature, unless otherwise noted. 2. Ripple and noise measurement method: using a 12 "twisted pair, while the terminal to be connected in parallel to the 0.1uf and 47uf capacitors, in the 20MHZ bandwidth for measurement. 3. Accuracy: Includes setup error, linear and load adjustability. 4. The power supply should be regarded as a part of the components in the system, all EMC tests will be tested by mounting the test specimen on a metal iron plate with a thickness of 1mm, a length of 360mm and a width of 360mm. The power supply needs to be combined with the terminal equipment for EMC-related confirmation. 5. When the altitude exceeds 2,000 meters (6,500 feet), the ambient temperature decreases at a rate of 3.5°C/1,000m for fanless models and 5°C/1,000m for fanned models.

Installation Size（mm)



Hole number	Recommended Screw Models	Maximum penetration depth L	Recommended installation torque
①	M3	4mm	4-6Kgf-cm
②	M3	3mm	4-6Kgf-cm





MSA-100S SERIES

Product features:

100-240V wide voltage AC input

Up to 88% efficiency

Adjustable output voltage

Built-in auxiliary power supply

DC output indication

Protection types: short circuit, over current

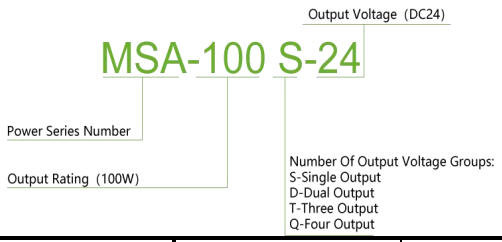
Optional moisture barrier spray

Product Description:

MSA-100S is a 100W single-group output machine-variable AC to DC power supply, the power supply input voltage range of 100-240VAC, and can provide a long time at the same time 24V、48V DC output. The operating temperature can reach 55℃.

Model Naming Rules:

AC/DC Single Output:

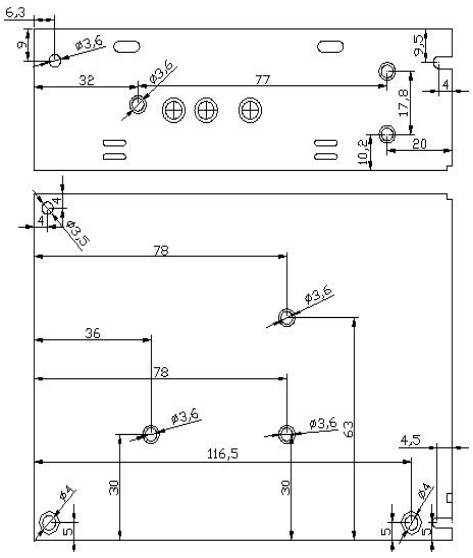


Model		MSA-100S-24V	MSA-100S-48V
Serial Number		MSA AC/DC	
Specifications And Models		100S-24	100S-48
Output Characteristics	Output Voltage	24V	48V
	Rated Current	4.2A	2.1A
	Rated Power	100W	
	Output Voltage Accuracy	±0.5%	
	Linear Adjustment Rate	±1%	
	Load Adjustment Ratio	±1%	
	Ripple And Noise	100mVp-p	
	Start-up/rise time	300ms, 50ms (at full load)	
	Hold Time	16ms/230 VAC	

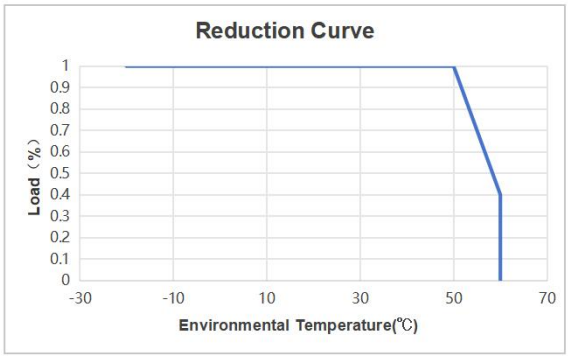
Input Characteristics	**Input Voltage Range**	100-240VAC		
	Frequency Range	47~63HZ		
	Overall Efficiency	88%	89%	
	Alternating Current (Electricity)	1.3A/220VAC		
	Surge Current	35A/230VAC		
	Leakage Current	< 1.0mA/250VAC		
Protective Properties	**Overloaded**	110-130% of rated output power		
		Protection type: hiccup protection mode, automatic recovery after abnormal load removal		
Functional Characteristics	**Output Voltage Adjustment**	Output voltage can be adjusted within ±10% of rated output		
	Auxiliary Power	14V@0.5A（±5%）		
Environmental Characteristics	**Working Temperature**	-20~+60℃ (refer to "Derating Curve")		
	Operating Humidity	20%~90%RH(No condensation)		
	Storage Temperature、Humidity	’ -40~+85℃，10~95%RH		
	Temperature Coefficient	±0.02%/℃（0-50℃）		
	Vibration Resistance	10~500Hz, 2G10 min/cycle, 60 min each for X, Y, Z axes		
Safety and EMC	**Safety Norm**	UL 62368-1, TUV EN 55032, EAC TP TC 004, CCC GB4943.1, BSMI CNS14336-1 Certificated by		
	Pressure Resistance	1/P-0/P：3KVAC 1/P-FG：2KVAC 0/P-FG：0.5KVAC		
	Insulation Impedance	1/P-0/P， 1/P-FG，0/P-FG：100M 0hms/500VDC/25℃/70%RH		
	Electromagnetic Compatibility Emission	Parameters	Standardized	Test Level/Remarks
		Conducted	EN55032 (CISPR32) / EN5501	Class B
		Radiated	EN55032 (CISPR32) / EN5501	Class A
		Harmonic	EN61000-3-2	
		Voltage Flicker	EN61000-3-3	
	Electromagnetic Compatibility Immunity	EN55024 , EN61204-3, EN61000-6-2, CCC GB17625.1, GB/T9254, BSMI CNS13438		
		Parameters	Standardized	Test Level/Remarks
		ESD	EN61000-4-2	Level 3,8KV air; Level 2,4KV
		Radiated	EN61000-4-3	Level 3
		EFT/Burst	EN61000-4-4	Level 3
		Surge	EN61000-4-5	Level 4,4KV/Line-Earth; Level 3,2KV/Line-Line
		Conducted	EN61000-4-6	Level 3
		Magnetic Field	EN61000-4-8	Level 4
		Voltage Dips and Interruptions	EN61000-4-11	>95% dip 0.5 periods, 30% dip 25 periods, >95% interruptions 250 periods
	MTBF	^313.1Khrs TelcordiaSR-332(Bellcore): ^116.75Khrs MIL-HDBK-217F(25℃)		
Measure	**Outline Dimension**	130*99*40mm（L*W*H）		
	Packing Size	133*103*46mm（L*W*H）		

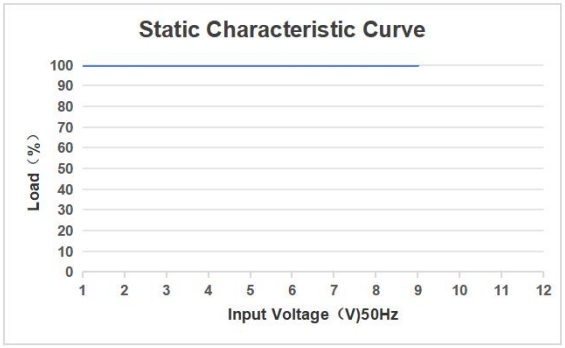
Other	**Quality Assurance**	5-year warranty
	Net Weight	0.280kg
	Gross Weight	0.312kg
	Installation Mode	Vertical/horizontal installation
	Aapplication	Industrial control or automation devices Test and Measurement Instruments Laser related machines Aging equipment RF applications
	Note	1. All specifications are measured at 230VAC input, rated load, 25°C ambient temperature, unless otherwise noted. 2. Ripple and noise measurement method: using a 12 "twisted pair, while the terminal to be connected in parallel to the 0.1uf and 47uf capacitors, in the 20MHZ bandwidth for measurement. 3. Accuracy: Includes setup error, linear and load adjustability. 4. The power supply should be regarded as a part of the components in the system, all EMC tests will be tested by mounting the test specimen on a metal iron plate with a thickness of 1mm, a length of 360mm and a width of 360mm. The power supply needs to be combined with the terminal equipment for EMC-related confirmation. 5. When the altitude exceeds 2,000 meters (6,500 feet), the ambient temperature decreases at a rate of 3.5°C/1,000m for fanless models and 5°C/1,000m for fanned models.

Installation Size（mm)



Hole number	Recommended Screw Models	Maximum penetration depth L	Recommended installation torque
①	M3	4mm	4-6Kgf-cm
②	M3	4mm	4-6Kgf-cm





MSA-120S SERIES

Product features:

100-240V wide voltage AC input

Up to 88% efficiency

Adjustable output voltage

Built-in auxiliary power supply

DC output indication

Protection types: short circuit, over current

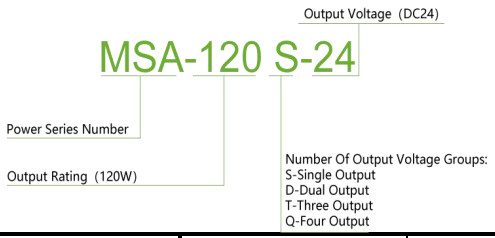
Optional moisture barrier spray

Product Description:

MSA-120S is a 120W single-group output machine-variable AC to DC power supply, the power supply input voltage range of 100-240VAC, and can provide a long time at the same time 24V、48V DC output. The operating temperature can reach 55℃.

Model Naming Rules:

AC/DC Single Output:

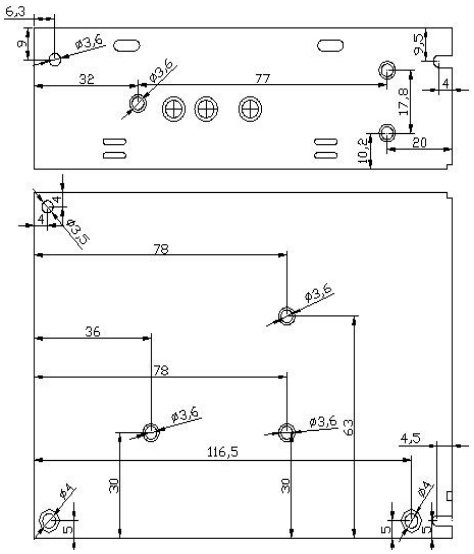


Model		MSA-120S-24V	MSA-120S-48V
Serial Number		MSA AC/DC	
Specifications And Models		120S-24	120S-48
Output Characteristics	Output Voltage	24V	48V
	Rated Current	5A	2.5A
	Rated Power	120W	
	Output Voltage Accuracy	±0.5%	
	Linear Adjustment Rate	±1%	
	Load Adjustment Ratio	±1%	
	Ripple And Noise	100mVp-p	
	Start-up/rise time	300ms, 50ms (at full load)	
	Hold Time	16ms/230 VAC	

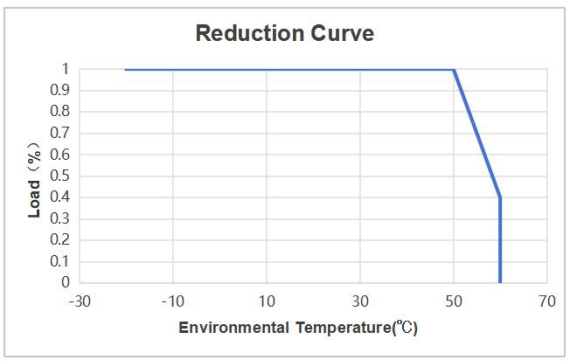
Input Characteristics	**Input Voltage Range**	100-240VAC		
	Frequency Range	47~63HZ		
	Overall Efficiency	88%	89%	
	Alternating Current (Electricity)	1.3A/220VAC		
	Surge Current	35A/230VAC		
	Leakage Current	< 1.0mA/250VAC		
Protective Properties	**Overloaded**	110-130% of rated output power		
		Protection type: hiccup protection mode, automatic recovery after abnormal load removal		
Functional Characteristics	**Output Voltage Adjustment**	Output voltage can be adjusted within ±10% of rated output		
	Auxiliary Power	14V@0.5A（±5%）		
Environmental Characteristics	**Working Temperature**	-20~+60℃ (refer to "Derating Curve")		
	Operating Humidity	20%~90%RH(No condensation)		
	Storage Temperature、Humidity	’ -40~+85℃，10~95%RH		
	Temperature Coefficient	±0.02%/℃（0-50℃）		
	Vibration Resistance	10~500Hz, 2G10 min/cycle, 60 min each for X, Y, Z axes		
Safety and EMC	**Safety Norm**	UL 62368-1, TUV EN 55032, EAC TP TC 004, CCC GB4943.1, BSMI CNS14336-1 Certificated by		
	Pressure Resistance	1/P-0/P：3KVAC 1/P-FG：2KVAC 0/P-FG：0.5KVAC		
	Insulation Impedance	1/P-0/P， 1/P-FG，0/P-FG：100M 0hms/500VDC/25℃/70%RH		
	Electromagnetic Compatibility Emission	Parameters	Standardized	Test Level/Remarks
		Conducted	EN55032 (CISPR32) / EN5501	Class B
		Radiated	EN55032 (CISPR32) / EN5501	Class A
		Harmonic	EN61000-3-2	
		Voltage Flicker	EN61000-3-3	
	Electromagnetic Compatibility Immunity	EN55024 , EN61204-3, EN61000-6-2, CCC GB17625.1, GB/T9254, BSMI CNS13438		
		Parameters	Standardized	Test Level/Remarks
		ESD	EN61000-4-2	Level 3,8KV air; Level 2,4KV
		Radiated	EN61000-4-3	Level 3
		EFT/Burst	EN61000-4-4	Level 3
		Surge	EN61000-4-5	Level 4,4KV/Line-Earth; Level 3,2KV/Line-Line
		Conducted	EN61000-4-6	Level 3
		Magnetic Field	EN61000-4-8	Level 4
		Voltage Dips and Interruptions	EN61000-4-11	>95% dip 0.5 periods, 30% dip 25 periods, >95% interruptions 250 periods
	MTBF	^313.1Khrs TelcordiaSR-332(Bellcore): ^116.75Khrs MIL-HDBK-217F(25℃)		
Measure	**Outline Dimension**	130*99*40mm（L*W*H）		
	Packing Size	133*103*46mm（L*W*H）		

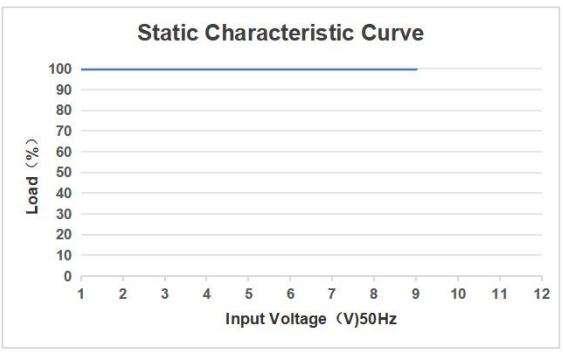
Other	**Quality Assurance**	5-year warranty
	Net Weight	0.280kg
	Gross Weight	0.312kg
	Installation Mode	Vertical/horizontal installation
	Aapplication	Industrial control or automation devices Test and Measurement Instruments Laser related machines Aging equipment RF applications
	Note	1. All specifications are measured at 230VAC input, rated load, 25°C ambient temperature, unless otherwise noted. 2. Ripple and noise measurement method: using a 12 "twisted pair, while the terminal to be connected in parallel to the 0.1uf and 47uf capacitors, in the 20MHZ bandwidth for measurement. 3. Accuracy: Includes setup error, linear and load adjustability. 4. The power supply should be regarded as a part of the components in the system, all EMC tests will be tested by mounting the test specimen on a metal iron plate with a thickness of 1mm, a length of 360mm and a width of 360mm. The power supply needs to be combined with the terminal equipment for EMC-related confirmation. 5. When the altitude exceeds 2,000 meters (6,500 feet), the ambient temperature decreases at a rate of 3.5°C/1,000m for fanless models and 5°C/1,000m for fanned models.

Installation Size（mm)



Hole number	Recommended Screw Models	Maximum penetration depth L	Recommended installation torque
①	M3	4mm	4-6Kgf-cm
②	M3	4mm	4-6Kgf-cm





MSA-150S SERIES

Product features:

115/230 AC input

Up to 88% efficiency

Adjustable output voltage

Built-in auxiliary power supply

DC output indication

Protection types: short circuit, over current

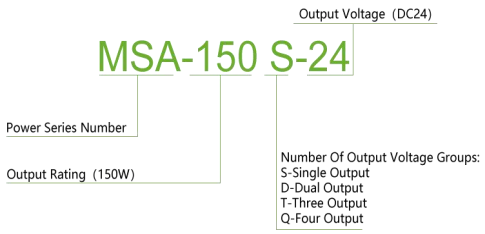
Optional moisture barrier spray

Product Description:

MSA-150S is a 150W single output chassis type AC to DC power supply, the power supply input voltage range of 115/230VAC, and can provide 24V, 48V DC output simultaneously for a long time. The operating temperature can reach 55℃.

Model Naming Rules:

AC/DC Single Output:

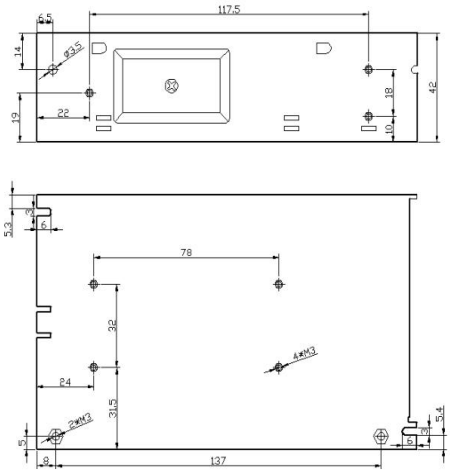


Model		MSA-150S-24V	MSA-150S-48V
Serial Number		MSA AC/DC	
Specifications And Models		150S-24	150S-48
Output Characteristics	Output Voltage	24V	48V
	Rated Current	6.5A	3.2A
	Rated Power	150W	
	Output Voltage Accuracy	±0.5%	
	Linear Adjustment Rate	±0.5%	
	Load Adjustment Ratio	±0.5%	
	Ripple And Noise	150mVp-p	
	Start-up/rise time	300ms, 50ms (at full load)	
	Hold Time	16ms/230 VAC	

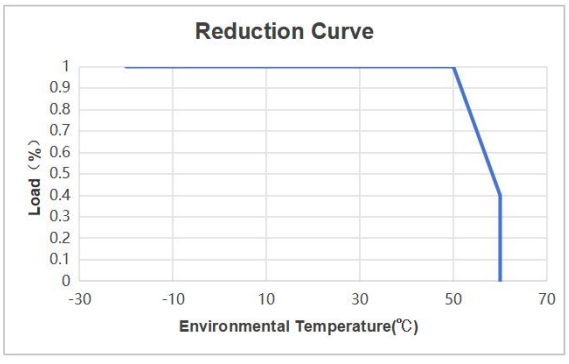
Input Characteristics	**Input Voltage Range**	100-240VAC		
	Frequency Range	47~63HZ		
	Overall Efficiency	88%	89%	
	Alternating Current (Electricity)	2.2A/220VAC		
	Surge Current	35A/230VAC		
	Leakage Current	< 1.0mA/250VAC		
Protective Properties	**Overloaded**	110-130% of rated output power		
		Protection type: hiccup protection mode, automatic recovery after abnormal load removal		
Functional Characteristics	**Output Voltage Adjustment**	Output voltage can be adjusted within ±10% of rated output		
	Auxiliary Power	14V@0.5A（±5%）		
Environmental Characteristics	**Working Temperature**	-20~+60℃ (refer to "Derating Curve")		
	Operating Humidity	20%~90%RH(No condensation)		
	Storage Temperature、Humidity	’ -40~+85℃，10~95%RH		
	Temperature Coefficient	±0.02%/℃（0-50℃）		
	Vibration Resistance	10~500Hz, 2G10 min/cycle, 60 min each for X, Y, Z axes		
Safety and EMC	**Safety Norm**	UL 62368-1, TUV EN 55032, EAC TP TC 004, CCC GB4943.1, BSMI CNS14336-1 Certificated by		
	Pressure Resistance	1/P-0/P：3KVAC 1/P-FG：2KVAC 0/P-FG：0.5KVAC		
	Insulation Impedance	1/P-0/P， 1/P-FG，0/P-FG：100M 0hms/500VDC/25℃/70%RH		
	Electromagnetic Compatibility Emission	Parameters	Standardized	Test Level/Remarks
		Conducted	EN55032 (CISPR32) / EN5501	Class B
		Radiated	EN55032 (CISPR32) / EN5501	Class A
		Harmonic	EN61000-3-2	
		Voltage Flicker	EN61000-3-3	
	Electromagnetic Compatibility Immunity	EN55024 , EN61204-3, EN61000-6-2, CCC GB17625.1, GB/T9254, BSMI CNS13438		
		Parameters	Standardized	Test Level/Remarks
		ESD	EN61000-4-2	Level 3,8KV air; Level 2,4KV
		Radiated	EN61000-4-3	Level 3
		EFT/Burst	EN61000-4-4	Level 3
		Surge	EN61000-4-5	Level 4,4KV/Line-Earth; Level 3,2KV/Line-Line
		Conducted	EN61000-4-6	Level 3
		Magnetic Field	EN61000-4-8	Level 4
		Voltage Dips and Interruptions	EN61000-4-11	>95% dip 0.5 periods, 30% dip 25 periods, >95% interruptions 250 periods
	MTBF	^313.1Khrs TelcordiaSR-332(Bellcore): ^116.75Khrs MIL-HDBK-217F(25℃)		
Measure	**Outline Dimension**	160*98*42mm（L*W*H）		
	Packing Size	165*104*48mm（L*W*H）		

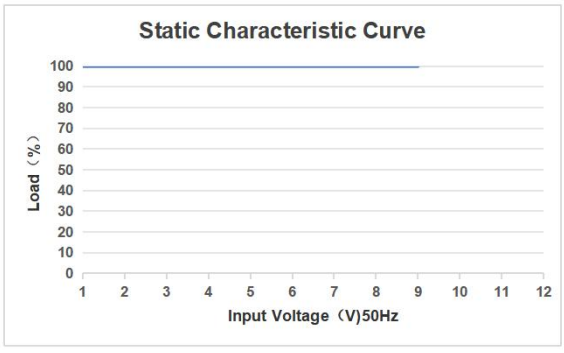
Other	**Quality Assurance**	5-year warranty
	Net Weight	0.408kg
	Gross Weight	0.440kg
	Installation Mode	Vertical/horizontal installation
	Aapplication	Industrial control or automation devices Test and Measurement Instruments Laser related machines Aging equipment RF applications
	Note	1. All specifications are measured at 230VAC input, rated load, 25°C ambient temperature, unless otherwise noted. 2. Ripple and noise measurement method: using a 12 "twisted pair, while the terminal to be connected in parallel to the 0.1uf and 47uf capacitors, in the 20MHZ bandwidth for measurement. 3. Accuracy: Includes setup error, linear and load adjustability. 4. The power supply should be regarded as a part of the components in the system, all EMC tests will be tested by mounting the test specimen on a metal iron plate with a thickness of 1mm, a length of 360mm and a width of 360mm. The power supply needs to be combined with the terminal equipment for EMC-related confirmation. 5. When the altitude exceeds 2,000 meters (6,500 feet), the ambient temperature decreases at a rate of 3.5°C/1,000m for fanless models and 5°C/1,000m for fanned models.

Installation Size（mm)



Hole number	Recommended Screw Models	Maximum penetration depth L	Recommended installation torque
①	M3	6mm	4-6Kgf-cm
②	M3	4mm	4-6Kgf-cm
③	M3	2mm	4-6Kgf-cm





MSA-250S SERIES

Product features:

115/230 AC input

Up to 88% efficiency

Adjustable output voltage

Built-in auxiliary power supply

DC output indication

Protection types: short circuit, over current

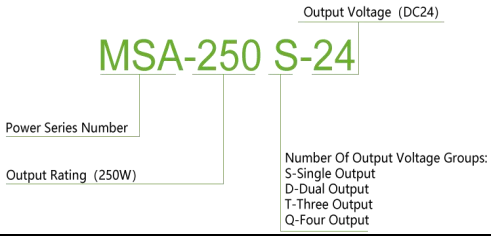
Optional moisture barrier spray

Product Description:

MSA-250S is a 250W single output AC to DC power supply, the whole series input voltage range 115V/230VAC, and can provide DC output to meet most of the industrial needs. Each model can be air-cooled by an internal speed-controlled fan, and can operate at temperatures up to 50 degrees Celsius.

Model Naming Rules:

AC/DC Single Output:

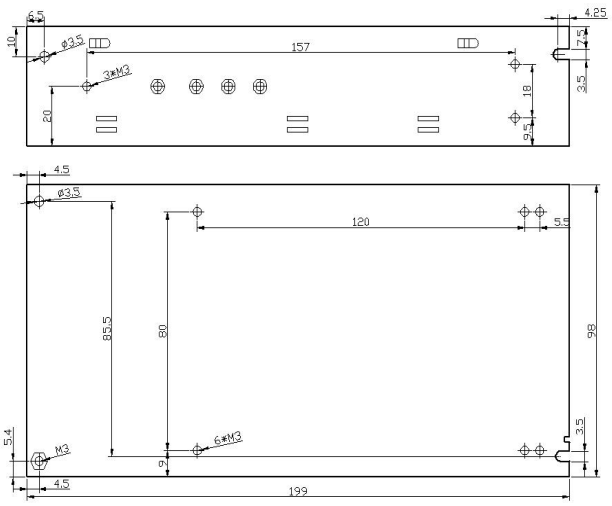


Model		MSA-250S-24V	MSA-250S-48V
Serial Number		MSA AC/DC	
Specifications And Models		250S-24	250S-48
Output Characteristics	Output Voltage	24V	48V
	Rated Current	10A	5.3A
	Rated Power	250W	
	Output Voltage Accuracy	±0.5%	
	Linear Adjustment Rate	±0.5%	
	Load Adjustment Ratio	±0.5%	
	Ripple And Noise	240mVp-p	
	Start-up/rise time	300ms, 50ms (at full load)	
	Hold Time	16ms/230 VAC	

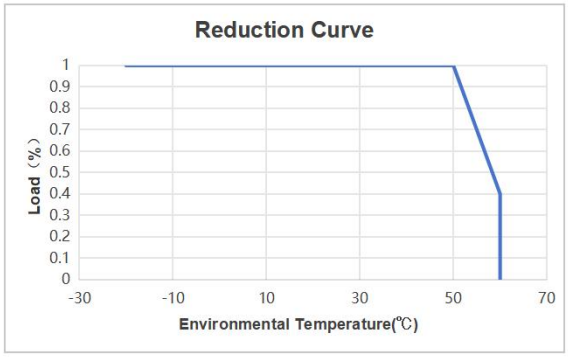
Input Characteristics	**Input Voltage Range**	115/230VAC		
	Frequency Range	47~63HZ		
	Overall Efficiency	90%	91%	
	Alternating Current (Electricity)	4A/220VAC		
	Surge Current	40A/220VAC		
	Leakage Current	< 1.0mA/240VAC		
Protective Properties	**Overloaded**	130-150% of rated output power		
		Protection type: output voltage shutdown, automatic recovery after abnormal load removal		
Functional Characteristics	**Output Voltage Adjustment**	Output voltage can be adjusted within ±10% of rated output		
	Auxiliary Power	14V@0.5A（±5%）		
Environmental Characteristics	**Working Temperature**	-20~+60℃ (refer to "Derating Curve")		
	Operating Humidity	20%~90%RH(No condensation)		
	Storage Temperature、Humidity	’ -40~+85℃，10~95%RH		
	Temperature Coefficient	±0.02%/℃（0-50℃）		
	Vibration Resistance	10~500Hz, 2G10 min/cycle, 60 min each for X, Y, Z axes		
Safety and EMC	**Safety Norm**	UL 62368-1, TUV EN 55032, EAC TP TC 004, CCC GB4943.1, BSMI CNS14336-1 Certificated by		
	Pressure Resistance	1/P-0/P：1.5KVAC 1/P-FG：1.5KVAC 0/P-FG：0.5KVAC		
	Insulation Impedance	1/P-0/P， 1/P-FG，0/P-FG：100M 0hms/500VDC/25℃/70%RH		
	Electromagnetic Compatibility Emission	Parameters	Standardized	Test Level/Remarks
		Conducted	EN55032 (CISPR32) / EN5501	Class B
		Radiated	EN55032 (CISPR32) / EN5501	Class A
		Harmonic	EN61000-3-2	
		Voltage Flicker	EN61000-3-3	
	Electromagnetic Compatibility Immunity	EN55024 , EN61204-3, EN61000-6-2, CCC GB17625.1, GB/T9254, BSMI CNS13438		
		Parameters	Standardized	Test Level/Remarks
		ESD	EN61000-4-2	Level 3,8KV air; Level 2,4KV
		Radiated	EN61000-4-3	Level 3
		EFT/Burst	EN61000-4-4	Level 3
		Surge	EN61000-4-5	Level 4,4KV/Line-Earth; Level 3,2KV/Line-Line
		Conducted	EN61000-4-6	Level 3
		Magnetic Field	EN61000-4-8	Level 4
		Voltage Dips and Interruptions	EN61000-4-11	>95% dip 0.5 periods, 30% dip 25 periods, >95% interruptions 250 periods
	MTBF	^313.1Khrs TelcordiaSR-332(Bellcore): ^116.75Khrs MIL-HDBK-217F(25℃)		
Measure	**Outline Dimension**	199*98*40mm（L*W*H）		
	Packing Size	205*107*46mm（L*W*H）		

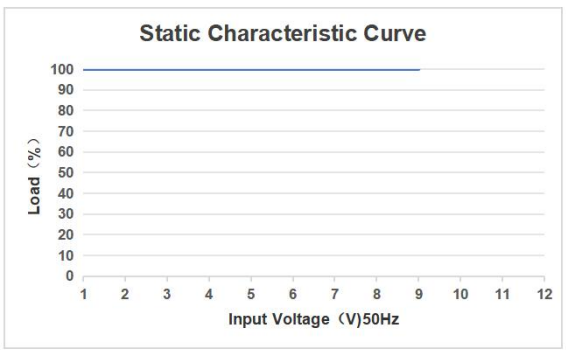
Other	**Quality Assurance**	5-year warranty
	Net Weight	0.475kg
	Gross Weight	0.515kg
	Installation Mode	Vertical/horizontal installation
	Aapplication	Industrial control or automation devices Test and Measurement Instruments Laser related machines Aging equipment RF applications
	Note	1. All specifications are measured at 230VAC input, rated load, 25°C ambient temperature, unless otherwise noted. 2. Ripple and noise measurement method: using a 12 "twisted pair, while the terminal to be connected in parallel to the 0.1uf and 47uf capacitors, in the 20MHZ bandwidth for measurement. 3. Accuracy: Includes setup error, linear and load adjustability. 4. The power supply should be regarded as a part of the components in the system, all EMC tests will be tested by mounting the test specimen on a metal iron plate with a thickness of 1mm, a length of 360mm and a width of 360mm. The power supply needs to be combined with the terminal equipment for EMC-related confirmation. 5. When the altitude exceeds 2,000 meters (6,500 feet), the ambient temperature decreases at a rate of 3.5°C/1,000m for fanless models and 5°C/1,000m for fanned models.

Installation Size（mm)



Hole number	Recommended Screw Models	Maximum penetration depth L	Recommended installation torque
①	M3	4mm	4-6Kgf-cm





MSA-350S SERIES

Product features:

115/230 AC input

Up to 88% efficiency

Adjustable output voltage

Built-in auxiliary power supply

DC output indication

Protection types: short circuit, over current

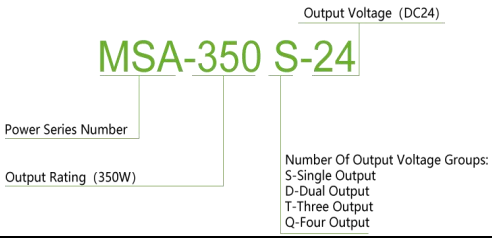
Optional moisture barrier spray

Product Description:

MSA-350S is a 350W single output AC to DC power supply, the whole series input voltage range 115V/230VAC, and can provide DC output to meet most of the industrial needs. Each model can be air-cooled by an internal speed-controlled fan, and can operate at temperatures up to 50 degrees Celsius.

Model Naming Rules:

AC/DC Single Output:

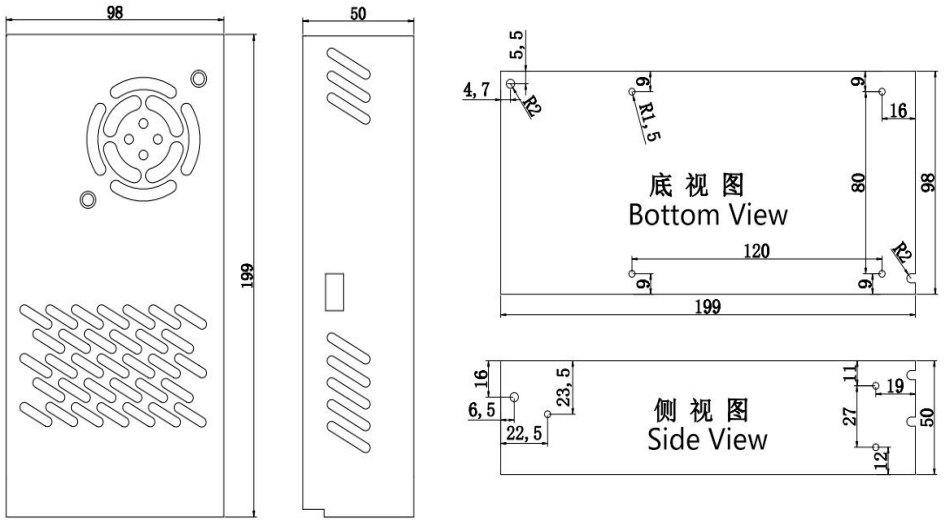


Model		MSA-350S-24V	MSA-350S-48V
Serial Number		MSA AC/DC	
Specifications And Models		350S-24	350S-48
Output Characteristics	Output Voltage	24V	48V
	Rated Current	14.6A	7.3A
	Rated Power	350W	
	Output Voltage Accuracy	±0.5%	
	Linear Adjustment Rate	±0.5%	
	Load Adjustment Ratio	±0.5%	
	Ripple And Noise	324mVp-p	
	Start-up/rise time	300ms, 50ms (at full load)	
	Hold Time	16ms/230 VAC	

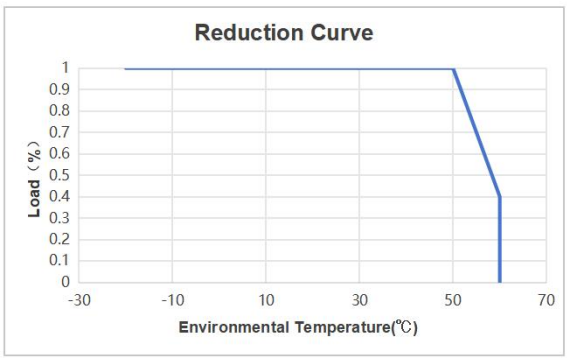
Input Characteristics	**Input Voltage Range**	115/230VAC		
	Frequency Range	47~63HZ		
	Overall Efficiency	88%	89%	
	Alternating Current (Electricity)	4A/220VAC		
	Surge Current	40A/220VAC		
	Leakage Current	< 1.0mA/240VAC		
Protective Properties	**Overloaded**	130-150% of rated output power		
		Protection type: output voltage shutdown, automatic recovery after abnormal load removal		
Functional Characteristics	**Output Voltage Adjustment**	Output voltage can be adjusted within ±10% of rated output		
	Auxiliary Power	14V@0.5A（±5%）		
Environmental Characteristics	**Working Temperature**	-20~+60℃ (refer to "Derating Curve")		
	Operating Humidity	20%~90%RH(No condensation)		
	Storage Temperature、Humidity	’ -40~+85℃，10~95%RH		
	Temperature Coefficient	±0.02%/℃（0-50℃）		
	Vibration Resistance	10~500Hz, 2G10 min/cycle, 60 min each for X, Y, Z axes		
Safety and EMC	**Safety Norm**	UL 62368-1, TUV EN 55032, EAC TP TC 004, CCC GB4943.1, BSMI CNS14336-1 Certificated by		
	Pressure Resistance	1/P-0/P：1.8KVAC 1/P-FG：1.8KVAC 0/P-FG：0.5KVAC		
	Insulation Impedance	1/P-0/P， 1/P-FG，0/P-FG：3089M 0hms/500VDC/25℃/70%RH		
	Electromagnetic Compatibility Emission	Parameters	Standardized	Test Level/Remarks
		Conducted	EN55032 (CISPR32) / EN5501	Class B
		Radiated	EN55032 (CISPR32) / EN5501	Class A
		Harmonic	EN61000-3-2	
		Voltage Flicker	EN61000-3-3	
	Electromagnetic Compatibility Immunity	EN55024 , EN61204-3, EN61000-6-2, CCC GB17625.1, GB/T9254, BSMI CNS13438		
		Parameters	Standardized	Test Level/Remarks
		ESD	EN61000-4-2	Level 3,8KV air; Level 2,4KV
		Radiated	EN61000-4-3	Level 3
		EFT/Burst	EN61000-4-4	Level 3
		Surge	EN61000-4-5	Level 4,4KV/Line-Earth; Level 3,2KV/Line-Line
		Conducted	EN61000-4-6	Level 3
		Magnetic Field	EN61000-4-8	Level 4
		Voltage Dips and Interruptions	EN61000-4-11	>95% dip 0.5 periods, 30% dip 25 periods, >95% interruptions 250 periods
	MTBF	^313.1Khrs TelcordiaSR-332(Bellcore): ^116.75Khrs MIL-HDBK-217F(25℃)		
Measure	**Outline Dimension**	199*98*50mm（L*W*H）		
	Packing Size	233*118*55mm（L*W*H）		

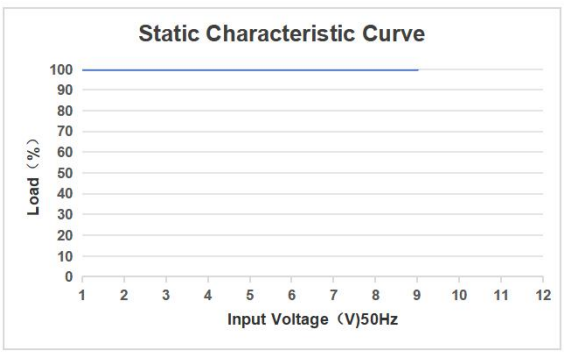
Other	**Quality Assurance**	5-year warranty
	Net Weight	0.590kg
	Gross Weight	0.627kg
	Installation Mode	Vertical/horizontal installation
	Aapplication	Industrial control or automation devices Test and Measurement Instruments Laser related machines Aging equipment RF applications
	Note	1. All specifications are measured at 230VAC input, rated load, 25°C ambient temperature, unless otherwise noted. 2. Ripple and noise measurement method: using a 12 "twisted pair, while the terminal to be connected in parallel to the 0.1uf and 47uf capacitors, in the 20MHZ bandwidth for measurement. 3. Accuracy: Includes setup error, linear and load adjustability. 4. The power supply should be regarded as a part of the components in the system, all EMC tests will be tested by mounting the test specimen on a metal iron plate with a thickness of 1mm, a length of 360mm and a width of 360mm. The power supply needs to be combined with the terminal equipment for EMC-related confirmation. 5. When the altitude exceeds 2,000 meters (6,500 feet), the ambient temperature decreases at a rate of 3.5°C/1,000m for fanless models and 5°C/1,000m for fanned models.

Installation Size（mm)



Hole number	Recommended Screw Models	Maximum penetration depth L	Recommended installation torque
①	M3	4mm	4-6Kgf-cm





MSA-600S SERIES

Product features:

115/230 AC input

Up to 88% efficiency

Adjustable output voltage

Built-in auxiliary power supply

DC output indication

Protection types: short circuit, over current，over temperature

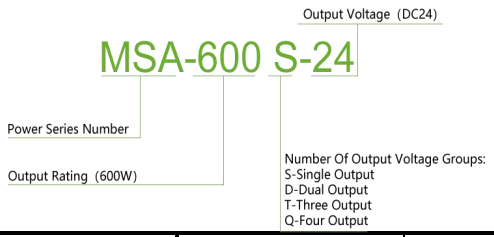
Optional moisture barrier spray

Product Description:

MSA-600S is a 600W single output AC to DC power supply, the whole series input voltage range 115V/230VAC, and can provide DC output to meet most of the industrial needs. Each model can be air-cooled by an internal speed-controlled fan, and can operate at temperatures up to 50 degrees Celsius.

Model Naming Rules:

AC/DC Single Output:

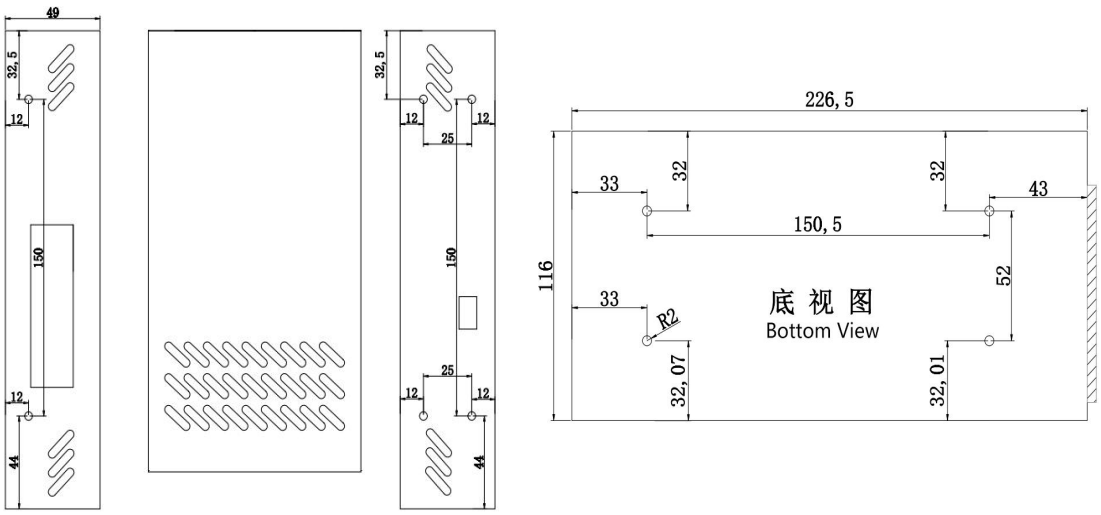


Model		MSA-600S-24V	MSA-600S-48V
Serial Number		MSA AC/DC	
Specifications And Models		600S-24	600S-48
Output Characteristics	Output Voltage	24V	48V
	Rated Current	25A	12.5A
	Rated Power	600W	
	Output Voltage Accuracy	±0.5%	
	Linear Adjustment Rate	±0.5%	
	Load Adjustment Ratio	±0.5%	
	Ripple And Noise	196mVp-p	
	Start-up/rise time	300ms, 50ms (at full load)	
	Hold Time	16ms/230 VAC	

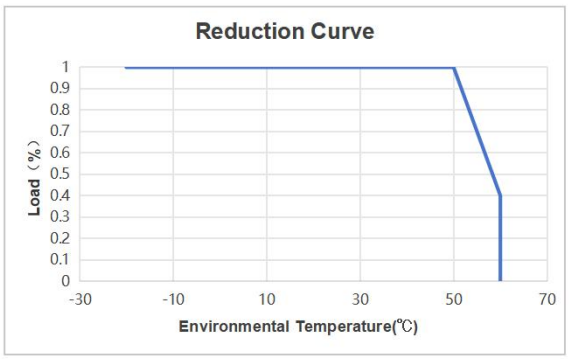
Input Characteristics	**Input Voltage Range**	176-264VAC		
	Frequency Range	47~63HZ		
	Overall Efficiency	87%	88%	
	Alternating Current (Electricity)	4A/220VAC		
	Surge Current	40A/220VAC		
	Leakage Current	< 1.0mA/240VAC		
Protective Properties	**Overloaded**	130-150% of rated output power		
		Protection type: output voltage shutdown, automatic recovery after abnormal load removal		
Functional Characteristics	**Output Voltage Adjustment**	Output voltage can be adjusted within ±10% of rated output		
	Auxiliary Power	14V@0.5A（±5%）		
Environmental Characteristics	**Working Temperature**	-20~+60℃ (refer to "Derating Curve")		
	Operating Humidity	20%~90%RH(No condensation)		
	Storage Temperature、Humidity	’ -40~+85℃，10~95%RH		
	Temperature Coefficient	±0.02%/℃（0-50℃）		
	Vibration Resistance	10~500Hz, 2G10 min/cycle, 60 min each for X, Y, Z axes		
Safety and EMC	**Safety Norm**	UL 62368-1, TUV EN 55032, EAC TP TC 004, CCC GB4943.1, BSMI CNS14336-1 Certificated by		
	Pressure Resistance	1/P-0/P：1.8KVAC 1/P-FG：1.8KVAC 0/P-FG：0.5KVAC		
	Insulation Impedance	1/P-0/P， 1/P-FG，0/P-FG：3089M 0hms/500VDC/25℃/70%RH		
	Electromagnetic Compatibility Emission	Parameters	Standardized	Test Level/Remarks
		Conducted	EN55032 (CISPR32) / EN5501	Class B
		Radiated	EN55032 (CISPR32) / EN5501	Class A
		Harmonic	EN61000-3-2	
		Voltage Flicker	EN61000-3-3	
	Electromagnetic Compatibility Immunity	EN55024 , EN61204-3, EN61000-6-2, CCC GB17625.1, GB/T9254, BSMI CNS13438		
		Parameters	Standardized	Test Level/Remarks
		ESD	EN61000-4-2	Level 3,8KV air; Level 2,4KV
		Radiated	EN61000-4-3	Level 3
		EFT/Burst	EN61000-4-4	Level 3
		Surge	EN61000-4-5	Level 4,4KV/Line-Earth; Level 3,2KV/Line-Line
		Conducted	EN61000-4-6	Level 3
		Magnetic Field	EN61000-4-8	Level 4
		Voltage Dips and Interruptions	EN61000-4-11	>95% dip 0.5 periods, 30% dip 25 periods, >95% interruptions 250 periods
	MTBF	^313.1Khrs TelcordiaSR-332(Bellcore): ^116.75Khrs MIL-HDBK-217F(25℃)		
Measure	**Outline Dimension**	226.5*116*49mm (L*W*H)		
	Packing Size	234*117*55cm（L*W*H）		

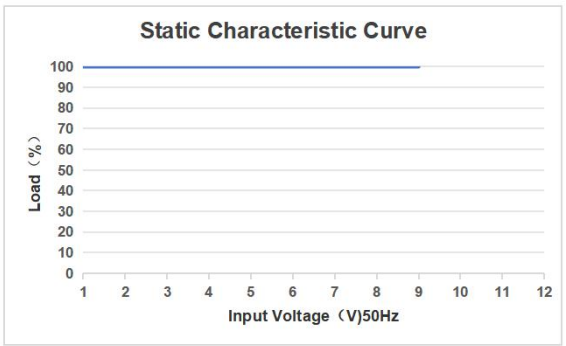
Other	**Quality Assurance**	5-year warranty
	Net Weight	0.882kg
	Gross Weight	0.914kg
	Installation Mode	Vertical/horizontal installation
	Aapplication	Industrial control or automation devices Test and Measurement Instruments Laser related machines Aging equipment RF applications
	Note	1. All specifications are measured at 230VAC input, rated load, 25°C ambient temperature, unless otherwise noted. 2. Ripple and noise measurement method: using a 12 "twisted pair, while the terminal to be connected in parallel to the 0.1uf and 47uf capacitors, in the 20MHZ bandwidth for measurement. 3. Accuracy: Includes setup error, linear and load adjustability. 4. The power supply should be regarded as a part of the components in the system, all EMC tests will be tested by mounting the test specimen on a metal iron plate with a thickness of 1mm, a length of 360mm and a width of 360mm. The power supply needs to be combined with the terminal equipment for EMC-related confirmation. 5. When the altitude exceeds 2,000 meters (6,500 feet), the ambient temperature decreases at a rate of 3.5°C/1,000m for fanless models and 5°C/1,000m for fanned models.

Installation Size（mm)



Hole number	Recommended Screw Models	Maximum penetration depth L	Recommended installation torque
①	M3	4mm	4-6Kgf-cm





MSA-1000S SERIES

Product features:

115/230 AC input

Up to 88% efficiency

Adjustable output voltage

Built-in auxiliary power supply

DC output indication

Protection types: short circuit, over current, over voltage, over temperature

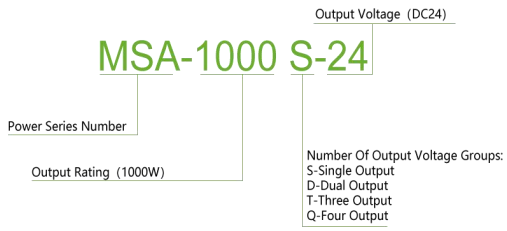
Optional moisture barrier spray

Product Description:

MSA-1000S is a 1000W single output AC to DC power supply, the whole series input voltage range 115V/230VAC, and can provide DC output to meet most of the industrial needs. Each model can be air-cooled by an internal speed-controlled fan, and can operate at temperatures up to 50 degrees Celsius.

Model Naming Rules:

AC/DC Single Output:



Model		MSA-1000S-24V	MSA-1000S-48V
Serial Number		MSA AC/DC	
Specifications And Models		1000S-24	1000S-48
Output Characteristics	Output Voltage	24V	48V
	Rated Current	42A	21A
	Rated Power	1000W	
	Output Voltage Accuracy	±0.5%	
	Linear Adjustment Rate	±0.5%	
	Load Adjustment Ratio	±0.5%	
	Ripple And Noise	232mVp-p	
	Start-up/rise time	300ms, 50ms (at full load)	
	Hold Time	16ms/230 VAC	

Input Characteristics	**Input Voltage Range**	176-264VAC		
	Frequency Range	47~63HZ		
	Overall Efficiency	88%	89%	
	Alternating Current (Electricity)	7A/220VAC		
	Surge Current	40A/220VAC		
	Leakage Current	<1.5mA/240VAC		
Protective Properties	**Overcurrent Protection**	120%-125% of rated load overcurrent protection		
		Protection type: output voltage shutdown, automatic recovery after abnormal load removal		
	Overvoltage	27.6-32.4V		
		Protection type: output voltage shutdown, recovery after reboot		
Functional Characteristics	**Output Voltage Adjustment**	Output voltage can be adjusted within ±10% of rated output		
	Auxiliary Power	14V@0.5A（±5%）		
Environmental Characteristics	**Working Temperature**	-20~+60℃ (refer to "Derating Curve")		
	Operating Humidity	20%~90%RH(No condensation)		
	Storage Temperature、Humidity	’ -40~+85℃，10~95%RH		
	Temperature Coefficient	±0.02%/℃（0-50℃）		
	Vibration Resistance	10~500Hz, 2G10 min/cycle, 60 min each for X, Y, Z axes		
Safety and EMC	**Safety Norm**	UL 62368-1, TUV EN 55032, EAC TP TC 004, CCC GB4943.1, BSMI CNS14336-1 Certificated by		
	Pressure Resistance	1/P-0/P：1.8KVAC 1/P-FG：1.8KVAC 0/P-FG：0.5KVAC		
	Insulation Impedance	1/P-0/P， 1/P-FG，0/P-FG：3089M 0hms/500VDC/25℃/70%RH		
	Electromagnetic Compatibility Emission	Parameters	Standardized	Test Level/Remarks
		Conducted	EN55032 (CISPR32) / EN5501	Class B
		Radiated	EN55032 (CISPR32) / EN5501	Class A
		Harmonic	EN61000-3-2	
		Voltage Flicker	EN61000-3-3	
	Electromagnetic Compatibility Immunity	EN55024 , EN61204-3, EN61000-6-2, CCC GB17625.1, GB/T9254, BSMI CNS13438		
		Parameters	Standardized	Test Level/Remarks
		ESD	EN61000-4-2	Level 3,8KV air; Level 2,4KV
		Radiated	EN61000-4-3	Level 3
		EFT/Burst	EN61000-4-4	Level 3
		Surge	EN61000-4-5	Level 4,4KV/Line-Earth; Level 3,2KV/Line-Line
		Conducted	EN61000-4-6	Level 3
		Magnetic Field	EN61000-4-8	Level 4
		Voltage Dips and Interruptions	EN61000-4-11	>95% dip 0.5 periods, 30% dip 25 periods, >95% interruptions 250 periods
	MTBF	^313.1Khrs TelcordiaSR-332(Bellcore): ^116.75Khrs MIL-HDBK-217F(25℃)		
尺寸 Measure	**Outline Dimension**	241*124*65mm (L*W*H)		
	Packing Size	249*131*70mm（L*W*H）		

Other	**Quality Assurance**	5-year warranty
	Net Weight	1.204kg
	Gross Weight	1.264kg
	Installation Mode	Vertical/horizontal installation
	Aapplication	Industrial control or automation devices Test and Measurement Instruments Laser related machines Aging equipment RF applications
	Note	1. All specifications are measured at 230VAC input, rated load, 25°C ambient temperature, unless otherwise noted. 2. Ripple and noise measurement method: using a 12 "twisted pair, while the terminal to be connected in parallel to the 0.1uf and 47uf capacitors, in the 20MHZ bandwidth for measurement. 3. Accuracy: Includes setup error, linear and load adjustability. 4. The power supply should be regarded as a part of the components in the system, all EMC tests will be tested by mounting the test specimen on a metal iron plate with a thickness of 1mm, a length of 360mm and a width of 360mm. The power supply needs to be combined with the terminal equipment for EMC-related confirmation. 5. When the altitude exceeds 2,000 meters (6,500 feet), the ambient temperature decreases at a rate of 3.5°C/1,000m for fanless models and 5°C/1,000m for fanned models.

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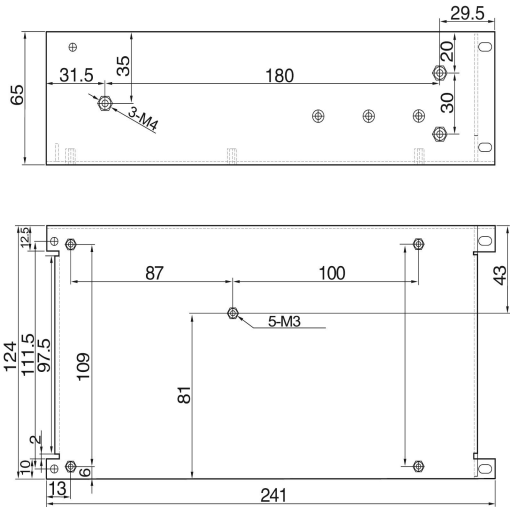

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