

MSN-FC

SINGLE PHASE

frequency converters

TECHNICAL DATASHEET



FREQUENCY CONVERTERS

On line single-phase double conversion MSN SERIES

It is the ideal product for powering loads that require a power supply at a voltage and frequency different from the mains supply available at the installation site.

On-line double conversion with DSP (Digital Signal Processor) digital control technology.

Among the main features that make this series high efficiency we point out:

- High PF input and output
- Wide input tolerance range (energy saving)
- Energy return protection and dedicated filtering (Surge Protection)
- Monitoring and self-diagnosis at each switch-on
- USB port
- EPO Contact
- Software included
- Intelligent SNMP Network Card Slot



The MSN series is produced with an LCD display from which the operating parameters (more than 50 items) can be displayed, and from where it is possible to set the basic configurations.

Thanks to its compact size, it meets the demand for power in small spaces and is suitable for any type of installation.

It is a system with online double conversion technology and is available from 6 kVA to 10 kVA with different single-phase voltages available on request. It is available in the standard version without transformer and on request there is the possibility of adding it in an external cabinet.

The 0.9 power factor combined with DSP (Digital Signal Processor) technology offers high power and output efficiency to all loads.

Multi-level alarm stages

All models are equipped with a USB connector for computer communication and dialogue via USB signals

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FREQUENCY CONVERTERS

online single-phase double conversion

MSN06FC-MSN10FC

Model		MSN06-FC	MSN10-FC
RATED POWER		6000VA / 5400W	10000VA / 9000W
Input	Input	Single-phase	
	Power factor	≥ 0.8 (THDV input $\leq 1\%$)	
	Rated voltage	220VAC / 230VAC / 240VAC (optional 110V input, available on request)	
	Rated frequency	50Hz/60Hz Automatic Selection	
	Voltage range	120~276Vac ~	
	Frequency range	45~65Hz	
	Thdi	$\leq 3\%$ (100% linear load, THDV input $\leq 1\%$) $\leq 5\%$ (100% nonlinear load, THDV input $\leq 1\%$)	
Output	Output type	Single phase	
	Voltage adjustment	$\pm 1.0\%$	
	Power factor	0.9	
	Voltage Distortion (THD)	Less than 2% with 100% linear load Less than 5% with 100% nonlinear load	
	Frequency	50Hz or 60Hz (programmable)	
	Nominal voltage	220V/230V/ 240Vac selectable or others on request	
	Frequency adjustment	$\pm 0.1\%$ (single unit) $\pm 0.25\%$ (units in parallel)	
	Frequency	50Hz or 60Hz depending on the required setting	
	Frequency synchronization	1Hz/s (single unit) 0.5Hz/s (parallel drive)	
	Acceptable Overload	105 % ~ 110 %, for max 1h	
		110% ~ 125%, for max 10 min	
		125% ~ 150%, for max 1 min	
		>150% switch off right away	
	Crest factor	3:1	
	Full load efficiency	$\geq 90\%$	
	Dynamic response	$\pm 5.0\%$ (with load from 0% to 100%)	
		$\leq 5\%$ in a cycle	
	Inverter output current limit	When the instantaneous current is 2~3 times the nominal peak current (1,414 * Rated power / (3 * 220)) the inverter enters current throttling	
	DC component	$\leq 200\text{mV}$ property	
Noise		<55dB (1m)	
Display		LED + LCD	
Safety		Compliant IEC62040-1, GB4943	
Emi		Conduction: IEC 62040-2	
		Radiation: IEC 62040-2	
		Harmonics: IEC 62040-2	
Ems		IEC 62040-2	
Isolation resistance		> 2M Ω (500Vdc)	
Voltage Isolation		2820Vdc, <3.5mA, 1min	
Voltage changes		Compliant IEC60664-1 1.2/50uS+8/20uS 6KV/3KA	
Degree of protection		IP20	

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FREQUENCY CONVERTERS

online double single-phase conversion

MSN06FC-3241 - MSN10FC-3241

Model		MSN06-FC3241	MSN10-FC3241
RATED POWER		6000VA / 5400W	10000VA / 9000W
Input	Input	Single-phase	
	Power factor	≥ 0.8 (THDV input $\leq 1\%$)	
	Rated voltage	220VAC / 230VAC / 240VAC	
	Rated frequency	50Hz/60Hz Automatic Selection	
	Voltage range	120~276Vac ~	
	Frequency range	45~65Hz	
	Thdi	$\leq 3\%$ (100% linear load, THDV input $\leq 1\%$) $\leq 5\%$ (100% nonlinear load, THDV input $\leq 1\%$)	
Output	Output type	Single phase	
	Voltage adjustment	$\pm 1.0\%$	
	Power factor	0.9	
	Voltage Distortion (THD)	Less than 2% with 100% linear load	
		Less than 5% with 100% nonlinear load	
	Frequency	50Hz or 60Hz	
	Nominal voltage	220V/230V/ 240Vac selectable or others on request 110/115/120Vac Selectable (synchronized outputs)	
	Frequency adjustment	$\pm 0.1\%$ (single unit)	
		$\pm 0.25\%$ (units in parallel)	
	Frequency	50Hz or 60Hz depending on the required setting	
	Frequency synchronization	1Hz/s (single unit)	
		0.5Hz/s (parallel drive)	
		105 % ~ 110 %, for max 1h	
		110% ~ 125%, for max 10 min	
	Acceptable overload	125% ~ 150%, for max 1 min	
		>150% switch off right away	
		3:1	
		$\geq 90\%$	
	Dynamic response	$\pm 5.0\%$ (with load from 0% to 100%)	
		$\leq 5\%$ in a cycle	
	Inverter output current limit	When the instantaneous current is 2~3 times the nominal peak current (1,414 *Rated power/(3* 220)) the inverter enters current throttling	
	DC component	$\leq 200\text{mV}$ property	
Noise		<55dB (1m)	
Display		LED + LCD	
Safety		Compliant IEC62040-1, GB4943	
Emi		Conduction: IEC 62040-2	
		Radiation: IEC 62040-2	
		Harmonics: IEC 62040-2	
Ems		IEC 62040-2	
Isolation resistance		> 2M Ω (500Vdc)	
Voltage Isolation		2820Vdc, <3.5mA, 1min	
Voltage changes		Compliant IEC60664-1 1.2/50uS+8/20uS 6KV/3KA	
Degree of protection		IP20	

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Working environment

Temperature	0°C ~ 40°C
Relative humidity	0 ~95% non-condensing
Altitude	<1500m; if >1500m derating required
Storage temperature	-25°C~55°C (excluding batteries)
Handling	On wheels

Mechanical specifications

Model	MSN06FC	MSN10FC	MSN06FC-3241	MSN10FC-3241
Height (mm)	616			
Width (mm)	250			
Depth (mm)	502			
Weight (Kg)	30	32	56	60
Color	Black			

EMC Standard/ Safety Standards

Our product has been built in accordance with the EMC standards below and has passed the CE certification:

SAFETY STANDARDS/EMC
IEC/EN 62040-1
IEC/EN 62040-2
IEC/EN 62040-3
IEC/EN 60950-1
EN50171

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