

# MSW

## SERIES

1

PHASE

12/24VDC: 10A-300A

### SWITCH MODE (HF) BATTERY CHARGER

#### Usage Areas:

- Vessels and Yachts
- Shipyards
- Rail Systems
- Hydroelectric Power Plants
- Solar Power Plants
- Automobile Services
- Electrical Devices



#### HIGHLIGHTS

- Switch Mode Technology
- Voltage Controlled Automatic Charging
- Can Be Used as DC Power Supply
- 1 Phase & 3 Phase Wide Power Range
- High Efficiency and Reliability
- Electronic Protections
- Up to 30% Energy Saving

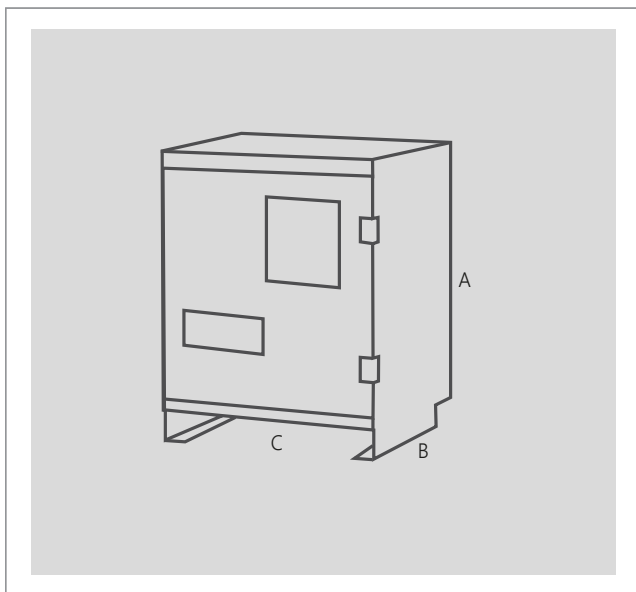
#### New Generation Switch Mode Charging Rectifiers

- Makelsan Switch Mode Charging Rectifiers are designed with the state of the art technology for charging batteries and DC energy needs of devices supplied by direct current.
- Batteries would be charged much safer with the improved software and special charging program. Non-complex structure, easy maintenance properties, user friendly program and other superior features will meet all requirements.
- The most important feature of the device is it can be used as supply source as well as a battery charger. Besides low ripple factor increases the battery life. It's an ideal solution for where device weight and dimensions are problem.

#### CERTIFICATES



MODEL	
<b>INPUT</b>	
Input Phase	1 Phase - 2 Phase - 3 Phase (Special Design)
Input Voltage Tolerance	±10%
Input Frequency	50 - 60 Hz
Power Factor	0.98
THDi	<%10
<b>OUTPUT</b>	
Output Current	10A - 300A
Output Voltage	12V - 24V
Ripple	≤1 Ripple
<b>GENERAL</b>	
Cooling	Air Cooling
Isolation Voltage	1500 VAC Input / Chassis Bridge, 500 VAC Output / Chassis Bridge, 500 VAC Between Input and Output
Insulation Class	IP 20 - RAL 7032 (Special Design)
Efficiency	90%
Operating Temperature	-20/50°C
Operating	Ability to set Charge Mode for all Battery Types
Input / Output Connections	Serial Connector - W Otomation
<b>PROTECTION</b>	
Heat Protection	Input / Output Overtemperature Protection
Measure	Output Overcurrent Protection - DC High Low - DC Leakage - Mains Failure
<b>TECHNOLOGY</b>	
IGBT	Switch Mode Technology
Standard	ISO 9001 - TSE - LVD - EN 62040 -1 - EMC
<b>INDICATORS</b>	
LCD Panel	2 x 16 - 4 x 16 Line
PLC	S71200 - S7300
Otomation	Modbus / Profibus / ProfiNET / RS 232 / RS 485



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## DIMENSIONS

CODE	A (mm)	B (mm)	C (mm)
MKL 1	340	240	150
MKL 2	340	240	200
MKL 3	290	260	370
MKL 4	340	280	400
MKL 5	400	320	450
MKL 6	580	390	500

## OPTIONS

- DC +/- Ground Leakage Protection
- Modbus RTU Communication
- Individual Outputs for Battery and Load
- Deep Discharge Protection (LVD)
- Output Dropper Diode
- Additional Battery Fuse
- Temperature Comp. Battery Charge Voltage
- Power Fault Detection Dry Contact
- Battery Management, Test
- Rackmounted Chassis/Integrated Battery Racks / (IP31/IP42/IP54/IP65)
- Input Isolation Transformer / 6 Pulse Structure