

TC-MAK Series Battery Chargers

48 V & 400 Amper Lead Acid Battery Charger



MAK 
POWER SYSTEMS
www.mak-powersis.de

- Full Automatic Charger & High Frequency PWM Newest Technology
- Thyristor Technology or IGBT Technology 1 Millisecond R. Time
- Micro Chip Controlled, Fast and Precisely, Efficient
- Perfect DC Supply for the Batteries
- 2 Years Warranty & 10 Years Spare Part Availability
- High Efficiency up to 96%
- Thyristor or IGBT Switch Mode Optional
- Wide Input Voltage Range for Usage in Rural Areas
- Advanced Protection and Data Logging for Industrial Usage
- Short Circuit, Overload, Over Voltage & Over Temperature Protection
- Unlimited Number of Paralleled Modules
- Selectable Output Voltage Values “Lower Than Ordered Unit”
- 6 Pulse, 12 Pulse or Switch Mode Technology
- European 230V / 400V or 108V / 220V & 50Hz / 60Hz Options
- Constant Voltage or Current Option
- Small Footprint, Easy Maintenance & Robust & Anti Rust Cabinet
- Easy Monitoring Voltage, Current, from Screen
- Warning LEDs and Dry Contact as Optional
- Wall Mount or Stand Alone or With Wheel Optional
- Customized Production, Higher Voltage & Current Values



Industrial Applications



Forklift Chargers



Traction Battery Charger

*12Volt – 24Volt – 48Volt – 72Volt – 108Volt – 220Volt / * 20Amper – 50Amper – 80Amper – 100Amper – 150Amper – 200Amper – 400Amper - 600Amper



TC-MAK Series Battery Chargers

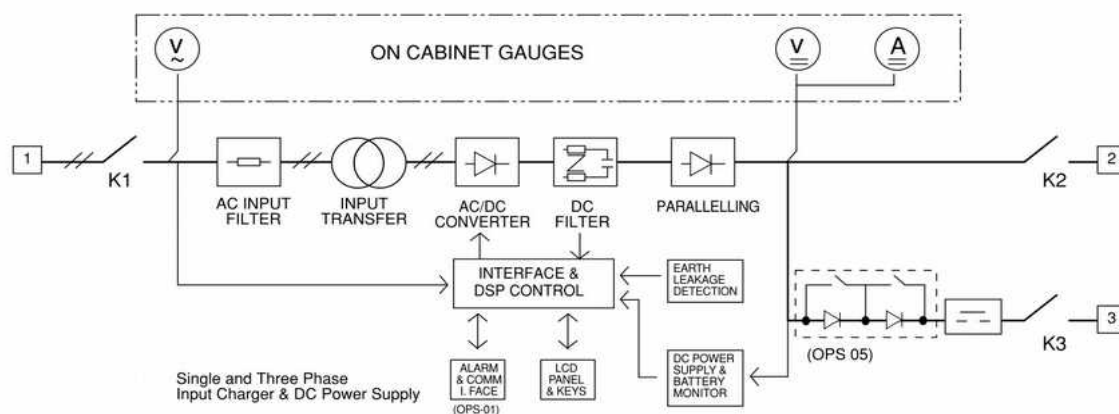
110V & 400Amper Lead Acid Battery Charger

TC-MAK series battery chargers are developed for charging high capacity batteries used in forlifts, GEL batteries, traction batteries electrical earth movers etc... and designed for both individual for your electrical vehicles or industrial use. User friendly control panel and easy operating system is very practical to connect, control. Since the battery charger is electrically smart micro chips controlled charging operation is very safe, easy and extends your lead acid battery life. Day-off charging function enables the battery fully charged when it is not used and increase the life time of the battery. There is no need for any adjustments with Plug and play function and charging starts automatically when the battery is connected.

The charger consists of economic, environment-friendly, and reliable DC power supplies that use the resonant converter technology, operating at high frequencies. They have a high input power factor along with very low output voltage ripples. They have a high input power factor along with very low output voltage ripples. They are used extensively for charging lead-acid and as customized nickel cadmium batteries; at telecom and power distribution sites, or wherever DC power is needed.

Useable Areas:

- Telecom systems,
- Ni-Cd and Lead,
- Acid batteries charger,
- Energy distribution stations,
- Power stations,
- Emergency lighting systems,
- Natural gas distribution control stations
- DC uninterruptible power systems



TC-MAK Series Battery Chargers

48 Volt & 400 Amper Lead Acid Battery Charger

| | | |
|------------------|--|---|
| INPUT | Voltage | Three Phase 380V or 400V or 415V |
| | Voltage Tolerance | ± 15% |
| | Frequency | 50/60 Hz. |
| | Frequency Tolerance | ±10% |
| | Power Factor | 1-Phase: 0.98 (THD 4%) / 3-Phase: 0.92 (THD 30%) |
| OUTPUT | Voltage | 48 Volt DC |
| | Current | 400 Amper |
| | Current Limiting | I _{nom} x 102% front panel selectable between 0 and 102% |
| | Ripple | <0.5% |
| | Voltage Regulation | ±0.5 % at float charge, ±1% at boost charge |
| | Efficiency | 3- Phase: >92% / 1- Phase: >85% |
| | Protections | Input, output (thermal/magnetic) fuses, Advanced short circuit protection, Over voltage protection, Over current protection, Automatic restart |
| BATTERY | Battery Charge Modes (Adjustable Charging voltages) | Automatic charge, boost charge: 2,4 V / Cell Float Charge: 2.25 V / Cell |
| | Boost Charge Time | Increment able by 1 hour up to 24 hours |
| | LCD Properties | 2x16 character-wide display, showing: Output voltage & current, Output voltage high/low Load(%), Log Records up to 200 logs with Real Time Clock Calender AC (AC available), Fault, Current limiting, |
| | Displays | Automatic charge, Float charge, Boost charge, Common alarm |
| | Alarms | Common relay contact output for AC input low, DC output low and overheat |
| | Operation and control | Via menu selections from buttons on front panel |
| | Endurable Dielectric Voltage | 2000 V Input-Output 2000 V Input-Chasis 500 V Output - Chasis (For PS with output voltage <50 V) 1000 V Output - Chasis (For PS with output voltage >50 V) |
| | | |
| GENERAL FEATURES | Case Dimensions (WxDxH) | 1200mm x 1000mm x 1800mm / 420kg |
| | Protection Class | IP20 |
| | Audible Noise 1m. | 50dBA |
| | Cooling | Mandatory cooling (Fan) |
| | Weight | 1- Phase PS < 280 kg 3- Phase PS < 230 kg. |
| | Operation Temperature | 0°C.....40°C |
| | Storing Temperature | -20°C... 70°C |
| | Relative Humidity | 98% (Non-condensing) |
| STANDARDS | Standards | VDE,DIN 41773 (Battery charge characteristics) ANSI-NEMA PE 5 TS 2000 EN 62040-1, 2, |

* 1 Phase Input max output power

** 3 Phase Input max output power