



SmartCharge 500

Automatic Battery Charger

DS-392/2

SmartCharge 500 Automatic battery chargers provide a reliable and effective solution to most industrial battery charging requirements. Utilising the latest high efficiency switch-mode technology the SmartCharge 500 is suitable for continuous charging of all common battery types, for example sealed lead acid VRLA / AGM, Gel, flooded lead acid, Ni-Cad etc. SmartCharge 500 is available with conventional CC/CV or intelligent multi-stage charging profiles to ensure accurate and efficient battery charging and is designed for permanent connection to the batteries, maintaining them in a fully charged condition without overcharging. The SmartCharge 500 is fully protected against overload, reverse battery connection, over voltage and over temperature as standard.

Input Specification

Voltage Range, V_{IN}	90-132V or 180-264V AC (Switch Select)
Frequency	47 - 63Hz
Input Current	8A @ 115V 3.2A @ 230V
Inrush Current	27A @ 115V 45A @ 230V (Cold Start)
Leakage Current	<3.5mA @ 240V AC

Output Specification

Voltage / Current	24V / 20A nominal 30V / 10A nominal 48V / 10A nominal <i>Voltages calibrated to specific battery type.</i>
Ripple & Noise	120mV pk-pk
Line Regulation	±0.5%
Load Regulation	±1%
Efficiency	89% Typical
Overload Protection	Constant Current Limit
Over Voltage Protection	125% - 150% Shutdown. Recycle power to reset.
Over Temp. Protection	95-105°C (On heatsink) Shutdown. Self resetting.
Reversed Battery Protection	Internal diode with external 'automotive type' blade fuse.
Setup, Rise, Hold Up	1200ms, 40ms, 23ms (at full load)

Isolation

Withstand Voltage	Input – Output 1.5kV AC Input – Earth 1.5kV AC Output – Earth 500V DC
Isolation Resistance	500V DC / 100M Ohms (Output-Earth)

FEATURES

- HIGH POWER AND EFFICIENCY
- HIGH RELIABILITY
- SUITS ALL BATTERY TYPES
- FULLY AUTOMATIC OPERATION
- 24, 30 OR 48 VOLT NOMINAL OUTPUTS
- PROTECTION AGAINST:
 - SHORT CIRCUIT
 - OVERLOAD
 - OVER VOLTAGE
 - OVER TEMPERATURE
 - REVERSE BATTERY
- WORLDWIDE AC INPUT RANGE
- LOW OUTPUT RIPPLE
- FULLY ENCLOSED CONSTRUCTION
- NATURALLY COOLED - FAN LESS DESIGN
- OPTIONAL ALARMS (& BI-COLOUR LED's):
 - CHARGE FAIL
 - AC FAIL
 - DC UNDER VOLTS
 - DC OVER VOLTS
 - +VE EARTH FAULT
 - VE EARTH FAULT
 - COMMON FAULT (Form C Contact Set)
- OPTIONAL INTELLIGENT MULTI-STAGE CHARGE PROFILE WITH AUTO EQUALISE
- OPTIONAL BOOST CHARGING SYSTEM

APPLICATIONS

- STANDBY & PRIME POWER GENERATORS
- ENGINE DRIVEN PUMPS & COMPRESSORS
- SWITCH GEAR TRIPPING
- AUTOMOTIVE
- ALARM SYSTEMS
- NAVIGATIONAL AIDS
- MARINE
- INDUSTRIAL CONTROL SYSTEMS
- ELECTRIC VEHICLES

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Environmental Specification

Working Temperature	-20°C to +50°C
Working Humidity	20% - 90% RH Non condensing
Storage Temperature	-20°C - +80°C
Storage Humidity	10% - 95% RH
Unpacked Weight	3.2 Kg (Approximate dependent on model).

Finish

RAL5013 blue / RAL9005 black fine texture.

Termination

AC Input Rising clamp 4.0mm² cable.
 DC Output Rising clamp 4.0mm² cable.
 Optional Alarms Rising clamp 2.5mm² cable.

Ordering Information

Model No.	DC Output Voltage	Intelligent Charge	Manual Boost	Charge Fail Alarm	Full Alarms
JE/SC500-XXX-B	XXX = Float voltage				
JE/SC500-XXX-E	XXX = Float voltage	✓	✓	✓	
JE/SC500-XXX-F	XXX = Float voltage		✓	✓	✓

Notes: Replace XXX with required fixed float voltage i.e. 276 = 27.6Vdc.
 Float voltage ranges can be within the limits of 22.0 (220) to 56.0 (560) volts.
 Units with float voltages up to 29.0Vdc have a 20.0A DC output.
 Units with float voltages above 29.1Vdc have a 10.0A DC output.

Only standard output voltages and alarm / functionality configurations are shown above. For other configurations and customised products please contact us.

DRAWING

SmartCharge 500 AUTOMATIC BATTERY CHARGER

AC INPUT:
 115/230Vac 50/60Hz NOMINAL. INPUT VOLTAGE IS SELECTED BY SWITCH IN THE TOP OF THE ENCLOSURE.

DC OUTPUT:
 24V 20A OR 48V 10A. OUTPUT VOLTAGES CAN BE ADJUSTED VIA INTERNAL POTENTIOMETERS.
 THE CURRENT LIMIT LEVEL IS WORKS CALIBRATED AND SHOULD NOT BE ALTERED.
 AUTOMATIC RECALIBRATION OF THE OPTIONAL ALARM SYSTEM IS REQUIRED IF ADJUSTMENTS ARE MADE.

CONNECTION:
 ALL CABLING FEEDS THROUGH THE TERMINAL COVER APERTURES AND TERMINATES TO PCB MOUNTED TERMINAL BLOCKS. CABLES MUST BE FED THROUGH THE COVER APERTURES BEFORE TERMINATION.
 TERMINAL IDENTIFICATION FOLLOWS:

TERMINAL FUNCTION IDENT.

EIN	PRIMARY EARTH
NIN	NEUTRAL
LIN	LIVE
B-OUT	BATTERY -Ve
B+OUT	BATTERY +Ve

THE FOLLOWING TERMINALS (1-22) ARE OPTIONAL AND DEPENDENT ON THE SPECIFIED ALARMS AND FUNCTIONS.

1	-Ve AUXILIARY CONNECTION
2	CONNECTION TO EARTH TO ENABLE DC EARTH FAULT MONITORING
3	-Ve AUXILIARY CONNECTION

THE FOLLOWING TERMINALS (4-17) ARE FOR EXTERNAL LED DRIVE. EACH LED DRIVE HAS A MAXIMUM RATING OF 10mA. ALL LED DRIVE OUTPUTS CONNECT TO THE ANODE (+Ve) OF THE LED. ALL CATHODES CONNECT TO -Ve AUXILIARY OR B-

4	CHARGER HEALTHY LED DRIVE
5	CHARGER FAILED LED DRIVE
6	+Ve EARTH HEALTHY LED DRIVE
7	+Ve EARTH FAULT LED DRIVE
8	-Ve EARTH HEALTHY LED DRIVE
9	-Ve EARTH FAULT LED DRIVE
10	DC UNDER VOLTS HEALTHY LED DRIVE
11	DC UNDER VOLTS FAIL LED DRIVE
12	DC OVER VOLTS HEALTHY LED DRIVE
13	DC OVER VOLTS FAIL LED DRIVE
14	SYSTEM HEALTHY LED DRIVE
15	SYSTEM FAULT LED DRIVE
16	AC INPUT HEALTHY LED DRIVE
17	AC INPUT FAILED LED DRIVE
18	COMMON FAULT ALARM NORMALLY CLOSED CONTACT
19	COMMON FAULT ALARM COMMON
20	COMMON FAULT ALARM NORMALLY OPEN CONTACT
21	MANUAL BOOST (LINK TO 22 TO BOOST)
22	MANUAL BOOST (LINK TO 21 TO BOOST)

ALARM SYSTEM:
 LED'S ARE LIT GREEN FOR HEALTHY, RED FOR FAULT.
 INDIVIDUAL ALARMS OPERATE AS SOON AS A FAULT CONDITION OCCURS. ALL ALARMS SELF RESET.
 THE COMMON FAULT ALARM OPERATES WHEN ANY OF THE DC OR EARTH FAULT ALARM CONDITIONS HAVE BEEN PRESENT FOR APPROXIMATELY 60 SECONDS. AT THE END OF THIS TIME PERIOD THE FAULT LED CHANGES FROM GREEN TO RED AND THE REMOTE ALARM CONTACTS DE-ENERGISE TO SIGNAL A FAULT.
 THE AC FAIL ALARM INSTANTANEOUSLY OPERATES THE COMMON FAULT ALARM (NO TIME DELAY).

ALARM STATUS LED'S [OPTIONAL]

115/230V AC INPUT SELECTION SWITCH

4 x FIXING HOLES Ø5.0 - SUIT M4 FIXING

REMOVE COVER FOR TERMINAL ACCESS

DC OUTPUT FUSE ATO BLADE TYPE

CABLE ENTRY APERTURES
 NOTE - FEED WIRING THROUGH THESE APERTURES BEFORE TERMINATING CONNECTIONS

THIRD ANGLE PROJECTIONS

