



Battery Charger

Thyristor based CVCC Charger



Battery Charger provides quiet, reliable and adjustable DC power to battery/load. The Battery Charger gives DC output, the input source being Single/Three Phase AC supply only. The load is isolated from any spikes, surges or dips.

Thyristor controlled Battery Chargers are known as Phase controlled rectifiers. It's basic function is to convert AC input into controlled DC output. The basic principal of the Phase controlled rectifier is to control the point at which SCR are allowed to conduct during each AC cycle. Single/Three Phase fully controlled rectifier gives best utility factor, less ripple factor, better regulation and more efficiency.

Thyristor controlled Battery Chargers suitable for

sealed maintenance free Batteries of 1100AH/120AH capacity fitted on AC and TL Coaches for giving normal charging/discharging/freshening charge in constant voltage and constant current mode.

The Battery Chargers covered by this specification (RDSO/PE/SPEC/AC/08/Rev.1/Aug./04 or latest) shall be natural air cooled suitable for an ambient temperature varying from 9 to 55°C with maximum humidity of 98% in altitudes upto 1200 meters above sea level and in dusty atmospheric conditions to be used for charging and discharging sealed maintenance free batteries either fitted on AC and TL Coaches in rake formation or in Depots/workshops.

TECHNICAL SPECIFICATIONS

Type	Constant Voltage/current with current limiting
Input Voltage	Nominal Voltage : 415 VAC Operating Voltage Range : 380 – 480 VAC, 50 Hz
Type of Battery charger	Constant Voltage/current with current limiting
DC output voltage	110- 155 V DC
Output Current	0-200 A/0-300 A / 1 X 220 A / 2 X 100 A or as per requirement
Operating modes	(i) Charging in constant voltage (CV) or in constant current (CC) mode at a constant preset current and (ii) Discharging in constant current (CC) mode
Output Regulation	The charger shall give a DC output Voltage adjustable over range of 2.0 V to 2.75 per cell by means of a voltage control potentiometer. The value of output Voltage shall be maintained within ± 0.05 V per cell of the set Value over the entire range of the input AC supply variation and the output load variation from 10% to 100% of rated capacity.
Constant Voltage:	
Constant Current:	The charger shall be capable of delivering an output current whose magnitude shall be selected by means of current control potentiometer. The current shall be maintained constant within ± 2 A of the set value at 10% to 100% load, with the input voltage varying between 380 V to 480 V AC.
Ripple content	The charger shall be equipped with suitable filter circuit on the output to reduce the voltage/current ripple factor to less than or equal to 5% rms at full load when measured across a resistive load.
Auto mode charging	The charger shall be provided with a suitable circuitry to charge the battery either in float or boost mode automatically. It shall go to boost mode whenever the charging current exceeds 5-6% of voltage capacity and boost to float when the charging current reduces in 3-4% of Voltage capacity.
Protections	<ul style="list-style-type: none"> Over Voltage Current Limit Short circuit Protection AC Input Fuse Bridge protection fast acting fuses AC Over/Under Voltage Protection
Controls	<ul style="list-style-type: none"> Unit ON/OFF Control Rotary Switch Battery input circuit breaker Charger /OFF Selector Switch Constant Voltage/Constant Current Selector Switch Current Variable Potentiometer Voltage Variable Potentiometer
Indicating Instruments	<ul style="list-style-type: none"> DC digital Voltmeter DC digital Ammeter AC digital Voltmeter AC digital Ammeter Mains Unit ON Unit ON in CV Mode Unit ON in CC Mode Charger Over Voltage Unit fault (for failure of input phase/bridge fuse) AC under Voltage AC Over Voltage Charger Failure
Enclosure	The charger shall be housed in a robust sheet metal, naturally ventilated cubicle (Powder coated with gray) suitable for mounting on the shop floor and provided with easily accessible screwed covers for facility of connections/replacement.
Insulation Resistance	>5 Mega Ohms

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