D5531 PLC system chargers with graphic screen facility.

D5531 graphic screen chargers offer easy operation through an inbuilt screen based control system. Setting of alarms and checking of operating parameters is easy and intuitive. Help screens assist the operator and factory defaults and presets prevent data entry that could harm the system. The chargers have a regulated and filtered output suitable for charging both flooded and valve regulated sealed Lead acid batteries or flooded Nickel Cadmium batteries. A wide range of charging regimes are preprogrammed for battery maintenance. The power rectification section uses a robust analog SCR design which operates independently of the alarm and control facilities to provide a failure tolerant total system.

General description.

The D5531 series chargers are single-phase or three phase fully controlled, thyristor rectifier types which comprise the following major power elements:

(1) Stepdown power transformer

This single phase transformer steps down, isolates and provides the low voltage output to the rectifier bridge. The transformer is constructed and tested to AS2374-1982 (Power Transformers).

(2) Rectifier bridge

The rectifier bridge consists of thyristors, diodes, a free-wheeling diode and a blocking diode to prevent backfeed from the battery to the charger and allow parallel operation. The rectifier bridge is air cooled.

(3) Filter inductor

This reactor filters the output current.

(4) Smoothing capacitor group

This smoothing capacitor filters the dc supply voltage to 2% rms/dc (without batteries).

Control of the charger output is achieved through phase control of the thyristors in the rectifier bridge. The output voltage and current are sampled by amplifier circuits which deliver a control voltage to the 1-phase control card which delivers gated pulses to the thyristors. By this means, smoothly varying voltage and current control are obtained. The good voltage regulation obtained from this configuration is necessary for reliable sealed lead acid battery charging.

The D5531 charger range is available in 19" rack or floor mounted cabinets. Cabinets can contain the charger, battery and distribution panel.

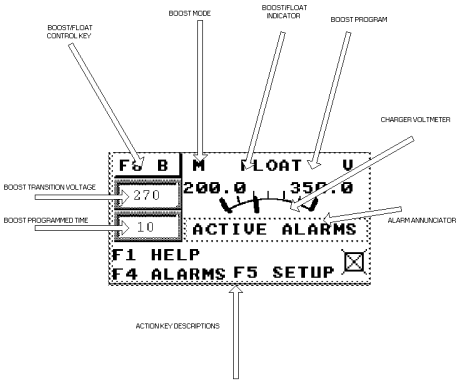
Battery chargers and Switchgear trippers

Standard Features

- Constant voltage/ Constant current charging.
- Easy alarm setting
- AC circuit breaker
- Choice of analog or digital meters
- High voltage shutdown
- Battery monitoring
- Reverse polarity protection
- Phase control with high noise immunity
- Temperature compensation.

Screen based control system.

The screen based system gives an intuitive display of alarms and charger status. Alarms are easily set and control screens accessed from a main screen via a keypad.



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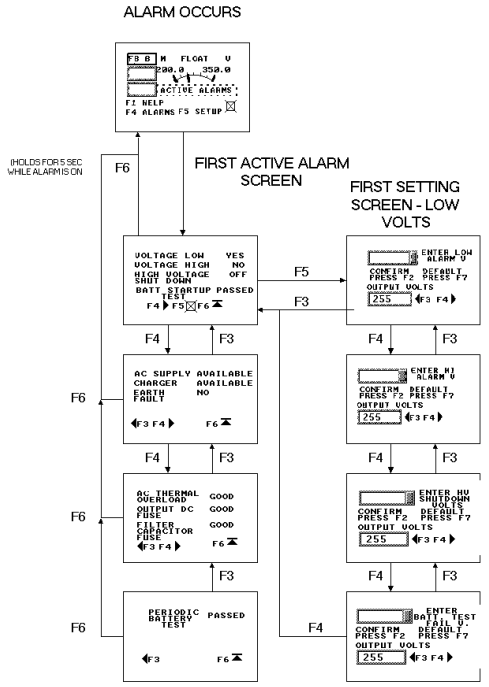

ACTIVE ALARM RESPONSE AND SCREEN SELECTION

Typical alarm screens

Each alarm condition and setting takes the operator from screen to screen where alarms can be configured, charger parameters monitored and the charging program selected.

Constant voltage charging— programmable modes.

The battery charger is a constant voltage current limited charger where a closely regulated voltage is delivered to the battery. Boost or equalize charging programs suitable for valve regulated (sealed) lead acid batteries, flooded lead acid batteries and flooded Nickel Cadmium batteries are provided.

Optional features.

A wide range of optional features are available, which can be integrated into the charger monitoring system. These include:
Battery and output circuit breaker monitoring.
Output transducers for current loop indication.
Battery discharge resistor systems.
Undervoltage disconnect relay (for battery protection).

The D5531 graphics screen chargers have upgradeable software for new features as they become available.

SCADA Interface option.

The D5531 has been designed to allow the user to monitor and control the charger output in unmanned installations. The D5531 charger can be provided with a comprehensive SCADA interface system which allows the user to set the alarm conditions and battery voltage, monitor the charger voltage and alarm status and carry out battery condition testing against preset or programmable load profiles. The charger can also carry out battery impedance testing by applying and removing step voltage loads and measuring the current profile and can calculate remaining battery capacity using a method based on IEEE-485. The battery parameters can be displayed graphically.
The SCADA interface uses a serial (RS 232) port on the PLC to access internal control registers of the PLC. Please contact our office for further details.

D5531 Charger perfomance specification.

(1) Input voltage: 100V/110V/120V/ 220V/240V/380V/415V/440V +/-10% 50/60Hz. (Specify input)
(2) Input phases : <3KW 1Φ >3KW 3Φ (3 Actives + Earth)
(3) Full load continuous output: 10A/15A/20A/25A/30A/40A/50A/60A/70A/ 100A/150A/200A/250A/300A/400A
(3) Float voltage at full load output: 27.6V (24V system), 34V (30V system), 36V (32V system), 40.5V (36V system), 54V (48V system), 122V (110V system), 132V (125V system), 260V (240V system).
(5) Regulation at float: +/-1%
(6) Ripple at any load, without battery: <2.0% rms for 1 Φ, <1% rms for 3 Φ
(7) Temperature derating (above 40 degrees C): derate 2%/degree C above 40 degrees C ambient.
(8) Efficiency at full load: >80% <3KW, >85% >3KW
(9) Cooling: Natural convection
(10) Applicable Standards:
AS 3000
AS 4044 Type 2
AS 1044