Portable Test Load Bank-With Data Capture Remote Control Series WA-LCD

1. General Design Concept

Sephco WA-LCD series load banks are completely self contained, mobile, incorporating all resistive elements, load contactors for each load group, individual load group circuit breakers, load bank protection devices, main load bus, auxiliary terminals, fan cooling systems, malfunction detection system, unit controller, and (IP56) NEMA 4R type control enclosure. The load bank is manufactured under ISO9001 quality assurance completely weather-proofed, fan cooled, incorporating stainless finned immersion proof resistors rated for continuous operation.

The load bank is provided at the specified rated output at the rated voltage, derating at lower operating voltages if applied.

2. Control

The controller type LC12DAL is a portable processor, hand held, light weight, housed in a durable die cast aluminium enclosure, fitted with a connector for connection of a flexible data control cable back to the load bank's input connection socket. Connectors and plugs used are MIL spec.type. The controller is capable of controlling a series of load banks or inductive loads from a distance of up to 300ft however a 20ft control cable is supplied with the unit for normal operation. Operating features includes a four-line display screen with simple step-by-step instructional prompts, display of load values such as kW, V, Hz, PF, Amps and load time. Choice of operation includes manual and automatic modes. The automatic loading feature incorporates loading routines with time duration and pause override function. Changes to the load routine such as load size and time is possible at any time during a test routine. The controller will automatically fine tune and make corrections to the load bank in the event of any voltage or resistance fluctuation. The load current, kW, kVa and power factor is constantly targeted by the controller during it's load routine and accommodate any fluctuation in the resistive and reactive values. The controller ensures that the load bank is fully protected against over voltage or frequency, preventing the test to proceed. All functions are fully displayed, including warning messages such as voltage exceeded, frequency incorrectly set, emergency stop, load aborted and cooling failure.

The control features a USB port for connection to a PC or Laptop for additional on-line graphic display of actual load tests and data capture. The features of the control includes adjustment of the operational settings, namely voltage, frequency, power factor, data capture printing intervals. Test routines are held in memory for repeated use. Data captured includes all electrical values, such as phase voltages, line currents, frequency, kW selected, kW achieved and elapse time.

Safety features include load bank "System Diagnostics" to ensure that voltage and the operating current does not exceed the load bank's designed rating.

General Construction
3.Resistors

Load resistors are fully sealed stainless steel finned, stainless steel sheath type, immersion proof and vibration proof, impervious to heavy rain or salt air conditions, constructed to IP65 (NEMA 6). Resistors are calibrated to within 5% of their rated value, tested to 2kV and individually grounded. Resistor connections light gauge nickel-plated copper bus links, connected in groups of 50kw maximum and arranged to minimize strain on resistor terminals. All connections of the resistor groups to the corresponding switchgear are made using 110°c rated multi-stranded flexible cable.

4.Construction

Load bank's body panels and control compartment is constructed from 2mm (Zincanneal) zinc-impregnated steel (Patented), incorporating removable panels for access to resistors. The Load Bank shell is mounted onto a fully hot dipped galvanized chassis with forklift pockets. Air inlet and outlet is fully protected by grills having 12mm X 25mm maximum opening. Air cooling is vertical flow discharge, so adjacent equipment and personell are not affected. The control and electrical cabinet is incorporated as an integral part of the Load Bank but segregated from the resistor section. Connections of power cables will not compromise the integrity of the weather proof rating of the unit when in use. Load bank switchgear enclosure is constructed with full gutter surround fitted with lift off type hinges, security type locks and wire reinforced neoprene door gaskets

5. Finish

All structural parts, frames, resistor supports are hot dipped galvanized. All screws, nuts and bolts are #316 stainless steel. Painting of metal surfaces shall be two-pack polyurethane marine enamel.

5. Weatherproofing

Load banks is designed for outdoor use, totally weather proofed to IP56 (NEMA 4R), (resistors are hose proof) incorporating stainless steel type immersion proof resistors. The design of the load bank ensures complete resistance to water and moisture buildup.

7. Anti Corrosion

All metal panels are treated prior to fabrication with a hot zinc coating process. Final painting and finish utilizes a triple coat of two pack polyurethane marine enamel. Metal structures such as the load bank chassis, resistor supports and lifting bars hot dipped galvanized. External screws and bolts shall be #316 stainless steel material.

8. Cooling Fans

The load banks' cooling design ensures that the control enclosure doesl not rise above 30°C above ambient at full load. Fan motors are rated at 940 RPM IP55, protected by thermal overloads and circuit breakers.

9. Safety Interlocks

Load banks incorporate a triple interlock protection system for each fan motor fitted - protection against: fan failure, airflow restriction, high temperature and fan reversal.

10. Fan Run On- Cool Down

An automatic fan run-on for a period of five minutes automatically activates on load dump, fan shut down signal or on tripping of the fan interlock protection system.

11. Switchgear and Auxiliaries

All load groups be evenly balanced and switched by suitably rated mechanical contactors. Each load group is protected by a dedicated re-settable circuit breaker.