



### 11kv distribution transformer

An 11kV distribution transformer is an essential electrical device used in the power distribution network to step down the high transmission voltage (typically 11,000 volts) to a lower voltage level (such as 415V/230V), which is suitable for use in residential, commercial, and light industrial applications. It serves as a final voltage transformation point in the power supply chain, ensuring safe and reliable delivery of electricity to end users.

This transformer operates at a primary voltage of 11kV and commonly provides a secondary voltage of 415V three-phase or 230V single-phase. It is designed for continuous operation under outdoor conditions and is often mounted on poles or ground platforms depending on the requirement.

The transformer typically uses oilimmersed cooling (ONAN type) where
transformer oil acts both as an insulating
and a cooling medium. The windings are
made of copper or aluminum, and the
core is made of high-grade silicon steel
laminations to reduce core losses and
improve efficiency.

It is enclosed in a steel tank filled with insulating oil and is fitted with accessories such as bushings, conservator tank, breather (with silica gel), Buchholz relay (in larger units), and earthing terminals. The transformer is designed with protection features to guard against overloading, short-circuits, and overheating.

An LT Panel (Low Tension Panel) is an electrical distribution board that receives power from a transformer or generator at a low voltage (typically 415V, 3-phase) and distributes it to various electrical devices and sub-panels. It plays a crucial role in managing, controlling, and protecting electrical power systems in residential, commercial, and industrial setups. LT panels are installed after the distribution transformer (like 11kV/415V transformers) and are responsible for distributing power safely to end-use devices such as lighting, motors, HVAC systems, and machinery. These panels are constructed from sheet metal enclosures and consist of busbars, circuit breakers (MCBs, MCCBs), switches, relays, meters, and protective devices.

## LT Panel



# Distribution Panel

A Distribution Panel, also known as a Distribution Board (DB) or Electrical Panel, is a vital component in the electrical power system that receives electrical power from the main supply source (like a transformer, generator, or LT panel) and distributes it to various branch circuits or loads in a controlled and protected manner.

It functions as the central hub of an electrical system, ensuring safe and organized distribution of electricity to different parts of a building or facility. Each outgoing circuit is equipped with protective devices such as Miniature Circuit Breakers (MCBs), Molded Case Circuit Breakers (MCCBs), or Residual Current Devices (RCDs) to isolate faults and prevent damage to the electrical system.

## **APFC** Panel

An APFC Panel, or Automatic Power Factor Control Panel, is an advanced electrical panel designed to improve the power factor of electrical systems by automatically switching capacitor banks ON or OFF in response to changes in load. It plays a vital role in ensuring energy efficiency, reducing electricity bills, and avoiding penalties from electricity boards for low power factor.



In any commercial or industrial facility, inductive loads such as motors, compressors, welding machines, HVAC systems, and pumps cause the power factor to drop. A low power factor leads to poor utilization of electrical power, higher apparent power (kVA), and increased energy charges. An APFC Panel helps by dynamically correcting the power factor, keeping it near unity (1.0).



# **MCC** Panel

An MCC Panel, or Motor Control Center Panel, is an essential electrical panel used for controlling, managing, and protecting electric motors in industrial and commercial applications. It houses multiple motor starters in one centralized location, allowing for easy control, operation, and maintenance of motor systems. MCC Panels are critical for ensuring safe and efficient operation of motors in factories, plants, and machinery-based environments.



### 11kV VCB Panel

An 11kV VCB Panel is a medium-voltage switchgear panel designed to control, protect, and isolate electrical equipment in power systems operating at 11kV. It uses vacuum circuit breakers (VCBs) as the main switching and protection devices. These panels are commonly used in industrial substations, commercial buildings, utility substations, and power distribution systems where medium-voltage power needs to be managed safely and efficiently.

The VCB technology utilizes a vacuum interrupter as the medium to extinguish electrical arcs during circuit interruption. Unlike air or oil circuit breakers, vacuum breakers offer superior arc quenching properties, faster operation, and require minimal maintenance.



### **Distribution Board**

A Distribution Board (DB), also known as a distribution panel, breaker panel, or consumer unit, is a vital component of an electrical power system that facilitates the safe and organized distribution of electrical energy from a single incoming power source to multiple outgoing circuits.

It serves as the central point in an electrical system, where electricity is divided and delivered to various loads such as lighting, sockets, air conditioning units, and appliances. A distribution board not only divides power but also includes protective devices like Miniature Circuit Breakers (MCBs), Residual Current Devices (RCDs), or Molded Case Circuit Breakers (MCCBs), which protect circuits from overloads, short circuits, and earth leakage faults. DBs ensure safety, control, and manageability of electrical supply within residential, commercial, and industrial premises.



# AMF Panel

An AMF Panel, or Automatic Mains Failure Panel, is an intelligent electrical control panel used to automatically switch between the mains (utility) power supply and a backup generator (DG set) during a power outage. It is a critical component in uninterrupted power systems, ensuring that the electrical load receives continuous power without requiring manual intervention.

AMF panels are widely used in commercial complexes, hospitals, data centers, industrial plants, and residential societies, where continuous power is essential. The panel monitors the availability and quality of the mains power supply and, in the event of failure or abnormal conditions (such as under-voltage or phase loss), automatically starts the Diesel Generator (DG) and transfers the load. Once the mains power is restored, it automatically switches the load back and shuts down the generator.

A PLC Panel is an industrial-grade control panel that houses a Programmable Logic Controller (PLC) and other necessary components to automate, monitor, and control machinery and processes in real-time. PLC panels serve as the brain of modern industrial automation systems, ensuring reliable and efficient operation across a wide range of sectors including manufacturing, power, water treatment, oil & gas, pharmaceuticals, and more. PLC Panels are designed to replace traditional relaybased control systems by offering flexible, programmable, and scalable automation. They receive inputs from sensors and field devices, process logic according to the programmed instructions, and generate outputs to control actuators, motors, solenoids, and other machinery.





उत्तर प्रदेश राज्य कार्यालय-1 ttar Pradesh State Office-1



Ref: UPSO-I/ELECT-PANEL/MAKE Date: 24.01.2023

M/s. M.S ENGINEERS E-46, Near Badi Masjid, Indra Nagar Lucknow-220816, Email Id-abdulshahid0808@gmail.com Mob No. 9415139138 & 964885000

Sub.: Approval for Supply of Electrical Panels for KSK,RO,COCO & Other Locations under UPSO-I.

Dear Sir,

We are pleased to inform you that your SLD, GA Drawing with BOQ has been approv
for supply of Electrical Panel for KSK,RO,COCO & Other Locations under UPSO-I.

The approval is being given with the following conditions.

- In case of any deficiency/deviation observed in approve panel, same need to be replaced /rectified at no extra cost to the contractor or Corporation. Further, such cases may lead to be enlittened.
   This approval is valid till satisfactory performance of panel and good feed back from contractors and inclinated field engineers.
   Records of Panel, invoices and taxation as per government norms shall be maintained up top or end.

The approval however does not provide guarantee of order for supply of Electrical Panel at locations under UPSO-I directly or indirectly.



पंजीब्दा कार्यालय : थी-क, असी मावर यंग मार्ग, मान्मा (पूर्व), मुन्बई - 400 Regd. Office : G-9, All Yavar Jung Marg, Bandra (East) Mumbal - 400 CIN : L23201 MH1959 GOI 011388

### CENTRAL POWER RESEARCH INSTITUTE TEST REPORT

415V, 4000A L.T. Switch Box

As per customer's requirement and procedure generally followed as per Cl. 10.11.5.3.3 & 10.11.5.3.5 of IS/IEC.61439.1, 2011 & IS/IEC.61439-2, 2011

Test Report Number : CPRIBPLSTNBMISC23T0230 Date: 20 No

Name and Address of the Customer

Name and Address of the Manufacture

Type
Description of test sample
Serial Number Serial Number Number of Samples Tested Date(s) of Test(s) CPRI Sample code Number(s)

Particulars of test(s) conducted Test(s) in accordance with Standard/Specification

Name of the witnessing persons Customer's representative Other than Customer's represen

Test subcontracted with and address the laboratory

Documents constituting this re Number of Secillogram(s) Number of Gaph(s) Number of Photograph(s) Number of Test Circuit Diagrar Number of Drawing(s)









उत्तर प्रदेश शासन विद्युत सुरक्षा उ० प्र० शासन बिजली के ठेकेदारों को लाइसेन्स

द्धसरकारी विज्ञप्ति संख्या 1135-ई एल/XXIII-पी.बी.-94-ई.एल.ए.-58, दिनांक 11 मई, 1967 एवं संख्या 1038-ई एल/67-XXIII-पी.बी.-135/67, दिनांक 29 पई, 1967 द्वारा प्रधिकृतम् श्र अब्दुल नााहिद (स्न्याभी कार्म)

सर्वश्री सम ० स्स० इन्जीनियर्स, इ- 46 स्वीदम नगर, लखनक

को उपरोक्त विज्ञानि के अधीन उत्तर प्रदेश सरकार द्वारा बनाये गये नियमों के अन्तर्गत विज्ञानिक किया जिल्ला किया के किया जिल्ला किया किया जिल्ला किया जि

\_\_\_ विद्युत अधिष्ठापन कार्य करने के लिए एतदृहारा प्राधिकृत किया जाता है। LW- 3684 लाइसेन्स संख्या

निर्गमित करने का दिनांक 24-06-2024 अवधि समाप्ति का दिनांक 31-03-2025

वार्षिक निरीक्षण शुल्क का प्राप्तांकित मूल चालान प्रत्येक वर्ष 30 सितम्बर तक विलम्ब शुल्क के साथ 15 नवम्बर तक तथा नवीनीकरण शुल्क के

<mark>चालान के साथ लाइसेन्स 11</mark> मार्च तक निदेशक, विद्युत सुरक्षा के कार्याल में पहुँच जाना चाहिये। इस सम्बन्ध में सभी शुल्क उत्तर प्रदेश के किसी राजकोष में निम्न हेड ऑफ एकाउन्ट के अन्तर्गत जमा किये जाने चाहिये "004300102010100 विद्युत सुरक्षा निदेशालय

का दिनांक 1-4-2025 31-3-2026

दिनांक

सरकार के निदेशव के हस्ताक्षर

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निर्देशकुर्-विद्युत सुरकारः उत्तर प्रदेशान्सरकार।					
কা	अवधि समाप्ति का दिनांक	सरकार के निदेशक के हस्ताक्षर			

### CENTRAL POWER RESEARCH INSTITUTE

TEST REPORT

CPRIBPLSTNBMISC23T0230 Date: 20 Novemi



DESCRIPTION OF SAMPLE TESTED

415V, 4000A L.T. Switch Board (Non Exte Power Cum Motor Control CentreOutdoor Main Distribution Panel MSE/2324/70K

Currents Rated Current ( $I_{loc}$ ) in A : 400 Rated current of a main outgoing circuit ( $I_{loc}$ ) : NA

ed conditional short-circuit current (I<sub>cc</sub>) in

50 -Nil Nil Three Phase + Neutral No

: /Not Applicable

(Prabakaran T) Test Engineer





### M/S M.S. ENGINEERS

REG.OFF:- E-46, SARVODAY NAGAR, NEAR BADI MASJID INDIRA NAGAR, LUCKNOW-226016(U.P.)

has been independently assessed and is compliant with the requirements of

### ISO 9001:2015

This certificate is applicable to the following product or service ranges:

DESIGN, MANUFACTURE & SUPPLY OF LT PANEL, PCC PANEL (POWER CONTROL CENTRE), MCC (MOTOR CONTROL CENTER), APFC (AUTOMATIC POWER EXCITOR CONTROL), AC DRIVE PANEL, PLC (PROGRAMME LOGIC CONTROLLER) BASED PANEL & ALL TYPE OF MCB BOARD & CONTROL PANEL

:: Certificate No :: IN8633A

Date of this initial Registration

Date of this certificate

18 August 2018 18 August 2018

Recertification Due/ Certification expiry

17 August 2021

Inty of this Certificate is subject to completion of surveillance audit on or before to be conducted this Certificate shall be suspended I withdrawals. This and shall be returned immediately when





ntegral Certification (P) Ltd. -60 (3rd Floor), Shakar Pur, Laxr mail: info@iclcert.com





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**GET IN TOUCH** 





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