Three-level distribution box model



Overview

This hierarchical arrangement forms a three-level distribution relationship from main to branch to end-user.

Key Takeaways

A three-level distribution box system consists of a primary (main) distribution box, a secondary (sub) distribution box, and a tertiary (final) distribution box, each serving distinct roles in power distribution. Overview of the Three Levels1. Primary Distribution Box (Main Distribution Box) This is the top-level hub of the system, usually installed near the power source or substation.

Its main functions include receiving electrical energy from the grid or transformer, distributing it to lower-level boxes, and providing centralized monitoring and control. Typical components include the main circuit breaker, main leakage protector, voltmeter, and ammeter. It manages the overall power supply for the site or building and ensures safety and centralized control of the electrical system.

2. Secondary Distribution Box (Sub-Distribution Box) Located in specific areas or near large electrical equipment, the secondary distribution box receives power from the primary box and redistributes it to tertiary boxes or branch circuits. It typically contains branch circuit breakers, branch leakage protectors, and disconnect switches.

This level ensures that power is safely and efficiently distributed to different zones or systems within the site, protecting individual circuits and equipment. 3. Tertiary Distribution Box (Final Distribution Box / Switch Box) The tertiary box is the last level in the distribution hierarchy, directly supplying power to end-user equipment.

© 2026 FD SOLUCIONES OPTICAL SYSTEMS - All rights reserved

It is installed close to the electrical devices it serves and includes necessary protection and control devices. This level is often used for decentralized or small-capacity power distribution, such as temporary facilities, small machinery, or localized electrical loads.

Applications and Specifications

Construction Sites: The three-level model forms a tree-like network, with the main box at the top, sub-boxes in each area, and switch boxes near equipment. Load capacity for a single distribution box typically ranges from 50–150 kW, with the main switch rating determined by the number of lower-level boxes and total power consumption. Buildings and Industrial Facilities: This hierarchical structure ensures clear wiring logic, efficient power management, and safety compliance.

Each level is physically associated with its corresponding equipment, making monitoring and maintenance easier.

Summary

The three-level distribution box system is a tiered power distribution architecture designed for safe, efficient, and organized delivery of electricity from the main source to end devices. The primary box handles overall control, the secondary box manages intermediate distribution, and the tertiary box directly powers equipment, forming a clear hierarchical structure suitable for construction sites, industrial plants, and large buildings.

Article Content

The Three-Tier Power Distribution System: A Guide to Data Center ...

The Three-Tier Power Distribution System: A Guide to Data Center Operational Safety Understanding the architecture that defines power stability—from main incomer to terminal load, with

The Distribution Cabinet Realizes The Internal Hierarchy Of A Three ...

This hierarchical arrangement forms a three-level distribution relationship from main to branch to end-user. In engineering implementation, this architecture manifests as a progressive power transmission

three-level distribution system_switchgear_Switchboard_circuit

The three-level distribution system refers to a system that distributes electric power through three levels of distribution devices from the incoming power line at the construction site to

The difference between the first,second,and third levels of ...

© 2026 FD SOLUCIONES OPTICAL SYSTEMS - All rights reserved

Generally, first level distribution does not allow direct use of electrical equipment, and second level distribution will be by power equipment because it is three-phase electricity, while third

General average model of T-type three-level converter for active ...

This paper proposes the structure and the average model for a T-type three-level active compensation device in the Peterson-coil grounding, consisting of one controlled voltage source and

The Meaning and Function of Primary, Secondary, and Tertiary ...

Tertiary Distribution Box: The final connection box for each electrical appliance, which can be movable or fixed. Residual current devices must be the final protective device, with each

Three Phase Distribution Box Functions and

A three phase distribution box works for both permanent and temporary setups. Event planners, factories, and building sites use these boxes to keep things

Three-Layer Hierarchical Model in Cisco

This low level of networking provides easy sharing of media and files between individual workstations and printers connected to the LAN, as well as

What is the Cisco Three-Layered Hierarchical Model?

Redundant routing paths to the core must be designed at the distribution layer for minimal loss of traffic to the core. At this layer we can design a redundant gateway design to serve the access layer using

What is Level 1, Level 2 and Level 3 distribution box

Three level distribution: That is, a distribution electric box is arranged under the general distribution box, and a switch box is arranged under the switch box, and electrical equipment is

Three-Layer Model

This article explains the three-layer model, which it can help you design, implement, and maintain a scalable, reliable, and cost-effective.

Cisco three-layer hierarchical model

This article describes the Cisco three-layer hierarchical model which includes the Access, Distribution, and Core layers.

Rummler and Brache''s Nine Boxes Model Explained

© 2026 FD SOLUCIONES OPTICAL SYSTEMS - All rights reserved

Nine Box Model and Organizational Strategy Rummler and Brach''s nine-box model helps identify the questions that need to be answered for an organization''s strategy to guide the three

What is the Cisco Three-Layered Hierarchical Model?

Its main job is the interaction with the core layer as well as the access layer. Large configurations are applied on the distribution layer ranging from routing protocols, static routing, high availability

The difference between the first,second,and third levels of ...

Third level distribution box: refers to the final junction box of each electrical appliance, which can be movable and fixed. Remember that the leakage protection switch is the last one, and

Using the Box-Cox family of distributions to model censored data: a ...

In this paper, we present the Box-Cox family of distributions under the distributional regression framework as a solid alternative to model censored data.

3 Layer Cisco Hierarchical Model

3 Layer of Cisco Hierarchical Model Core Layer – This layer is also referred to as Network Backbone Layer and is responsible for providing fast

Normal distribution

A random variable with a Gaussian distribution is said to be normally distributedand is called a normal deviate. Normal distributions can be important in statisticsand

Contact Us

Continue your research online:

Website: https://fdsoluciones.es
Technical inquiry: https://fdsoluciones.es/project-enquiry.html

This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

© 2026 FD SOLUCIONES OPTICAL SYSTEMS - All rights reserved