

What category does the junction box belong to



Overview

A small metal, plastic or fiberglass junction box may form part of an or (TPS) wiring in a building. If designed for surface mounting, it is used mostly in ceilings, concrete or concealed behind an access panel—particularly in domestic or commercial buildings. An appropriate type (such as that shown in the gallery) may be buried in the of a wall (although full conceal.

Key Takeaways

Junction boxes belong to the category of electrical enclosures used to protect and organize wire connections, and they can be classified by material, application, and environmental rating. Material-Based Categories

Junction boxes are primarily made from plastic (PVC, ABS, polycarbonate) or metal (steel, stainless steel, aluminum). Plastic boxes are lightweight, corrosion-resistant, and cost-effective, making them suitable for residential and light commercial applications. Metal boxes offer higher mechanical strength, fire resistance, and grounding options, making them ideal for industrial, outdoor, or harsh environments .

Application-Based Categories

- Residential: Small plastic junction boxes for indoor wiring, outlets, and switches .
- Commercial: Metal surface-mount boxes for durability and compliance in offices or commercial buildings .



- **Industrial:** Heavy-duty metal boxes, often NEMA 12 or NEMA 4X rated, for machinery wiring, factories, and harsh environments .
- **Outdoor:** Waterproof or weatherproof boxes (IP65/IP66 or NEMA 4X) for lighting, solar systems, and HVAC units .
- **Hazardous Areas:** Explosion-proof boxes for oil, gas, chemical plants, or mining operations .

Specialized Categories

Some junction boxes are designed for specific purposes:

- **CCTV Junction Boxes:** Protect camera connections .
- **Conduit Boxes:** Organize multiple conduit runs .
- **Maintenance-Free Boxes:** Sealed units requiring minimal upkeep .
- **Multi-Gang Boxes:** Accommodate multiple devices in one location .
- **Round Pan or Pancake Boxes:** Shallow design for ceiling fans or lights .

Environmental and Safety Ratings

Junction boxes are also categorized by IP or NEMA ratings, which define their protection against dust, water, and hazardous conditions. For example, NEMA 1 is for basic indoor use, NEMA 4X for waterproof and corrosion-resistant outdoor use, and explosion-proof boxes meet ATEX or UL Class/Division standards for flammable environments . In summary, junction boxes are electrical enclosures that can be categorized by material, application, specialized function, and environmental rating, allowing selection based on safety, durability, and compliance requirements.

Article Content

Junction box

A small metal, plastic or fiberglass junction box may form part of an electrical conduit or thermoplastic-sheathed cable (TPS) wiring system in a building. If designed for surface mounting, it is used mostly in ceilings, concrete or concealed behind an access panel—particularly in domestic or commercial buildings. An appropriate type (such as that shown in the gallery) may be buried in the plaster of a wall (although full conceal

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