

# JOB ROLE – Consumer Energy Meter Technician

Sector: Power  
(Qualification Pack Code : PSS/Q0107)



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Shyamla Hills, Bhopal – 462013, Madhya Pradesh, India

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## **Unit 3: Electrical wiring components and accessories**

### **Session 1: Identify and select the wiring materials and components**

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# Session Objectives

1. The student will be able to understand Different type of Wiring Materials.
2. Identify Different types of Wiring accessories.

# Introduction

Electricity requires electric path to flow and there are so many conducting materials which are used for electricity flowing. There are so many semi conductor materials which are used to reduce the voltage and also drop the current flow and there are non conducting materials which are used as insulation during working in live lines. In this unit we will study how the house hold/Industrial wiring will be done and what materials are essential for house hold/Industrial wiring we also study how the wiring is being done and types of wiring.

## Wiring materials

Introduction materials used in wiring is called wiring materials, like copper, aluminium and silver. Silver is very costly so instead of this, mostly copper and aluminium are used in wiring.

Materials are of three types :

- A. Conducting material
- B. Insulating material
- C. Semiconductor material

**Conducting material :**

**Copper :**

These are good conductor of electricity. It is used in wiring materials in cables. Its resistance is low. It is used for conduct electricity in high, medium and low voltage.

It is used in wiring and cable making.



## **Aluminium :**

It is of light Weight in comparison to copper. Aluminium is cheaper than copper. So this type of conducting material is mostly used in electrical wiring. Its color is silvery –white and it is soft.

It is used in wiring and cable making.

## Insulating materials

This type of materials do not conduct current like rubber, paper, mica, wood, glass, cotton.

## Wiring Accessories

Wiring Accessories are Surface switches, Flush switches, Ceiling switches, Pull switches, Push button switch, Bed switch, Pendant holder, Batten holder, Ceiling Rose, Socket outlet/ Plug, Main switch.







Material for PVC casing capping wiring are

1. wire.
2. casing enclosures made up of plastic.
3. capping made up of plastic.
4. T. Joints VIR or PVC insulated wire.
5. junction box.
6. elbow.
7. casing and capping joints.



## **MCB (Miniature circuit breaker)**

A **MCB** is used in new constructions instead of the older types of fuses. Circuit breakers are small devices used to control and protect the electrical panel and the other devices from overflowing of electrical power.



## Uses of MCB:

**1. Home Electrical Panels:** As with all breakers, the MCB is designed to protect the house from circuit overload. They are much safer than the typical fuses, because they can be reset manually and because they handle much larger amounts of power. The breaker can manage the flow of energy, distributing properly the voltage even when many devices run off the same power circuit.

**2. Lights:** Using MCBs in the lighting system of the house, because they can deal with the amount of power needed to light a house, especially if using specific types of lamps, such as fluorescent lights. When switching on the lights, there is a need for additional power which might cause problems to the circuit, especially when lights are used extensively in the entire house.

**3. Industrial Applications:** There are many small scale industrial buildings that use the MCBs instead of the old fuses. Some industrial applications that use miniature breakers are large stoves, and appliances used in restaurants, bakeries and food commercial stores.

## Conduit wiring

Electrical conduits refer to an electrical system used to protect and provide the route of electrical wiring. Electrical conduits are made of metal, plastic, or fiber and could be rigid or flexible. Conduits must be installed by electricians following standard regulations., For workshops and public buildings this is the best and most desirable system of wiring. it provides protection and safety against fire.

### **Conduit are of following types :**

1. Class A conduit : Thin layer steel sheet low gauge conduit.
2. Class B conduit : Thick sheet of steel high gauge conduit.

- **Material used in conduit wiring are:-**

- Gi wire.

- Elbow.

- Coupling.

- VIR or PVC insulated cables.

- Lock nut.

- Clip

- Junction Box

- **Concealed wiring**

- it is very laborious to install this wiring. The layout of this wiring is done under the plaster of the wall of the building.

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