

# Low Voltage Electrical Installation

## MODULE 4

### Chapter 2: Configuration, Tools, Equipment and Accessories

by

**Dr. Ahmad Syahiman Mohd Shah**  
**Faculty of Electrical & Electronics Engineering**  
**[asyahiman@ump.edu.my](mailto:asyahiman@ump.edu.my)**



# Module Description

- **Expected Outcomes**
  - Construct electrical wiring using suitable wiring tools and accessories.
  - Apply ethical principles and commit to professional ethics.

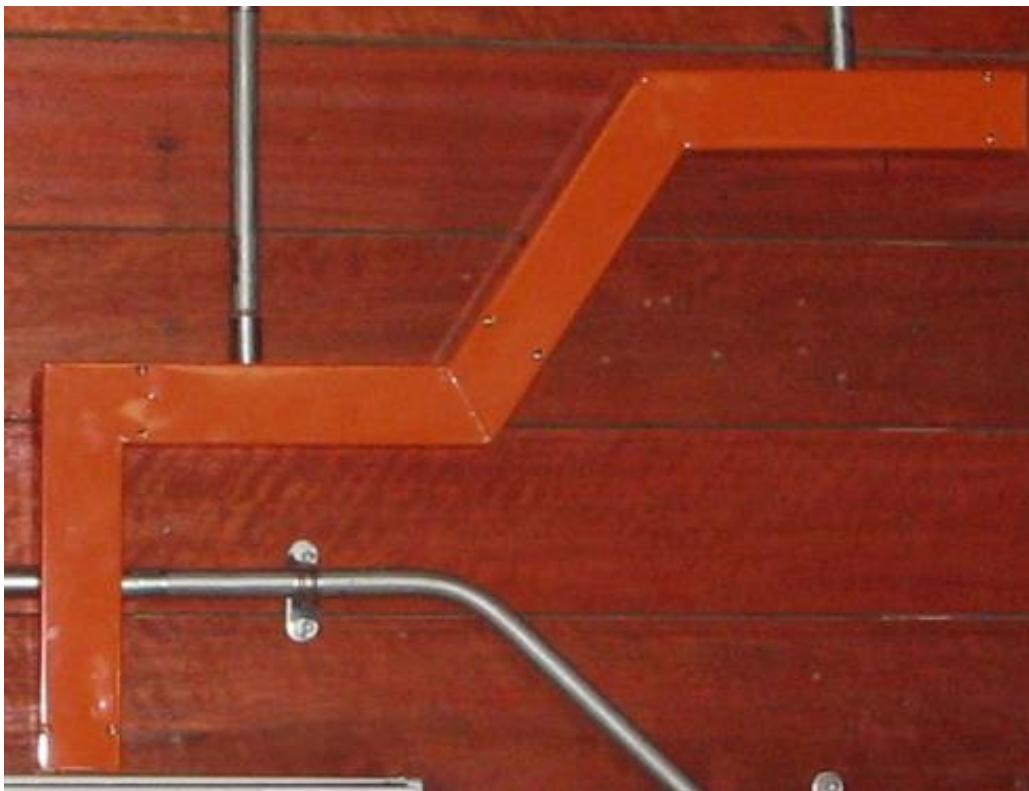
# Configuration of Accessories

- **Module Outline**

- Metal/Steel & PVC Trunking
- GI & PVC Conduits
- Socket outlet (3 phase)
- 1-way switch
- 2-way switch
- Bus bars (3 phase)
- Distribution Board box
- Screws
- Male – female adapter
- Cable
- 3-phase supply cable
- Clipper/saddle
- Multimeter

# Configuration of Accessories

- **Metal/Steel Trunking**



# Configuration of Accessories

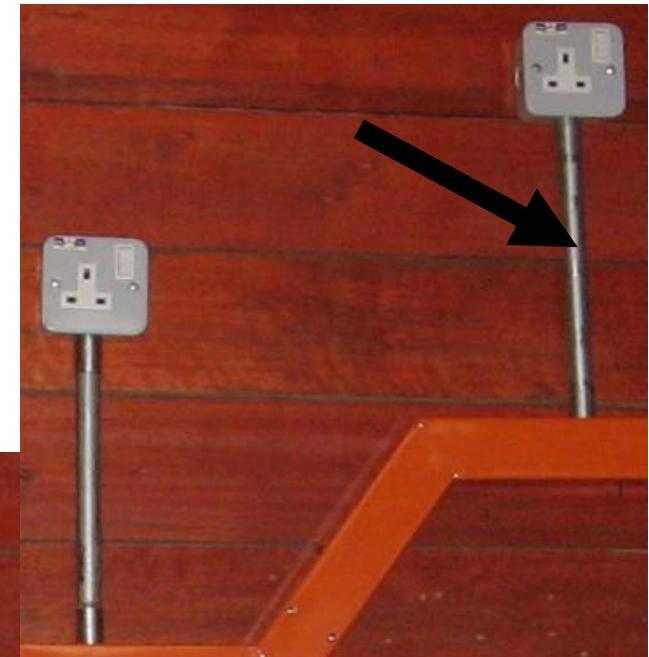
- PVC Trunking



Source: [4]

# Configuration of Accessories

- **Galvanized Iron (G.I.) Conduit**



# Configuration of Accessories

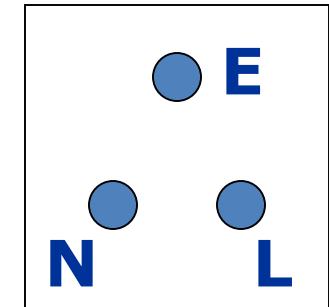
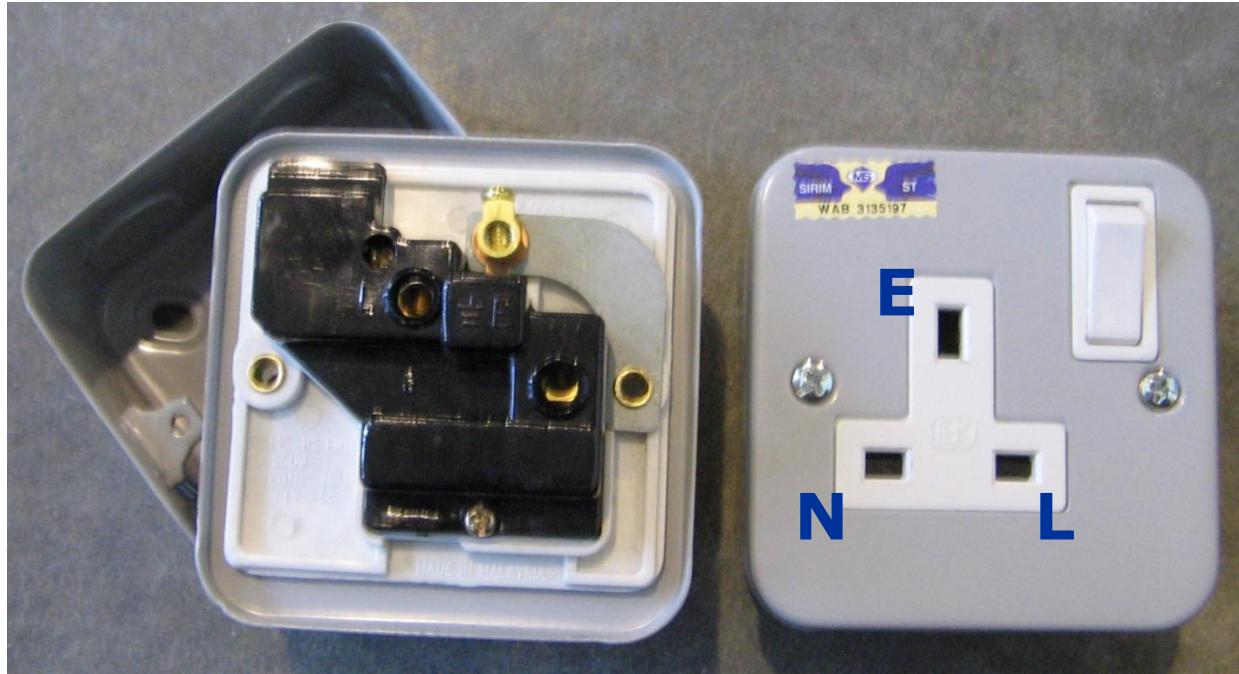
- PVC Conduit



Source: [5]

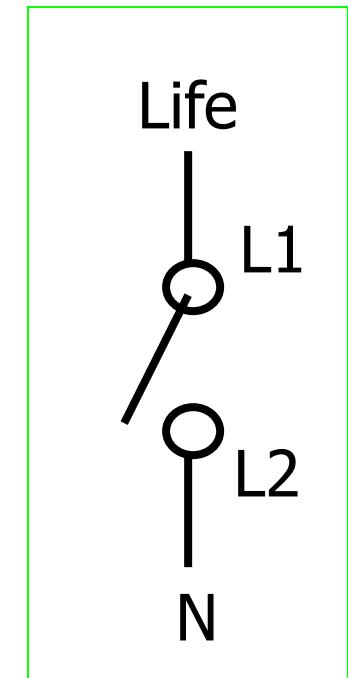
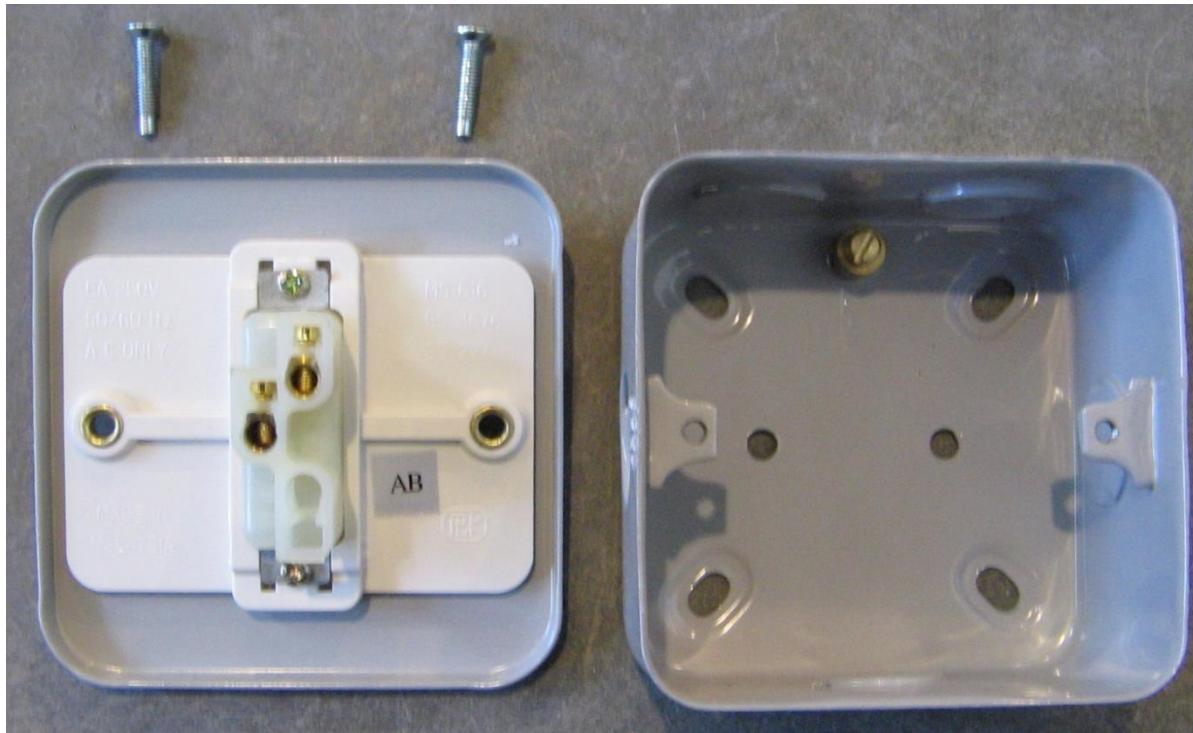
# Configuration of Accessories

- **Socket outlet (3 phase)**



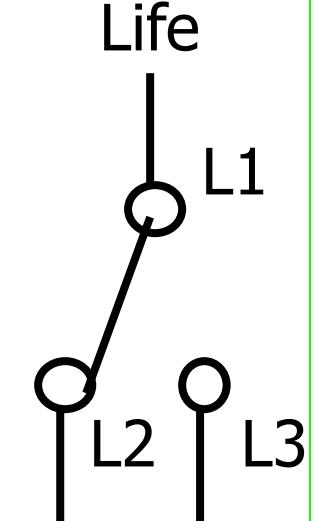
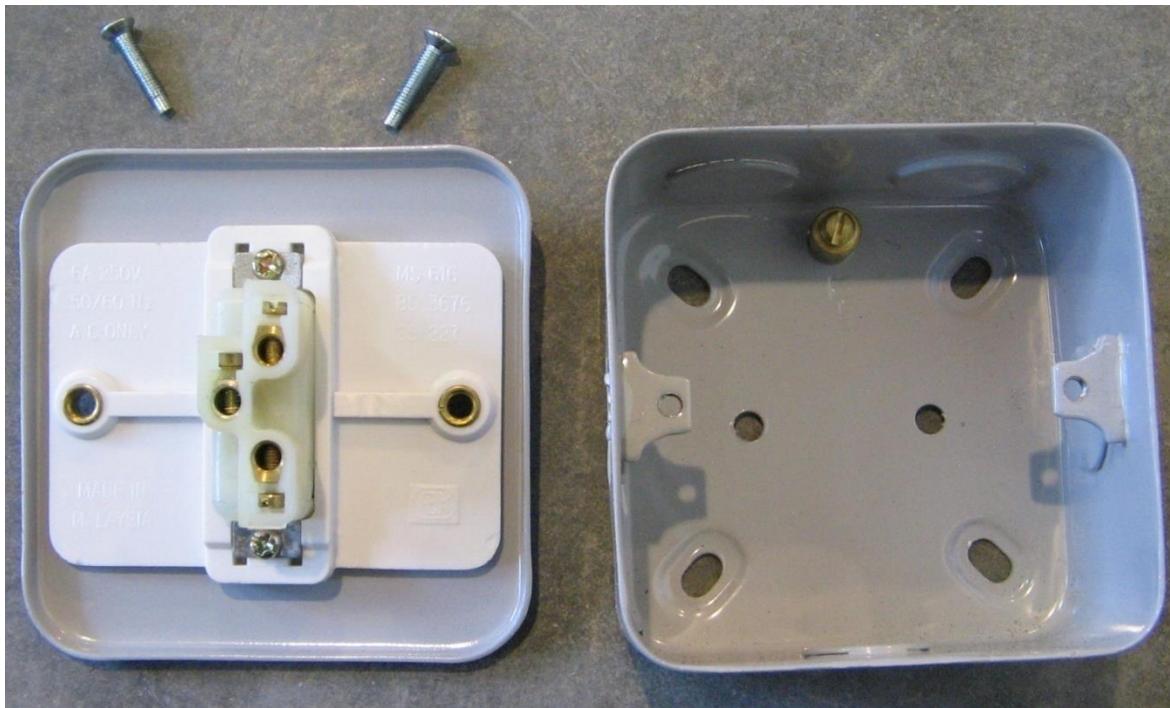
# Configuration of Accessories

- **1-way switch**



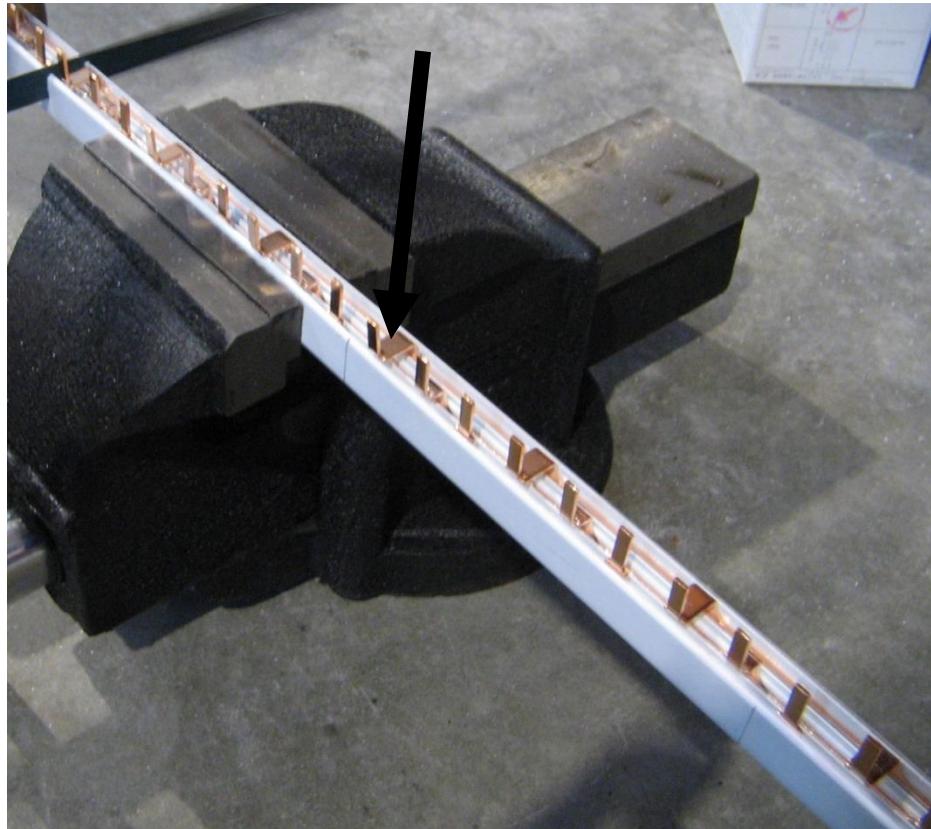
# Configuration of Accessories

- **2-way switch**



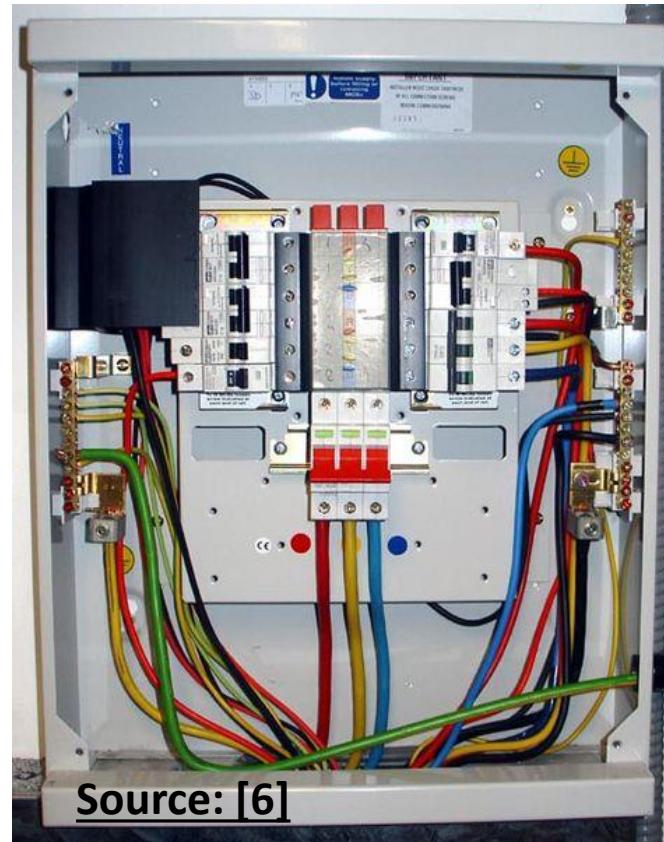
# Configuration of Accessories

- Bus bars (3 phase)



# Configuration of Accessories

- **Distribution Board**



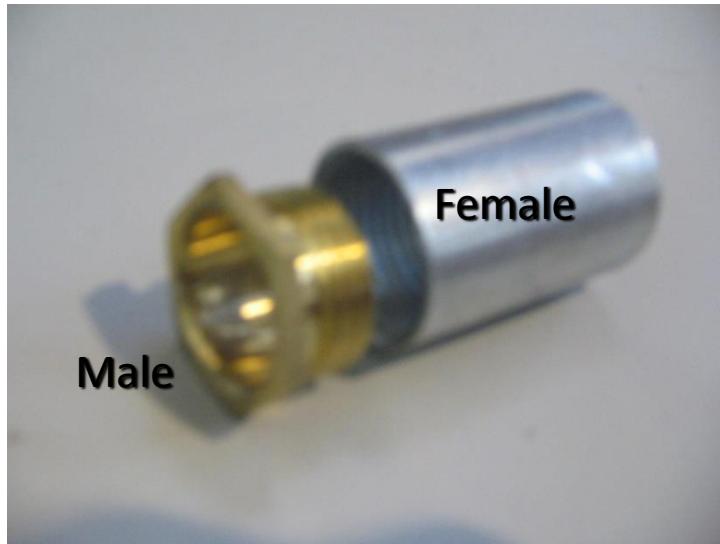
# Configuration of Accessories

- **Screws**

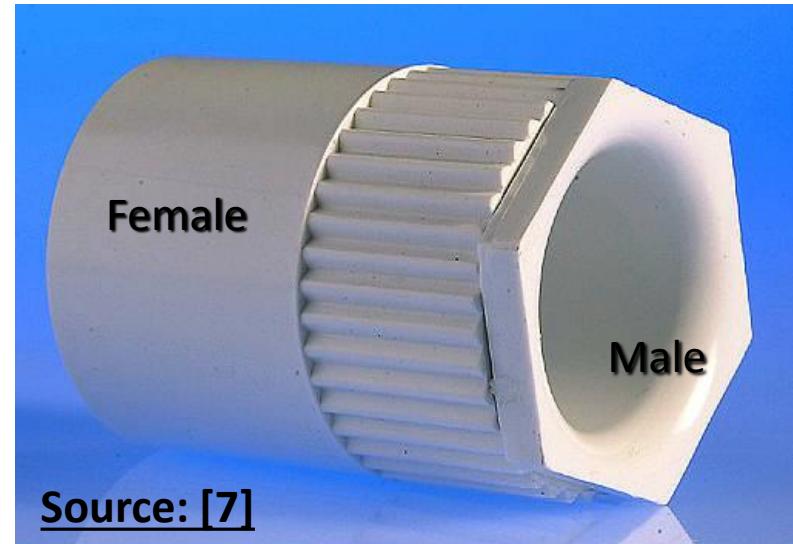


# Configuration of Accessories

- Male – female adapter (GI and PVC)



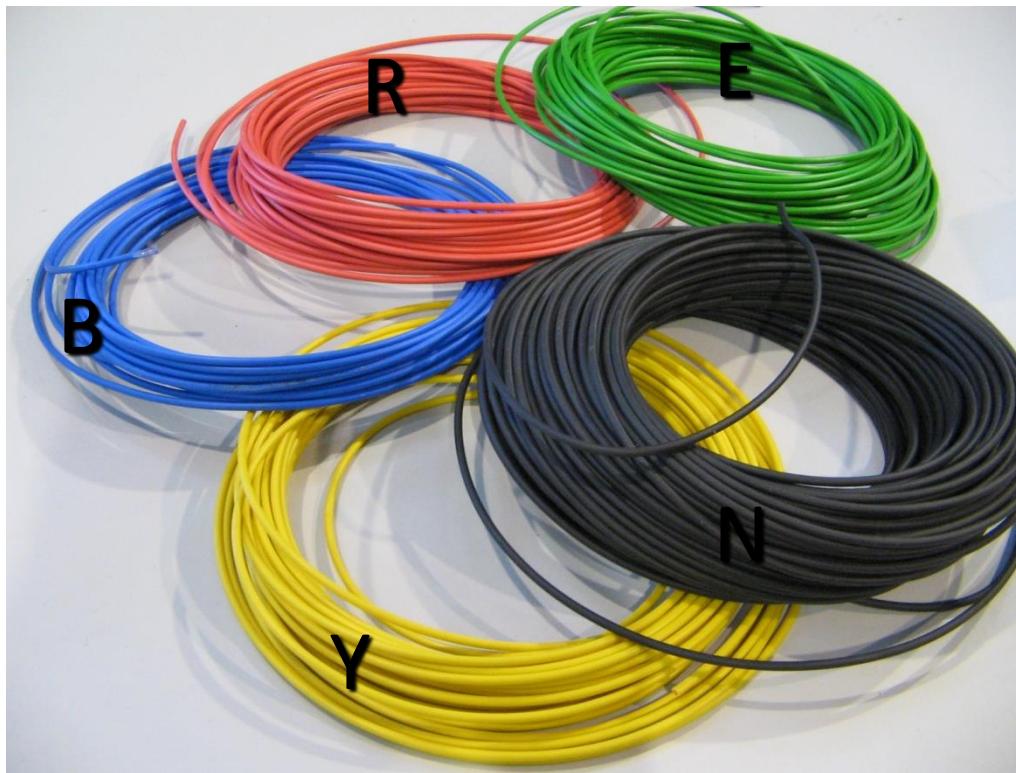
GI type



PVC type

# Configuration of Accessories

- **Conductor Cable**



**Size:**

**2.5 mm<sup>2</sup>**

**4.0 mm<sup>2</sup>**

**E = Earth**

**N = Neutral**

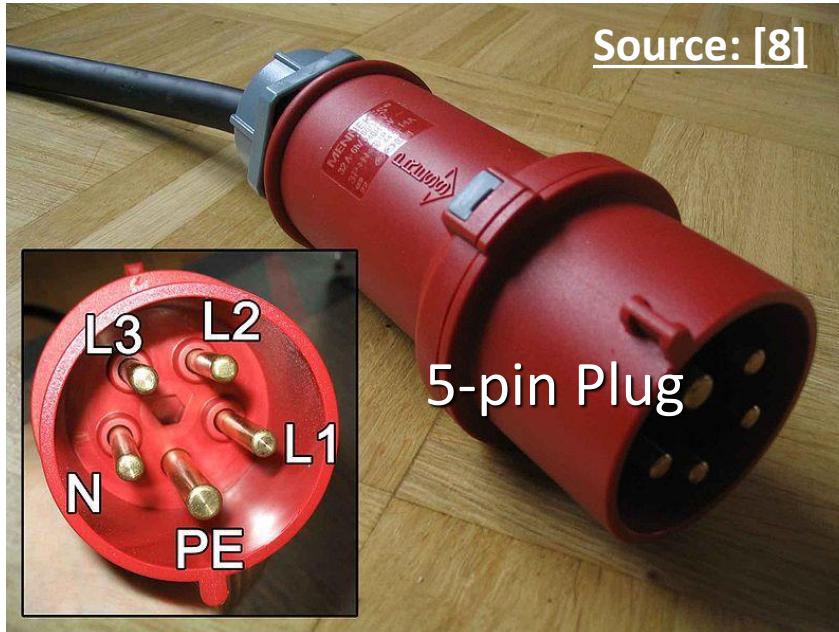
**R = Red (Live)**

**Y = Yellow (Live)**

**B = Blue (Live)**

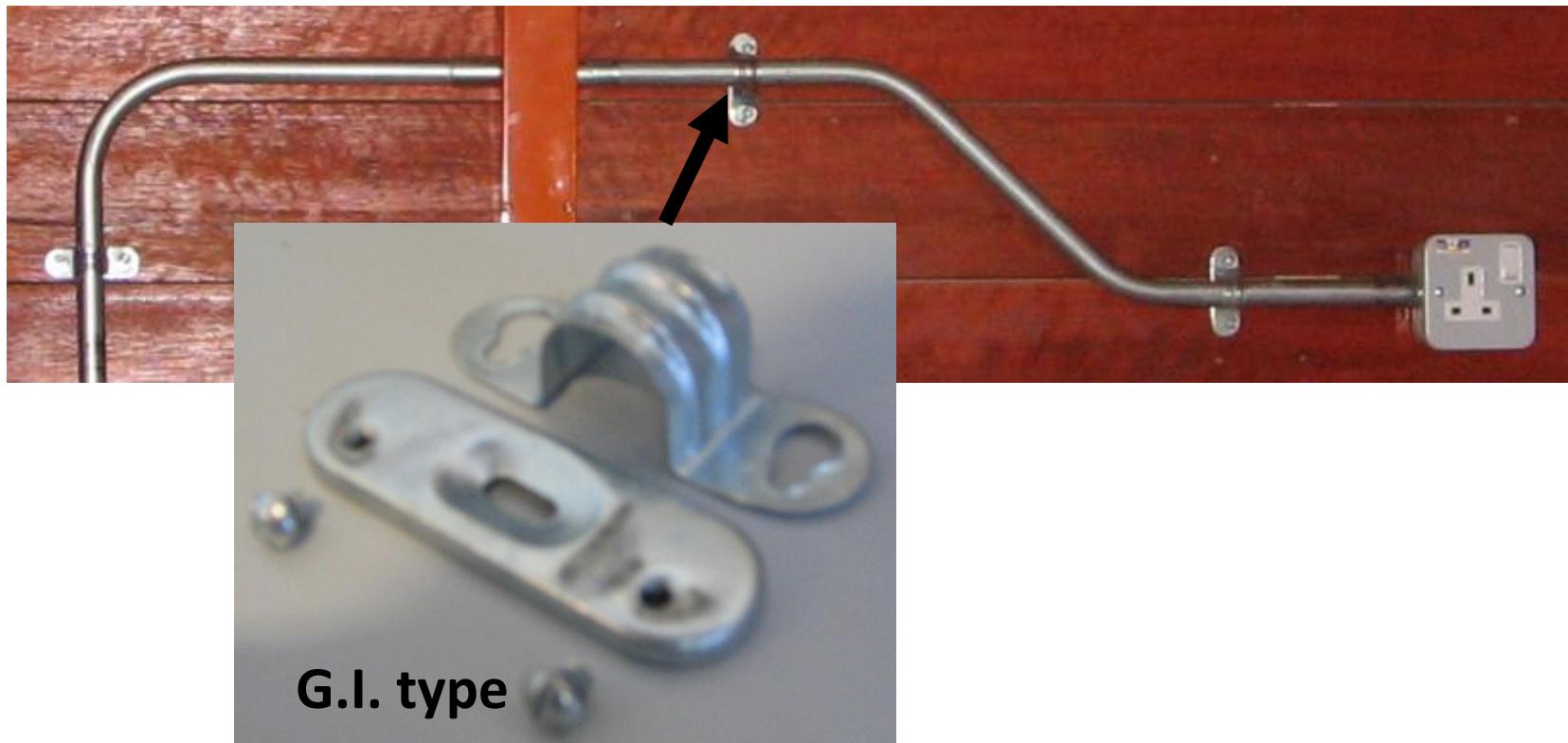
# Configuration of Accessories

- Three-Phase Supply Cable



# Configuration of Accessories

- Clipper/saddle



# Configuration of Accessories



- **Multimeter**

- To measure voltage (AC and DC)
- To measure current (AC and DC )
- To measure resistance
- To perform a continuity test

# References

- [4] Electrical Installation *Wiring Pictures, Underfloor trunking pictures*, <http://electricalinstallationwiringpicture.blogspot.my/2010/05/underfloor-trunking-pictures.html>, 2010.
- [5] Paul Goyette, *Grey Schedule 40 PVC plastic tubing for use as a conduit for electric wires*, [https://commons.wikimedia.org/wiki/File:Plastic\\_tubing.jpg](https://commons.wikimedia.org/wiki/File:Plastic_tubing.jpg), 2007.
- [6] Ali@gwc.org.uk, UK Electrical Distribution Board, <https://en.m.wikipedia.org/wiki/File:UKDistributionBoard.JPG>, 2004.
- [7] ccam108, *Double-ended female PVC conduit adapter*, <https://www.diynot.com/diy/threads/double-ended-female-pvc-conduit-adapter.447362/>, 2009.
- [8] Stephan N., 32 A 400 V 3L+N+ 6h-IP44-Stecker, [https://de.wikipedia.org/wiki/IEC\\_60309#/media/File:CEE-Stecker.jpg](https://de.wikipedia.org/wiki/IEC_60309#/media/File:CEE-Stecker.jpg), 2005.
- [9] Jakob Barfod, *2 mated 3P+N+PE plugs and wall-mounted sockets*, [https://commons.wikimedia.org/wiki/File:20061007\\_3P\\_N\\_PE\\_CEE\\_connectors.jpg](https://commons.wikimedia.org/wiki/File:20061007_3P_N_PE_CEE_connectors.jpg), 2006.

# Thank you

