203: Electrical installations technology  
**Handout 4: Symbols and scales**

**Learning outcome**

The learner will:

1. know how to obtain technical information.

**Assessment criteria**

The learner can:

2.3 recognise **symbols** used in drawings

2.4 convert scale from drawings to actual dimensions.

**Range**

**Symbols**: Switching (one way, two way, intermediate, pull, switched socket outlets, unswitched socket outlets, fused connection units, switched fused connection units) lighting points (fluorescent, incandescent, wall), cooker control unit, consumer control unit, integrated meter, fuse, circuit breaker.

# Symbols

Below is a selection of architectural symbols that you may find on a plan. These and others can be found on the inside rear cover of the IET On‑Site Guide.

|  |  |  |  |
| --- | --- | --- | --- |
| **Switching** | | | |
| one way | 08 One-way switch.png | two way | 08 Two-way switch.png |
| Intermediate | 10 Intermediate switch.png | pull | 11 Pull switch.png |
| **Socket outlets** | | | |
| Switched | 12 Switched S-O.png | Unswitched | 13 Unswitched.png |
| fused connection units | 15 Switch fuse connection unit.png | switched fused connection units | 15 Unswitch fuse connection unit.png |
| **Lighting points** | | | |
| Fluorescent | 16 Fluorescent.png | Incandescent | 17a Incandescent.png17b Incandescent.png |
| Wall | 18 Wall.png |  |  |
| **Various** | | | |
| Cooker control unit | 19 Cooker control.png | Consumer control unit | 20 Consumer control unit.png |
| Integrated meter | 21 Integrated meter.png | Fuse | 22 Fuse.png |
| Circuit breaker | 223 Circuit breaker.png |  |  |

**Scales**

There need to be plans or drawings of where everything should go if an installation is to be completed accurately.

Drawing on a piece of paper the size of a whole house or factory would clearly be impracticable so a plan is drawn to scale, ie it is first decided how much smaller everything needs to be drawn on the paper. In order to retain accuracy, everything obviously needs to be made smaller by the same amount.

The most common scales in electrical installation are: 1:20, 1:50, 1:100.

In each case, everything is a 20th, 50th or 100th of its normal size, respectively.

A scale drawing is a drawing that represents a real object. The scale of the drawing is the ratio of the size of the drawing to the actual size of the object.

**Example 1**

The length of a building is 60 metres, its width is 40 metres and it is drawn to a scale of 1:100. What are the length and breadth of the building on the drawing?

**Solution:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Length | | | Width | | |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

**Example 2**

On a plan with a scale of 1:50, a socket is measured at 23mm from a wall. How far from the wall must the socket be installed in the finished installation?

**Solution:**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| or |  |  |  |