

## ILLUMINATION TESTING KIT

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**Abstract** - In illumination systems, it's typically necessary to urge a structure which will have a decent performance on uniformity presently, luminaires optics are designed exploitation simulation applications. These applications have models of sunshine sources, that have a big impact on calculations results accuracy. nowadays there's no internationally accepted customary that establishes rules for coming up with a lighting system for interior areas. For many years, in many alternative contexts, we've been talking regarding human-centric lighting, though each the definition and also the exercise of this discipline are polemical and debated.

good light weighting system that is employed in our model and this easy light management style project was introduce to alleviate this short returning and gain expertise in resolution implementation and interfacing in our kit. Mercury vapour lamp is that the oldest high-intensity discharge technology lamp that uses an electrical arc, and comes in numerous shapes and style. By exploitation this we are able to observe the brilliant illumination of it. fashionable reflectors are employed in our system that have higher style higher reflection and focusing points that is employed in our illumination system

**Key Word:** HPMVL, Illumination, Reflector, LED, CFL, Incandescent, Etc.

### I. INTRODUCTION

The advent of reliable, energy-efficient lighting within the home and in our places of business has and continues to play a serious part within the modern way of life. Along with running water's impact on general health, and perhaps the internet's impact on interpersonal communication, it's hard to imagine a more impactful technology than lighting. As you would possibly imagine, lighting systems are a very important factor being used every day.

#### ❖ Natural Light:

The most important source of light is the sun and perhaps the most underappreciated use of this abundant light is an architecture designed to take advantage of it. One of the most well-known examples of Historical architecture utilizing daylight through its design is the Pantheon. Perhaps the most significant

architectural achievement from the Roman Empire, the Pantheon is designed almost entirely around the open-air circle at the top of its dome.

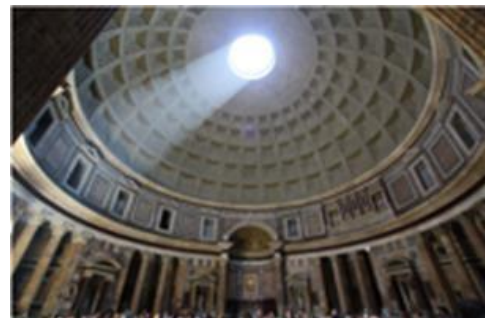


Fig.No.1 Natural Light

#### ❖ Torches:

According to the Illuminating Engineering Society, "the first attempt at man-made lighting occurred about 70,000 years ago. The first lamp was invented made of a shell, hollowed-out rock, or another similar non-flammable object which was filled with combustible material (probably dried grass or wood), sprinkled with animal fat (the original lighter fluid) and ignited." Handheld and building-mounted torches progressed well beyond their rudimentary start but the essential principles remain the same: the fuel source is a few types of oil, wax, or combustible material surrounded by non-flammable material



Fig. No.2 Torches

#### ❖ Gas lamps:

Gas lighting was developed in England in 1790 and introduced to us shortly thereafter by William Murdoch. Pelham Street in Newport, Rhode Island was the first

ever section of road in America to introduce Murdoch's gas lights (they were installed in 1792). But nearly, in the couple of decades later gas fuel was getting used for street lighting in major eastern cities of the United States like Philadelphia and Baltimore.

Different types of gas are used over the years including methane, acetylene, butane, propane, hydrogen, and gas. The expansion of gas lamps and therefore the infrastructure to support them in cities and suburbs mirrored the advancements of the age in hydrocarbon fuel production



Fig. No.3 Gas lamp

❖ **Incandescent light:**

Perhaps the person most well-known for the event of electrical light bulbs and therefore the infrastructure to support them is American inventor Edison. In 1879 Edison set out to invent the long-lasting electric light bulb that could compete with gas lighting (particularly for indoor use). His first successful prototype was on October 22,

1879 when his incandescent light burned for 13 and a half hours. This was the revolutionary advancement he was trying to find and it represented the required lighting technology required to determine electricity because the primary power source for lighting both indoors and outside.



Fig. No.4 Incandescent lamp

**II. CIRCUIT DIAGRAM**

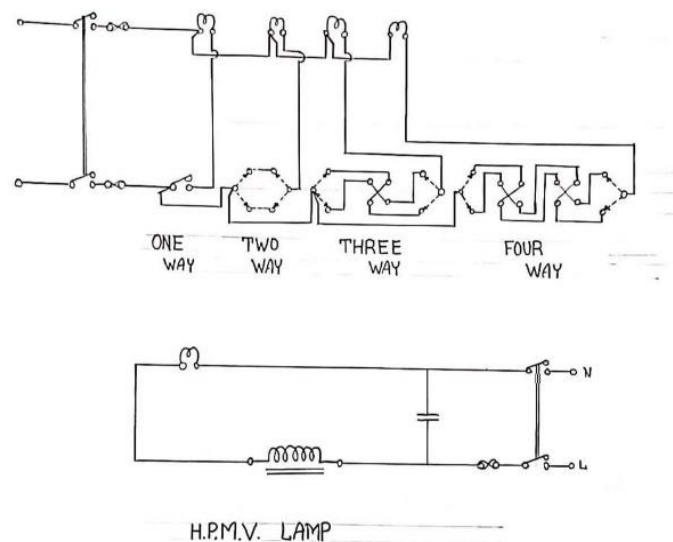


Fig No. 5: Circuit Diagram of Illumination Testing Kit

**III. IMPLEMENTATION**

The circuit diagram represents different types of switching methods and different types of lighting systems and working of High-pressure mercury vapor lamps. There is the variety of switches that are used some are used for lighting while others are used to disconnect power for servicing the typical switches. This is useful for controlling lighting system from a different location

▪ **Types of illumination kit**

Company	Efficiency Of Kit	Parts
Mangal-instrumentation	70%	Holders ammeter, voltmeter, switches, Wattmeter, lamps
Shenzhen-lite technology limited	97% - 99%	Illumination led tester, Power meter, Led bulb Optical test equipment

**Table no. 1 Types of illumination kit.**

**IV. COMPONENT USED IN ILLUMINATION TESTING KIT**

1. Lamps
2. Holders
3. Reflectors
4. Ammeter
5. Voltmeter
6. High-pressure mercury vapor lamp

**V. OVERVIEW OF COMPONENTS**

**1. Lamps And Reflectors**

The bulb is formed in such a fashion that the specified light distribution is achieved by reflection from the coating. The inaccurate shape of a bulb made by blowing molten glass restricts the accuracy with which the sunshine distribution curve are often reproduced. In order to eliminate highlights, which are particularly noticeable in illumination at short distances, a frosted finish. Certain special lamps that need a reasonably complex light distribution curve are equipped with reflectors.

**2. Ammeter**



**Fig no. 6 Ammeter**

An instrument that is used to measure the flowing current in the circuit is called the ammeter. The unit of the current is ampere and denoted by "A". So this device measures the flowing current in ampere is named as an ammeter or ampere meter. It is connected in series because the flow of current within the series circuit is the same.

**3. Voltmeter**



**Fig. No. 7: Voltmeter**

A voltmeter is an equipment that measures voltages of both DC and AC electric current on a unit of volts, millivolts (0.001 volts), or kilovolts (1,000 volts). Nowadays many voltmeters are digital, giving readings in digital format.

**4. Wattmeter**



**Fig no. 8: wattmeter**

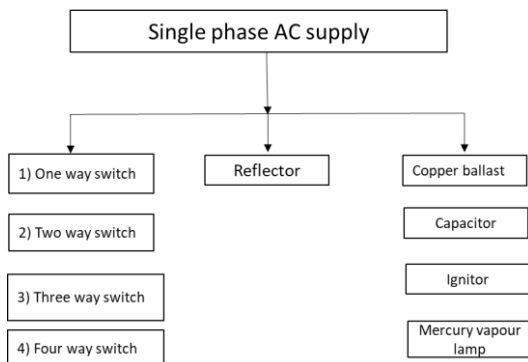
A wattmeter is a tool used to measure the amount of electricity being used. The wattmeter measures the electricity used in terms of the number of watts used. To use it, plug it into an outlet, then plug your electrical device into the wattmeter. It will measure the amount of electricity your device is using.

### 5. HPMV Lamp



**Fig no. 9: Mercury vapour lamp**

A lamp that consists of vaporized mercury to get light by using an electrical arc is understood as a mercury vapor lamp. Basically, this lamp discharges gas when heated or cooled. The mercury which is present inside the tube is in liquid form (at room temperature) which is ionized before generating light. Its wavelength at low ranges between 184 nm and 253 nm



**Fig no.10 Block diagram illumination testing kit**

### VI. CONCLUSION

Hereby we conclude that, By using various types of Switches, Lamps, Reflectors, HPMV lamp, in our testing kit it we have understood different types modern switching methods, studying various types of lamps, How to adjust reflectors, wiring technics, Connecting ammeter, voltmeter, wattmeter, to measure current, voltage and power also understanding connections of mercury vapor lamps and luminaries which are used in our daily day to day life, This is our final words on this topic and gives the reader a sense of closure.

### VII. FUTURE SCOPE

We can add advance wiring technics. Can upgrade switching methods. In this kit we can assemble reflector whose angle can be adjusted all over area. It can be of more than four compartments and sufficient space. Better insulation can be provided and cooling system for high pressure lamps.

### VIII. REFERENCES

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