

**NATURE SWITCH FOR AUTOMATIC CONTROL OF SINGLE PHASE OUT-
DOOR LAMP LOAD OF UPTO 3/5/8 kW
SWADEEP – 02EC 10**

General Design & Construction:

This consists of a circuit housed in a pole mountable enclosure consisting of overload protection fuse gear, Power Contactor, terminal blocks for cable connections, and control unit. The control unit is part of the enclosure and is based on infrared sensing. The load switching is handled by a Power Contactor of **16/25/40Amp** rating to handle the lighting load of **3/5/8 kW** respectively.

1) Design and Construction of Control Unit:

The electronic control unit consists of a circuit housed in a molded plastic casing sealed to conform to IP 54. The circuit consists of surge suppressors, infrared sensor and micro-processor based program logic.

2) Electrical Data & Specification of Control Unit:

- Operating Voltage Range : 150 to 300 VAC, 50-60 Hz.
- Switching Endurance level : Minimum 5,000 cycles
- **Operating Illuminance Levels**
 - For Switching ON : < 60 lux for >30 sec (per Std. Test Procedure)
 - For Switching OFF : >10 lux for >30 sec (per Std. Test Procedure)
- Max. Device Power Consumption : 1 Watt at 230 VAC
- Insulation Resistance : Minimum 5 Meg Ohms
- Operating Temperature Range : -10°C to +55°C (Ambient)
- Operating Humidity Range : Upto 95% RH at 40°C
- **Auto Over / Low Voltage trip & Reset levels:**
 - Auto High Voltage Sense and Trip : Above 285 VAC
 - Auto High Voltage Sense and Reset : Below 270 VAC
 - Auto low voltage sense and trip : Below 150 VAC
 - Auto low voltage sense and reset : Above 165 VAC
- Override facility for continuous 'ON' and continuous 'OFF' for maintenance.
- Duration based selection from 4 to 8 hours with half and hour resolution for night switch OFF.

3) Details and Specification of Power Switching Unit:

The Power Contactor is rated for switching of **16/25/40 Amp** load at 230 Volts AC and will be capable of handling a lighting load of upto **3/5/8 kW**. The Contactor's coil is driven by the control unit based on preset ambient light levels. The power contactor will have a coil rated for operation at 220 volts AC and conforms to IS or relevant IEC specifications.

4) Rating of MCB:

The protective MCB is of **20/32/63 Amp** rating for the lighting load rating model of **3/5/8 kW** respectively and conforms to IS or relevant IEC specifications.

5) General Specifications:

- 1) Wiring System : Single Phase 2 Wires.
- 2) The enclosure is meant for pole mounting with a suitable bracket.
- 3) The cabinet will have an open able door for connections and maintenance. The entry of cable will be from the bottom.
- 4) Terminal Blocks, Cable Glands etc. be suitable for 25 square mm cable.
- 5) The enclosure door will have a transparent portion for light entry to the sensing window of the control unit. The transparent portion of the window shall be UV protected and sealed from inside.
- 6) The enclosure will facilitate the use of a universal/Unique panel lock and common key for convenience. It also provides an opening at the bottom for better visibility of Multi-coloured LED to understand the operational state of control unit.
- 7) The enclosure will contain details regarding the electrical circuit diagram