

Kildare County Council- Periodic LED Speed Limit Sign Specification

PERIODIC LED SPEED LIMIT SIGNS – SOLAR OR MAINS

Periodic LED Speed Limit Signs are designed for use in locations where a reduced speed limit is required at certain times of the day - around schools, colleges, in towns or villages, and in traffic calming schemes.

The signs shall be fully programmable and can be easily set up to start or stop displaying at pre- determined times and dates to provide daily, weekly and yearly control.

The signs shall be available in a range of different configurations and sizes, in aluminium construction, LEDs for high visibility, flashing amber beacons and for low power consumption

Periodic LED Speed Limit Sign Requirements:

Signs shall be available in 4 sizes;

Type 1 – 900 x 1340mm

Type 2 – 900 x 2045mm

Type 3a – 600mm diameter roundel Type 3b – 750mm diameter roundel

- Strong aluminium construction Ultra bright LED's for high visibility
- Polycarbonate LED covers for high impact resistance 200mm Diameter LED Flashing Amber Beacons
- Low power consumption Fully programmable timer Automatic night time dimming

Each sign shall comprise of the Following:

- 1 x 3mm Aluminium casing.
- 1x LED amber beacon unit with 2no. 200mm diameter beacons.
- 1 x LED Roundel to required diameter.
- 2 x Solar panel modules.
- 1 x Lockable IP66 rated box.
- 1 x 100 amp/hr battery
- 1 x Solar regulator
- 1 x Theben 641S digital programmable timer or similar approved.
- 2 x Light dependant resistors.
- All required clips, brackets, cables & connectors etc.

SPECIFICATION

The sign shall be fully programmable and controlled by a digital timer which allows the given speed limit to be on display at pre-determined times as required. The digital timer shall also offer the possibility to program the sign in advance by day/week/month/year etc.- and to allow for programming for weekends, school holidays and summer/winter daylight saving.

Aluminium casing:

The casing shall be manufactured using 3mm engineering grade aluminium. The casing is manufactured to TSRGD regulations and has Highways Agency Type Approval to TR 2163C.

LED Amber Beacon & Roundel:

LED Amber beacons and roundel shall be integral to the casing the beacons are 200mm diameter and and protected by a polycarbonate cover.

Illumination of both the beacons and the roundel are by ultra bright LED's with automatic dimming capability. The LED's are Highways Agency Approved and always selected from specific batches to ensure conformity.

The Beacons will flash intermittently during the pre-programmed times and the roundel will be illuminated as controlled by the digital timer.

LED Requirements:

Provide highly luminous emission.

Provide 15, 23 or 30 degree viewing angle.

Utilise InGaN flip chip technology with protective diode.

- DC Forward current (mA) 30
- Peak forward current (mA) 100
- Average forward current (mA) 30
- Power dissipation (mW) 120
- Junction Temp. (0C) 130
- Operating Temp. range (0C) -40 to +85
- Storage Temp. range (0C) -40 to +100

Solar panel modules:

Two solar panels, polycrystalline solar modules shall be provided with the following characteristics.

The solar cells that make up the panel are shall be a standard size 15cm x 15.5cm to achieve over 16% efficiency, guaranteeing an extremely high annual yield of energy from the photovoltaic system.

The cells shall be embedded between a reinforced glass covering (hailstone resistance complying with IEC 61215, tested by TUV) and EVA foil, and are sealed with PET foil backing. The laminate shall be set in a sturdy aluminium frame for ease of assembly. The back of the junction box shall be equipped with by-pass diodes that eliminate the risk of the individual solar cells overheating (hot spot effect).

Single Panel Requirements:

- Length (mm) 526
- Width (mm) 652
- Depth / incl. Junction box (mm) 36/54
- Weight (kg) 4.5
- Connection type Screw Terminals
- Junction box (mm) 120x180x46
- IP Code IP65

Performance at 1000 W/m2 @ 25 degrees.

- Max. Power (W) 43
- Max. System voltage (V) 750
- Max. Power voltage (V) 17.4
- Max. Power current (A) 2.48
- Open circuit voltage (V) 21.7
- Short circuit current (A) 2.65

Battery box & battery:

The battery shall be supplied in a lockable box that is rated to IP66, the solar regulator, digital timer and battery shall be all housed together. The box is then housed on to the post behind the sign for ease of access.

The charge control shall be a solid state control unit which regulates the battery charge and discharge rates.

Battery Box Requirements:

- Single door enclosure rated to IP66.
- External mechanical impact resistance: IK 10.
- Door easily removable and reversible with double thickness 20mm return fold for excellent rigidity with a 120 degree opening.
- Supplied with 3mm double bar lock.
- One piece folded and welded body, double plate thickness gutter shaped front profile, flat rear panel.
- Polyurethane door seal.
- Textured 100% polyester powder paint finish, colour grey RAL 7032.

Battery Requirements:

- 100 amp / hour at 12 volts.
- AGM deep cycle gel energy battery.
- 400 cycles at 75% D.O.D.
- Deep discharge recovery.
- Totally sealed.
- Maintenance free.
- Un-spillable.
- Safe to transport.
- Flame retardant.
- Corrosion resistant.

Digital programmable timer:

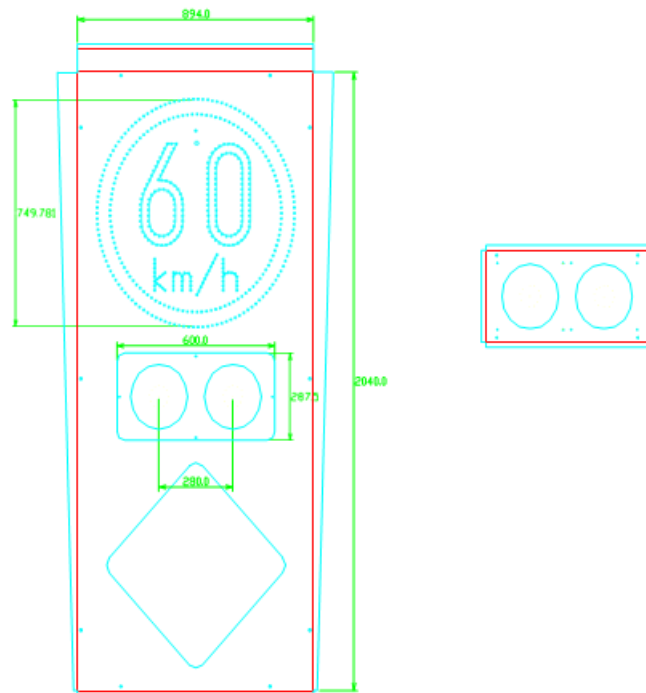
The timer used to control the sign shall be a Theben 641S/or similar approved solid-state control module. It can be programmed manually through buttons on the timer face or through software installed on a PC or laptop and then transferred to the sign by means of a small memory card.

The programs that are generated using the software shall have the ability to be saved and re-used/altered etc. for any other requirements.

- 10 standard week programs with ascending priority e.g. for different programs (public holidays, holidays, seasons).
- Software has a database available containing holidays that can be loaded as appropriate.
- Date correction for holidays in succeeding years, integrated calendar until 2070. Simple programming possible by means of ten key keyboard or PC.
- Simulation of the program on PC with an overview for the entire year for all channels. Manual switching possible by means of override and permanent switching.
- High battery reserve with lithium cell, easily replaceable from the front.

Digital timer requirements:

- 24hr/7d/year programming.
- 324 memory locations.
- 1.5 year power reserve.
- 1 second programmable.
- 1 x switching holiday setting 1....7 days.
- 1 changeover switch.
- Nominal current at 250V is 16 (10) A
- Weight of unit 500g.
- IP rating is IP20.



Periodic School Warning Sign Example

NOTE: Standard Sign Indicated 30KPH Roundel