

In-Pavement BrickLED Traffic Signal Light

For the prevention of road accidents to pedestrians

Tri-waterproof-IP 67, Anti high Strength Compression and Vibration, Auto Dimming

Compression > 50 tons



HT-ZCW-RB10



Application Background

With the development of social economy and the migration of population to cities, cars have gradually entered thousands of households, and the number of families with cars has increased. With the popularity of smart phones, Twitter, Whatsapp, Skype, Youtube, Facebook, Webchat, Weibo, and Android & iPhone Software, are becoming more and more. More and more people like to play mobile phones at any time, any place, more and more "phubber". Therefore, the traffic accidents of pedestrians and vehicles on zebra crossing are more and more frequent.

The existing pedestrian traffic light installed on the pole has very limited function of prompting, which can no longer meet the current needs:

- a. Pedestrian traffic lights are hung on the side above the opposite side of the road. Pedestrians need to look up to see clearly the color displayed by the traffic lights. When there are large vehicles passing by, or when there is a lot of traffic (due to height difference), they often cannot see the color displayed by the traffic lights on the opposite side of the road;
- b. The number of mobile phone bow heads is increasing;
- c. In case of heavy fog, rainy day and severe ice and snow weather;
- d. At the same time, Pavement Traffic Light can also provide warning function for motor vehicle drivers at night to slow down the vehicle in advance.
- e. Make people easily get traffic signals at traffic lights and cross the road safely.

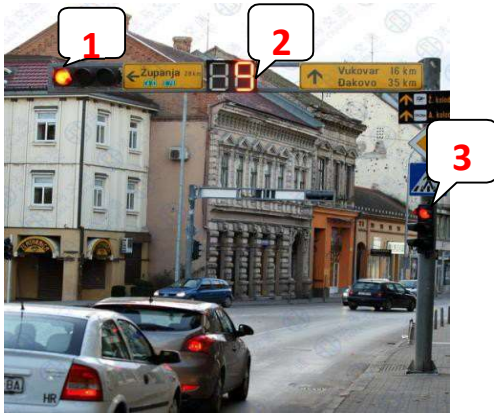
Traffic accident prevention facility is needed urgently for pedestrians and the vulnerable.

- I Need to improve the visibility and discernment of pedestrians signal at night;
- II Need to have the secondary information provider that lets the pedestrians on crossing know the current status of pedestrian signal;
- III Need to have pedestrian safety facility that clearly shows the boundary line between the road & the sidewalk, which pedestrians comply to the signal better for safety reinforcement.

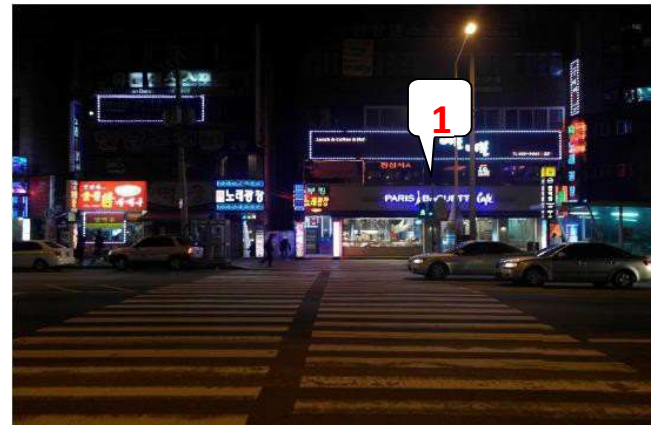
Product Summary

- ① Special Brick-like Design for Zebra Crossing Pedestrian. Our BrickLED are with high brightness. It can also play an eye-catching role in the daytime. With the unique reflective cup polarized design, from pedestrian side to see the light is Brighter and from motor vehicle side to see the light is darken. It is with 510nm Green light and 625nm Red light, good color uniformity, soft, not dazzling. The Light with the maximum brightness at daytime and automatically dim to 30% to 40% at night by photosensitive.
- ② Unique circuit design, if one LED chip is damaged, it affects only one single LED, and will not cause dark area.
- ③ Anti-high strength compression and vibration: Use 20 mm laminated double-layer bulletproof toughened glass, even if the first layer of glass is broken, the second layer will not be affected. And exclusive design with rubber spring buffer heavy truck when passing by the heavy pressure. The surface of toughened glass is provided with anti-skid design of studs
- ④ The embedded parts easy for maintenance, There is a maintenance door at the junction; the floor tile lamp and embedded parts adopt the separable design, and the product can be taken out only by twisting four screws during replacement and maintenance.
- ⑤ IP65 Power Supply, response time < 100ms, without delay, synchronized with pedestrian traffic lights;
- ⑥ Best heat sink with unique buried ventilation holes; Warranty > 2 years. Power: 5W~10W,
- ⑦ Novelty design with beautiful appearance, covered by 304 stainless steel surface. Friction can make it glossy.
- ⑧ Tri-Waterproof treatment: PU Glue filling + DOW CORNING(USA) + silicone waterproof ring, IP Grade: IP67.
- ⑨ Working Voltage: DC24V, Isolated Power Supply to ensure safety.

Status of Pedestrian Safety Facility



Various facilities for vehicles



Facility for pedestrians: Only one place=> Truly lacking



Phubber Increasing

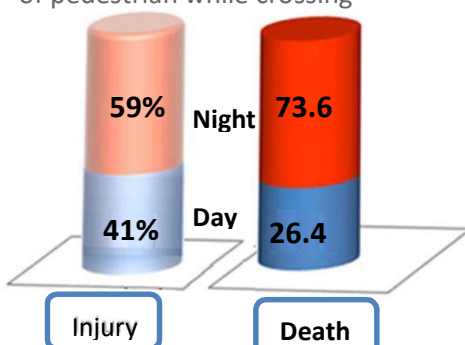
Status of Traffic Accident on Crosswalk

Death rate of
pedestrians whiles
Crossing At night 73.6%

Among the death rate of
pedestrian accidents The
Elderly 52.7%

Casualty Rate of
Pedestrians
while Crossing 61.2%

Day & night casualties comparison
of pedestrian while crossing



Source: Road Traffic Authority
(Korea Data 2015.8)

1 Pedestrian Jaywalking
Accident(59.4%)

2 Night time accident rate (73.6%) is higher than
daytime

3 The boundary line between the road & the
sidewalk,lack of crosswalk facility, etc. Road traffic
environment consideration for pedestrian

4 The Elderly, children, disabled, etc. Lacking
consideration for the vulnerable.

Expected Effect Comparision

Increasing 35% of visible range at night. Taking a role of psychological line that will not let people step on the LED Pavement Light.

Before

Disorderly wait in Line before crosswalk
(Unsafe crossing)



After

Orderly wait in Line
before crosswalk
(Safe crossing)



Operating pattern interconnected with pedestrian signal – Using 'RED' or 'Green' Pavement Light

Stop Signal Red On



Corresponding with stop signal of existing signal system, switching on the red light means attention.

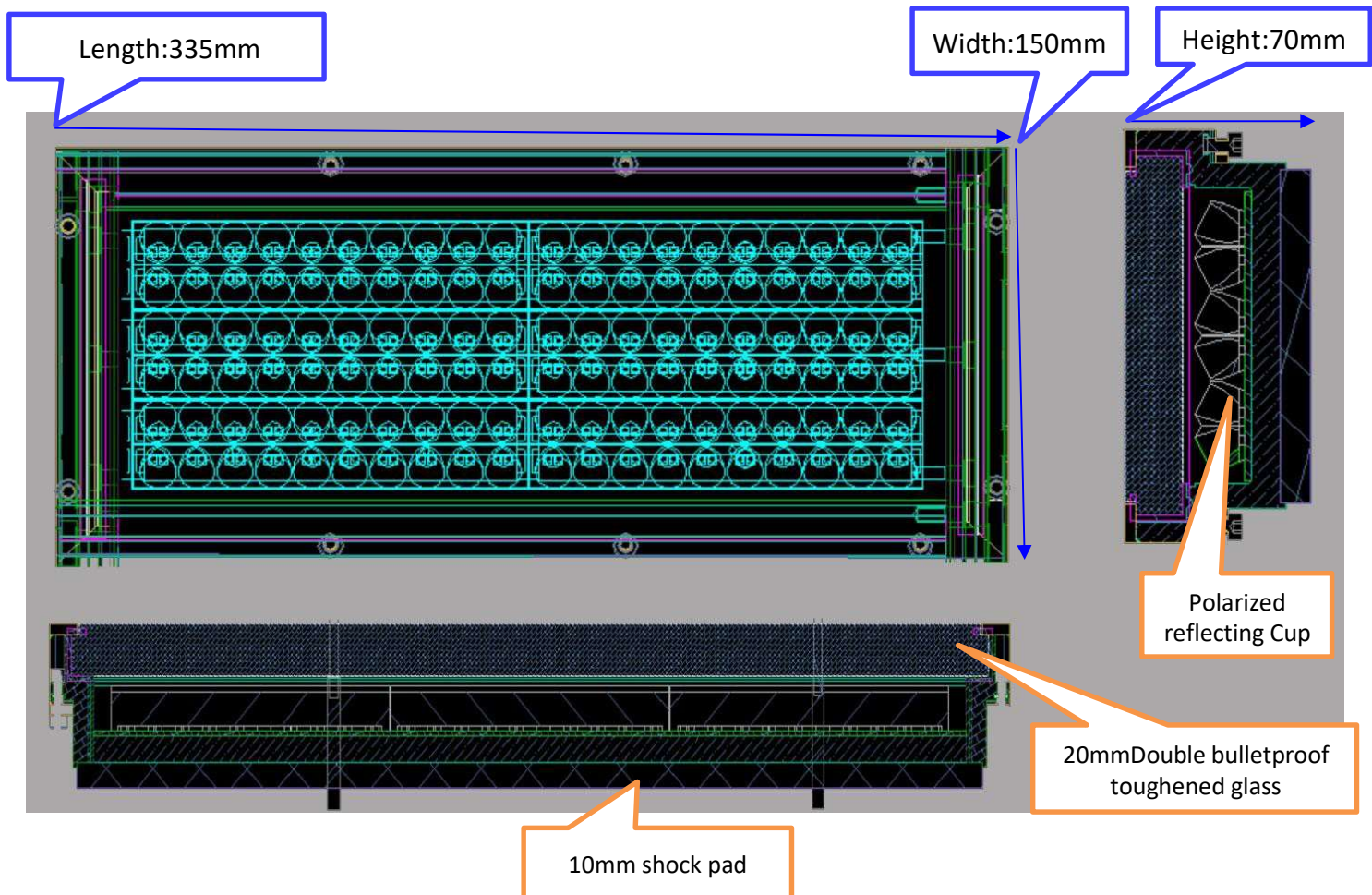
Go Signal Green On



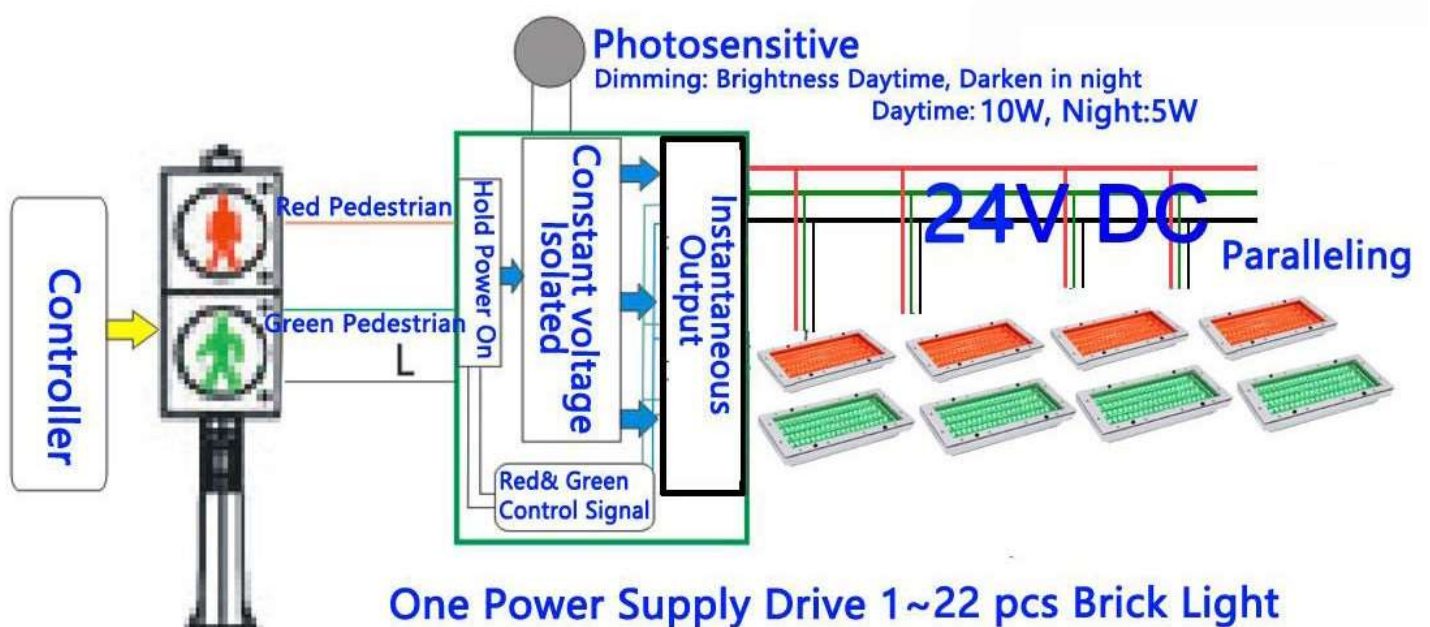
Corresponding with go signal of existing signal system, switching on the green light means enable to cross safely.

- Control jaywalking due to the role of the psychological line Secure visibility in case of night time or bad weather – minimize crosswalk accidents at night;
- Traffic accident prevention: school zone, senior zone, children zone, Advanced prevention: the elderly in the aging society, children, the vulnerable;
- Secure safe crossing due to having secondary device of pedestrian signal;
- Prevent accidents involved with the increased usage of smart phone, (92.7% rate of smart phone possession on the end of 2016)
- Contribute to decreasing socio-economic losses from traffic accidents; Annual socio-economic losses: approximately U\$ 2.1 billion;
- Advanced prevention due to securing visible crosswalk for drivers;
- As secondary safety facility that controls jaywalking and secures visibility for the vulnerable (people with amblyopia or low vision) and pedestrians.

Product Structure & Size



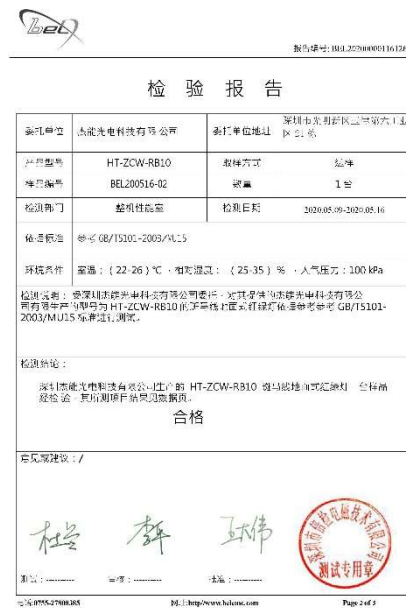
System Diagram



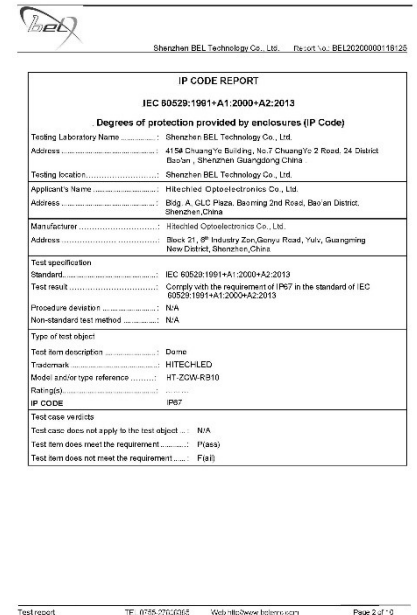
Certificates



CE



Compression Test
(MU15)

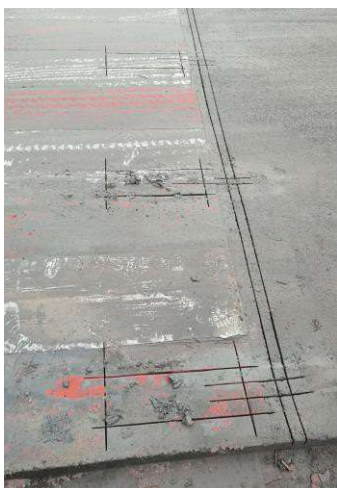


IP67

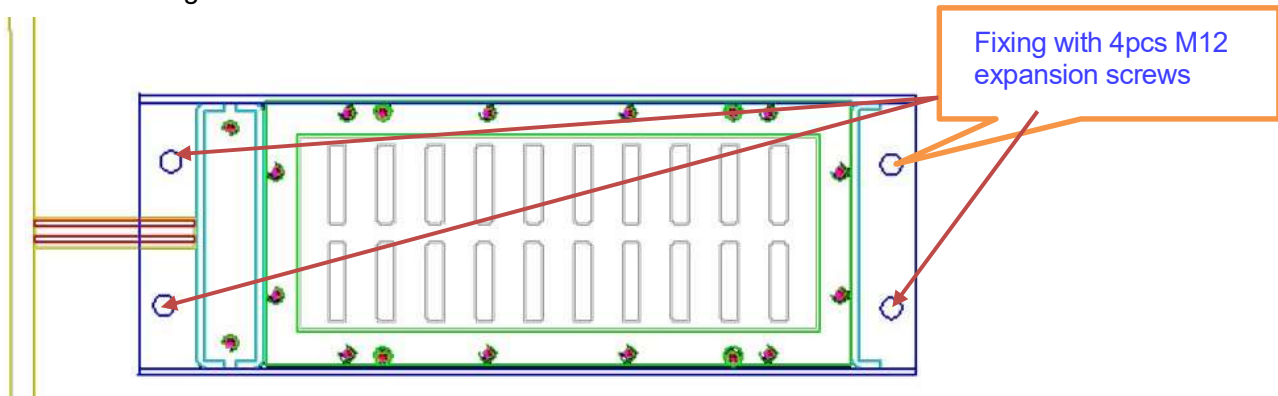
Construction Guidance

The project has following stages: hardware equipment in place, Broken Road cutting slot, put embedded parts installation, debugging, Road restoration, acceptance and other works. The total duration is 3-5 working days.

- Road grooving:** The slot size is length 430mm, width 160mm and depth 70mm. As illustrated. The location of slotting is usually arranged at two ends of the zebra crossing in the middle of the road. The wire narrower trunking is better. It is necessary to embed the conduit to protect the wire from being crushed. Iron pipe or PE corrugated pipe can be used.



②**Laying of embedded parts:** put the embedded parts into the cut groove. If the gap between the two sides is too large when cutting the groove, the two sides of the embedded parts shall be leveled with cement paste; the bottom shall be properly paved with cement mortar. For each embedded part, two M12 expansion screws need to be driven into each end, as shown in the figure:



③**Power supply Install:** The size of power supply is 26 cm length, 6 cm width and 5.5 cm height. The power supply is encapsulated with full-filling silica gel. waterproof grade IP66 . The power supply is slim type, which can be plugged into the lamp pole or the signal lamp shell, or install a control box on the lamp pole. Pay attention to the waterproof of the high-voltage terminal wiring to avoid leakage.

④**Connect Power Supply:** Each power supply can support meter 1~22pcs brick lights.It can take 100~277V AC electricity direct from pedestrian light, Photosensitive are inside the power supply. Sensor wire can extend to 8 meter.

The connection point is inside the maintenance door of embedded parts. After connecting the thread, wrap it with tape. Remember to glue and waterproof inside to avoid electrolytic oxidation of copper wire when soaking in water. (Note: If you need flashing effect, use a five-core wire. If you only need red and green conversion, use a three-core wire;)

Output Pull a 3-core or 5-core 1.0 flat Wire from the power supply. The brick Lights are connected in parallel. Each Strip Light Configured with a three-way waterproof connector. After wiring, please remember to glue the waterproof connector to avoid electrolytic oxidation of the copper wire when soaking in water.

The input is 4-core wire. Brown wire is connected with zero L line. Blue wire is connected with Green light. Black wire is connected with Red light and yellow & green wire is the shell ground.

Output is 5-core wire. The black is positive pole. Blue wire is connected with Green light 1. Green wire is connected with Green light 2. Red wire is connected with Red light 1 and yellow Wire is connected with Red light 2.

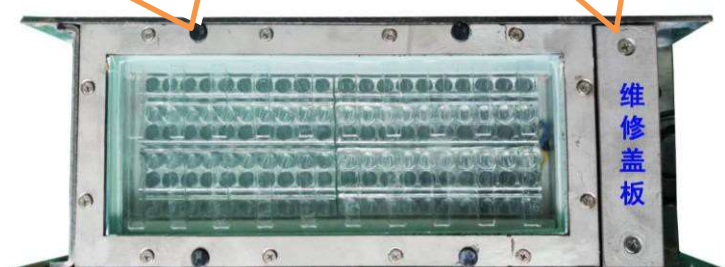


⑤**Road restoration:** after the completion of wiring, asphalt shall be restored to the pavement, and asphalt shall be dripped into both sides of the floor tile lamp and the trunking.



Repair and Replace Light: use a screwdriver to open four plastic caps, and use an M6 hexagon wrench to take out four screws

Wiring place: connected here, please make it waterproof with glue



- ⑥ **Photoresistor:** There is photoresistor on the power supply. It can auto regulate the output voltage according to the environment brightness.
The Photoresistor Wire can be cut and extended freely. When open circuit, it is dark mode, and when short circuit, it is high brightness mode.
- ⑦ **Notes:** Please consult the technicians of HITECHLED about the number of brick Light connected to each zebra crossing. Maximum power of each Strip light is 10W. If the power is over 2000W, please consider the maximum load of traffic signal controller.

Packing Info.:

Net Weight: 11kg GW...: 11.5kg
Packing Size: 450mm(L)* 170mm(W)* 80mm(H)
Power Supply N.W.: 1kg Power Supply Size: 260*60*55mm

Project Reference