SL Multifunctional Smart Pole Solution

SL: 04056200-04056299

July 2019
Requirement of Smart Street

**Safety:** bright street, air pollution monitoring, ordered traffic, Video Surveillance, SOS

**Convenient:** better network, WIFI access, automatic Metering, pet tracking, Smart parking, car charging, smart phone charging, location& navigation

**Beautiful:** good appearance, Festive decoration

**Standard:** unified architecture, Open solution, standard design and module, universal interface

**Reliable:** stable power and network support, information

**Flexible:** Installation on demand, flexible config, remote commissioning

**Innovative:** connected, monitoring, controllable

**Efficient:** Planned, integrative, shareable, green energy, extensible

**Develop:** industry evolution

**Operator**

**Valuable:** High revenue &TVO, Low TCO, sustainable development

**Standard:** unified architecture, Open solution, standard design and module, universal interface

**Quality:** Reliable, extensible, easy maintenance

**Cooperator**

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Skyloyal Architecture Of Smart Lamp With Value-added Service

Application

Better connection, Smart Light, Billboard, Environment, Safety city

Transmission

Wireless, IP network, NB-IoT

Terminal

Smart Light, Environment, Safety city
Based on BS architecture, the server can be set up in the control center or cloud, and the control system based on multi-functional intelligent street lamp pole integrates monitoring, information dissemination and Internet of Things information.

Realize local control of LED display screen, LED street lamp, sensor and RFID equipment.
Sky Loyal smart lamp solution based on different scenario

- Access Road
- Yard
- Run-in
- Carriageway
- Footpath
- Commercial area
- Public park
- Campus
- Urban Landscape
- Theme park
- Public square

同时，我们会思考不同城市,不同场景所需要的功能,确保设计使用,为城市增值

- Smart Light
- RF Network
- WIFI
- CCTV
- Billboard
- SOS
- Environment sensor
- Broadcast
- USB charging
Case share: Proposed Smart function config in project

<table>
<thead>
<tr>
<th>SN</th>
<th>Function</th>
<th>Qty</th>
<th>Ratio</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Smart Light</td>
<td>639</td>
<td>100%</td>
<td>every 20-50m due to pole height</td>
</tr>
<tr>
<td>2</td>
<td>CCTV</td>
<td>158</td>
<td>25%</td>
<td>full coverage</td>
</tr>
<tr>
<td>3</td>
<td>WIFI</td>
<td>185</td>
<td>29%</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>display screen</td>
<td>68</td>
<td>11%</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Car charging</td>
<td>26</td>
<td>4%</td>
<td>reserve space</td>
</tr>
<tr>
<td>6</td>
<td>Electric bike charging</td>
<td>20</td>
<td>3%</td>
<td>reserve space</td>
</tr>
<tr>
<td>7</td>
<td>USB charging</td>
<td>191</td>
<td>30%</td>
<td>reserve space</td>
</tr>
<tr>
<td>8</td>
<td>Wireless station</td>
<td>639</td>
<td>100%</td>
<td>All pole with wireless station space</td>
</tr>
<tr>
<td>9</td>
<td>SOS</td>
<td>10</td>
<td>2%</td>
<td>reserve space</td>
</tr>
<tr>
<td>10</td>
<td>City broadcast</td>
<td>19</td>
<td>3%</td>
<td>reserve space</td>
</tr>
</tbody>
</table>
PoC area in Causeway Bay

Zone 1
~10M Height
Standard Lamp Post

Zone 2
~10M Height
Special Lamp Post

Zone 3
~8M Height
Special Lamp Post

Wall mounted

Highway Dept CCTV
Smart Pole with multi-function

Proposed 10m Smart pole replace the lamp pole at central Divider

10m Run-in Smart pole solution 2

Parameter
- Height: 10m
- Light: LED with controller
- Input: AC x1 & Fiberx3

Function config
- Smart Light
- Wireless Station
- WIFI Access
- CCTV
- Environment sensor
- Billboard
- Reserve car charging, SOS, radio and other module installation location
Smart Pole with multi-function Dynamic demonstration

Rod shape
1. AAU equipments are equipped with exposed intelligent lamp poles.
2. AAU equipments are equipped with petal decorative intelligent lamp poles.
3. AAU equipments are equipped with ball-shaped decorative intelligent lamp poles.
4. AAU equipments top square lamp decorative intelligent lamp pole;
5. AAU equipments are equipped with flower bud decorative intelligent lamp pole.
Introduction of top petal decorative intelligent lamp pole for AAU equipment

Double bending arm design, beautiful, middle layout;
Optional multi-function: adjustable lighting, 5G base station, WiFi, environmental monitoring, video surveillance, outdoor advertising cloth, reserve other functions;
The bottom electrical equipment control box is 3 meters high.

Hong Kong Bauhinia petal shape, AAU like bud core, distant vision and flowers, attract attention, dilute AAU;
The petals obscure the view from down to up.
Double Bend Arm Design, Traditional Modeling
Optional multi-function: adjustable lighting, 5G base station, WiFi, environmental monitoring, video surveillance, outdoor advertising cloth, reserve other functions;
The bottom electrical equipment control box is 3 meters high.

Bud shape, distant vision and like a bud with buds to blossom, attract attention, dilute AAU;
From the bottom up, we can see only petals, not AAU.
The box body of multi-function intelligent lamp pole is designed with structure safety grade of two and service life of 30 years. The pole body safety monitoring system can be installed on the pole body according to the actual needs to realize the monitoring of the pole body inclination, leakage, abnormal opening of cabinet door and other indicators, so as to realize the data collection of operation status and the information extraction of state characteristics. Take it and send it back to the central computer room in real time to realize 24-hour monitoring. The system can real-time monitor potential faults and dangers of intelligent sensing rod and realize alarm, so as to improve the system operation efficiency.
## Site Solution Configuration Overview

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Qty</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pole</strong></td>
<td>1</td>
<td>10m smart pole</td>
</tr>
<tr>
<td><strong>Height:</strong></td>
<td></td>
<td>10m</td>
</tr>
<tr>
<td><strong>Design code:</strong></td>
<td></td>
<td>BS EN 40 - 3</td>
</tr>
<tr>
<td><strong>Wind speed:</strong></td>
<td></td>
<td>43m/s (10 minutes)</td>
</tr>
<tr>
<td><strong>Bottom diameter:</strong></td>
<td></td>
<td>TBD</td>
</tr>
<tr>
<td><strong>Top diameter:</strong></td>
<td></td>
<td>Φ200 mm</td>
</tr>
<tr>
<td><strong>Integrated Lighting &amp; Grounding system</strong></td>
<td></td>
<td>Equipment installation: inside installation</td>
</tr>
<tr>
<td><strong>Light</strong></td>
<td>1</td>
<td>LED lamp</td>
</tr>
<tr>
<td><strong>Power consumption:</strong></td>
<td></td>
<td>100w with smart control(TBC)</td>
</tr>
<tr>
<td><strong>BTS</strong></td>
<td>2</td>
<td>Book RRU</td>
</tr>
<tr>
<td><strong>Size:</strong></td>
<td></td>
<td>290mmx 210mm x 101mm</td>
</tr>
<tr>
<td><strong>Weight:</strong></td>
<td></td>
<td>5 Kg</td>
</tr>
<tr>
<td><strong>Power consumption:</strong></td>
<td></td>
<td>Typical 90W</td>
</tr>
<tr>
<td><strong>Blade BBU</strong></td>
<td>1</td>
<td>Size: 300x400x100 mm (W x H x D) ; weight: ≤12 Kg</td>
</tr>
<tr>
<td><strong>TM</strong></td>
<td>1</td>
<td>ODF</td>
</tr>
<tr>
<td><strong>Power</strong></td>
<td>1</td>
<td>Connect to ODF</td>
</tr>
<tr>
<td><strong>Blade Power</strong></td>
<td>1</td>
<td>Specification: 300x400x50 mm (W x H x D) (no battery needed)</td>
</tr>
<tr>
<td><strong>Camera</strong></td>
<td>1</td>
<td>IPC6625-Z30, H.265, 1080p@60fps, Horizontal: 0° to 360°; Vertical: -15° to +90°</td>
</tr>
<tr>
<td><strong>Smart equip</strong></td>
<td>1</td>
<td>Sensor (debugging)</td>
</tr>
<tr>
<td><strong>WIFI</strong></td>
<td>1</td>
<td>Need custom-designed</td>
</tr>
<tr>
<td><strong>Billboard</strong></td>
<td>1</td>
<td>Need custom-designed</td>
</tr>
</tbody>
</table>


The devices on the multi-function wisdom pole constitute the Internet of Things with complete functions.

The left picture shows the application of multi-function smart pole and Internet of Things equipment in various functions of roads. Through a period of large-scale construction, multi-functional smart pole carrying the Internet of Things, the city is ubiquitous, help 5G, realize the sustainable operation of intelligent city of artificial intelligence;

Intelligent vehicle iteration, combined with the maturity of vehicle-road collaboration system, can truly achieve driverless in areas with intelligent poles, which can serve the society safely, efficiently and environmentally.
On-site implementation case demonstration
Looking Forward to the Road Network of Smart Cities in the Future

THANK YOU!
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