Innovation in alarm & signal

CATALOGUE 2018.02

# Vessels and Heavy-Duty & Equipment/ Explosion Proof

Qlight

## Qlight Gives You a Brighter Future!

Qlight has been a world-leading provider of visual and audible status indicating systems and solutions for the last three decades. We pride ourselves in developing products which help our customer's improve productivity, safety, and quality control in the industrial automation and commercial industries. Our strong dedication to innovative products, quality assurance, well-established supply chain, customizable manufacturing and strong customer relationships have helped us earn the top market share in Korea and China. These core values have also been fundamental to our continued growth into new markets. Qlight's products are certified by the International Quality Management System (ISO14001), IECEx, ATEX, UL, NEPSI, CE, Lloyd, KIMM, and KOSHA which display our dedication to stringent quality control and product development based on safety-pursuing industry standards.

Our assembly lines in Busan, South Korea and Shanghai, China presently provide a variety of more than 450 of products to more than 40 countries, based on sales offices in South Korea (Seoul, Busan) China (Shanghai, Shenzhen, Shenyang, Tianzhen, Tianjin, Wenzhou), and the U.S. (Silicon Valley). The Qlight brand reflects 30 years of research and development, certification, and manufacturing experience.

We will continue to establish ourselves as a industry-leading provider by pushing the boundaries of technology in order to enhance our customer's efficiency and safety in every industry and region of the world.
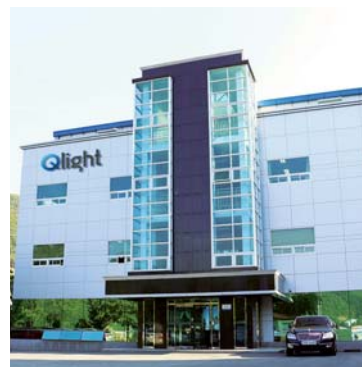


## Qlight Global Networks

| Country | Company name | Address | Phone |
|---------|--------------|---------|-------|
| Korea | Qlight Co., Ltd. | HQ | A-412, 579, Gyeongin-ro, Guro-gu, Seoul, Korea | +82-80-328-2222 |
| | | Factory |185-25, Mukbang-Ro, Sangdong-Myeon, Gimhae-si, Gyeongsangnamdo, Korea | +82-80-328-1111 |
| USA | Qlight USA, Inc. | #341, 3003 North First St., San Jose, CA 95134 USA | +1-408-519-5740 |
| China | SHANGHAI Qlight Electronics Co.,Ltd | #19, Nanda Road, Baoshan Area, Shanghai, China | +86-21-6651-7100 |

**Qlight Clients** Heavy industry / Ship building / Automotive / Steel / Machinery / Petrochemical / Power plants / Electronics / Semiconductor / Emergency Vehicles

# Company History

Qlight has been striving to accomplish our mission to provide visual and audible status indicating systems and solutions to enhance our customer's work safety and efficiency for the last three decades.

| 1986-1992 | 1993-2005 | 2006-2010 | 2011 to Present | - Future |
|---|---|---|---|---|

| Business foundation and consolidation | Growing as a signal transmission device specialist | A great leap forward & business reconstruction | New engines for growth | The 2nd growth and globalization |
|---|---|---|---|---|

**2017** 08 ISO 14001 : 2015 certificate aquired
02 Obtained ICAO certification for SAOL1

**2016** 11 Obtained the patent for "multi-functional modular signal tower light" (Patent # : 10-1676863)
09 Obtained the patent for "Emergency Vehicle Lightbar" (Patent # : 10-1662283)
07 Obtained UL certificate for LED signal lights Q series
Obtained the patent for "Bar style LED work lights" (Patent # : 10-1598123)

**2015** 09 The second headquarter factory built
06 Limit switch models (3 items including SW2TS) acquired certificates from RMRS
03 LED work lights (QML150/250, QMFL 500/600) UL listed

**2014** 10 Established the Qlight USA, Inc. in San Jose, CA.
Horn which that emits light patented (Patent # : 10-1452447)
Fan/ tilt type bracket patented (Patent # : 10-1452445)
09 LED strobe light with multi-lens patented (Patent # : 10-1444391)
08 Explosion proof product family including SNE, SNES, SESA, SEA, SPNA acquired IECEx certificates
06 Selected as a promising export company by Small & Medium Business Admin., Korea
01 Non-sparking explosion proof tower lights including ST45ML and STB45ML acquired KGS and NEPSI certificates

**2013** 01 Portable warning lights for agricultural machine applications patented (Patent # : 10-1226959)

**2012** 12 Explosion proof warning lights (SNE, SNES) acquired CCS certificates
LED work light with cylindrical lens attached patented (Patent # : 10-1219020)
09 Explosion proof warning lights (SESA, SEA, SPNA) and heavy-duty warning lights (SH1, SED, SEWN30) certified by CCS
01 LED warning light with LED reflector patented (Patent # : 10-1108102)

**2011** 11 SNE, SNES certified by NEPSI, SNE, SNES, SESA, SEA, SPNA certified by KOSHA
08 KCC (Korea Communications Commission) certificate acquired
07 Light equipment applying prism system patented (Patent # : 10-1051056)

**2010** 05 QEB certified by KIMM
LED warning light, bulb revolving warning light patented (Patent # : 10-0961472)
03 Research and development center established

**2009** 12 SSEL certified by KIMM
LED tower lights compliant with the RoHS directive

**2008** 04 Motor drive system patented (Patent # : 20-0439536)
03 LED revolving type lens patent acquired (patent # :10-0808669)

**2007** 11 Explosion proof electric horn (SPNA) acquired NEPSI certificates
05 Tower light models including ST45, ST56,ST80) UL listed

**2005** 07 Heavy-duty products for vessel applications acquired Lloyd's (UK's Maritime Classification Society) certificates
04 ABS certificates acquired for 18 products including SH1

**2004** 06 ISO 9001:2000 certificates acquired

**2001** 02 Established Shanghai Qlight Electronic Co.,Ltd. in China

**2000** 07 Established Qlight Limited

**1993** 11 Nominated for developing domestic explosion proof warning lights by Korean Ministry of Science & Technology

**1988** 03 Developed limit switches for vessel applications

**1986** 07 Established Qlight

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# Explosion Proof Products
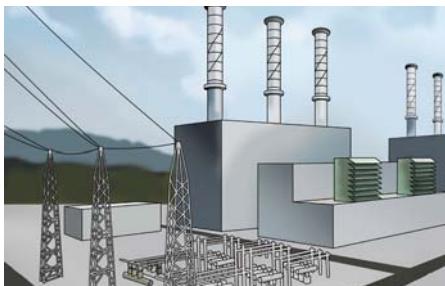
INNOVATION IN ALARM & SIGNAL
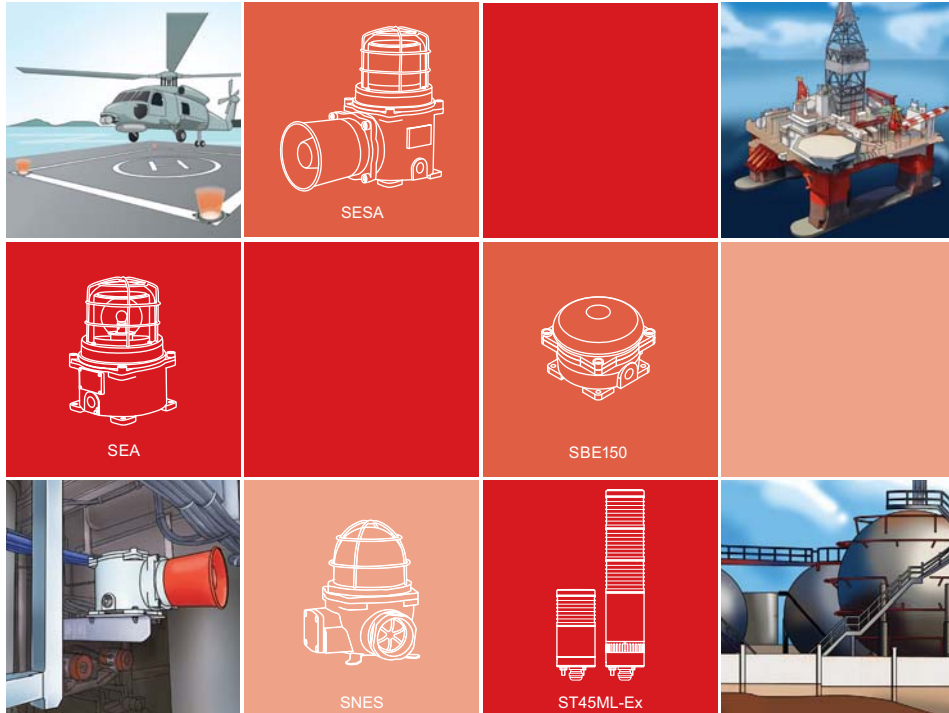


SESA

SEA

SBE150

SNES

ST45ML-Ex

# Explosion Proof Product Applications

**Semiconductor Factory**

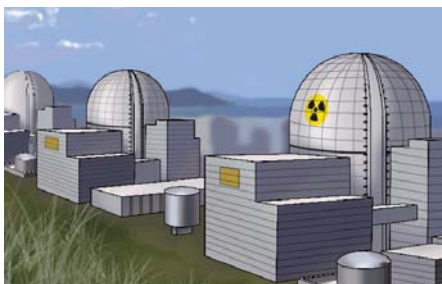Applied in a plumbing system for flammable materials used in the semiconductor manufacturing process

**Power Plant**

Applied in hazardous areas with possibilities of explosion cause by coal dust in thermal power plants

**Petrochemical Plant**

Applied in areas such as refineries where explosive materials are always present

**Nuclear Power Plant**

Applied in areas where explosive materials are always present such as pipes and ducts of a generator cooling system
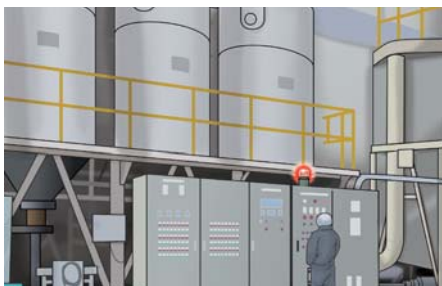
**Oil Tanker**

Applied in areas where explosive materials are always present such as ships carrying oil and gas

**Electric Facilities**

Applied in electrical equipment where flammable gas, vapor or dust exist

**Flour Factory**

Applied in danger zones where there is a possibility of explosion caused by grain dust

**Off Shore Plant**

Applied in mining equipment which produces or stores flammable materials such as oil and gas

**Coal Mine**

Applied in areas where hazardous materials such as coal dust is always present

**Steel Industry**

Applied in danger zones where hazardous materials such as gas is always present
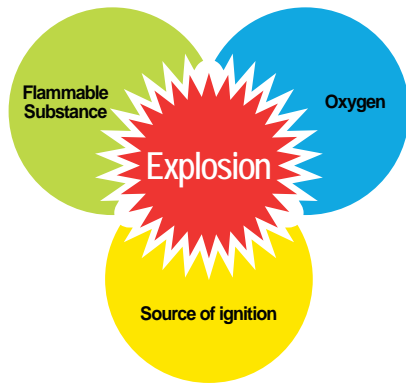
**Gas Station**

Applied in danger zones where flammable materials are stored

**Metal Processing Industry**

Applied in danger zones where explosive metal, dust, and flammable gas are always present
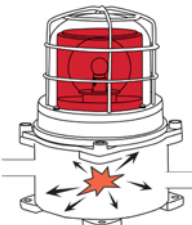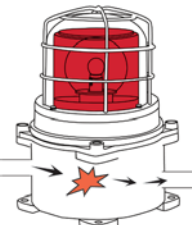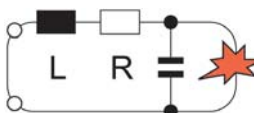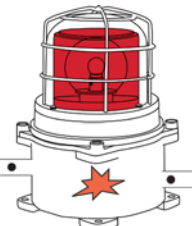
# Explosion Proof Technical Data

## Technical Data for Explosion Proof Products

- **3 elements of explosion**
  Flammable substance, ignition source, and oxygen are the 3 elements of an explosion. The explosion will occur when the three components are met. If one the three components does not exist the explosion will not occur.

- **What is explosion proof?**
  Preventing the combination of the 3 elements of explosion.

- **Explosion proof product**
  Typically, products will include electrical parts that can be an explosion ignition source. However, explosion proof products are designed to prevent spark/ ignition.

## Explosion Proof Structure Classifications

The data indicated below are some of the classification specifications by structure type of the explosion proof products. Furthermore, there are mold explosion proof structure, charging explosion proof structure and special explosion proof structure. The explosion proof classification structure is separated depending on product application areas.

### Flame Proof

| Ex d | Zone1, 2 |
|------|----------|

All electrical circuits are enclosed in a house strong enough to contain any explosion or fire that may take place on the inside.

### Purged/ Pressurized

| Ex p | Zone1, 2 |
|------|----------|

Type of protection in which the protective inert gas inside the enclosure is maintained at a higher pressure than that of the surrounding atmosphere.

### Increased Safety

| Ex e | Zone1, 2 |
|------|----------|

Electrical circuits incorporates special measures to reduce the probability of excessive temperatures and the occurrence of arcs and sparks in normal service.

### Non-Sparking

| Ex n | Zone2 |
|------|-------|

Method of protection for electrical equipment designed so that it will not ignite the surrounding explosive atmosphere in normal operation and under certain fault conditions specifi ed in the standard.

### Intrinsic Safety

| Ex i | Zone 0, 1, 2 |
|------|--------------|

The electrical energy available in circuits and equipment, is limited to a level to low to ignite the most easily ignitable mixtures in a hazardous area.

### Dust Explosion Proof

| Ex td | Zone 21, 22 |
|-------|-------------|

The apparatus is enclosed in a manner that will exclude ignitable amounts of dusts and will not permit arcs, sparks or heat generated or liberated inside the enclosures to cause ignition of exterior dust accumulations on the enclosure or of atmospheric dust suspensions in the vicinity of the enclosure.

# Technical Data of Explosion Proof

## Hazardous Area Classification

| | |
|---|---|
| Zone 0 | Where ignitable concentrations of flammable gases, vapors, or liquids are present continuously or for long periods of time under normal operating conditions. |
| Zone 1 | Where ignitable concentrations of flammable gases, vapors, or liquids are likely to exist under normal operating conditions. |
| Zone 2 | Where ignitable concentrations of flammable gases, vapors, or liquids can occur for only a short period of time. |
| Zone 20 | Where explosive atmosphere in the form of a cloud of combustible dust in air is present continuously, or for long periods or frequently. |
| Zone 21 | Where explosive atmosphere in the form of a cloud of combustible dust in air is likely to occur, occasionally, in normal operation. |
| Zone 22 | Where explosive atmosphere in the form of a cloud of combustible dust in air is not likely to occur in normal operation but, if it does occur, will persist for a short period only. |



**<Areas classification example>**
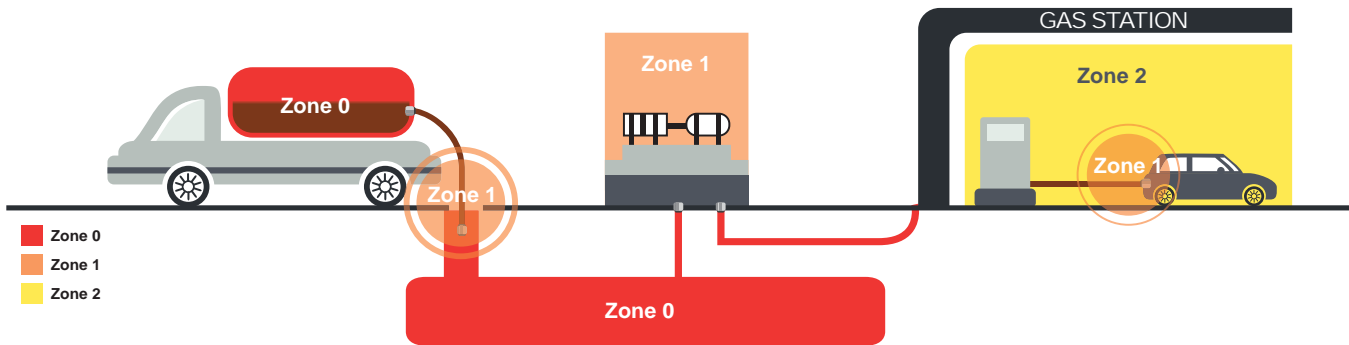
| Condition | IEC | NEC500 | JIS, KS |
|---|---|---|---|
| Continuous hazard (more than 1000 hours per year) | Zone 0 Zone 20(DUST) | Division 1 | Zone 0 |
| Intermittent hazard (10-1000 hours per year) | Zone 1 Zone 21(DUST) | | Zone 1 |
| Possible hazard (0.1-10 hours per year) | Zone 2 Zone 22(DUST) | Division 2 | Zone 2 |

## Models Available for Each Zone

| Area Classification | Model |
|---|---|
| Zone 1 | SNE, SEA, SE, SSEL, SESA, SEBA, SNES, SPNA, QEB, SBE130, SBE150, QEAL1, QEAL2, QTEX, QTEXB |
| Zone 2 | SNE, SEA, SE, SSEL, SESA, SEBA, SNES, SPNA, QEB, SBE130, SBE150, QEAL1, QEAL2, QTEX, QTEXB, ST45ML-Ex, STB45ML-Ex |

# Technical Data of Explosion Proof

## Classification by Group

Explosion proof equipment is classified as below depending on the risk characteristic of explosive gas.

| EXPLOSION GROUP FLAMMABLE | FLAMMABLE SUBSTANCE | FLAMMABILITY |
|---|---|---|
| Ⅰ | Methane | |
| ⅡA | Acetone, Petrol, Methanol, Propane, Toluene | Low |
| ⅡB | Ethylene, City gas | High |
| ⅡC | Hydrogen, Acetylene, Carbon sulphide | Very High |

## Temperature Class Definition

The temperature class is defined as below depending on the surface temperature of the explosion proof equipment.

| The range of Max imum surface temperature per temperature class | |
|---|---|
| The range of Max imum surface temperature | temperature class |
| 300°C - 450°C | T1 |
| 200°C - 300°C | T2 |
| 135°C - 200°C | T3 |
| 100°C - 135°C | T4 |
| 85°C - 100°C | T5 |
| Below 85°C | T6 |

## The Ignition Class and Temperature of The Explosive Gas

1) If the temperature class gets higher from T1 to T6, the ignition temperature gets lower.
2) If the explosion group changes from Ⅰ to ⅡC, the explosion gets bigger.

| | T1(G1) | T2(G2) | T3(G3) | T4(G4) | T5(G5) | T6(G6) |
|---|---|---|---|---|---|---|
| Ⅰ | Methane | | | | | |
| ⅡA | Acetone, Ethane Ethyl ethanoate Ammonia Benzol(Pure) Ethanoic acid Carbon oxide Methane, Methanol Propane, Toluene Acetic acid Ethyl acetate Ethyl chloride Carbon Monoxide Methylene Chloride Naphthalene, Phenol | Ethanol i-Amyl acetate n-Butane n-Butyl alcohol Ethyl alcohol Cyclohexane Acetic anhydride | Benzene Diesel fuel Aircraft fuel Heating oils n-Hexane Petroleum spirit - Gen Jet propulsion fuel Heating fuel DIN 51603 | Acetaldehyde Ethyl ether | | |
| ⅡB | Town gas Coal gas (lighting gas) | Ethylene Ethylene oxide | Ethylene Ethylene oxide | Ethyl ether | | |
| ⅡC | Hydrogen | Ethine(Acetylene) | | | | Carbon disulphide |

# Technical Data of Explosion Proof

## Explosion Proof Marking

| CE | 2004 | ⟨Ex⟩ ATEX | II | 2 | G | Ex d | IIC | T6 | Gb | IP66 | - 40°C ≤ T$_{amb}$ ≤ +60°C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ | ⑧ | ⑨ | ⑩ | ⑪ | ⑫ |

| | |
|---|---|
| ① | CE mark |
| ② | Identification number of the notified body |
| ③ | Marking for equipment for use in explosive atmospheres. |
| ④ | Ⅰ : Mines  Ⅱ : Surface industries |
| ⑤ | '1'=Zone 0, '2'=Zone 1, '3'=Zone 2 |
| ⑥ | "M" = methane gas, 'G' = gas, 'D' = dust |
| ⑦ | Types of protection |
| ⑧ | Equipment groups |
| ⑨ | Temperature class |
| ⑩ | 'Ga'=Zone 0, 'Gb'= Zone 1, 'Gc'=Zone 2 |
| ⑪ | Protection rating(IP) |
| ⑫ | Ambient operating temperature |

## Area Classification

International Classification of Zones.

| AREA CLASSIFICATION | | | |
|---|---|---|---|
| | Continuous hazard | Intermittent hazard | Possible hazard |
| IEC/ CENELEC | Zone 0<br>Zone 20(DUST) | Zone 1<br>Zone 21(DUST) | Zone 2<br>Zone 22(DUST) |
| USA — NEC505 | Zone 0 | Zone 1 | Zone 2 |
| USA — NEC500<br>CLASS Ⅰ (GAS)<br>CLASS Ⅱ (DUST)<br>CLASS Ⅲ (FIBERS) | DIVISION 1 | | DIVISION 2 |

# Technical Data of Explosion Proof

## The Temperature Classification

The temperature classification is based on the Max imum surface temperature of equipment.

| The range of Max imum surface temperature per temperature class | | | |
|---|---|---|---|
| IEC/ EN/ NEC505 | | NEC500 | |
| The range of Max imum surface temperature | Temperature class | The range of Max imum surface temperature | Temperature class |
| 300°C - 450°C | T1 | 300°C - 450°C | T1 |
| 200°C - 300°C | T2 | 280°C - 300°C<br>260°C - 280°C<br>230°C - 260°C<br>215°C - 230°C<br>200°C - 215°C | T2<br>T2A<br>T2B<br>T2C<br>T2D |
| 135°C - 200°C | T3 | 180°C - 200°C<br>165°C - 180°C<br>160°C - 165°C<br>135°C - 160°C | T3<br>T3A<br>T3B<br>T3C |
| 100°C - 135°C | T4 | 120°C - 135°C<br>100°C - 120°C | T4<br>TA |
| 85°C - 100°C | T5 | 85°C - 100°C | T5 |
| Below 85°C | T6 | Below 85°C | T6 |

## Classification by Group According to NEC500

Classification of flammable material according to NEC500.

| CLASS/ GROUP | | GAS |
|---|---|---|
| CLASS 1 | GROUP A | Acetylene or Equal |
| | GROUP B | Hydrogen, Butadiene, Ethylene oxide, Propylene oxide, Acrolein |
| | GROUP C | Ethyl ether, Ethylene, Acetaldehyde, Allyl alcohol, N-Butyraldehyde, Carbon monoxide, Crontonaldehyde, Cyclopropane, Diethyl ether, Diethylamine, Epichlorohydrin, Ethylene, Ethylenimine, Hydrogen Sulfide, Morpholine, 2-Nitropropane tetrahydrofuran, Isoprene or Unsymmetrical dimethylhydrazine(UDMH) |
| | GROUP D | Acetic acid (glacial), Acetone, Acrylonitrile, Ammonia, Benzine, Butane, 1-Butanol (Butyl alcohol), 2-Butanol(Secondary butyl alcohol), N-Butyl acetate, Isobutyl Acetate, Di-Isobutylene, Ethane, Ethanol(Ethyl alcohol), Ethyl acetate, Ethyl acrylate(Inhibited), Ethylenediamine(Anhydrous), Ethylene dichloride, Gasoline, Heptanes, Hexanes, Isoprene, Isopropyl, Ether, Mesityl oxide, Methane(Natural gas), Methanol (Methyl alcohol), 3-Methyl-1-Butanol(ISOAmyl alcohol), Methyl ethyl ketone, Methyl, Isobutyl ketone, 2-Methyl-1-Propanol(Isobutyl alcohol), 2-Methyl-2-Propanol (Tertiary butyl alcohol), Petroleum naphtha, Pyridine, Octanes, Pentanes, 1-Pentanol(Army alcohol), Propane, 1-Propanol(Propyl alcohol), 2-Propanol (Isopropyl alcohol), Propylene, Styrene, Toluene, Vinyl acetate, Vinyl chloride or Xylenes |
| CLASS 2 | GROUP E | Metal dusts, Aluminum, Magnesium |
| | GROUP F | Coal, Coke, Carbon black, Charcoal dust |
| | GROUP G | GROUP E or F, Including flour, Starch, Grain, Wood, Plastic, Chemicals |

# Explosion Proof Type Specification List

| Model number(series) | | ST45ML-Ex | QTEX | SNE | SE | SEA | SSEL |
|---|---|---|---|---|---|---|---|
| Voltage | | AC/DC12V AC/DC24V | DC12V, DC24V AC110V, AC220V | DC12V, DC24V AC110V, AC220V | DC12V, DC24V AC110V, AC220V | DC12V, DC24V AC110V, AC220V | DC12V, DC24V AC110V, AC220V |
| Dimension (mm) | Diameter | Ø45 | Ø144 | Ø152(Cage) | Ø155(Cage) | Ø167(Cage) | 154×154 |
| | Height | 114-278 | 472(Self stand) 457(Wall mount) | 226 | 267 | 287 | 100 |
| | Depth | - | 155(Wall mount) | 183(Length) | 189(Length) | 172(Length) | 172(Length) |
| Materials | | Lens-PC Housing-PC | Lens-Tempered glass Housing-Al | Lens-Tempered glass Housing-Al | Lens-Tempered glass Housing-Brass | Lens-Tempered glass Housing-Al | Lens-Tempered glass Housing-Al |
| Light source & Operation | Bulb Steady/Flashing | | | | | | |
| | Bulb Revolving | | | ● | ● | ● | |
| | LED Revolving | | | | | | |
| | LED Steady/Flashing | ●(Steady) | | ● | ● | ● | ●(Steady) |
| | LED Strobe | | | | | | |
| | LED Simulated revolving xenon Strobe | | | | | | |
| Mounting structure | | Self stand | Self stand, Wall mount | Self stand | Self stand | Self stand | Self stand |
| Cable entry | | - | 3/4" NPT | 1/2" NPT | 1/2" NPT | 1/2" NPT | 1/2" NPT |
| Protection rating | | IP54 | IP66 | IP66 | IP66 | IP66 | IP66 |
| Usage area | | ZONE 2 | ZONE 1, ZONE 2 | ZONE 1, ZONE 2 | ZONE 1, ZONE 2 | ZONE 1, ZONE 2 | ZONE 1, ZONE 2 |
| Certificates | | NEPSI, KGS | IECEx | IECEx, ATEX, NEPSI, KIMM, KOSHA, CCS | KIMM, ABS | IECEx, ATEX, NEPSI, KIMM, KOSHA, ABS, CCS, KR | KIMM, ABS |
| Explosion proof rating | | Ex nR ⅡT4, Ex nR ⅡT6(Layer 3 Only) | Ex d ⅡC T6 Gb (IECEx) | Ex d ⅡC T6 Gb (IECEx) | Ex d ⅡC T6 (KIMM) | Ex d ⅡC T6 Gb (IECEx) | Ex d ⅡC T6 (KIMM) |
| Customization | | - | Explosion proof cable gland, 2 ways cable entry, Cable entry | Explosion proof cable gland, 2 ways cable entry, Cable entry : M20x1.5 | Explosion proof cable gland, 2 ways cable entry, Cable entry : ¾" NPT, M20x1.5 | Explosion proof cable gland, 2 ways cable entry, Cable entry : ¾" NPT, M20x1.5, M25x1.5 | Explosion proof cable gland, 2 ways cable entry, Cable entry : ¾" NPT, M20x1.5, M25x1.5 |
| Transistors | | NPN/ PNP Type | PNP Type | - | - | - | - |
| Page | | P64 | P66 | P70-71 | P74-75 | P76-77 | P81 |

| Model number(series) | | STB45ML-Ex | QTEXB | SNES | SESA | SEBA | SPNA |
|---|---|---|---|---|---|---|---|
| Voltage | | AC/DC12V AC/DC24V | DC12V, DC24V AC110V, AC220V | DC12V, DC24V AC110V, AC220V | DC12V, DC24V AC110V, AC220V | DC12V, DC24V AC110V, AC220V | DC12V, DC24V AC110V, AC220V |
| Dimension (mm) | Diameter | Ø45 | Ø144 | Ø152(Cage) | Ø167(Cage) | Ø167(Cage) | Ø134(Horn) |
| | Height | 153-317 | 472(Self stand) 457(Wall mount) | 226 | 333 | 333 | 158 |
| | Depth | - | 155(Wall mount) | 183(Length) | 327(Length) | 240(Length) | 327(Length) |
| Materials | | Lens-PC Housing-PC | Lens-Tempered glass Housing-Al | Lens-Tempered glass Housing-Al | Lens-Tempered glass Housing-Al | Lens-Tempered glass Housing-Al | Horn-SUS316L Housing-Al |
| Light source & Operation | Bulb Steady/Flashing | | | | | | |
| | Bulb Revolving | | | ● | ● | ● | |
| | LED Revolving | | | ● | ● | ● | |
| | LED Steady/Flashing | ●(Steady) | | ● | ● | ● | |
| | LED Strobe | | | | | | |
| | LED Simulated revolving xenon Strobe | | | | ● | | |
| Sound Pattern / dB | 1 tone Buzzer | Max 80dB at 1m | Max 80dB at 1m | Max 105dB at 1m | | | |
| | 15 signal sounds | | | | Max 118dB at 1m | | Max 118dB at 1m |
| | Bell | | | | | Max 95dB at 1m | |
| | Voice signal | | | | Max 113dB at 1m | | Max 113dB at 1m |
| | 30 signal sounds | | | | | | |
| | 31 signal sounds | | | | | | |
| | MP3 | | | | | | |
| Mounting structure | | Self stand | Self stand, Wall mount | Self stand | Self stand | Self stand | Self stand |
| Cable entry | | - | 3/4" NPT | 1/2" NPT | 1/2" NPT | 1/2" NPT | 1/2" NPT |
| Protection rating | | IP54 | IP66 | IP66 | IP66 | IP55 | IP66 |
| Usage area | | ZONE 2 | ZONE 1, ZONE 2 | ZONE 1, ZONE 2 | ZONE 1, ZONE 2 | ZONE 1, ZONE 2 | ZONE 1, ZONE 2 |
| Certificate | | NEPSI, KGS | IECEx | IECEx, ATEX, NEPSI, KIMM, KOSHA, CCS | IECEx, ATEX, NEPSI, KIMM, KOSHA, ABS, CCS, KR | KIMM, ABS, KR | IECEx, ATEX, NEPSI, KIMM, KOSHA, ABS, CCS, KR |
| Explosion proof rating | | Ex nR ⅡT4, Ex nR ⅡT6(Layer 3 Only) | Ex d ⅡC T6 Gb (IECEx) | Ex d ⅡC T6 Gb (IECEx) | Ex d ⅡC T6 Gb (IECEx) | Ex d ⅡC T6 (KIMM) | Ex d ⅡC T6 Gb (IECEx) |
| Customization | | - | Explosion proof cable gland, 2 ways cable entry, Cable entry | Explosion proof cable gland, 2 ways cable entry, Cable entry : M20x1.5, 7 tone Buzzer | Explosion proof cable gland, 2 ways cable entry, Cable entry : ¾" NPT, M20x1.5, M25x1.5 | Explosion proof cable gland, 2 ways cable entry, Cable entry : ¾" NPT, M20x1.5, M25x1.5 | Explosion proof cable gland, 2 ways cable entry, Cable entry : ¾" NPT, M20x1.5, M25x1.5 |
| Transistors | | NPN/ PNP Type | PNP Type | - | NPN Type | - | NPN Type |
| Page | | P65 | P67 | P72-73 | P78-79 | P80 | P82 |

# Explosion Proof Type Specification List

| Model number(series) | | QEAL1 | QEAL2 | SBE130 | SBE150 | | |
|---|---|---|---|---|---|---|---|
| | Voltage | DC12V, DC24V AC110V, AC220V | DC12V, DC24V AC110V, AC220V | DC24V AC110V, AC220V | DC24V AC110V, AC220V | | |
| Dimension (mm) | Diameter | Ø152(Cage) | Ø167(Cage) | Ø120(Bell) | Ø150(Bell) | | |
| | Height | 238 | 287 | 120 | 120 | | |
| | Depth | 183(Length) | 172(Length) | 138(Length) | 138(Length) | | |
| | Materials | Lens-Tempered glass Housing-Al | Lens-Tempered glass Housing-Al | Bell-Al Housing-Al | Bell-Al Housing-Al | | |
| Light source & Operation | Bulb Steady/Flashing | | | | | | |
| | Bulb Revolving | | | | | | |
| | LED Revolving | | | | | | |
| | LED Steady/Flashing | ●(Steady) | ●(Flashing) | | | | |
| | LED Strobe | | | | | | |
| | LED Simulated revolving xenon Strobe | | | | | | |
| Sound Pattern / dB | 1 tone Buzzer | | | | | | |
| | 15 signal sounds | | | | | | |
| | Bell | | | Max. 95dB at 1m | Max. 95dB at 1m | | |
| | Voice signal | | | | | | |
| | 30 signal sounds | | | | | | |
| | 31 signal sounds | | | | | | |
| | MP3 | | | | | | |
| Mounting structure | | Self stand | Self stand | Self stand | Self stand | | |
| Cable entry | | 1/2" NPT | 1/2" NPT | 1/2" NPT | 1/2" NPT | | |
| Protection rating | | IP66 | IP66 | IP56 | IP56 | | |
| Usage area | | ZONE 1, ZONE 2 | ZONE 1, ZONE 2 | ZONE 1, ZONE 2 | ZONE 1, ZONE 2 | | |
| Certificate | | KOSHA | KOSHA | KIMM | KIMM | | |
| Explosion proof rating | | Ex d ⅡC T4 (KOSHA) | Ex d ⅡC T4 (KOSHA) | Ex d ⅡC T6 (KIMM) | Ex d ⅡC T6 (KIMM) | | |
| Customization | | Explosion proof cable gland, 2 ways cable entry, M20x1.5 | Explosion proof cable gland, 2 ways cable entry, Cable entry : ¾" NPT, M20x1.5, M25x1.5 | Explosion proof cable gland, 2 ways cable entry, Cable entry : ¾" NPT, M20x1.5, M25x1.5 | Explosion proof cable gland, 2 ways cable entry, Cable entry : ¾" NPT, M20x1.5, M25x1.5 | | |
| Transistors | | - | - | - | - | | |
| Page | | P85 | P86 | P83 | P83 | | |

| Model number(series) | | QMFL-300-Ex-24 | | | |
|---|---|---|---|---|---|
| Voltage | | DC24V | | | |
| Power consumption | | 10W | | | |
| Dimension (mm) | Length | 290 | | | |
| | Width | 38 | | | |
| | Height | 64 | | | |
| Materials | | Lens-Tempered glass Housing-Al | | | |
| Lens color | | Translucent | | | |
| Light color | | Cool daylight | | | |
| Efficacy (lm/W) | | 260Lux | | | |
| Mounting structure | | Mount bracket | | | |
| Protection rating | | IP67/ IP69K | | | |
| Certificate | | KC(KGS) | | | |
| Explosion proof rating | | Ex nR Ⅱ T6 | | | |
| Customization | | | | | |
| Page | | P84 | | | |

# ST45ML-Ex

**Non Sparking Explosion Proof LED Tower Lights**

**Qlight**

**IP54** | **-20~+50℃** | **NPN** | **PNP**
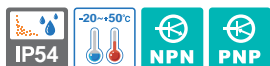
## ST45ML-Ex
## Standard Model

Non-sparking explosion proof LED tower lights suitable for use in zone 2 hazardous areas



**ST45ML-Ex**



Gas cabinets used in the semiconductor industry require constant supply of specialty gases and pressure to properly store the devices. Non-sparking explosion proof products (ST45ML-EX) must be used in these conditions.

---

### ⓘ Common Specifications(ST45ML-Ex/ STB45ML-Ex)

• Non- sparking explosion protected high-intensity LED steady tower lights
• Excellent distance visibility by using a special reflector to arrogate the light from the LED filament
• Reduced maintenance with use of long-lasting LED light source
• Lens and housing are made of polycarbonate with excellent durability, suitable for potentially hazardous and explosive environments
• Can be used for Zone 2 application with explosion proof rating of nR
※ Zone2 : Equipment is capable of operating under abnormal high risk environmental conditions for a short duration
• Materials : Lens-PC, Housing-PC, Mounting housing-Al
• Certificates : NEPSI, KCs(KGS)
• Explosion protection rating: Ex nRⅡT4, Ex nRⅡT6(Layer 3 Only)
• Protection rating : IP54
• Ambient operating temperature : -20°C ≤ T$_{amb}$ ≤ +50°C

### 💡 ST45ML-Ex Non-Sparking Explosion Proof LED Tower Light

| Model number | Layer | Voltage | Current | Certificate | Weight | Color |
|---|---|---|---|---|---|---|
| ST45ML-Ex | 1 | AC/DC12V | 0.024A | Ex NEPSI / KCs | 0.19kg | ● R-Red |
| | | AC/DC24V | 0.012A | | 0.19kg | |
| | 2 | AC/DC12V | 0.048A | | 0.24kg | ● R-Red ● G-Green |
| | | AC/DC24V | 0.024A | | 0.24kg | |
| | 3 | AC/DC12V | 0.072A | | 0.29kg | ● R-Red ● A-Amber ● G-Green |
| | | AC/DC24V | 0.036A | | 0.29kg | |
| | 4 | AC/DC12V | 0.096A | | 0.32kg | ● R-Red ● A-Amber ● G-Green ● B-Blue |
| | | AC/DC24V | 0.048A | | 0.32kg | |
| | 5 | AC/DC12V | 0.120A | | 0.36kg | ● R-Red ● A-Amber ● G-Green ● B-Blue ○ W-White |
| | | AC/DC24V | 0.060A | | 0.36kg | |
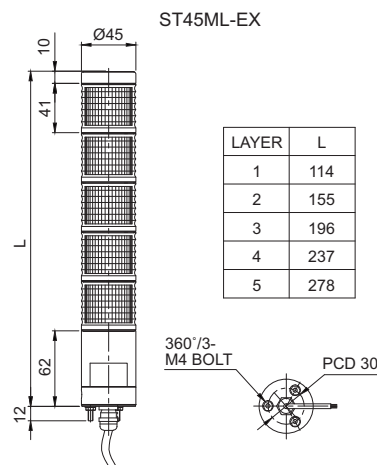
### 📐 Technical Diagram
(Units : mm)



ST45ML-EX

| LAYER | L |
|---|---|
| 1 | 114 |
| 2 | 155 |
| 3 | 196 |
| 4 | 237 |
| 5 | 278 |

360˚/3-M4 BOLT
PCD 30

# STB45ML-Ex

**Built-in Buzzer Non-Sparking Explosion Proof Tower Lights**

Qlight

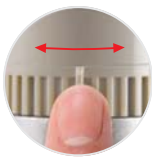IP54 | -20~+50℃ | BUZZER | 80dB | NPN | PNP

## STB45ML-Ex
## Built-in buzzer type

Non-sparking explosion proof LED tower lights suitable for use in zone 2 hazardous areas

**STB45ML-Ex**

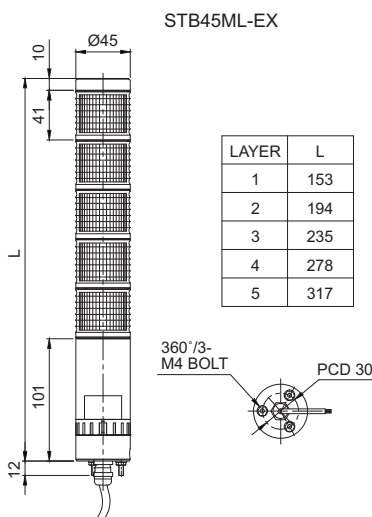Sound volume adjustable by volume control lever
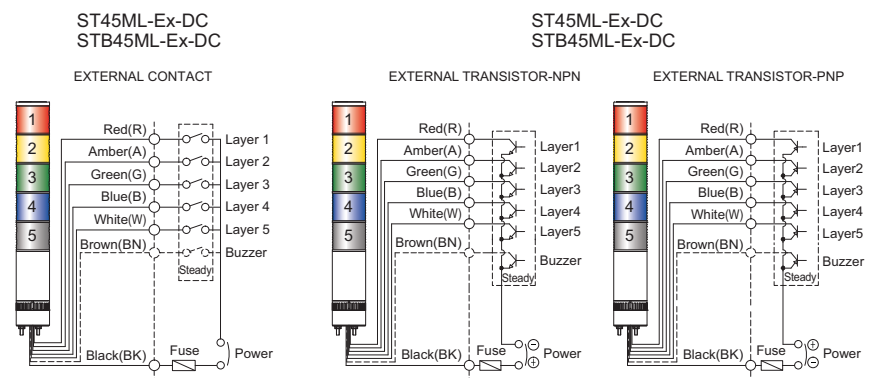
### Technical Diagram (Units : mm)

STB45ML-EX

| LAYER | L |
|-------|-----|
| 1 | 153 |
| 2 | 194 |
| 3 | 235 |
| 4 | 278 |
| 5 | 317 |

Ø45
10
41
L
101
12

360°/3-M4 BOLT
PCD 30

## STB45ML-Ex Built-in Buzzer Non-Sparking Explosion Proof Tower Lights

- Sound volume adjustable by volume control lever
- Sound volume : Max 80dB at 1m

| Model number | Layer | Voltage | Current | Certificates | Weight | Color |
|---|---|---|---|---|---|---|
| STB45ML-Ex | 1 | AC/DC12V | 0.040A | | 0.26kg | ● R-Red |
| | | AC/DC24V | 0.043A | | 0.26kg | |
| | 2 | AC/DC12V | 0.064A | | 0.30kg | ● R-Red  ● G-Green |
| | | AC/DC24V | 0.055A | | 0.30kg | |
| | 3 | AC/DC12V | 0.088A | Ex NEPSI | 0.34kg | ● R-Red  ● A-Amber  ● G-Green |
| | | AC/DC24V | 0.067A | | 0.34kg | |
| | 4 | AC/DC12V | 0.112A | KCs | 0.38kg | ● R-Red  ● A-Amber  ● G-Green  ● B-Blue |
| | | AC/DC24V | 0.079A | | 0.38kg | |
| | 5 | AC/DC12V | 0.136A | | 0.42kg | ● R-Red  ● A-Amber  ● G-Green  ● B-Blue  ○ W-White |
| | | AC/DC24V | 0.091A | | 0.42kg | |

### Wiring Instructions

ST45ML-Ex-DC
STB45ML-Ex-DC

**EXTERNAL CONTACT**

1 Red(R) — Layer 1
2 Amber(A) — Layer 2
3 Green(G) — Layer 3
4 Blue(B) — Layer 4
5 White(W) — Layer 5
Brown(BN) — Buzzer
Steady

Black(BK) — Fuse — Power

ST45ML-Ex-DC
STB45ML-Ex-DC

**EXTERNAL TRANSISTOR-NPN**

1 Red(R) — Layer1
2 Amber(A) — Layer2
3 Green(G) — Layer3
4 Blue(B) — Layer4
5 White(W) — Layer5
Brown(BN) — Buzzer
Steady

Black(BK) — Fuse — Power

**EXTERNAL TRANSISTOR-PNP**

1 Red(R) — Layer1
2 Amber(A) — Layer2
3 Green(G) — Layer3
4 Blue(B) — Layer4
5 White(W) — Layer5
Brown(BN) — Buzzer
Steady

Black(BK) — Fuse — Power

- External power line/ Signal line standard : UL2464 AWG22(0.3sq) 400mm

### Ordering Specification

| ST45ML-Ex | - | 3 | - | 12 | - | RAG |
|---|---|---|---|---|---|---|
| [Model number] | | [Layer] | | [Voltage] | | [Color] |

- ST45ML-Ex
- STB45ML-Ex

- 1-1layer
- 2-2layers
- 3-3layers
- 4-4layers
- 5-5layers

- 12-DC12V
- 24-DC24V

- ● R-Red
- ● A-Amber
- ● G-Green
- ● B-Blue
- ○ W-White

### ⚠ Cautions in use of explosion proof tower lights

Contact structure of an explosion proof product must be a qualified part we provide, please do not disassemble, assemble, modify or repair arbitrarily.

# QTEX series

**Explosion Proof LED Tower Lights Flame Proof Housing**

**Qlight**

IP66 | -40~+60°C | PNP
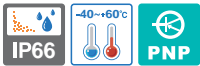
## QTEX - Standard model

Explosion proof LED
tower lights with flame proof
housing



**QTEX**
Direct mount type



**QTEX**
Wall mount type

---

### Common Specifications(QTEX/ QTEXB)

- Explosion proof LED tower lights with Ex d ⅡC rating can be used in explosive gas environments
- Excellent distance visibility by using a special reflector to aggregate the light from the LED filament
- Ø80 LED tower light mounted inside the flame proof housing
- Aluminum housing provides excellent durability
- Long-lasting high intensity LED light source
- Terminal box located inside the housing for easy power wiring
- Direct mount type and wall mount type available depending on application needs.
- Flashing rate: 60-80 flashes/min
- Selectable between steady/flashing mode with proper wire arrangement
- Sound volume : Max 80dB at 1m(QTEXB Type)
- Lens colors arrangement : ●R-Red ●A-Amber ●G-Green ●B-Blue ●W-White
- Standard housing color : Silver
- Cable entry : 3/4″ NPT
- Materials : Lens-Tempered glass, Filter lens-AS, Housing-Al, Reflector-Heat resistant ABS
- Certificates : IECEx
- Protection rating : Ex d ⅡC T6 Gb, IP66
- Ambient operating temperature : -40°C ≤ $T_{amb}$ ≤ +60°C

### QTEX Explosion Proof LED Tower Lights with Flame Proof Housing

| Model number | Layer | Voltage | Current | Certificate | Weight | Color |
|---|---|---|---|---|---|---|
| QTEX (Steady/ Flashing) | 1 | DC12V | 0.080A | | 4.01kg | ● R-Red |
| | | DC24V | 0.040A | | 4.01kg | |
| | | AC110V | 0.046A | | 4.02kg | |
| | | AC220V | 0.023A | | 4.02kg | |
| | 2 | DC12V | 0.160A | | 4.15kg | ● R-Red ● G-Green |
| | | DC24V | 0.080A | | 4.15kg | |
| | | AC110V | 0.051A | | 4.16kg | |
| | | AC220V | 0.025A | | 4.16kg | |
| | 3 | DC12V | 0.240A | IECEx | 4.31kg | ● R-Red ● A-Amber ● G-Green |
| | | DC24V | 0.120A | | 4.31kg | |
| | | AC110V | 0.057A | | 4.32kg | |
| | | AC220V | 0.028A | | 4.32kg | |
| | 4 | DC12V | 0.320A | | 4.46kg | ● R-Red ● A-Amber ● G-Green ● B-Blue |
| | | DC24V | 0.160A | | 4.46kg | |
| | | AC110V | 0.064A | | 4.47kg | |
| | | AC220V | 0.032A | | 4.47kg | |
| | 5 | DC12V | 0.400A | | 4.61kg | ● R-Red ● A-Amber ● G-Green ● B-Blue ● W-White |
| | | DC24V | 0.200A | | 4.61kg | |
| | | AC110V | 0.071A | | 4.62kg | |
| | | AC220V | 0.035A | | 4.62kg | |



### Hazardous Area Classification

● **Zone 0 : Dangerous status**
Ignitable concentrations of flammable gases or vapors which are present continuously or for long periods of time.

● **Zone 1 : Normal status**
Ignitable concentrations of flammable gases or vapors which are likely to occur under normal operating conditions.

● **Zone 2 : Abnormal status or places**
Ignitable concentrations of flammable gases or vapors which are not likely to occur under normal operating conditions and do so only for a short period of time.

| IP66 | -40~+60°C | 80dB BUZZER | ((·)) | PNP |

## QTEXB - Built-in buzzer type

**QTEXB**
Direct mount type

**QTEXB**
Wall mount type

🔔 **QTEXB** Built-in Siren Buzzer Type Explosion Proof LED Tower Lights with Flame Proof Housing

• Explosion proof LED tower lights with visual & audible signal that can be used in hazardous environments
• Sound tone & volume : Siren buzzer, Max 80dB at 1m

| Model number | Layer | Voltage | Current | Certificate | Weight | Color |
|---|---|---|---|---|---|---|
| QTEXB (Steady/ Flashing) | 1 | DC12V | 0.100A | | 4.11kg | ● R-Red |
| | | DC24V | 0.050A | | 4.11kg | |
| | | AC110V | 0.073A | | 4.12kg | |
| | | AC220V | 0.053A | | 4.12kg | |
| | 2 | DC12V | 0180A | | 4.25kg | ● R-Red ● G-Green |
| | | DC24V | 0.090A | | 4.25kg | |
| | | AC110V | 0.078A | | 4.26kg | |
| | | AC220V | 0.055A | | 4.26kg | |
| | 3 | DC12V | 0.260A | IECEx | 4.41kg | ● R-Red ● A-Amber ● G-Green |
| | | DC24V | 0.130A | | 4.41kg | |
| | | AC110V | 0.084A | | 4.42kg | |
| | | AC220V | 0.058A | | 4.42kg | |
| | 4 | DC12V | 0.340A | | 4.56kg | ● R-Red ● A-Amber ● G-Green ● B-Blue |
| | | DC24V | 0.170A | | 4.56kg | |
| | | AC110V | 0.091A | | 4.57kg | |
| | | AC220V | 0.062A | | 4.57kg | |
| | 5 | DC12V | 0.420A | | 4.71kg | ● R-Red ● A-Amber ● G-Green ● B-Blue ○ W-White |
| | | DC24V | 0.210A | | 4.71kg | |
| | | AC110V | 0.098A | | 4.72kg | |
| | | AC220V | 0.065A | | 4.72kg | |

### Explosion proof structure for buzzer model

Siren Buzzer
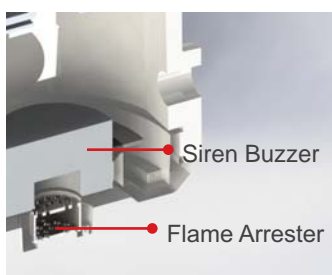
Flame Arrester

**What is a Flame Arrester?**

A flame arrester(also called a deflagration arrester) functions by absorbing the heat from a flame front traveling at sub-sonic velocities, thus dropping the burning gas/air mixture below its auto-ignition temperature: consequently, the flame cannot survive. The heat is absorbed through channels (passages) designed into an element.

### Customization

• Built-in explosion proof cable gland
• Two way cable entries

### Ordering Specification

| QTEX | - | 3 | - | 12 | - | RAG |
|---|---|---|---|---|---|---|
| [Model number] | | [Layer] | | [Voltage] | | [Color] |

• QTEX
• QTEXB

• 1-1layer
• 2-2layers
• 3-3layers
• 4-4layers
• 5-5layers

• 12-DC12V
• 24-DC24V
• 110-AC110V
• 220-AC220V
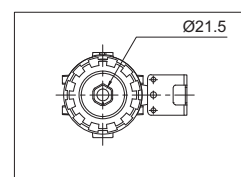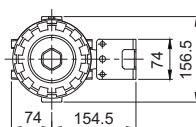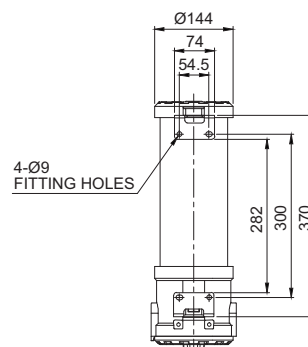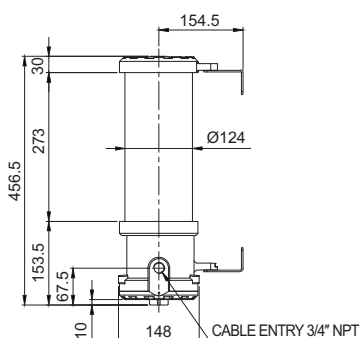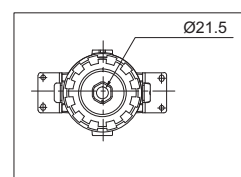
● R-Red
● A-Amber
● G-Green
● B-Blue
○ W-White

**Technical Diagram**                                                                                                   (Units : mm)

108
30
273
471.5
168.5
82.5
15
Ø124
CABLE ENTRY 3/4″ NPT

Ø144
156.5

4-Ø9 FITTING HOLES
54.5
74
156.5
218
236

Ø21.5

154.5
30
273
456.5
153.5
67.5
10
148
Ø124
CABLE ENTRY 3/4″ NPT

74
156.5
74    154.5

Ø144
74
54.5
4-Ø9 FITTING HOLES
282
300
370

Ø21.5
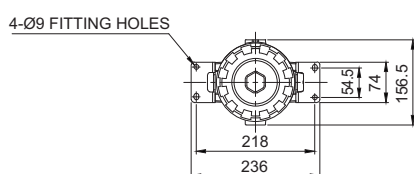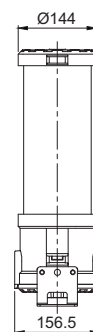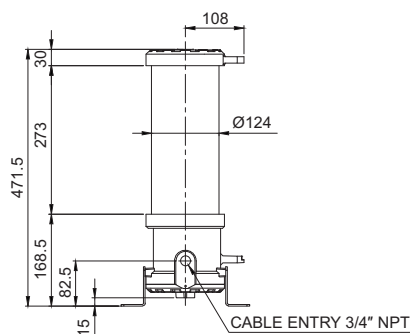
⚠ **Cautions in using explosion proof tower lights**

• Explosion proof products should be maintained by explosion proof regulation, please do not disassemble, assemble, modify or repair arbitrarily. In case disassembly is required for wiring or repair, structures such as the contact parts should maintain the same initial condition that we provided.

• Cable gland must be used in explosion proof certified products which satisfy the T6 temperature rating and IP66 protection rating.
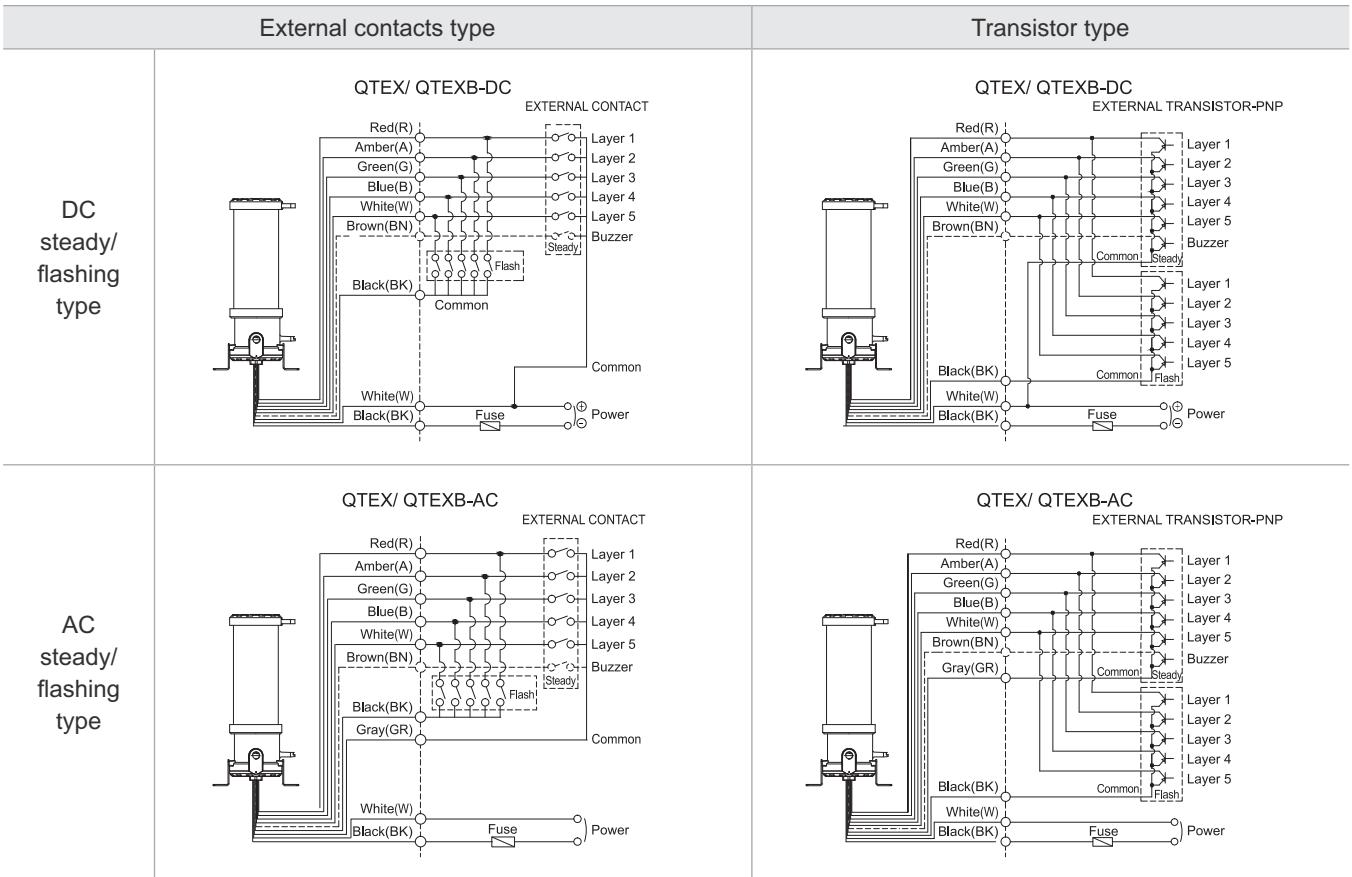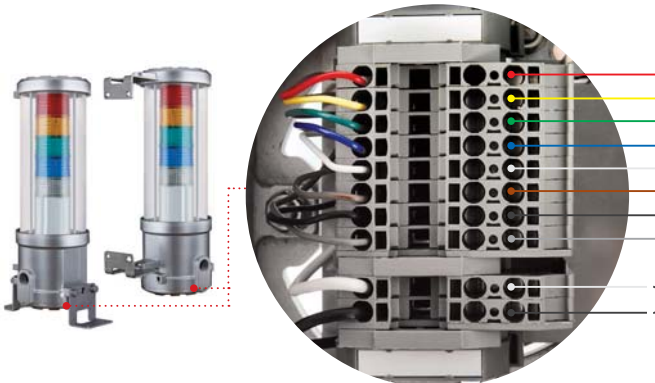
## Wiring Instructions

• QTEX/ QTEXB wiring with transistors and external contacts
• In case of wiring with transistors, please use PNP transistors and wiring exactly following below technical diagram

| External contacts type | Transistor type |
|---|---|
| **DC steady/ flashing type** | |

**QTEX/ QTEXB-DC** — EXTERNAL CONTACT

Red(R), Amber(A), Green(G), Blue(B), White(W), Brown(BN) — Layer 1, Layer 2, Layer 3, Layer 4, Layer 5, Buzzer; Steady; Black(BK), Common, Flash; Common; White(W), Black(BK), Fuse, Power

**QTEX/ QTEXB-DC** — EXTERNAL TRANSISTOR-PNP

Red(R), Amber(A), Green(G), Blue(B), White(W), Brown(BN) — Layer 1, Layer 2, Layer 3, Layer 4, Layer 5, Buzzer; Common, Steady; Layer 1, Layer 2, Layer 3, Layer 4, Layer 5; Black(BK), Common, Flash; White(W), Black(BK), Fuse, Power

**AC steady/ flashing type**

**QTEX/ QTEXB-AC** — EXTERNAL CONTACT

Red(R), Amber(A), Green(G), Blue(B), White(W), Brown(BN) — Layer 1, Layer 2, Layer 3, Layer 4, Layer 5, Buzzer; Steady; Black(BK), Gray(GR), Flash; Common; White(W), Black(BK), Fuse, Power

**QTEX/ QTEXB-AC** — EXTERNAL TRANSISTOR-PNP

Red(R), Amber(A), Green(G), Blue(B), White(W), Brown(BN), Gray(GR) — Layer 1, Layer 2, Layer 3, Layer 4, Layer 5, Buzzer; Common, Steady; Layer 1, Layer 2, Layer 3, Layer 4, Layer 5; Black(BK), Common, Flash; White(W), Black(BK), Fuse, Power

## Terminal Wiring Information

1Layer(RED LED)
2Layers(AMBER LED)
3Layers(GREEN LED)
4Layers(BLUE LED)
5Layers(WHITE LED)
Buzzer
Flashing common
Steady common
Power

QTEX series consists of a blocked terminal which is convenient for internal wiring of the terminal box.
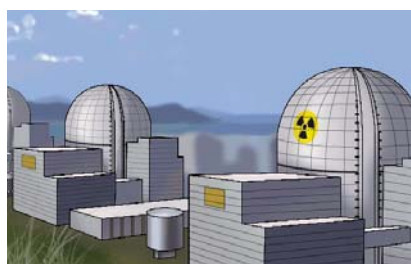Please refer to technical diagram for detailed Wiring Instructions.

# SNE series

Qlight

**IP66** | -40→60℃



**SNELR**



**SNEL**



Flameproof warning/ indicator lights are applied in an areas where potentially explosive materials may linger. For example, from a pipe or duct in a coolant generator system in a nuclear power plant in the image above.

## Common Specifications(SNELR/ SNEL/ SNE-S/ SNE)

- Light weight and compact explosion proof warning lights with a variety of light source selections from bulb, LED, and xenon lamp
- Aluminum housing provides excellent durability
- Fully enclosed structure with protection rating of IP66
- Integrated housing and terminal box model
- Housing standard color : MUNSELL No. 7.5BG 7/2
- Cable entry : 1/2″ NPT
- Materials : Lens-Tempered glass, Inner lens-PC, Housing-Al, Protection cage-STS 316L, Reflector for LED type-PC/ Reflector for bulb type-Heat resistant ABS
- Certificates : IECEx, ATEX, NEPSI, KIMM, KOSHA, CCS
- Protection rating :
  - IECEx - Ex d ⅡC T6 Gb, IP66
  - ATEX - ⟨Ex⟩Ⅱ 2G Ex d ⅡC T6, IP66
  - NEPSI, KIMM, KOSHA - Ex d ⅡC T6, IP66
- Ambient operating temperature : -40°C ≤ $T_{amb}$ ≤ +60°C

## SNELR LED Revolving Warning Light

- Features high visibility in all directions with special concentrated LED light structure and multi side reflector
- Revolving speed : 120-140RPM

| Model number | Voltage | Current | Certificates | Weight | Color |
|---|---|---|---|---|---|
| SNELR | DC12V | 0.183A | IECEx ATEX Ex NEPSI KOSHA CCS | 3.15kg | ● R-Red ● A-Amber ● G-Green ● B-Blue |
| | DC24V | 0.127A | | 3.15kg | |
| | AC110V | 0.035A | | 3.85kg | |
| | AC220V | 0.017A | | 3.85kg | |

## SNEL LED Steady/ Flashing Signal Light

- Long-lasting high intensity LED light source
- Suitable for applications where bulb replacement is hard
- Built in switch for steady/flashing selection
- Flashing rate : 60-80 flashes/min

| Model number | Voltage | Current | Certificates | Weight | Color |
|---|---|---|---|---|---|
| SNEL | DC12V | 0.123A | IECEx ATEX Ex NEPSI KIMM KOSHA CCS | 3.65kg | ● R-Red ● A-Amber ● G-Green ● B-Blue |
| | DC24V | 0.094A | | 3.65kg | |
| | AC110V | 0.035A | | 4.30kg | |
| | AC220V | 0.017A | | 4.30kg | |

## Customization

- Explosion proof cable gland attached type available (Standard type does not provide explosion proof cable gland)
- Customized 2 way cable entries
- Customized cable entry (M20×1.5) available
- ATEX certified type
- IECEx certified type

# SNE series

**Ø130mm Explosion Proof Warning/ Signal Lights**

Qlight

IP66 | -40~+60℃

**SNE-S**

**SNE**

## SNE-S Xenon Lamp Strobe Signal Light

- Lamp connector fastening structure allows for convenient lamp replacement
- Excellent long-distance visibility with strong flashing signal diffusion
- Flashing rate : 60-80 flashes/min

| Model number | Voltage | Current | Bulb | | | Certificates | Weight | Color |
|---|---|---|---|---|---|---|---|---|
| | | | Spec | Standard | Parts no | | | |
| SNE-S | DC12V | 0.433A | 200V-550V | EUB0641-1A(G) U Type | 48 | IECEx ATEX Ex NEPSI KIMM KOSHA CCS | 3.60kg | ● R-Red ● A-Amber ● G-Green ● B-Blue |
| | DC24V | 0.216A | | | | | 3.60kg | |
| | AC110V | 0.076A | | | | | 4.25kg | |
| | AC220V | 0.081A | | | | | 4.25kg | |

## SNE Bulb Revolving Warning Light

- Excellent signal light diffusion effect with multi-faced reflector
- Revolving speed : 120-140RPM

| Model number | Voltage | Current | Bulb | | | Certificates | Weight | Color |
|---|---|---|---|---|---|---|---|---|
| | | | Spec | Standard | Parts no | | | |
| SNE | DC12V | 1.155A | 12V15W | G23 15S | 17 | IECEx ATEX Ex NEPSI KIMM KOSHA CCS | 3.25kg | ● R-Red ● A-Amber ● G-Green ● B-Blue |
| | DC24V | 0.766A | 24V15W | G23 15S | 18 | | 3.25kg | |
| | AC110V | 0.204A | 12V15W | G23 15S | 17 | | 3.95kg | |
| | AC220V | 0.102A | 12V15W | G23 15S | 17 | | 3.95kg | |

## Technical Diagram
(Units : mm)

SNELR/ SNEL/ SNE-S/ SNE

182.5
238
100
37
71
CABLE ENTRY 1/2″ NPT
Ø152
Ø79
106.5
114
78
114
4-Ø8 FITTING HOLES

## Ordering Specification

| **SNE** | - | **220** | - | **R** |
|---|---|---|---|---|
| [Model number] | | [Voltage] | | [Color] |

- SNELR
- SNEL
- SNE-S
- SNE

- 12-DC12V
- 24-DC24V
- 110-AC110V
- 220-AC220V

- ● R-Red
- ● A-Amber
- ● G-Green
- ● B-Blue

# SNES series

**Ø130mm Explosion Proof Warning/ Signal Lights with Siren Buzzer**

**IP66** | **-40~+60℃** | **BUZZER** | **105dB**

## Siren buzzer sound output of Max 105dB

**SNESLR**

**SNESL**



Flameproof warning/ signal lights applied in an areas where potentially explosive materials may linger as shown in the refinery image above.

---

### ⓘ Common Specifications(SNESLR/ SNESL/ SNES-S/ SNES)

- Light weight and compact explosion proof warning lights with a siren buzzer
- A variety of light source selections from bulb, LED, and xenon lamp
- Aluminum housing provides excellent durability
- Fully enclosed structure with protection rating of IP66
- Integrated housing and terminal box model
- Sound type and sound volume : Siren buzzer- Max 105dB at 1m/ 7 sounds buzzer, Max 95dB at 1m
- User selected built-in buzzer with 7 sound patterns available upon request
- Housing standard color : MUNSELL No. 7.5BG 7/2
- Cable entry : 1/2″ NPT
- Materials : Lens-Tempered glass, Inner lens-PC, housing-Al, Protection cage-STS 316L, Reflector for LED type-PC/ Reflector for bulb type-Heat resistant ABS
- Certificates : IECEx, ATEX, NEPSI, KIMM, KOSHA, CCS
- Protection rating :
  IECEx - Ex d ⅡC T6 Gb, IP66
  ATEX - ⟨Ex⟩Ⅱ2G Ex d ⅡC T6, IP66
  KOSHA - Ex d ⅡB+H2 T6
  NEPSI, KIMM - Ex d ⅡC T6, IP66
- Ambient operating temperature : -40°C ≤ $T_{amb}$ ≤ +60°C

### 🔆 SNESLR LED Revolving Warning Light with Siren Buzzer

- Excellent omni-directional visibility with LED light collecting system and special multifaceted reflector
- Revolving speed : 120-140RPM

| Model number | Voltage | Current | Sound pattern/ dB | Certificates | Weight | Color |
|---|---|---|---|---|---|---|
| SNESLR | DC12V | 0.485A | • Warning sound(Buzzer) : 105dB<br>• 7 sounds(Buzzer): 95dB | IECEx, ATEX, Ex NEPSI, KOSHA, CCS | 3.60kg | ● R-Red<br>● A-Amber<br>● G-Green<br>● B-Blue |
| | DC24V | 0.411A | | | 3.60kg | |
| | AC110V | 0.111A | | | 4.30kg | |
| | AC220V | 0.055A | | | 4.30kg | |

### 🔆 SNESL LED Steady/ Flashing Signal Light with Siren Buzzer

- Long-lasting high intensity LED light source
- Suitable for applications where bulb replacement is hard
- Built in switch for steady/flashing selection
- Flashing rate : 60-80 flashes/min

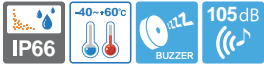| Model number | Voltage | Current | Sound pattern/ dB | Certificates | Weight | Color |
|---|---|---|---|---|---|---|
| SNESL | DC12V | 0.432A | • Warning sound(Buzzer) : 105dB<br>• 7 sounds(Buzzer): 95dB | IECEx, ATEX, Ex NEPSI, KIMM, KOSHA, CCS | 3.65kg | ● R-Red<br>● A-Amber<br>● G-Green<br>● B-Blue |
| | DC24V | 0.377A | | | 3.65kg | |
| | AC110V | 0.111A | | | 4.30kg | |
| | AC220V | 0.055A | | | 4.30kg | |

### ✐ Customization

- Explosion proof cable gland attached type available (Standard type does not come with explosion proof cable gland)
- Customized 2 way cable entries
- Customized cable entry (M20×1.5) available
- ATEX certified type
- IECEx certified type
- Customized built-in buzzer type with 7 sound patterns available

**IP66** | **-40~+60℃** | **BUZZER** | **105dB**

## Siren buzzer sound output of Max 105dB



**SNES-S**



**SNES**



Flameproof warning/ signal lights applied in dust explosion areas such as coal dust shown in thermoelectric power plant image above.

### SNES-S Xenon Strobe Signal Light with Siren Buzzer

• Lamp connector fastening structure allows for convenient lamp replacement
• Excellent long-distance visibility with strong flashing signal diffusion
• Flashing rate : 60-80 flashes/min

| Model number | Voltage | Current | Bulb | | | Sound pattern/dB | Certificates | Weight | Color |
| | | | Spec | Standard | Parts no | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SNES-S | DC12V | 0.655A | 200V -550V | EUB0641 -1A(G) U Type | 48 | • Warning sounds(Buzzer) : 105dB • 7 sounds(Buzzer) : 95dB | IECEx ATEX Ex NEPSI KIMM KOSHA CCS | 3.60kg | ● R-Red ● A-Amber ● G-Green ● B-Blue |
| | DC24V | 0.500A | | | | | | 3.60kg | |
| | AC110V | 0.104A | | | | | | 4.25kg | |
| | AC220V | 0.066A | | | | | | 4.25kg | |

### SNES Bulb Revolving Warning Light

• Excellent signal light diffusion effect with multi-faced reflector
• Revolving speed : 120-140RPM

| Model number | Voltage | Current | Bulb | | | Sound pattern/dB | Certificates | Weight | Color |
| | | | Spec | Standard | Parts no | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SNES | DC12V | 1.766A | 12V15W | G23 15S | 17 | • Warning sounds(Buzzer) : 105dB • 7 sounds(Buzzer) : 95dB | IECEx ATEX Ex NEPSI KIMM KOSHA CCS | 3.70kg | ● R-Red ● A-Amber ● G-Green ● B-Blue |
| | DC24V | 1.044A | 24V15W | G23 15S | 18 | | | 3.70kg | |
| | AC110V | 0.288A | 12V15W | G23 15S | 17 | | | 4.40kg | |
| | AC220V | 0.144A | 12V15W | G23 15S | 17 | | | 4.40kg | |

### Technical Diagram

(Units : mm)

SNESLR/ SNESL/ SNES-S/ SNES



Ø152
182.5
238
Ø79
100
49
37
CABLE ENTRY 1/2" NPT
106.5
107
114
114
4-Ø8 FITTING HOLES

### Ordering Specification

| SNES | - | 220 | - | R |
|---|---|---|---|---|
| [Model number] | | [Voltage] | | [Color] |

[Model number]
• SNESLR
• SNESL
• SNES-S
• SNES

[Voltage]
• 12-DC12V
• 24-DC24V
• 110-AC110V
• 220-AC220V

[Color]
● R-Red
● A-Amber
● G-Green
● B-Blue

# SE series

**Brass Housing Explosion Proof Warning/ Signal Lights**

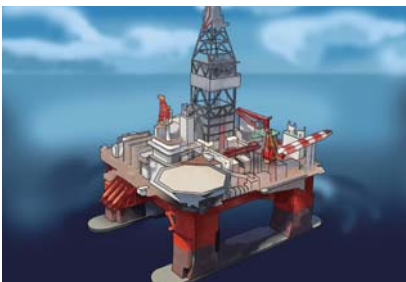Qlight

IP66  -40~+60°c
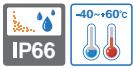
## The brass housing product with excellent corrosion resistance

**SELR**

**SEL**

Flameproof warning/ signal lights applied in Oil/ Natural Gas offshore rigs where explosions can be ignited by mining, production, and storage as shown in the offshore rig image above.

### Common Specifications(SELR/ SEL/ SE-S/ SE)

• Brass housing explosion proof warning lights with excellent corrosion resistant
• A variety of light source selections from bulb, LED, and xenon lamp
• Fully enclosed structure with protection rating of IP66
• Integrated housing and terminal box model
• Housing standard color : MUNSELL No. 7.5BG 7/2
• Cable entry : 1/2″ NPT
• Materials : Lens-Tempered glass, Inner lens-PC, Housing-Al, Protection cage-STS 316L, Reflector for LED type-PC/ Reflector for bulb type-Heat resistant ABS
• Certificates : KIMM, ABS
• Protection rating :
  KIMM-Ex d ⅡC T6, IP66
• Ambient operating temperature : -40°C ≤ $T_{amb}$ ≤ +60°C

### SELR LED Revolving Warning Light

• Excellent omni-directional visibility with LED light collecting system and special multifaceted reflector
• Revolving speed : 120-140RPM

| Model number | Voltage | Current | Certificate | Weight | Color |
|---|---|---|---|---|---|
| SELR | DC12V | 0.183A | KIMM ABS | 13.35kg | ● R-Red ● A-Amber ● G-Green ● B-Blue |
| | DC24V | 0.127A | | 13.35kg | |
| | AC110V | 0.035A | | 13.91kg | |
| | AC220V | 0.017A | | 13.91kg | |

### SEL LED Steady/ Flashing Signal Light

• Long-lasting high intensity LED light source
• Suitable for applications where bulb replacement is hard
• Built in switch for steady/flashing selection
• Flashing rate : 60-80 flashes/min

| Model number | Voltage | Current | Certificate | Weight | Color |
|---|---|---|---|---|---|
| SEL | DC12V | 0.123A | KIMM ABS | 13.29kg | ● R-Red ● A-Amber ● G-Green ● B-Blue |
| | DC24V | 0.094A | | 13.29kg | |
| | AC110V | 0.035A | | 14.26kg | |
| | AC220V | 0.017A | | 14.26kg | |

### Customization

• Explosion proof cable gland attached type available (Standard type does not provide explosion proof cable gland)
• Customized 2 way cable entries
• Customized cable entry (3/4″ NPT, M20×1.5) available

# SE series

**IP66**   **-40~+60℃**

## SE-S Xenon Strobe Signal Light

- Lamp connector fastening structure allows for convenient lamp replacement
- Excellent long-distance visibility with strong strobe signal diffusion
- Flashing rate : 60-80 flashes/min

| Model number | Voltage | Current | Bulb | | | Certificates | Weight | Color |
|---|---|---|---|---|---|---|---|---|
| | | | Spec | Standard | Parts no | | | |
| SE-S | DC12V | 0.433A | 200V -550V | EUB0641 -1A(G) U Type | 48 | KIMM ABS | 13.53kg | ● R-Red ● A-Amber ● G-Green ● B-Blue |
| | DC24V | 0.216A | | | | | 13.53kg | |
| | AC110V | 0.076A | | | | | 13.51kg | |
| | AC220V | 0.061A | | | | | 13.51kg | |

**SE-S**

## SE Bulb Revolving Warning Light

- Excellent signal light diffusion effect with multi-faced reflector
- Revolving speed : 120-140RPM

| Model number | Voltage | Current | Bulb | | | Certificates | Weight | Color |
|---|---|---|---|---|---|---|---|---|
| | | | Spec | Standard | Parts no | | | |
| SE | DC12V | 1.155A | 12V15W | G23 15S | 17 | KIMM ABS | 13.35kg | ● R-Red ● A-Amber ● G-Green ● B-Blue |
| | DC24V | 0.766A | 24V15W | G23 15S | 18 | | 13.35kg | |
| | AC110V | 0.204A | 12V15W | G23 15S | 17 | | 13.91kg | |
| | AC220V | 0.102A | 12V15W | G23 15S | 17 | | 13.91kg | |

**SE**

### Technical Diagram                     (Units : mm)

SELR/ SEL/ SE-S/ SE

Ø155   Ø155
267   110   56   101
Ø189
113 135
113 135 143
CABLE ENTRY 1/2" NPT
4-Ø10 FITTING HOLES

### Ordering Specification

| SE | - | 220 | - | R |
|---|---|---|---|---|
| [Model number] | | [Voltage] | | [Color] |
| • SELR • SEL • SE-S • SE | | • 12-DC12V • 24-DC24V • 110-AC110V • 220-AC220V | | ● R-Red ● A-Amber ● G-Green ● B-Blue |

# SEA series

Ø150mm Explosion Proof Warning/ Signal Lights

**Qlight**

IP66 -40→+60℃

**SEALR**

**SEAL**

Flameproof warning/ signal lights applied in areas where combustible substances such as oil are carried in bulk on a vessel.

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## ⓘ Common Specifications(SEALR/ SEAL/ SEAS/ SEA)

• Large explosion proof warning/ signal lights with excellent visibility for long distance
• A variety of light source selections from bulb, LED, and xenon lamp
• Aluminum housing provides excellent durability
• Fully enclosed structure with protection rating of IP66
• Integrated housing and terminal box model
• Housing standard color : MUNSELL No. 7.5BG 7/2
• Cable entry : 1/2″ NPT
• Materials : Lens-Tempered glass, Inner lens-PC, Housing-Al, Protection cage-STS 316L, Reflector for LED type-PC/ Reflector for bulb type-Heat resistant ABS
• Certificates : IECEx, ATEX, NEPSI, KIMM, KOSHA, ABS, CCS, KR
• Explosive protection rating :
  IECEx - Ex d ⅡC T6 Gb, IP66
  ATEX - ⟨Ex⟩ Ⅱ2G Ex d ⅡC T6, IP66
  NEPSI, KIMM, KOSHA - Ex d ⅡC T6, IP66
• Ambient operating temperature : -40°C ≤ $T_{amb}$ ≤ +60°C

## 🔔 SEALR LED Revolving Warning Light

• Excellent omni-directional visibility with LED light collecting system and special multifaceted reflector
• Revolving speed : 120-140RPM

| Model number | Voltage | Current | Certificates | Weight | Color |
|---|---|---|---|---|---|
| SEALR | DC12V | 0.183A | IECEx ATEX Ex NEPSI KIMM KOSHA ABS CCS KR | 5.33kg | ● R-Red ● A-Amber ● G-Green ● B-Blue |
| | DC24V | 0.127A | | 5.33kg | |
| | AC110V | 0.035A | | 5.74kg | |
| | AC220V | 0.017A | | 5.74kg | |

## 💡 SEAL LED Steady/ Flashing Signal Light

• Long-lasting high intensity LED light source
• Suitable for applications where bulb replacement is difficult
• Built in switch for steady/flashing selection
• Flashing rate : 60-80 flashes/min

| Model number | Voltage | Current | Certificates | Weight | Color |
|---|---|---|---|---|---|
| SEAL | DC12V | 0.182A | IECEx ATEX Ex NEPSI KIMM KOSHA ABS CCS KR | 4.87kg | ● R-Red ● A-Amber ● G-Green ● B-Blue |
| | DC24V | 0.163A | | 4.87kg | |
| | AC110V | 0.044A | | 5.25kg | |
| | AC220V | 0.022A | | 5.25kg | |

## ✎ Customization

• Explosion proof cable gland attached type available (Standard type does not come with explosion proof cable gland)
• Customized 2 way cable entries
• Customized cable entry (3/4″ NPT, M20×1.5, M25×1.5) available
• ATEX certified type
• IECEx certified type

**Qlight**

Ø150mm Explosion Proof Warning/ Signal Lights

IP66   -40~+60℃

## SEAS Xenon Lamp Strobe Signal Light

• Lamp connector fastening structure allows for convenient lamp replacement
• High efficiency strobe light offers excellent visibility for long distances
• Flashing rate : 60-80 flashes/min

| Model number | Voltage | Current | Bulb | | | Certificates | Weight | Color |
|---|---|---|---|---|---|---|---|---|
| | | | Spec | Standard | Parts no | | | |
| SEAS | DC12V | 1.001A | 200V -550V | EUB0641 -1A(G) U Type | 48 | IECEx ATEX Ex NEPSI KIMM KOSHA ABS CCS KR | 5.39kg | ● R-Red ● A-Amber ● G-Green ● B-Blue |
| | DC24V | 0.616A | | | | | 5.39kg | |
| | AC110V | 0.133A | | | | | 5.35kg | |
| | AC220V | 0.106A | | | | | 5.35kg | |

## SEA Bulb Revolving Warning Light

• Excellent diffusion effect with special multifaceted reflector
• Revolving speed : 120-140RPM

| Model number | Voltage | Current | Bulb | | | Certificates | Weight | Color |
|---|---|---|---|---|---|---|---|---|
| | | | Spec | Standard | Parts no | | | |
| SEA | DC12V | 1.155A | 12V15W | G23 15S | 17 | IECEx ATEX Ex NEPSI KIMM KOSHA ABS CCS KR | 5.36kg | ● R-Red ● A-Amber ● G-Green ● B-Blue |
| | DC24V | 0.766A | 24V15W | G23 15S | 18 | | 5.36kg | |
| | AC110V | 0.204A | 12V15W | G23 15S | 17 | | 5.75kg | |
| | AC220V | 0.102A | 12V15W | G23 15S | 17 | | 5.75kg | |

SEAS

SEA

### Technical Diagram   (Units : mm)

SEALR/ SEAL/ SEAS/ SEA

Ø167
287
141
85
10
172
32
CABLE ENTRY 1/2″ NPT

4-Ø8.5 FITTING HOLES
154
134
134
154

### Ordering Specification

| SEA | - | 220 | - | R |
|---|---|---|---|---|
| [Model number] | | [Voltage] | | [Color] |

• SEALR
• SEAL
• SEAS
• SEA

• 12-DC12V
• 24-DC24V
• 110-AC110V
• 220-AC220V

● R-Red
● A-Amber
● G-Green
● B-Blue

# SESA series

**Explosion Proof Warning/ Signal Light and Max 118dB Electric Horn Combinations**

Qlight

| IP66 | -40→+60°C | HORN | 118dB | NPN |

**Explosion proof warning light and electric horn combinations with sound output of Max 118dB**



**SESALR**



**SESAL**



**SESAS**

ⓘ **Common Specifications(SESALR/ SESAL/ SESAS/ SESA)**

- Large explosion proof warning light and electric horn combinations
- A variety of light sources and sound selections to fit your sophisticated application needs
- Aluminum housing provides excellent durability
- Fully enclosed structure with protection rating of IP66
- Integrated housing and terminal box model
- Sound volume : Max 118dB at 1m(Volume adjustable)
- Standard housing color : MUNSELL No. 7.5BG 7/2
- Cable entry : 1/2″ NPT
- Materials : Lens-Tempered glass, Filter-PC, Housing-Al, Protection cage-SUS316L, Reflector for LED type-PC/Reflector for bulb type-Heat resistant ABS
- Certificates : IECEx, ATEX, NEPSI, KIMM, KOSHA, ABS, CCS, KR
- Protection rating :
  IECEx - Ex d ⅡC T6 Gb, IP66
  ATEX - Ⓔx Ⅱ2G Ex d ⅡC T6, IP66
  NEPSI, KIMM, KOSHA - Ex d ⅡC T6, IP66
- Ambient operating temperature : -40°C ≤ T$_{amb}$ ≤ +60°C

### 🛎 SESALR LED Revolving Warning Light and Electric Horn Combination

- Excellent omni-directional visibility with LED light collecting system and special multifaceted reflector
- Revolving speed : 120-140RPM

| Model number | Voltage | Current | Sound pattern and volume | Certificates | Weight | Color |
|---|---|---|---|---|---|---|
| SESALR | DC12V | 2.633A | • WS-5 Warning sounds : 118dB<br>• WP-5 Special warning sounds : 118dB<br>• WM-5 Melodies : 118dB<br>• WA-5 Alarms : 115dB<br>• WV-5 Customizable voices : 113dB | IECEx ATEX Ex NEPSI KIMM KOSHA ABS CCS KR | 8.31kg | ● R-Red<br>● A-Amber<br>● G-Green<br>● B-Blue |
| | DC24V | 1.288A | | | 8.31kg | |
| | AC110V | 0.308A | | | 7.92kg | |
| | AC220V | 0.154A | | | 7.92kg | |

### 🔵 SESAL LED Steady/ Flashing Signal Light and Electric Horn Combination

- Long product lifetime with the application of a high intensity LED light source
- Suitable for locations where bulb replacement is inconvenient
- Built in switch for steady/flashing selection
- Flashing rate : 60-80 flashes/min

| Model number | Voltage | Current | Sound pattern and volume | Certificates | Weight | Color |
|---|---|---|---|---|---|---|
| SESAL | DC12V | 2.511A | • WS-5 Warning sounds : 118dB<br>• WP-5 Special warning sounds : 118dB<br>• WM-5 Melodies : 118dB<br>• WA-5 Alarms : 115dB<br>• WV-5 Customizable voices : 113dB | IECEx ATEX Ex NEPSI KIMM KOSHA ABS CCS KR | 8.42kg | ● R-Red<br>● A-Amber<br>● G-Green<br>● B-Blue |
| | DC24V | 1.222A | | | 8.42kg | |
| | AC110V | 0.286A | | | 9.02kg | |
| | AC220V | 0.143A | | | 9.02kg | |

### 🔦 SESAS Xenon Lamp Strobe Signal Light and Electric Horn Combination

- Lamp connector fastening structure allows for convenient lamp replacement
- High efficiency strobe light offers excellent visibility for long distances
- Flashing rate : 60-80 flashes/min

| Model number | Voltage | Current | Bulb Spec | Bulb Standard | Bulb Parts no | Sound pattern and volume | Certificates | Weight | Color |
|---|---|---|---|---|---|---|---|---|---|
| SESAS | DC12V | 2.933A | 200V -550V | EUB0641 -1A(G) U Type | 48 | • WS-5 Warning sounds :118dB<br>• WP -5 Special warning sounds :118dB<br>• WM-5 Melodies : 118dB<br>• WA-5 Alarms : 115dB<br>• WV -5 Customizable voices : 113dB | IECEx ATEX Ex NEPSI KIMM KOSHA ABS CCS KR | 8.45kg | ● R-Red<br>● A-Amber<br>● G-Green<br>● B-Blue |
| | DC24V | 1.411A | | | | | | 8.45kg | |
| | AC110V | 0.360A | | | | | | 8.86kg | |
| | AC220V | 0.220A | | | | | | 8.86kg | |

# SESA series

## Explosion Proof Warning/ Signal Light and Max 118dB Electric Horn Combinations

IP66 | -40~+60℃ | HORN | 118dB | NPN

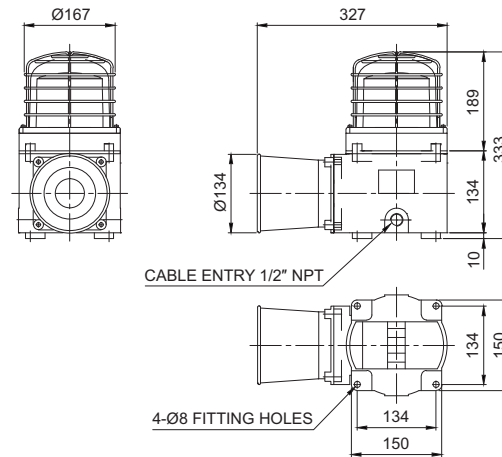### SESA Bulb Revolving Warning Light and Electric Horn Combinations

- Excellent diffusion effect with special multifaceted reflector
- Revolving speed : 120-140RPM

| Model number | Voltage | Current | Bulb | | | Sound pattern and volume | Certificates | Weight | Color |
|---|---|---|---|---|---|---|---|---|---|
| | | | Spec | Standard | Parts no | | | | |
| SESA | DC12V | 3.755A | 12V15W | G23 15S | 17 | • WS-5 Warning sounds :118dB | IECEx | 8.57kg | |
| | DC24V | 1.788A | 24V15W | G23 15S | 18 | • WP -5 Special warning sounds :118dB | ATEX, Ex NEPSI, KIMM | 8.57kg | • R-Red • A-Amber |
| | AC110V | 0.422A | 12V15W | G23 15S | 17 | • WM-5 Melodies : 118dB • WA-5 Alarms : 115dB • WV | KOSHA, ABS | 9.27kg | • G-Green • B-Blue |
| | AC220V | 0.211A | 12V15W | G23 15S | 17 | -5 Customizable voices : 113dB | CCS, KR | 9.27kg | |

### Technical Diagram
(Units : mm)

SESALR/ SESAL/ SESAS/ SESA

Ø167   327
189   333
Ø134   134
10

CABLE ENTRY 1/2″ NPT

134   150
4-Ø8 FITTING HOLES   134
150

**SESA**

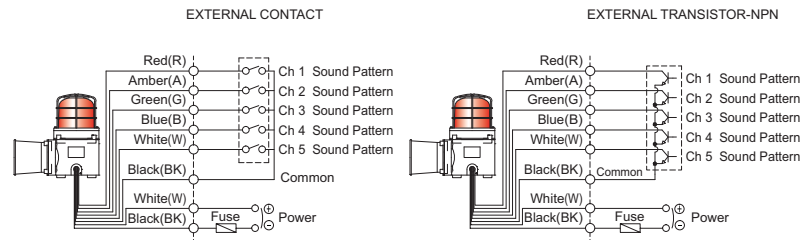### Sound Selection Instructions and Wiring

- Standard type : Select sound using the switch inside of the unit. When you turn on the dip switch for each channel, designated sound is played.

- Customization : External contact(LC)
  Customization of signal line threading can be choice between external contact and transistor which can be fit for control unit.

ON   DP
1 2 3 4 5
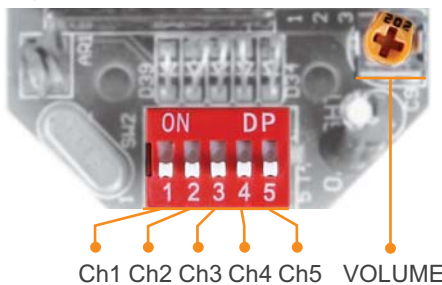
Ch1 Ch2 Ch3 Ch4 Ch5   VOLUME

**SESA SERIES-DC/AC**

EXTERNAL CONTACT

Red(R) — Ch 1 Sound Pattern
Amber(A) — Ch 2 Sound Pattern
Green(G) — Ch 3 Sound Pattern
Blue(B) — Ch 4 Sound Pattern
White(W) — Ch 5 Sound Pattern
Black(BK) — Common
White(W)
Black(BK) — Fuse — Power

EXTERNAL TRANSISTOR-NPN

Red(R) — Ch 1 Sound Pattern
Amber(A) — Ch 2 Sound Pattern
Green(G) — Ch 3 Sound Pattern
Blue(B) — Ch 4 Sound Pattern
White(W) — Ch 5 Sound Pattern
Black(BK) — Common
White(W)
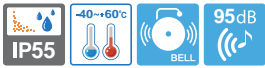Black(BK) — Fuse — Power

### Customization

- Built-in explosion proof cable gland type
- 2 way cable entries
- Customized cable entry (3/4″ NPT, M20×1.5, M25×1.5) available
- ATEX compliant products
- IECEx compliant products

### Ordering Specification

| SESAS | - | WS | - | 220 | - | R |
|---|---|---|---|---|---|---|

[Model number]
- SESALR
- SESAL
- SESAS
- SESA

[Sound]
- WS-Warning sounds
- WP-Special warning sounds
- WM-Melodies
- WA-Alarms
- WV-Customizable sounds

[Voltage]
- 12-DC12V
- 24-DC24V
- 110-AC110V
- 220-AC220V

[Color]
- R-Red
- A-Amber
- G-Green
- B-Blue

# SEBA series

**Explosion Proof Warning/ Signal Lights and Alarm Bell Combinations**

IP55 | -40→+60℃ | BELL | 95dB

**SEBA**

**SEBAL/ SEBAS** | **SEBALR**

## Customization

- Built-in explosion proof cable gland type explosion proof gland cable are not equipped on standard model
- 2 way cable entries
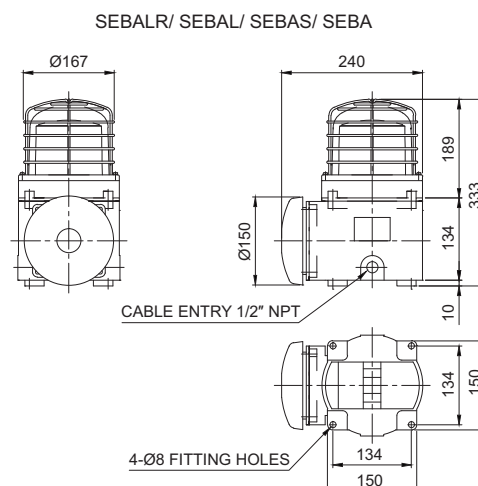- Customized cable entry (3/4″ NPT, M20×1.5, M25×1.5) available

## Ordering Specification

| SEBA | - | 220 | - | R |
|------|---|-----|---|---|
| [Model number] | | [Voltage] | | [Color] |

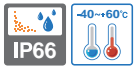| | | |
|---|---|---|
| • SEBALR | • 12-DC12V | ● R-Red |
| • SEBAL | • 24-DC24V | ● A-Amber |
| • SEBAS | • 110-AC110V | ● G-Green |
| • SEBA | • 220-AC220V | ● B-Blue |

---

### ⓘ Common Specifications(SEBALR/ SEBAL/ SEBAS/ SEBA)

- Large explosion proof warning/ signal light and alarm bell combinations
- Standard housing color : MUNSELL No. 7.5BG 7/2
- Cable entry : 1/2″ NPT
- Materials : Lens-Tempered glass, Filter-PC, housing-Al, Protection cage-SUS316L, Reflector-PC/ Reflector for bulb type-Heat resistant ABS
- Certificates : KIMM, ABS, KR
- Protection rating : Ex d ⅡC T6, IP55
- Ambient operating temperature : -40°C ≤ $T_{amb}$ ≤ +60°C

### 🔔 SEBALR  LED Revolving Warning Light and Alarm Bell

- Revolving speed : 120-140RPM

| Model number | Voltage | Current | Volume | Certificates | Weight | Color |
|---|---|---|---|---|---|---|
| SEBALR | DC12V | 0.230A | 95dB | KIMM ABS KR | 7.20kg | ● R-Red |
| | DC24V | 0.172A | | | 7.20kg | ● A-Amber |
| | AC110V | 0.122A | | | 7.92kg | ● G-Green |
| | AC220V | 0.061A | | | 7.92kg | ● B-Blue |

### 🔆 SEBAL  LED Steady/ Flashing Signal Light and Alarm Bell

- Flashing rate : 60-80 flashes/min(Built in switch for steady/flashing selection)

| Model number | Voltage | Current | Volume | Certificates | Weight | Color |
|---|---|---|---|---|---|---|
| SEBAL | DC12V | 0.232A | 95dB | KIMM ABS KR | 7. 25kg | ● R-Red |
| | DC24V | 0.213A | | | 7.25kg | ● A-Amber |
| | AC110V | 0.131A | | | 7.99kg | ● G-Green |
| | AC220V | 0.065A | | | 7.99kg | ● B-Blue |

### 💡 SEBAS  Xenon Strobe signal Light and Alarm Bell

- Lamp connector fastening structure allows for convenient lamp replacement
- Flashing rate : 60-80 flashes/min

| Model number | Voltage | Current | Bulb Spec | Bulb Standard | Parts no | Volume | Certificates | Weight | Color |
|---|---|---|---|---|---|---|---|---|---|
| SEBAS | DC12V | 1.051A | 200V -550V | EUB0641 -1A(G) U Type | 48 | 95dB | KIMM ABS KR | 7.24kg | ● R-Red |
| | DC24V | 0.666A | | | | | | 7.24kg | ● A-Amber |
| | AC110V | 0.222A | | | | | | 7.67kg | ● G-Green |
| | AC220V | 0.150A | | | | | | 7.67kg | ● B-Blue |

### 🔦 SEBA  Bulb Revolving Warning Light and Alarm Bell

- Revolving speed : 120-140RPM

| Model number | Voltage | Current | Bulb Spec | Bulb Standard | Parts no | Volume | Certificates | Weight | Color |
|---|---|---|---|---|---|---|---|---|---|
| SEBA | DC12V | 1.591A | 12V15W | G23 15S | 17 | 95dB | KIMM ABS KR | 7.37kg | ● R-Red |
| | DC24V | 0.811A | 24V15W | G23 15S | 18 | | | 7.37kg | ● A-Amber |
| | AC110V | 0.291A | 12V15W | G23 15S | 17 | | | 8.06kg | ● G-Green |
| | AC220V | 0.145A | 12V15W | G23 15S | 17 | | | 8.06kg | ● B-Blue |

### 📐 Technical Diagram

(Units : mm)

SEBALR/ SEBAL/ SEBAS/ SEBA

Ø167 | 240 | 189 | 333 | Ø150 | 134 | 10

CABLE ENTRY 1/2″ NPT

134 | 150

4-Ø8 FITTING HOLES

134 | 150

# SSEL

**Explosion Proof LED Perimeter Light**

IP66   -40→+60℃

**SSEL**

SSEL Model applied in helideck

## 🔔 SSEL Explosion Proof LED Perimeter Light

- Suitable for helideck and other dangerous areas that require a perimeter light
- Structure minimizing the projection of lens, can be protected from damage by external impact
- Product structure with 100mm height meets the IMD regulation condition
- Aluminum housing provides excellent durability
- Terminal for power wiring located inside of the housing
  Signal colors : ●R-Red  ●A-Amber  ●G-Green  ●B-Blue
- Standard housing color : MUNSELL No. 7.5BG 7/2
- Cable entry : 1/2″ NPT
- Materials : Lens-Tempered glass, Housing–Al
- Certificates : KIMM, ABS
- Protection rating : Ex d ⅡC T6, IP66
- Ambient operating temperature :  -40°C ≤ $T_{amb}$ ≤ +60°C

### 💡 Specifications

| Model number | Voltage | Current | Certificates | Weight | Color |
|---|---|---|---|---|---|
| SSEL | DC12V | 0.466A | KIMM | 2.54kg | ● R-Red |
| | DC24V | 0.255A | | 2.54kg | ● A-Amber |
| | AC110V | 0.040A | ABS | 2.54kg | ● G-Green |
| | AC220V | 0.040A | | 2.54kg | ● B-Blue |

### 📐 Technical Diagram  （Units : mm）

SSEL

154
134
4-Ø8.5 FITTING HOLES
154
134

CABLE ENTRY 1/2″ NPT
15
80
5
172

### 📝 Customization

- Explosion proof cable gland attached type available (Standard type does not provide explosion proof cable gland)
- Customized 2 way cable entries
- Customized cable entry(3/4″ NPT, M20×1.5, M25×1.5) available

### 👆 Ordering Specification

| SSEL | - | 220 | - | R |
|---|---|---|---|---|
| [Model number] | | [Voltage] | | [Color] |
| • SSEL | | • 12-DC12V<br>• 24-DC24V<br>• 110-AC110V<br>• 220-AC220V | | ● R-Red<br>● A-Amber<br>● G-Green<br>● B-Blue |

# SPNA

**Explosion Proof Electric Horn**

Qlight

IP66 | -40~+60°C | HORN | 118dB | NPN

**SPNA**

## SPNA Max 118dB Explosion Proof Electric Horn

- Explosion proof electric horn
- Various sound tones can be selected ; warning sound, alarm, melody
- Aluminum housing provides excellent durability
- Equipped terminal box for power line wiring in housing
- Sound volume : Max 118dB at 1m(Volume adjustable)
- Standard housing color : MUNSELL No. 7.5BG 7/2
- Cable entry : 1/2″ NPT
- Materials : Housing-Al, Protection cage-SUS316L
- Certificates : IECEx, ATEX, NEPSI, KIMM, KOSHA, ABS, CCS, KR
- Protection rating :
  IECEx - Ex d ⅡC T6 Gb, IP66
  ATEX - ⟨Ex⟩Ⅱ2G Ex d ⅡC T6, IP66
  NEPSI, KIMM, KOSHA - Ex d ⅡC T6, IP66
- Ambient operating temperature : -40°C ≤ $T_{amb}$ ≤ +60°C

### Sound Selection Instructions and Wiring

- Standard type : Select using the switch inside of the unit.
  When you turn on the dip switch for each channel, designated sound is being played.

Ch1 Ch2 Ch3 Ch4 Ch5   VOLUME
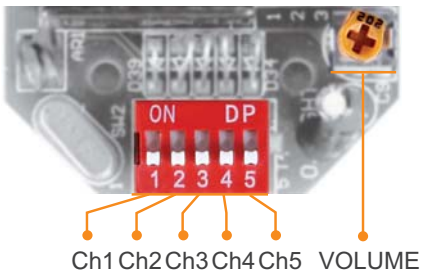
- Customization : External contact(LC)
- In case of select sound between external contact and transistors, sound line is threading as customization when product released(LC).

#### SPNA-DC/AC
EXTERNAL CONTACT

Red(R) — Ch 1 Sound Pattern
Amber(A) — Ch 2 Sound Pattern
Green(G) — Ch 3 Sound Pattern
Blue(B) — Ch 4 Sound Pattern
White(W) — Ch 5 Sound Pattern
Black(BK) — Common
White(W)
Black(BK) — Fuse — Power

#### SPNA-DC/AC
EXTERNAL TRANSISTOR-NPN

Red(R) — Ch 1 Sound Pattern
Amber(A) — Ch 2 Sound Pattern
Green(G) — Ch 3 Sound Pattern
Blue(B) — Ch 4 Sound Pattern
White(W) — Ch 5 Sound Pattern
Black(BK) — Common
White(W)
Black(BK) — Fuse — Power

### Specifications

| Model number | Voltage | Current | Sound Pattern and Volume | Certificate | Weight |
|---|---|---|---|---|---|
| SPNA | DC12V | 2.211A | • WS-5 Warning sounds : 118dB<br>• WP-5 Special warning sounds : 118dB<br>• WM-5 Melodies : 118dB<br>• WA-5 Alarms : 115dB<br>• WV-5 Customizable voices : 113dB | IECEx, ATEX | 6.09kg |
| | DC24V | 1.022A | | NEPSI, KIMM | 6.09kg |
| | AC110V | 0.226A | | KOSHA, ABS | 6.44kg |
| | AC220V | 0.113A | | CCS, KR | 6.44kg |

※ Please refer to Page 90 for detailed information about selectable sound patterns.

### Technical Diagram
(Units : mm)
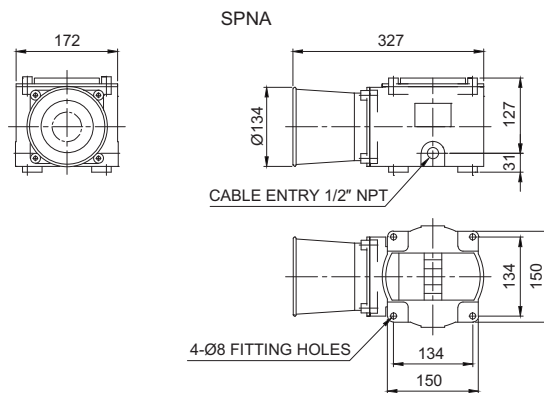
SPNA

172

327

Ø134

127

31

CABLE ENTRY 1/2″ NPT

134

150

4-Ø8 FITTING HOLES

134

150

### Customization

- Built-in explosion proof cable gland type
- 2 way cable entries
- Customized cable entry (3/4″ NPT, M20×1.5, M25×1.5) available
- ATEX compliant products
- IECEx compliant products

### Ordering Specification

| SPNA | - | WM | - | 220 | - | LC |
|---|---|---|---|---|---|---|
| [Model number] | | [Sound] | | [Voltage] | | [Sound selection] |

- SPNA

- WS-Warning sounds
- WP-Special warning sounds
- WM-Melodies
- WA-Alarms
- WV-Customizable sounds

- 12-DC12V
- 24-DC24V
- 110-AC110V
- 220-AC220V

- Standard
  -Built-in switch
- LC
  -External contact

# SBE series

**Explosion Proof Alarm Bell**

| | |
|---|---|
| IP56 | -40→+60℃ | BELL | 95dB |
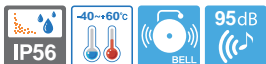


**SBE130**



**SBE150**

## SBE130/ SBE150 Max 95dB Explosion Proof Alarm Bell

- Explosion proof alarm bell for audible signal in dangerous area
- Adopts special solenoid bell structure, suitable in vessels which encounter serious vibration and impact or outdoor plants application
- Fully enclosed structure with protection rating of IP56
- Sound volume : Max 95dB at 1m
- Standard housing color : MUNSELL No. 7.5BG 7/2
- Cable entry : 1/2″ NPT
- Materials : Housing-Al, Bell-Al
- Certificates : KIMM
- Protection rating: Ex d ⅡC T6, IP56
- Ambient operating temperature : -40°C ≤ $T_{amb}$ ≤ +60°C

### Specifications

| Model number | Frequency | Volume | Bell diameter | Voltage | Current | Certificate | Weight |
|---|---|---|---|---|---|---|---|
| SBE130 | 400Hz | 95dB | 120mm | DC24V | 0.044A | KIMM | 2.27kg |
| | | | | AC110V | 0.044A | | |
| SBE150 | 600Hz | | 150mm | AC220V | 0.022A | | 2.52kg |

### Technical Diagram (Units : mm)

SBE 130
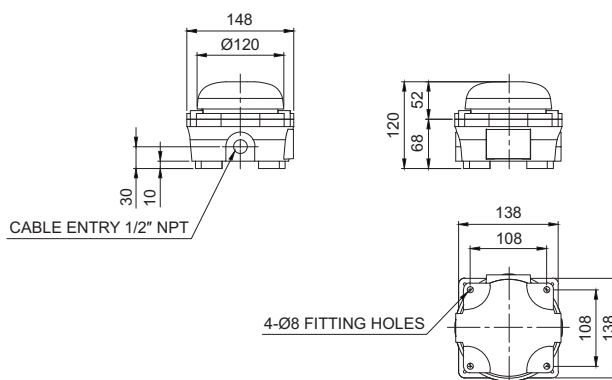


148
Ø120
120
52
68
138
108
30
10
CABLE ENTRY 1/2″ NPT
4-Ø8 FITTING HOLES
108
138

SBE 150



Ø150
120
52
68
30
10
CABLE ENTRY 1/2″ NPT
4-Ø8 FITTING HOLES
138
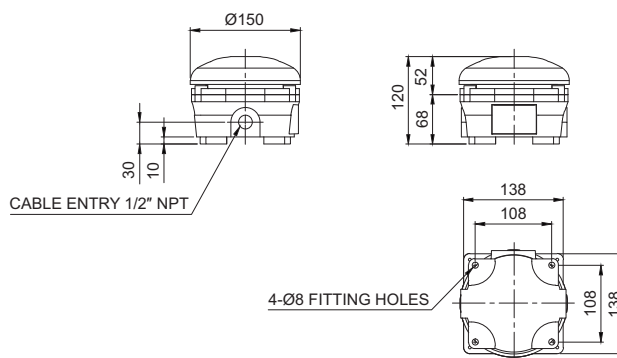108
108
138

### Customization

- Built-in explosion proof cable gland type
- 2 way cable entries
- Customized cable entry (3/4″ NPT, M20×1.5, M25×1.5) available

### Ordering Specification

| SBE130 | - | 220 |
|---|---|---|
| [Model number] | | [Voltage] |

- SBE130
- SBE150

- 24-DC24V
- 110-AC110V
- 220-AC220V

# QMFL-300-Ex-24

**Non Sparking LED work light**

Qlight

[IP67] [IP69K] [-40~+60°C]
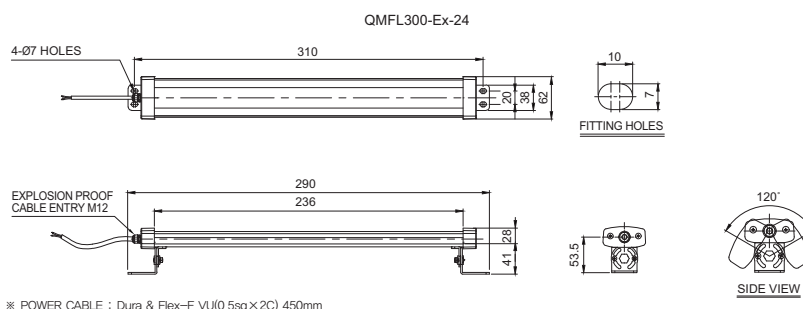
## QMFL-300-Ex-24 Non Sparking LED work light

- Water, vibration and oil resistant LED work lights with non sparking ex-proof feature
- Special epoxy sealed structure provides excellent oil resistance
- Aluminum housing and tempered glass improves durability and stability in hazardous areas(Explosive zone)
- Can be used for Zone 2 application with explosion proof rating of nR
- Materials : Housing-AI, Side cover-AI, Lens-Tempered glass, Bracket-SPC1
- Certificates : KC(KGS)
- Protection rating: Ex nR II T6, IP67/ IP69K
- Ambient operating temperature : -40°C ≤ $T_{amb}$ ≤ +60°C

### Specifications

**Optics Specifications**

| Model | | QMFL-300-Ex-24 |
|---|---|---|
| Lens color | | Translucent |
| Light color | | Cool daylight |
| Color temperature | | 6,000-7,000K |
| Luminous flux | DC | 510lm |
| Efficacy (lm/W) | DC | 260Lux |

**Specifications**

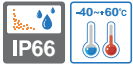| Voltage | DC24V |
|---|---|
| Rage of operation voltage | DC21.5V-26.5V |
| Current | 0.410A |
| Power consumption | 10W |
| Insulation resistance | Min. 100MΩ(500V DC mega ohm meter) |
| Withstanding voltage | DC : 500V AC, 60Hz, 1 minute |
| Operating temperature | -40°C - +60°C |
| Waterproof | IP67/ IP69K |
| Materials | Housing : AI, Side cover: AI, Lens: Tempered glass, Bracket: SPC-1 |
| Certificates | [KC]s |
| Weight(approx.) | 0.79kg |

### Technical Diagram

(Units : mm)

QMFL300-Ex-24

4-Ø7 HOLES          310
FITTING HOLES
10    7
20  38  62

EXPLOSION PROOF CABLE ENTRY M12
290
236
28  41
53.5
120°
SIDE VIEW

※ POWER CABLE : Dura & Flex−F VU(0.5sq×2C) 450mm

### Ordering Specification

| QMFL | – | 300 | – | Ex | – | 24 |
|---|---|---|---|---|---|---|
| [Model number] | | [Length] | | [Ex-proof] | | [Voltage] |
| • QMFL : Anti glare type | | • 300 : 290mm | | • Ex : Non sparking ex-proof type | | • 24-DC24V |

⚠ Cautions in use of explosion proof LED work lights
- Contact structure of an explosion proof product must be a qualified part we provide. Please do not disassemble, assemble, modify or repair arbitrarily.

**Qlight**

**QEAL1** Explosion Proof Low Intensity LED Aviation Obstruction Light

- Low Intensity B type explosion proof aviation obstruction light
- Features high visibility from a distance with the direct LED light distribution system
- Cost savings enabled by using a long lasting LED light source which eliminates the need for maintenance
- Aluminum housing provides excellent durability
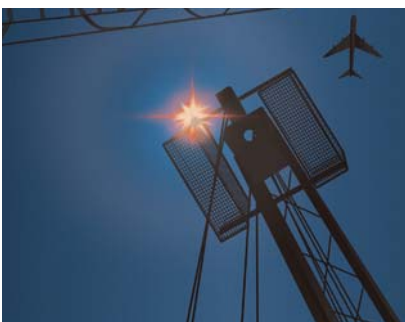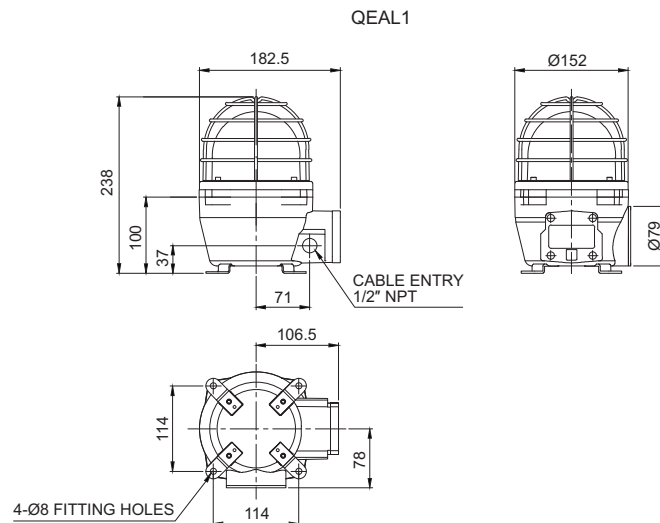- Terminals located inside the housing for wiring
- Protection rating : Ex d ⅡC T4, IP66

| ICAO standard | Low intensity B type | | |
|---|---|---|---|
| Light source | High intensity light emitting diodes(LED) | | |
| Light color | Red | | |
| Light function | Steady | | |
| Voltage | DC12V, DC24V, AC110V, AC220V | | |
| Power consumption | 30W | | |
| Standard housing color | Red | Cable entry | 1/2″ NPT |
| Materials | Lens-Tempered glass, Housing-Al, Lens ring- SUS316L, Protection cage-SUS316L, Heat sink-Al | | |
| Protection rating | IP66 | Ambient operating temperature | -40°C ≤ T$_{amb}$ ≤ +60°C |
| Certificate | KC(KOSHA) | Luminous intensity | 50cd ±25% |

**QEAL1**

**Technical Diagram** （Units : mm）

QEAL1

182.5
238
100
37
71
CABLE ENTRY 1/2″ NPT

Ø152
Ø79

106.5
114
78
4-Ø8 FITTING HOLES
114

**Customization**

- Built-in explosion proof cable gland available(Standard type does not provide explosion proof cable gland)
- Customized 2 cable entries available
- Customized cable entry(M20×1.5) available
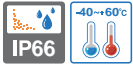- Built-in darkness detecting sensor available

**Ordering Specification**

| QEAL1 | - | 220 | - | R |
|---|---|---|---|---|
| [Model number] | | [Voltage] | | [Color] |

- QEAL1

- 12-DC12V
- 24-DC24V
- 110-AC110V
- 220-AC220V

● R-Red

Explosion proof aviation obstruction lights are installed within hazardous areas on a surface that is more than 60m from the water surface or land such as towers and smokestacks.

# QEAL2

Explosion Proof Medium Intensity LED Aviation Obstruction Light

**Qlight**

**IP66**  -40→+60℃



**QEAL2**

## QEAL2 Explosion Proof Medium Intensity LED Aviation Obstruction Light
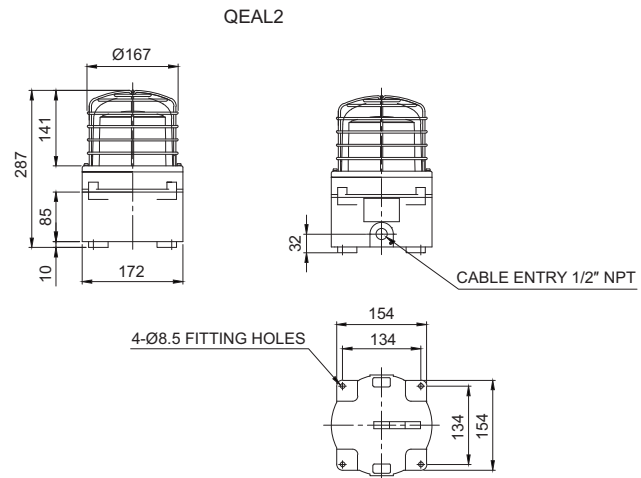
- Explosion proof medium intensity A and B type aviation obstruction light
- LED light distribution structure that directly radiates light to the user for excellent visibility
- Using semi-permanent lifetime of the LED light source decreases the light source replacement cost
- Excellent durability by adopting aluminum housing
- Built-in terminal for power line inside of housing
- Protection rating : Ex d ⅡC T4, IP66

| | | | |
|---|---|---|---|
| ICAO standard | Medium intensity A and B type | | |
| Light source | High intensity light emitting diodes(LED) | | |
| Light color | Red, White | | |
| Light function | Flashing | | |
| Flashing rate | 20-60 flashes/min | | |
| Voltage | DC12V, DC24V, AC110V, AC220V | | |
| Power consumption | 130W | | |
| Standard housing color | Red | Cable entry | 1/2″ NPT |
| Materials | Lens-Tempered glass, Housing-Al, Protection cage-SUS316L, Heat sink-Al | | |
| Protection rating | IP66 | Ambient operating temperature | -40°C ≤ Tamb ≤ +60°C |
| Certificates | KC(KOSHA) compliant | Luminous intensity | 2,000cd ± 25% |

### Technical Diagram                                    (Units : mm)

QEAL2



Ø167
287
141
85
10
172
32
CABLE ENTRY 1/2″ NPT
4-Ø8.5 FITTING HOLES
154
134
134
154

### Customization

- Explosion proof cable gland attached type available (Standard type does not come with explosion proof cable gland)
- Customized 2 way cable entries
- Customized cable entry (3/4″ NPT, M20×1.5, M25×1.5) available
- Built-in darkness detecting sensor available

### Ordering Specification

| QEAL2 | - | A | - | 24 |
|---|---|---|---|---|
| [Model number] | | [Type] | | [Voltage] |

- QEAL2

- A-Medium intensity A Type : White, Flashing
- B-Medium intensity B Type : Red, Flashing

- 12-DC12V
- 24-DC24V
- 110-AC110V
- 220-AC220V

# Technical Certification

Qlight products are designed to meet strict quality and technical standards. Thus, the Qlight brand is widely recognized for its high quality and technical innovations from leading institutions around the world.

**ISO** International Organization for Standardization

Qlight quality assurance systems have been certified by ISO by applying the ISO 9001:2008, KS Q ISO 9001:2009 regulation.

**IECEx** International Explosion Proof Certification (IECEx)

Certified that Qlight's products are being manufactured and manage according to international standards.

**ATEX** The European Regulatory Framework or Manufacture, Installation and Use of Equipment in Explosive Atmospheres

Qlight explosion proof products comply with ATEX Directives 94/9/EC.

**NEPSI** National Supervision and Inspection Center for Explosion Protection and Safety of Instrumentation

Qlight's design and manufacturing system meets the People's Republic of China National explosion proof Standard.
(Chinese Standard-GB3836/GB12476)

**KGS** Korea Gas Safety Corporation

Approved from "Korea Gas Safety Corporation" that Qlight's design and manufacturing system meets the standard of KGS.

**KOSHA** Korea Occupational Safety and Health Agency

Approved by the "Korea Occupational Safety and Health Agency" that Qlight's design and manufacturing system meets the standard of KOSHA.

**ABS** American Bureau of Shipping

Qlights design and quality assurance system has been certified by the American Bureau of Shipping.

**LR** Lloyd's Register

Qlight design and quality assurance system has been certified from Lloyd's Register.

**CCS** China Classification Society

Qlight design and quality assurance system has been certified by the China Classification Society.

**RMRS** Russian Maritime Register of Shipping

Qlight design and quality assurance system has been certified from Russian Maritime Register of Shipping.

**KR** Korean Register of Shipping

Qlight design and quality assurance system has been certified by the Korean Register of Shipping.

**CE** European Commission

Qlight has been certified by the European Commission.

**UL** Underwriters Laboratories

Qlight design and quality assurance system has been certified from UL to ensure the stability of consumption goods and to protect consumers.

**KC** Korea Safety Certification

Qlight products are certified by KC for preventing accident caused by fire.

**CCC** China Compulsory Certificate

Qlight has obtained CCC which guarantees safety, protection against fraud, environment, etc.

**ICAO** International Civil Aviation Organization

Qlight guarantees our products satisfy the criteria regulated by the International Civil Aviation Organization(ICAO, FAA).

**E-mark** Commission Directive Regarding Vehicle Industry

Qlight has obtained EU mark for approved vehicles and vehicle components sold into the EU(EEA : European Economic Area)

**RoHS** Restriction of Hazardous Substances Directive

Qlight complies with the Restriction of Hazardous Substances Directive by limiting its use of hazardous materials.

# Light Source of Warning Light/ Signal Light

## SELECTION OF WARNING LIGHT

The selection of signaling devices will depend on the particular situation and environment.

- Whether the location of installation is dark or bright.
- Whether the signal transmission range should be short or long, or should have good visibility.
- Whether you need an economical but short lifetime product or upscale product with longer lifetime.
- Whether the environment is harsh with vibration and shock, or the environment is stable so that the life of the lights can be guaranteed.
- The selection of signaling device can be different depending on the situation and environment. The convenience and efficiency of maintenance should also be considered.

※ Factors to consider in signal selection
1. Purpose    2. Signal transmission    3. Environment    4. Budget    5. Ease of maintenance

## TYPE OF LIGHT SOURCE



### Bulb

Light bulb is a light source that uses temperature reflection generated by the current flowing through the light bulb filament (thin line of metal), tungsten wire coil filament is often used. The hot filament is protected from oxidation with a glass sphere injected with inert gas (Argon gas, etc.). Typical characteristics of the gas injected bulb is described below.

1. If the input voltage decreases more than 10% of the rated voltage, the bulb life increases four times than before, and the power consumption is reduced by 85%.

2. On the other hand, If input voltage is 10% higher than the rated voltage, the life of the bulb is shortened by about 30% and the power consumption increases about 16%, and the brightness is increased by about 40%. The standard service life of a normal bulb is about 1,000 - 1,500 hours.



### LED

The LED is a light emitting diode which emits light by injecting a current in the PN junction of the special semiconductor, semiconductors such as GaAs, GaP that Maximizes the electro-optical conversion effects are used. Like other semiconductors, over-voltage or ambient temperature affects the lifetime, but due to the absence of mechanical abrasion of the part, LED is shock/ vibration resistant so there is no need for proper seismic design. The standard service life of an LED is about 50,000 hours.



### Xenon Lamp

Xenon lamp is a flash type light source that emits bright light instantly by inserting high energy into the lamp. Compared with the steady type lamp, xenon lamps need a lot of input power instantly and a extremely large amount of light it is diffused.

The lamp is filled with xenon(Xe) gas due to the convenience of the production(choice of materials), its use, xenon lamp was named after the xenon gas that it uses. xenon lamps are also resistant to vibration due to its mounting method. In addition, it is visible even in bright environments not only because the spectacle distribution of the visible light is close to the sunlight, it uses the same method as the strobe of the camera.

# Warning Light/ Indicator Light Operating Principle

### Bulb Steady/ Flashing Type

• Highly diffusible light bulb that refracts light though a special lens and can be used in a steady or flashing state
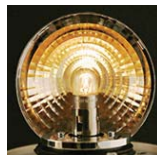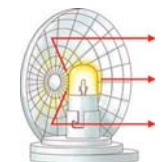
### Bulb Revolving Type

• By combining a highly diffusible light bulb and a reflector, light is reflected in a parallel beam with a rotating cycle
• Our bulb revolving model has a long lifetime enabled by using a high durability bulb and a power transfer system that minimizes noise and abrasion
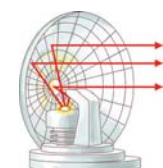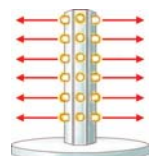
### LED Revolving Type

• The combination of an LED and a reflector creates a parallel light beam with a rotating cycle
• Our LED revolving model is patented for emitting light with the same level of uniformity and brightness compared to the bulb reflecting type
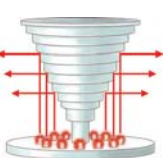
### LED Steady/ Flashing Type

• The indirect light distribution system uses a special structure to radiate a uniform light signal throughout the entire body of the lens by using a multi-stage reflector
• The direct light distribution system uses a high-intensity LED light and diffusion lens to transfer signal over a long distance. Qlight LED lights / flashing lights are equipped with two structures depending on the model type, Steady or Flashing Type
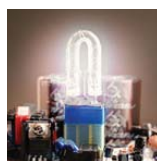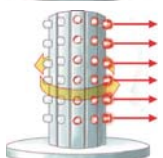
### LED Strobe-Type

• By shortening the LED flashing period and supplying the maximum current to the LED, It produces a flash effect just like the xenon lamp
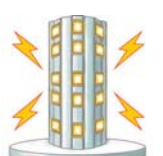
### LED Simulated Revolving Type

• By uniformly arranging the LED lens in a 360 degree circumferential direction, it will produce a flash in a regular rotating sequence
• The visual effect looks just the same as the revolving model

### Xenon Lamp Strobe-Type

• The strobe type model uses a xenon lamp that instantly emits a high brightness light by supplying large energy
• Requires more power than other flashing type models, and the flash is brighter in comparison
• Has excellent vibration resistance compared to regular light bulbs but is not superior to LEDs
• Can spread strong light signals in all directions because of the light projecting structure

# Pre-recorded Sound Tone and Sound Combination Chart

**Qlight**

■ 20 pre-recorded sound tones for standard type products

| Sound Number | Sound Tone | Sound Number | Sound Tone |
|---|---|---|---|
| SND01 | Fire.A-ANG | SND11 | Piano Sonata |
| SND02 | Emergency WA-U(Yelp) | SND12 | Turkish March |
| SND03 | Ambulance PI-PO(Hi-low) | SND13 | Magic Flute |
| SND04 | Abandon Alarm | SND14 | Badinerie |
| SND05 | Machinery Fault | SND15 | Pine Apple Rag |
| SND06 | High Expansion | SND16 | Beep Intermittent |
| SND07 | 7 Short Pl. / 1 Long | SND17 | Door Chime |
| SND08 | Sweet Home | SND18 | Phone Ring |
| SND09 | For Elise | SND19 | PI.PI.PI Short |
| SND10 | Cuckoo's Waltz | SND20 | Tripping Beat |

• Standard sound combination for WS/ WP type products

**ON = 1 / OFF = 0**

7 sounds per combination can be selected according to your preference.
8 combinations are available.

| No. | 1 | 2 | 3 | Ch1 | Ch2 | Ch3 | Ch4 | Ch5 |
|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 0 | 0 | SND01 Fire.A-ANG | SND02 Emergency WA-U | SND03 Ambulance PI-PO | SND05 Machinery Fault | SND06 High Expansion |
| 2 | 0 | 1 | 0 | SND01 Fire.A-ANG | SND04 Abandon Alarm | SND05 Machinery Fault | SND06 High Expansion | SND07 7 Short Pl. / 1 Long |
| 3 | 1 | 1 | 0 | SND01 Fire.A-ANG | SND02 Emergency WA-U | SND04 Abandon Alarm | SND05 Machinery Fault | SND06 High Expansion |
| 4 | 0 | 0 | 1 | SND01 Fire.A-ANG | SND03 Ambulance PI-PO | SND05 Machinery Fault | SND06 High Expansion | SND07 7 Short Pl. / 1 Long |
| 5 | 1 | 0 | 1 | SND02 Emergency WA-U | SND03 Ambulance PI-PO | SND04 Abandon Alarm | SND05 Machinery Fault | SND06 High Expansion |
| 6 | 0 | 1 | 1 | SND01 Fire.A-ANG | SND02 Emergency WA-U | SND03 Ambulance PI-PO | SND04 Abandon Alarm | SND07 7 Short Pl. / 1 Long |
| 7 | 1 | 1 | 1 | SND01 Fire.A-ANG | SND03 Ambulance PI-PO | SND04 Abandon Alarm | SND06 High Expansion | SND07 7 Short Pl. / 1 Long |
| 8 | 0 | 0 | 0 | SND02 Emergency WA-U | SND03 Ambulance PI-PO | SND04 Abandon Alarm | SND05 Machinery Fault | SND07 7 Short Pl. / 1 Long |

※ You can select sound tones using the 3P switches located on the circuit board of the WS Type and WP Type products.

• Standard sound combination for WM/ WA type products

**ON = 1 / OFF = 0**

13 sounds per combination can be selected according to your preference.
8 combinations are available.

| No. | 1 | 2 | 3 | Ch1 | Ch2 | Ch3 | Ch4 | Ch5 |
|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 0 | 0 | SND08 Sweet Home | SND09 For Elise | SND10 Cuckoo's Waltz | SND11 Piano Sonata | SND12 Turkish March |
| 2 | 0 | 1 | 0 | SND16 Beep Intermittent | SND17 Door Chime | SND18 Phone Ring | SND19 PI.PI.PI Short | SND20 Tripping Beat |
| 3 | 1 | 1 | 0 | SND08 Sweet Home | SND11 Piano Sonata | SND13 Magic Flute | SND17 Door Chime | SND19 PI.PI.PI Short |
| 4 | 0 | 0 | 1 | SND13 Magic Flute | SND14 Badinerie | SND15 Pine Apple Rag | SND08 Sweet Home | SND09 For Elise |
| 5 | 1 | 0 | 1 | SND10 Cuckoo's Waltz | SND11 Piano Sonata | SND17 Door Chime | SND18 Phone Ring | SND20 Tripping Beat |
| 6 | 0 | 1 | 1 | SND08 Sweet Home | SND12 Turkish March | SND16 Beep Intermittent | SND17 Door Chime | SND18 Phone Ring |
| 7 | 1 | 1 | 1 | SND08 Sweet Home | SND11 Piano Sonata | SND12 Turkish March | SND17 Door Chime | SND19 PI.PI.PI Short |
| 8 | 0 | 0 | 0 | SND11 Piano Sonata | SND12 Turkish March | SND13 Magic Flute | SND16 Beep Intermittent | SND18 Phone Ring |

※ You can select sound tones using the 3P switches located on the circuit board of the WM Type and WA Type products.

# Pre-recorded Sound Tone and Sound Combination Chart

■ Sound tone combinations for standard type products

For standard type products, user can select from a variety of 5 pre-recorded sound combinations including 5 warning sounds, 5 special warning sounds, 5 melodies, 5 alarms, and 5 customizable sound.

| | Sound Category | Channel | Sound Tone | Sound Combination # |
|---|---|---|---|---|
| WS | 5 warning sounds | Ch1<br>Ch2<br>Ch3<br>Ch4<br>Ch5 | Fire.A-ANG<br>Emergency WA-U(Yelp)<br>Ambulance PI-PO(Hi-low)<br>Machinery Fault<br>High Expansion | WS/ WP No.1 |
| WP | 5 special warning sounds | Ch1<br>Ch2<br>Ch3<br>Ch4<br>Ch5 | Fire.A-ANG<br>Abandon Alarm<br>Machinery Fault<br>High Expansion<br>7 Short PI. / 1 Long | WS/ WP No.2 |
| WM | 5 melodies | Ch1<br>Ch2<br>Ch3<br>Ch4<br>Ch5 | Sweet Home<br>For Elise<br>Cuckoo's Waltz<br>Piano Sonata<br>Turkish March | WM/ WA No.1 |
| WA | 5 alarms | Ch1<br>Ch2<br>Ch3<br>Ch4<br>Ch5 | Beep Intermittent<br>Door Chime<br>Phone Ring<br>PI.PI.PI Short<br>Tripping Beat | WM/ WA No.2 |
| WV | 5 customizable sound | Ch1<br>Ch2<br>Ch3<br>Ch4<br>Ch5 | 1. Voice messages are pre-recorded and provided from factory upon user's request<br>2. Each channel has recording space for 16 sec<br>3. 5 channels available<br>4. When only one channel is used, maximum recordable space is 80 sec | - |

※ Please refer to page 90 for detailed information about selectable sound patterns.

■ **Sound Selection of Signal Sounds**



Ch1  Ch2  Ch3  Ch4  Ch5    VOLUME
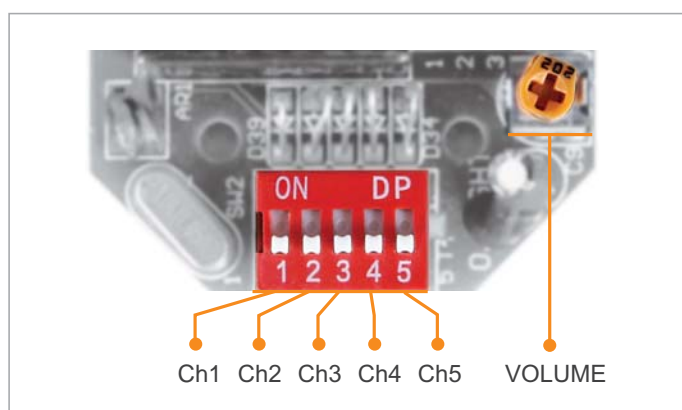
Standard specification : Use internal switches
Turn on dip switches of each channel, designated sound will be played.

# Special Alarm Type Feature

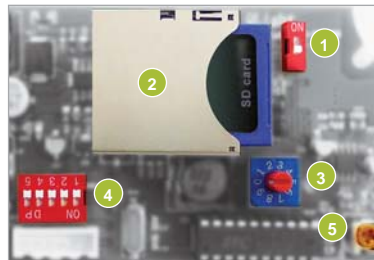## ■ How to set-up the special alarm type products

- A special alarm type products are classified into two models; basic model with special alarm and SDcard (MP3) model.
- The 2 models have 31 built-in sounds, which can be chosen and played by binary input method.
- When storing MP3 files on the SDcard (MP3) type models, you can select and play up to 31 sounds by using the binary input method. The bit input method can play 5 sound from #1 to #5, depending on the specifications given in the file name(For file specifications refer to Page 96.)
- Includes eight play mode settings. For example, when the continuous playback setting/ function is selected the warning message is played continuously for conditions that require frequent playback.

### ■ Built-in sound type model
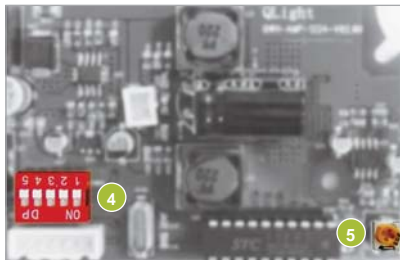


① - ②N/A
④ Sound select switch
⑤ Volume

※ Built-in sound type model can select and play 31 sounds by using the sound selection switch.

### ■ SDcard type model



① Sound setting switch
② MP3 playable SDcard
③ Play mode setting switch
④ Sound select switch
⑤ Volume

## ■ SDcard(MP3) type product feature

**①** SOUND setting switch
- If the switch is ON the SDcard (MP3) will be played, and if the switch is OFF the built-in sounds will be played.

**②** SDcards
- The SDcard is a compact flash memory card for storing MP3 files.
- After saving the MP3 files in the SDcard with the specified format, insert the card into the SDcard slot and switch the sound setting switch to ON so the sounds can be played from the SDcard.

**③** PLAY MODE setting switch
- PLAY MODE setting switch is used to choose the channel input method or select various playing modes. Refer to the table below for switch features.
- Switch #0 and #9 is not used.

| 1 | Bit Input Mode | 5 sounds can be played from the selected group (choose one group from six groups)<br>Play sound only once (if using sequential signal input or pulse signal input) |
|---|---|---|
| 2 | Binary Input Mode | Up to 31 sounds available for each model. Plays sound only once (sequential signal input only) |
| 3 | Bit Input Hold Playback Mode | 5 sounds can be played from the selected group (choose one group from six groups)<br>The sound is repeated if the input signal is maintained. (sequential signal input only)<br>If the STOP signal is inputted, the sound is turned off, and if the STOP signal is disabled the sound is played repeatedly |
| 4 | Binary Input Hold Playback Mode | Up to 31 sounds available for each model<br>The sound is repeated if the input signal is maintained. (sequential signal input only)<br>If the STOP signal is inputted, the sound is turned off, and if the STOP signal is disabled the sound is played repeatedly |
| 5 | Bit Input Sound Reduction Mode | 5 sounds can be played from the selected group (choose one group from six groups)<br>You can reduce the volume(15dB) by using a separate volume reduction signal line<br>(same as volume reduction signal input) |
| 6 | Binary Input Sound Reduction Mode | Up to 31 sounds available for each model<br>You can reduce the volume(15dB) by using a separate volume reduction signal line<br>(same as volume reduction signal input) |
| 7 | Bit Input Sequence Memory Playback Mode | 5 sounds can be played from the selected group (choose one group from six groups)<br>If the sound is inputted in a order, it will remember the order and play each sound about 3 seconds.<br>The last input channel is fully played (bit input mode only) |
| 8 | Test Mode | In test mode, Ch1 of group is automatically played back repeatedly.<br>To end the test mode, switch back to the other modes. |

**④** Channel selection switch
- By using 5 channel selection switches, one can choose the appropriate sound source depending on the Binary input and Bit input.

**⑤** VOLUME
- You can adjust the speakers sound output by using the volume dial.

# Sound Pattern and Combination for Special Alarm Type

■ Sound pattern for special alarm type

- Special alarm type product has 31 pre-recorded sound tones.
- Supports binary input mode. 5ch switch allows for 31 sound tones.
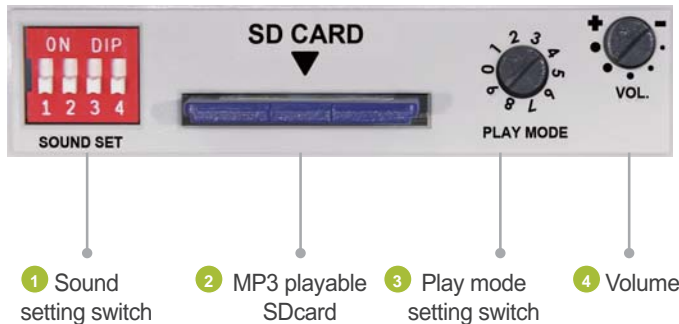
• Composition of binary input mode

| ON=1 / OFF=0 | | | | | | | |
|---|---|---|---|---|---|---|---|
| ON OFF | Ch1 | Ch2 | Ch3 | Ch4 | Ch5 | Left channel switch allows for choosing 31 sound tones. Channel switch will be substituted for an external wiring in case of LC type products. | |
| No. | 1 | 2 | 3 | 4 | 5 | Sound tone | Frequency |
| 0 | 0 | 0 | 0 | 0 | 0 | No sound | |
| 1 | 0 | 0 | 0 | 0 | 1 | Rel rel rel | 730Hz-920Hz |
| 2 | 0 | 0 | 0 | 1 | 0 | Slow Ambulance PI-PO | 820Hz-1.05kHz |
| 3 | 0 | 0 | 0 | 1 | 1 | Oit Oit warning sound | 360Hz-1.56kHz |
| 4 | 0 | 0 | 1 | 0 | 0 | Emergency WA-U(Yelp) | 770Hz-1.2kHz |
| 5 | 0 | 0 | 1 | 0 | 1 | Pi- buzzer | 770Hz |
| 6 | 0 | 0 | 1 | 1 | 0 | 7 Short PI. / 1 Long | 715Hz |
| 7 | 0 | 0 | 1 | 1 | 1 | Pi o Pi o | 940Hz-2.19kHz |
| 8 | 0 | 1 | 0 | 0 | 0 | Phone Ring | 740Hz-910Hz |
| 9 | 0 | 1 | 0 | 0 | 1 | Pi- buzzer | 600Hz |
| 10 | 0 | 1 | 0 | 1 | 0 | Pi pi pi short | 420Hz |
| 11 | 0 | 1 | 0 | 1 | 1 | Di o Di o 2 tones buzzer | 600Hz-1.14kHz |
| 12 | 0 | 1 | 1 | 0 | 0 | Oit Oit warning sound | 500Hz-1.11kHz |
| 13 | 0 | 1 | 1 | 0 | 1 | Slow Ambulance PI-PO | 380Hz-470Hz |
| 14 | 0 | 1 | 1 | 1 | 0 | Slow Di o Di o | 680Hz-840Hz |
| 15 | 0 | 1 | 1 | 1 | 1 | Fast Li o li o | 380Hz-470Hz |
| 16 | 1 | 0 | 0 | 0 | 0 | Fire.A-ANG | 770Hz-1.11kHz |
| 17 | 1 | 0 | 0 | 0 | 1 | Fast Ambulance PI-PO | 680Hz-840Hz |
| 18 | 1 | 0 | 0 | 1 | 0 | Slow Ambulance PI-PO | 650Hz-840Hz |
| 19 | 1 | 0 | 0 | 1 | 1 | Ri ro ri ro warning sound | 420Hz-470Hz |
| 20 | 1 | 0 | 1 | 0 | 0 | Repeat Di-o 3 times | 680Hz-840Hz |
| 21 | 1 | 0 | 1 | 0 | 1 | Fire.A-ANG | 500Hz-1kHz |
| 22 | 1 | 0 | 1 | 1 | 0 | Ambulance PI-PO | 680Hz-840Hz |
| 23 | 1 | 0 | 1 | 1 | 1 | Slow Fire.A-ANG | 480Hz-1.14kHz |
| 24 | 1 | 1 | 0 | 0 | 0 | Pi-pi- buzzer low frequency | 690Hz |
| 25 | 1 | 1 | 0 | 0 | 1 | Pi-pi- buzzer high frequency | 950Hz |
| 26 | 1 | 1 | 0 | 1 | 0 | Di-di- buzzer high frequency | 800Hz |
| 27 | 1 | 1 | 0 | 1 | 1 | Di-di- buzzer low frequency | 500Hz |
| 28 | 1 | 1 | 1 | 0 | 0 | Rising Po-ong | 500Hz-1.2kHz |
| 29 | 1 | 1 | 1 | 0 | 1 | Fast Ambulance PI-PO | 825Hz-1.07kHz |
| 30 | 1 | 1 | 1 | 1 | 0 | Rising frequency | 150Hz-1kHz |
| 31 | 1 | 1 | 1 | 1 | 1 | Repeat A-ANG | 1.4kHz-1.56kHz |

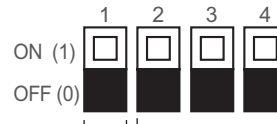# Multipfunctional Type Feature

**Qlight**

## ■ How to set up the multifunctional products(MP3)

- Multifunctional type products can play MP3 sounds by using an SDcard and can also play WS (5 Warning sounds), WP (5 special warning sounds 1st Group), WM (5 Melodies), WA (5 Alarms), WO (5 special warning sounds 2nd Group), and WN (5 special warning sounds 3rd Group) when not using a SDcard.
- Includes seven different functions. For example, it is able to playback the message continuously with the continuous playback function for warning message that needs to be repeated often.

## ■ Function setting



**①** Sound setting switch

**②** MP3 playable SDcard

**③** Play mode setting switch

**④** Volume

**①** Sound setting switch

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| ON (1) | | | | |
| OFF (0) | | | | |

**Group Choice in Bit Input Mode**
001 : WS (5 Warning sounds)
010 : WP (5 special warning sounds 1st Group)
011 : WM (5 Melodies)
100 : WA (5 Alarms)
101 : WO (5 special warning sounds 2nd Group)
110 : WN (5 special warning sounds 3rd Group)

**Sound Selection**
0 : Built-in sound
1 : SDcard(MP3)

- #1 switch from the sound setting switch is for selecting Built-in sound/ SDcard
- #2 – #4 switch is for selecting a group of sound incase you have selected bit input mode

**②** SDcards

- The SDcard is a compact flash memory card for storing MP3 files.
- After saving the MP3 files in the SDcard with the specified format, insert the card into the SDcard slot and switch the sound setting switch to ON so the product will be able to play sounds from the SDcard.

**③** PLAY MODE setting switch

- PLAY MODE setting switch is used to choose the channel input method or select various play modes. Refer to the table below for switch features.
- Switch #0 and #9 is not used.

| 1 | Bit Input Mode | 5 sounds can be played from the selected group (choose one group from six groups)<br>Play sound only once (if using sequential signal input or pulse signal input) |
|---|---|---|
| 2 | Binary Input Mode | Up to 30 sounds available for each model. Plays sound only once (sequential signal input only) |
| 3 | Bit Input Hold Playback Mode | 5 sounds can be played from the selected group (choose one group from six groups)<br>The sound is repeated if the input signal is maintained. (sequential signal input only)<br>If the STOP signal is inputted, the sound is turned off, and if the STOP signal is disabled the sound is played repeatedly |
| 4 | Binary Input Hold Playback Mode | Up to 30 sounds available for each model<br>The sound is repeated if the input signal is maintained. (sequential signal input only)<br>If the STOP signal is inputted, the sound is turned off, and if the STOP signal is disabled the sound is played repeatedly |
| 5 | Bit Input Sound Reduction Mode | 5 sounds can be played from the selected group (choose one group from six groups)<br>You can reduce the volume(15dB) by using a separate volume reduction signal line<br>(same as volume reduction signal input) |
| 6 | Binary Input Sound Reduction Mode | Up to 30 sounds available for each model<br>You can reduce the volume(15dB) by using a separate volume reduction signal line<br>(same as volume reduction signal input) |
| 7 | Bit Input Sequence Memory Playback Mode | 5 sounds can be played from the selected group (choose one group from six groups)<br>If the sound is inputted in a order, it will remember the order and play each sound about 3 seconds .<br>The last input channel is fully played (bit input mode only) |
| 8 | Test Mode | In test mode, Ch1 of group is automatically played back repeatedly.<br>To end the test mode, switch back to the other modes. |

**④** VOLUME

- You can adjust the speakers sound output by using the volume dial.

# Sound Pattern and Combination for Multifunctional Product

■ Sound patterns for multifunctional products

- Multifunctional product has 30 pre-recorded sound tones.
- 30 sound tones in binary input mode supported. Bit input mode has 5 sound tones within 1 group among 6 groups.

• Bit input mode's sound tone combinations

**ON = 1 / OFF = 0**

Ch1　Ch2　Ch3　Ch4　Ch5

ON
OFF

Left channel switch allows to select 5 tons individually within designated group.
(For group selection, please refer to page 94 "How to set-up the multifunctional products")
Channel switch will be substituted for external wiring in case of LC type products.

| Sound | | Ch | Sound Tone | Sound | | Ch | Sound Tone |
|---|---|---|---|---|---|---|---|
| WS | 5 Warning Sounds | Ch1 | Fire.A-ANG(560Hz-1.5kHz) | WA | 5 Alarms | Ch1 | Beep Intermittent |
| | | Ch2 | Emergency WA-U(Yelp)(600Hz-1.5kHz) | | | Ch2 | Door Chime |
| | | Ch3 | Ambulance PI-PO(Hi-low)(450Hz-900Hz) | | | Ch3 | Phone Ring |
| | | Ch4 | Machinery Fault(820Hz) | | | Ch4 | PI.PI.PI Short |
| | | Ch5 | High Expansion(1kHz) | | | Ch5 | Tripping Beat |
| WP | 5 Special Warning Sounds (1st Group) | Ch1 | Fire.A-ANG(560Hz-1.5kHz) | WO | 5 Special Warning Sounds (2nd Group) | Ch1 | Rel rel rel(730Hz-920Hz) |
| | | Ch2 | Abandon Alarm(820Hz) | | | Ch2 | Slow Ambulance PI-PO(820Hz-1.05kHz) |
| | | Ch3 | Machinery Fault(820Hz) | | | Ch3 | Wye yong Wye yong(770Hz-1.2kHz) |
| | | Ch4 | High Expansion(1kHz) | | | Ch4 | Phone ring 2(740Hz-910Hz) |
| | | Ch5 | 7 Short PI. / 1 Long(1kHz) | | | Ch5 | Fire.A-ANG(770Hz-1.11kHz) |
| WM | 5 Melodies | Ch1 | Sweet Home | WN | 5 Special Warning Sounds (3rd Group) | Ch1 | Oit Oit(500Hz-1.11kHz) |
| | | Ch2 | For Elise | | | Ch2 | Pi o Pi o(940Hz-2.19kHz) |
| | | Ch3 | Cuckoo's Waltz | | | Ch3 | Slow Di o Di o(680Hz-840Hz) |
| | | Ch4 | Piano Sonata | | | Ch4 | Li long Li ling(420Hz-470Hz) |
| | | Ch5 | Turkish March | | | Ch5 | 911 Siren(500Hz-1kHz) |

• Binary input mode's sound tone combinations

**ON = 1 / OFF = 0**

Ch1　Ch2　Ch3　Ch4　Ch5

ON
OFF

Left channel switch allows the user to select from 30 available sound tones.
Channel switch will be substituted for external wiring in case of LC type products.

| No. | 1 | 2 | 3 | 4 | 5 | Sound tone | Frequency |
|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | No sound | |
| 1 | 0 | 0 | 0 | 0 | 1 | Fire.A-ANG | 560Hz-1.5kHz |
| 2 | 0 | 0 | 0 | 1 | 0 | Emergency WA-U(Yelp) | 600Hz-1.5kHz |
| 3 | 0 | 0 | 0 | 1 | 1 | Ambulance PI-PO(Hi-low) | 450Hz-900Hz |
| 4 | 0 | 0 | 1 | 0 | 0 | Pi-ik Pi-ik | 820Hz |
| 5 | 0 | 0 | 1 | 0 | 1 | Machinery Fault | 820Hz |
| 6 | 0 | 0 | 1 | 1 | 0 | High Expansion | 1kHz |
| 7 | 0 | 0 | 1 | 1 | 1 | Alarm | 1kHz |
| 8 | 0 | 1 | 0 | 0 | 0 | Sweet Home | - |
| 9 | 0 | 1 | 0 | 0 | 1 | For Elise | - |
| 10 | 0 | 1 | 0 | 1 | 0 | Cuckoo's Waltz | - |
| 11 | 0 | 1 | 0 | 1 | 1 | Piano Sonata | - |
| 12 | 0 | 1 | 1 | 0 | 0 | Turkish March | - |
| 13 | 0 | 1 | 1 | 0 | 1 | Magic Flute | - |
| 14 | 0 | 1 | 1 | 1 | 0 | Badinerie | - |
| 15 | 0 | 1 | 1 | 1 | 1 | Pineapple Rag | - |
| 16 | 1 | 0 | 0 | 0 | 0 | Beep Intermittent | - |
| 17 | 1 | 0 | 0 | 0 | 1 | Door Chime | - |
| 18 | 1 | 0 | 0 | 1 | 0 | Phone Ring | - |
| 19 | 1 | 0 | 0 | 1 | 1 | PI.PI.PI Short | - |
| 20 | 1 | 0 | 1 | 0 | 0 | Tripping Beat | - |
| 21 | 1 | 0 | 1 | 0 | 1 | Rel rel rel | 730Hz-920Hz |
| 22 | 1 | 0 | 1 | 1 | 0 | Slow Ambulance PI-PO | 820Hz-1.05kHz |
| 23 | 1 | 0 | 1 | 1 | 1 | Wye yong Wye yong | 770Hz-1.2kHz |
| 24 | 1 | 1 | 0 | 0 | 0 | Phone ring 2 | 740Hz-910Hz |
| 25 | 1 | 1 | 0 | 0 | 1 | Fire.A-ANG | 770Hz-1.11kHz |
| 26 | 1 | 1 | 0 | 1 | 0 | Oit Oit | 500Hz-1.11kHz |
| 27 | 1 | 1 | 0 | 1 | 1 | Pi o Pi o | 940Hz-2.19kHz |
| 28 | 1 | 1 | 1 | 0 | 0 | Slow Di o Di o | 680Hz-840Hz |
| 29 | 1 | 1 | 1 | 0 | 1 | Li long Li ling | 420Hz-470Hz |
| 30 | 1 | 1 | 1 | 1 | 0 | 911 Siren | 150Hz-1kHz |

# How to Use a MP3 Type Product

MP3-type models have 30 or 31 built-in alarm sounds and the users can play their voice messages or music files(MP3). You can choose two methods for playing up to 31 sounds with the binary input method. While the bit input method can only play 5 sounds from #1 to #5.

■ **What is a MP3?**
- MP3 is a audio compression technology(Audio layer-3) design by MPEG (Motion Picture Experts Group)
  MP3 (MPEG-1 Audio Layer-3) is a standard technology and format for compressing a sound sequence into a very small file while preserving the original level of sound quality when it is played.
- Extension of the MP3 file can be found as "*.mp3", and any voice message, alarm message, and music can be played and saved as MP3 files.
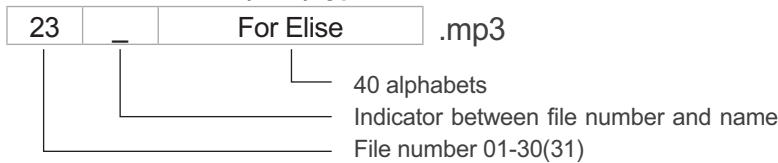
■ **What is a SDcard?**
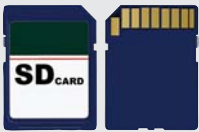
SD memory card is a compact flash memory card for storing various data such as MP3s or document files, Models with MP3 features can save voice messages or alarm messages in the SDcard.

※ SDcard sold separately.

## Saving a MP3 file

• MP3 file can be saved and played in accordance with the standards specified by filename.
• Using binary input method according to the specifications given in the file name, a SDcard which is used in special alarm type models(MP3) can save up to 31 sounds, multifunctional type models can save and play up to 30 sounds.
• Using bit input method according to the specifications given in the file name, you can select and play up to five sounds from the MP3 file.

### User-defined sound(MP3) type

| 23 | _ | For Elise | .mp3 |

- 40 alphabets
- Indicator between file number and name
- File number 01-30(31)

[Example]
♪ 01_Fire alarm.mp3
♪ 02_Emergency alarm.mp3
♪ 03_For Elise.mp3
:
:
♪ 30_Cuckoo Waltz.mp3

## Binary input and Bit input method

Special alarm type models and multifunctional type models are divided into Binary input method or Bit input method depending on the source selection method.
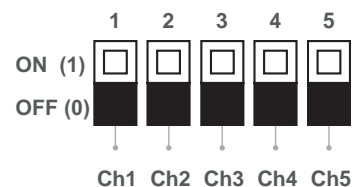
■ **Binary input**

ON = 1 / OFF = 0

| No. | 1 | 2 | 3 | 4 | 5 |
|-----|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 0 | 0 | 0 | 1 |
| 2 | 0 | 0 | 0 | 1 | 0 |
| : | : | : | : | : | : |
| 31 | 1 | 1 | 1 | 1 | 1 |

You can only show 2 numbers with 1 switch "0", "1". With 5 switches you can have 31 combinations. Selecting one sound from 5 switches is the Binary input method.

■ **Bit input**

| 1 | 2 | 3 | 4 | 5 |
ON (1)
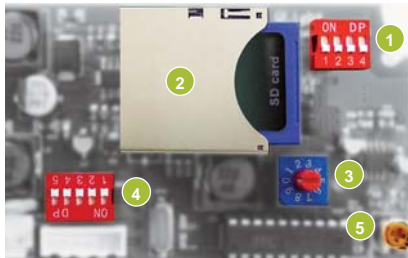OFF (0)

Ch1  Ch2  Ch3  Ch4  Ch5

The Bit input method only recognizes one of the 5 switches at a time. This method doesn't support two inputs at once. The number of combinations is small, but it is much more convenient to remember the channel number.

# How to Use a MP3 Type Product

■ **MP3 supported model basic description**

- MP3 supported products can play 30-31 built-in sounds or MP3 files saved in an SDcard.
- Binary input method can play up to 30 - 31 sounds, and Bit input method can play 5 sounds in accordance with the standards specified by filename.
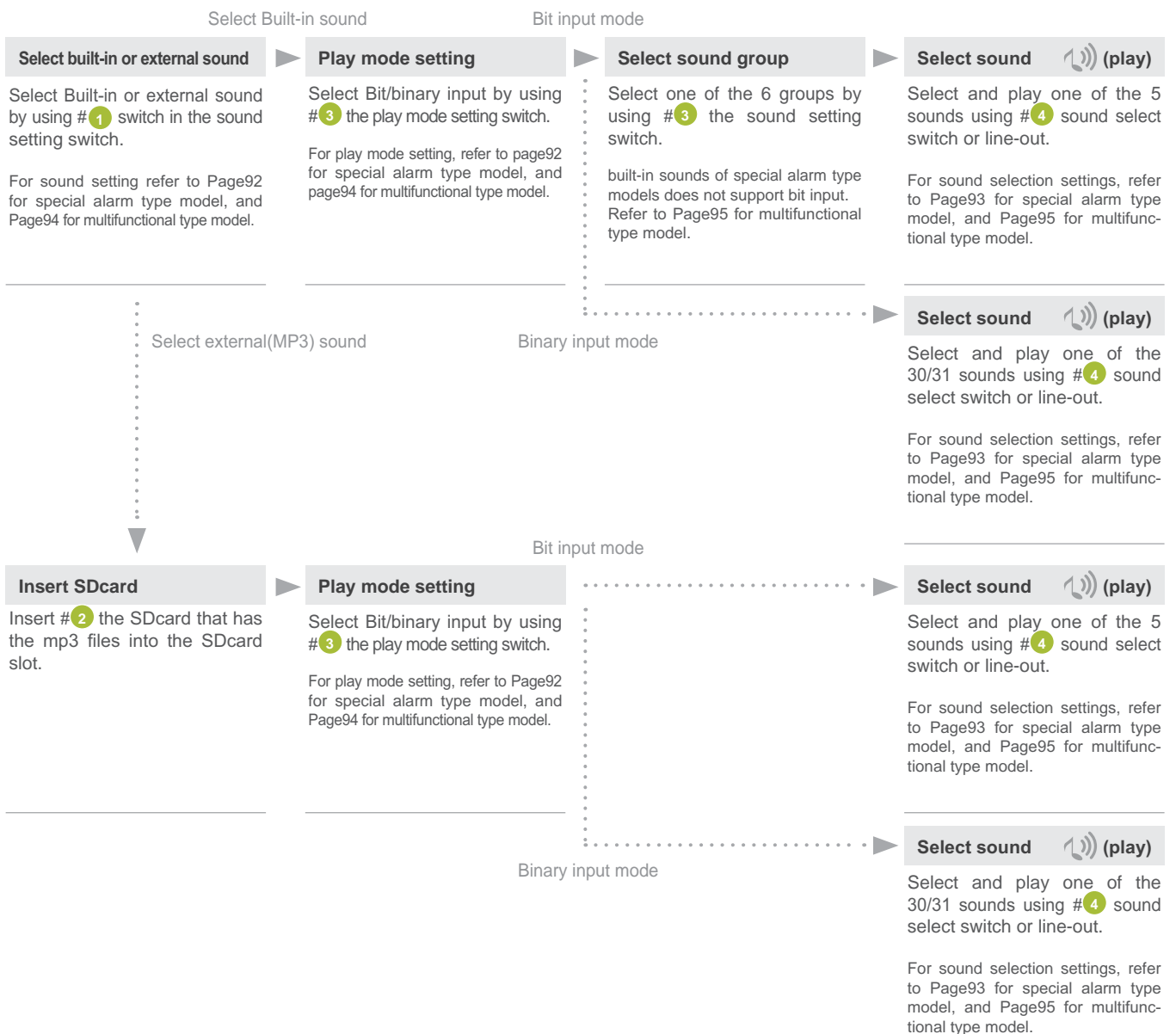- Can choose and play 5 sounds from #1 to #5.

<Switch select type>

<Line-out type>

**1** Sound setting switch      **4** Sound select switch
**2** MP3 playable SDcard      **5** Volume
**3** Play mode setting switch

■ **How to set-up a MP3 type product**

Select Built-in sound      Bit input mode

| **Select built-in or external sound** | ▶ | **Play mode setting** | ▶ | **Select sound group** | ▶ | **Select sound** 🔊 **(play)** |
|---|---|---|---|---|---|---|
| Select Built-in or external sound by using # **1** switch in the sound setting switch. | | Select Bit/binary input by using # **3** the play mode setting switch. | | Select one of the 6 groups by using # **3** the sound setting switch. | | Select and play one of the 5 sounds using # **4** sound select switch or line-out. |
| For sound setting refer to Page92 for special alarm type model, and Page94 for multifunctional type model. | | For play mode setting, refer to page92 for special alarm type model, and page94 for multifunctional type model. | | built-in sounds of special alarm type models does not support bit input. Refer to Page95 for multifunctional type model. | | For sound selection settings, refer to Page93 for special alarm type model, and Page95 for multifunctional type model. |

     Select external(MP3) sound      Binary input mode

**Select sound** 🔊 **(play)**

Select and play one of the 30/31 sounds using # **4** sound select switch or line-out.

For sound selection settings, refer to Page93 for special alarm type model, and Page95 for multifunctional type model.

Bit input mode

| **Insert SDcard** | ▶ | **Play mode setting** | ▶ | **Select sound** 🔊 **(play)** |
|---|---|---|---|---|
| Insert # **2** the SDcard that has the mp3 files into the SDcard slot. | | Select Bit/binary input by using # **3** the play mode setting switch. | | Select and play one of the 5 sounds using # **4** sound select switch or line-out. |
| | | For play mode setting, refer to Page92 for special alarm type model, and Page94 for multifunctional type model. | | For sound selection settings, refer to Page93 for special alarm type model, and Page95 for multifunctional type model. |

**Select sound** 🔊 **(play)**

Select and play one of the 30/31 sounds using # **4** sound select switch or line-out.

For sound selection settings, refer to Page93 for special alarm type model, and Page95 for multifunctional type model.

Binary input mode

# Icon Description

This catalogue helps users quickly identify the product's specifications and features by using several types of icons. If you understand the concept for each icon, you will find it easy to understand the catalogue information.

## Light Source and Operating Mode Icons

| Icon | Operating Mode | Icon | Operating Mode |
|------|---------------|------|---------------|
| | Bulb steady type | | Bulb steady/flashing type |
| | Bulb revolving type | | LED revolving type |
| | LED steady type | | LED steady/ flashing type |
| | LED simulated revolving type | | LED strobe type |
| | Xenon lamp strobe type | | |

## Acoustic Signal Icons

| Icon | Operating Mode | Icon | Operating Mode |
|------|---------------|------|---------------|
| | Buzzer | | Speaker |
| | Horn | | Bell |
| | Motor siren | | MP3 |
| | Decibel | | |

## Specifications Icons

| Icon | Operating Mode | Icon | Operating Mode |
|------|---------------|------|---------------|
| | Magnet type | | Ambient operating temperature |
| | NPN type transistor | | PNP type transistor |
| | IP rating | | Wireless Network |

## Detail Icons

| Icon | Operating Mode | Icon | Operating Mode |
|------|---------------|------|---------------|
| | Common specification | | External view drawing |
| | Wiring | | Mounting |
| | User specifications | | Model selection |

# Qlight Catalogue Introduction

Qlight produces a wide variety of product categories which offers the customer the ability to select the suitable device for their application needs and environments.

There are warning/signal lights, electric signal horns, signal tower lights, warning light bars, PC control tower lights, industrial LED lights, aviation obstruction lights, and limit switches.
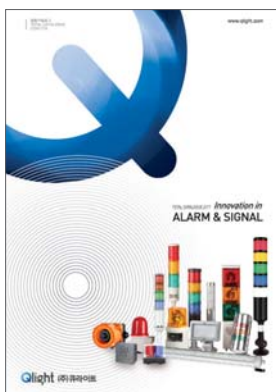


Total Catalogue
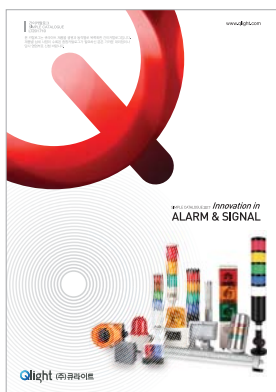


Simple Catalogue
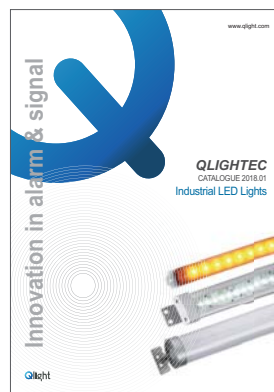


Industrial LED Lights



Signal Tower Lights
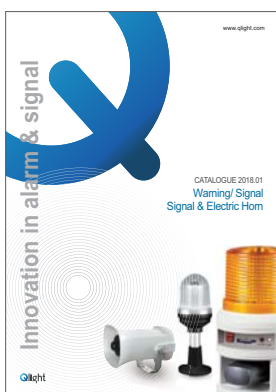


Warning/ Signal/ Signal & Electric Horn
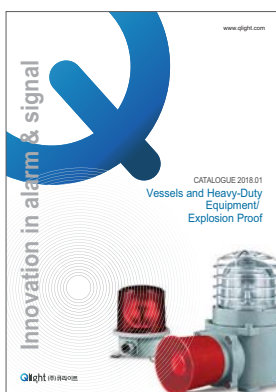


Vessels and Heavy-Duty Equipment/ Explosion Proof
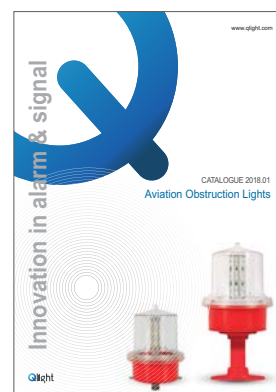


Warning Light Bar



Aviation Obstruction Lights
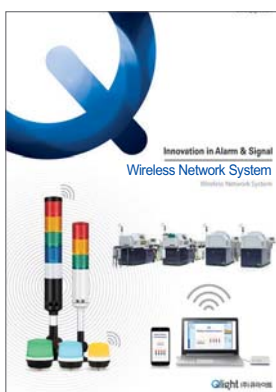


Wireless Network System
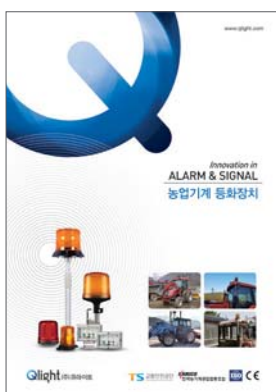


Agriculture Machine Warning Light
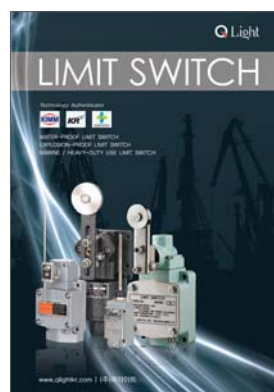


Limit Switch



For Steel Manufacturing Facilities

# Qlight Catalogue Introduction

*Signal Tower Lights*

*Warning/ Signal & Electric Horn*

*Vessels and Heavy-Duty & Equipment/ Explosion Proof*

*Warning Light Bar*

*Aviation Obstruction Lights*

*Industrial LED Lights*

**Qlight**

IECEx | ATEX | Ex NEPSI | KIMM | KGS | KOSHA | ABS | R | CCS | KR | CE | UL

WARNING LIGHT | ELECTRONIC HORN | SIGNAL TOWER LIGHT | EMERGENCY LIGHT BAR | LED OBSTRUCTION LIGHT | LED WORK LIGHT