

| No. | Color  | Signal definition | Signal description   |
|-----|--------|-------------------|--|
| 1   | Green  | 0V                | Working power supply   |
| 2   | Red    | 24V               |  |
| 3   | White  | Z1                | Zone group selection signal. Switching among multiple protection zones can be achieved through the changes in Z1, Z2, Z3 and Z4 input signals. |
| 4   | Black  | Z2                |  |
| 5   | Orange | Z3                |  |
| 6   | Pink   | Z4                |  |
| 7   | Gray   | EDM               | External contact monitor input signal. When OSSD is ON, EDM=0V; when OSSD is OFF, EDM=24V  |
| 8   | Yellow | RESET             | When manual rest, input reset signal to release output lock to start again.  |
| 9   | Brown  | OSSD1             | 2 independent NPN output, ON, maximum I <sub>out</sub> = 200mA, V <sub>out</sub> ≥ V <sub>cc</sub> -2V   |
| 10  | Blue   | OSSD2             | OFF, I <sub>out</sub> < 1mA, V <sub>out</sub> < 2V   |
| 11  | Purple | ALARM1            | 2 independent NPN output, ON, maximum I <sub>out</sub> = 200mA, V <sub>out</sub> ≥ V <sub>cc</sub> -2V   |
| 12  | Cyan   | ALARM2            | OFF, I <sub>out</sub> < 1mA, V <sub>out</sub> < 2V   |

## 6. Technical Parameters

|                           |  |
|---------------------------|--|
| Safety category           | Type 3 (IEC61496), PL d (ISO13849)   |
| Executive standard        | 2006/42/EC (Machinery Directive), 2014/30/EU (EMC Directive), IEC61496-1, IEC61496-3, ISO13849-1 |
| Reference standard        | GB/T19436.1, GB19436.3, GB4208 (IP65), EN60825-1(class 1 laser product)                          |
| <b>Optical properties</b> |  |
| Laser light source        | Wavelength: 905nm; Class 1 laser product   |
| Maximum detection range   | Radius 3m@1.8% reflectivity  |

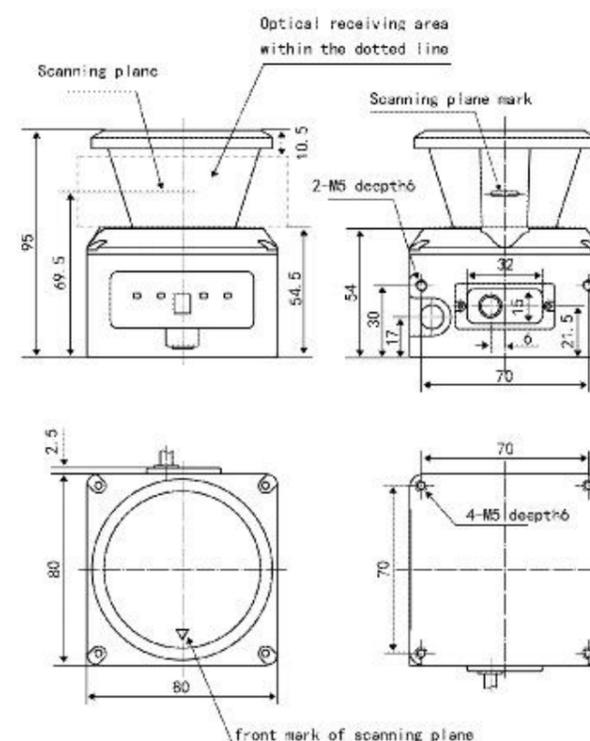
|   |  |                    |                                 |
|---|--|--------------------|---------------------------------|
| Scanning angle range                      | 270°   | Angular resolution | 0.5°                            |
| Measurement error                         | ±4cm   |                    |                                 |
| <b>Electrical / mechanical parameters</b> |  |                    |                                 |
| Working voltage                           | DC9V~DC30V   | Consumption        | <5W (No load on the output end) |
| Response time                             | 40ms/r (adjustable)  |                    |                                 |
| Power-on time                             | Typical value 8s   |                    |                                 |
| Safety output (OSSD)                      | PNP×2 (ON condition: Maximum I <sub>OUT</sub> =200mA, V <sub>OUT</sub> ≥ V <sub>CC</sub> -2V, OFF condition: I <sub>OUT</sub> <1mA, V <sub>OUT</sub> <2V.). Overcurrent protection, capacitive load ≤60nF. ON when there is no object in protection area and OFF condition when there is object in protection area |                    |                                 |
| Alarm output (ALARM)                      | PNP×2 (ON condition: Maximum I <sub>OUT</sub> =200mA, V <sub>OUT</sub> ≥ V <sub>CC</sub> -2V, OFF condition: I <sub>OUT</sub> <1mA, V <sub>OUT</sub> <2V.). Overcurrent protection, capacitive load ≤60nF. ON when there is no object in warning area and OFF condition when there is object in warning area       |                    |                                 |
| dimension                                 | 80mm×80mm×95mm   | Cable length       | ≤30m                            |
| <b>Environmental properties</b>           |  |                    |                                 |
| Ambient temperature                       | Work: -10~55°C, storage: -40~70 °C, no frost or condensate fog   |                    |                                 |
| Ambient humidity                          | Work: 35%RH~85%RH, storage: 35%RH ~95%RH   |                    |                                 |
| Anti-light interference                   | 15000Lux   |                    |                                 |
| Shock resistance                          | Acceleration: 10g; pulse duration: 16ms; Number of collision times: three axes, 1000 ± 10 times per axis   |                    |                                 |
| Vibration resistance                      | Frequency 10Hz ~ 55Hz; amplitude: 0.35 ± 0.05mm; Number of scans: three axes, 20 times per axis  |                    |                                 |
| Protection grade                          | IP65   |                    |                                 |
| <b>Configurable functions</b>             |  |                    |                                 |
| Defense zone configuration                | User can configure the defense zone of LSPD mini to the desired shape by configuring the software.   |                    |                                 |
| Response time                             | 80ms (2 scanning cycles) ~640ms (16 scanning cycles), 80ms by default  |                    |                                 |
| Reset function                            | Automatic reset or manual reset available, default automatic reset   |                    |                                 |

|                               |   |
|-------------------------------|---|
| External device monitor (EDM) | When external relay or contactor is loaded, monitor condition of load normal closed contact. Default EDM is forbidden.  |
| Area group change             | Switch of 16 different area groups can be realized by 4 group of external input signal (Z1, Z2, Z3, Z4). Default setting is area group 1 work when Z1, Z2, Z3, Z4 is not be connected |

## 7. Indicator identification

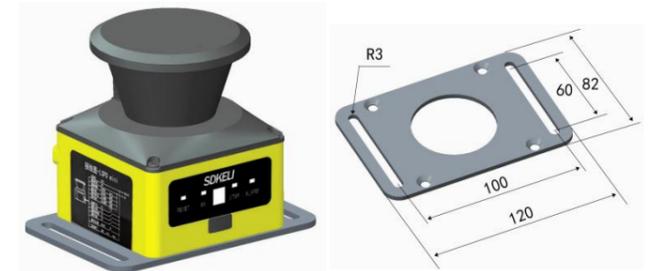
| Identif ication | Indicato r | Color | Description   |
|-----------------|------------|-------|---|
| RESET           | reset      | red   | Under the manual reset mode, the light is on when an object has been detected in the protective area. Reset indicator will flicker one time when window calibration is being carried out. |
| OK              | normal     | green | The light is on when no object detected in protection area, OSSD output ON, the controlled machine is allowed to work.  |
| STOP            | stop       | red   | The light is on when object detected in protection area, OSSD output OFF, the controlled is not allowed to work.  |
| ALARM           | warning    | red   | The light is on when object detected in warning area, ALARM output ON   |

## 8. Dimensions

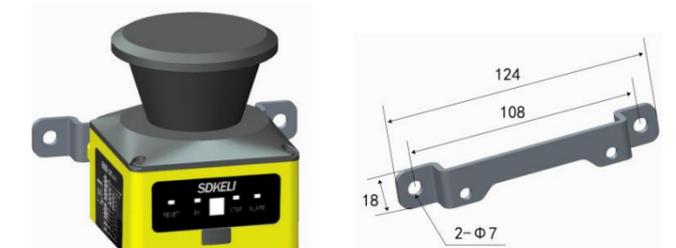


## 9. Installation

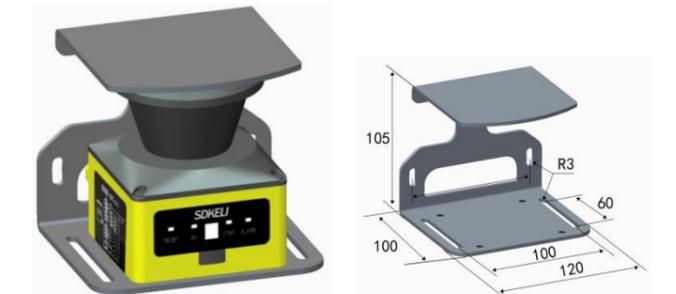
### Horizontal installation (SZ)



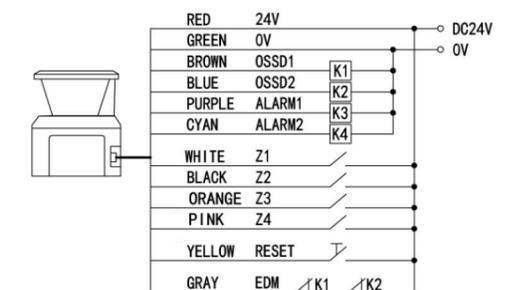
### Vertical installation way (CZ)



### Protective cover installation (FZ)



## 10. Wiring



## Warning

- Wiring must be conducted after the power is cut off
- Double insulation or reinforced insulation must be used between all input and output interfaces and dangerous voltages.
- Cable of LSPD mini must be kept away from high-voltage cable and power cable
- Users should not replace the cable without permission