



## Model ZS-LD6GS/LD6GST

Sensor Head for Smart Sensor ZS-LDC□□

## INSTRUCTION SHEET

Thank you for selecting OMRON product. This sheet primarily describes precautions required in installing and operating the product. Before operating the product, read the sheet thoroughly to acquire sufficient knowledge of the product. For your convenience, keep the sheet at your disposal.

## ■ Export and Trade Control Laws

The ZS-LD6GS is classed as a commodity (or technology) requiring acquisition of export permission in accordance with foreign exchange and overseas trade control laws. When the ZS-LD6GS is to be taken outside of Japan, adopt the required procedures such as application for export permission by the Japanese government.

\* Contact your OMRON representative.



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## PRECAUTIONS ON SAFETY

## ● Meanings of Signal Words

## WARNING

Indicates a potentially hazardous situation which, if not avoided, will result in minor or moderate injury, or may result in serious injury or death. Additionally, there may be significant property damage.

## ● Meaning of Alert Symbols



● Laser beam  
Cautions to indicate potential Laser beam hazard.



● Resolution prohibition  
Indicates prohibition when there is a risk of minor injury from electrical shock or other source if the product is disassembled.

## ● Alert Statements in this Sheet / Messages d'alerte

## WARNING / AVERTISSEMENT

Looking into the Outgoing light continuously may cause visual impairment. Do not look directly into the Outgoing light. Caution-Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Fixer en continu la lumière sortante peut provoquer des troubles visuels. Ne pas fixer directement la lumière sortante.

Attention-L'utilisation des commandes ou réglages ou l'exécution des procédures autres que celles spécifiées dans les présentes exigences peuvent être la cause d'une exposition à un rayonnement dangereux.

Do not disassemble this product. Doing so may cause exposure to the built-in light source which can damage eyes and skin. Never disassemble it.

Ne pas démonter ce produit. Cela pourrait provoquer une exposition à la source lumineuse intégrée, qui peut endommager les yeux et la peau. Ne jamais le démonter.

## ■ Specifications

Model Item	ZS-LD6GS	ZS-LD6GST
Optical system	Regular reflection	
Measuring Center distance	6mm	
Measuring range	±0.5mm	
Light source	Visible semiconductor laser (wavelength 650nm, 1mW max., JIS Class1, IEC/EN Class1)	
Beam diameter (*1)	Approx. 25μm.dia	
Linearity (*2)	±0.1%F.S.	
Resolution (*3)	0.1μm	0.25μm
Temperature characteristic (*4)	+0.04%F.S./°C	
Sampling cycle (*5)	110μs	
Indicators	NEAR indicator	Lit near measuring center distance, and nearer than measuring center distance inside the measuring range Blinks when the measurement target is outside of the measuring range or when the received light amount is insufficient
	FAR indicator	Lit near measuring center distance, and further than measuring center distance inside the measuring range Blinks when the measurement target is outside of the measuring range or when the received light amount is insufficient
Operating ambient illumination	Illumination on received light surface 3000 lx or less (incandescent light)	
Ambient temperature	Operating: 0 to +50°C, Storage: -15 to +60°C (with no icing or condensation)	
Ambient humidity	Operating and storage: 35% to 85% RH (with no condensation)	
Insulation resistance	20MΩ (by 500V megger)	
Dielectric strength (destructive)	AC1000V 50/60 Hz 1 min.	
Degree of protection	IP40	
Vibration resistance (destructive)	10 to 150 Hz, 0.35-mm half amplitude 80 min each in X, Y and Z directions	
Shock resistance (destruction)	150m/s <sup>2</sup> , for 3 times each in X, Y and Z directions	
Cable length	0.8m	
Tightening torque (*6)	1.2N·m	
Materials	Case: aluminum die-cast, front cover: glass	
Weight	Approx. 400 g	
Accessories	Laser label (1 each for JIS/EN&IEC), Ferrite core (2 pcs), Insure Lock (2 pcs)	

\*1 Defined as 1/e<sup>2</sup> (13.5 %) of the center optical intensity in the measurement center distance (typical value). The beam diameter is sometimes influenced by the ambient conditions of the workpiece such as leaked light from the main beam.

\*2 This is the error on the measured value with respect to an ideal straight line. The standard workpiece is glass. Linearity may change according to the workpiece.

\*3 This is the "peak-to-peak" displacement conversion value of the displacement output in the measuring center distance when the number of samples to average is set to 128, and the measuring mode is set to standard mode. The standard workpiece is glass.

\*4 This is the typical value obtained in the measuring center distance when the sensor and workpiece are fixed by an aluminum tool.

\*5 This value is obtained when the measuring mode is set to the high speed mode.

\*6 In the installation, please tighten the screw as three places.

## PRECAUTIONS FOR SAFE USE

Please observe the following precautions for safe use of the product:

1. Do not use the product in environments where it can be exposed to inflammable/explosive gas.
2. Do not disassemble, repair or modify this product.
3. Be sure to make sure that locking mechanisms are locked before use.
4. Dispose of this product as industrial waste.

## PRECAUTIONS FOR CORRECT USE

1. Do not install the product in locations subjected to the following conditions:
  - Reflection of intense light (such as other laser beams or electric arc-welding machines)
  - Presence of dust, oil droplets or spray on the filter on the front of the Sensor Head
  - Presence of corrosive or flammable gases
  - Direct vibration or shock

## 2. Pre-installation Checks

- The product cannot accurately measure the following types of objects: (transparent objects, objects having an extremely low reflection factor, objects smaller than the spot diameter, objects with a large curvature, excessively inclined objects, etc.)

## 3. Wiring

- Avoid wiring the cable between the Sensor Head and Sensor Controller including this product near high voltage lines and power lines. Wiring them together or placing them in the same duct may cause induction, resulting in malfunction or damage.
- Before connecting/disconnecting the Sensor Head, make sure that the Smart Sensor is turned OFF. The Smart Sensor may break down if the Sensor Head is connected or disconnected while the power is ON.

## 4. Cleaning

- Do not use paint thinner, benzene, acetone or kerosene to clean the Sensor Head. Doing so will melt the surface of the Sensor Head.
- To remove dust particles, use a blower brush.
- To remove stubborn dirt, wipe gently with a soft cloth moistened with a small amount of alcohol.

## 5. Compatibility

- The Sensor Head is compatible with the Sensor Controller, and can be used if purchased separately.

## LASER SAFETY / SÉCURITÉ LASER

## ■ Handling Precautions

- The ZS-LD6GS/LD6GST emits a visible laser beam. Do not stare directly into the laser. Make sure that the laser beam path is terminated. A non-reflective matte painted surface is ideal at the end of the laser beam path. If specular objects are present in the laser beam path, make sure that they are prevented from reflecting the laser beam. When used without an enclosure, make sure the laser path from eye level is avoided.

- Laser safety measures for laser devices are stipulated both in Japan and overseas. Here, five cases are described.

## (1) Usage in Japan

The JIS C6802:2014 standard stipulates the safety precautions that users must take according to the class of the laser product. The ZS-LD6GS/LD6GST is classified into class 1 defined by this standard.

## labeling on Laser Use

The ZS-LD6GS/LD6GST has the following warning label on the side of the sensors.



## (2) USA

When using devices in which this product is installed in U.S., the devices are subjected to the U.S. FDA (Food and Drug Administration) laser regulations. The ZS-LD6GS/LD6GST is not reported to FDA. Therefore, it is not possible to export to the United states.

## (3) China

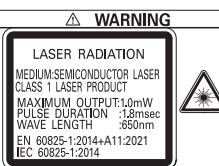
The ZS-LD6GS/LD6GST is classified into Class 1 by the GB/T 7247.1-2024 standard. (1类激光产品)

## (4) Canada

The ZS-LD6GS/LD6GST is Classified into Class 1 by the IEC60825-1:2014 standard. Le ZS-LD6GS/LD6GST est classé dans la classe 1 selon la norme IEC 60825-1:2014.

## (5) For countries other than Japan, U.S., China and Canada

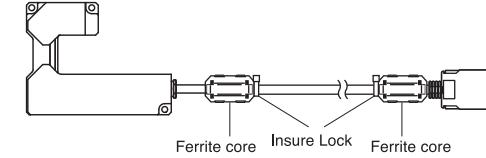
When Usage in countries other than Japan, U.S., China and Canada, the ZS-LD6GS/LD6GST is classified into Class 1 by the IEC 60825-1:2014 / EN 60825-1:2014+A11:2021 standard. When Usage of ZS-LD6GS/LD6GST in countries other than Japan, U.S. and China, replace the explanatory label with corresponding English label.



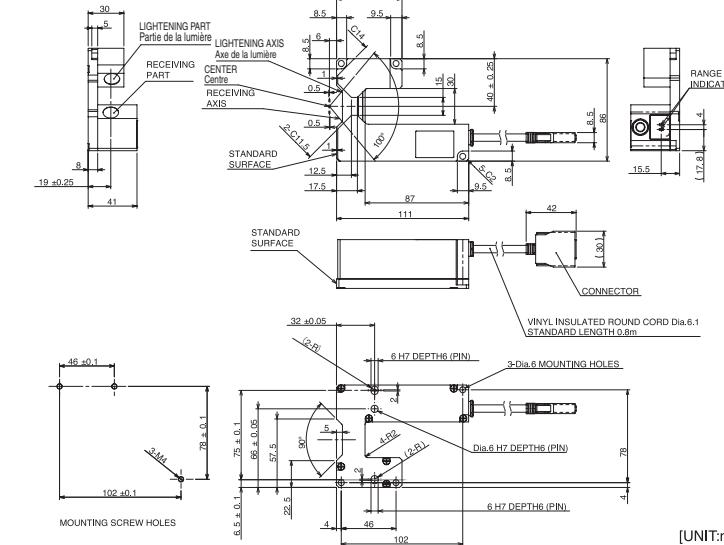
## ■ Attaching the ferrite core

Attach the ferrite core (provided with the Sensor Head) to both ends of the Sensor Head cable.

If the ferrite core comes loose from the cable, fasten the ferrite core in place with the Insure Lock (supplied).



## ■ Dimensions ZS-LD6GS/LD6GST



[UNIT:mm]

## ■ Serial number

The serial number "SSSSMMYY" on the label on the product indicates the date of manufacture.

SSSS: identification number

M: Months of production 1-9 for Jan.-Sep., X for Oct., Y for Nov., Z for Dec.

YY: Year of manufacture (last 2 digits of A.D.)

## Suitability for Use

Omron Companies shall not be responsible for conformity with any standards, codes or regulations which apply to the combination of the Product in the Buyer's application or use of the Product. At Buyer's request, Omron will provide applicable third party certification documents identifying ratings and limitations of use which apply to the Product. This information by itself is not sufficient for a complete determination of the suitability of the Product in combination with the end product, machine, system, or other application or use. Buyer shall be solely responsible for determining appropriateness of the particular Product with respect to Buyer's application, product or system. Buyer shall take application responsibility in all cases.

NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT(S) IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

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