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Model ZP-L3□□□

OMRON

Amplifier Unit for Laser Displacement Sensor

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.



TRACEABILITY INFORMATION:

Importer in EU: Omron Europe B.V.  
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The Netherlands

Manufacturer: Omron Corporation,  
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Kyoto 600-8530 JAPAN

The following notice applies only to products that carry the CE mark. Notice:

In a residential environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

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PRECAUTIONS ON SAFETY

● Meaning 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.



WARNING

This product is not designed or rated for ensuring safety of persons either directly or indirectly. Do not use it for such purpose.



Precautions for Safe Use

- Never use this product with AC power supply. Otherwise it may explode.
- Before turning on the product's power, make sure that the supply voltage does not exceed the maximum power supply voltage.
- Unnecessary input/output wires should be securely insulated one by one to prevent short-circuiting.
- When attaching or detaching the sensor head, amplifier slave unit, or communication unit, be sure to turn off the power to the amplifier master unit. If you do this while the power is on, it may cause a malfunction.
- Do not connect products other than sensor head ZP-LS□/ZP-LS□C.
- Do not use the product if the case is damaged.
- When using the amplifier unit without connecting side, Do not remove the connector cover on the side of the case.
- If you notice an abnormal condition such as a strange odor, extreme heating of the unit, or smoke, immediately stop using the product, turn off the power, and consult your dealer.
- Always turn off the power of the unit before connecting or disconnecting cables.
- Burn injury may occur. The product surface temperature rises depending on application conditions, such as the ambient temperature and the power supply voltage. Attention must be paid during operation or cleaning.

Precautions for Correct Use

- Do not install in the following locations:
  - Locations where the ambient temperature exceeds the rated temperature range.
  - Locations subject to sudden temperature changes (where condensation will form).
  - Locations where the relative humidity is below or above 35% to 85%.
  - Locations where there are corrosive or flammable gases.
  - Locations where there is dust, salt, or iron powder.
  - Locations where the device will be subject to direct vibration or shock.
  - Locations where there is strong scattered light (laser light, arc welding light, ultraviolet light, etc.)
  - Locations exposed to direct sunlight or next to a heater.
  - Locations where there is splashing or spraying of water, oil, or chemicals.
  - Locations where there is a strong electrical or magnetic field.

- Be sure to mount the unit to the DIN track until it clicks. Always use optional two end plates to keep certainly connection side by side.
- Do not pull the cord too hard.
- Do not attempt to disassemble, deform by pressure, incinerate, repair, or modify this product.
- After wiring and before turning on the power, check whether the power supply is correct, whether there are any incorrect connections such as load short circuits, and whether the load current is appropriate. There is a risk of malfunction due to incorrect wiring, etc.
- When changing settings, please check safety by stopping the device, etc.
- The total length of the extension cord for the amplifier unit should be less than 30 m. Please use the same type of shield cord for wiring.
- To extend the cable from the sensor head, an optional extension cable (XS3W-M4□-R/XS3W-M4□-PR) must be used.
- After turning on the power supply, allow to stand for at least 10 minutes before use. The internal temperature are unstable immediately after the power supply is turned on and attempting measurement may result in inconsistent measurement values.
- Do not exceed 100,000 writing operations of the EEPROM (non-volatile memory). Setting information is written to the EEPROM when a threshold value change, teaching, or zero reset is executed.
- Do not use organic solvents (e.g. paint thinner and alcohol) for cleaning. Otherwise protective structure may deteriorate.

- Dispose in accordance with applicable regulations.

Package contents

Amplifier unit, Instruction sheet (this sheet), Compliance sheet

Environment

Ambient temperature: -10 to 50°C \*1  
\*1. If the total number of connected amplifier units, including the master unit, is three or more and includes a ZP-L3500/3550, use the unit in an ambient temperature range (during operation) of -10 to 45°C.  
Relative humidity: 35 to 85%  
(with no condensation)

Altitude: Max. 2,000 m  
Pollution Degree 3  
Degree of protection: IP40 \*2  
\*2. In ZP-L35□□, when other amplifier units are connected.

Indoor use

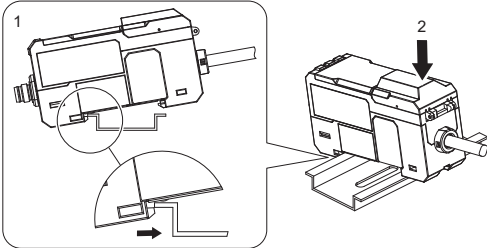
Ratings

[Supply Voltage]  
10 to 30 VDC (including ripple 10%p-p) \*1  
\*1. When 6 or more amplifier units are connected, 20 to 30 VDC ripple (p-p) 10% included. ZP-L35□□ is powered by ZP-L30□□.

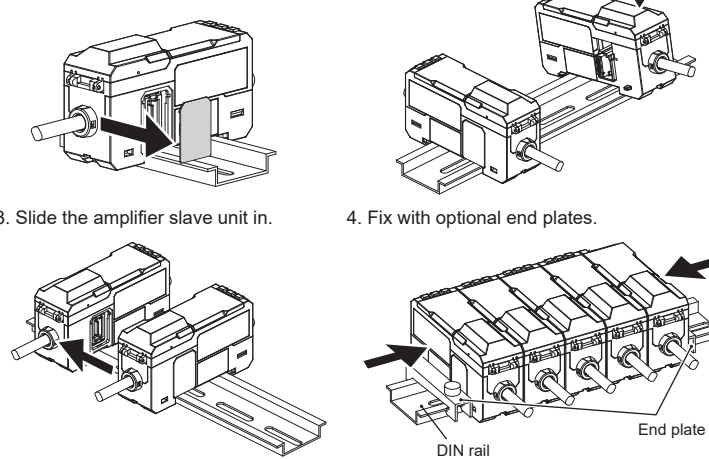
[Unit Power Supply]  
The power for this product, you must use DC power supplies that satisfy the "Class 2" requirements.

Installation method

- How to install the amplifier master unit  
Push the connector side over the DIN rail.

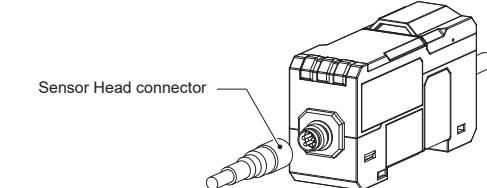


- How to install the amplifier slave unit  
1. Remove the cover of the amplifier master unit.
- 2. Attach to DIN rail.

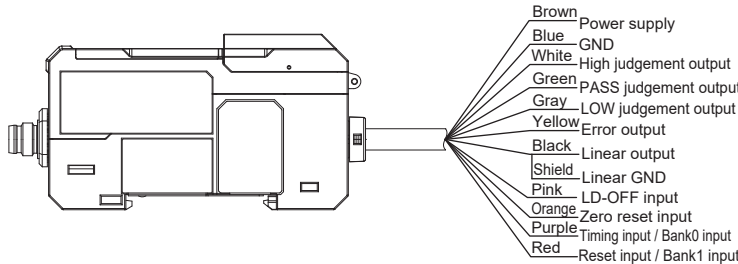


Connection Method

- Connection with laser displacement sensor head  
The laser displacement sensor head (ZP-LS□/ZP-LS□C) and extension cable (XS3W-M4□-R/XS3W-M4□-PR) are connected using connectors.

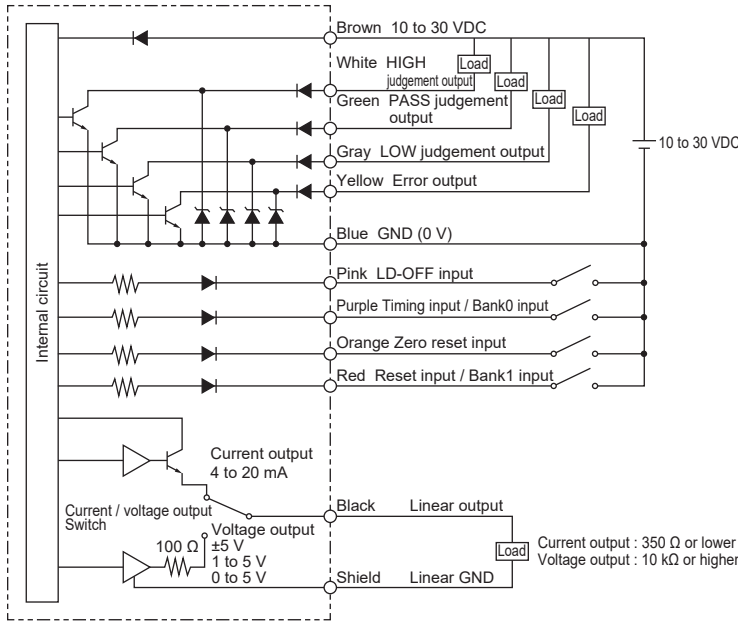


- Power supply and Input / output connection



ZP-L3□10/ZP-L3□60 does not have black (analog output/GND).  
ZP-L35□0 does not have brown (power supply) and blue (GND).  
ZP-L3590 does not have power supply or input/output lines.

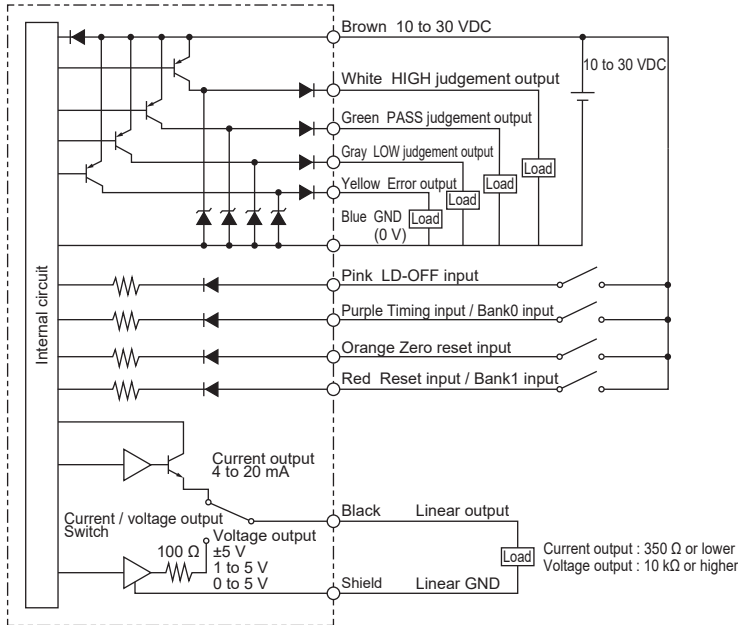
- Input/output circuit  
ZP-L3□00/ZP-L3□10 (NPN Type)



Item	ZP-L3□00	ZP-L3□10
Power consumption *1	2,300 mW max.	2,000 mW max.
Output	Open-collector outputs: 30 VDC (Class 2), 50 mA max. (20 mA/ch when 5 or more slave amplifiers are connected), Residual voltage: 2 V max.	
Input	ON: Short-circuited with 0 V terminal or 1.2 V or less OFF: Open (leakage current: 0.1 mA max.)	
Analog output	For current output: 4 to 20 mA. (maximum load 350 Ω) For voltage output: ±5 VDC, 1 to 5 V, 0 to 5 V output impedance 100 Ω	No analog output

\*1. Includes sensor head. Does not include load current at each output. The power consumption of ZP-L3590 is 2,000 mW.

ZP-L3□50/ZP-L3□60 (PNP Type)



Item	ZP-L3□50	ZP-L3□60
Power consumption *1	2,300 mW max.	2,000 mW max.
Output	Open-collector outputs, 30 VDC (Class 2), 50 mA max. (20 mA/ch when 5 or more slave amplifiers are connected) Residual voltage: 2 V	
Input	ON: Supply voltage Short-circuited or within supply voltage -1.2 V max. OFF: Open (leakage current: 0.1 mA max.)	
Analog output	For current output: 4 to 20 mA. (maximum load 350 Ω) For voltage output: ±5 VDC, 1 to 5 V, 0 to 5 V output impedance 100 Ω	No analog output

\*1. Includes sensor head. Does not include load current at each output. The power consumption of ZP-L3590 is 2,000 mW.

Conformance to EU Directives

This sensor complies with EN standards as follows:

- EN61326-1
- Electromagnetic environment : Industrial electromagnetic environment (EN/IEC 61326-1 Table 2)
- While receiving electromagnetic interference, the voltage/current output might vary within ±3% of full scale.

Relevant Manual

Man.No.	Model	Manual name
Z495	ZP-LS□□/ ZP-L3□□□	ZP Series Laser Displacement Sensor User's Manual

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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