

OMRON

Model E3ZM-□□□□ PHOTOELECTRIC 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: Representative in EU: Omron Europe B.V. ... Manufacturer: Omron Corporation, Shiohji Horikawa, Shimogyo-ku, Kyoto 600-8530 JAPAN

The following notice applies only to products that carry the CE mark: This is a class A product. In residential areas it may cause radio interference, in which case the user may be required to take adequate measures to reduce interference.



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Precaution on Safety

Meanings of Signal Words

CAUTION Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or in property damage.

Alert statements in this Manual

CAUTION

Do not use it exceeding the rated voltage. There is a possibility of failure and fire.



Do not connect sensor to AC power supply. Risk of explosion.



Do not jet the high pressure water concentrating on one place when washing the product, because it might damage of parts and deteriorate the degree of protection.



Hot surface may cause heat injury.



OMRON

形 E3ZM-□□□□ 光電センサ

取扱説明書

このたびは、本製品をお買い上げいただきまして、まことにありがとうございます。ご使用に際しては、次の内容をお守りください。

電気的相关知识を有する専門家がお取り扱ってください。

この取扱説明書をよくお読みになり、十分にご理解のうえ、正しくご使用ください。

この取扱説明書はいつでも参照できるように大切に保管してください。

オムロン株式会社

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安全上のご注意

警告記号の意味

注意 正しい取扱いをしなければ、この危険の時に時に軽傷・中程度の障害を負ったり、あるいは物的損害を受ける恐れがあります。

警告表示

注意

故障や発火の恐れがあります。定格電圧を越えて使用しないでください。



破裂の恐れがあります。AC電源では絶対に使用しないでください。



部品の破損や保護構造の劣化の恐れがあります。洗浄時に高圧水を1箇所に集中して噴射することはありません。



高温で火傷の恐れがあります。



Precautions for Safe Use

Be sure to follow the safety precautions below for added safety.

- (1) Use environment: Do not use the sensor under the environment with explosive or ignition gas. (2) Connection of connector: Plug in or out the connector with the cover part of it. Do not use a pliers. When the seal tape is wrapped around the connector, O-ring cannot be pushed with the connector. Do not wrap the tape around the connector to keep the water resistance. Proper tightening torque is 0.3 to 0.4N·m to keep the degree of protection. (3) Load: Do not use the sensor over the rated values. (4) Low-temperature environment: Do not touch the surface of the metal with bare hands at the low temperature because it might get the frozen burn. (5) Rotating torque of sensitivity adjuster and operation selector: Adjusting torque is 0.06N·m max. (6) Oil environment: Do not use the sensor in the oil environment. (7) Alteration: Never disassemble, repair nor tamper with the sensor. (8) Outdoor use: Do not use the sensor in the place exposed to the direct sunlight. (9) Cleaning: Do not use the organic solvent such as thinner and alcohol because it might deteriorate the optical characteristic and the degree of protection. (10) Washing: Do not use the high concentration cleaning agent because it might cause the trouble. Avoid the jet of high-pressure water over the rated values because it might deteriorate the degree of protection. (11) Surface temperature: The surface temperature of sensor rises depending on the use conditions such as ambient temperature and power supply voltage. Be careful when you operate or clean it. Hot surface may cause heat injury.

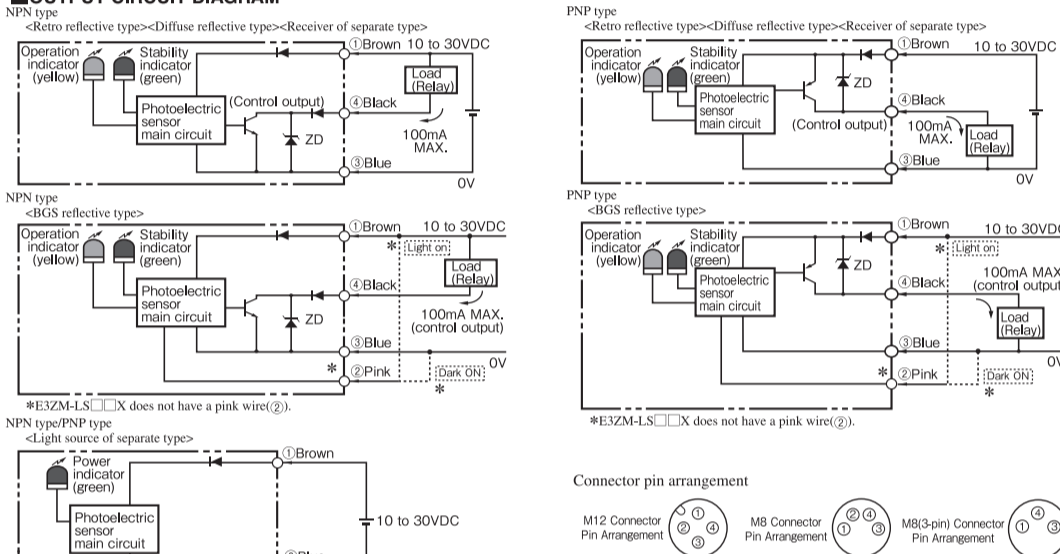
Precautions for Correct Use

- (1) Do not use the product under the following conditions. ①In the place exposed to the direct sunlight. ②In the place where humidity is high and condensation may occur. ③In the place where corrosive gas exists. ④In the place where vibration or shock is directly transmitted to the product. (2) Connection and Mounting: ①Be sure that before making supply the supply voltage is less than the maximum rated supply voltage. (30V DC)

RATING PERFORMANCE

Table with columns: Detection system, Standard type, Fixed type, Detecting distance, Supply voltage, Current consumption, Control output, Ambient temperature, Ambient humidity, Protection structure. Rows include various sensor models and their specifications.

OUTPUT CIRCUIT DIAGRAM



安全上の要点

以下に示すような項目は安全を確保する上で必要なことですので必ず守ってください。

- (1) 使用環境について: 爆発性ガス、引火性ガスのあるところでは使用しないでください。 (2) コネクタの接続: コネクタの接差は必ずコネクタカバー部を手で持って行ってください。固定具は必ず手で締めてください。 (3) 負荷について: 負荷は定格以下でご使用ください。 (4) 低温環境: 冷凍火傷の恐れがあります。低温時に素手で金属表面に触れないでください。 (5) 感度VR、切替SWの回転トルク: 0.06N・m以下のトルクで調整してください。 (6) 油環境: 油環境では使用しないでください。 (7) 改造: 分解したり修理・改造をしないでください。 (8) 屋外使用: 直射日光のあたる場所では使用しないでください。 (9) 清掃: 有機溶剤（シンナー、アルコールなど）の使用は光学特性や保護構造を劣化させますので使用しないでください。 (10) 洗浄について: 高濃度の洗浄剤の使用は故障の原因となりますので使用しないでください。 (11) 表面温度: 火傷の恐れがあります。使用条件（周囲温度、電源電圧、他）によってはセンサ表面温度が高くなります。操作時や洗浄時にはご注意ください。

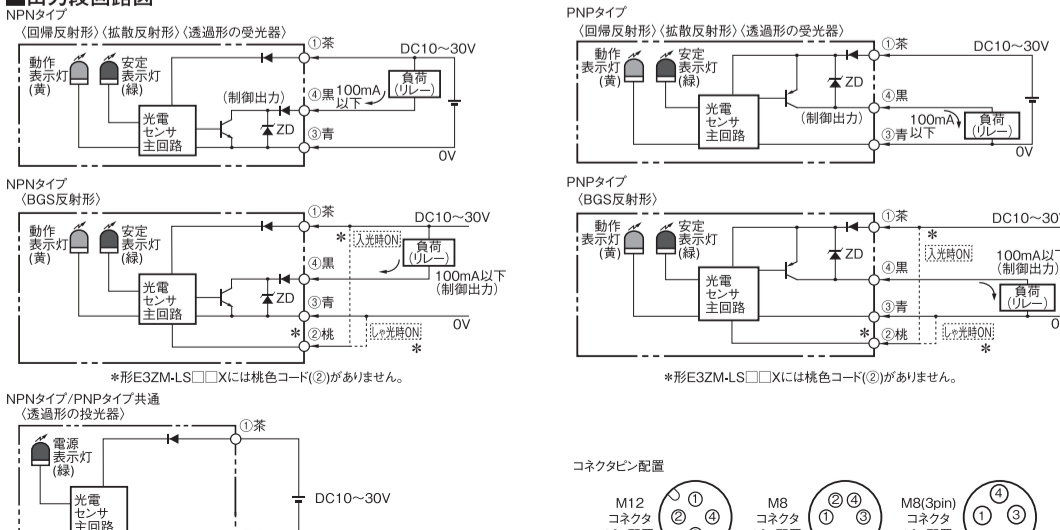
使用上の注意

- (1) 下記の設置場所では使用しないでください。 ①直射日光が当たる場所 ②湿度が高く、結露する恐れがある場所 ③腐食性ガスのある場所 ④本体に直接、振動や衝撃が伝わる場所 (2) 接続、取り付けについて: ①最大電源電圧はDC30Vです。通電前に電源電圧が最大電源電圧以下であることを確認してください。

定格・性能

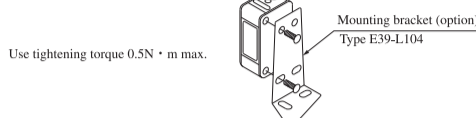
Table with columns: 検出方式, 標準タイプ, 固定タイプ, 検出距離, 電源電圧, 消費電流, 制御出力, 周囲温度, 周囲湿度, 保護構造. Rows include various sensor models and their specifications.

出力回路図



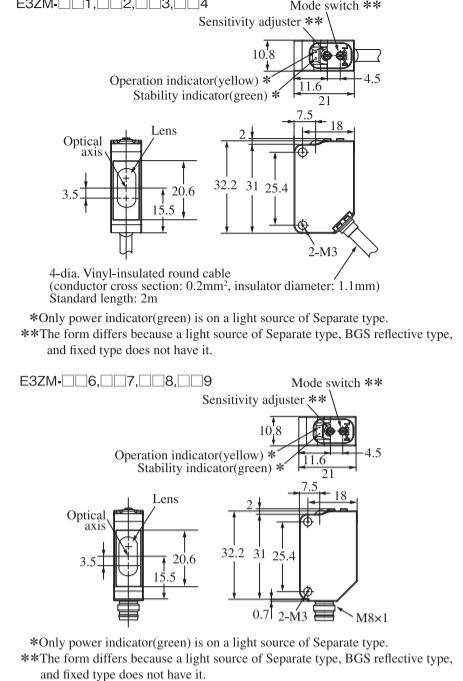
- ②There are some cases where the sensor cable is unavoidably laid in a tube or duct together with a high-tension or power line. This causes an induction, possibly resulting in malfunction or damage. In principal, the cable should be separately laid or shielded. ③For extending wires, use a cable 0.3mm² min. and 100m max. in length. ④Do not pull the wire strongly. ⑤Excessive force (hitting by hammer, etc.) should not be put on the sensor because it may damage its water-resistance characteristic. Use M3 screws to mount the sensor. ⑥Please use the mounting bracket (optional) or choose the flat side to be a clamp face. ⑦Plug in or out the connector after surly turning off a power supply. (3) Cleaning: Do not use thinner such as alcohol and benzene because it may melt a surface of a product. (4) Power supply: When using a commercially available switching regulator, be sure to ground the FG (Frame Ground) terminals. (5) Power supply reset time: The sensor will begin sensing no later than 100ms after the power is turned on. If the load and the sensor is connected to different power supply, the sensor must be always turned on first. (6) Turning off the power supply: When turning off the power, output pulse may be generated. We recommend turning off the power supply of the load or load line first. (7) Load short circuit protection: This product is provided with function of load short circuit protection. However, be never short-circuited of the load. Please do not throw the current that exceeds ratings into the control output. Control output is turned off when this function operates. After checking of wiring and load current, make power supply again. Then the circuit is reset. Load short circuit protection operates when the current is 1.8 times over than the rated load current. The inrush current should be 1.8 times less than the rated load current when C load is used. (8) Water resistance: Do not use in the water, rain or outdoors. (9) Please process it as industrial waste.

MOUNTING



DIMENSIONS

[Unit : mm]



Suitability for Use

THE PRODUCTS CONTAINED IN THIS SHEET ARE NOT SAFETY RATED. THEY ARE NOT DESIGNED OR RATED FOR ENSURING SAFETY OF PERSONS, AND SHOULD NOT BE RELIED UPON AS A SAFETY COMPONENT OR PROTECTIVE DEVICE FOR SUCH PURPOSES.

OMRON shall not be responsible for conformity with any standards, codes, or regulations that apply to the combination of the products in the customer's application or use of the product.

Take all necessary steps to determine the suitability of the product for the systems, machines, and equipment with which it will be used. Know and observe all prohibitions of use applicable to this product.

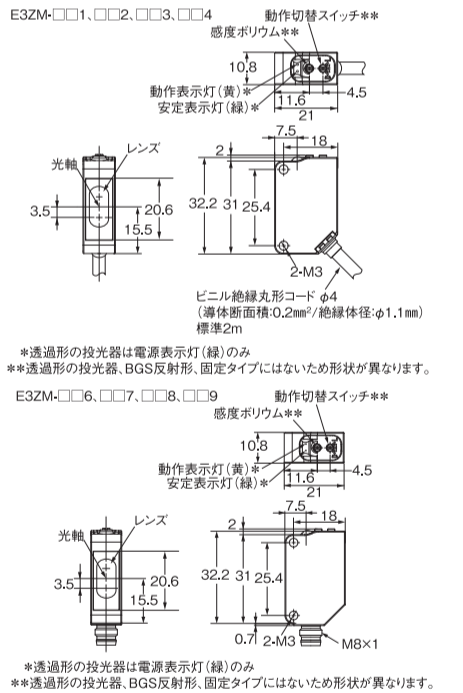
NEVER USE THE PRODUCTS FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

See Also Product catalog for Warranty and Limitation of Liability.

Regional contact information for Europe, North America, Asia-Pacific, and China, including company names, addresses, and phone numbers.

外形寸法図

[単位 : mm]



ご使用に際してのご承諾事項

- ①安全を確保する目的で直接的または間接的に人体を検出する用途に、本製品を使用しないでください。 ②下記用途に使用される場合、当社営業担当者までご相談のうえ仕様書などにより確認したくとも、定格・性能に対し余裕を持った使い方、万一故障があっても危険を最小にする安全回路などの安全対策を講じてください。 a) 屋外の用途、潜在的な化学的汚染のない電気的妨害を被る用途 またはカテゴリー、取扱説明書等に記載のない条件や環境での使用 b) 原子力制御設備、焼却設備、鉄道・航空・車両設備、医用機械、娯楽機械、安全装置、および行政機関や個別業界の規制に従う設備 c) 人命や財産に危険が及ぶシステム・機械・装置 d) ガス、水道、電気等の供給システムや24時間連続運転システムなどの高い信頼性が必要な設備 e) その他、上記 a) ~ d) に準ずる、高度な安全性が必要とされる用途 * 上記は適合用途の条件の一部です。当社のカスタムデータシート等最新版のカタログ、マニュアルに記載の保証・免責事項の内容をよ読んでご使用ください。

Omron Corporation contact information, including phone number 0120-919-066, website, and address.

