光电传感器

# 使用说明书

感谢您选择欧姆龙产品

- 使用时,请务必遵守以下内容。
- ·由具备一定电气知识的人员使用。 ·使用本品前,请仔细阅读本说明书,
- 为了您的方便,请妥善保管好本说明书。

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

Notice: This is a class A product. In residential areas it may cause radio interference, in which case the user may be required to take adequat measures to reduce interference.



© OMRON Corporation 2004-2010 All Rights Reserved

# 安全上的注意

### ●警告表示的意思

⚠ 注意

如果不正确使用,有可能导致死亡或重大伤害。

### ●警告表示

# ⚠ 注意

不可将传感器连接交流电源。 有爆裂的危险



# 安全上的要点

- (1)请不要在具有可燃性、爆炸性气体的环境下使用。 (2)请勿拆卸、修理、改造本产品。 (3)电源电压必须在额定值内(DC12~24V±10%)。

- (4) 请使用额定值以下的负荷。 (5) 废弃时,请作为工业废弃物处理

# 使用上的注意

- (1)请勿在以下场所使用 ①日光直射场所
- ②湿度高或易结露场所 ③含腐蚀性气体场所
- ④振动或冲击能直接传送到传感器场所
- (2) 连接和安装 ①传感器最大允许电压是DC26. 4V。通电前请确认供电电压
- 小于最大允许电压。 ②传感器导线和动力线或电力线装在同一配管中使用时,
- 会受到干扰,有误动作甚至被损坏。原则上传感器导线 必须单独放置或者屏蔽。

# OMRON Model E3Z-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.
Wegalaan 67-69
2132 JD Hoofddorp,
The Netherlands
Wyoto 600-8530 JAPAN
Shanghai Factory
No.789 Jinji Road,
Jingiao Export Processing Distric

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.

© OMRON Corporation 2004-2010 All Rights Reserved.

# PRECAUTIONS ON SAFETY

# Meaning of Alert symbol

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

Alert statements

to the product.

# 

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



# PRECAUTIONS FOR SAFE USE

- (1)Do not use the sensor under the environment with explosive or igni
- (2) Never disassemble, repair nor tamper with the product
- (3)Keep the supply voltage within the specified range.(12to24V DC $\pm$ 10%) (4)Do not use the sensor over the rated values.
- (5) When you discard the product, please process as industrial waste.

# 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.
- 3 In the place where corrosive gas exists. (4) In the place where vibration or shock is directly transmitted

- ③延长导线必须使用截面积0.3mm2以上、长度100m以下导线。
- ④导线请勿用力拉扯。
- ⑤安装传感器时,请勿使传感器受剧烈外力(如用锤击打等),这 样就有可能破坏传感器耐水保护性能。安装时请使用M3螺栓固
  - ◎ M 8 连接器方面
  - ⑥连接器的插拔必须在传感器电源切断情况下进行。

  - ⑦插拔连接头时请握住传感器的外壳部位。 ⑧一定要用手作为固定工具,如果用钳子拧会破坏产品。
  - ⑨合适的扭矩为0.3~0.4N·m。如果扭矩不够,会失去耐水保护功能, 且会在有振动情况下容易松动。

  - 因为稀释剂类会溶化产品表面, 所以请避免使用,

  - (4) 电源 使用市场上销售的开关整流器时,请将FG(Frame·Ground端 子)接地。

# ■规格性能

检出方	出方式    对射型		回归反射型	反射型 透明瓶型		扩散反射型		细光束反射型		
机能		红外光	源型	红色光源型						
型号	NPN	E3Z-T61	E3Z-T62	E3Z-T61- 🗆 🗆 R 🗆	E3Z-R61	E3Z-B61/-B66	E3Z-B62/-B67	E3Z-D61	E3Z-D62	E3Z-L61/-L66
	PNP	E3Z-T81	E3Z-T82	E3Z-T81- 🗆 🗆 R	E3Z-R81	E3Z-B81/-B86	E3Z-B82/-B87	E3Z-D81	E3Z-D82	E3Z-L81/-L86
距离		15m	15m 30m 10m		0.1~4m(型E39-R1S使用时) 0.1~3m(型E39-R1使用时)	0.08m~0.5m (型E39-R1S使用时)	0.5m~2m (型E39-R1S使用时)	0.1m (白画纸 100×100mm)	1m (白画纸 300×300mm)	90±30mm (白画纸 100×100mm)
指向角	1	投	·受光器:	各3~15°		2~10°			_	
光源(	发光波长)	红外LED	(870nm)		红色LED (660	Onm)		红外LED	(860nm)	红色LED (650nm)
电源电	压				DC12~	~24V±10% 波克	动(P-P)10%じ	小下		
消费电	l流		设光器: 156 受光器: 206		30mA 以下					
控制输出		负载电源电压Oc26、4V以下、负载电流100mA以下 集电极开路输出(NPN/PNP输出根据形式而不同) 入光时ON/遮光时ON开关切换式								
输出残	留电压	残留电压1V以下(负载电流小于10mA),残留电压2V以下(负载电流小于10~100mA)								
响应		1ms以下	2ms以下			1 ms	以下			
	加作·复归									
	周围温度		动作时: ─25~+55℃、保存时: ─40~+70℃(但不结冰、结露)							
周围湿度		动作时:湿度35~85%RH、保存时:湿度35~95%RH(但不结冰、结露)								
保护构造		IEC60529规格 IP67								
材质	外壳	聚对苯二甲酸丁二醇酯 (PBT)								
	显示部					聚酯合橡	胶			
	镜头	聚酯合橡胶  聚甲基丙烯酸甲酯(PMMA)  聚酯合橡胶							·	

(5) 电源重置时间

感器的电源。

载线的电源。

(7) 负载短路保护

电流的1.8倍。

(6) 电源关闭

,在旅堂員的问 从接通电源到传感器可正常进行检出的时间是100ms,所以请在通

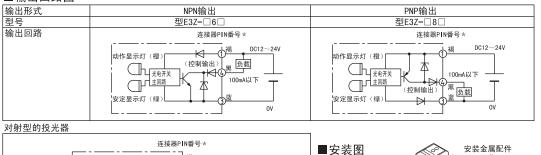
电源关闭时,可能会出现输出脉冲,所以我们建议先关闭负载或负

77.04%应目标77 本类传感器具有负载短路保护功能。发生负载短路时,输出会变成 0FF,请对回路进行修正后再接通电源。短路保护回路也会重新调 整。另外,当回路中通过1.8倍以上的额定负载电流时,负载短路

保护功能也会动作。所以接L负载时确保通过的电流小于额定负载

虽然防水等级为 I P 67, 但最好避免在水中、雨中和室外使用

# ■输出回路图



\*连接器PIN的配置,请参照连接规格所在页(里面)

电源显示灯 (樽)Γ

光电开关

# (2)Connection and Mounting

- ①Be sure that before making supply the supply voltage is less than the maximum rated supply voltage. (26.4V DC)
- 2)There are some cases where the photoelectric switch cable is unavoidably laid in a tube or duct together with a hightension 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 photoelectric switch because it may damage its water-resistance characteristic. Use M3 screws to mount the photoelectric switch.

# ©M8 metal connector

- @Plug in or out the connector after surly turning off a power supply. Plug in or out the connector with a cover part of it.
- ®Fasten a fixed implement by hand. If you use a plaier, it may
- be cause of malfunction or damage to it.

- Do not use thinner such as alcohol and benzine 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

(另售)

型E39-L104

# (5)Power supply reset time

扭力应在

0.5N·m以下

The photoelectric switch will begin sensing no later than 100ms after the power is turned on. If the load and the photoelectric switch is connected to different power supply, the photoelectric switch must be always turned on first. (6)Turning off the power supply

# recommend turning off the power supply of the load or load

(7)Load short circuit protection

When turning off the power, output pulse may be generated. We

This product is provided with function of load short circuit protection. 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

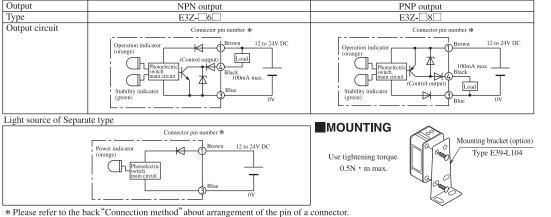
# (8)Water resistance

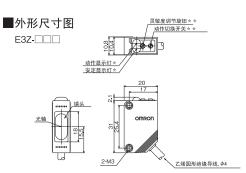
Though this is type IP67, do not use in the water, rain or

# RATED PERFORMANCE

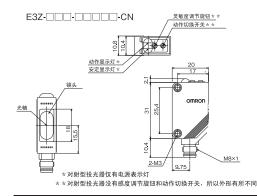
Detection system			Separate	te type Retroreflective type		Transparency bottle made from PET type		Diffuse reflection type		Narrow beam type
Function		Infrared be	am type	Red beam type						
Type NPN		E3Z-T61	E3Z-T62	E3Z-T61-□□□R□	E3Z-R61	E3Z-B61/-B66	E3Z-B62/-B67	E3Z-D61	E3Z-D62	E3Z-L61/-L66
	PNP	E3Z-T81	E3Z-T82	E3Z-T81-	E3Z-R81	E3Z-B81/-B86	E3Z-B82/-B87	E3Z-D81	E3Z-D82	E3Z-L81/-L86
Detecting distance		15m	30m	10m	0.1 to 4m (with E39-R1S) 0.1 to 3m (with E39-R1)		0.5 to 2m (with E39-R1S)	0.1m (white mat paper 100×100mm)	1m (white mat paper 300×300mm)	90±30mm (white mat paper 100×100mm)
Operating a	angle	Light s	ource/Rec	eiver: 3 to 15°		2 to 10°		_		
Light source (lur	ninescence wavelength)	Infrared LI	ED (870nm)		Red LED (60	50nm)		Infrared LE	ED (860nm)	Red LED (650nm)
Supply volt	tage	12 to 24V DC±10% (Ripple (p-p) 10% max.)								
Current cor	nsumption	Light source: 15mA max. Receiver: 20mA max.								
Control output		Load supply voltage : 26.4V DC max. Load current : 100mA max. Open collector output (NPN/PNP output, changing with forms) Light-ON/Dark-ON switch selectable								
Residual vo	oltage	1V or less: Load current less than 10mA. 2V or less: Load current less than 10 to 100mA.								
Response t	ime	1ms max.	nax. 2ms max. 1ms max.							
Ambient te	mperature	Operating : $-25$ to $+55$ °C, Storage : $-40$ to $+70$ °C ( no freezing and condensation)								
Ambient humidity		Operating: 35 to 85%RH, Storage: 35 to 95%RH (no freezing and condensation)								
Protection structure		IEC60529 : IP67								
Materials Case			Polybutylene Telephthalate resin (PBT)							
Display		Denatured polyallylate								
	Lens	De	natured po	olyallylate	Methacrylate resin (P!	/IMA)		Denatured po	olyallylate	

# **OUTPUT STAGE CIRCUIT DIAGRAM**





\*\*对射型投光器没有感度调节旋钮和动作切换开关,所以外形有所不同



### 使用时的承诺事项

①为了确保安全,直接或间接用于人体检测时,请勿使用本产品。

需使用该用途时,请选用本公司传感器综合样本中刊登的安全传感器。 ②使用于下列用途时,与本公司营业担当者商谈之后,根据规格书等确 认的同时,对额定值性能方面请想出有余裕度的使用方法及采取即使

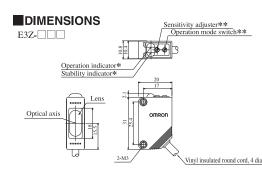
万一出故障也能使危险降低到最小的安全回路等的安全对策。 a) 屋外的用途、潜在化学污染或者受到电气的妨害的用途或者在商品目

录、使用说明书等中没有记载的条件及环境下使用。 b) 原子力控制设备、焚烧设备、铁道·航空·车辆设备、医用设备、娱乐 机械、安全装置及行政机关及根据个别业界的规定制造的设备。 c)可能存及生命、财产的系统·机械·装置 d) 煤气、水道、电气的供给系统记24小时连续运转系统等需要高信赖的

(义 国 。() 其他,以上述的 a) ~ d)为基准,需要高度安全性的用途。\*上述内容是适用条件的一部分。仔细阅读本公司的综合商品目录、数据表等最新版商品目录、手册中记载的保证免责事项的内容后再使用。

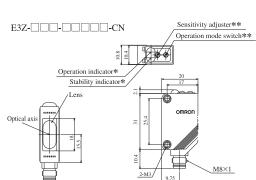
欧姆龙 (上海) 有限公司 地址: 中国上海市浦东新区金桥出口加工区金吉路789号 电话: (86) 21-5050-9988 ■技术咨询 欧姆龙 (中国) 有限公司 地址: 中国上海市浦东新区银城中路200号中银大厦2211室 技术咨询热线: 800-820-4535

OMRON Corporation



\*Only power indicator is on a light source of Separate type.

\*\*The form differs because a light source of Separate type does not have it.



\*Only power indicator is on a light source of Separate type.

\*\*The form differs because a light source of Separate type does not have it.

# SUITABILITY FOR USE

THE PRODUCTS CONTAINED IN THIS SHEET ARE NOT SAFETY RATED THEY ARE NOT DESIGNED OR RATED FOR ENSURING SAFETY OF PER-SONS, AND SHOULD NOT BE RELIED UPON AS A SAFETY COMP-ONENT OR PROTECTIVE DEVICE FOR SUCH PURPOSES. Please refer to separate catalogs for OMRON's saftey rated products 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. 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 ENSU-RING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO

ADDRESS THE RISKS, AND THAT THE OMRON PRODU-CT IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSYTEM. See also Product catalog for Warranty and limitation of Liability.

■ EUROPE
OMRON EUROPE B.V. Sensor Business Unit
Carl-Benz Str4, D-71154 Nufringen Germany
Phone:49-7032-811-0 Pax: 49-7032-811-1199
■ NORTH AMERICA
OMRON ELECTRONICS LLC
One Commerce Drive Schaumburg, IL 60173-5302 U.S.A.
Phone:1-847-843-7900 Fax: 1-847-843-7787

Phone: 1-84 /-845-/900 Fax: 1-84/-843-//8/ ASIA-PACIFIC OMRON ASIA PACIFIC PTE. LTD. No. 438A Alexandra Road #05-05-08(Lobby 2), Alexandra Technopark, Singapore 119967 Phone: 65-6835-3011 Fax: 65-6835-2711

Phone: 03-0835-3011 Fax 0.0-0635-2711

CHINA

OMRON(CHINA) CO., LTD.

Room 2211, Bank of China Tower,

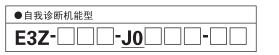
200 Yin Cheng Zhong Road,

PuDong New Area, Shanghai, 200120, China

Phone: 86-21-5037-2222 Fax:86-21-5037-2200

O OCT, 2009

**OMRON Corporation** 



## ■机能说明

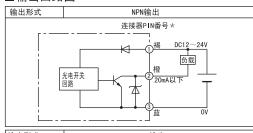
不稳定状态 (绿显示灯灯灭) 持续0.3秒以上时候, 就会输出。

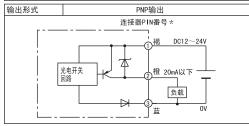
#### ■额定性能

自我诊断输出

负载电源电压DC26.4V以下、负载电流20mA以下 ※報モ源で応じいと0.4V以下、负氧电流20mA以下 (残留电压1V以下)集电极开路输出(NPN/PNP输出根据形式而不同)

### ■输出回路图





\*连接器PIN配置请参考连接规格所在页



### ■机能说明

在控制输出上附加了off delay

### ■额定性能

延迟时间

■时序图			
入光时0N			
	į	入光时	
	ì	應光时	
	动作显示灯 (橙)	亮灯	<u>→</u>
		灭灯	
	输出	ON	
	晶体管	0FF	
遮光时0N			
	,	入光时	
	ì	遮光时	
	动作显示灯	亮灯	→ (t-10iiis)
	(橙)	灭灯	

灭灯 ON

10ms固定 (10~14ms)

# ●投光停止机能型/光量切替机能型 \_**-G**[

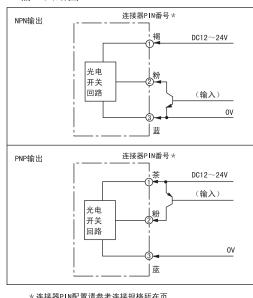
### ■机能说明

- 「GO」: 投光停止机能
- 从外部一旦有信号输入的话,则停止投光。 「G2」:光量切替机能 从外部一旦有信号输入的话,则投光量减至50%(对射型、回归反
- 射型) 70% (扩散反射型)

### ■额定性能

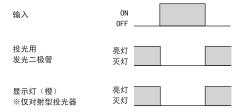
投光停止输入/ 光量切替输入	《NPN型》 投光停止或光量切替: 0V短路或者1.5V以下 (流出电流1mA以下)
	〈PNP型〉 投光停止或光量切替: DC(电源正极一侧)短路或 DC-1.5V以内(吸入电流3mA以下) 通常投光:开放(漏电流0.1mA以下)
响应时间	0.5ms以下(对射型) 5ms以下(回归反射型、扩散反射型)

### ■输入回路图



\*连接器PIN配置请参考连接规格所在页

### ■时序图



## ●防油型 E3Z-| || \_**|-K**

### ■使用上的注意点

### (1) 本体

- ①本传感器采用特殊涂层,提高了防油性,所以使用时请注 意表面不要划上。另外,由于涂层膜,检测距离下降了。 详细内容请参考商品目录。
- ②如在本体表面贴上粘胶带,然后再撕下来,会损伤到涂层
- ③调整感度旋钮时,虽然涂层有时会剥落下来一部分,但性 能方面是没问题的。
- (2) 异线 ①导线根部也有涂层,所以弯曲导线时就会产生褶皱。
- ②导线材料同标准型E3Z,是氯化塑料混合物,所以请注意以
- · 勿让导线碰到油
- 如在油环境中使用,请加上保护外罩等,勿让导线直接碰到 ·在油环境中,勿将导线使用在可动部上。
- 导线外皮经硬化,已无柔软性,断线动作不良、外皮破损会 导致短路。
- (3) 镜头 () 经防油涂层处理,镜头表面有时虽会起白浊,但防油性。 检测距离等额定/性能完全没问题。 ②涂层有可能会被损伤,所以勿使镜头受到摩擦。

- (4) 防油性
- ②下表所示的各种油经试验,都是合格的,故在探讨所使用 的油时, 请作参考。

JIS分类	商品名	动粘度 (mm²/s) at40℃	PH
	Velocite No.3	2. 02	
2种5号	Daphnecut AS-30D	10以上50以下	—
2种11号	Yushiron Oil No.2ac	10以下	
W1141 -	Yushiroken EC50T-3	_	7∼9.5
WINTE	Yshiron LubicHWC68		7∼9.9
W1种2号 Griton 1700D	Griton 1700D		7∼9.2
W2种1号	Yushiroken S50N		7~9.8
	2种5号 2种11号 W1种1号 W1种2号	With the Head of	JIS分类

- 注1. 上表中的油,做过240H滴下试验,绝缘电阻100Ω以上的试验,
- 注2. 在上表以外的油雾中使用时,要以上表的动粘度和PH值为标准。 另外,油中添加剂等也会造成一定影响,故请事前探讨。

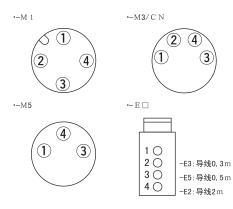


下面是导线长度、连接器的规格

#### 具线型

·05:	导线0.5m	•P2:	导线2m
•P1:	导线1m	•P5:	导线5m

#### ・连接器型



### ■型号基准



③距离 1:标准 2: 长距离 ④诊断机能

6: NPN 8: PNP

E2: ECON 2m M1: M1J 0.3m S0: 标准 J0: 带自我诊断机能 M3: M3J 0.3m M5: M5J 0.3m GO: 带投光停止机能 G2: 带光量切替机能 ⑨其他机能 K: 涂层 ⑤计时机能(off delay)

P2: 导线型2m P5: 导线型5m

CN: 直型连接器 E3: ECON 0.3m

E5: ECON 0.5m

S: 无计时器 T: 计时10ms ⑥I FD发光色 R: 红色 H: 红外

M: 红色点光源

<ul><li>Self-diagnosis function type</li></ul>
E3Z
Function

输出 晶体管

When insufficient received light which is shown by green indicator being off continues longer than 0.3 seconds, the self-diagnosis output turns on.

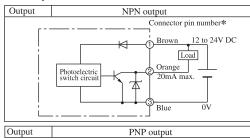
# ■Ratings and performance

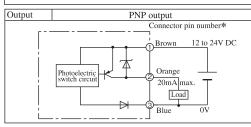
Self-diagn Load supply voltage:26.4V DC max. osis output

Load current:20mA max.(Residual voltage:1V max.)

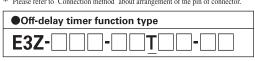
Open collector output(NPN/PNP output, changing

# Output circuit





\* Please refer to "Connection method" about arrangement of the pin of connector

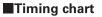


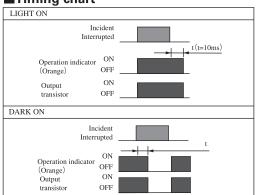
# ■Function

# When the control output turns off, the response is delayed

# ■Ratings and performance

]	Delayed time	10ms fixed (10 to 14ms)
_		





OFF

### ●Emission stop function type/ Light reduction function type E3Z-\_-**G**[

# ■Function

G0 :Emission stop function type

When external signal is input, the sensor stops emitting.

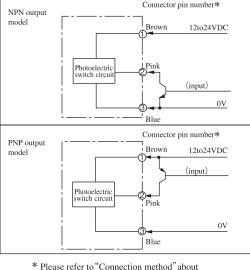
•[G2]:Light reduction function type

When external signal is input, the amount of emitted light decreases to 50% (Through-beam and retroreflective model), or 70% (Diffuse-reflective model)

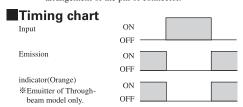
# ■Ratings and performance

Emission stop input / Light reduction input	⟨NPN output model⟩ Emission stop/ Light reduction: Connection to 0 to 1.5 VDC (source current 0.1mA or less) Normal emission:Open(Leak current 0.1mA or less) ⟨PNP output model⟩ Emission stop/ Light reduction: Connection to Vs (supplied voltage) to Vs-1.5VDC (sink current 3mA or less) Normal emission:Open (Leak current 0.1mA or less)
Response time	0.5ms or less(Through-beam model) 5ms or less(Reflective model)

# Input circuit



arrangement of the pin of connector.



# Oil resistance type E3Z-Precautions for correct use

# (1)A product

DSince this product improved for oil tight by special coating, handle with care for not scratched. Detection distance decreases with the coating film. Please refer to a catalog for details.

2If you try to remove adhesive tape that was attached on the enclosure, the coat may be damaged.

3When you adjust the sensitivity, a part of the coat around the adjuster may be peeled off, however, the oil-proof performance is not deteriorated.

# (2)A cable

①Since a part of cables sheath is coated, a cable may wrinkle when bend.

@Since cable material is the same PVC (Polyvinyl Chloride) as standard E3Z, be careful of the following points ·Protect cable from oil.

When using in the environment where cable is in oil, please provide a protection cover to a cable to protect from oil.

When using in the oily environment, do not use the cable as the mechanical movement to avoid from electrical shortage of wire caused by chemical damage for cable sheath.

'If cable is in oil, the cable sheath will harden and pliability will be lost.

DEven when blur remains on the lens, there is no problem on the rated performance such as detecting distance and oil

②Do not rub the lens, because the lens may be damaged. (4)Oil resistance

①Since oil-proof performance may not be good enough according of the type of oil, please evaluate the availability in advance.

②It passes the test against oils in the following table. Please refer to the table when considering the oil to be used

Testing oil classification	JIS classification	Product name	Dynamic viscosity (mm²/s) at 40°C	PH
Lubricant		Velocity No.3	2.02	
Water insoluble	Class 2 No.5	Daphne Cut AS-30D	Not less than 10 to less than 50	_
Coolan	Class 2 No.11	Yushiron Oil No.2ac	Less than 10	
	CI WIN I	Yushiroken EC50T-3		7~9.5
Water soluble	Class W1 No.1	Yushiron Lubic HWC68	] _	7~9.9
coolant	Class W1 No.2	Gryton 1700D	] _	7~9.2
	Class W2 No.1	Yushiroken S50N	1	7~9.8

Note 1. Each oil was trickled onto the E3Z- K for 240 hour, and passed

the test of 10000 more insulation resistance.

2. When the E3Z-\_\_\_\_\_\_K is exposed to the oil other than those in the above table, refer to the dynamic viscosity and PH in the table. Also, please pre-examine the oil since the sensor may be affected by additives and the like in the oil.

Connection method
E3Z

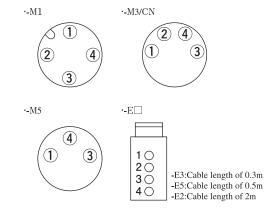
·Cable length and connector types are shown.

# Pre-wired types

·05:Cable length of 0.5m ·P1:Cable length of 1m

·P2:Cable length of 2m ·P5:Cable length of 5m

# •Connector joint types (M□) and connector type (CN)



# Nomenclature



①Sensor type T:Through-beam model
D:Diffuse-reflective model R:Retroreflective model

L:Narraw-beam model B:Transparency bottle made from PET model ②Output 6:NPN output

8:PNP output ③Detecting distance 1:Standard

2:Long distance ④Diagnostic function S0:No diagnostic function J0:With Diagnostic function G0:With Emission stop function

G2:With Light reduction function 5Timer function(OFF delay) S:No Timer function

⑥Light source R:Red LED

H:Infrared LED
M:Red point light source LED

7 Model

®Connection

L:Emitter Through-beam model
D:Receiver Through-beam model W:Set of Through-beam model or Reflective model

05:Cable length of 0.5m P1:Cable length of 1m P2:Cable length of 2m P5:Cable length of 5m CN:Connector type
E3:E-CON connector with cable length of 0.3m E5:E-CON connector with

cable length of 0.5m E2:E-CON connector with cable length of 2m

M1:7 Connector joint types M3: with cable length of M5: 0.3m

K:Coating type