OMRON

Model E2B-□

PROXIMITY 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

Manufacturer:
Omron Corporation,
Shiokoji Horikawa, Shimogyo-ku,
Kyoto 600-8530 JAPAN
Shanghai Factory
No.789 Jinji Road,
Jinqiao Export Processing District,
Pudong New Area,Shanghai,201206 CHINA

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 adequate measures to reduce interference.

© OMRON Corporation 2013 All Rights Reserved.

2257392-0A

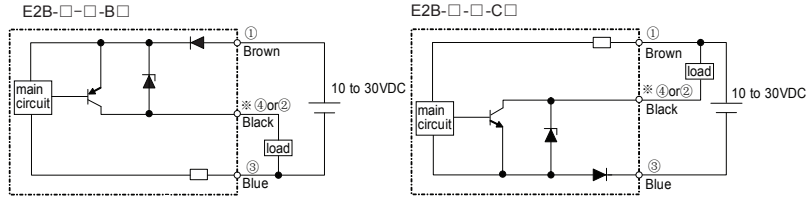
■RATING/CHARACTERISTCS

Size	M8				M12				M18				M30			
Type	Shielded		Non Shielded		Shielded		Non Shielded		Shielded		Non Shielded		Shielded		Non Shielded	
Model E2B-( )	S08□S01	S08□S02	S08□N02	S08□N04	M12□S02	M12□S04	M12□N05	M12□N08	M18□S05	M18□S08	M18□N10	M18□N16	M30□S10	M30□S15	M30□N20	M30□N30
Sensing distance(±10%)	1.5mm	2.0mm	2.0mm	4.0mm	2.0mm	4.0mm	5.0mm	8.0mm	5.0mm	8.0mm	10.0mm	16.0mm	10.0mm	15.0mm	20.0mm	30.0mm
Setting distance	0 to 1.2mm	0 to 1.6mm	0 to 1.6mm	0 to 3.2mm	0 to 1.6mm	0 to 3.2mm	0 to 4mm	0 to 6.4mm	0 to 4mm	0 to 6.4mm	0 to 8mm	0 to 12.8mm	0 to 8mm	0 to 11.25mm	0 to 16mm	0 to 22.5mm
Differential travel	10% max. of sensing distance															
Standard target (Iron)	□8×1mm	□8×1mm	□8×1mm	□12×1mm	□12×1mm	□12×1mm	□15×1mm	□24×1mm	□18×1mm	□24×1mm	□30×1mm	□48×1mm	□30×1mm	□45×1mm	□60×1mm	□90×1mm
Response frequency	2,000Hz	1,500Hz	1,000Hz	1,000Hz	1,500Hz	1,000Hz	800Hz	800Hz	600Hz	500Hz	400Hz	400Hz	400Hz	250Hz	100Hz	100Hz

Power supply voltage	10 to 30 VDC (including 10% ripple(p-p))
Current consumption	10mA max.
Load current	200mA max. ※
Residual voltage	2V max.(under load current of 200mA with cable length of 2m)
Operation mode	-B1/-C1 models: NO ; -B2/-C2 models: NC
Indicator	Operation indicator yellow LED
Ambient air temperature	Operation & Storage: -25 to 70℃(with no icing or condensation)
Ambient humidity	Operation & Storage: 35% to 95%RH
Standard and listing	IP67

※Size M8 type 60 to 70℃:100mA max.

■OUTPUT CIRCUIT & CONNECTION



※E2B-S08□-MC-B/C□

※E2B-M12□-M1-B/C□
E2B-M18□-M1-B/C□
E2B-M30□-M1-B/C□

Precautions for correct use

(1) Do not use in following ambience.
①Direct sunlight, rain, snow, and waterdrop.
②Chemicals, especially solvents and acids.
③Corrosive gas, erosive gas.
(2) Please note that this sensor might malfunction when using it near the ultrasonic cleansing apparatus that generates the high frequency electric field, the high frequency generation device, the transceiver, the cellular phone, and the inverter, etc.
Please refer to Sensor General Catalogue for typical measures.
(3) Plumbing into the same pipe or duct with high-voltage line or power line may cause a malfunction, or destruction because of induction.
(4) Do not use thinner may dissolve the surface of products.

Precaution 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.

●Alert statements

⚠ WARNING

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

Precautions for safe use

Keep following item to secure from danger.

(1) Do not use in ambience of flammable, voltatile gas.
(2) Do not decompose, repair, and modify.
(3) The product may explode or be damaged with following misusages.
①To apply excess voltage as the power source.
②To short-circuit the load.
③To reverse polarity, or to miss-wire.
④To connect power source without load.
(4) Please process it as industrial waste.

Precautions for correct use

■EFFECTS OF SURROUNDING METALS

When mounting the proximity sensor within a metal panel, ensure that the clearances given in the Table1 are maintained. Failure to maintain these distance may cause deterioration in the performance of the sensor.

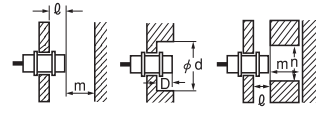


Table 1 (mm)

Size	M8				M12				M18				M30			
Type	Shielded		Non Shielded		Shielded		Non Shielded		Shielded		Non Shielded		Shielded		Non Shielded	
Model E2B-( )	S08□S01	S08□S02	S08□N02	S08□N04	M12□S02	M12□S04	M12□N05	M12□N08	M18□S05	M18□S08	M18□N10	M18□N16	M30□S10	M30□S15	M30□N20	M30□N30
ℓ	0	0	6	12	0	2.4	15	15	0	3.6	22	25	0	6	30	45
d	8	8	24	24	12	18	40	40	18	27	55	70	30	45	90	140
D	0	0	6	12	0	2.4	15	15	0	3.6	22	25	0	6	30	45
m	4.5	4.5	8	8	8	12	20	20	20	24	40	48	40	45	70	90
n	12	12	24	24	18	18	36	40	27	27	54	70	45	45	90	140

■MUTUAL INTERFERENCE

When installing two or more proximity sensors face to face or side by side, ensure that the minimum distances given in the Table2 maintained.

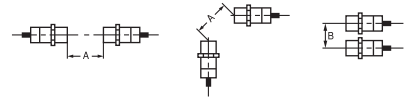


Table 2 (mm)

Size	M8				M12				M18				M30			
Type	Shielded		Non Shielded		Shielded		Non Shielded		Shielded		Non Shielded		Shielded		Non Shielded	
Model E2B-( )	S08□S01	S08□S02	S08□N02	S08□N04	M12□S02	M12□S04	M12□N05	M12□N08	M18□S05	M18□S08	M18□N10	M18□N16	M30□S10	M30□S15	M30□N20	M30□N30
A	20	20	80	80	30	30	120	120	50	60	200	200	100	110	300	350
B	15	15	60	60	20	20	100	100	35	35	110	120	70	90	200	300

■MOUNTING

Do not tighten the sensor mounting nuts with excessive force.

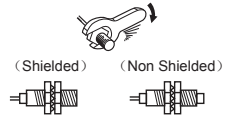


Table 3

Size	Torque
M8	7N·m
M12	12N·m
M18	30N·m
M30	50N·m

■MOUNTING HOLE AND NUT DIMENSIONS

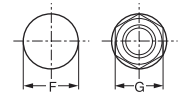


Table 4 (mm)

Size	F	G
M8	ϕ 8.5$^{+0.5}_{0}$	13
M12	ϕ12.5$^{+0.5}_{0}$	17
M18	ϕ18.5$^{+0.5}_{0}$	24
M30	ϕ30.5$^{+0.5}_{0}$	36

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.
Please refer to separate catalogs for OMRON's safety 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.
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.

■ EUROPE
OMRON EUROPE B.V. Sensor Business Unit
Carl-Benz Str.4, D-71154 Nufringen Germany
Phone:49-7032-811-0 Fax: 49-7032-811-199
■ 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
■ 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
■ 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
OMRON Corporation

ⓞ OCT, 2009

OMRON

型号

E2B-□

接近传感器

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，充分了解产品。
- 为了您的方便，请妥善保管好本说明书。

© OMRON Corporation 2013 All Rights Reserved.

■额定/性能

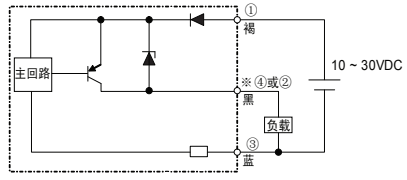
外形	M8				M12				M18				M30			
类型	屏蔽		非屏蔽		屏蔽		非屏蔽		屏蔽		非屏蔽		屏蔽		非屏蔽	
型号E2B-( )	S08□S01	S08□S02	S08□N02	S08□N04	M12□S02	M12□S04	M12□N05	M12□N08	M18□S05	M18□S08	M18□N10	M18□N16	M30□S10	M30□S15	M30□N20	M30□N30
检测距离(±10%)	1.5mm	2.0mm	2.0mm	4.0mm	2.0mm	4.0mm	5.0mm	8.0mm	5.0mm	8.0mm	10.0mm	16.0mm	10.0mm	15.0mm	20.0mm	30.0mm
设置距离	0 ~ 1.2mm	0 ~ 1.6mm	0 ~ 1.6mm	0 ~ 3.2mm	0 ~ 1.6mm	0 ~ 3.2mm	0 ~ 4mm	0 ~ 6.4mm	0 ~ 4mm	0 ~ 6.4mm	0 ~ 8mm	0 ~ 12.8mm	0 ~ 8mm	0 ~ 11.25mm	0 ~ 16mm	0 ~ 22.5mm
应差距离	检出距离的10%以下															
标准检出物体(铁)	□8×1mm	□8×1mm	□8×1mm	□12×1mm	□12×1mm	□12×1mm	□15×1mm	□24×1mm	□18×1mm	□24×1mm	□30×1mm	□48×1mm	□30×1mm	□45×1mm	□60×1mm	□90×1mm
响应频率	2,000Hz	1,500Hz	1,000Hz	1,000Hz	1,500Hz	1,000Hz	800Hz	800Hz	600Hz	500Hz	400Hz	400Hz	400Hz	250Hz	100Hz	100Hz

电源电压	10 ~ 30 VDC (包含10%脉动(p-p))
消费电流	最大10mA
负载电流	最大200mA ※
残留电压	最大2V (使用长度2m的电缆负载电流200mA以下)
动作模式	-B1/-C1型: NO ; -B2/-C2型: NC
指示灯	动作指示灯为黄色发光二极管
周围环境温度	动作&保存: -25 ~ 70℃(无结冰、结露)
环境湿度	动作&保存: 35% ~ 95%RH
保护构造	IP67

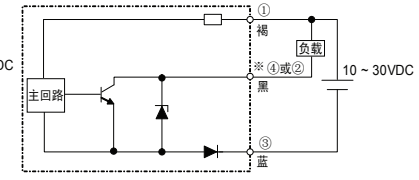
※M8型60~70℃: 最大100mA

■输出回路和接线

E2B-□-□-B□



E2B-□-□-C□



※E2B-S08□-MC-B/C□

※E2B-M12□-M1-B/C□
E2B-M18□-M1-B/C□
E2B-M30□-M1-B/C□

使用上的注意

(1) 请勿在以下场所使用：
①室外（诸如与直射阳光、雨、雪、水滴等直接接触的场所）
②化学药品特别是在溶剂、酸性蒸汽环境
③有腐蚀性气体的场合

(2) 在产生高频电场的超声波清洗设备、高频发生装置、无线对讲机・手机及变频器的周围，会发生误动作。
相关的代表对策请查阅传感器产品综合样本。

(3) 当与高压线、动力线混合在同一配线管、槽配线时，会由于感应引起误动作或损坏，请分开或单独配线。

(4) 请勿使用稀释剂溶解产品的表面。

安全上的注意

●警告表示的意思

⚠ 警告	如果不正确使用的话，此危险会导致轻度或者中度的伤害，也可能会导致重伤或者死亡的发生，并且造成重大的财务损失。

●警告表示

⚠警告

不可将传感器连接交流电源，有爆裂的危险。

安全上的要点

以下内容为确保安全使用之必要项目，请务必遵守。

(1) 请勿在可燃性、腐蚀性、爆炸性气体环境中使用。

(2) 请勿对本产品进行任何分解、修理、改造等。

(3) 下述误操作可能会导致产品爆炸或损坏：
①施加额定电压以上的电源
②负载短路
③电源极性反接或错误接线
④未接负载的情况下接通电源

(4) 废弃时，请作为工业废弃物处理。

使用上的注意

■周围金属的影响

接近传感器嵌入金属的情况时，请在表1所示数值以上使用。
未能保持这些距离可能会导致该传感器性能退化。

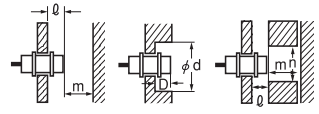


表1 (mm)

外形	M8				M12				M18				M30			
类型	屏蔽		非屏蔽		屏蔽		非屏蔽		屏蔽		非屏蔽		屏蔽		非屏蔽	
型号E2B-( )	S08□S01	S08□S02	S08□N02	S08□N04	M12□S02	M12□S04	M12□N05	M12□N08	M18□S05	M18□S08	M18□N10	M18□N16	M30□S10	M30□S15	M30□N20	M30□N30
ℓ	0	0	6	12	0	2.4	15	15	0	3.6	22	25	0	6	30	45
d	8	8	24	24	12	18	40	40	18	27	55	70	30	45	90	140
D	0	0	6	12	0	2.4	15	15	0	3.6	22	25	0	6	30	45
m	4.5	4.5	8	8	8	12	20	20	20	24	40	48	40	45	70	90
n	12	12	24	24	18	18	36	40	27	27	54	70	45	45	90	140

■相互干涉

2个以上的接近传感器相对或并列配置时，请在表2所示值以上使用。

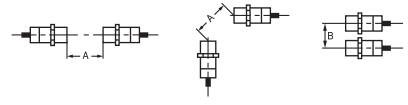


表2 (mm)

外形	M8				M12				M18				M30			
类型	屏蔽		非屏蔽		屏蔽		非屏蔽		屏蔽		非屏蔽		屏蔽		非屏蔽	
型号E2B-( )	S08□S01	S08□S02	S08□N02	S08□N04	M12□S02	M12□S04	M12□N05	M12□N08	M18□S05	M18□S08	M18□N10	M18□N16	M30□S10	M30□S15	M30□N20	M30□N30
A	20	20	80	80	30	30	120	120	50	60	200	200	100	110	300	350
B	15	15	60	60	20	20	100	100	35	35	110	120	70	90	200	300

■安装

不要用过大的力紧固螺丝。

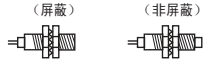


表3

外形	转矩
M8	7N·m
M12	12N·m
M18	30N·m
M30	50N·m

■安装孔和螺母尺寸

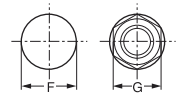


表4 (mm)

外形	F	G
M8	ϕ 8.5$^{+0.5}_{0}$	13
M12	ϕ12.5$^{+0.5}_{0}$	17
M18	ϕ18.5$^{+0.5}_{0}$	24
M30	ϕ30.5$^{+0.5}_{0}$	36

使用时的承诺事项

①为了确保安全，请勿将本产品直接或间接用于人体检测。需要使用该用途时，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，请与本公司营业担当商谈、并根据规格书等确认后，采用相对于额定性能留有一定余裕度的使用方法或者采取即使出现故障也能使危险度降低到最小的安全电路的对策。
a) 屋外使用、用于有潜在的化学污染或者有电气妨害时，或者是产品手册、使用说明书等没有记载的条件或环境中使用时
b) 用于原子能控制设备、焚烧设备、铁路・航空・车辆设备、医疗设备、娱乐器械、安全装置以及按照行政机关或个别业界规定制造的设备时
c) 用于可能危及生命、财产的系统・机械・装置时
d) 用于煤气、水道、电力供给系统或者24小时连续运转系统等的高可靠性设备时
e) 用于其他，以上述a)~d)为基准，需要高度安全性的用途时

*上述内容是适用条件的一部分。请参阅本公司综合产品手册・数据等最新版商品目录、手册中记载的保证・免责事项内容后再使用。

■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
电话：（86）21-5037-2222
技术咨询热线：400-820-4535
网址：http://www.fa.omron.com.cn

ⓐ 2011年3月