B-2271-2(0)

INSTRUCTION SHEET

EB3L-N Lamp Barrier

(Lamp and Buzzer Signal Transducer)

To make sure of correct installation, wiring, operation, maintenance, and inspection of the EB3L-N lamp barrier, read this instruction manual, manual No. **B-2272-1～8** for intrinsically safe system, and for use in Japan, additional manual No. **B-755, B-1738, B-757** for Pilot Light, Buzzer, Illuminated Switches.

Make sure that this manual be kept at the last user of the EB3L-N lamp barrier.

[Specifications]

Certification Body	Applicable Standard	Performance for Type of Protection	Manual No.
JAPAN	Recommended Practices for Explosion-Protected Electrical Installations in General Industries	[Ex ia Ga] IIC [Ex ia Da] IIIC	B-2272-1
IECEx	IEC 60079-11		B-2272-2
EU/ATEX UK/UKCA	EN 60079-11	II(1)G[Ex ia Ga] IIC II(1)D[Ex ia Da] IIIC	B-2272-3
USA/FM	Class 3610 ANSI/UL60079-11	AIS Cl. I,II,III Division 1, Groups A,B,C,D,E,F,G AIS Zone0,1 [AEx ia Ga]IIC,IIB,IIA	B-2272-4
North America /UL, c-UL	UL913 UL60079-11 CSA C22.2 No.157 CSA C22.2 No.60079-11	Cl. I,II,III Division 1, Groups A,B,C,D,E,F,G Cl. I, Zone0 [AEx ia Ga]IIC	B-2272-7
CHINA/Ex-CCC	GB/T3836.4	[Ex ia Ga] IIC [Ex ia Da] IIIC	B-2272-5
KOREA/KCS	IEC 60079-11		B-2272-6
TAIWAN/TS	IEC 60079-11		B-2272-8
NK	IEC 60079-11		※
KR	IEC 60079-11		※

※ : see No.B-2272-2, therefor Certificate Body not specified Manual.

Standard for equipment	IEC60947-5-1
Degree of Protection	IP20
Operating Temperature	-20 to +60°C (no freezing)
Operating Humidity	45 to 85% RH (no condensation)
Atmosphere	800 to 1100 hPa
Pollution Degree	2
Overvoltage category	II
Rated Power Voltage	100 to 240V AC, +10 or –15% , 24V DC ±10%
UL certified Rated Power Voltage	100 to 120V AC, +10 or –15% 50/60Hz 24V DC±10%(Class2 power supply)
Power Consumption	AC(approx.) 10.2 VA (EB3L-S10SAN at 200V AC) DC(approx.) 5.2 W (EB3L-S16CSDN at 24V DC)
UL certified Power Consumption	AC : (MAX)10.3 VA (EB3L-S10SAN at 120V AC) DC : (MAX)6.7W(EB3L-S16CSDN at 26.4V DC)
Inrush Current	AC: 10A (100V AC), 20A (200V AC) DC: 10A (24V DC)
Operation	Input ON: Output ON (1:1)
Signal Input	24VDC, 5mA <Connector Type: 24VDC, 4mA> Class2
Signal Output	12V DC, 10mA ※1 (n = number of lines per common) Wiring allowable resistance: Rc = 200Ω/(1+n) maximum
Dielectric Strength (1min,1mA)	Between intrinsically safe circuit and non-intrinsically safe circuit : 1527V AC Between AC power and input terminal : 1500V AC Except for between DC power and input terminal
Terminal Style	M3 screw terminal
Connector type Barrior Use connector	XG4A-2031(OMRON) <ACCESSORY(mating connector): XG4M-2030-T(OMRON)> Note: If you use anything other than an accessory connector, it will not be recognized as a UL certified product
Wire Size (per one terminal)	One wire : 0.5 to 2.1 mm² (AWG20 to 14) Two wires : 0.5 to 1.5 mm² (AWG20 to 16) (same size)
UL certified product Wire Size (per one terminal)	One wire : AWG16 to 14 (1.25 to 2.1 mm²) voltage rating minimum 125V,temperature minimum 75 deg.C Use Copper Conductors Only
Mounting	35mm-wide DIN rail or panel mounting (M4 screw)
Weight (approx.)	0.35 kg (EB3L-S16CSDN)

※1: (EB3P-L*): typ. 3.5V 8.5mA, (IPL1-*): typ. 2.0V 10mA, (EB3P-Z*): typ. 6.5V 5.5mA

[Safety Precautions]

Use the EB3L-N lamp barrier only for the protection of electrical equipment used in potentially explosive atmospheres. In this instruction manual, safety precautions are categorized in order of importance to Warning and Caution.

⚠ WARNING ***Improper operation may cause severe personal injury or death.***

- Special expertise is required to install, wire, operate, maintain, and inspect the EB3L-N lamp barrier. People without such expertise and knowledge in the installation of electrical equipment used in potentially explosive atmospheres and electric systems, relevant regulations, principle, function, and skill must not use the EB3L-N lamp barrier.
- Install the EB3L lamp barrier in non-hazardous areas.
- Make sure that the operating environment is in accordance with the specifications.

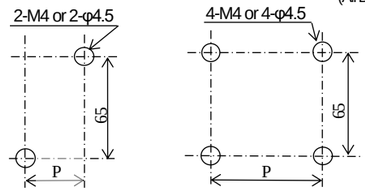
⚠ CAUTION ***Inattention might cause personal injury or damage to equipment.***

- Use the EB3L-N lamp barrier within the rated values of the specifications.
- Do not use the damaged EB3L-N lamp barrier, otherwise injury or fire may result.
- Indoor use
- When disposing of the EB3L-N lamp barrier, do so as an industrial waste.

[Installation]

< Mounting Hole Layout (Screw mounting) >

(All Dimensions in mm)



Housing Size A, B, C　　Housing Size D

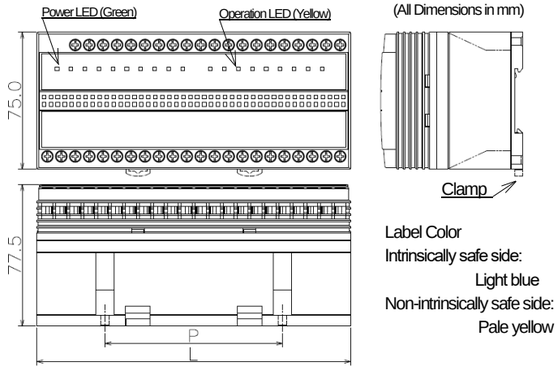
< Mounting Hole Dimensions >

Housing Size	Number of Circuits	P (mm)	L (mm)
A	1	28.0	42.0
B	2,3	51.0	65.0
C	5,6,8 common	97.0	110.5
D	8,10,16 common connector 16	97.0	171.5

< Outline Drawing >

▪Screw Terminal Type

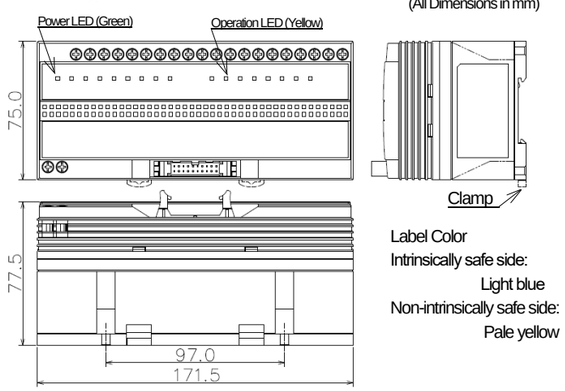
(All Dimensions in mm)



Label Color
Intrinsically safe side:
Light blue
Non-intrinsically safe side:
Pale yellow

▪Connector Type

(All Dimensions in mm)



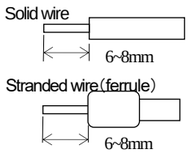
Label Color
Intrinsically safe side:
Light blue
Non-intrinsically safe side:
Pale yellow

[Instructions]

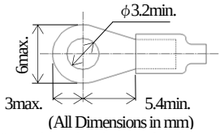
1) Mounting

- The EB3L-N lamp barrier can be installed in any direction.
- Install the EB3L-N lamp barrier securely to withstand vibrations.
- When mounting the EB3L-N lamp barrier onto a DIN rail, make sure to press in the clamp completely. Use the BNl6 mounting clips to prevent the EB3L-N lamp barrier from moving sideways.

< Stripping the Wire End >



< Applicable Crimping Terminal >



(All Dimensions in mm)

2) Terminal Wiring

- Provide IP20 for wiring of the EB3L-N lamp barrier. Use shielded wires for bare crimping terminals.
- Using a ø5.5 mm or smaller screw driver, tighten the screw to a torque of 0.6 to 1.0N·m.

3) Power voltage

- Do not apply an expressive power, otherwise the EB3L-N lamp barrier may be damaged.
- When connecting lamp barriers in parallel, always use the same power supply.

4) Power LED

- The power LED lights up in green when normal. If the power LED is red, stop using the barrier and replace it.

5) Signal Input(Non-intrinsically safe side)

- Connect to switches or output devices with a small leakage current (0.1 mA maximum).
- Do not apply a voltage to input terminals because a power supply is contained.

6) Wiring

- Separate the EB3L-N lamp barrier wiring from motor lines which cause noises. When the LED lamp blinks due to noises caused by an inductive load, insert a line filter into the power line. The line filter must be for the rated current of the lamp barrier or larger.

7) Extraneous Noise (EMC)

- Induction of excessive noise may cause malfunction and damage to the EB3C-N relay barrier.When the voltage limiting circuit (thyristor) inside the barrier operates due to noise, all LEDs are turned off and the output is turned off. If the voltage limiting circuit operates, it will not automatically recover, so take measures such as removing the noise source after shutting off the power supply to the barrier. If the noise has been removed, powering the barrier back on will restore normal operation.

8) Intrinsically safe devices installed in hazardous areas (Pilot Light, Buzzer, Illuminated Switch)

- Common wiring is not possible for the buzzer. Be sure to use separate wiring.
- Common wiring of up to 16 channels is possible for the illuminated switch, including the illuminated circuit that can be connected to the EB3L lamp barrier and the contact circuit that can be connected to the EB3C relay barrier.
- Intrinsically safe wiring of each unit must have insulation performance of 500V or more for grounding in hazardous areas.

[Wiring of Connector Type]

< Connection with PLC (FC6A series)>

EB3L-S16CSD-CN		FC6A-T16K3		EB3L-S16CKD-CN		FC6A-T16P3	
Terminal	Input	Output	Terminal	Terminal	Input	Output	Terminal
20	S1	Q0	20	20	S1	Q0	20
19	S9	Q10	19	19	S9	Q10	19
18	S2	Q1	18	18	S2	Q1	18
17	S10	Q11	17	17	S10	Q11	17
16	S3	Q2	16	16	S3	Q2	16
15	S11	Q12	15	15	S11	Q12	15
14	S4	Q3	14	14	S4	Q3	14
13	S12	Q13	13	13	S12	Q13	13
12	S5	Q4	12	12	S5	Q4	12
11	S13	Q14	11	11	S13	Q14	11
10	S6	Q5	10	10	S6	Q5	10
9	S14	Q15	9	9	S14	Q15	9
8	S7	Q6	8	8	S7	Q6	8
7	S15	Q16	7	7	S15	Q16	7
6	S8	Q7	6	6	S8	Q7	6
5	S16	Q17	5	5	S16	Q17	5
4	C1 (COM+)	COM(-)	4	4	C1 (COM+)	COM(+)	4
3	NC	COM(-)	3	3	NC	COM(+)	3
2	C2 (+V)	+V	2	2	C2 (-V)	–V	2
1	NC	+V	1	1	NC	–V	1

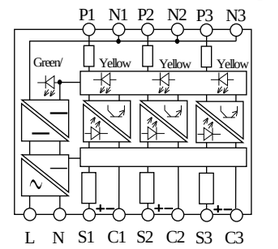
(Note) A dotted line is not related to operation.

Applicable Connector : XG4M-2030-T(OMRON)

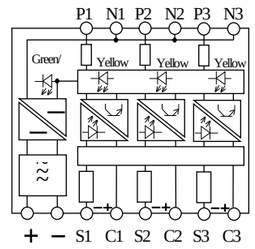
Note:

- The power supply to the PLC output module is supplied from the lamp barrier, so there is no need to connect a separate power supply to the PLC output module.

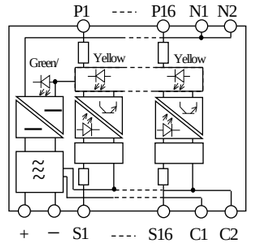
[Internal Circuit Block Diagram]



< Ex.1 AC power source input >



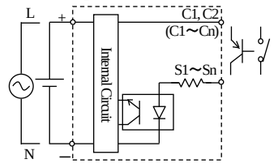
< Ex.2 DC power sink input >



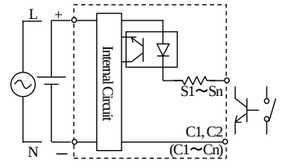
< Ex.3 Connector Type Source input >

[Input Circuit]

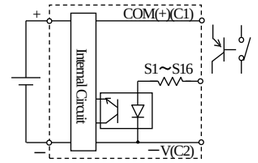
Sink Input



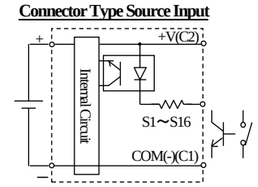
Source Input



Connector Type Sink Input



Connector Type Source Input



Please check the instruction manual including other languages from the following URL.

URL :https://product.idec.com/?product=EB3L-N

IDEC CORPORATION http://www.idec.com

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