

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-1341-1~8** for intrinsically safe system, and for use in Japan, additional manual No. **B-755, B-756, 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 |
|--------------------|--|--|-------------|
| TIIS | International explosion protecting guideline | [Ex ia] IIC | No.B-1341-1 |
| IECEX(PTB) | IEC 60079-11 | [Ex ia Ga] IIC / [Ex ia Da] IIIC | No.B-1341-2 |
| ATEX(PTB) | EN 60079-11 | II(1)G[Ex ia Ga] IIC / II(1)D[Ex ia Da] IIIC | No.B-1341-3 |
| FM | 3610 | [I/O] AEx[ia] IIC ※1 | No.B-1341-4 |
| Ex-CCC | GB3836.1 GB3836.4 | [Ex ia Ga] IIC | No.B-1341-5 |
| NK | Ship's classification | [Ex ia] IIC | ※2 |
| KCS | IEC 60079-11 | [Ex ia] IIC/[Ex iaD] | No.B-1341-6 |
| UL, c-UL | UL913, CSA C22.2 No.157 UL60079-0, CSA C22.2 No.60079-0 UL60079-11, CSA C22.2 No.60079-11 UL61010-1, CSA C22.2 No.61010-1 | CL I Gr A,B,C,D; CL II Gr E,F,G; CL III [AEx ia] IIC [Ex ia] IIC | No.B-1341-7 |
| TS | IEC 60079-11 | [Ex ia] IIC/[Ex ia] IIIC | No.B-1341-8 |
| KR | IEC 60079-11 | [Ex ia] IIC/[Ex ia] IIIC | ※3 |

※1 : and AIS Cl. I, II, III, Div. 1, Gr. A,B,C,D,E,F,G
 ※2 : see No.B1341-1, therefor Certificate Body not specified Manual.
 ※3 : see No.B1341-2, therefor Certificate Body not specified Manual.

| | |
|------------------------------|--|
| Standard for equipment | IEC60079-11, 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 |
| Rated Power Voltage | 100 to 240V AC, +10 or -15% , 24V DC ±10% |
| Power Consumption | AC(approx.) 10.2 VA (EB3L-S10SAN at 200V AC) DC(approx.) 5.2 W (EB3L-S16CSDN at 24V DC) |
| Inrush Current | AC: 10A (100V AC), 20A (200V AC) DC: 10A (24V DC) |
| Operation | Input ON: Output ON (1:1) ※4 |
| Signal Input | 24VDC, 5mA <Connector Type: 24VDC, 4mA> Class2 DC power supply voltage : Rated voltage -1.2V |
| Signal Output | 12V DC, 10mA (n = number of lines per common) Wiring allowable resistance: Lw = 200Ω/(1+n) maximum |
| Dielectric Strength | Between intrinsically safe circuit and non-intrinsically safe circuit : 1526.4V AC※6 Between AC power and input terminal : 1500V AC※6 Except for between DC power and input terminal |
| Terminal Style | M3 screw terminal |
| Connector(Barrior) | JE1H-202 (IDEC) / XG4A-2031(OMRON) <ACCESSORY(mating connector): JE1S-201(IDEC) / XG4M-2030-T(OMRON)>※7 |
| Wire Size (per one terminal) | One wire : 0.5 to 2.0 mm ² (AWG20 to 14) Two wires : 0.5 to 1.5 mm ² (AWG24 to 16) (same size) |
| Mounting | 35mm-wide DIN rail or panel mounting (M4 screw) |
| Weight (approx.) | 0.35 kg (EB3L-S16CSDN) |

※4: When the protection circuit for the intrinsically safe explosion protection is actuated, all LEDs and all outputs turn off.

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

※6: Leak current less than 5mA

※7: Connector type only. If used as UL Listed product, please use

"HIF3BA-20D-2.54R(HIROSE)" / "XG4M-2030-T(OMRON)" for the mating connector.

Additional Items for UL and c-UL Listing

| | |
|------------------------------|--|
| Overvoltage category | II |
| Rated Voltage | 100 to 120V AC, +10 or -15% 50/60Hz 24V DC±10%(Class2 power supply) |
| Power Consumption | AC: (MAX)10.3 VA (EB3L-S10SAN at 120V AC) DC: (MAX)6.5W(EB3L-S16CSDN at 26.4V DC) |
| Mating Connector | HIF3BA-20D-2.54R(HIROSE) / XG4M-2030-T(OMRON) ※7 |
| Wire Size (per one terminal) | One wire : AWG16 to 14 (1.25 to 2.0 mm ²) voltage rating minimum 125V, temperature minimum 70 deg.C |

< 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.

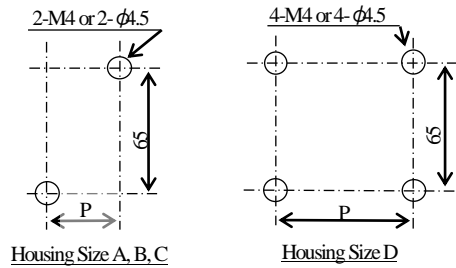
•Do not use the damaged EB3L-N lamp barrier, otherwise injury or fire may result.

•Indoor use

•When disposing of the EB3L-N lamp barrier, do so as an industrial waste

[Installation]

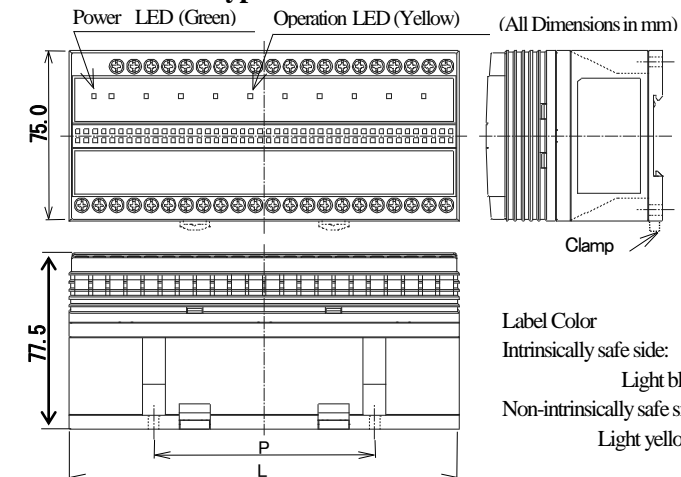
< Mounting Hole Layout (Screw mounting) > (All Dimensions in mm)



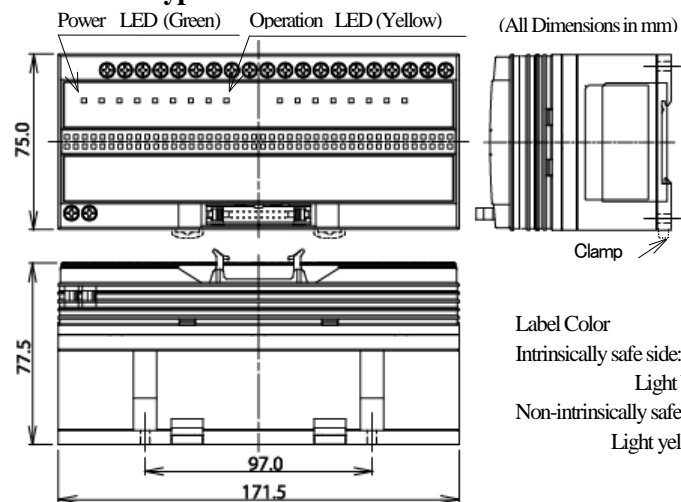
< Mounting Hole Dimensions >

| 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 |

•Screw Terminal Type



•Connector Type



[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 BNI6 mounting clips to prevent the EB3L-N lamp barrier from moving sideways.

2) Terminal Wiring

- Provide IP20 for wiring of the EB3L-N lamp barrier. Use shielded wires for bare crimping terminals.
- Using a φ5.5 mm or smaller screw driver, tighten the screw to a torque of 0.6 to 1.0N·m.

3) Power

- Do not apply an expressive power, otherwise the EB3L-N lamp barrier may be damaged.
- AC power type may operate at a low voltage (20V AC).

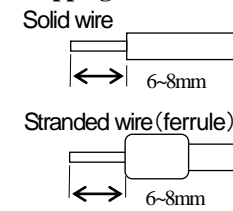
4) Signal Input

- 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.

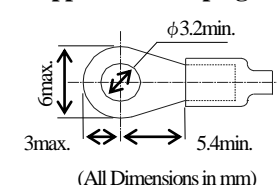
6) Wiring

- 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.
- When the protection circuit has been actuated, remove the cause and power up again.

< Stripping the Wire End >

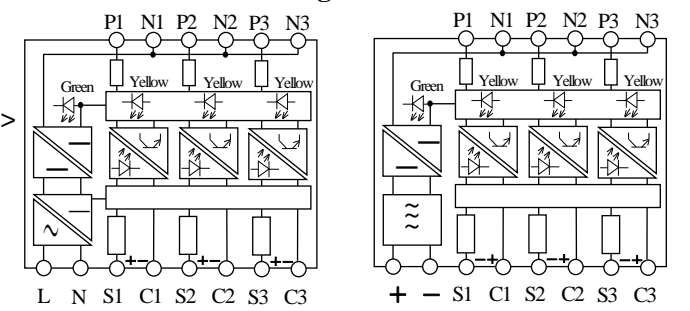


< Applicable Crimping Terminal >

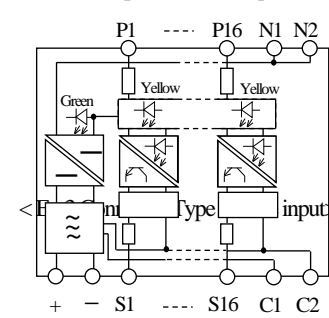


AVERTISSEMENT - Afin d'éviter l'inflammation d'atmosphères explosives, débranchez l'alimentation avant de procéder à l'entretien de l'appareil

[Internal Circuit Block Diagram]



< Ex.1 AC power source input >



< Ex.2 DC power sink input >

[Wiring of Connector Type]

< Connection with PLC (FC4A series)>

| EB3L-S16CSD-CN | | FC4A-T16K3 | | EB3L-S16CKD-CN | | FC4A-T16S3 | |
|----------------|----------|------------|----------|----------------|----------|------------|----------|
| Terminal | Input | Output | Terminal | Terminal | Input | Output | Terminal |
| 20 | S1 | Y0 | 20 | 20 | S1 | Y0 | 20 |
| 19 | S9 | Y10 | 19 | 19 | S9 | Y10 | 19 |
| 18 | S2 | Y1 | 18 | 18 | S2 | Y1 | 18 |
| 17 | S10 | Y11 | 17 | 17 | S10 | Y11 | 17 |
| 16 | S3 | Y2 | 16 | 16 | S3 | Y2 | 16 |
| 15 | S11 | Y12 | 15 | 15 | S11 | Y12 | 15 |
| 14 | S4 | Y3 | 14 | 14 | S4 | Y3 | 14 |
| 13 | S12 | Y13 | 13 | 13 | S12 | Y13 | 13 |
| 12 | S5 | Y4 | 12 | 12 | S5 | Y4 | 12 |
| 11 | S13 | Y14 | 11 | 11 | S13 | Y14 | 11 |
| 10 | S6 | Y5 | 10 | 10 | S6 | Y5 | 10 |
| 9 | S14 | Y15 | 9 | 9 | S14 | Y15 | 9 |
| 8 | S7 | Y6 | 8 | 8 | S7 | Y6 | 8 |
| 7 | S15 | Y16 | 7 | 7 | S15 | Y16 | 7 |
| 6 | S8 | Y7 | 6 | 6 | S8 | Y7 | 6 |
| 5 | S16 | Y17 | 5 | 5 | S16 | Y17 | 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 : JE1S-201(IDEC) / XG4M-2030-T(OMRON)

Note:

- * When connecting multiple barrier in parallel, use one power supply to power the barrier.
- * Terminals C1 and C2 are external power supply terminals which can supply a maximum current of 50 mA to an external device such as a PLC.

WARNING - Substitution of components may impair intrinsic safety
 AVERTISSEMENT - La substitution de composants peut compromettre la sécurité intrinsèque de l'appareil.
 WARNING - To prevent ignition of explosive atmospheres disconnect power before servicing