

Type EB3L-N Relay Barrier (alias Lamp Barrier)

For Intrinsically Safe System [Ex ia Ga]IIC, [Ex ia Da]IIIC

When installing an IDEC Type EB3L-N Relay Barrier (thereafter, called Barrier), make sure it conforms to the following drawings and descriptions as well as all applicable requirements.

IEC Standard IEC 60079-0:2017(Ed.7), IEC 60079-11:2011(Ed.6), IEC 60079-25:2010(Ed.2), IEC 60079-14:2013(Ed.5)
All intrinsically safe systems must have "EB3L-N" in the part number. Barrier must be located in a safe area (non-hazardous area). The intrinsically safe apparatus, such as the Contact certificated, approved or considered to be a "simple apparatus" such as the Switch specified by standard, may be located in the hazardous area.

- **Servicing – Replacement and Repairs:** Inspection and replacement of Barrier shall not be made until power is disconnected and shall not be connected again until all replacement Barrier are properly re-assembled. All electrical components, including the interconnecting wiring, shall be kept in safe condition. Defective Barrier should be returned to the factory for repair.

Warning ! *Substitution of components or unauthorized repair may impair intrinsic safety of apparatus.*

To maintain intrinsic safety, the Signal output terminal (Pn-Nn) may only be connected to intrinsically safe circuits where both the wiring and the connected equipment maintain 500 V isolation to the hazardous area earthing/bonding connections.

- **Mounting :** All bolts, nuts, screws, and other means of fastening, including the unused wiring screws, shall be fastened in place, properly tightened and secured. Mount Barrier on a 35mm track or directly mount on a panel surface using screws.

- **Certified Barrier:** Type EB3L-abcdeN "EB3L-...N"= Series type

a = Output **S:** for Supper LED b = channels **01, 02, 03, 05, 06, 08, 08C, 10, 16C**(C: common wiring only)

c = Signal type **K:** Sink, **S:** Source d = Power supply **A:** 100~240Vac, **D:** 24Vdc e = connection Blank: Terminal, **-C:** Connector

- **Rating and Parameters of I.S.**

Ta= 60°C, Um= 250V, Uo=13.2V, Io= 14.2mA, Po= 46.9mW at each channel Pn-Nn

Io=227.2mA, Po= 750mW at max 16 channels Pn-Nn

Io(mA)	14.2	28.4	42.6	56.8	71.0	85.2	99.4	113.6	127.8	142.0	156.2	170.4	184.6	198.8	213.0	227.2	Combined Lo(mH)	Note 2 The intrinsic safe apparatus and wirings shall be accordance to following formulas; for examples, $U_i \geq U_o$ $I_i \geq I_o$ $P_i \geq P_o$ $C_i + C_c \leq C_o$ $L_i + L_c \leq L_o$
Po(mW)	46.9	93.8	140.6	187.5	234.3	281.2	328.1	374.9	421.8	468.6	515.5	562.4	609.2	656.1	702.9	750	1.0	
Co(μF)	0.67	0.65	0.63	0.61	0.59	0.57	0.55	0.53	0.51	0.49	0.47	0.44	0.42	0.39	-	-	0.5	
	0.79	0.77	0.76	0.75	0.73	0.72	0.70	0.69	0.67	0.66	0.64	0.62	0.61	0.59	0.57	0.55	0.5	
	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.93	0.92	0.91	0.90	0.88	0.87	0.86	0.85	0.84	0.2	
	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.1	

Note 1 Added to above table, the next values combined Lo and Co are allowable;

Io(mA)	14.2								28.4								227.2							
Lo(mH)	176*	88.0	2.50	1.60	0.84	0.48	0.25	44.0*	22.0	3.50	1.40	0.76	0.45	0.25	0.68*	0.68	0.60	0.42	0.30	0.22	0.15			
Co(μF)	0.94*	0.47	0.55	0.60	0.70	0.80	0.94	0.94*	0.47	0.48	0.60	0.70	0.80	0.93	0.94*	0.45	0.49	0.60	0.70	0.80	0.94			

*: Therefore, the values are allowable only at $L_i \leq 1\% L_o$ or $C_i \leq 1\% C_o$ of the intrinsic safe apparatus.

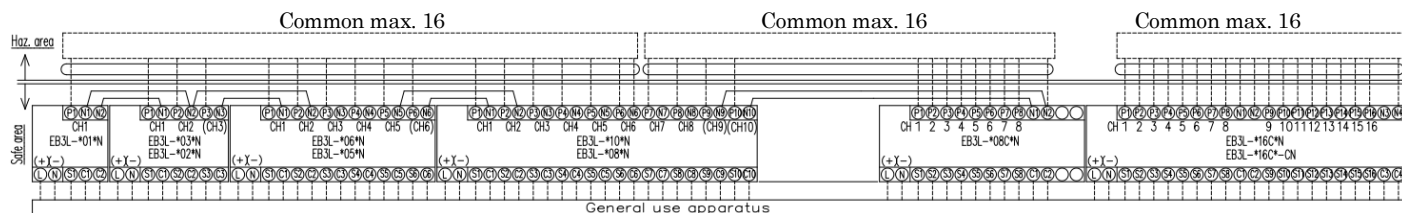
- **Typical Installation:** Install Barrier must be according to the above Ratings and Parameters of I.S. and descriptions.

To avoid electrical shock, install Barrier in a tool-accessible enclosure. Layout and wiring must be done to prevent the inductive or capacitive induction to the intrinsically safe circuit. For example, separate intrinsically safe circuits from non-intrinsically safe circuits, by a minimum space of 50mm or using a full height metal separator. If color-coding is required use for the intrinsic safe components and terminals, use only cables and terminals with light blue markings. Interconnection between the Barriers to setting Common Wiring: connect two independent wires in parallel at each two "N" terminals between adjacent the Barrier inside the panel. Maintain at least 3 mm clearance between the external connection terminals and the grounded metal part. Maintain at least 3 mm clearance between the external connection terminals and the grounded metal part.

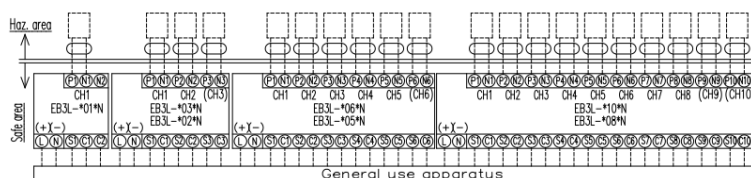
- **Dielectric Strength:** Between intrinsically safe circuit and non-intrinsically safe circuit 1526.4V AC.

Example of connections: The marks indicate the samples of single intrinsic safe circuits, and marks indicate IS apparatus.

Common Wiring (e.g. Io=227.2mA with 16 channels)



Separate Wiring (e.g. Io=14.2mA with 1 channel)



• Operating rating

Power input	EB3L-...A.	Terminal L - N	100 ~ 240V AC
	EB3L-...D.	Terminal + - -	24V DC
Signal	output	EB3L-S-...	Terminal Pn - Nn
	input	EB3L-...S.	Terminal / Connector
		EB3L-...K.	Sn, - Cn
			24V DC, 10mA (sink)