Explosion-Proof Safety Barrier
Model LX-05BRR

DANGER	Make sure to use the tension detector Model LX-TD-909 (intrinsic safety, explosion-proof type).
Otherwise, explosion may occur. Make sure to use the tension detector Model LX-TD-909 (intrinsic safety explosion-proof type).	

1. Outline of Product

The safety barrier Model LX-05BRR which is used as a pair together with the tension detector Model LX-TD-909 satisfies the explosion-proof specification in the JIS C-0934, and is certified to be used in an explosive atmosphere specified by the Industrial Safety Technology Institute ,JAPAN (Target explosive gas: Explosion class IIB, Ignition temperature T4).

When the tension is detected in an explosive gas such as coater, laminator, etc., a safety barrier is to be connected between a tension meter (or tension controller) and a tension detector LX-TD-909.

In an atmosphere in which danger of explosion is present, use of any tension detector other than a tension detector LX- □□□ TD-909 which is qualified in the form of combination with the LX-05BRR is not allowed.

2. Installation

DANGER	Install a safety barrier and other unit sin a non-dangerous place.
Otherwise, explosion may occur. Make sure to install a safety barrier, a tension meter and a tension controller in a non-dangerous place in which danger of inflammation or explosion is not present.	

DANGER	Never modify the unit.
Otherwise, explosion may occur. Never modify or change a safety barrier and a tension detector. However, cables may be cut.	

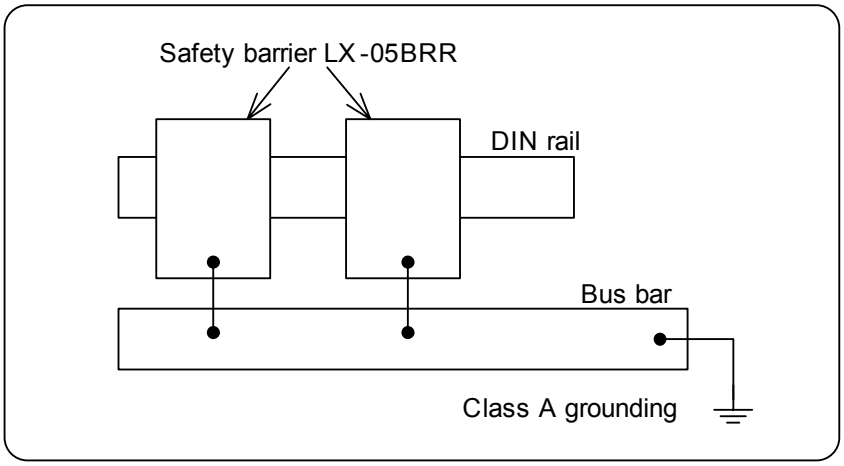
DANGER	Install a safety barrier correctly in conformance to the guideline given by the National Institute of Industrial Safety Institute of the Ministry of Labor,JAPAN.
If a safety barrier is installed incorrectly not in conformance to the guideline, explosion may occur. Much constraint is imposed on an intrinsic safety explosion-proof equipment due to its performance.	

2.1 Cautions on installation

(1) One safety barrier is required for each tension detector.

(2) A safety barrier is to be accommodated in a container of IP 20 or more when used.

2.2 Installation



• Attach a safety barrier to a DIN rail or fix it with M4 screws.

• Perform Class A grounding (10Ω or less) to an either terminal E of the safety barrier using a bus bar. Class A grounding is equivalent to Class 1 grounding specified by the conventional Electrical Equipment Technical Standards. Class D grounding is equivalent to Class 3 grounding.

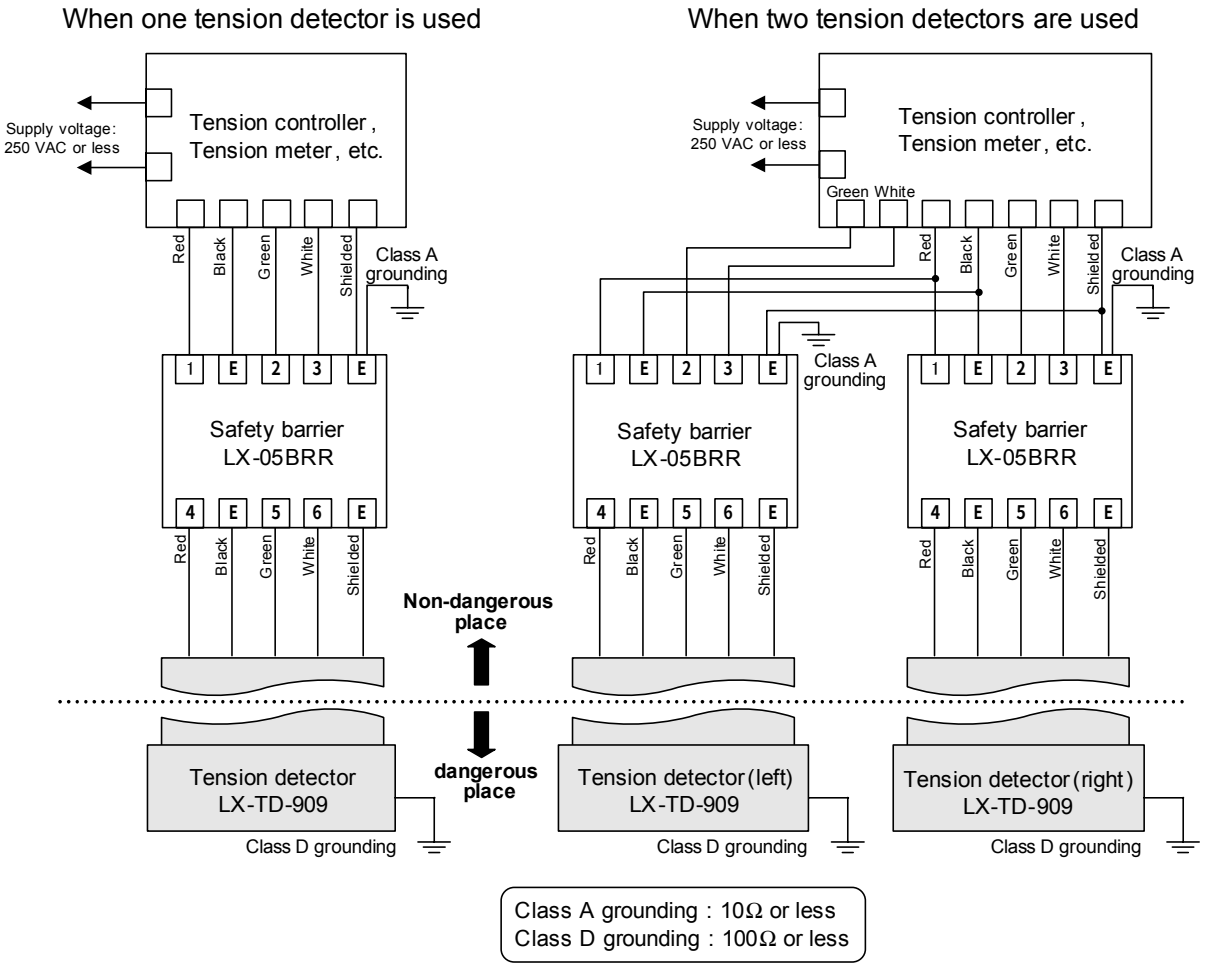
3. Wiring

3.1 Cautions on wiring

DANGER	Perform wiring correctly in conformance to the guideline given by the Industrial Safety Institute of the Ministry of Labor.
If a safety barrier is installed incorrectly not in conformance to the guideline, explosion may occur. For the details of the wiring work, refer to RECOMMENDED PRACTICES for Explosion-Protected Electrical Installation in General Industries Guideline 2500 "Wiring Work for Intrinsic safety Circuits and Related Circuits".	

DANGER	Perform the protecting tube work while wiring an intrinsic safety circuit. As grounding of a safety barrier, perform Class A grounding individually. Make sure that the wiring inductance of a safety barrier and a tension detector is 1 mH or less and that the capacitance is 1 μF or less.
Otherwise, explosion may occur caused by electromagnetic induction, mixed contact, etc.	

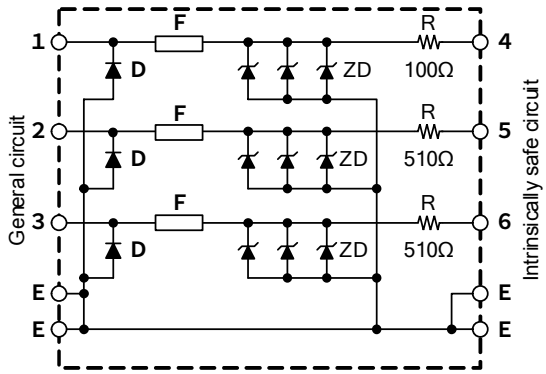
3.2 Wiring diagram



4. Maintenance and Inspection

(1) A safety barrier is so designed that a built-in fuse F is blown out and the circuit is shut down if voltage not less than 6 V is applied between the terminal 1 and a terminal E, between the terminal 2 and a terminal E or between the terminal 3 and a terminal E.

Fuses built in a safety barrier cannot be re placed. Because the reliability of the explosion-proof function may not be maintained if fuses are replaced. Accordingly, if a fuse inside a safety barrier is blown out, replace the safety barrier itself.



(2) When checking a safety barrier, perform the conductivity check to the following positions using a low-voltage tester (5 V or less).

- The resistance between terminals E and E or between a terminal E and a mounting screw should be 0 Ω.
- The resistance between the terminals 1 and 4 or should be approximately 107 Ω.
- The resistance between the terminals 2 and 5 or between the terminals 3 and 6 should be approximately 517 Ω.
- The resistance between the terminal 2 and a terminal E or between the terminal 3 and a terminal E should be 5 MΩ or more.

5. Specifications

System configuration

1) Explosion-proof tension detector LX- □□□ TD-9091 unit (installed in a dangerous place)
2) Safety barrier LX-05BRR 1 unit (installed in a non-dangerous place)

Explosion-proof structure

Intrinsic safety explosion-proof structure Ex, ia, IIB, T4

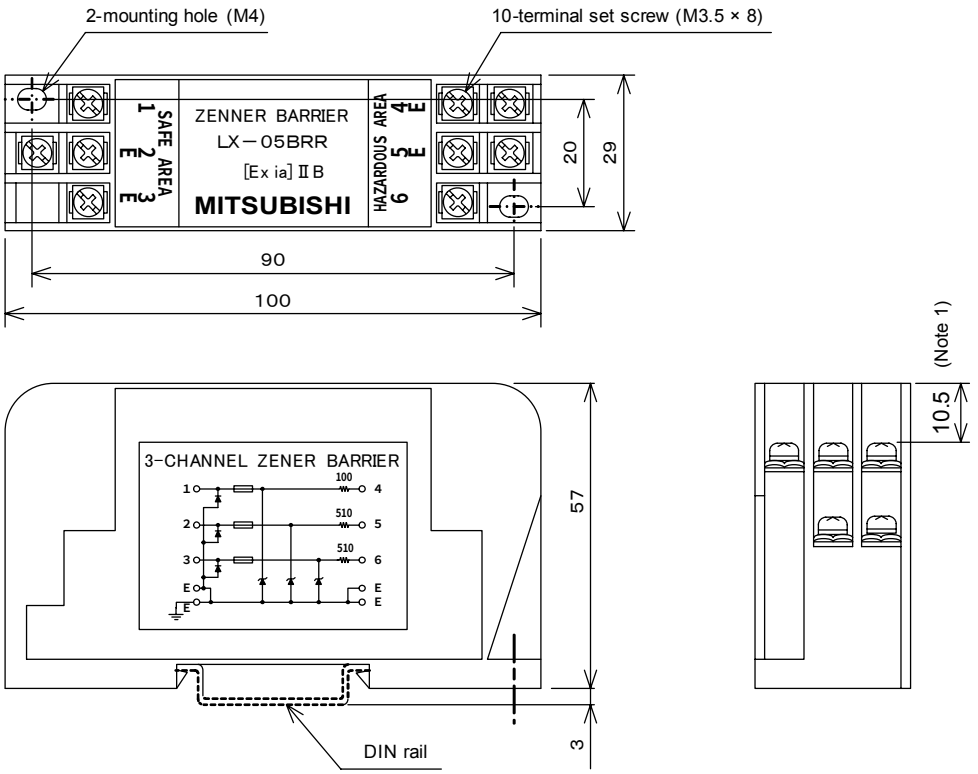
Classification of applicable explosive gases

Temperature class		T1	T2	T3	T4	T5
		More than 450°C	More than 300°C and not more than 450°C	More than 200°C and not more than 300°C	More than 135°C and not more than 200°C	
Classification	II A	Aceton Ethyl acetate Benzene Carbon monoxide O-xylene Methanol Propane Toluene	Ethanol Butyl acetate Ethyl benzene 1-butanol N.N dimethylformalde-hyde	Hexane Cyclohexane Gasoline	Acetaldehyde Trithyramine	
	II B		Ethylene		Methyl ethyl ether Diethyl ether	
	II C	Hydrogen				Carbodisulfide

Gases shaded in the table above are regarded as targets.
Hydrogen of the explosive gas classification áUC and carbon disulfide of the temperature class T5 or more are not regarded as targets.

Items	Specifications
Safety barrier allowable voltage	250 VAC/DC
Rated operating voltage	5 VDC
Intrinsic safety circuit wiring	Intrinsic safety circuit external wiring inductance : 1 mH or less Intrinsic safety circuit external wiring capacitance : 1 μF or less
Each phase resistance	Between terminals 1 and 4 : Approx. 107 Ω (104 to 110 Ω) Between terminals 2 and 5 or 3 and 6: Approx. 517Ω (506 to 527Ω) Between terminals E and E : Approx. 0 Ω (0.2 Ω or less)
Vibration resistance	Double vibration amplitude = 3 mm, 600 to 1,800 times/min (2 hours in each of X, Y and Z directions)
Impact resistance	98m/s^2 (10 times in each of X, Y and Z directions)
Ambient operating temperature	-10 to +40Åé
Ambient operating humidity	35 to 90%RH (No condensation is allowed.)
Installation place	Non-dangerous place
Grounding work	Class A grounding (10 Ω or less)
Weight	Approx. 190 g

6. Outside Dimensions



If the protection class IP 20 is not satisfied while the external wiring is connected to the external wiring connection area of a safety barrier, accommodate the safety barrier in a container of IP 20 or more. (The outside dimension marked as "Note 1" of the safety barrier shall be 7 mm or more in the status in which terminals are attached.)