Programmable transmitters T3110Ex, T3111Ex, T3113Ex with 4 - 20 mA outputs are designed for measurement of relative humidity and temperature in a potentially explosive environments.

Electrical equipments for use in potentially explosive atmospheres are special devices that can be a source of potential danger. Such devices must be designed, installed, operated and maintained so as to not cause the explosion in potentially explosive atmosphere. The basic information about equipments intended for use in the potentially explosive atmosphere contains 94/9/EC (ATEX) Directive.

Potentially explosive atmosphere is an area, in which could be present the mixture of air and flammable substances (gas, vapor, mist, combustible dust) in such concentration, that it may catch fire. Explosion may be initiated by a spark or hot surface.

T311xEx transmitters are intrinsically safe. It is a way of equipment protection, which is based on the limitation of energy (electrical and thermal) at a level lower than the level that could cause ignition a specific hazardous atmospheric mixture.

The principle of intrinsic safety equipment lies in limitation of the amount of electric energy supplied to electric circuits from power source and energy accumulated into parts of electric circuits. Intrinsically safe zener barriers and intrinsically safe isolation amplifiers are an elemental types of intrinsically safe interfaces designed to protect electrical circuits installed in a potentially hazardous areas.

Transmitters T311xEx in compliance with European Directive 94/9/EC conforms to European Standards EN 60079-0:2012 and EN 60079-11:2012.

- Type Examination Certificate: **FTZÚ 13 ATEX 0189X**
- Marking: ⟨Ex⟩ **II 3G Ex ic IIC T6 Gc**

Explanations:

II The product is intended to surface sites with the presence of explosive atmospheres.

3G The product is intended for use in areas where an explosive mixture of gas (vapour, mist) and air is not likely to occur in normal operation and if it occurs it will exist only for a short time.

Ex It identifies that a protection mode against explosions has been adopted.

ic The protection mode by intrinsic safety according standard EN 60079-11

IIC The product is intended to surface sites with the presence of explosive atmosphere - subgroup of C gas

T6 The temperature class (maximum surface temperature of the device is 85 °C at ambient temperature 60 °C)

Gc Equipment protection level (equipment for use in explosive atmospheres due to the presence of gas, with a level of protection "increased" that is not a source of ignition in normal operation).

The principle of connecting the T311xEx transmitters using the Zener barriers is shown in Figure. Each current loop consist of a power supply, evaluation device, Zener barrier, transmitter and connecting wires.
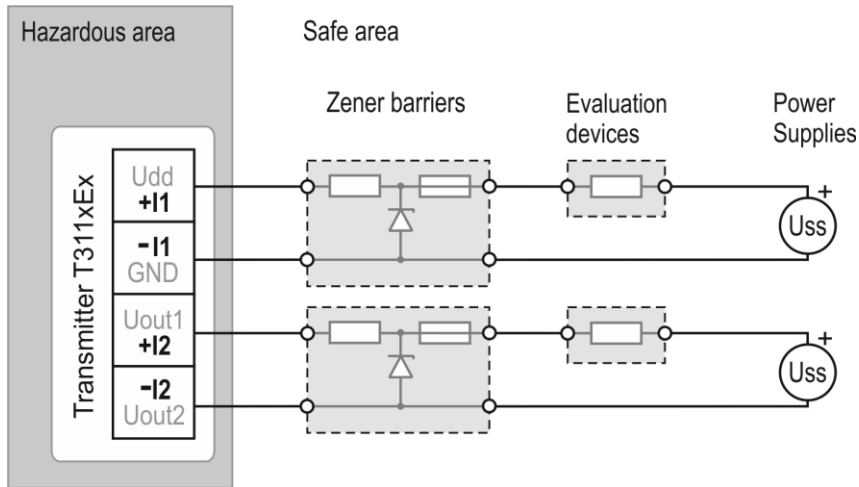

- The values of the safety parameters Uo and Io of Zener barriers must be less than the values of intrinsically safe parameters Ui = 30 V Ii = 100 mA of the transmitter (see certificate).

- The power supply voltage is chosen such that at maximum current Io = 22 mA (see certificate) does not drop the voltage at the terminals of the transmitter below 9 V.

- The loop I1 serves also the power supply for the device and therefore must always be connected.

- Installation, commissioning and maintenance may be carried out by personnel with qualification by applicable regulations and standards.

Example of the T311xEx transmitter connection to Ethernet with using the P2520 transmitter (COMET) and the Zener barriers type JBB 7087+ (MM GROUP).
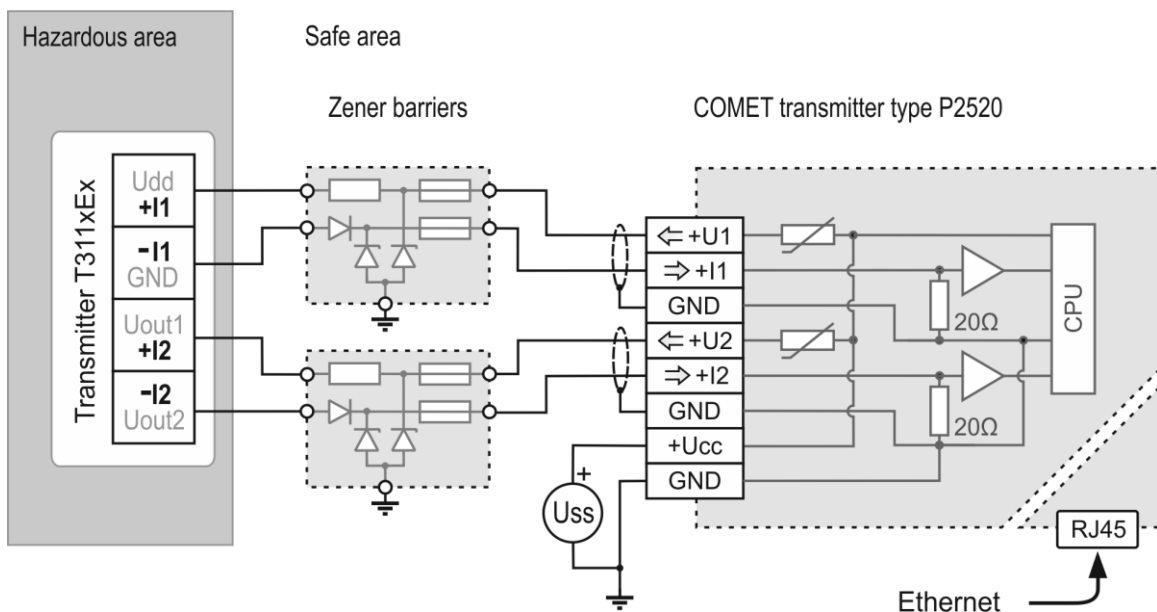
Example of the T311xEx transmitter connection to the inputs of monitoring and data logging system MS55 (COMET) using Zener barriers type JBB 7087+ (MM GROUP)
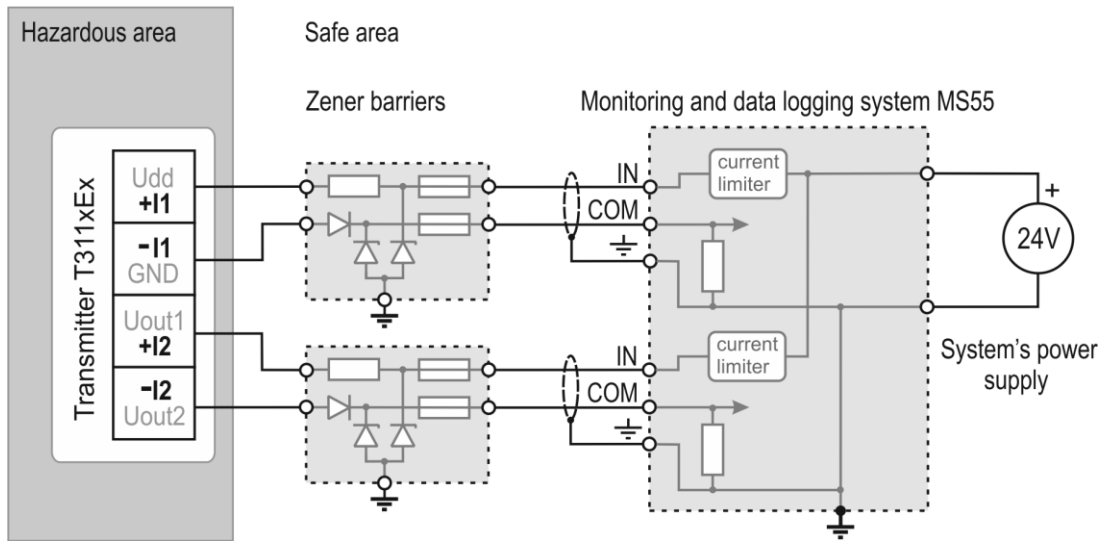
Example of the T311xEx transmitter connection to the inputs of monitoring and data logging system MS6 (COMET) using Zener barriers type JBB 7087+ (MM GROUP).
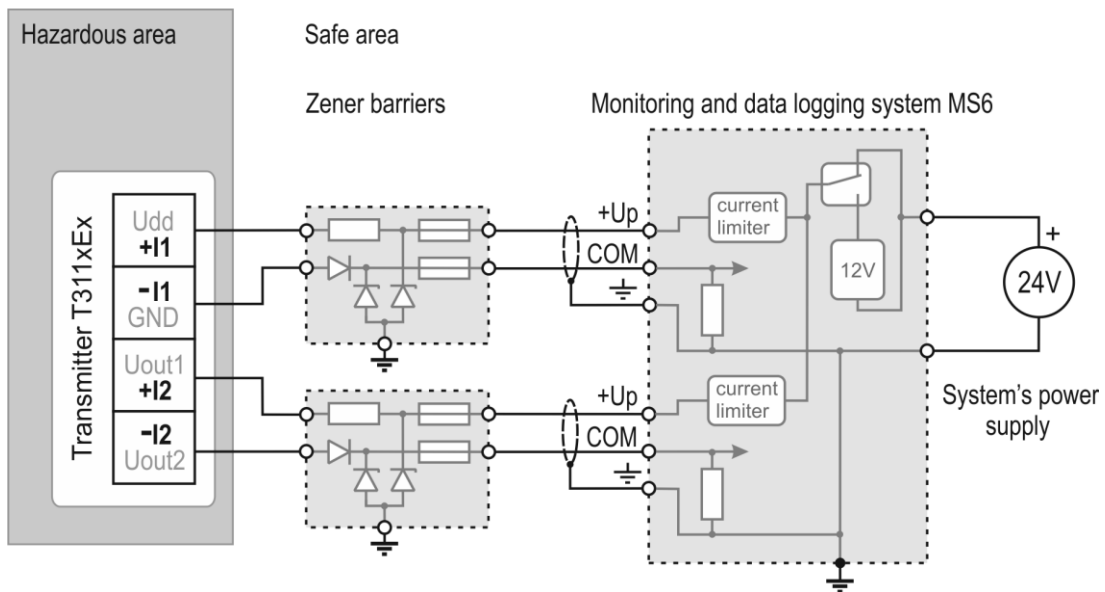
More detailed information can be found at: www.cometsystem.cz

www.mmgroup.cz