



Authorized Distributor



Safety Barrier



# TX10 ISOLATED SAFETY BARRIER

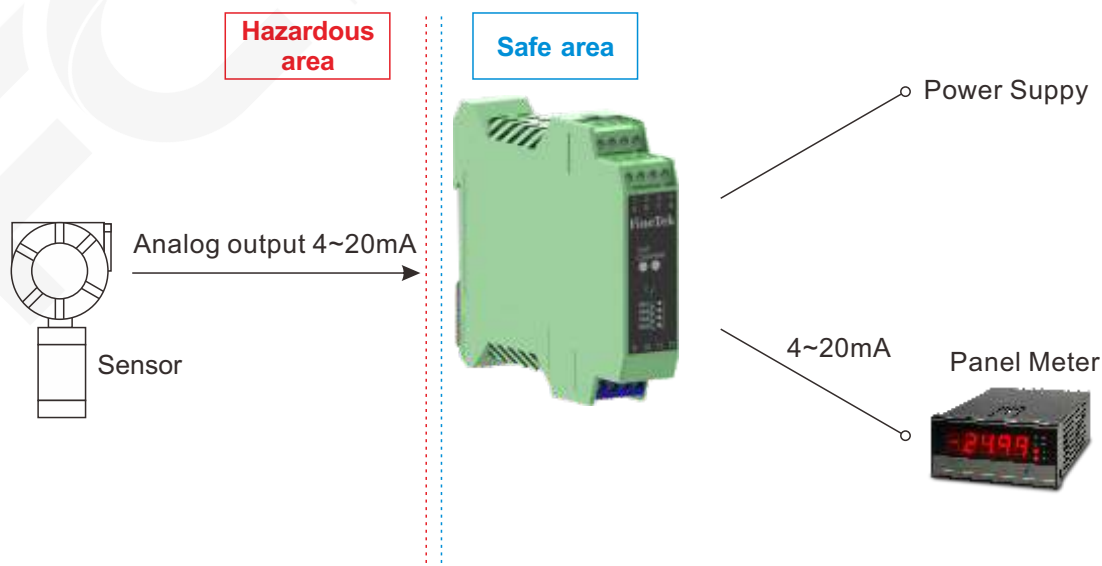
## OPERATING PRINCIPLE

Isolated safety barrier provides power supply to transmitters located in hazardous zone and transmit isolated supply current signal to safe zone. Max. input 0~20mA which can be transformed to different analog outputs, such as 0~20mA / 4~20mA / 0~5V / 0~10V.

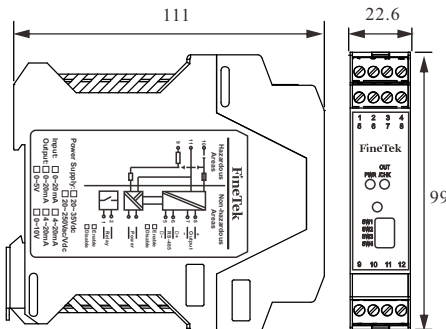
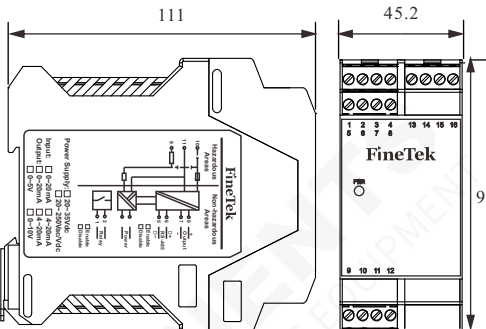
## FEATURES

- 1 current input port to connect with continuous current or current output products. Applicable for use in hazardous zone.
- 3 output ports - relay output, current output, and RS-485.
- LED indicator, user friendly.
- DIP switch for function selection.
- In house programming per customers' criteria.
- Self-test function for system function monitoring.
- Setting relay output as alarm for optional external sensing unit connection.
- Optional RS-485 interface enables easy system configuration & supply current data retrieve.
  - \* RS485(only for host communication) when multiple TX1 safety barriers operating parallelly, the max. quantity for parallel connection is 20 units.
- Product design complies with explosion proof standard.
- 2 dual-color LEDs
  - ▶ PWR LED: Green - Normal  
Red - Abnormal
  - ▶ OUT/CHK LED: Yellow - Relay activated  
Red (Flash) - Input current abnormal

## SCHEMATIC DIAGRAM



# TX10SPECIFICATION

|                             |                                                                                                                                                                                          |                           |                                                                                    |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|------------------------------------------------------------------------------------|
| Dimensions<br>(Unit: mm)    |                                                                                                         |                           |  |
| Certification               |  NEPSI Ex-proof GYB14.1529 Ex ia Ga IIC<br>Intrinsical safety GB3836.1-2010GB3836.4-2010、GB3836.20-2010 |                           |                                                                                    |
| Model No.                   | TX100R                                                                                                                                                                                   | TX101F                    |                                                                                    |
| Supply voltage              | 20~35 Vdc                                                                                                                                                                                | 20~250 Vdc/Vac, 50/60 Hz  |                                                                                    |
| Power supply protection     | Power supply reverse protection                                                                                                                                                          | Non-directionality input  |                                                                                    |
| Current consumption         | < 100 mA @24 V, Load 20mA                                                                                                                                                                | < 200 mA @24 V, Load 20mA |                                                                                    |
| Hazardous Zone              |                                                                                                                                                                                          |                           |                                                                                    |
| Input                       | 0~20/4~20                                                                                                                                                                                |                           |                                                                                    |
| Open loop supply voltage    | < 28 Vdc                                                                                                                                                                                 |                           |                                                                                    |
| Distribution supply voltage | > 15 Vdc (Load 20 mA)                                                                                                                                                                    |                           |                                                                                    |
| Safe Zone                   |                                                                                                                                                                                          |                           |                                                                                    |
| Output                      | Current: 0~20/4~20 mA    Load resistance: <550 ohm<br>or<br>Voltage: 0~5/0~10V    Load resistance: <20k ohm                                                                              |                           |                                                                                    |
| Response time               | < 5 ms                                                                                                                                                                                   |                           |                                                                                    |
| Accuracy                    | 0.1 % F.S.,0.5%@<0.3V (20℃)                                                                                                                                                              |                           |                                                                                    |
| Temp. coefficient           | < 2.0μA/℃ (25℃~60℃);< 3.0μA/℃ (-20℃~25℃)                                                                                                                                                 |                           |                                                                                    |
| Isolation                   | 2500Vac : Current leakage < 1mA : 1min.<br>1. Intrinsic end & Non-Intrinsic end<br>2. Non-Intrinsic end power supply & output                                                            |                           |                                                                                    |
| Ambient temp.               | -20~60 ℃                                                                                                                                                                                 |                           |                                                                                    |
| Applicable zone             | Zone 0, Zone 1, Zone 2, IIA, IIB, IIC T4~T6                                                                                                                                              |                           |                                                                                    |
| External equipments         | 1. 2-Wire transmitter    2. 3-Wire transmitter    3. Current output transmitter                                                                                                          |                           |                                                                                    |

# INTRINSICAL SAFETY PARAMETERS

## Transmitter (2 wire type)

| Max. Voltage input<br>Ui(V)   | Max. Current input<br>Ii (mA)  | Max.Power input<br>Pi (mW)  | Max. internal<br>equivalent parameter |         |
|-------------------------------|--------------------------------|-----------------------------|---------------------------------------|---------|
|                               |                                |                             | Ci ( $\mu$ F)                         | Li (mH) |
| 20                            | 120                            | —                           | 0                                     | 0       |
| Max. Voltage output<br>Uo (V) | Max. Current output<br>Io (mA) | Max.Power output<br>Po (mW) | Max. external parameter               |         |
|                               |                                |                             | Co ( $\mu$ F)                         | Lo (mH) |
| 5.355                         | —                              | —                           | See below table                       |         |
| Gas group                     | Max. External parameter        |                             |                                       |         |
|                               | Co ( $\mu$ F)                  |                             | Lo (mH)                               |         |
| II C                          | 65                             |                             | —                                     |         |
| II B                          | 1000                           |                             | —                                     |         |
| II A                          | 1000                           |                             | —                                     |         |

## Transmitter (3 wire type)

| Max. Voltage output<br>Uo (V) | Max. Current output<br>Io (mA) | Max.Power output<br>Po (mW) | Max. internal<br>equivalent parameter |               |
|-------------------------------|--------------------------------|-----------------------------|---------------------------------------|---------------|
|                               |                                |                             | Ci (nF)                               | Li ( $\mu$ H) |
| 28                            | 93                             | 651                         | 0                                     | 0             |
| Gas group                     | Max. External parameter        |                             |                                       |               |
|                               | Co ( $\mu$ F)                  |                             | Lo (mH)                               |               |
| II C                          | 0.083                          |                             | 4.2                                   |               |
| II B                          | 0.65                           |                             | 12.6                                  |               |
| II A                          | 2.15                           |                             | 33.6                                  |               |

# FUNCTION SETTING

## Current Mode

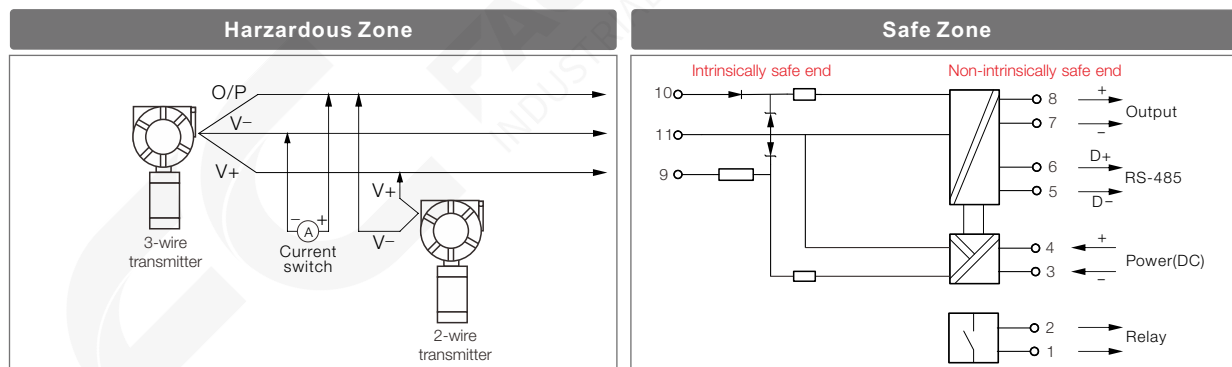
| DIP | Action mode        | Description                          | DIP switch position |
|-----|--------------------|--------------------------------------|---------------------|
| SW1 | Working mode       | Continuous current output            | I                   |
| SW2 | Analog output mode | Increment : 0~20mA/4~20mA/0~5V/0~10V | I                   |
|     |                    | Decrement 20~0mA/20~4mA/5~0V/10~0V   | II                  |
| SW3 | Relay action       | ON, as value setted                  | I                   |
|     |                    | ON, as value setted                  | II                  |
| SW4 | Relay output mode  | Boot mode                            | I                   |
|     |                    | Alarm mode                           | II                  |

## Switch Mode

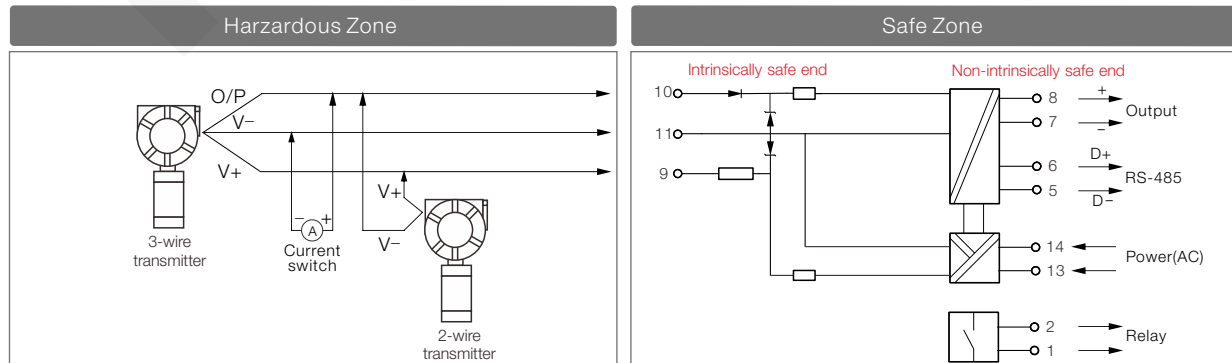
| DIP | Action mode        | Description                | DIP switch position |
|-----|--------------------|----------------------------|---------------------|
| SW1 | Working mode       | Current output for switch  | II                  |
| SW2 | Relay action       | ON, as $\geq$ value setted | I                   |
|     |                    | ON, as $\leq$ value setted | II                  |
| SW3 | Delay time setting | NO time delay              | I                   |
|     |                    | 5 second delay             | II                  |
| SW4 | Relay output mode  | Boot mode                  | I                   |
|     |                    | Alarm mode                 | II                  |

## WIRING

### TX100R



### TX101F



# MODEL NUMBER / ORDER CODE COMPARISON TABLE

## ORDERING INFORMATION

| Model Number | Order Code |
|--------------|------------|
| TX100R       | TXX1017BB  |
| TX101F       | TXX1007BC  |

TXX 1 05 06 07 08 - 09 10 11 12 13

**05 06 Model**

00: Standard(W45.2×H113.6×D99)  
01: Economic(W22.6×H113.6×D99)

**07 08 Certification**

00: None  
7B: NEPSI-Exia

**09 Power supply**

B: DC 20~35 Vdc  
C: AC 20~250 Vac

**10 Input**

A: 4~20mA  
B: 0~20mA

**11 Output 1**

A: 4~20 mA  
B: 0~20 mA  
C: 0~5 V  
D: 0~10 V

**12 Output 2**

0: None  
A: RS485

**13 Output 3**

0: None  
C: Relay

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