MORNSUN®

Isolating / Safety Switching Barrier (Relay Output)

—— TSX00-EX Series

FEATURES

- Fitted devices: 1.NAMUR Sensors; 2. Mechanical Joints.
- Phase-angel and inverse control setting;
- Open circuit detection setting
- Operation Temperature:-25°C to +71°C
- Reliable Performance (MTBF>1,000,000 hours

PART NUMBER SYSTEM

TS200-EX

- Safety barrier mark
- Relay output
- Channel number
- Signal style
- Product seriers

GENERAL DESCRIPTION

This Isolation Switching Barrier can detect switch or approach switch's status in locations where hazardous exists; isolate, transmit and output it to safe area. Input and output can be set to inverse control. Approach switch open circuit detection function. Isolation between Input /Output / Power source.

PRODUCT PROGRAM

Part number	Input(Power)		Output(Hazardous end)		Output (Safe end)	Channel numbers
	Voltage(VDC)		Voltage	Short Circuit Current		
	Typ.	Range	Typ.			
TS100	24	18-36	8 VDC	about 8 mA	Relay Output	1
TS200						2
TS100-EX						1
TS200-EX						2

ELECTRICAL SPECIFICATIONS

Common parameter	Operation voltage	18-36VDC
	Input frequency	About 2.0W (with relay output OFF)
	Power indicating	LED light (green) ON when operating
Hazardous Area	Input Signal	Switch status of NAMUR sensor, mechanical joint etc
	Distribution voltage	About 8V (Open status)
	Short circuit current	About 8mA
	Open circuit threshold current	≤0.1mA
	Switching threshold	Typ:1.55mA (hysteresis:0.2mA)
Safe Area	Output signal	Relay output (1" ON" joint)
	Response time	≤20mS
	Driving capability	250VAC/2A or 30VDC/2A
	Load type	Resistive load

TRANSMISSION SPECIFICATIONS

Under phase-angel control (K2 K3 OFF)	Input loop current > 2.1mA, relay output close, channel indicator light (red) ON.
	Input loop current < 1.2mA, relay output open, channel indicator light (red) OFF.
Under inverse control (K2 K3 ON)	Input loop current > 2.1mA, relay output open, channel indicator light (red) OFF.
	Input loop current < 1.2mA, relay output close, channel indicator light (red) ON.
When connected with NAMUR sensor	Input loop current < 0.05mA, open circuit alarm, channel yellow indicator light ON.
When connected with common contact joint switch	To achieve open circuit detection function, a 10KΩ resistor must be connected to the switch in parallel.

Note: K2 is setup channel1 to be reverse or not ,K3 is setup channel2 to be reverse or not

ISOLATION SPECIFICATIONS

Five-port isolation	Output ~ Input: 2.5KVAC Power Supply ~ Input: 2.5KVAC Power Supply ~ Output: 1.5KVAC Output 1 ~ Output 2: 1.5KVAC Input 1 ~ Input 2: 1.5VAC
Electrical isolation	Three-port isolation (Single channel); Five-port isolation(Dual channels)
Isolation strength	2.5KVAC (test for 1minute, humidity < 70%)
EMC	EN61326

STANDARDS & CERTIFICATES

Explosion protection certification mark	[Exia]IIC
Explosion protection certification parameters	Um=250Vrms, Uo=10.5V, Io=14mA Po=37mW, Co=1.6uF, Lo=150mH
Explosion protection certification unit	CHINA NATIONAL QUALITY SUPERVISION AND TEST CENTRE FOR EXPLOSION PROTECTED ELECTRICAL PRODUCTS
Explosion protection pass No.	CNEx08.0003

OTHER SPECIFICATIONS

Ambient temperature	Operation temperature:-25°C ~ +71°C
	Transport and Storage temperature:-50°C ~ +105°C
Mounting	35mm DIN-rail package, hot plug, thickness: 22.5mm, Plastic UL94-V0
Safety Grade	IP20(IEC60529 / EN60529)
Weight	About 128g

CONNECTION

In intrinsic safety explosion protection systems, isolating barrier belongs to affiliated device. It is installed at safe area, as a connection between intrinsic safety devices in the hazardous area and non-intrinsic safety devices in the safe area. By limiting the energy to a certain safe amount, it ensures the safety of in spot devices and people.

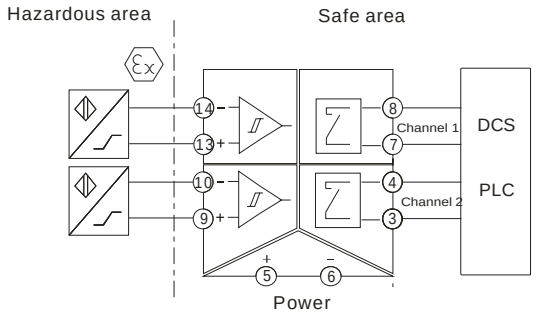
Selection regulations for intrinsic safety explosion protection system:

1. The explosion protection grade of the barrier must be equal to or higher than that of in spot intrinsic safety explosion protection device.
2. Take inconsideration of hazardous end output resistance and loop resistance, make sure the barrier's output voltage meets the minimum operation voltage requirement of in spot intrinsic safety device.
3. The safety parameters of Barrier's intrinsic safety end meets:
   Uo ≤ UI, Io ≤ Iin, Po ≤ Pin
   Co ≥ Cin, Lo ≥ Lin
4. Select suitable Safety barrier which matches the in spot intrinsic safety device for the power's phase, signal type and transmission mode.
5. Apply necessary protections, avoid influence the in spot intrinsic safety device's operation from leakage current that generated by safety barrier.

Operation notes:

1. Please read the user manual carefully before using. If any questions please contact our technical support department.
2. Please do not use this product in hazardous area.
3. The power supply of this product should be 24VDC power source. It is forbidden to use 220VAC power supply.
4. To avoid invalid explosion protection function, or any failure, users disassemble this product is forbidden.

APPLICATION CIRCUIT DIAGRAM & PIN DESCRIPTION



Note: In single model channel 2 is invalid.

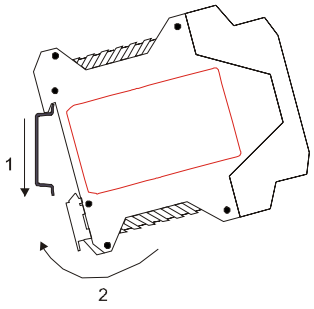
INSTALLATION & DISASSEMBLY

Installation

DIN35mm standard rail installation:

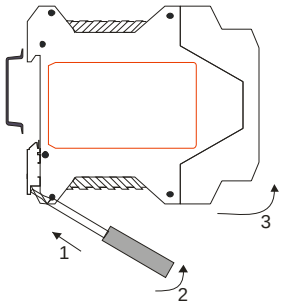
1.Insert the top of the instrument card in the rail;

2.Push the bottom of the instrument into the rail.



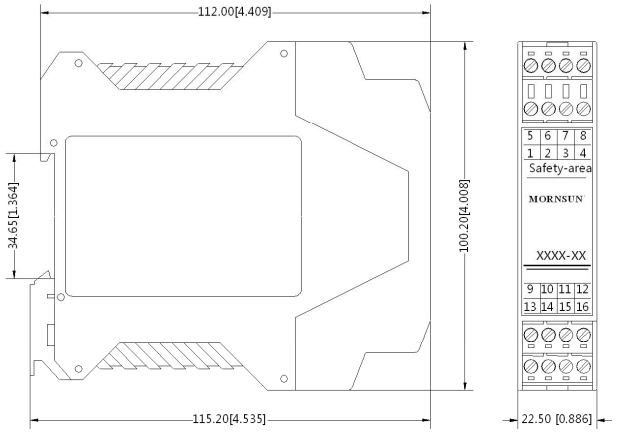
Disassembly

1. Use a screwdriver (Width of edge ≤ 6mm), cut in the metal card lock from the underside;
2. Boost up the screwdriver and pry the metal card lock downwards;
3. Pull the instrument out of the rail.



PACKAGING DIMENSION & PACKAGING DIAGRAM

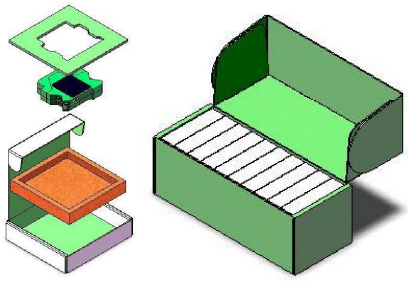
MECHANICAL DIMENSIONS



Note:
Unit:mm[inch]
Wire range : 28-12 AWG
General tolerances:±1.00[±0.039]

THIRD ANGLE PROJECTION

PACKAGE DIAGRAM



Note :
Unit:mm[inch]
Small white box:L*W*H=165*155*40
Packaging quantity: 1pcs
Inner carton:L*W*H=425*175*160
Packaging quantity: 10 pcs
Outer carton:L*W*H=560*450*520
Packaging quantity: 90pcs

Note:

1. All specifications are measured at Ta=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
2. In this datasheet, all the test setup and methods are based on our corporate standards.
3. All characteristics are for listed models, and non-standard models may perform differently. Please contact our technical support for more details.
4. Please contact our technical support for any specific requirement.
5. Specifications of this product are subject to changes without prior notice.

MORNSUN Science & Technology Co.,Ltd.
Address: No. 5, Kehui St. 1, Kehui development center, Science Ave., Guangzhou Science City, Luogang district, Guangzhou,P.R.China.
Tel: 86-20-38601850
Fax:86-20-38601272
E-mail: info@mornsun.cn
Http://www.mornsun-power.com