

Frequency signal input isolated safety barrier

PHD-22TP-1313

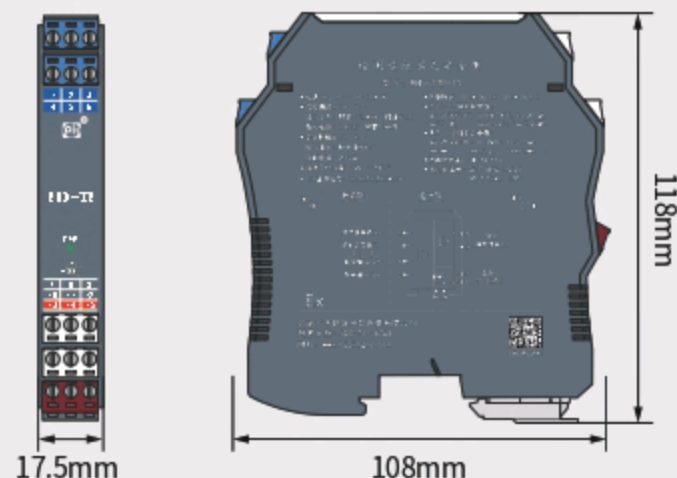
2 inputs 2 outputs

PHD-22TP-2323

2 inputs 2 outputs

Input: Frequency signal

Output: Frequency signal 1: 1



Overview

The frequency signal is input into the isolated safety barrier, which can realize the 1: 1 transmission of the frequency signal of the instrument in the dangerous area to the safe area, and provide the isolated power supply (12V or 24V) for the field instrument in the dangerous area. This product needs independent power supply, and the power supply, input and output are isolated between each other.

Specifications

Input in hazardous area:

Input signal: Frequency $\leq 100\text{kHz}$, amplitude $\leq 12\text{V}$, duty cycle $\geq 20\%$,
high-level $\geq 4\text{V}$, low-level $\leq 1\text{V}$ (PHD-22TP-1313)
Frequency $\leq 100\text{kHz}$, amplitude $\leq 24\text{V}$, duty cycle $\geq 20\%$,
high-level $\geq 4\text{V}$, low-level $\leq 1\text{V}$ (PHD-22TP-2323)

Distribution voltage: Open circuit voltage $\leq 13\text{V}$, distribution voltage $\geq 8.5\text{V}$
when loaded with 25mA (PHD-22TP-1313)
Open circuit voltage $\leq 25\text{V}$, distribution voltage $\geq 16\text{V}$
when loaded with 25mA (PHD-22TP-2323)

Safety side output:

Output signal: Frequency quantity 1: 1 output

Signal range: Signal low-level $\leq 0.5\text{V}$
Signal high level $\geq 10\text{V}$ (PHD-22TP-1313)
Signal high level $\geq 20\text{V}$ (PHD-22TP-2323)

Drive current: $\leq 15\text{mA}$, load resistance $\geq 1\text{k}\Omega$

Basic parameters:

Supply voltage: $20\sim 35\text{V DC}$

Power consumption: When powered by 24VDC and output at 12V level
 $\leq 80\text{mA}$ (PHD-22TP-1313)
 $\leq 100\text{mA}$ (PHD-22TP-2323)

LED indicator: Green: Power indicator

Receiving and transmitting switching time: $\geq 20\text{ms}$

Temperature parameters: Working temperature: $-20^\circ\text{C}\sim +60^\circ\text{C}$
storage temperature: $-40^\circ\text{C}\sim +80^\circ\text{C}$

Relative humidity: $10\%\sim 95\%$ RH no condensation

Insulation strength: Between intrinsically safe side and non-intrinsically
safe side ($\geq 3000\text{VAC/min}$); between power supply
and non-intrinsically safe side ($\geq 1500\text{VAC/min}$)

Insulation resistance: $\geq 100\text{M}\Omega$ (between input/output/power supply)

EMC: According to IEC 61326-1(GB/T 18268), IEC 61326-3-1

MTBF: 100000h

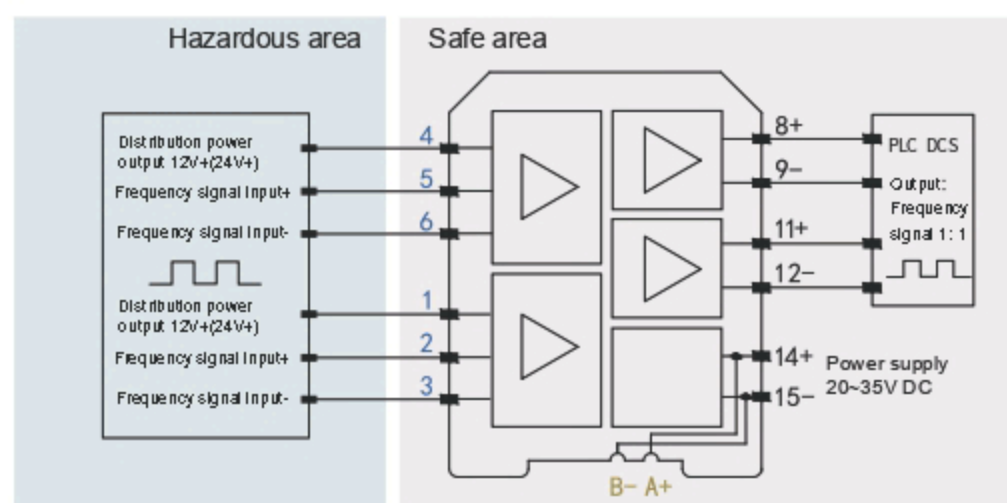
Wire requirements: Horizontal cutting surface $\geq 0.5\text{mm}^2$

Insulation strength $\geq 500\text{V}$

Applicable field equipments: Frequency measuring equipment

Installation place: Installed in a safe zone, it can be connected to
intrinsic safety instruments in hazardous areas
up to Zone 0, IIC, Zone 20, and IIIC

Schematic diagram



Note: The power rail function is an optional function, and users need to specify the power supply method when placing an order

The selection of power rail connectors can refer to page 89 of the "Annex"

Intrinsically safe certification

Explosion proof mark: [Ex ia Ga] IIC [Ex ia Da] IIIC

Explosion-proof standard: GB/T 3836.1-2021 GB/T 3836.4-2021

TPHD-22TP-1313:

Terminals 1-3, 4-6 U_m : 250V AC/DC U_o : 14.7V DC I_o : 207mA
 P_o : 0.76W C_o : $0.5\mu\text{F}$ L_o : 0.56mH

Terminals 2-3, 5-6 U_m : 250V AC/DC U_o : 8V DC I_o : 2.5mA
 P_o : 5mW C_o : $5.9\mu\text{F}$ L_o : 100mH

PHD-22TP-2323:

Terminals 1-3, 4-6 U_m : 250V AC/DC U_o : 28V DC I_o : 93mA
 P_o : 0.65W C_o : $0.05\mu\text{F}$ L_o : 2.4mH

Terminals 2-3, 5-6 U_m : 250V AC/DC U_o : 8V DC I_o : 2.5mA
 P_o : 5mW C_o : $5.9\mu\text{F}$ L_o : 100mH

Certification body: CQST (China National Quality Supervision and
Test Centre for Explosion Protected Electrical Products)