

Analogue Input Isolated Safety Barrier

PHD-11TD-21

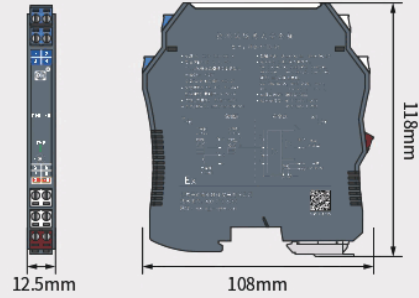
1 input and 1 output

PHD-12TD-211

1 input and 2 outputs

Input: two or three-wire transmitter or
current source(HART digital signal)

Output: 4~20mA (HART digital signal)



Overview

The analog input isolated safety barrier provides isolated power supply for two - and three wire transmitters in hazardous areas. The 4~20mA signal generated by the transmitter or current source is transmitted from the hazardous area to the safe area output, thereby driving the load in the safe area. For two - or three wire transmitters or current source signals, this safety barrier supports bidirectional communication of the Hart digital signal superimposed on the 4~20mA signal and has a wire breakage alarm function. This product requires independent power supply, with isolated power supply, input, and output terminals.

Specifications

Input in hazardous area:

Input signal: Two or three-wire transmitter
or current source(HART digital signal)

Transmitter distribution voltage: The open circuit voltage is $\leq 28V$,
and the output voltage is $\geq 15.5V$ when the circuit is 20mA

Output in safe area:

Output signal: 4~20mA(HART digital signal)

Output load: When outputting 20mA, 0~500 Ω (customizable)

Optional voltage output type, load resistance $R_L \geq 330k\Omega$

Basic parameters:

Supply voltage: 20~35V DC

Power consumption: When 24V power supply, 20mA output
 $\leq 65mA$ (PHD-11TD-21)
 $\leq 95mA$ (PHD-12TD-211)

LED indicator: Green——power indicator

Output accuracy: 0.1%F.S (Typical value: 0.05% F.S)

Response time: 2ms to reach 90% of the final value

Temperature drift: 0.005%F.S/ $^{\circ}C$

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

Storage temperature: $-40^{\circ}C \sim +80^{\circ}C$

Relative humidity: 10%~95% RH no condensation

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

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

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

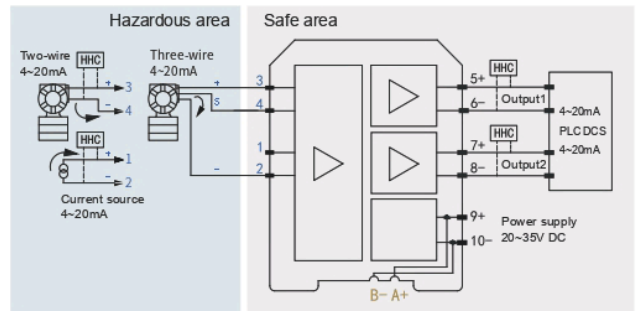
MTBF: 100000h

Wire requirements: Horizontal cutting surface $\geq 0.5mm^2$;
Insulation strength $\geq 500V$

Applicable field equipments: Two, three-wire (HART) transmitter
or current source (HART) signal

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

Connection wiring



Note: 1. PHD-11TD-21 does not include output 2 part.

2. The power supply of the power rail is an optional function. Users need to
specify the power supply mode when ordering.

Please refer to attachment on page 89.

Intrinsically safe certification

Functional safety certification: SIL3 according to IEC 61508 standards

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

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

Terminals 3-2, 3-4: U_m : 250V AC/DC $U_o=28V$ DC $I_o=93mA$

$P_o=0.65W$ $C_o=0.083\mu F$ $L_o=4.2mH$

Terminal 1-2: U_m : 250V AC/DC $U_o=7.2V$ DC $I_o=---$

$P_o=---$ $C_o=12\mu F$ $L_o=---$

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