

Isolated Safety Barrier at Detection Side PHD-11DD-21



Two- or three-wire or 4~20mA input /4~20mA output 1 input 1 output

Overview

Isolated safety barrier at detection side: PHD-11DD-21, can isolate and transmit the 4~20mA signal generated by the transmitter or current 4 ~ 20 mA signal in the dangerous area to the safe area with output 4 ~ 20 mA signal. When the transmitter is two-wire or three-wire system, the safety barrier provides power for the transmitter. This product needs an external 20-35VDC power supply.

Specifications

Supply voltage	20~35VDC, power consumption is about 1.5W (when supply power 24VDC, transmitter input, output 20mA)
Output power supply with provided power	When the circuit output is 20mA DC, the provided voltage is ≥ 16VDC
Input signal	4 ~ 20 mADC (HART)
Output signal range	4~20mADC (HART)
Allowable output load capacity	0~500Ω
Output accuracy	± 0.1%FS
Temperature drift	0.1% F.S/10 °C
Number of input and output	1 input 1 output
Applicable field equipments	2-wire, 3-wire transmitter or current signal, this product can be connected with products of many manufacturers (ABB, Fisher, Rosemount, Honeywell 11, Siemens as well as 1151, EJA, SMAR and other products with imported technology)
Temperature parameters	Continuous working temperature: -20 °C ~ +60 °C, storage temperature: -40 °C ~ +80 °C
Relative humidity	10%~95% RH no condensation
Insulation strength	≥2500VAC/min (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	≥100MΩ (between input/output/power supply)
Dimensions and weight	Thickness 19mm x width 102mm x height 115mm weight about 150g
Explosion-proof mark	[Exia Ga] IIC
Certification body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Certified parameters (between terminals 5-4)	Um=250V Uo=28V Io=93mA Co=0.05μF Lo=2.4mH Po=0.65W
Certified parameters (between terminals 4-6)	Um=250V Uo=3.5V Io=--mA Co=100μF Lo=--mH Po=--W
Installation place requirements	It can be connected with instruments in 0 zone with IIA, IIB, IIC dangerous gas
MTBF	80000h

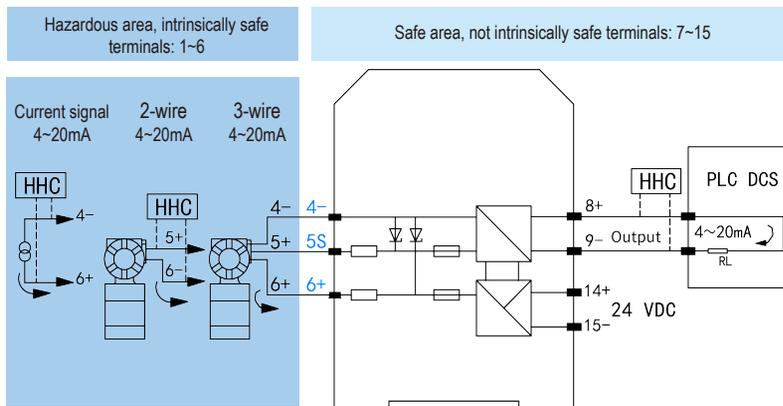
Top view

Terminal assignments

Schematic diagram



Terminal	Terminal assignments		
14	Power supply+	Power supply 20~35VDC	
15	Power supply-		
	Input 2-wire	Input 3-wire	Current signal
5	Input+	Distribution power+	
4	Input-	Input-	Input-
6	Input-	Input+	Input+
8	Output+	Output 4~20mA	
9	Output-		



Isolated Safety Barrier at Detection Side PHD-12DD-211



Two- or three-wire or 4~20mA input /4~20mA output 1 input 2 outputs

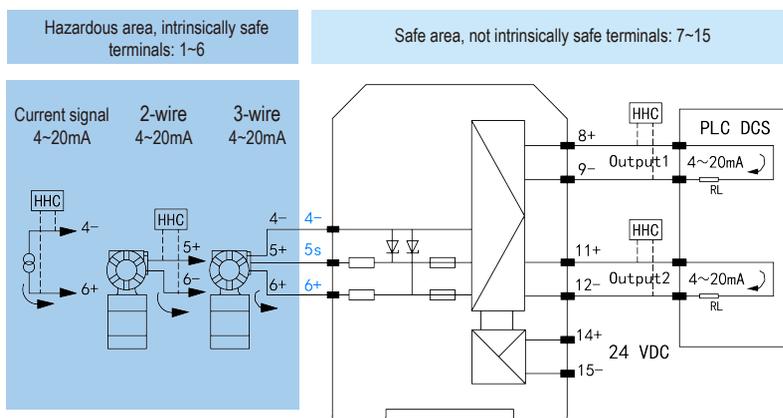
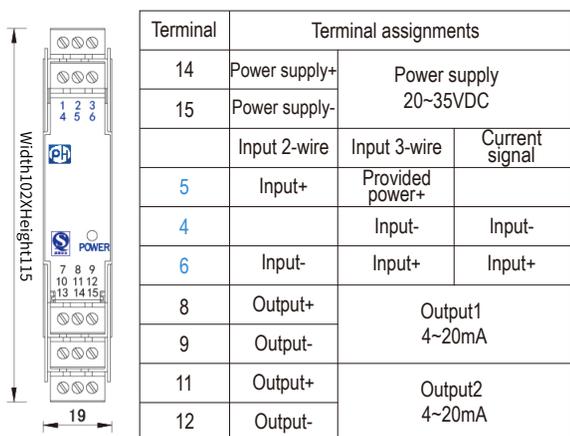
Overview

Isolated safety barrier at detection side: PHD-12DD-211, can isolate and transmit the 4~20mA signal generated by the transmitter or current 4 ~ 20 mA signal in the dangerous area to the safe area with output 4 ~ 20 mA signal. When the transmitter is two-wire or three-wire system, the safety barrier provides power for the transmitter. This product needs an external 20-35VDC power supply.

Specifications

Supply voltage	20~35VDC, power consumption is about 2W (when supply power 24VDC, transmitter input, output 20mA)
Output power supply with provided power	When the circuit output is 20mA DC, the provided voltage is ≥ 16VDC
Input signal	4 ~ 20 mADC (HART)
Output signal range	4 ~ 20 mADC (HART)
Allowable output load capacity	0~500Ω
Output accuracy	± 0.1%F.S
Temperature drift	0.1% F.S/10 °C
Number of input and output	1 input 2 outputs
Applicable field equipments	2-wire, 3-wire transmitter or current signal, this product can be connected with products of many manufacturers (ABB, Fisher, Rosemount, Honeywell 11, Siemens well as 1151, EJA, SMAR and other products with imported technology)
Temperature parameters	Continous working temperature: -20 °C ~ +60 °C , storage temperature: -40 °C ~ +80 °C
Relative humidity	10%~95% RH no condensation
Insulation strength	≥2500VAC/min (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	≥100MΩ (between input/output/power supply)
Dimensions and weight	Thickness 19mm x width 102mm x height 115mm weight about 150g
Explosion-proof mark	[Exia Ga] IIC
Certification body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Certified parameters (between terminals 5-4)	Um=250V Uo=28V Io=93mA Co=0.05μF Lo=2.4mH Po=0.65W
Certified parameters (between terminals 4-6)	Um=250V Uo=3.5V Io=--mA Co=100μF Lo=--mH Po=--W
Installation place requirements	It can be connected with instruments in 0 zone with IIA, IIB, IIC dangerous gas
MTBF	80000h

Top view Terminal assignments Schematic diagram



Isolated Safety Barrier at Detection Side

PHD-22DD-2121



Two- or three-wire or 4~20mA input /4~20mA output 2 inputs 2 outputs

Overview

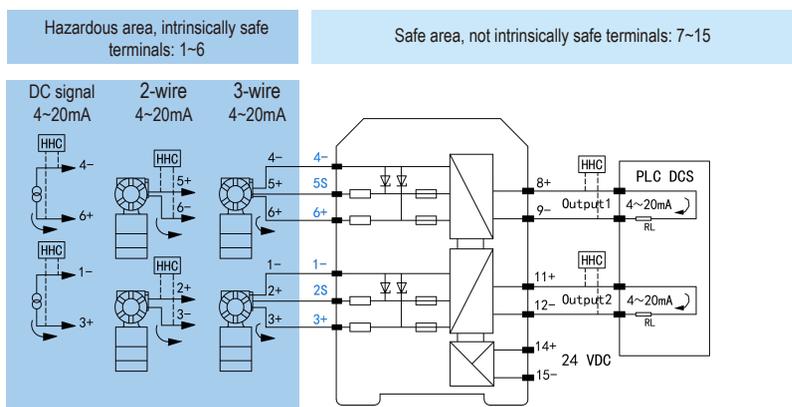
Isolated safety barrier at detection side: PHD-22DD-2121, can isolate and transmit the 4~20mA signal generated by the transmitter or current 4 ~ 20 mA signal in the dangerous area to the safe area with output 4 ~ 20 mA signal. When the transmitter is two-wire or three-wire system, the safety barrier provides power for the transmitter. This product needs an external 20-35VDC power supply.

Specifications

Supply voltage	20~35VDC, power consumption is about 2.8W (when supply power 24VDC, transmitter input, output 20mA)
Output power supply with provided power	When the circuit output is 20mA DC, the provided voltage is ≥ 16VDC
Input signal	4 ~ 20 mADC (HART)
Output signal	4 ~ 20 mADC (HART)
Allowable output load capacity	0~500Ω
Output accuracy	± 0.1%FS
Temperature drift	0.1% F.S/10 °C
Number of input and output	2 inputs 2 outputs
Applicable field equipments	2-wire, 3-wire transmitter or current signal, this product can be connected with products of many manufacturers (ABB, Fisher, Rosemount, Honeywell 11, as Siemens as 115, EJA, SMAR and other products with imported technology)
Temperature parameters	Continuous working temperature: -20 °C ~ +60 °C, storage temperature: -40 °C ~ +80 °C
Relative humidity	10%~95% RH no condensation
Insulation strength	≥2500VAC/min (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	≥100MΩ (between input/output/power supply)
Dimensions and weight	Thickness 19mm x width 102mm x height 115mm weight about 150g
Explosion-proof mark	[Exia Ga] IIC
Certification body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Certified parameters (between terminals 2-1,5-4)	Um=250V Uo=28V Io=93mA Co=0.05μF Lo=2.4mH Po=0.65W
Certified parameters (between terminals 1-3,4-6)	Um=250V Uo=3.5V Io=--mA Co=100μF Lo=--mH Po=--W
Installation place requirements	It can be connected with instruments in 0 zone with IIA, IIB, IIC dangerous gas
MTBF	80000h

Top view Terminal assignments Schematic diagram

Terminal	Terminal assignments
14	Power supply+
15	Power supply-
	Input 2-wire Input 3-wire Current signal
5	Input1+
4	Input1-
6	Input1-
2	Input2+
1	Input2-
3	Input2-
8	Output+
9	Output-
11	Output+
12	Output-



Isolated Safety Barrier at Detection Side

PHD-11DF-27



Proximity switch input /Relay output

1 input 1 output

Overview

Isolated safety barrier at detection side: PHD-11DF-27, can convert the switching input in the dangerous area to the relay switch signal and transmit it to the safe area. The input switching value can be: proximity switch/contact. The output contact is equipped with selection switch of "ON/OFF" situation, in addition, it is equipped also with optional alarm output relay contact, the circuit provides power for the input sensor. This product needs an external 20-35VDC power supply. Remarks: If the output is with other parameters, it will be indicated with number 9, and please remark the concret parameters after the model.

Specifications

Supply voltage	20~35VDC, power consumption about 1.0W
Input signal	Switch/proximity switch
Supply voltage of sensor on site	8VDC
Signal input characteristics	On-site input current: >2.1mA, it means ON; On-site input current: <1.2mA, it means OFF Switch hysteresis: 0.2ms
Relay output characteristics	Response time: 20ms, driving capacity: 250VAC/2A, 30VDC/2A under resistive load
Output "ON"/"OFF" contact conversion control	When dial switch K1 is at "ON" side, the relay output is "OFF". When dial switch K1 is at "OFF" side, the relay output is "ON"
Alarm function	When dial switch K3 is at "ON" side, the circuit select the alarm function. On-site input current > 7mA, short-circuit alarm (SC), on-site input current < 0.1mA, open-circuit alarm (LB) For switch input, when the disconnection detection function is required, a 10KΩ resistor must be connected parallel at both ends of the switch (Please see the switch II in the below wiring diagram)
Alarm relay output characteristics	Response time: 20ms, driving capacity: 250VAC/2A, 30VDC/2A under resistive load
Number of input and output	1 input 1 output
Applicable field equipments	NAMUR proximity switch, switch according to DIN 19234
Temperature parameter	Continous working temperature: -20 C ~+60 C , storage temperature:-40 C ~+80 C
Relative humidity	10%~95% RH no condensation
Dielectric strength	≥2500VAC/min (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	≥100MΩ (between input/output/power supply)
Dimensions and weight	Thickness 19mm x width 102mm x height 115mm weight about 150g
Explosion-proof mark	[Exia Ga]IIC
Certification body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Certified parameters (between terminals 5-6)	Um=250V Uo=10.5V Io=15mA Co=1.7μF Lo=150mH Po=39.4mW
Installation site requirements	It can be connected with instruments in 0 zone with II A, II B, II C dangerous gas
MTBF	80000h

Top view

Terminal assignments

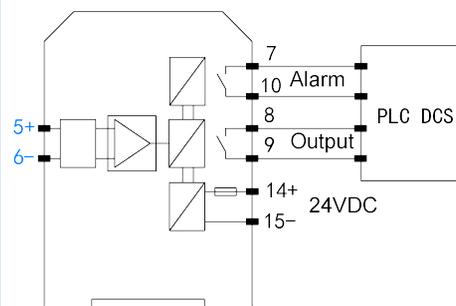
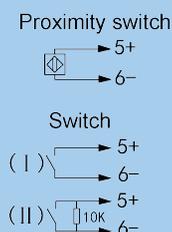
Schematic diagram



Terminal	Terminal assignments	
14	Power supply+	Power supply 20~35VDC
15	Power supply-	
5	Switching input+	input
6	Switching input-	
8	Relay output	Output
9	Relay output	
7	Alarm relay output	Alarm output
10	Alarm relay output	

Hazardous area, intrinsically safe terminals: 1-6

Safe area, not intrinsically safe terminals: 7-15



Isolated Safety Barrier at Detection Side

PHD-12DF-277



Proximity switch input /Relay output

1 input 2 outputs

Overview

Isolated safety barrier at detection side: PHD-12DF-277, can convert the switching input in the dangerous area to the relay switch signal and transmit it to the safe area.

The input switching value can be: proximity switch/contact. The output contact is equipped with selection switch of "ON/OFF" situation, in addition, it is equipped also with optional alarm output relay contact, the circuit provides power for the input sensor.

This product needs an external 20-35VDC power supply.

Remarks: If the output is with other parameters, it will be indicated with number 9, and please remark the concrete parameters after the model.

Specifications

Supply voltage	20~35VDC, power consumption about 1.5W
Input signal	Switch/proximity switch
Supply voltage of sensor on site	8VDC
Signal input characteristics	On-site input current: >2.1mA, it means ON; On-site input current: <1.2mA, it means OFF Switch hysteresis: 0.2ms
Relay output characteristics	Response time: 20ms, driving capacity: 250VAC/2A, under resistive load
Output "ON"/"OFF" contact conversion control	When dial switch K1 is at "ON" side, the relay output is "OFF". When dial switch K1 is at "OFF" side, the relay output is "ON"
Alarm function	When dial switch K3 is at "ON" side, the circuit select the alarm function. On-site input current > 7mA, short-circuit alarm (SC), on-site input current < 0.1mA, open-circuit alarm (LB) For switch input, when the disconnection detection function is required, a 10KΩ resistor must be connected parallel at both ends of the switch (Please see the switch II in the below wiring diagram)
Alarm relay output characteristics	Response time: 20ms, driving capacity: 250VAC/2A, 30VDC/2A under resistive load
Number of input and output	1 input 2 outputs
Applicable field equipments	NAMUR proximity switch, switch according to DIN 19234
Temperature parameter	Continuous working temperature: -20 C ~+60 C , storage temperature:-40 C ~+80 C
Relative humidity	10%~95% RH no condensation
Dielectric strength	≥2500VAC/min (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	≥100MΩ (between input/output/power supply)
Dimensions and weight	Thickness 19mm x width 102mm x height 115mm weight about 150g
Explosion-proof mark	[Exia Ga]IIC
Certification body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Certified parameters (between terminals 5-6)	Um=250V Uo=10.5V Io=15mA Co=1.7μF Lo=150mH Po=39.4mW
Installation site requirements	It can be connected with instruments in 0 zone with II A, II B, II C dangerous gas
MTBF	80000h

Top view

Terminal assignments

Schematic diagram

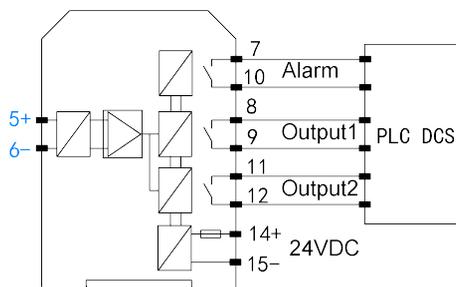


Terminal	Terminal assignments	
14	Power supply+	Supply power 20~35VDC
15	Power supply-	
5	Switching input+	input
6	Switching input-	
8	Relay output	Output1
9	Relay output	
11	Relay output	Output2
12	Relay output	
7	Alarm relay output	Alarm Output
10	Alarm relay output	

Hazardous area, intrinsically safe terminals: 1-6

Safe area, not intrinsically safe terminals: 7-15

Proximity switch



Isolated Safety Barrier at Detection Side

PHD-22DF-2727



Proximity switch input /Relay output

2 inputs 2 outputs

Overview

Isolated safety barrier at detection side: PHD-22DF-2727, can convert the switching input in the dangerous area to the relay switch signal and transmit it to the safe area.

The input switching value can be: proximity switch/contact. The output contact is equipped with selection switch of "ON/OFF" situation, in addition, it is equipped also with optional alarm output relay contact, the circuit provides power for the input sensor.

This product needs an external 20-35VDC power supply.

Remarks: If the output is with other parameters, it will be indicated with number 9, and please remark the concret parameters after the model.

Specifications

Supply voltage	20~35VDC, power consumption about 2.0W
Input signal	Switch/proximity switch
Supply voltage of sensor on site	8VDC
Signal input characteristics	On-site input current: >2.1mA, it means ON; On-site input current: <1.2mA, it means OFF Switch hysteresis: 0.2ms
Relay output characteristics	Response time: 20ms, driving capacity: 250VAC/2A, 30VDC/2A under resistive load
Output "ON"/"OFF" contact conversion control	When dial switch K1/K2 is at "ON" side, the relay output is "OFF". When dial switch K1/K2 is at "OFF" side, the relay output is "ON"
Alarm function	When dial switch K3 is at "ON" side, the circuit select the alarm function. On-site input current > 7mA, short-circuit alarm (SC), on-site input current < 0.1mA, open-circuit alarm(LB)For switch input, when the disconnection detection function is required, a 10KΩ resistor must be connected parallel at both ends of the switch (Please see the switch II in the below wiring diagram)
Alarm relay output characteristics	Response time: 20ms, driving capacity: 250VAC/2A, 30VDC/2A under resistive load
Number of input and output	2 inputs 2 outputs
Applicable field equipments	NAMUR proximity switch, switch according to DIN 19234
Temperature parameter	Continous working temperature: -20 C ~+60 C , storage temperature:-40 C ~+80 C
Relative humidity	10%~95% RH no condensation
Dielectric strength	≥2500VAC/min (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	≥100MΩ (between input/output/power supply)
Dimensions and weight	Thickness 19mm x width 102mm x height 115mm weight about 150g
Explosion-proof mark	[Exia Ga]IIC
Certification body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Certified parameters (between terminals 2-3,5-6)	Um=250V Uo=10.5V Io=15mA Co=1.7μF Lo=150mH Po=39.4mW
Installation site requirements	It can be connected with instruments in 0 zone with II A, II B, II C dangerous gas
MTBF	80000h

Top view

Terminal assignments

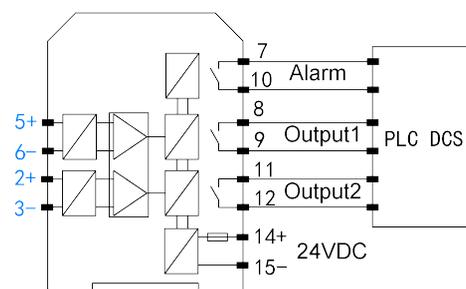
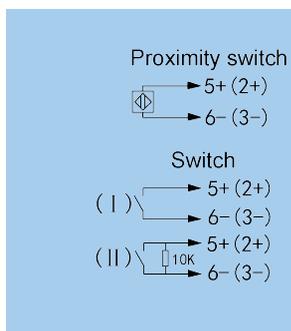
Schematic diagram



Terminal	Terminal assignments	
14	Power supply+	Supply power
15	Power supply-	20~35VDC
5	Switching input+	Input1
6	Switching input-	
8	Relay output	Output1
9	Relay output	
2	Switching input+	Input2
3	Switching input-	
11	Relay output	Output2
12	Relay output	
7	Alarm relay output	Alarm Output
10	Alarm relay output	

Hazardous area, intrinsically safe terminals: 1-6

Safe area, not intrinsically safe terminals: 7-15



Isolated Safety Barrier at Detection Side PHD-11DF-28



Proximity switch input /Transistor output

1 input 1 output

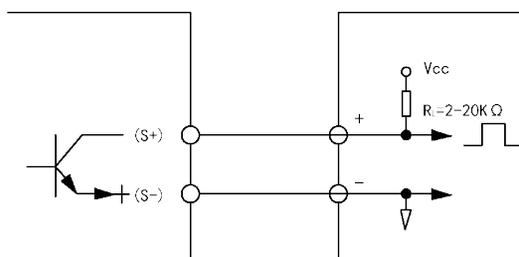
Overview

Isolated safety barrier at detection side: PHD-11DF-28, can convert the switch value in the dangerous area to the transistor output signal and transmit it to the safe area, the input value can be: proximity switch/ switch. The output transistor is equipped with a selection switch of "inverted phase/normal phase", in addition, there is an optional alarm output relay switch, the circuit provides for input sensor power supply. This product needs an external 20-35VDC power supply.

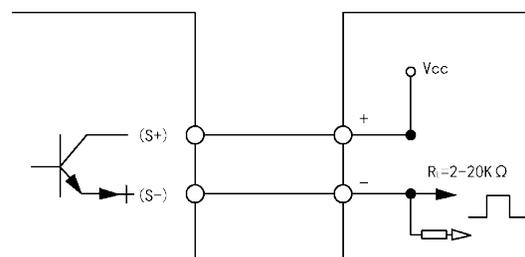
Specifications

Supply voltage	20~35VDC, power consumption about 1.5W
Input signal	Switch/proximity switch
Supply voltage from sensor side on site	8VDC
Signal input characteristics	On-site input current >2mA, it means ON; On-site input current <1.2mA, it means OFF Switch hysteresis: 0.2ms
Transistor output characteristics	NPN type transistor emitter or collector open circuit output, drive capacity: output current ≤20mA (1.2KΩ), internal maximum current 100mA. Equipped with short-circuit current protection
Switched control between inverted phase and normal phase of outputs e-c	When the dial switch K1 is at "ON", the transistor output e-c are in inverted phase When the dial switch K1 is at "OFF", the transistor output e-c are in normal phase
Alarm function	When dial switch K3 is at "ON" side, the circuit select the alarm function. On-site input current > 7mA, short-circuit alarm (SC), on-site input current < 0.1mA, open-circuit alarm(LB)For switch input, when the disconnection detection function is required, a 10KΩ resistor must be connected parallel at both ends of the switch (Please see the switch II in the below wiring diagram)
Alarm relay output characteristics	Response time: 20ms, driving capacity: 250VAC/2A, 30VDC/2A under resistive load
Number of input and output	1 input 1 output
Applicable field equipments	NAMUR proximity switch, switch in accordance with DIN 19234 standard
Temperature parameter	Continuous working temperature: -20℃~+60℃, storage temperature:-40℃~+80℃
Relative humidity	10%~95% RH no condensation
Dielectric strength	≥2500VAC/min (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	≥100MΩ (between input/output/power supply)
Dimensions and weight	Thickness 19mm x width 102mm x height 115mm weight about 150g
Explosion-proof mark	[Exia Ga]IIC
Certification body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Certified parameters (between terminals 5-6)	Um=250V Uo=10.5V Io=15mA Co=1.7μF Lo=150mH Po=39.4mW
Installation site requirements	It can be connected with instruments in 0 zone with II A, II B, II C dangerous gas
MTBF	80000h

Remarks



Application 1: Transistor collector output



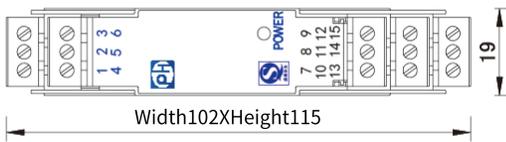
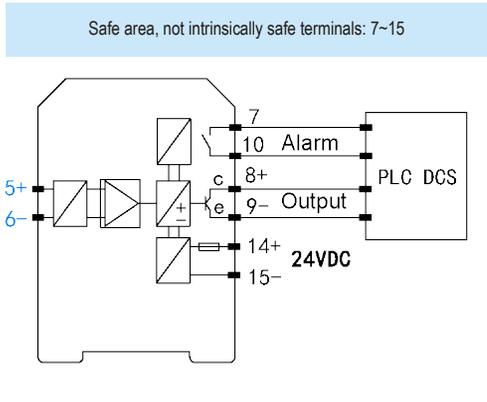
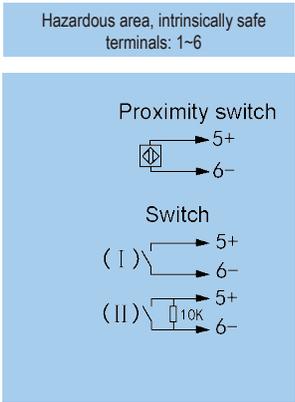
Application 2: Transistor emitter output

Isolated Safety Barrier at Detection Side

PHD-11DF-28

Top view Terminal assignments Schematic diagram

Terminal	Terminal assignments	
14	Power supply+	Supply power 20~35VDC
15	Power supply-	
5	Switch Input+	input
6	Switch Input-	
8	Transistor output+	Output
9	Transistor output-	
7	Alarm relay output	Alarm output
10	Alarm relay output	



Isolated Safety Barrier at Detection Side

PHD-12DF-288



Proximity switch input /Transistor output

1 input 2 outputs

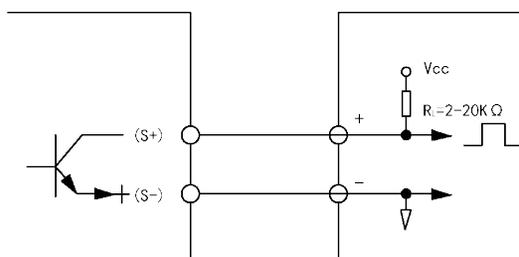
Overview

Isolated safety barrier at detection side: PHD-12DF-288, can convert the switch value in the dangerous area to the transistor output signal and transmit it to the safe area, the input value can be: proximity switch/ switch. The output transistor is equipped with a selection switch of "inverted phase/normal phase", in addition, there is an optional alarm output relay switch, the circuit provides for input sensor power supply. This product needs an external 20-35VDC power supply.

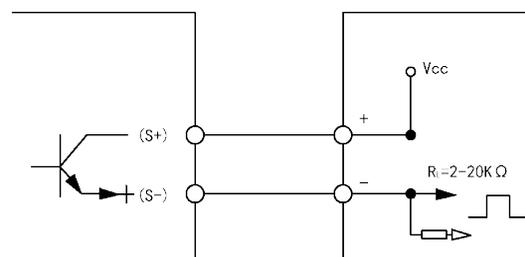
Specifications

Supply voltage	20~35VDC, power consumption about 1.5W
Input signal	Switch/proximity switch
Supply voltage from sensor side on site	8VDC
Signal input characteristics	On-site input current >2mA, it means ON; On-site input current <1.2mA, it means OFF Switch hysteresis: 0.2ms
Transistor output characteristics	NPN type transistor emitter or collector open circuit output, drive capacity: output current ≤20mA (1.2KΩ), internal maximum current 100mA. Equipped with short-circuit current protection
Switched control between inverted phase and normal phase of outputs e-c	When the dial switch K1 is at "ON", the transistor output e-c are in inverted phase When the dial switch K1 is at "OFF", the transistor output e-c are in normal phase
Alarm function	When dial switch K3 is at "ON" side, the circuit select the alarm function. On-site input current > 7mA, short-circuit alarm (SC), on-site input current < 0.1mA, open-circuit alarm(LB)For switch input, when the disconnection detection function is required, a 10KΩ resistor must be connected parallel at both ends of the switch (Please see the switch II in the below wiring diagram)
Alarm relay output characteristics	Response time: 20ms, driving capacity: 250VAC/2A, 30VDC/2A under resistive load
Number of input and output	1 input 2 outputs
Applicable field equipments	NAMUR proximity switch, switch in accordance with DIN 19234 standard
Temperature parameter	Continuous working temperature: -20 C ~+60 C , storage temperature:-40 C ~+80 C
Relative humidity	10%~95% RH no condensation
Dielectric strength	≥2500VAC/min (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	≥100MΩ (between input/output/power supply)
Dimensions and weight	Thickness 19mm x width 102mm x height 115mm weight about 150g
Explosion-proof mark	[Exia Ga]IIC
Certification body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Certified parameters (between terminals 5-6)	Um=250V Uo=10.5V Io=15mA Co=1.7μF Lo=150mH Po=39.4mW
Installation site requirements	It can be connected with instruments in 0 zone with II A, II B, II C dangerous gas
MTBF	80000h

Remarks



Application 1: Transistor collector output



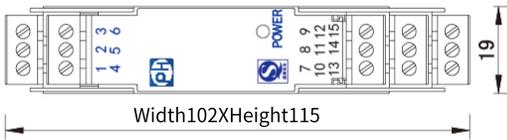
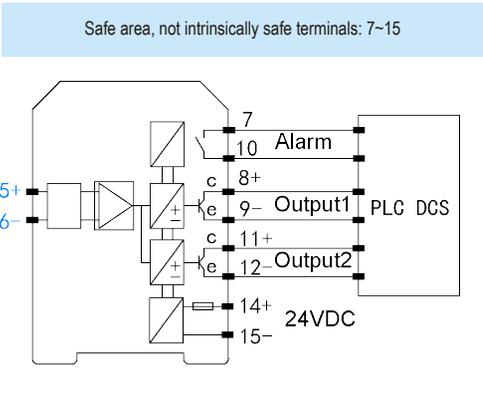
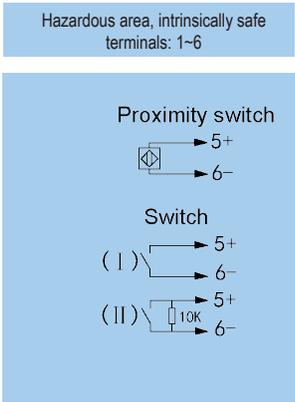
Application 2: Transistor emitter output

Isolated Safety Barrier at Detection Side

PHD-12DF-288

Top view Terminal assignments Schematic diagram

Terminal	Terminal assignments	
14	Power supply+	Supply power 20~35VDC
15	Power supply-	
5	Switch Input+	Input
6	Switch Input-	
8	Transistor output+	Output1
9	Transistor output-	
11	Transistor output+	Output2
12	Transistor output-	
7	Alarm relay output	Alarm output
10	Alarm relay output	



Isolated Safety Barrier at Detection Side

PHD-22DF-2828



Proximity switch input /Transistor output

2 inputs 2 outputs

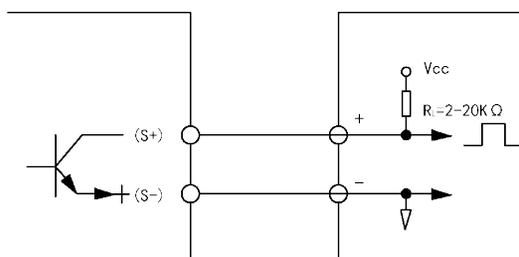
Overview

Isolated safety barrier at detection side: PHD-22DF-2828, can convert the switch value in the dangerous area to the transistor output signal and transmit it to the safe area, the input value can be: proximity switch/ switch. The output transistor is equipped with a selection switch of "inverted phase/normal phase", in addition, there is an optional alarm output relay switch, the circuit provides for input sensor power supply. This product needs an external 20-35VDC power supply.

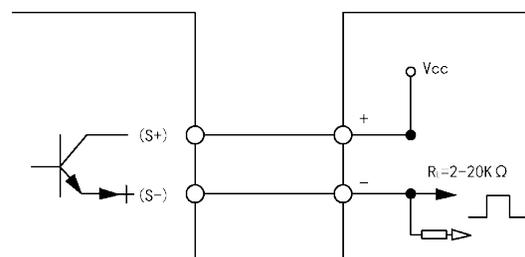
Specifications

Supply voltage	20~35VDC, power consumption about 2.0W
Input signal	Switch/proximity switch
Supply voltage from sensor side on site	8VDC (Through a resistance of about 1K Ω)
Signal input characteristics	On-site input current >2mA, it means ON; On-site input current <1.2mA, it means OFF Switch hysteresis: 0.2ms
Transistor output characteristics	NPN type transistor emitter or collector open circuit output, drive capacity: output current \leq 20mA (1.2K Ω), internal maximum current 100mA. Equipped with short-circuit current protection
Switched control between inverted phase and normal phase of outputs e-c	When the dial switch K1/K2 is at "ON", the transistor output e-c are in inverted phase When the dial switch K1/K2 is at "OFF", the transistor output e-c are in normal phase
Alarm function	When dial switch K3 is at "ON" side, the circuit select the alarm function. On-site input current > 7mA, short-circuit alarm (SC), on-site input current < 0.1mA, open-circuit alarm(LB)For switch input, when the disconnection detection function is required, a 10K Ω resistor must be connected parallel at both ends of the switch (Please see the switch II in the below wiring diagram)
Alarm relay output characteristics	Response time: 20ms, driving capacity: 250VAC/2A, 30VDC/2A under resistive load
Number of input and output	2 inputs 2 outputs
Applicable field equipments	NAMUR proximity switch, switch in accordance with DIN 19234 standard
Temperature parameter	Continuous working temperature: -20 C ~+60 C , storage temperature:-40 C ~+80 C
Relative humidity	10%~95% RH no condensation
Dielectric strength	\geq 2500VAC/min (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	\geq 100M Ω (between input/output/power supply)
Dimensions and weight	Thickness 19mm x width 102mm x height 115mm weight about 150g
Explosion-proof mark	[Exia Ga]IIC
Certification body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Certified parameters (between terminals 2-3,5-6)	Um=250V Uo=10.5V Io=15mA Co=1.7 μ F Lo=150mH Po=39.4mW
Installation site requirements	It can be connected with instruments in 0 zone with II A, II B, II C dangerous gas
MTBF	80000h

Remarks



Application 1: Transistor collector output



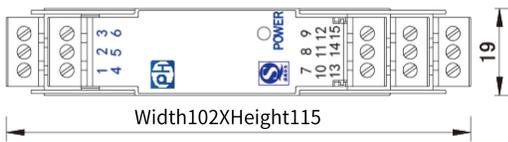
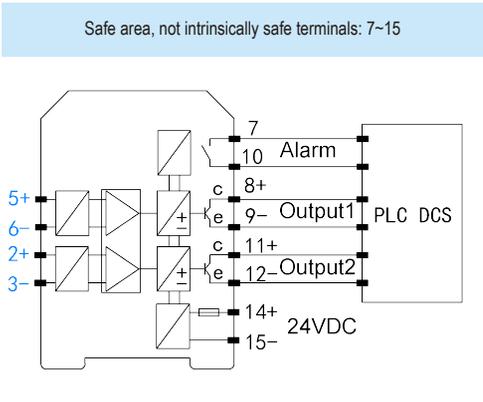
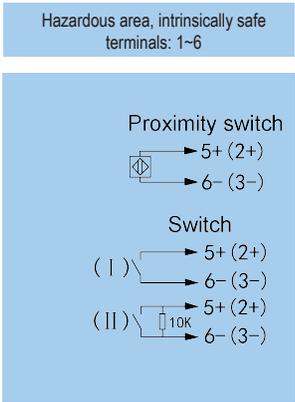
Application 2: Transistor emitter output

Isolated Safety Barrier at Detection Side

PHD-22DF-2828

Top view Terminal assignments Schematic diagram

Terminal	Terminal assignments	
14	Power supply+	Supply power 20~35VDC
15	Power supply-	
5	Switch Input+	input1
6	Switch Input-	
8	Transistor output+	Output1
9	Transistor output-	
2	Switch Input+	Input2
3	Switch Input-	
11	Transistor output+	Output2
12	Transistor output-	
7	Alarm relay output	Alarm output
10	Alarm relay output	



Isolated Safety Barrier at Detection Side

PHD-11DZ-*1



RTD input/ 4-20mA output (configurable)

1 input 1 output

Overview

1 channel RTD signal input, 1 channel DC signal 4~20mA output, which can be intelligently programmed, and the actual measuring range of RTD can be set by computer.

PHD-11DZ-*1, * indicates the input type of RTD, please use code to indicate.

This product needs an external 20-35VDC power supply

Specifications

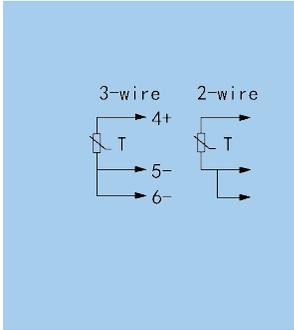
Supply voltage	20~35VDC, power consumption about 1.2W (when power supply 24VDC, output 20mA)
Input signal	2-wire or 3-wire RTD
Output signal	4~20mA
Signal and measurement range	Signal range: corresponding to the measurement range of RTD Measurement range: When make an order, the user shall make the configuration by himself, which shall be indicated in the tail number or extra explained.
Allowable output load capacity	0~500Ω(customizable)
Alarm indication	L light is on at low-measurement range alarm; H light is on at high-measurement range alarm L+H lights will be on at the same time at error alarm
Channel number of input and output	1 input 1 output
Applicable field devices	2-wire or 3-wire RTD(Cu50, Cu100, Pt100, Pt10)
Conversion accuracy	±0.1%F.S
Temperature drift	0.2%F.S/10℃
Temperature parameters	Working temperature: -20℃~+60℃, storage temperature:-40℃~+80℃
Relative humidity	10%~95% RH no condensation
Dielectric strength	≥2500VAC/min (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	≥100MΩ (between input/output/power supply)
Dimensions and weight	Thickness 19mm x width 102mm x height 115mm weight about 150g
Explosion-proof mark	[Exia Ga]IIC
Certification body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Certified parameters (between terminals 4-5-6)	Um=250V Uo=8.4V Io=31mA Co=4.8μF Lo=20mH Po=65.1mW
Installation site requirements	It can be connected with instruments in 0 zone with II A, II B, II C dangerous gas
MTBF	80000h

Example: Isolated safety barrier with Pt100 input, temperature range 0~400℃, output 4-20mA, power supply 20~35VDC, the model is PHD-11DZ-41(0-400℃), the measurement range can be set to the specified range of 0-400℃ by computer

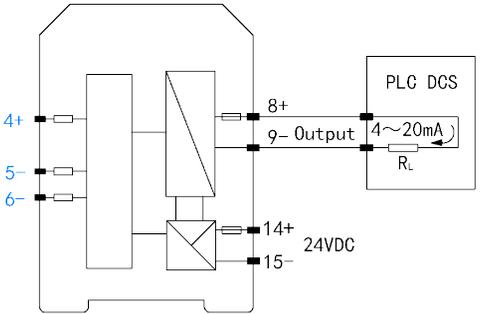
Input signal types and measurement range		
Code	RTD model	No need of extra explanation between this temperature range
2	Cu50	-50℃~150℃
3	Cu100	-50℃~150℃
4	Pt100	-200℃~850℃
5	Pt10	-200℃~850℃

Isolated Safety Barrier at Detection Side PHD-11DZ-*1

Hazardous area, intrinsically safe terminals: 1-6



Safe area, not intrinsically safe terminals: 7-15



Terminal	Terminal assignments	
14	Power supply+	Power supply 20~35VDC
15	Power supply-	
	Input 2-wire	Input 3-wire
4	Input+	Input+
5	Input-	Input-
6	With 5 short connected	Input-
8	Output+	Output 4~20mA
9	Output-	

Note: 1. When the input is with three-wire thermal resistance, it is better to ensure that the length of the three wires should be equal as much as possible.
2. When the input is with two-wire thermal resistance, terminals 5 and 6 of safety barrier must be shorted connected.



Isolated Safety Barrier at Detection Side

PHD-12DZ-*11



RTD input/ 4-20mA output (configurable)

1 input 2 outputs

Overview

1 channel RTD signal input, 2 channels DC signal 4~20mA output, which can be intelligently programmed, and the actual measuring range of RTD can be set by computer.

PHD-12DZ-*11, * indicates the input type of RTD, please use code to indicate.

This product needs an external 20-35VDC power supply

Specifications

Supply voltage	20~35VDC, power consumption about 1.8W
Input signal	2-wire or 3-wire RTD
Output signal	4~20mA
Signal and measurement range	Signal range: corresponding to the measurement range of RTD Measurement range: When make an order, the user shall make the configuration by himself, which shall be indicated in the tail number or extra explained.
Allowable output load capacity	0~500Ω(customizable)
Alarm indication	L light is on at low-measurement range alarm; H light is on at high-measurement range alarm L+H lights will be on at the same time at error alarm
Channel number of input and output	1 input 2 outputs
Applicable field devices	2-wire or 3-wire RTD(Cu50, Cu100, Pt100, Pt10)
Conversion accuracy	±0.1%F.S
Temperature drift	0.2%F.S/10℃
Temperature parameters	Working temperature: -20℃~+60℃, storage temperature:-40℃~+80℃
Relative humidity	10%~95% RH no condensation
Dielectric strength	≥2500VAC/min (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	≥100MΩ (between input/output/power supply)
Dimensions and weight	Thickness 19mm x width 102mm x height 115mm weight about 150g
Explosion-proof mark	[Exia Ga]IIC
Certification body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Certified parameters (between terminals 4-5-6)	Um=250V Uo=8.4V Io=31mA Co=4.8μF Lo=20mH Po=65.1mW
Installation site requirements	It can be connected with instruments in 0 zone with II A, II B, II C dangerous gas
MTBF	80000h

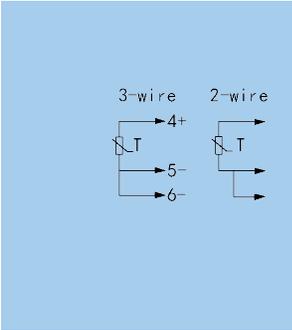
Example: Isolated safety barrier with Pt100 input, temperature range 0℃~400℃, 2 output channels with 4-20mA, power supply 20~35VDC, the model is PHD-12DZ-411(0-400℃), the measurement range can be set to the specified range of 0-400℃ by computer.

Input signal types and measurement range		
Code	RTD model	No need of extra explanation between this temperature range
2	Cu50	-50℃~150℃
3	Cu100	-50℃~150℃
4	Pt100	-200℃~850℃
5	Pt10	-200℃~850℃

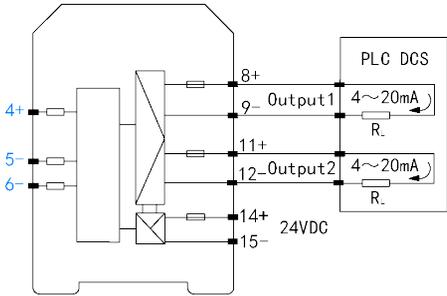
Isolated Safety Barrier at Detection Side PHD-12DZ-*11

Top view Terminal assignments Schematic diagram

Hazardous area, intrinsically safe terminals: 1-6



Safe area, not intrinsically safe terminals: 7-15



Terminal	Terminal assignments	
14	Power supply+	Power supply 20~35VDC
15	Power supply-	
	Input 2-wire	Input 3-wire
4	Input+	Input+
5	Input-	Input-
6	With 5 short connected	Input-
8	Output+	Output1 4~20mA
9	Output-	
11	Output+	Output2 4~20mA
12	Output-	

- Note: 1. When the input is with three-wire thermal resistance, it is better to ensure that the length of the three wires should be equal as much as possible.
 2. When the input is with two-wire thermal resistance, terminals 5 and 6 of safety barrier must be shorted connected.



Isolated Safety Barrier at Detection Side

PHD-22DZ-*1*1



RTD input/ 4-20mA output (configurable)

2 inputs 2 outputs

Overview

2 channel RTD signal input, 2 channel DC signal 4~20mA output, which can be intelligently programmed, and the actual measuring range of RTD can be set by computer.

PHD-22DZ-*1*1, * indicates the input type of RTD, please use code to indicate.

This product needs an external 20-35VDC power supply

Specifications

Supply voltage	20~35VDC, power consumption about 2W
Input signal	2-wire or 3-wire RTD
Output signal	4~20mA
Signal and measurement range	Signal range: corresponding to the measurement range of RTD Measurement range: When make an order, the user shall make the configuration by himself, which shall be indicated in the tail number or extra explained.
Allowable output load capacity	0~500Ω(customizable)
Alarm indication	L light is on at low-measurement range alarm; H light is on at high-measurement range alarm L+H lights will be on at the same time at error alarm
Channel number of input and output	2 inputs 2 outputs
Applicable field devices	2-wire or 3-wire RTD(Cu50, Cu100, Pt100, Pt10)
Conversion accuracy	±0.1%F.S
Temperature drift	0.2%F.S/10℃
Temperature parameters	Working temperature: -20℃~+60℃, storage temperature:-40℃~+80℃
Relative humidity	10%~95% RH no condensation
Dielectric strength	≥2500VAC/min (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	≥100MΩ (between input/output/power supply)
Dimensions and weight	Thickness 19mm x width 102mm x height 115mm weight about 150g
Explosion-proof mark	[Exia Ga]IIC
Certification body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Certified parameters (between terminals 4-5-6、 1-2-3)	Um=250V Uo=8.4V Io=31mA Co=4.8μF Lo=20mH Po=65.1mW
Installation site requirements	It can be connected with instruments in 0 zone with II A, II B, II C dangerous gas
MTBF	80000h

Example: Isolated safety barrier with Pt100 input, temperature range 0℃~400℃, output with 4-20mA, power supply 20~35VDC, the model is PHD-22DZ-4141(0℃~400℃), the measurement range can be set to the specified range of 0℃~400℃ by computer.

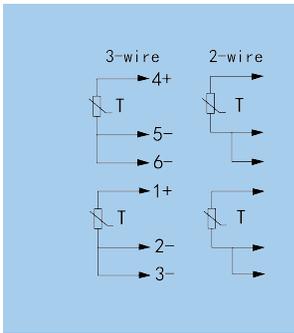
Input signal types and measurement range		
Code	RTD model	No need of extra explanation between this temperature range
2	Cu50	-50℃~150℃
3	Cu100	-50℃~150℃
4	Pt100	-200℃~850℃
5	Pt10	-200℃~850℃

Isolated Safety Barrier at Detection Side

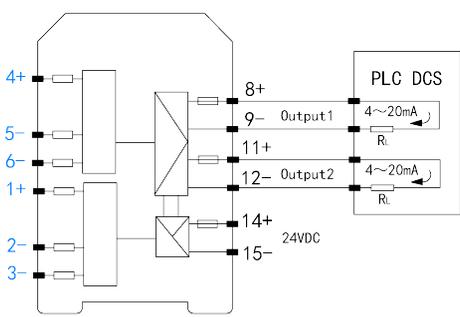
PHD-22DZ-*1*1

Top view Terminal assignments Schematic diagram

Hazardous area, intrinsically safe terminals: 1-6

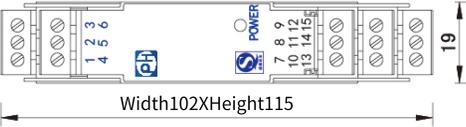


Safe area, not intrinsically safe terminals: 7-15



- Note: 1. When the input is with three-wire thermal resistance, it is better to ensure that the length of the three wires should be equal as much as possible.
 2. When the input is with two-wire thermal resistance, terminals 5 and 6(2 and 3) of safety barrier must be shorted connected.

Terminal	Terminal assignments	
14	Power supply+	Power supply 20~35VDC
15	Power supply-	
	Input 2-wire	Input 3-wire
4	Input1+	Input1+
5	Input1-	Input1-
6	With 5 short connected	Input1-
1	Input2+	Input2+
2	Input2-	Input2-
3	With 5 short connected	Input2-
8	Output+	Output1
9	Output-	4~20mA
11	Output+	Output2
12	Output-	4~20mA



Isolated Safety Barrier at Detection Side

PHD-11DZ-46



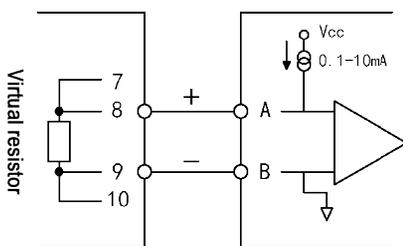
RTD input/ RTD 1:1 output (configurable)

1 input 1 output

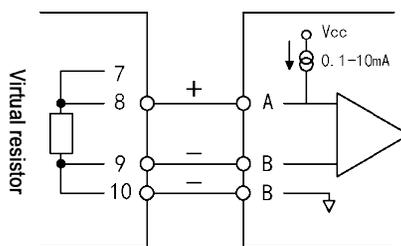
Specifications

Supply voltage	20~35VDC, power consumption about 0.5W
Input signal	2-wire or 3-wire RTD resistance value
Output signal	Corresponding to the input value will output the resistance value in proportion 1:1
Signal range	-100 ℃ ~ 850 ℃
Channel number of input and output	1 input 1 output
Measuring current	0.1mA-10mA
Applicable field devices	2-wire or 3-wire RTD
Conversion accuracy	± 0.1%F.S
Temperature drift	0.2%F.S/10 ℃
Temperature parameters	Continuous working temperature: -20 ℃ ~ +60 ℃ , storage temperature: -40 ℃ ~ +80 ℃
Relative humidity	10%~95% RH no condensation
Dielectric strength	≥2500VAC/min (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	≥100MΩ (between input/output/power supply)
Dimensions and weight	Thickness 19mm x width 102mm x height 115mm weight about 150g
Explosion-proof mark	[Exia Ga]IIC
Certification body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Certified parameters (between terminals 4-5-6)	Um=250V Uo=8.4V Io=31mA Co=4.8μF Lo=20mH Po=65.1mW
Installation site requirements	It can be connected with instruments in 0 zone with II A, II B, II C dangerous gas
MTBF	80000h

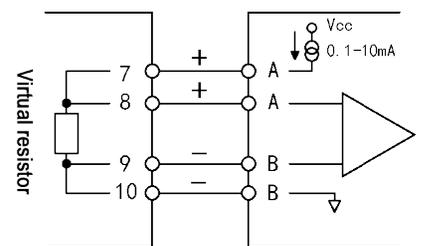
Output connection method



Application 1: 2-wire output



Application 2: 3-wire output

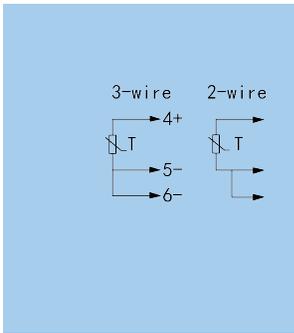


Application 3: 4-wire output

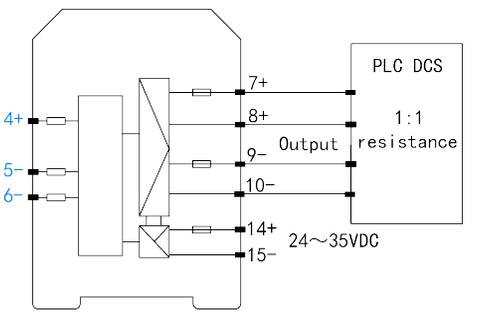
Isolated Safety Barrier at Detection Side PHD-11DZ-46

Top view Terminal assignments Schematic diagram

Hazardous area, intrinsically safe terminals: 1-6



Safe area, not intrinsically safe terminals: 7-15



Terminal	Terminal assignments	
14	Power supply+	Power supply 20~35VDC
15	Power supply-	
	Input 2-wire	Input 3-wire
4	Input+	Input+
5	Input-	Input-
6	With 5 short connected	Input-
7	Output+	Output RTD Signal
8	Output+	
9	Output-	
10	Output-	



Isolated Safety Barrier at Detection Side

PHD-11DT-*1



TC input/ 4-20mA output (configurable)

1 input 1 output

Overview

1 TC/Millivolt signal input and 1 DC signal 4-20mA output, which can be intelligently programmed, and the actual measuring range of thermocouple can be set by computer.

PHD-11DT-*1, "*" indicates the input type of thermocouple, please use code.

This product needs an external 20~35VDC power supply.

Specifications

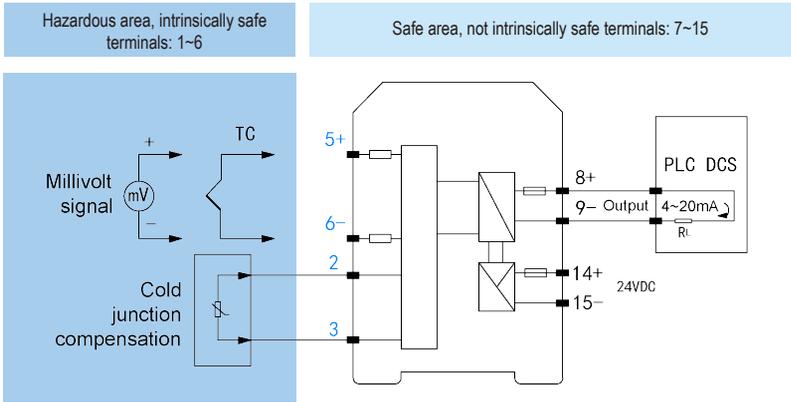
Supply voltage	20~35VDC, power consumption is about 1.2W (when power supply 24VDC, output 20mA)
Input signal	B、 E、 J、 K、 N、 R、 S、 T signals or millivolt signal
Output signal	4~20mADC
Signal and measurement range	Signal range: corresponding to the measuring range of TC -10~100mV Measurement range: When make an order, the user shall make the configuration by himself, which shall be explained extra.
Allowable output load capacity	0~500Ω
Alarm indication	L light is on at low-measurement range alarm; H light is on at high-measurement range alarm L+H lights will be on at the same time at error alarm
Channel number of input and output	1 input 1 output
Applicable field devices	B、 E、 J、 K、 N、 R、 S、 T TC signals or millivolt signal instrument sensors
Conversion accuracy	±0.1%F.S
Temperature drift	0.2%F.S/10℃
Temperature parameters	Continous working temperature: -20℃~+60℃, storage temperature:-40℃~+80℃
Relative humidity	10%~95% RH no condensation
Dielectric strength	≥2500VAC/min (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	≥100MΩ (between input/output/power supply)
Dimensions and weight	Thickness 19mm x width 102mm x height 115mm weight about 150g
Explosion-proof mark	[Exia Ga]IIC
Certification body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Certified parameters (between terminals 5-6)	Um=250V Uo=8.4V Io=31mA Co=4.8μF Lo=20mH Po=65.1mW
Installation site requirements	It can be connected with instruments in 0 zone with II A, II B, II C dangerous gas
MTBF	80000h

Example: K-couple input of safety barrier at detection end, temperature range 0℃~1200℃, output 4~20mA, power supply 20~35VDC, model PHD-11DT-11(0℃~1200℃), measuring range can be set to the specified measuring range 0℃~1200℃ by computer.

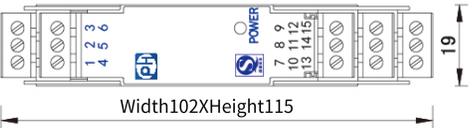
Remarks		
Code	RTD model	Test range
1	K	-150~+1370℃
2	S	-40~+1700℃
3	E	-80~+700℃
4	J	-80~+900℃
5	B	320~+1820℃
6	T	-160~+390℃
7	R	-40~+1700℃
8	N	0~+600℃

Isolated Safety Barrier at Detection Side PHD-11DT-*1

Top view Terminal assignments Schematic diagram



Terminal	Terminal assignments	
14	Power supply+	Power supply 20~35VDC
15	Power supply-	
2	Cold junction compensation 2, 3 terminal is connected with PT100 platinum resistor	Cold junction compensation is not required. Terminals 2 and 3 should be empty.
3		
5	Input+	Input- Millivolt signal
6	Input-	
8	Output+	Output 4~20mA
9	Output-	



Isolated Safety Barrier at Detection Side

PHD-12DT-*11



TC input/ 4-20mA output (configurable) 1 input 2 outputs

Overview

1 TC/Millivolt signal input and 2 DC signal 4-20mA outputs, which can be intelligently programmed, and the actual measuring range of thermocouple can be set by computer. PHD-12DT-*11, "*" indicates the input type of thermocouple, please use code. This product needs an external 20~35VDC power supply.

Specifications

Supply voltage	20~35VDC, power consumption is about 1.8W (when power supply 24VDC, output 20mA)
Input signal	B、 E、 J、 K、 N、 R、 S、 T signals or millivolt signal
Output signal	4~20mADC
Signal and measurement range	Signal range: corresponding to the measuring range of TC -10~100mV Measurement range: When make an order, the user shall make the configuration by himself, which shall be explained extra.
Allowable output load capacity	0~500Ω
Alarm indication	L light is on at low-measurement range alarm; H light is on at high-measurement range alarm L+H lights will be on at the same time at error alarm
Channel number of input and output	1 input 2 outputs
Applicable field devices	B、 E、 J、 K、 N、 R、 S、 T TC signals or millivolt signal instrument sensors
Conversion accuracy	±0.1%F.S
Temperature drift	0.2%F.S/10℃
Temperature parameters	Continous working temperature: -20℃~+60℃, storage temperature:-40℃~+80℃
Relative humidity	10%~95% RH no condensation
Dielectric strength	≥2500VAC/min (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	≥100MΩ (between input/output/power supply)
Dimensions and weight	Thickness 19mm X width 102mm X height 115mm weight about 150g
Explosion-proof mark	[Exia Ga]IIC
Certification body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Certified parameters (between terminals 5-6)	Um=250V Uo=8.4V Io=31mA Co=4.8μF Lo=20mH Po=65.1mW
Installation site Requirements	It can be connected with instruments in 0 zone with II A, II B, II C dangerous gas
MTBF	80000h

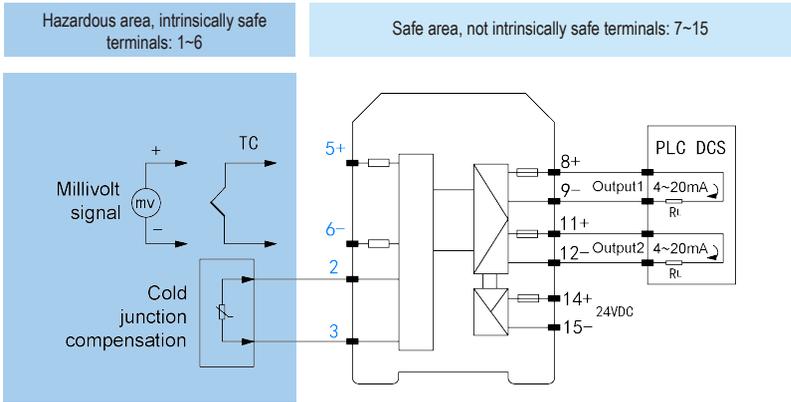
Example: K-couple input of safety barrier at detection end, temperature range 0℃~1200℃, output 4~20mA, power supply 20~35VDC, the model is PHD-12DT-111(0℃~1200℃), measuring range can be set to the specified measuring range 0℃~1200℃ by computer.

Remarks		
Code	RTD model	Test range
1	K	-150~+1370℃
2	S	-40~+1700℃
3	E	-80~+700℃
4	J	-80~+900℃
5	B	320~+1820℃
6	T	-160~+390℃
7	R	-40~+1700℃
8	N	0~+600℃

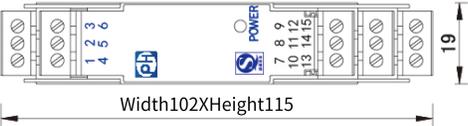
Isolated Safety Barrier at Detection Side

PHD-12DT-*11

Top view Terminal assignments Schematic diagram



Terminal	Terminal assignments	
14	Power supply+	Power supply 20~35VDC
15	Power supply-	
2	Cold junction compensation 2, 3 terminal is connected with PT100 platinum resistor	Cold junction compensation is not required. Terminals 2 and 3 should be empty.
3		
5	Input+	Input TC or millivolt signal
6	Input-	
8	Output+	Output1 4~20mA
9	Output-	
11	Output+	Output2 4~20mA
12	Output-	



Isolated Safety Barrier at Detection Side

PHD-22DT-*1*1



TC input/ 4-20mA output (configurable) 2 inputs 2 outputs

Overview

2 TC/Millivolt signal inputs and 2 DC signal 4-20mA outputs, which can be intelligently programmed, and the actual measuring range of thermocouple can be set by computer. PHD-22DT-*1*1, "*" indicates the input type of thermocouple, please use code. This product needs an external 20~35VDC power supply.

Specifications

Supply voltage	20~35VDC, power consumption is about 2W (when power supply 24VDC, output 20mA)
Input signal	B、 E、 J、 K、 N、 R、 S、 T signals or millivolt signal
Output signal	4~20mADC
Signal and measurement range	Signal range: corresponding to the measuring range of TC -10~100mV Measurement range: When make an order, the user shall make the configuration by himself, which shall be explained extra.
Allowable output load capacity	0~500Ω
Alarm indication	L light is on at low-measurement range alarm; H light is on at high-measurement range alarm L+H lights will be on at the same time at error alarm
Channel number of input and output	2 inputs 2 outputs
Applicable field devices	B、 E、 J、 K、 N、 R、 S、 T TC signals or millivolt signal instrument sensors
Conversion accuracy	±0.1%F.S
Temperature drift	0.2%F.S/10℃
Temperature parameters	Continous working temperature: -20℃~+60℃, storage temperature:-40℃~+80℃
Relative humidity	10%~95% RH no condensation
Dielectric strength	≥2500VAC/min (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	≥100MΩ (between input/output/power supply)
Dimensions and weight	Thickness 19mm X width 102mm X height 115mm weight about 150g
Explosion-proof mark	[Exia Ga]IIC
Certification Body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Certified parameters (between terminals 2-3,5-6)	Um=250V Uo=8.4V Io=31mA Co=4.8μF Lo=20mH Po=65.1mW
Installation site Requirements	It can be connected with instruments in 0 zone with II A, II B, II C dangerous gas
MTBF	80000h

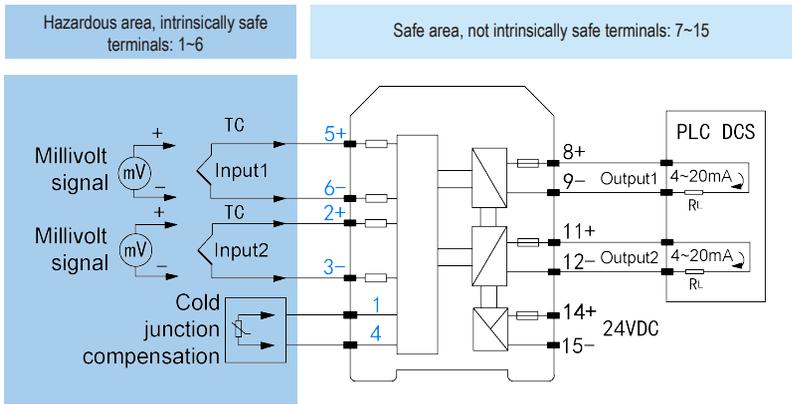
Example: K-couple input of safety barrier at detection end, temperature range 0℃~1200℃, output 4~20mA, power supply 20~35VDC, the model is PHD-22DT-1111(0℃~1200℃), measuring range can be set to the specified measuring range 0℃~1200℃ by computer.

Remarks		
Code	RTD model	Test range
1	K	-150~+1370℃
2	S	-40~+1700℃
3	E	-80~+700℃
4	J	-80~+900℃
5	B	320~+1820℃
6	T	-160~+390℃
7	R	-40~+1700℃
8	N	0~+600℃

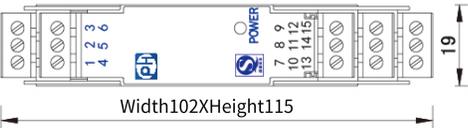
Isolated Safety Barrier at Detection Side

PHD-22DT-*1*1

Top view Terminal assignments Schematic diagram



Terminal	Terminal assignments	
14	Power supply+	Power supply 20~35VDC
15	Power supply-	
1	Cold junction compensation 1, 4 terminal is connected with PT100 platinum resistor.	Cold junction compensation is not required. Terminals 1 and 4 should be empty.
4		
5	Input+	Input1
6	Input-	TC or millivolt signal
2	Input+	Input2
3	Input-	TC or millivolt signal
8	Output+	Output1
9	Output-	4~20mA
11	Output+	Output2
12	Output-	4~20mA



Isolated Safety Barrier at Detection Side PHD-11DT-88



TC input/ TC 1:1 output 1 input 1 output

Overview

Isolated safety barrier at detection side: PHD-11DT-88 can transmit the millivolt signal (-5 ~ 60mV) of thermocouple in dangerous area to safe area in proportion 1: 1, and thermocouple can be one of B, E, J, K, N, R, S and T types.

This product needs an external 20~35VDC power supply.

Specifications

Supply voltage	20~35VDC, power consumption is about 0.5W
Input signal	B、 E、 J、 K、 N、 R、 S、 T signals or millivolt signal
Input signal range	-5 ~ 60mV
Output signal range	Signal output in proportion 1:1
Disconnection alarm	Output signal $\geq 70\text{mA}$
Channel number of input and output	1 input 1 output
Applicable field devices	B、 E、 J、 K、 N、 R、 S、 T TC signals or millivolt signal instrument sensors
Conversion accuracy	$\pm 0.1\%F.S$
Temperature drift	0.2%F.S/10 °C
Temperature parameters	Continuous working temperature: -20 °C ~ +60 °C , storage temperature: -40 °C ~ +80 °C
Dielectric strength	$\geq 2500\text{VAC}/\text{min}$ (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	$\geq 100\text{M}\Omega$ (between input/output/power supply)
Relative humidity	10%~95% RH no condensation
Dimensions and weight	Thickness 19mm x width 102mm x height 115mm weight about 150g
Explosion-proof mark	[Exia Ga]IIC
Certification body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Certified parameters (between terminals 5-6)	$U_m=250\text{V}$ $U_o=8.4\text{V}$ $I_o=31\text{mA}$ $C_o=4.8\mu\text{F}$ $L_o=20\text{mH}$ $P_o=65.1\text{mW}$
Installation site requirements	It can be connected with instruments in 0 zone with II A, II B, II C dangerous gas

Top view

Terminal assignments

Schematic diagram

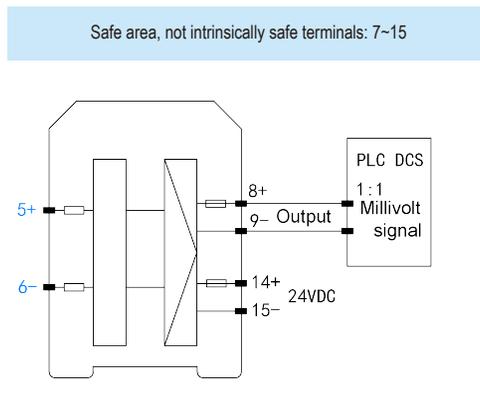
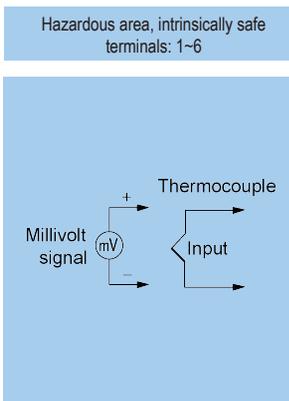


Terminal	Terminal assignments
14	Power supply+
15	Power supply-
5	Input+
6	Input-
8	Output+
9	Output-

Power supply 20~35VDC

Input TC millivolt signal

Output Millivolt signal in proportion 1:1



Isolated Safety Barrier at Detection Side

PHD-11DC-11*



RS232 input/RS232 output 1 input 1 output

Overview

Isolated safety barrier at detection side: PHD-11DC-11*, can realize the bilateral communication of digital signals between RS232 interface in dangerous area and RS232 interface in safe area.

This product needs an external 20-35VDC power supply.

The circuit provides for field instrument the provided power.

Specifications

Supply voltage	20~35VDC, power consumption about 2.5W (24VDC with provided power 5V)
Input signal	RS232 digital signal
Provided voltage	Power supply for field instruments: 5V,6V,12V,24V
Output signal	RS232 digital signal
Number of input and output channels	1 input 1 output
Applicable field equipments	Communication interface equipment with RS232
Transmission rate	Transmission rate ≤56kbps
Transmission delay	≤10 μs
Sending and receiving switching time	≥20ms
Temperature parameters	Working temperature: -20 ℃ ~+60 ℃ , storage temperature:-40 ℃ ~+80 ℃
Relative humidity	10%~95% RH no condensation
Dielectric strength	≥2500VAC/min (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	≥100MΩ (between input/output/power supply)
Dimensions and weight	Thickness 19mmXwidth 102mmXheight 115mm weight about 150g
Explosion-proof mark	[Exia Ga]IIC
Certification Body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Authentication parameters (between terminals 2-3)	Um=250V Uo=17.85V Io=250mA Co=0.22μF Lo=0.25mH Po=1.12W
Authentication parameters (between terminals 4-5, 6-5)	Um=250V Uo=15V Io=8.5mA Co=0.41μF Lo=100mH Po=31.9mW
Installation site Requirements	It can be connected with instruments in 0 zone with II A, II B, II C dangerous gas

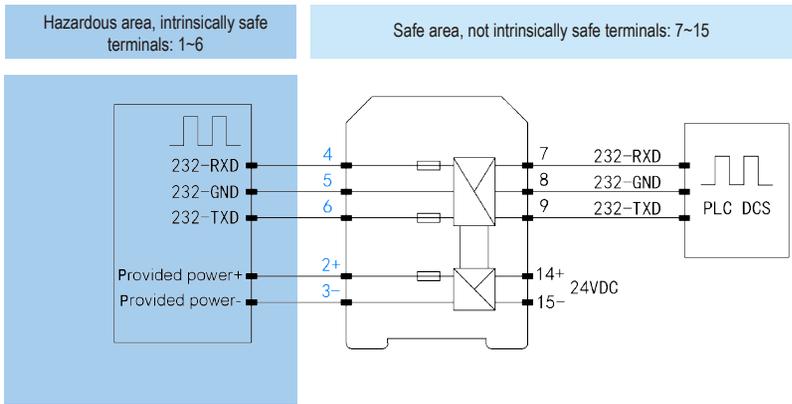
In the model PHD-11DC-11*, the symbol “*” indicated the provided voltage according to following regulations:

Code	Provided voltage
No	No provided power
A	5V
B	6V
C	12V
F	24V
H	User-defined

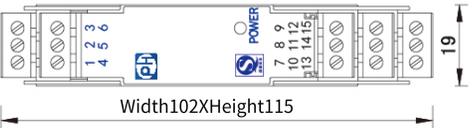
Isolated Safety Barrier at Detection Side

PHD-11DC-11*

Top view Terminal assignments Schematic diagram



Terminal	Terminal assignments	
14	Power supply+	Power supply 20~35VDC
15	Power supply-	
2	Provided power+	Provided power
3	Provided power-	
4	RS232-RXD	
5	RS232-GND	
6	RS232-TXD	
7	RS232-RXD	
8	RS232-GND	
9	RS232-TXD	



Isolated Safety Barrier at Detection Side

PHD-11DC-33*



RS485 half-duplex input /RS485 half-duplex output 1 input 1 output

Overview

Isolated safety barrier at detection end: PHD-11DC-33*, communication signal input, single input and single output. The safety barrier can realize the bilateral communication of half duplex digital signals between RS485 interface in dangerous area and RS485 interface in safe area.

This product needs an external 20-35VDC power supply.

Specifications

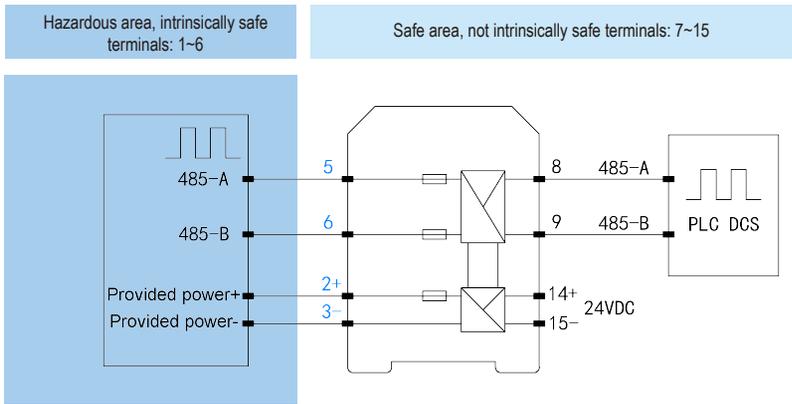
Supply voltage	20~35VDC, power consumption about 2.5W (24VDC with provided power 5V)
Input signal	RS485 half-duplex digital signal
Provided voltage	Power supply for field instruments: 5V,6V,12V,24V
Output signal	RS485 half-duplex digital signal
Number of input and output channels	1 input 1 output
Applicable field equipments	Equipment with RS485 half-duplex communication interface
Transmission rate	Transmission rate ≤ 115.2 kbps
Transmission delay	≤ 10 μ s
Sending and receiving switching time	≥ 20 ms
Temperature parameters	Working temperature: -20 $^{\circ}$ C ~ $+60$ $^{\circ}$ C , storage temperature: -40 $^{\circ}$ C ~ $+80$ $^{\circ}$ C
Relative humidity	10%~95% RH no condensation
Dielectric strength	≥ 2500 VAC/min (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	≥ 100 M Ω (between input/output/power supply)
Dimensions and weight	Thickness 19mmXwidth 102mmXheight 115mm weight about 150g
Explosion-proof mark	[Exia Ga]IIC
Certification body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Authentication parameters (between terminals 2-3)	Um=250V Uo=17.85V Io=250mA Co=0.22 μ F Lo=0.25mH Po=1.12W
Authentication parameters (between terminals 6-5)	Um=250V Uo=7.7V Io=80mA Co=6.9 μ F Lo=5.0mH Po=0.15W
Installation site requirements	It can be connected with instruments in 0 zone with II A, II B, II C dangerous gas

In the model PHD-11DC-33*, the symbol “*” indicated the provided voltage according to following regulations:

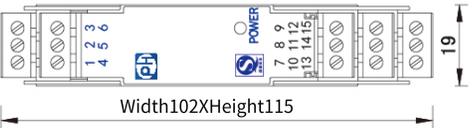
Code	Provided voltage
No	No provided power
A	5V
B	6V
C	12V
F	24V
H	User-defined

Isolated Safety Barrier at Detection Side PHD-11DC-33*

Top view Terminal assignments Schematic diagram



Terminal	Terminal assignments	
14	Power supply+	Power supply 20~35VDC
15	Power supply-	
2	provided power+	provided power
3	provided power-	
5	RS485-A	
6	RS485-B	
8	RS485-A	
9	RS485-B	



Isolated Safety Barrier at Detection Side

PHD-11DC-22*



RS485 full-duplex input /RS485 full-duplex output 1 input 1 output

Overview

Isolated safety barrier at detection side: PHD-11DC-22*, can realize the bilateral communication of full duplex digital signals between RS485 interface in dangerous area and RS485 interface in safe area.

This product needs an external 20-35VDC power supply.

Specifications

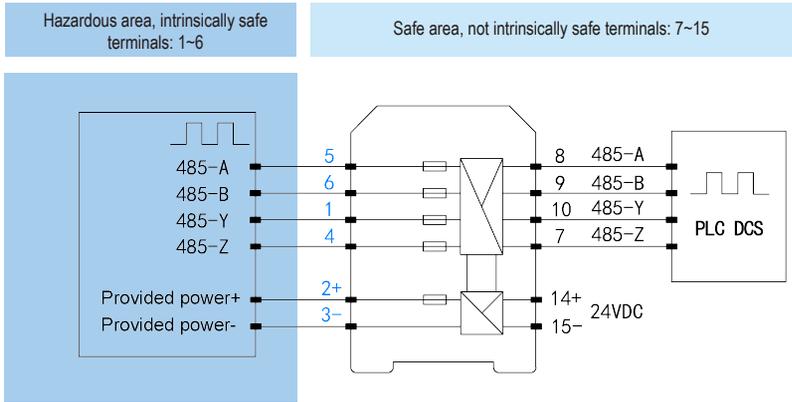
Supply voltage	20~35VDC, power consumption about 2.5W (24VDC with provided power 5V)
Input signal	RS485 full-duplex digital signal
Provided voltage	Power supply for field instruments: 5V,6V,12V,24V
Output signal	RS485 full-duplex digital signal
Number of input and output channels	1 input 1 output
Applicable field equipments	Equipment with RS485 half-duplex communication interface
Transmission rate	Transmission rate ≤ 115.2 kbps
Transmission delay	≤ 10 μ s
Sending and receiving switching time	≥ 20 ms
Temperature parameters	Working temperature: -20 $^{\circ}$ C ~ $+60$ $^{\circ}$ C , storage temperature: -40 $^{\circ}$ C ~ $+80$ $^{\circ}$ C
Relative humidity	10%~95% RH no condensation
Dielectric strength	≥ 2500 VAC/min (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	≥ 100 M Ω (between input/output/power supply)
Dimensions and weight	Thickness 19mmXwidth 102mmXheight 115mm weight about 150g
Explosion-proof mark	[Exia Ga]IIC
Certification body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Authentication parameters (between terminals 2-3)	Um=250V Uo=17.85V Io=250mA Co=0.22 μ F Lo=0.25mH Po=1.11W
Authentication parameters (between terminals 1-4, 5-6)	Um=250V Uo=7.7V Io=80mA Co=6.9 μ F Lo=5.0mH Po=0.15W
Installation site requirements	It can be connected with instruments in 0 zone with II A, II B, II C dangerous gas

In the model PHD-11DC-22*, the symbol “*” indicated the provided voltage according to following regulations:

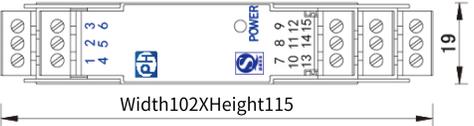
Code	Provided voltage
No	No provided power
A	5V
B	6V
C	12V
F	24V
H	User-defined

Isolated Safety Barrier at Detection Side PHD-11DC-22*

Top view Terminal assignments Schematic diagram



Terminal	Terminal assignments	
14	Power supply+	Power supply 20~35VDC
15	Power supply-	
2	Provided power+	Provided power
3	Provided power-	
5	RS485-A	
6	RS485-B	
1	RS485-Y	
4	RS485-Z	
8	RS485-A	
9	RS485-B	
10	RS485-Y	
7	RS485-Z	



Isolated Safety Barrier at Detection Side

PHD-11DC-31*



RS485 half-duplex input /RS232 output 1 input 1 output

Overview

Isolated safety barrier at detection side: PHD-11DC-31*, can realize the bilateral communication of digital signals between RS485 half-duplex interface in dangerous area and RS232 interface in safe area.

This product provides power supply for field instruments.

This product needs an external 20-35VDC power supply.

Specifications

Supply voltage	20~35VDC, power consumption about 2.5W (24VDC with provided power 5V)
Input signal	RS485 half-duplex digital signal
Provided voltage	Power supply for field instruments: 5V,6V,12V,24V
Output signal	RS232 digital signal
Number of input and output channels	1 input 1 output
Applicable field equipments	Equipment with RS485 half-duplex communication interface
Transmission rate	Transmission rate ≤56kbps
Transmission delay	≤10 μs
Sending and receiving switching time	≥20ms
Temperature parameters	Working temperature: -20 ℃ ~+60 ℃ , storage temperature:-40 ℃ ~+80 ℃
Relative humidity	10%~95% RH no condensation
Dielectric strength	≥2500VAC/min (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	≥100MΩ (between input/output/power supply)
Dimensions and weight	Thickness 19mmXwidth 102mmXheight 115mm weight about 150g
Explosion-proof mark	[Exia Ga]IIC
Certification body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Authentication parameters (between terminals 2-3)	Um=250V Uo=17.85V Io=250mA Co=0.22μF Lo=0.25mH Po=1.12W
Authentication parameters (between terminals 6-5)	Um=250V Uo=7.7V Io=80mA Co=6.9μF Lo=5.0mH Po=0.15W
Installation site Requirements	It can be connected with instruments in 0 zone with II A, II B, II C dangerous gas

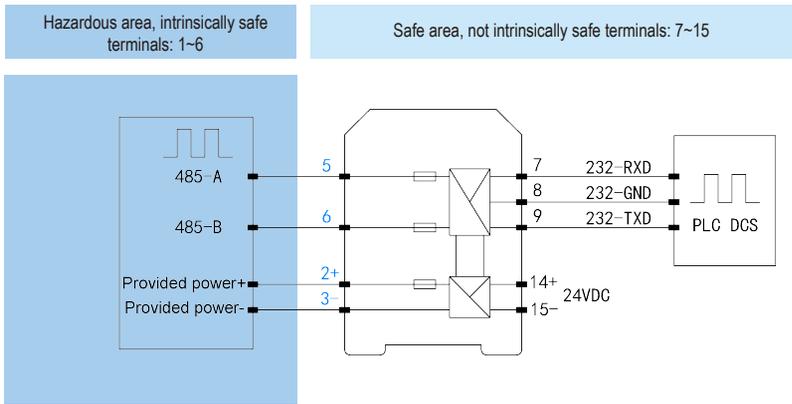
In model letter: PHD-11DC-31* , the character "*" represents the provided voltage, and the regulations are as follows:

Code	Provided voltage
No	No provided power
A	5V
B	6V
C	12V
F	24V
H	User-defined

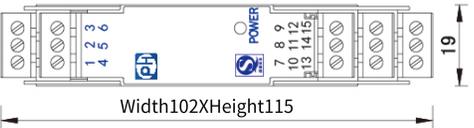
Isolated Safety Barrier at Detection Side

PHD-11DC-31*

Top view Terminal assignments Schematic diagram



Terminal	Terminal assignments	
14	Power supply+	Power supply 20~35VDC
15	Power supply-	
2	Provided power+	Provided power
3	Provided power-	
5	RS485-A	
6	RS485-B	
7	RS232-RXD	
8	RS232-GND	
9	RS232-TXD	



Isolated Safety Barrier at Detection Side

PHD-11DC-13*



RS232 input /RS485 half-duplex 1 input 1 output

Overview

Isolated safety barrier at detection side: PHD-11DC-13*, can realize the bilateral communication of digital signals between RS232 interface in dangerous area and RS485 half-duplex interface in safe area.

This product provides power supply for field instruments.

This product needs an external 20-35VDC power supply.

Specifications

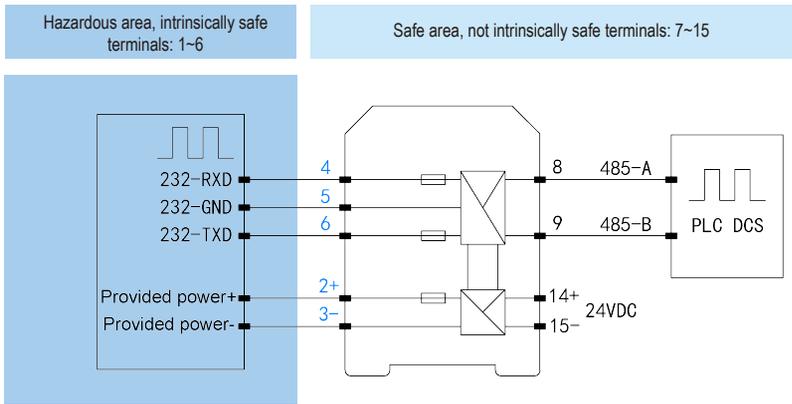
Supply voltage	20~35VDC, power consumption about 2.5W (24VDC with provided power 5V)
Input signal	RS232 digital signal
Provided voltage	Power supply for field instruments: 5V,6V,12V,24V
Output signal	RS485 half-duplex digital signal
Number of input and output channels	1 input 1 output
Applicable field equipments	Equipment with RS232 communication interface
Transmission rate	Transmission rate ≤56kbps
Transmission delay	≤10 μs
Sending and receiving switching time	≥20ms
Temperature parameters	Working temperature: -20 ℃ ~+60 ℃ , storage temperature:-40 ℃ ~+80 ℃
Relative humidity	10%~95% RH no condensation
Dielectric strength	≥2500VAC/min (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	≥100MΩ (between input/output/power supply)
Dimensions and weight	Thickness 19mmXwidth 102mmXheight 115mm weight about 150g
Explosion-proof mark	[Exia Ga]IIC
Certification body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Authentication parameters (between terminals 2-3)	Um=250V Uo=17.85V Io=250mA Co=0.22μF Lo=0.25mH Po=1.12W
Authentication parameters (between terminals 4-5, 6-5)	Um=250V Uo=15V Io=8.5mA Co=0.41μF Lo=100mH Po=31.9W
Installation site requirements	It can be connected with instruments in 0 zone with II A, II B, II C dangerous gas

In model letter: PHD-11DC-13* , the character "*" represents the provided voltage, and the regulations are as follows:

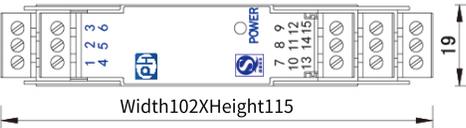
Code	Provided voltage
No	No provided power
A	5V
B	6V
C	12V
F	24V
H	User-defined

Isolated Safety Barrier at Detection Side PHD-11DC-13*

Top view Terminal assignments Schematic diagram



Terminal	Terminal assignments	
14	Power supply+	Power supply 20~35VDC
15	Power supply-	
2	Provided power+	Provided power
3	Provided power-	
4	RS232-RXD	
5	RS232-GND	
6	RS232-TXD	
8	RS485-A	
9	RS485-B	



Isolated Safety Barrier at Detection Side PHD-11DP-13



Frequency value, provided power 12V input / in proportion 1:1 output
1 input 1 output

Overview

Isolated safety barrier at detection side: PHD-11DP-13, can transmit the frequency signal in dangerous area to safe area and output in frequency value in proportion 1:1, has very strong an-interference ability.

The circuit provides for the field instrument provided power supply.

This product needs an external 20-35VDC power supply.

Specifications

Supply voltage	20~35VDC, power consumption about 2.0W
Provided voltage	Open circuit voltage≤13VDC, provided voltage ≥ 8.5VDC when with load 25mA
Input signal	Frequency ≤100KHz, amplitude ≤12V, duty cycle ≥20%, high level ≥4V, low level ≤1V
Output signal	Frequency 1:1 output, signal high level ≥10V, low level ≤0.5V, driving current ≤15mA, load resistance ≥1KΩ
Number of input and output channels	1 input 1 output
Applicable field equipments	Frequency equipment
Temperature parameters	Working temperature: -20 ℃ ~+60 ℃, storage temperature:-40 ℃ ~+80 ℃
Relative humidity	10%~95% RH no condensation
Dielectric strength	≥2500VAC/min (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	≥100MΩ (between input/output/power supply)
Dimensions and weight	Thickness 19mm X width 102mm X height 115mm weight about 150g
Explosion-proof mark	[Exia Ga]IIC
Certification body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Authentication parameters (between terminals 2-3)	Um=250V Uo=14.7V Io=207mA Co=0.5μF Lo=0.35mH Po=0.76W
Authentication parameters (between terminals 5-6)	Um=250V Uo=8V Io=2.5mA Co=3.5μF Lo=100mH Po=5mW
Installation site requirements	It can be connected with instruments in 0 zone with II A, II B, II C dangerous gas

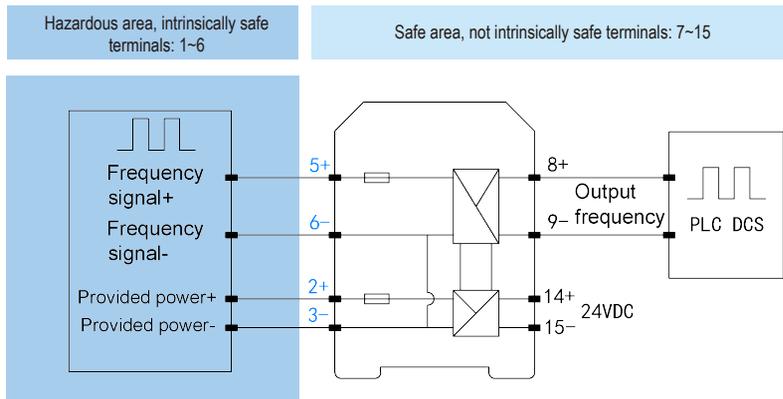
Top view

Terminal assignments

Schematic diagram



Terminal	Terminal assignments	
14	Power supply+	Power supply 20~35VDC
15	Power supply-	
2	Provided power+	Provided power
3	Provided power-	
5	Input frequency+	Input
6	Input frequency-	
8	Output frequency+	Output
9	Output frequency-	



Isolated Safety Barrier at Detection Side PHD-11DP-23



Frequency value, input with provided power 24V/ frequency value output with proportion 1:1 1 input 1 output

Overview

Isolated safety barrier at detection side: PHD-11DP-23, can transmit the frequency signal in dangerous area to safe area and output in frequency value in proportion 1:1, has very strong an-interference ability.

The circuit provides for the field instrument provided power supply.

This product needs an external 20-35VDC power supply.

Specifications

Supply voltage	20~35VDC, power consumption about 2.5W
Provided voltage	Open circuit voltage≤25VDC, provided voltage ≥ 16VDC when with load 20mA
Input signal	Frequency ≤100KHz, amplitude ≤24V, duty cycle ≥20%, high level ≥4V, low level ≤1V
Output signal	Frequency 1:1 output, signal high level ≥20V, low level ≤0.5V, driving current ≤15mA, load resistance ≥2KΩ
Number of input and output channels	1 input 1 output
Applicable field equipments	Frequency equipment
Temperature parameters	Working temperature: -20 ℃ ~+60 ℃, storage temperature:-40 ℃ ~+80 ℃
Relative humidity	10%~95% RH no condensation
Dielectric strength	≥2500VAC/min (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	≥100MΩ (between input/output/power supply)
Dimensions and weight	Thickness 19mm* width 102mm* height 115mm weight about 150g
Explosion-proof mark	[Exia Ga]IIC
Certification Body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Authentication parameters (between terminals 2-3)	Um=250V Uo=28V Io=93mA Co=0.05μF Lo=2.4mH Po=0.65W
Authentication parameters (between terminals 5-6)	Um=250V Uo=8V Io=2.5mA Co=3.5μF Lo=100mH Po=5mW
Installation site requirements	It can be connected with instruments in 0 zone with II A, II B, II C dangerous gas

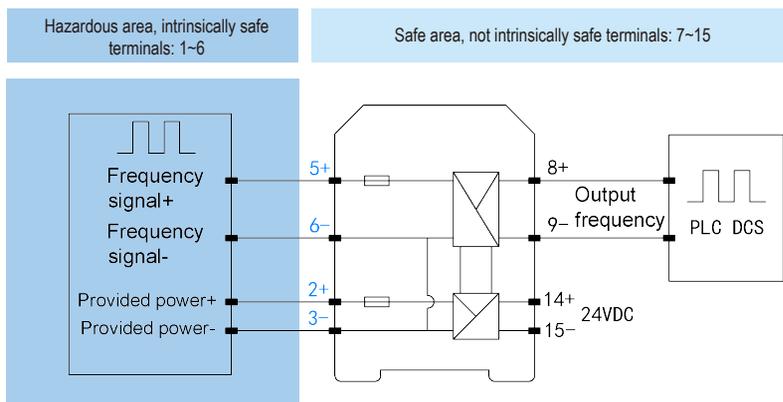
Top view

Terminal assignments

Schematic diagram



Terminal	Terminal assignments	
14	Power supply+	Power supply 20~35VDC
15	Power supply-	
2	Provided power+	Provided power
3	Provided power-	
5	Input frequency+	Input
6	Input frequency-	
8	Output frequency+	Output
9	Output frequency-	



Isolated Safety Barrier at Operating Side PHC-11DD-11



4~20mA input /4~20mA output 1 input 1 output

Overview

Isolated safety barrier at operating side: PHC-11DD-11, its function is to transmit the 4-20mA signal from safe area to the dangerous area, to drive the valve positioner, electric/gas converters and other actuators to work.

This product needs an external 20-35VDC power supply.
Terminal isolation between power supply, input and output.

Specifications

Supply voltage	20~35VDC, power consumption about 1.5W (when 24 VDC, output 20mA)
Input signal	4~20mADC (HART)
Output signal	4~20mADC (HART)
Allowable output load capacity	0-500 Ω
Output accuracy	± 0.1%F.S
Temperature drift	0.1%F.S/10 ℃
Number of input and output channels	1 input 1 output
Applicable onsite equipments	Valve positioner, electric/pneumatic converter
Temperature parameters	Working temperature: -20 ℃ ~+60 ℃ , storage temperature:-40 ℃ ~+80 ℃
Relative humidity	10%~95% RH no condensation
Dielectric strength	≥2500VAC/min (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	≥100MΩ (between input/output/power supply)
Dimensions and weight	Thickness 19mmXwidth 102mmXheight 115mm weight about 150g
Explosion-proof mark	[Exia Ga]IIC
Certification body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Authentication parameters (between terminals 5-6)	Um=250V Uo=28V Io=93mA Co=0.05μF Lo=2.4mH Po=0.65W
Installation site requirements	It can be connected with instruments in 0 zone with II A, II B, II C dangerous gas

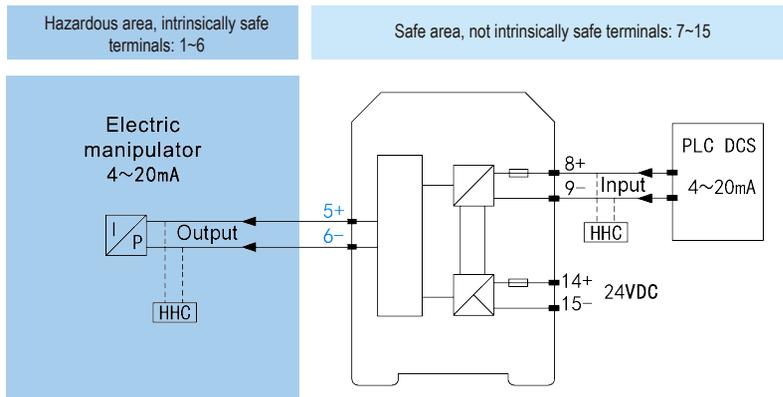
Top view

Terminal assignments

Schematic diagram



Terminal	Terminal assignments	
14	Power supply+	Power supply 20~35VDC
15	Power supply-	
8	Input+	Input 4~20mA
9	Input-	
5	Output+	Output 4~20mA
6	Output-	



Isolated Safety Barrier at Operating Side PHC-22DD-1111



4~20mA input /4~20mA output 2 inputs 2 outputs

Overview

Isolated safety barrier at operating side: PHC-22DD-1111, its function is to transmit the 4-20mA signal from safe area to the dangerous area, to drive the valve positioner, electric/gas converters and other actuators to work.

This product needs an external 20-35VDC power supply.
Terminal isolation between power supply, input and output.

Specifications

Supply voltage	20~35VDC, power consumption about 1.8W (when 24 VDC, output 20mA)
Input signal	4~20mADC (HART)
Output signal	4~20mADC (HART)
Allowable output load capacity	0-500 Ω
Output accuracy	± 0.1%F.S
Temperature drift	0.1%F.S/10 °C
Number of input and output channels	2 inputs 2 outputs
Applicable onsite equipments	Valve positioner, electric/pneumatic converter
Temperature parameters	Working temperature: -20 °C ~+60 °C , storage temperature:-40 °C ~+80 °C
Relative humidity	10%~95% RH no condensation
Dielectric strength	≥2500VAC/min (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	≥100MΩ (between input/output/power supply)
Dimensions and weight	Thickness 19mmXwidth 102mmXheight 115mm weight about 150g
Explosion-proof mark	[Exia Ga]IIC
Certification body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Authentication parameters (between terminals 2-3,5-6)	Um=250V Uo=28V Io=93mA Co=0.05μF Lo=2.4mH Po=0.65W
Installation site requirements	It can be connected with instruments in 0 zone with II A, II B, II C dangerous gas

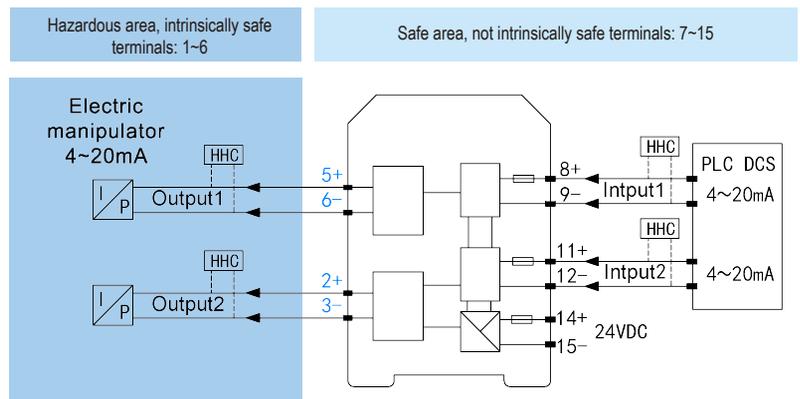
Top view

Terminal assignments

Schematic diagram



Terminal	Terminal assignments	
14	Power supply+	Power supply 20~35VDC
15	Power supply-	
8	Input+	Input1 4~20mA
9	Input-	
5	Output+	Output1 4~20mA
6	Output-	
11	Input+	Input2 4~20mA
12	Input-	
2	Output+	Output2 4~20mA
3	Output-	



Isolated Safety Barrier at Operating Side PHC-11NF-34



DC voltage input controlled by contacts /switch drive output 1 input 1 output

Overview

Isolated safety barrier at operating side: PHC-11NF-34, its function is to drive the intrinsically safe equipments on site in dangerous area through power supply in safe area controlled by the switch, it is suitable for driving for example solenoid valve, sound and light alarm.

The input terminal of the safe side is connected to the power supply terminal through the contact.

Specifications

Input	Switch contact, controlled power supply: 20~35VDC, power consumption is about 1.8 W.
Output	Open circuit voltage $\geq 24VDC$, UE/IE=12. 8V/45mA
Alarm relay function	The dial switch K1 is set to the "ON" side, the circuit selects the alarm function Load resistance $< 50\Omega$, short circuit alarm (SC), load resistance $> 10k\Omega$, open circuit alarm (LB)
Output characteristics of alarm relay	Response time: 20ms, driving capacity: 250VAC/2A, when 30VDC/2A resistive load
Number of input and output channels	1 input 1 output
Applicable onsite equipments	Intrinsically safe solenoid valve, audible and visual alarm equipments
Temperature parameters	Working temperature: $-20\text{ }^{\circ}\text{C} \sim +60\text{ }^{\circ}\text{C}$, storage temperature: $-40\text{ }^{\circ}\text{C} \sim +80\text{ }^{\circ}\text{C}$
Relative humidity	10%~95% RH no condensation
Dielectric strength	$\geq 2500VAC/min$ (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	$\geq 100M\Omega$ (between input/output)
Dimensions and weight	Thickness 19mm X width 102mm X height 115mm weight about 150g
Explosion-proof mark	[Exia Ga]IIC
Certification body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Authentication parameters (between terminals 5-6)	$U_m=250V$ $U_o=28V$ $I_o=119mA$ $C_o=0.05\mu F$ $L_o=2.0mH$ $P_o=0.83W$
Installation site requirements	It can be connected with instruments in 0 zone with II A, II B, II C dangerous gas

Top view

Terminal assignments

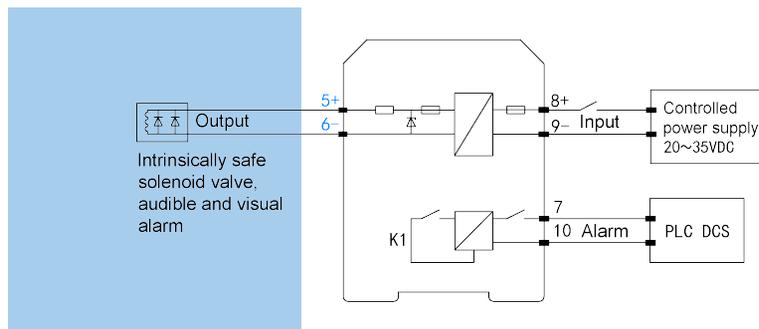
Schematic diagram



Terminal	Terminal assignments		
8	Input+	Input switch contact	Controlled power supply 20~35VDC
9	Input-		
5	Output+	Output	Solenoid valve audible and visual alarm IE=45mA
6	Output-		
7	Alarm output	Alarm relay output	
10	Alarm output		

Hazardous area, intrinsically safe terminals: 1~6

Safe area, not intrinsically safe terminals: 7~15



Isolated Safety Barrier at Operating Side PHC-22NF-3434



DC voltage input controlled by contacts /switch drive output 2 inputs 2 outputs

Overview

Isolated safety barrier at operating side: PHC-22NF-3434, its function is to drive the intrinsically safe equipments on site in dangerous area through power supply in safe area controlled by the switch, it is suitable for driving for example solenoid valve, sound and light alarm.

The input terminal of the safe side is connected to the power supply terminal through the contact.

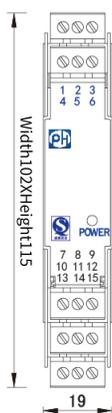
Specifications

Input	Switch contact, controlled power supply: 20~35VDC, power consumption is about 1.8 W/line.
Output	Open circuit voltage $\geq 24VDC$, UE/IE=12. 8V/45mA
Alarm relay function	When the dial switch K1, K2 is set to the "ON" side, respectively to control the first output, and the second output alarm. Load resistance <math>< 50\Omega</math>, short circuit alarm (SC), load resistance >math>> 10k\Omega</math>, open circuit alarm (LB)
Output characteristics of alarm relay	Response time: 20ms, driving capacity: 250VAC/2A, when 30VDC/2A resistive load
Number of input and output channels	2 inputs 2 outputs
Applicable onsite equipments	Intrinsically safe solenoid valve, audible and visual alarm equipments
Temperature parameters	Working temperature: $-20\text{ }^{\circ}\text{C} \sim +60\text{ }^{\circ}\text{C}$, storage temperature: $-40\text{ }^{\circ}\text{C} \sim +80\text{ }^{\circ}\text{C}$
Relative humidity	10%~95% RH no condensation
Dielectric strength	$\geq 2500VAC/min$ (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	$\geq 100M\Omega$ (between input/output)
Dimensions and weight	Thickness 19mm X width 102mm X height 115mm weight about 150g
Explosion-proof mark	[Exia Ga]IIC
Certification body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Authentication parameters (between terminals 2-3,5-6)	$U_m=250V$ $U_o=28V$ $I_o=119mA$ $C_o=0.05\mu F$ $L_o=2.0mH$ $P_o=0.83W$
Installation site requirements	It can be connected with instruments in 0 zone with II A, II B, II C dangerous gas

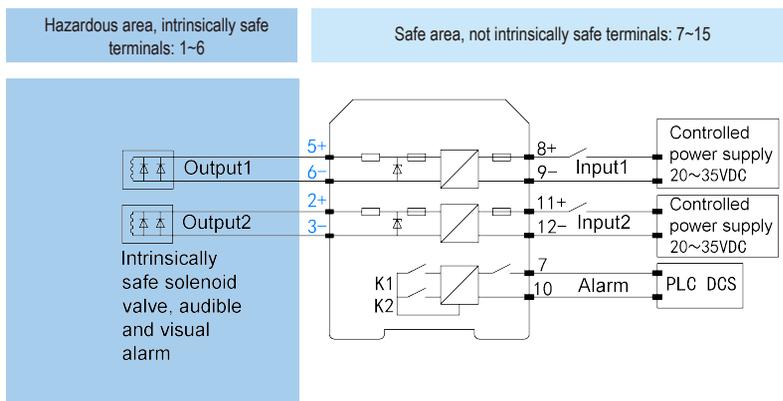
Top view

Terminal assignments

Schematic diagram



Terminal	Terminal assignments		
8	Input+	Input1 Switch contact	Controlled power supply 20~35VDC
9	Input-		
5	Output+	Output1	Controlling solenoid valve etc IE=45mA
6	Output-		
11	Input+	Input2 Switch contact	Controlled power supply 20~35VDC
12	Input-		
2	Output+	Output2	Controlling solenoid valve etc IE=45mA
3	Output-		
7	Alarm output	Alarm relay output	
10	Alarm output		



Isolated Safety Barrier at Operating Side PHC-11NF-36



DC voltage input controlled by contacts /switch drive output 1 input 1 output

Overview

Isolated safety barrier at operating side: PHC-11NF-36, its function is to drive the intrinsically safe equipments on site in dangerous area through power supply in safe area controlled by the switch, it is suitable for driving for example solenoid valve, sound and light alarm.
The input terminal of the safe side is connected to the power supply terminal through the contact.

Specifications

Input	Switch contact, controlled power supply: 20~35VDC, power consumption is about 2.5 W.
Output	Open circuit voltage $\geq 22VDC$, UE/IE=10. 8V/60mA
Alarm relay function	The dial switch K1 is set to the "ON" side, the circuit selects the alarm function Load resistance $<50\Omega$, short circuit alarm (SC), load resistance $>10k\Omega$, open circuit alarm (LB)
Output characteristics of alarm relay	Response time: 20ms, driving capacity: 250VAC/2A, when 30VDC/2A resistive load
Number of input and output channels	1 input 1 output
Applicable onsite equipments	Intrinsically safe solenoid valve, audible and visual alarm equipments
Temperature parameters	Working temperature: $-20\text{ }^{\circ}\text{C} \sim +60\text{ }^{\circ}\text{C}$, storage temperature: $-40\text{ }^{\circ}\text{C} \sim +80\text{ }^{\circ}\text{C}$
Relative humidity	10%~95% RH no condensation
Dielectric strength	$\geq 2500VAC/min$ (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	$\geq 100M\Omega$ (between input/output)
Dimensions and weight	Thickness 19mm X width 102mm X height 115mm weight about 150g
Explosion-proof mark	[Exia Ga]IIC
Certification body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Authentication parameters (between terminals 5-6)	$U_m=250V$ $U_o=25.2V$ $I_o=147mA$ $C_o=0.07\mu F$ $L_o=0.8mH$ $P_o=0.93W$
Installation site requirements	It can be connected with instruments in 0 zone with II A, II B, II C dangerous gas

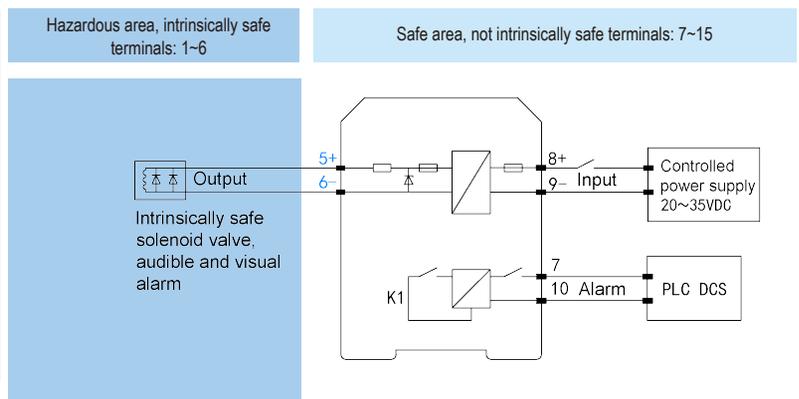
Top view

Terminal assignments

Schematic diagram



Terminal	Terminal assignments		
8	Input+	Input Switch contact	Controlled power supply 20~35VDC
9	Input-		
5	Output+	Output	Controlling solenoid valve etc IE=60mA
6	Output-		
7	Alarm output	Alarm relay output	
10	Alarm output		



Isolated Safety Barrier at Operating Side PHC-22NF-3636



DC voltage input controlled by contacts /switch drive output 2 inputs 2 outputs

Overview

Isolated safety barrier at operating side: PHC-22NF-3636, its function is to drive the intrinsically safe equipments on site in dangerous area through power supply in safe area controlled by the switch, it is suitable for driving for example solenoid valve, sound and light alarm.

The input terminal of the safe side is connected to the power supply terminal through the contact.

Specifications

Input	Switch contact, controlled power supply: 20~35VDC, power consumption is about 2.5 W/line.
Output	Open circuit voltage $\geq 22\text{VDC}$, UE/IE=10. 8V/60mA
Alarm relay function	When the dial switch K1, K2 is set to the "ON" side, respectively to control the first output, and the second output alarm. Load resistance $< 50\Omega$, short circuit alarm (SC), load resistance $> 10\text{k}\Omega$, open circuit alarm (LB)
Output characteristics of alarm relay	Response time: 20ms, driving capacity: 250VAC/2A, when 30VDC/2A resistive load
Number of input and output channels	2 inputs 2 outputs
Applicable onsite equipments	Intrinsically safe solenoid valve, audible and visual alarm equipments
Temperature parameters	Working temperature: $-20\text{ }^{\circ}\text{C} \sim +60\text{ }^{\circ}\text{C}$, storage temperature: $-40\text{ }^{\circ}\text{C} \sim +80\text{ }^{\circ}\text{C}$
Relative humidity	10%~95% RH no condensation
Dielectric strength	$\geq 2500\text{VAC/min}$ (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	$\geq 100\text{M}\Omega$ (between input/output)
Dimensions and weight	Thickness 19mm X width 102mm X height 115mm weight about 150g
Explosion-proof mark	[Exia Ga]IIC
Certification body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Authentication parameters (between terminals 2-3,5-6)	$U_m=250\text{V}$ $U_o=25.2\text{V}$ $I_o=147\text{mA}$ $C_o=0.07\mu\text{F}$ $L_o=0.8\text{mH}$ $P_o=0.93\text{W}$
Installation site requirements	It can be connected with instruments in 0 zone with II A, II B, II C dangerous gas

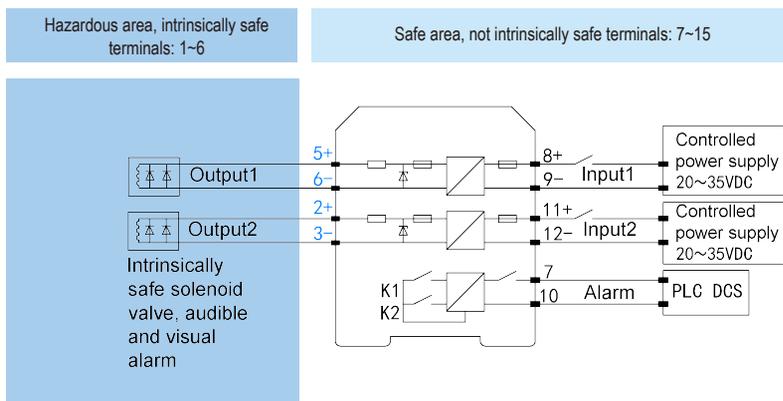
Top view

Terminal assignments

Schematic diagram



Terminal	Terminal assignments		
8	Input+	Input1 Switch contact	Controlled power supply 20~35VDC
9	Input-		
5	Output+	Output1	Solenoid valve IE=60mA
6	Output-		
11	Input+	Input2 Switch contact	Controlled power supply 20~35VDC
12	Input-		
2	Output+	Output2	Controlling solenoid valve IE=60mA
3	Output-		
7	Alarm output	Alarm relay output	
10	Alarm output		



Isolated Safety Barrier at Operating Side PHC-11NF-35



DC voltage input controlled by contacts /switch drive output 1 input 1 output

Overview

Isolated safety barrier at operating side: PHC-11NF-35, its function is to drive the intrinsically safe equipments on site in dangerous area through power supply in safe area controlled by the switch, it is suitable for driving for example solenoid valve, sound and light alarm.
The input terminal of the safe side is connected to the power supply terminal through the contact.

Specifications

Input	Switch contact, controlled power supply: 20~35VDC, power consumption is about 2.8 W.
Output	Open circuit voltage $\geq 22VDC$, UE/IE=12.8V/75mA
Alarm relay function	The dial switch K1 is set to the "ON" side, the circuit selects the alarm function Load resistance $< 50\Omega$, short circuit alarm (SC), load resistance $> 10k\Omega$, open circuit alarm (LB)
Output characteristics of alarm relay	Response time: 20ms, driving capacity: 250VAC/2A, when 30VDC/2A resistive load
Number of input and output channels	1 input 1 output
Applicable onsite equipments	Intrinsically safe solenoid valve, audible and visual alarm equipments
Temperature parameters	Working temperature: $-20\text{ }^{\circ}\text{C} \sim +60\text{ }^{\circ}\text{C}$, storage temperature: $-40\text{ }^{\circ}\text{C} \sim +80\text{ }^{\circ}\text{C}$
Relative humidity	10%~95% RH no condensation
Dielectric strength	$\geq 2500VAC/min$ (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	$\geq 100M\Omega$ (between input/output)
Dimensions and weight	Thickness 19mm X width 102mm X height 115mm weight about 150g
Explosion-proof mark	[Exia Ga]IIB
Certification body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Authentication parameters (between terminals, 5-6)	$U_m=250V$ $U_o=25.2V$ $I_o=220mA$ $C_o=0.58\mu F$ $L_o=1.8mH$ $P_o=1.39W$
Installation site requirements	It can be connected with instruments in 0 zone with II A, II B, II C dangerous gas

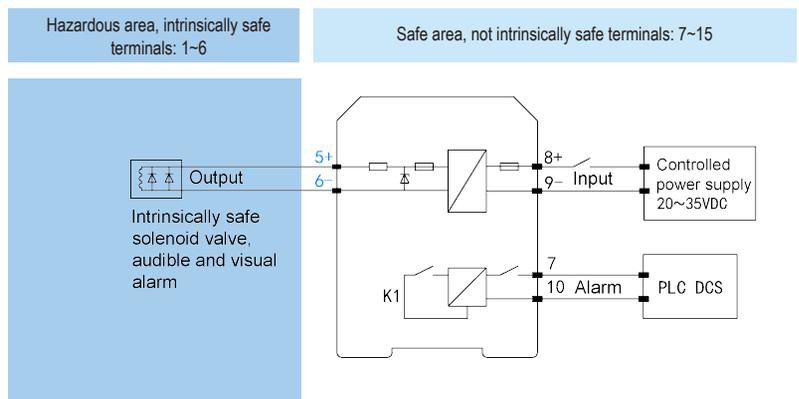
Top view

Terminal assignments

Schematic diagram



Terminal	Terminal assignments		
8	Input+	Input Switch contact	Controlled power supply 20~35VDC
9	Input-		
5	Output+	Output	Controlling solenoid valve etc IE=75mA
6	Output-		
7	Alarm output	Alarm relay output	
10	Alarm output		



Isolated Safety Barrier at Operating Side PHC-22NF-3535



DC voltage input controlled by contacts /switch drive output 2 inputs 2 outputs

Overview

Isolated safety barrier at operating side: PHC-22NF-3535, its function is to drive the intrinsically safe equipments on site in dangerous area through power supply in safe area controlled by the switch, it is suitable for driving for example solenoid valve, sound and light alarm.

The input terminal of the safe side is connected to the power supply terminal through the contact.

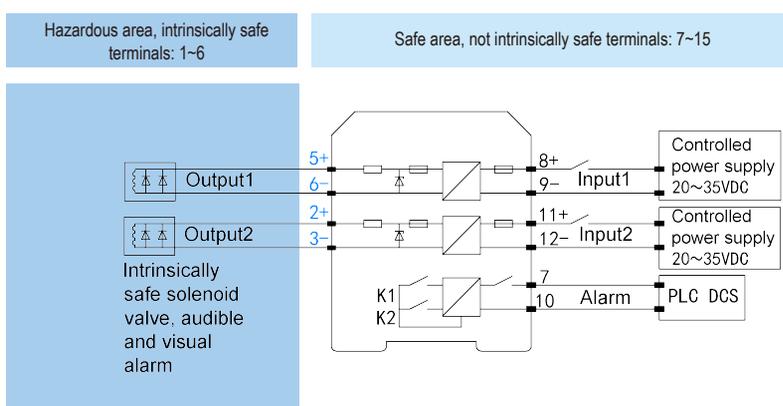
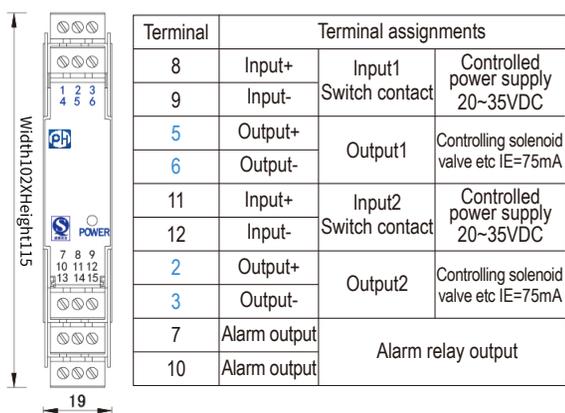
Specifications

Input	Switch contact, controlled power supply: 20~35VDC, power consumption is about 2.8 W/line.
Output	Open circuit voltage $\geq 22\text{VDC}$, UE/IE=12.8V/75mA
Alarm relay function	When the dial switch K1, K2 are set to the "ON" side, respectively to control the first output alarm, and the second output alarm. Load resistance $<50\Omega$, short circuit alarm (SC), load resistance $>10\text{k}\Omega$, open circuit alarm (LB)
Output characteristics of alarm relay	Response time: 20ms, driving capacity: 250VAC/2A, when 30VDC/2A resistive load
Number of input and output channels	2 inputs 2 outputs
Applicable onsite equipments	Intrinsically safe solenoid valve, audible and visual alarm equipments
Temperature parameters	Working temperature: $-20\text{ }^{\circ}\text{C} \sim +60\text{ }^{\circ}\text{C}$, storage temperature: $-40\text{ }^{\circ}\text{C} \sim +80\text{ }^{\circ}\text{C}$
Relative humidity	10%~95% RH no condensation
Dielectric strength	$\geq 2500\text{VAC/min}$ (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	$\geq 100\text{M}\Omega$ (between input/output)
Dimensions and weight	Thickness 19mm X width 102mm X height 115mm weight about 150g
Explosion-proof mark	[Exia Ga]IIB
Certification body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Authentication parameters (between terminals, 2-3,5-6)	$U_m=250\text{V}$ $U_o=25.2\text{V}$ $I_o=220\text{mA}$ $C_o=0.58\mu\text{F}$ $L_o=1.8\text{mH}$ $P_o=1.39\text{W}$
Installation site requirements	It can be connected with instruments in 0 zone with II A, II B, II C dangerous gas

Top view

Terminal assignments

Schematic diagram



Isolated Safety Barrier at Operating Side PHC-11DF-14



Contact and logic level input/switch driving output 1 input 1 output

Overview

Isolated safety barrier at operating side: PHC-11DF-14, which can convert the input quantity of contact switch and logic level in safety area into the driving quantity for intrinsically safe equipments, and output it to the field of dangerous area, so as to control solenoid valve, audible and visual alarm, etc.

This product needs an external 20~35VDC power supply

Specifications

Supply voltage	20~35VDC, power consumption about 2.2W
Input	Switch contact, logic level
Output	Open circuit voltage $\geq 24V$, UE/IE=12.8V/45mA Inversion function: K1 is set to the "ON" side, the circuit output is inverted
Alarm relay function	The dial switch K2 is set to the "ON" side, the circuit adopts the alarm function Load resistance < 50 Ω , short-circuit alarm (SC), load resistance > 10K Ω , open circuit alarm (LB)
Alarm relay output characteristics	Response time: 20ms, driving capacity: 250VAC/2A, 30VDC/2A under resistive load
Number of input and output channels	1 input 1 output
Applicable onsite equipments	Intrinsically safe solenoid valve, audible and visual alarm equipments
Temperature parameters	Working temperature: -20 $^{\circ}C$ ~ +60 $^{\circ}C$, storage temperature: -40 $^{\circ}C$ ~ +80 $^{\circ}C$
Relative humidity	10%~95% RH no condensation
Dielectric strength	$\geq 2500VAC/min$ (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	$\geq 100M\Omega$ (between input/output)
Dimensions and weight	Thickness 19mm x width 102mm x high 115mm weight about 150g
Explosion-proof mark	[Exia Ga]IIC
Certification body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Authentication parameters (between terminals 5-6)	$U_m=250V$ $U_o=28V$ $I_o=119mA$ $C_o=0.05\mu F$ $L_o=2.1mH$ $P_o=0.833W$
Installation site requirements	It can be connected with instruments in 0 zone with II A, II B, II C dangerous gas

Top view

Terminal assignments

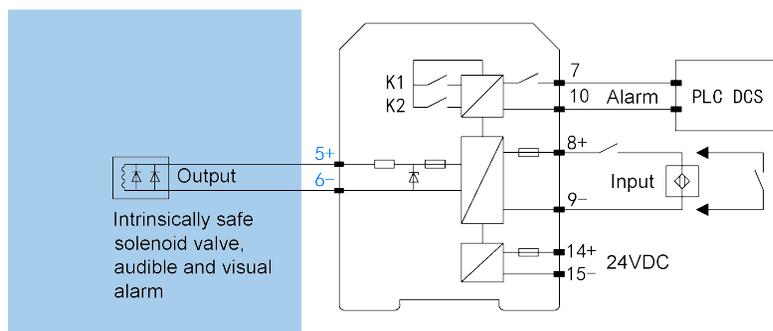
Schematic diagram



Terminal	Terminal assignments
14	Power supply+
15	Power supply-
Power supply 20~35VDC	
8	Input+
9	Input-
Input contact or logic level	
5	Output+
6	Output-
Output Controlling solenoid valve etc IE=45mA	
7	Alarm output
10	Alarm output
Alarm relay output	

Hazardous area, intrinsically safe terminals: 1~6

Safe area, not intrinsically safe terminals: 7~15



Isolated Safety Barrier with Loop Power

PHD-11ND-52/PHD-22ND-5252



Two-wire 4~20mA (HART) input /Two-wire 4~20mA (HART) output
1 input 1 output/ 2 inputs 2 outputs

Overview

Isolated safety barrier with loop power supply, which can provide isolated power for the transmitter in dangerous area, transmit the current signal isolated from the transmitter in dangerous area to the safe area; meantime it supports the bilateral communication of the HART digital signals. It is suitable for the DCS and PLC system with loop power.

Specifications

Connect with 2-wire transmitter	In dangerous area: input 2-wire 4~20mA(HART) provided power: $U_o \geq U_e - R_L \times 0.02 - 6$
Output signal	2-wire 4-20mADC(HART)
Transmission accuracy	±0.1%F.S
Temperature drift	0.4% F.S/10 C
Temperature parameters	Continuous working temperature: -20 C ~ +60 C , storage temperature: -40 C ~ +80 C
Relative humidity	10%~95% RH no condensation
Dielectric strength	≥1500VAC/min (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	≥100MΩ (between input/output)
Dimensions and weight	Thickness 19mm X width 102mm X height 115mm weight about 150g
Explosion-proof mark	[Exia Ga] IIC
Certification body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Certified parameters (between terminals 2-3, 5-6)	$U_m=250V$ $U_o=23.1V$ $I_o=29mA$ $C_o=0.096\mu F$ $L_o=0.5mH$ $P_o=0.67W$
Installation place requirements	It can be connected with instruments in 0 zone with IIA, IIB, IIC dangerous gas
MTBF	80000h

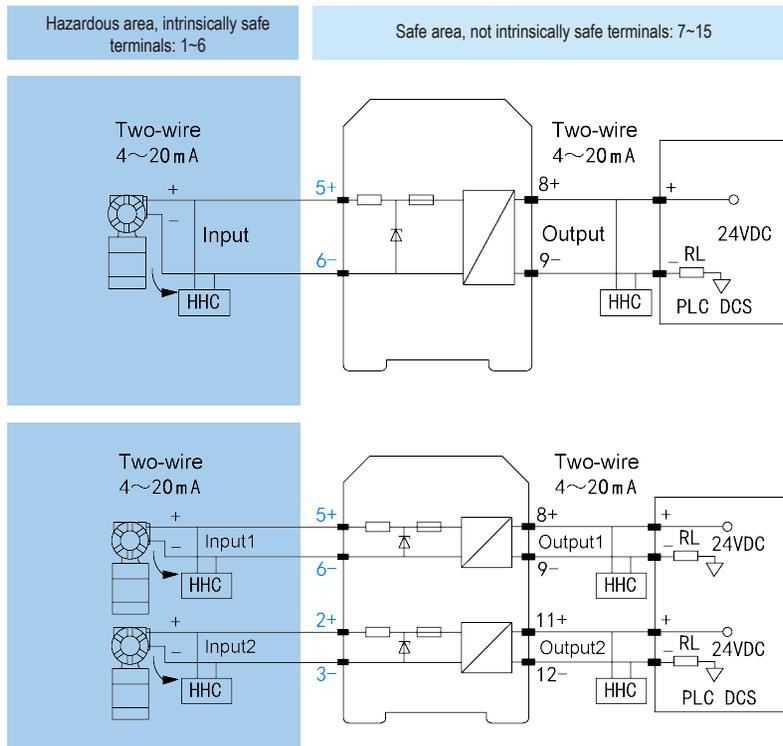
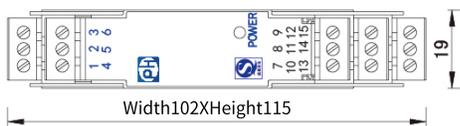
Isolated Safety Barrier with Loop Power

PHD-11ND-52/PHD-22ND-5252

Top view Terminal assignments Schematic diagram

Terminal	Terminal assignments	
5	Input+	Input 2-wire 4~20mA
6	Input-	
8	Output+	Output 2-wire 4~20mA
9	Output-	

Terminal	Terminal assignments	
5	Input+	Input1 2-wire 4~20mA
6	Input-	
2	Input+	Input2 2-wire 4~20mA
3	Input-	
8	Output+	Output1 2-wire 4~20mA
9	Output-	
11	Output+	Output2 2-wire 4~20mA
12	Output-	



Isolated Safety Barrier with Loop Power

PHC-11ND-11/PHC-22ND-1111



4~20mA (HART) input / 4~20mA (HART) output
 1 input 1 output/ 2 inputs 2 outputs

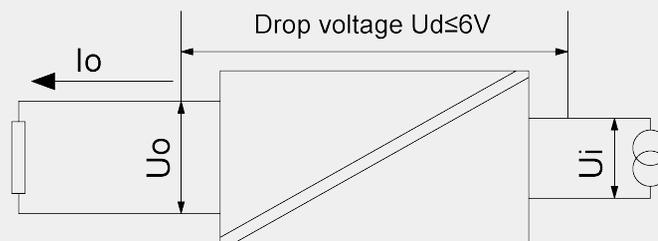
Overview

Isolated safety barrier with loop power supply, which can transmit the current signal in safe area isolated to the dangerous area, to drive the actuators and other equipments on field. Meantime it supports the bilateral communication of the HART digital signals. It is suitable for the DCS and PLC system etc. with loop power.

Specifications

Connect with valve positioner

Dangerous area: 4~20mA, (HART)
 Load capacity $RL \leq (U_i - 6)/0.02$



Input signal	4-20mADC(HART)
Transmission accuracy	±0.1%F.S
Temperature drift	0.2% F.S/10 C
Temperature parameters	Continous working temperature: -20 C ~ +60 C , storage temperature: -40 C ~ +80 C
Relative humidity	10%~95% RH no condensation
Dielectric strength	≥1500VAC/min (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	≥100MΩ (between input/output)
Dimensions and weight	Thickness 19mm X width 102mm X height 115mm weight about 150g
Explosion-proof mark	[Exia Ga] IIC
Certification body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Certified parameters (between terminals 2-3, 5-6)	$U_m=250V$ $U_o=23.1V$ $I_o=29mA$ $C_o=0.096\mu F$ $L_o=0.5mH$ $P_o=0.67W$
Installation place requirements	It can be connected with instruments in 0 zone with IIA, IIB, IIC dangerous gas
MTBF	80000h

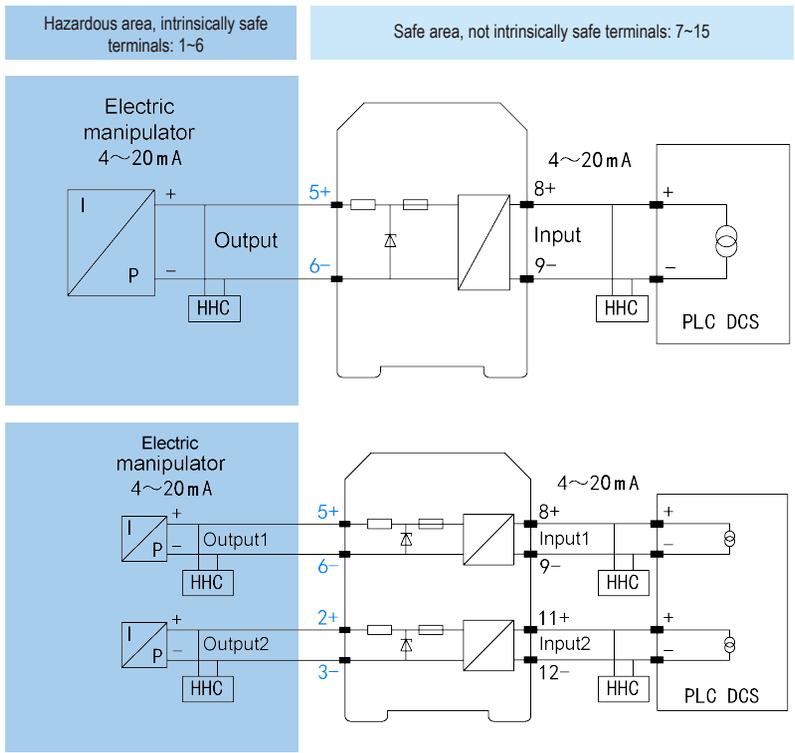
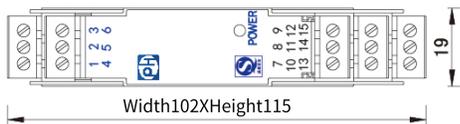
Isolated Safety Barrier with Loop Power

PHC-11ND-11/PHC-22ND-1111

Top view Terminal assignments Schematic diagram

Terminal	Terminal assignments	
8	Input+	Input 4~20mA
9	Input-	
5	Output+	Output 4~20mA
6	Output-	

Terminal	Terminal assignments	
8	Input+	Input1 4~20mA
9	Input-	
11	Input+	Input2 4~20mA
12	Input-	
5	Output+	Output1 4~20mA
6	Output-	
2	Output+	Output2 4~20mA
3	Output-	



Isolated Safety Barrier with Loop Power

PHD-11NZ-*2/PHD-22NZ-*2*2



RTD input /Two-wire 4~20mA (HART) output
1 input 1 output/ 2 inputs 2 outputs

Overview

Isolated safety barrier with loop power, which can convert the two-wire or three-wire RTD signal on field to the corresponding 4~20mA signal, and transmit it from the dangerous area to the safe area. It is mainly suitable for the DCS and PLC systems etc. with loop power supply.

PHD-11NZ*2/PHD-22NZ-*2*2

Specifications

Input signal	2-wire or 3-wire RTD
Output signal	2-wire 4 ~ 20mADC
Allowable output load capacity	$R_L \leq (U_e - 16) / 0.02$
Number of input and output channels	1 input 1 output or 2 inputs 2 outputs
Applicable field instrument	2-wire or 3-wire RTD Cu50, Cu100, Pt100, Pt1000
Conversion accuracy	$\pm 0.1\% F.S$
Temperature drift	0.2% F.S/10 °C
Temperature parameters	Continuous working temperature: -20 °C ~ +60 °C, storage temperature: -40 °C ~ +80 °C
Relative humidity	35%~85% RH no condensation
Dielectric strength	$\geq 1500VAC/min$ (between intrinsically safe side and non-intrinsically safe side)
Insulation resistance	$\geq 100M\Omega$ (between input/output)
Dimensions and weight	Thickness 19mm X width 102mm X height 115mm weight about 150g
Explosion-proof mark	[Exia Ga] IIC
Certification body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Certified parameters (between terminals 1-2-3, 4-5-6)	$U_m=250V$ $U_o=8.5V$ $I_o=95mA$ $C_o=6.5\mu F$ $L_o=3.6mH$ $P_o=209mW$
Certification body	CQST(China National Quality Supervision and Test Centre for Explosion Protected Electrical Products)
Installation place requirements	It can be connected with instruments in 0 zone with IIA, IIB, IIC dangerous gas
MTBF	80000h

Input signal type and measurement range table

Code	RTD model	No need of extra explanation about temperature range
2	Cu50	-50 °C ~150 °C
3	Cu100	-50 °C ~150 °C
4	Pt100	-200 °C ~850 °C
5	Pt10	-200 °C ~850 °C

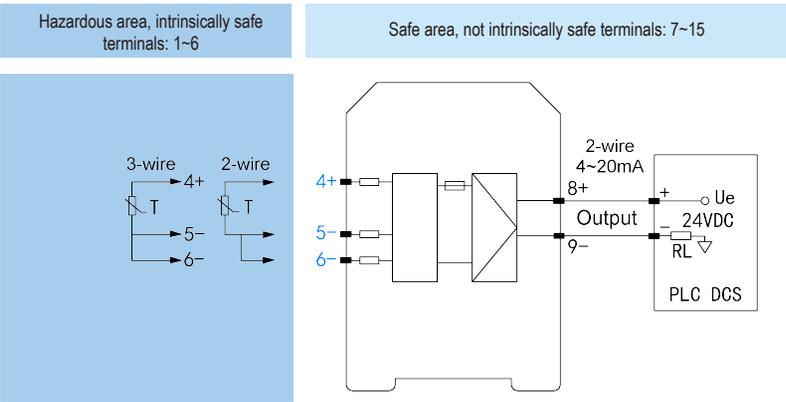
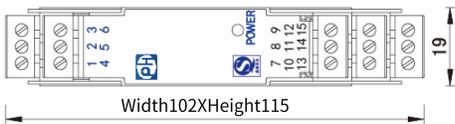
Isolated Safety Barrier with Loop Power

PHD-11NZ-*2/PHD-22NZ-*2*2

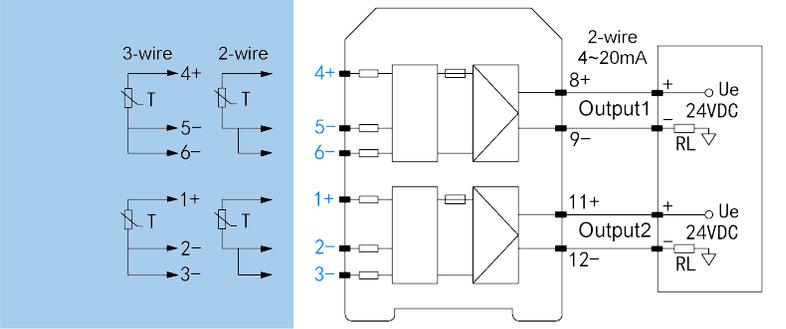
Top view Terminal assignments Schematic diagram

Terminal	Terminal assignments	
	Input 2-wire	Input 3-wire
4	Input+	Input+
5	Input-	Input-
6	With 5 short connected	Input-
8	Output+	Output 2-wire 4~20mA
9	Output-	

Terminal	Terminal assignments	
	Input 2-wire	Input 3-wire
4	Input1+	Input1+
5	Input1-	Input1-
6	With 5 short connected	Input1-
1	Input2+	Input2+
2	Input2-	Input2-
3	With 2 short connected	Input2-
8	Output+	Output1 2-wire 4~20mA
9	Output-	
11	Output+	Output2 2-wire 4~20mA
12	Output-	



Note: 1. When it is with 3-wire RTD input, the resistance values of the three wires should be equal as much as possible.
 2. When it is with 2-wire RTD signal input, terminals 5 and 6 of the isolated safety barrier must be short-circuited.



Note: 1. When it is with 3-wire RTD input, the resistance values of the three wires should be equal as much as possible.
 2. When it is with 2-wire RTD signal input, terminals 5 and 6 (2 and 3) of the isolated safety barrier must be short-circuited.