Isolated Safety Barrier

HD5500.AT Series

Data Sheet

HD5500.AT series isolated barriers are designed explicitly according to latest relative standard for protection of electrical signals located in hazardous areas.

Installed in safe areas, HD5500.AT series Isolated barriers work in company with intrinsically safe instruments located in hazardous areas to guarantee a totally IS explosion protection system. With the inside signal transfer module, HD5500.AT series isolated safety barriers can also play the roles of RTD temperature transmitter, thermocouple temperature transmitter and mV transmitter, as well as repeater power supply, solenoid driver and so on.

Safety

All units with IP20 degree of mechanical protection are compliant to GB3836.1-2010, GB3836.4-2010, IEC 60079-0: 2017, IEC60079-11: 2011, EN IEC 60079-0:2018 and EN 60079-11:2012, and certified for connection into Zone0, Zone1, Zone2, Zone20, Zone21, Zone22, ⅡC, ⅡB, ⅡA, T1-T6 hazardous areas worldwide.

No high-integrity earth needed

HD5500.AT series Isolated barriers need no dedicated ground and consequently eliminate the inherent interference of ground loop.

Full input/output/power supply isolation

Full 3-port isolation between the input, output and power supply circuits achieves highly floating systems for the pursuit of extraordinary resistibility to complicated electromagnetic interference from industrial environment.

High performance components

High performance components are widely adopted for optimal signal integrity, taking into account both high accuracy and low drift of full range.

Compact modular design

With compact modular design, HD5500.AT series isolated barriers provide wide application range in the minimum space.

Standard DIN-rail mounting and PLUG & PLAY terminals

Standard DIN rail mounting format ensures convenient and steady in

Warnings:

1. Read and understand manual before use
2. Do not install the equipment in hazardous area
3. Do not change any part of the equipment without SUPCON permission
4. The respective national regulations as well as the general rules of engineering which apply to the installation and operation of explosion protected apparatus will have to be observed.
5. Terminal polarity must not be misconnected

■ Ordering Code

HD55		HD5500.AT series isolated barrier						
		Code		Chan	Function	Input		Output
		16	.AT	2	Switch Input	Contact switch, NAMUR proximity switch, etc.		Normal open contacts，or close contacts (Optional).
		26	.AT	1	Solenoid / Alarm Driver	Contact or logic signal input		12.5V<V_o<22.5V, I_{max}=45mA Solenoid valve, Alarm etc.
		42	.AT	1	Repeater power supply, supporting bi-directional HART communication	2/3-wire transmitter (4~20)mA, or (4~20)mA current direct input		(4~20)mA output. Passive (4~20)mA or (1~5)V output (Optional).
		43	.AT	1 input 2 outputs	Repeater power supply, supporting bi-directional HART communication	2/3-wire transmitter (4~20)mA, or (4~20)mA current direct input		(4~20)mA output. Passive (4~20)mA or (1~5)V output (Optional).
		46	.AT	1	Isolating driver supporting bi-directional HART communication	(4~20)mA input		(4~20)mA output. (1~5)V output (Optional)
		73	.AT	1	Temperature Converter	TC	R (-20~1750)℃(Optional)	(4~20)mA output. Passive(4~20)mA or (1~5)V output (Optional)
							J (-200~1200)℃(Optional)	
							K (-200~1370)℃(Optional)	
							B (600~1800)℃(Optional)	
							E (-200~950)℃(Optional)	
							N (-200~1300)℃(Optional)	
							S (-20~1750)℃(Optional)	
							T (-200~400)℃(Optional)	
						mV	(-75~75)mV(Optional)	
						RTD	Pt100 (-200~800)℃(Optional)	
							Cu50 (-50~150)℃(Optional)	
							Pt1000 (-50~300)℃(Optional)	
						Res	(0~2200)Ω(Optional)	
HD55		□		□	□	□		□

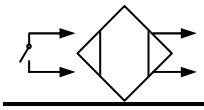
**Note:*

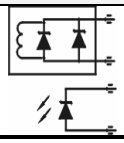
**1: The signal type and measurement range must be given when ordering HD5573.AT should be ordered for the type of thermocouple.*

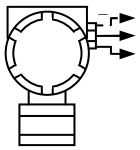
**2: A PC running Inscan HDC software should be ordered for configuration of HD5573.AT.,*

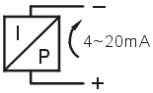
**3. Software-selectable features is carried out through a Micro-USB inside of the HD5573.AT during manufacture, repair or overhaul by manufacturer.*

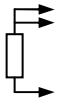
ORDERING and TABLES

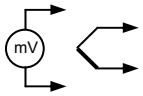
Switch Input	Model	Chan.	Input	Output	Note
	HD5516.AT	2	Contact switch, NAMUR proximity switch, etc.	Normal open contacts	(0~100)Hz

Solenoid Driver	Model	Chan.	Output	Input	Note
	HD5526.AT	1	12.5V<V_o<22.5V I_{max}=45mA Solenoid valve, Alarm etc.	Contact or logic signal input	/

2/3- wire Transmitter	Model	Chan.	Input	Output	Note
	HD5542.AT	1	2/3-wire transmitter (4~20)mA, or (4~20)mA current direct input CXT, CJT, EJA, 1151, 3051, XYC341, ST3000/S900, VFM1091, H27 ,ST3000/900, BM26	(4~20)mA, passive (4~20)mA or (1~5)V output (Optional).	Including isolated transmitter power supply.
	HD5543.AT	1 input 2 outputs			

Isolating Driver	Model	Chan.	Output	Input	Note
	HD5546.AT	1	(4~20)mA Electric transducer/valve positioner etc. SVP3000, AVP300/301, IPH, IPF, IPX, 646, DVC5000, TZIM, NE72, E69, etc.	(4~20)mA	All model supports bi-directional HART communication.

RTD Input	Model	Chan.	Input	Output	Note
	HD5573.AT	1	3-Wire Pt100, Pt1000, Cu50 etc. Measure Range: (0~2200)Ω Pt100: (-200~800)℃ Pt100: (-50~300)℃ Cu50: (-50~150)℃	(4~20)mA, passive (4~20)mA or (1~5)V output (Optional).	The type of RTD and measurement range must be given when ordering. Special type can be customized.

mV/TC Input	Model	Chan.	Input	Output	Note
	HD5573.AT	1	mV: (-75~75)mV TC: J, K, T, E, R, S, N, B	(4~20)mA, Passive (4~20)mA or (1~5)V output (Optional).	The type of thermocouple and measurement range must be given when ordering. Special type can be customized.

MOUNTING

Environmental Limits

Operation temperature: (-20~60) ℃

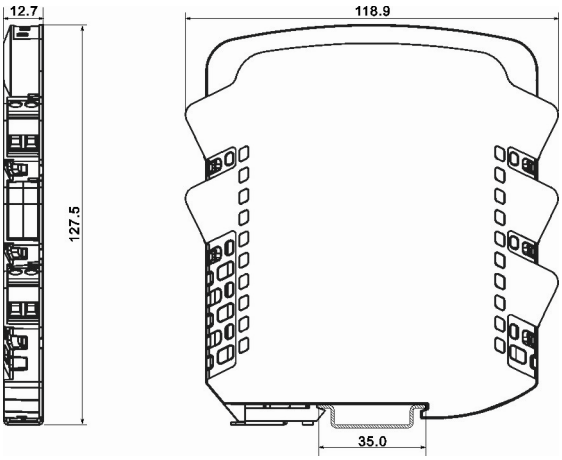
Storage temperature: (-40~80) ℃

Relative humidity: (5~95) % RH

Overall Dimensions

Weight: 110g approx.

Dimension: 127.5mm×118.9mm×12.7mm;



Conditions for safe use

1. Environment condition: A safe area where has no excessive amount of corrosive gases to the chrome-plate, nickel-plate or silver-plate.
2. The leads of hazardous area and safe area must be separated in cable duct. It is not allowed to mix other power supply into the field part of the isolated barrier, including that of other IS circuits.
3. All of the isolated barriers' hazardous-area terminals must be at the same side to avoid confusion during installation.
4. Pay attention to type, power supply polarity, voltage and terminal tags, when isolated barrier is powered for debugging.
5. Before using the insulation resistance meter to check insulation between terminals, disconnect all of the isolated barriers. If not, the internal fast acting fuse would be fused.
6. Isolated barriers are damageable. Replace the damaged barriers to ensure intrinsic safety and solve the fault together with our company. It is forbidden to replace components of the isolated barriers without SUPCON's permission.
7. The respective national regulations and IEC/EN 60079-14 as well as the general rules of engineering which apply to the installation and operation of explosion protected apparatus will have to be observed!
8. When mounting, operating and maintaining the units, the maximum external capacitance Co and maximum external inductance Lo should be confirmed according to the max approval parameters from relative certificate.
9. The max allowed voltage Um on the safe area side is 253V.

PRODUCTS

HD5516. AT SWITCH /PROXIMITY DETECTOR INTERFACE

The HD5516.AT enables two safe-area loads to be controlled independently by two proximity detectors or switches located in hazardous areas. Two relay outputs are provided. Switches are provided to select phase reversal and to enable the line fault detection. The status of each channel is indicated by LED on top of the unit.

Number of channels
2

Location of switches
Zone0, IIC, T4-T6 hazardous area

Power supply
(20~35)VDC power rail

Max current consumption
35mA at 24VDC

Relay characteristics
Contact output: normally open
Contact rating: 2A, 30VDC/250VAC

Response time
10ms maximum

Voltage applied to sensor
(7~9)VDC from 1kΩ

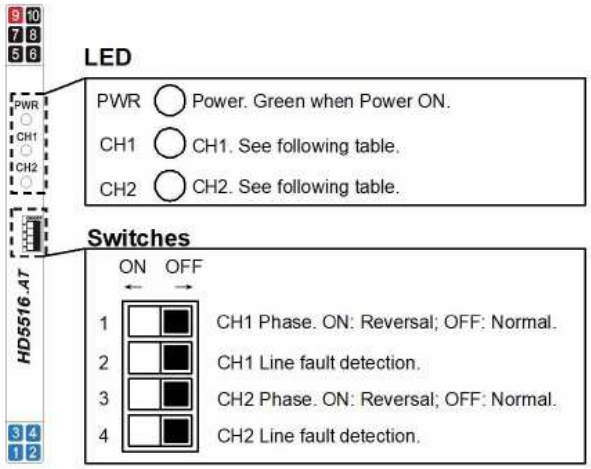
Input/output characteristics
Normal phase
Output energized if Iin > 2.1mA
Output de-energized if Iin < 1.2mA

Isolation
Better than 2500V AC between input/ output terminals.

Ex Marking
IECEx Ex marking：
[Ex ia Ga] ⅡC
[Ex ia Da] ⅢC
Certificate No: IECEx NEP 19.0032
ATEX Ex marking：
Ⅱ(1) G [Ex ia Ga] ⅡC
Ⅱ(1) D [Ex ia Da] ⅢC
Certificate No: Baseefa19ATEX0105

Application
Switch/Proximity detector (NAMUR)
Switches (On next page)

LED indicators
Power and status indication.



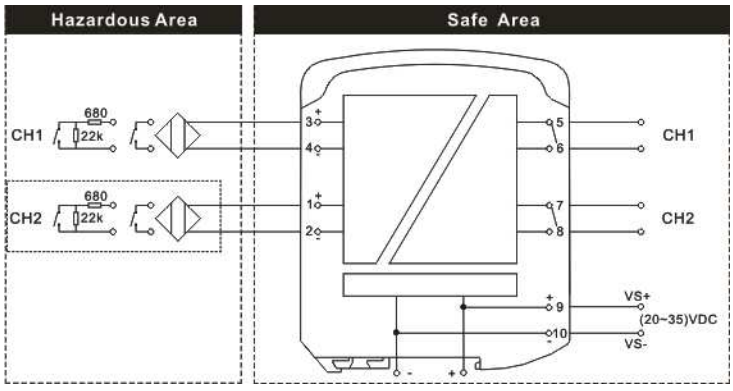
Switch status	LED status			
	Output energized	Output de-energized	short circuit*	open circuit*
1 ON， 2 ON	CH1 off	CH1 green	CH1 red	CH1 red
1 OFF， 2 ON	CH1 green	CH1 off	CH1 red	CH1 red
1 ON， 2 OFF	CH1 off	CH1 green	CH1 off	CH1green
1 OFF， 2 OFF	CH1 green	CH1 off	CH1 green	CH1 off
3 ON， 4 ON	CH2 off	CH2 green	CH2 red	CH2 red
3 OFF， 4 ON	CH2 green	CH2 off	CH2 red	CH2 red
3 ON， 4 OFF	CH2 off	CH2 green	CH2 off	CH2 green
3 OFF， 4 OFF	CH2 green	CH2 off	CH2 green	CH2 off

*Note1：Resistors must be fitted when using the Line fault detection facility with a contact input, about 680Ω in series with switch, about 22kΩ in parallel with switch.

*Note2：Line fault detection conditions:

R line	Short circuit
<100Ω	Alarm on
>360Ω	Alarm off

I line	Open circuit
<100μA	Alarm on
>250μA	Alarm off



Terminals connected to Non-Hazardous Area:

Power circuit (9+, 10- or Power rail):

Maximum voltage (Um)	253V a.c.
Rated Supply Voltage	20 – 35V d.c.

Relay signal output circuit (5, 6 or 7, 8) :

Maximum voltage (Um)	253V a.c.
Rated value	2A, 250V a.c. 2A, 30V d.c.

Terminals connected to Hazardous Area:

Maximum values per signal input circuit

Terminals code (signal input circuit)	Uo	Io	Po	Ci (μF)	Li (mH)
1+, 2- 3+, 4-	10.5V	14mA	37mW	negligible	negligible

Group	Co (μF)	Lo (mH)	Lo/Ro (μH/Ω)
ⅡC	2.41	165	1047
ⅡB / ⅢC	16.8	495	4188
ⅡA	75.0	1000	8377

Output characteristic: linear

Maximum values apply to the interconnection of both signal input circuit

Terminals code (signal input circuit)	Uo	Io	Po	Ci (μF)	Li(mH)
1+, 2- 3+, 4-	10.5V	28mA	74mW	negligible	negligible

Group	Co (μF)	Lo (mH)	Lo/Ro (μH/Ω)
ⅡC	2.41	45	523
ⅡB / ⅢC	16.8	135	2094
ⅡA	75.0	360	4188

Output characteristic: linear

NOTE:
The Co and Lo parameters listed in the table above are applied where:
- – distributed inductance and capacitance e.g. as in a cable or,
- – the total Li of the external circuit (excluding the cable) is < 1% of the Lo value or
- – the total Ci of the external circuit (excluding the cable) is < 1% of the Co value.

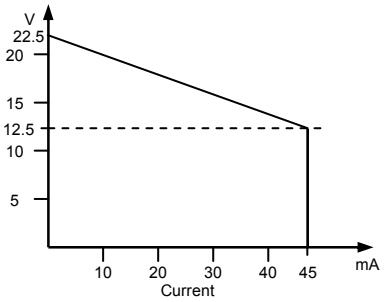
The Co and Lo parameters listed in the table above are reduced to 50% when both of the following conditions are met:
- – the total Li of the external circuit (excluding the cable) is ≧ 1% of the Lo value and
- – the total Ci of the external circuit (excluding the cable) is ≧ 1% of the Co value.

The reduced capacitance of the external circuit (including cable) shall not be greater than 1μF for Groups ⅡA and ⅡB / ⅢC, and 600nF for Group ⅡC.

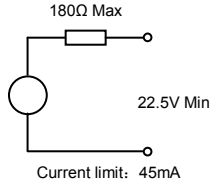
HD5526.AT SOLENOID/ALARM DRIVERS

The HD5526.AT enables an intrinsically safe device located in the hazardous area to be controlled by a volt-free contact or logic signal in the safe area. It is suitable for driving loads such as solenoids, alarms and other low-powered devices. A line fault is signaled in the safe area by a solid-state switch which de-energizes if a field loop line is open- or short-circuited.

- **Number of channels**
  1
- **Location of solenoid valves**
  Zone0, IIC, T4-T6 hazardous area
  Div 1, Group A, hazardous location
- **Minimum output voltage**

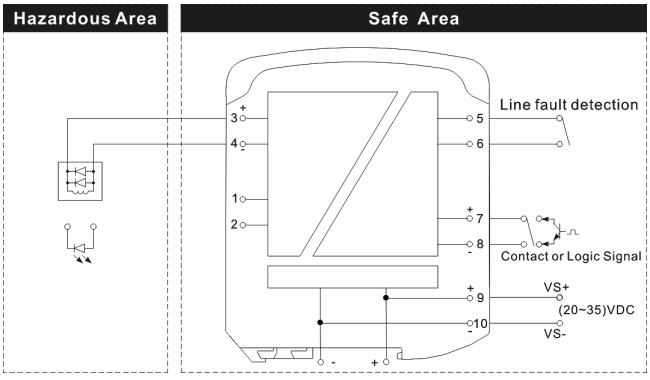


- **Equivalent output circuit**



Control input

- **Contact or logic signal input**
  Suitable for switch contacts, an open collector transistor or logic drive
  Output turns on if input switch closed, transistor on or < 1.4V applied across terminals 7 & 8
  Output turns off if input switch open, transistor off or > 4.5V applied across terminals 7 & 8
- **Response time**
  Output within 10% of final value within 100ms
- **Line fault detection** (terminals 5 & 6)
  Open or short circuit in field cabling de-energizes solid state line-fault signal.
  LFD transistor is switched on, provided that the field circuit impedance is > 55Ω and < 6.5kΩ.
- **Line fault signal characteristics** (terminals 5 & 6)
  Maximum off-state voltage: 35V
  Maximum off-state leakage current: 5μA
  Maximum on-state voltage drop: 2V
  Maximum on-state current: 50mA
- **Power supply**
  (20~35)VDC power rail
- **Max current consumption**
  90mA at 24VDC
- **Isolation**
  Better than 2500V AC between input/output terminals
- **Ex Marking**
  IECEx Ex marking：
  [Ex ia Ga] ⅡC
  [Ex ia Da] ⅢC
  Certificate No: IECEx NEP 19.0032
  ATEX Ex marking：
  Ⅱ(1) G [Ex ia Ga] ⅡC
  Ⅱ(1) D [Ex ia Da] ⅢC
  Certificate No: Baseefa19ATEX0106
- **LED indicators**
  PWR: green for power on indication
  STS: green when output turns on
  LFD: red for line fault detection indication
- **Application**
  Intrinsically safe solenoid driver, audible and visual alarm.



Terminals connected to Non-Hazardous Area:

Power circuit (9+, 10- or Power rail):

Maximum voltage (Um)	253V a.c.
Rated Supply Voltage	20 – 35V d.c.

Drive signal input circuit (7+, 8-):

Maximum Voltage(Um)	253V a.c.
Rated value	> 4.5V OFF < 1.4V ON

Line fault detection (5+, 6-):

Maximum voltage (Um)	253V a.c.

Terminals connected to Hazardous Area:

Terminals code (drive output circuit)	Uo	Io	Po	Ci (μF)	Li (mH)
3+, 4-	25.2V	142mA	891mW	negligible	negligible

Group	Co (μF)	Lo (mH)	Lo/Ro (μH/Ω)
ⅡC	0.107	1.5	39.9
ⅡB / ⅢC	0.82	4.5	159.6
ⅡA	2.90	12.0	319.3

Output characteristic: linear

NOTE:
The Co and Lo parameters listed in the table above are applied where:
- – distributed inductance and capacitance e.g. as in a cable or,
- – the total Li of the external circuit (excluding the cable) is < 1% of the Lo value or
- – the total Ci of the external circuit (excluding the cable) is < 1% of the Co value.

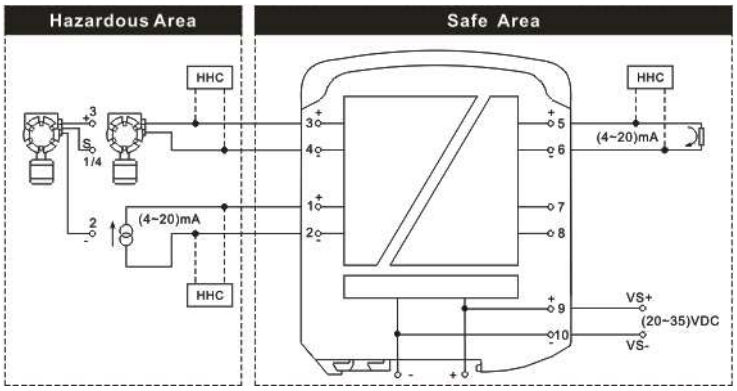
The Co and Lo parameters listed in the table above are reduced to 50% when both of the following conditions are met:
- – the total Li of the external circuit (excluding the cable) is ≧ 1% of the Lo value and
- – the total Ci of the external circuit (excluding the cable) is ≧ 1% of the Co value.

The reduced capacitance of the external circuit (including cable) shall not be greater than 1μF for Groups ⅡA and ⅡB / ⅢC, and 600nF for Group ⅡC.

HD5542.AT REPEATER POWER SUPPLY

The HD5542.AT provides a fully floating dc supply for energizing an intrinsically safe 2- or 3-wire 4/20mA transmitter located in a hazardous area and repeats the current in another floating circuit to drive a safe-area load. For smart transmitters, the HD5542 allows bi-directional HART communications signals superimposed on the 4/20mA signal.

- **Number of channels**
  1
- **Location of transmitters or signal sources**
  Zone0, IIC, T4-T6 hazardous area
  Div 1, Group A, hazardous location
- **Power supply**
  (20~35)VDC power rail
- **Max current consumption**
  51mA at 24VDC
- **Safe-area output**
  Signal range: 4 to 20mA
  Under/over-range: 0 to 24mA
  Safe-area load: 0 to 360Ω @24mA
  0 to 450Ω @20mA
  Safe-area circuit output resistance: > 1MΩ
- **Hazardous-area input**
  Signal range: 0 to 24mA
  Transmitter voltage: 15V at 20mA
- **Response time**
  Settles to within 10% of final value within 750μs (In case of 250Ω typical safe-area load)
- **Transfer accuracy**
  Better than 15μA
- **Temperature drift**
  Better than 0.8μA/℃
- **Communications supported**
  Bi-directional HART communications
- **Isolation**
  Better than 2500V AC between input/output terminals
- **Ex Marking**
  IECEx Ex marking：
  [Ex ia Ga] ⅡC
  [Ex ia Da] ⅢC
  Certificate No: IECEx NEP 19.0032
  ATEX Ex marking：
  Ⅱ(1) G [Ex ia Ga] ⅡC
  Ⅱ(1) D [Ex ia Da] ⅢC
  Certificate No: Baseefa19ATEX0107
- **LED indicators**
  PWR：green for power on indication
  LFD：red for open circuit or output overload indication
- **Application**
  Intrinsically safe 2/3-wire transmitter, current source.



Terminals connected to Non-Hazardous Area:

Power circuit (9+, 10- or Power rail):

Maximum voltage (Um)	253V a.c.
Rated Supply Voltage	20 – 35V d.c.

Output circuit (5+, 6-):

Maximum voltage (Um)	253V a.c.
Rated value	4 – 20 mA / 1 – 5V

Terminals connected to Hazardous Area:

Terminals code (2/3-wire input circuit)	Uo	Io	Po	Ci (μF)	Li (mH)
3, 4 3, 1/4, 2	27.0V	88mA	594mW	negligible	negligible

Group	Co (μF)	Lo (mH)	Lo/Ro (μH/Ω)
ⅡC	0.090	4.5	59.9
ⅡB / ⅢC	0.705	13.5	239.5
ⅡA	2.33	36.0	479.0

Output characteristic: linear

Terminals code (current signal input circuit)	Uo	Ci (μF)	Li(mH)
1+, 2-	0.72V	negligible	negligible

Terminals code (current signal input circuit)	Ui	Ii
1+, 2-	30V	200mA

Group	Co (μF)
ⅡC	100
ⅡB / ⅢC	1000
ⅡA	1000

Output characteristic: linear

NOTE:
The Co and Lo parameters listed in the table above are applied where:
- distributed inductance and capacitance e.g. as in a cable or,
- the total Li of the external circuit (excluding the cable) is < 1% of the Lo value or
- the total Ci of the external circuit (excluding the cable) is < 1% of the Co value.

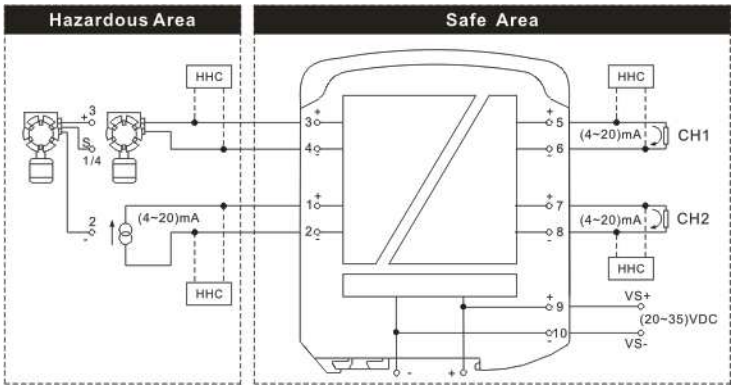
The Co and Lo parameters listed in the table above are reduced to 50% when both of the following conditions are met:
- the total Li of the external circuit (excluding the cable) is ≧ 1% of the Lo value and
- the total Ci of the external circuit (excluding the cable) is ≧ 1% of the Co value.

The reduced capacitance of the external circuit (including cable) shall not be greater than 1μF for Groups ⅡA and ⅡB / ⅢC, and 600nF for Group ⅡC.

HD5543.AT REPEATER POWER SUPPLY

The HD5543.AT provides a fully floating dc supply for energizing an intrinsically safe 2- or 3-wire 4/20mA transmitter located in a hazardous area and repeats the current in two floating circuits to drive different safe-area loads. The HD5543 provides dual outputs and allows bi-directional HART communications between input and first output channel.

- **Number of channels**
  1 input with dual outputs
- **Location of transmitters or signal sources**
  Zone0, IIC, T4-T6 hazardous area
  Div 1, Group A, hazardous location
- **Safe-area output**
  Signal range: 4 to 20mA
  Under/over-range: 0 to 24mA
  Safe-area load: 0 to 360Ω @24mA
  0 to 450Ω @20mA
  Safe-area circuit output resistance: > 1MΩ
- **Hazardous-area input**
  Signal range: 0 to 24mA
  Transmitter voltage: 15V at 20mA
- **Transfer accuracy**
  Better than 15μA
- **Temperature drift**
  Better than 0.8μA/℃
- **Response time**
  Settles to within 10% of final value within 750μs
  (In case of 250Ω typical safe-area load)
- **Communications supported**
  Bi-directional HART communications are allowed between input and first output channel
- **Power supply**
  (20~35)VDC power rail
- **Max current consumption**
  75mA at 24VDC
- **Isolation**
  Better than 2500V AC between input/output terminals
- **Ex Marking**
  IECEx Ex marking：
  [Ex ia Ga] ⅡC
  [Ex ia Da] ⅢC
  Certificate No: IECEx NEP 19.0032
  ATEX Ex marking：
  Ⅱ(1) G [Ex ia Ga] ⅡC
  Ⅱ(1) D [Ex ia Da] ⅢC
  Certificate No: Baseefa19ATEX0107
- **LED indicators**
  PWR：green for power on indication
  CH1：red for open circuit or output overload indication for CH1
  CH2：red for open circuit or output overload indication for CH2



Terminals connected to Non-Hazardous Area:

Power circuit (9+, 10- or Power rail):

Maximum voltage (Um)	253V a.c.
Rated Supply Voltage	20 – 35V d.c.

Output circuit (5+, 6- or 7+, 8-):

Maximum voltage (Um)	253V a.c.
Rated value	4 – 20 mA / 1 – 5V

Terminals connected to Hazardous Area:

Terminals code (2/3-wire input circuit)	Uo	Io	Po	Ci (μF)	Li (mH)
3, 4 3, 1/4, 2	27.0V	88mA	594mW	negligible	negligible

Group	Co (μF)	Lo (mH)	Lo/Ro (μH/Ω)
ⅡC	0.090	4.5	59.9
ⅡB / ⅢC	0.705	13.5	239.5
ⅡA	2.33	36.0	479.0

Output characteristic: linear

Terminals code (current signal input circuit)	Uo	Ci (μF)	Li(mH)
1+, 2-	0.72V	negligible	negligible

Terminals code (current signal input circuit)	Ui	Ii
1+, 2-	30V	200mA

Group	Co (μF)
ⅡC	100
ⅡB / ⅢC	1000
ⅡA	1000

Output characteristic: linear

NOTE:
The Co and Lo parameters listed in the table above are applied where:
- distributed inductance and capacitance e.g. as in a cable or,
- the total Li of the external circuit (excluding the cable) is < 1% of the Lo value or
- the total Ci of the external circuit (excluding the cable) is < 1% of the Co value.

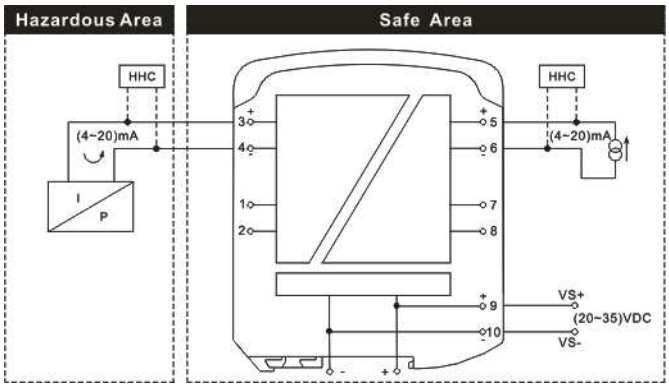
The Co and Lo parameters listed in the table above are reduced to 50% when both of the following conditions are met:
- the total Li of the external circuit (excluding the cable) is ≧ 1% of the Lo value and
- the total Ci of the external circuit (excluding the cable) is ≧ 1% of the Co value.

The reduced capacitance of the external circuit (including cable) shall not be greater than 1μF for Groups ⅡA and ⅡB / ⅢC, and 600nF for Group ⅡC.

HD5546.AT ISOLATING DRIVER

The HD5546.AT accepts a 4/20mA signal from a controller located in the safe area to drive an intrinsically safe current/pressure converter (or any other load up to 750Ω) in the hazardous area. It permits bi-directional transmission of HART signals to and from an operator station or hand-held communicator. A line fault detection facility is also provided. Process controllers with a readback facility can detect open circuits in the field wiring: if these occur, the current taken into the terminals drops to a preset level.

- **Number of channels**
  1
- **Location of actuators**
  Zone0, IIC, T4-T6 hazardous area
  Div 1, Group A, hazardous location
- **Working range**
  4 to 20mA
- **Maximum load resistance**
  750Ω (15V at 20mA)
- **Output resistance**
  > 1MΩ
- **Over range capability**
  Over range = 24mA (load ≤ 520Ω)
- **Transfer accuracy**
  Better than 16μA
- **Temperature drift**
  Better than 1μA/℃
- **Input characteristics**
  < 2mA with the field wiring open circuit
- **Response time**
  Settles within 200μA of final value within 10ms
- **Communications supported**
  Bi-directional HART communications
- **Power supply**
  (20~35)VDC power rail
- **Max current consumption**
  35mA at 24VDC (with 20mA signals into 250Ω load)
- **Isolation**
  Better than 2500V AC between input/output terminals
- **Ex Marking**
  IECEx Ex marking：
  [Ex ia Ga] ⅡC
  [Ex ia Da] ⅢC
  Certificate No: IECEx NEP 19.0032
  ATEX Ex marking：
  Ⅱ(1) G [Ex ia Ga] ⅡC
  Ⅱ(1) D [Ex ia Da] ⅢC
  Certificate No: Baseefa19ATEX0108
- **LED indicators**
  PWR：green for power on indication
  LFD： red for line fault detection indication.
- **Application**
  Intrinsically safe converter, valve positioner.



Terminals connected to Non-Hazardous Area:

Power circuit (9+, 10- or Power rail):

Maximum voltage (Um)	253V a.c.
Rated Supply Voltage	20 – 35V d.c.

Output circuit (5+, 6-):

Maximum voltage (Um)	253V a.c.
Rated value	4 – 20 mA

Terminals connected to Hazardous Area:

Terminals code (output circuit)	Uo	Io	Po	Ci (μF)	Li (mH)
3+, 4-	27.3V	89mA	608mW	negligible	negligible

Group	Co (μF)	Lo (mH)	Lo/Ro (μH/Ω)
ⅡC	0.088	4.4	58.6
ⅡB / ⅢC	0.683	13.2	234.3
ⅡA	2.28	35.2	468.5

Output characteristic: linear

NOTE:
The Co and Lo parameters listed in the table above are applied where:
- – distributed inductance and capacitance e.g. as in a cable or,
- – the total Li of the external circuit (excluding the cable) is < 1% of the Lo value or
- – the total Ci of the external circuit (excluding the cable) is < 1% of the Co value.

The Co and Lo parameters listed in the table above are reduced to 50% when both of the following conditions are met:
- – the total Li of the external circuit (excluding the cable) is ≧ 1% of the Lo value and
- – the total Ci of the external circuit (excluding the cable) is ≧ 1% of the Co value.

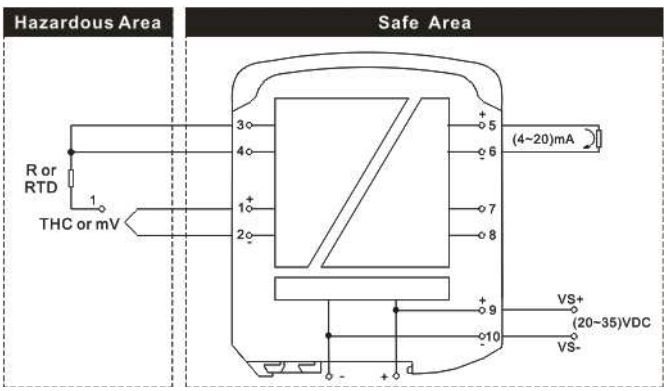
The reduced capacitance of the external circuit (including cable) shall not be greater than 1μF for Groups ⅡA and ⅡB / ⅢC, and 600nF for Group ⅡC.

HD5573.AT TEMPERATURE CONVERTER

The HD5573.AT converts a low-level dc signal from a temperature sensor mounted in a hazardous area into a 4/20mA current for driving a safe-area load. Software-selectable features include configuration, ranging, monitoring and testing for eight thermocouple types, or three kinds of 3-wire RTDs. Each thermocouple model converter has an integral sensor for the purpose of cold-junction compensation. Configuration is carried out through a port inside of the module using and a personal computer.

In-circuit programming connectors that are not accessible by the user, and which are only used at manufacture, during repair or overhaul.

- **Number of channels**
  1
- **Location of temperature sensors**
  Zone0, IIC, T4-T6 hazardous area
  Div. 1, Group A, hazardous location
- **Signal source**
  Types J, K, T, E, R, S, B or N THCs to IEC584
  3-wire Pt100, Pt1000 or Cu50 RTDs to BS1904/DIN 43760
- **Input signal range**
  (-75~75)mV, or(0~2200)Ω
- **RTD excitation current**
  500μA nominal
- **Cold junction compensation**
  Automatic, with error of ≤ 1.0℃
- **Common mode rejection**
  120dB for 240V at 50Hz
- **Series mode rejection**
  40dB for 50Hz
- **Calibration accuracy**
  Inputs:
  mV/THC: ± 15μV or ± 0.05% of input value (whichever is greater)
  Cu50/Pt100: ± 80mΩ
  Pt1000: ± 400mΩ
  Output:: ± 11μA
- **Temperature drift**
  Inputs:
  mV/THC: ± 0.003% of input value/℃
  Cu50/Pt100: ± 7mΩ/℃
  Pt1000: ± 40mΩ/℃
  Output:: ± 0.6μA/℃
- **Output range**
  4 to 20mA nominal into 450Ω max
- **Over range output**
  Bottom limit: 3.6mA
  Top limit: 21.6mA
- **Sensor burnout indication**
  Upscale default, Downscale selectable
  Upscale valve: 22mA
  Downscale valve:3.2mA
- **Response time**
  About 500ms
- **Power supply**
  (20~35)VDC power rail
- **Max current consumption**
  40mA at 24VDC
- **Isolation**
  Better than 2500V AC between input/output terminals
- **Ex Marking**
  IECEx Ex marking：
  [Ex ia Ga] ⅡC
  [Ex ia Da] ⅢC
  Certificate No: IECEx NEP 19.0032
  ATEX Ex marking：
  Ⅱ(1) G [Ex ia Ga] ⅡC
  Ⅱ(1) D [Ex ia Da] ⅢC
  Certificate No: Baseefa19ATEX0109
- **LED indicators**
  PWR：green for power on indication
  STS：green for normal working indication, blinking green for over range indication, red for error indication
- **Application**
  Pt100, Pt1000 or Cu50 RTDs; Types J, K, T, E, R, S, B or N THCs.



Terminals connected to Non-Hazardous Area:

Power circuit (9+, 10- or Power rail):

Maximum voltage (Um)	253V a.c.
Rated Supply Voltage	20 – 35V d.c.

Output circuit (5+, 6-):

Maximum voltage (Um)	253V a.c.
Rated value	4 – 20 mA / 1 – 5V

Terminals connected to Hazardous Area:

Terminals code (sensor input circuit)	Uo	Io	Po	Ci (μF)	Li (mH)
1+, 2- (with / without CJC)	7.5V	1.5mA	3mW	negligible	negligible

Group	Co (μF)	Lo (mH)	Lo/Ro (μH/Ω)
ⅡC	11.1	1000	10000
ⅡB / ⅢC	174	1000	10000
ⅡA	1000	1000	10000

Note 1. Output characteristic: linear
Note 2. CIC: Cold junction compensation

Terminals code (sensor input circuit)	Uo	Io	Po	Ci (μF)	Li (mH)
1, 3, 4	7.5V	2.8mA	5.2mW	negligible	negligible

Group	Co (μF)	Lo (mH)	Lo/Ro (μH/Ω)
ⅡC	11.1	1000	6685
ⅡB / ⅢC	174	1000	10000
ⅡA	1000	1000	10000

Output characteristic: linear

Terminals code (sensor input circuit)	Uo	Io	Po	Ci (μF)	Li (mH)
1, 2, 3, 4 (any combination)	7.5V	9.5mA	17mW	negligible	negligible

Group	Co (μF)	Lo (mH)	Lo/Ro (μH/Ω)
ⅡC	11.1	380	2020
ⅡB / ⅢC	174	1000	8080
ⅡA	1000	1000	10000

Output characteristic: linear

NOTE:
The Co and Lo parameters listed in the table above are applied where:
- distributed inductance and capacitance e.g. as in a cable or,
- the total Li of the external circuit (excluding the cable) is < 1% of the Lo value or
- the total Ci of the external circuit (excluding the cable) is < 1% of the Co value.

The Co and Lo parameters listed in the table above are reduced to 50% when both of the following conditions are met:
- the total Li of the external circuit (excluding the cable) is ≧ 1% of the Lo value and
- the total Ci of the external circuit (excluding the cable) is ≧ 1% of the Co value.

The reduced capacitance of the external circuit (including cable) shall not be greater than 1μF for Groups ⅡA and ⅡB / ⅢC, and 600nF for Group ⅡC.

Mounting

HD5500.AT series isolated barrier is mounted on DIN Standard 35mm(symmetric) Mounting Rail. You can choose power-supply rail and the corresponding terminal. The way of mounting is shown in the

Figure 1.

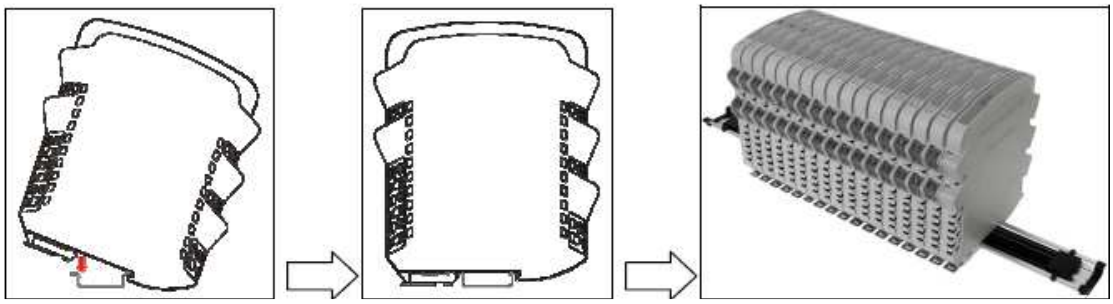


Figure 1 Mounting

Figure 2 PBUS-36mm power supply guide rail

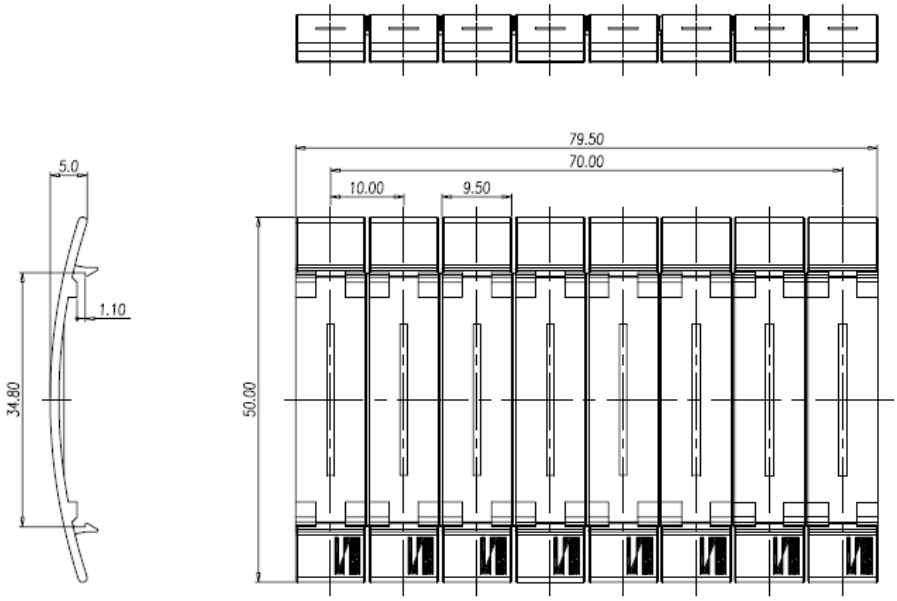


Figure 3 Dust cover of power supply guide rail