

Honeywell

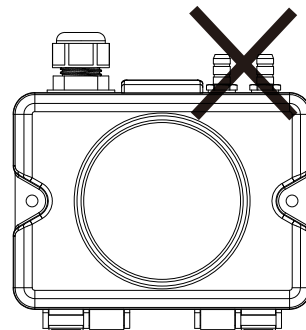
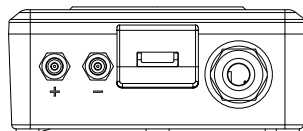
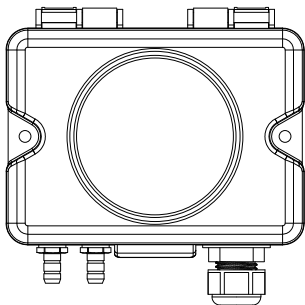
空气压差变送器

Air Differential Pressure Transmitter

产品说明书 / Product Instructions

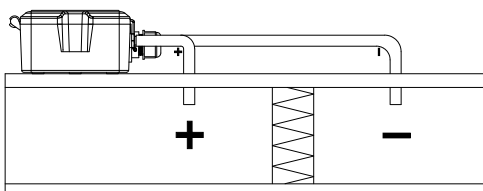


安装位置 / Installation Locations

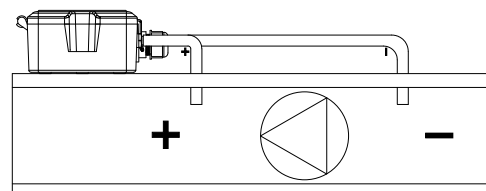


应用 / Application

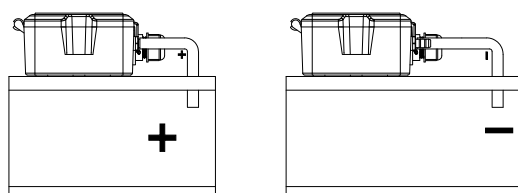
滤网 / Filter



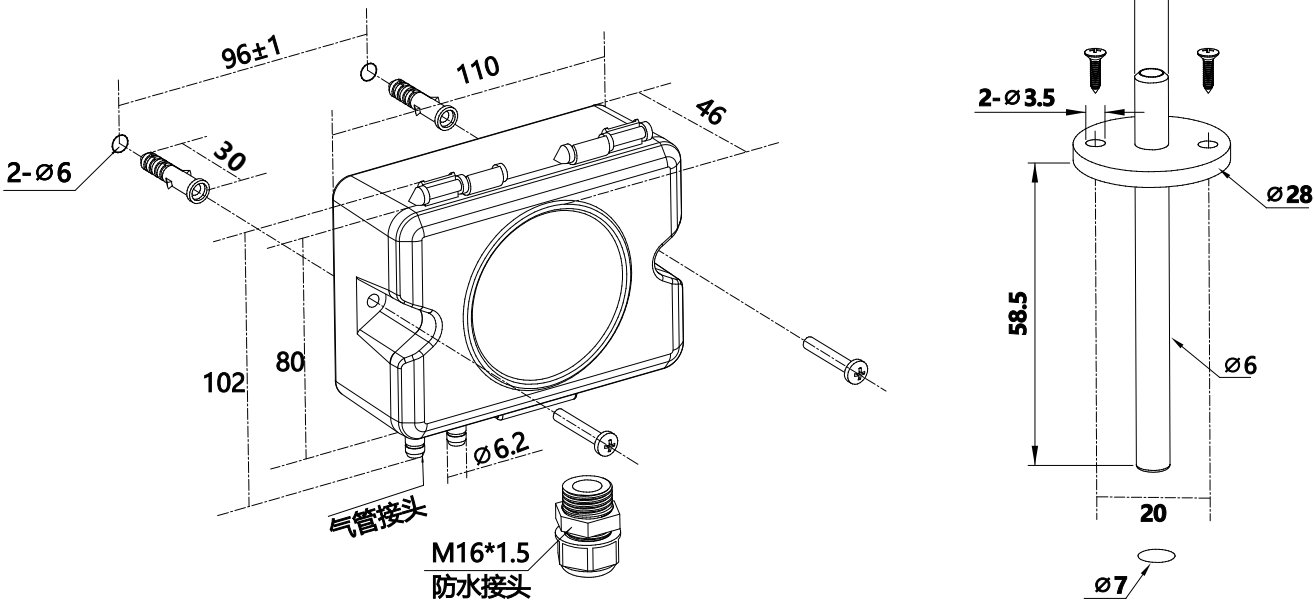
风机 / Fan



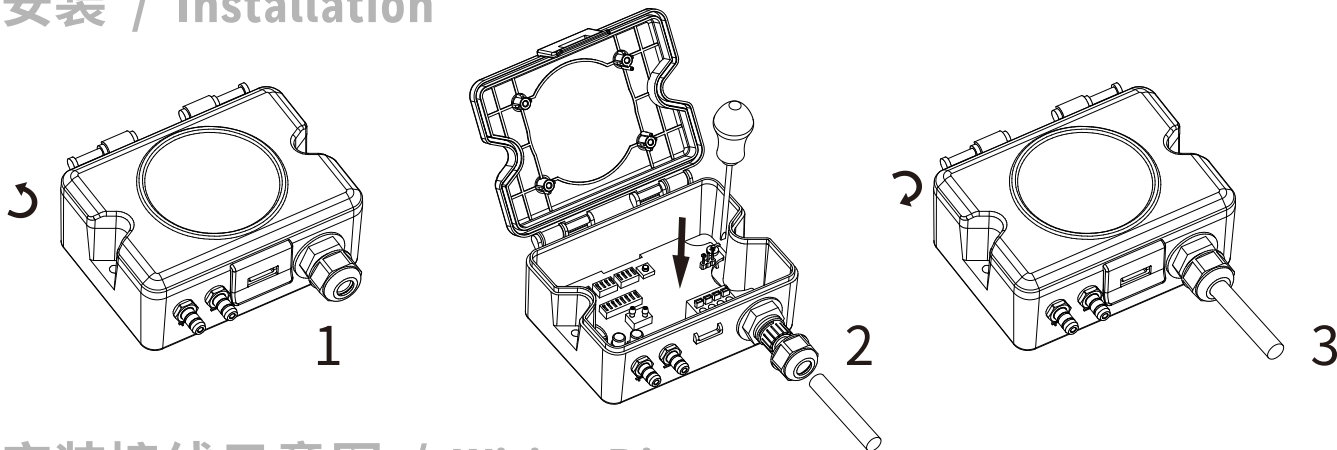
静压 / Static Pressure



安装尺寸图 / Installation Dimension (mm)



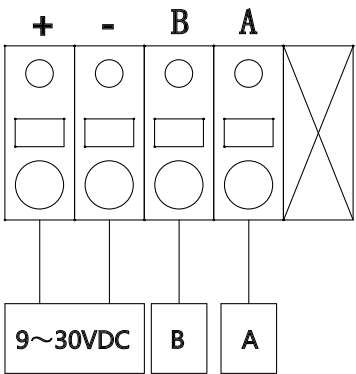
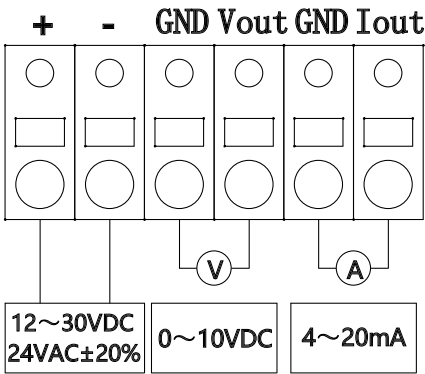
安装 / Installation



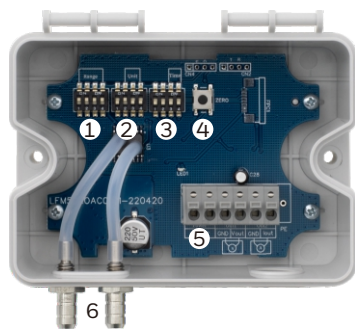
安装接线示意图 / Wiring Diagram

HSDP-A100U
HSDP-A1000U
HSDP-A10000U
HSDP-A100UL
HSDP-A1000UL
HSDP-A10000UL

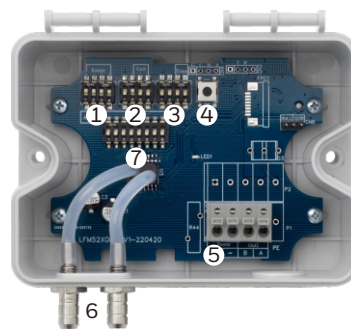
HSDP-A100M
HSDP-A1000M
HSDP-A10000M
HSDP-A100ML
HSDP-A1000ML
HSDP-A10000ML



内部功能介绍 / Internal function introduction



- ①量程 (Range)
- ②单位和自动清零 (Units and Auto-Zero)
- ③响应时间和波特率 (Response time and Communication Baud rate)
- ④手动清零按钮 (Manual Button for Zero)
- ⑤接线端子 (Terminal)
- ⑥气管接口 (Air Tube connector)
- ⑦地址码 (Address code)



拨码开关 / DIP Switch

出厂默认的拨码位置和量程 Factory default dialing position and range

拨码位置 Dip Switch	型号/Model	Pa	mmH2O	mbar	inH2O	mmHG	Kpa
1 2 3 4	HSDP-A100U/UL/M/ML	±100	±10	±1	/	/	/
	HSDP-A1000U/UL/M/ML	±1,000	±100	±10	±4	±7.5	±1.000
	HSDP-A10000U/UL/M/ML	±10,000	±1,000	±100	±40	±75	±10

量程设置 Range setting

拨码位置 Dip Switch	型号/Model	Pa	mmH2O	mbar	inH2O	mmHG	Kpa
1 2 3 4	HSDP-A100U/UL/M/ML	10.0	1.00	0.100	/	/	/
	HSDP-A1000U/UL/M/ML	100	10.0	1.00	0.40	0.75	0.100
	HSDP-A10000U/UL/M/ML	1,000	100.0	10.00	4.00	7.50	1.000
1 2 3 4	HSDP-A100U/UL/M/ML	25.0	2.50	0.250	/	/	/
	HSDP-A1000U/UL/M/ML	250	25.0	2.50	1.00	1.87	0.250
	HSDP-A10000U/UL/M/ML	2,500	250.0	25.00	10.00	18.75	2.500
1 2 3 4	HSDP-A100U/UL/M/ML	50.0	5.00	0.500	/	/	/
	HSDP-A1000U/UL/M/ML	500	50.0	5.00	2.00	3.750	0.500
	HSDP-A10000U/UL/M/ML	5,000	500.0	50.00	20.00	37.50	5.000
1 2 3 4	HSDP-A100U/UL/M/ML	75.0	7.50	0.750	/	/	/
	HSDP-A1000U/UL/M/ML	750	75.0	7.50	3.00	5.62	0.750
	HSDP-A10000U/UL/M/ML	7,500	750.0	75.00	30.00	56.20	7.500
1 2 3 4	HSDP-A100U/UL/M/ML	100.0	10.0	1.000	/	/	/
	HSDP-A1000U/UL/M/ML	1,000	100.0	10.0	4.00	7.50	1.000
	HSDP-A10000U/UL/M/ML	10,000	1,000.0	100.00	40.00	75.00	10.000

量程置中设置 Range center setting

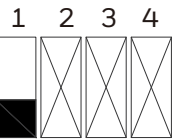


图1 正向测量
Positive measurement range

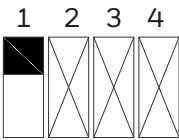


图2 双向测量,即零点在中间
Bidirectional measurement range,
means zero in the middle of range.

举例:以0-100Pa为例,若将1号开关如图1设置即量程范围为0~100Pa,若设置为图2,则量程范围为-50Pa~+50Pa。
For example, if set the swith 1 as the figure1, its measurement range is 0~100Pa, if set as the figure2, its measurement range is -50~50Pa.

注意:请按照说明书进行量程拨码设置, 其他量程拨码有可能导致量程错误。
Note:Please follow the instructions to set the range dialing code. Other range dialing codes may cause range errors.

单位与自动清零设置 Units and Auto-Zero setting

单位 Unit	Pa Default	mmH2O	mbar	inH2O	mmHG	Kpa
拨码 位置 DIP Switch						
1号开关代表 自动清零 Swith 1 means auto zero						
	不启动开机自动清零 (默认) Do not start automatic reset at boot (default)			启动开机自动清零 Automatic reset at boot		

注意:自动清零开启时,请保证开机时正负进气口无差压。(开机自动置零数据不保存)
Note:When automatic zeroing is turned on, please ensure that there is no differential pressure at the positive and negative air inlets when powering on(the automatic zeroing data will not be saved).

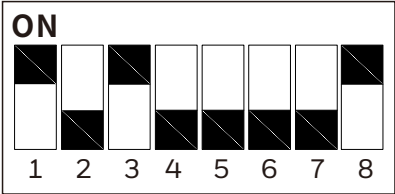
手动清零 Manual Reset

打开面板短按手动清零按钮可进行清零。(请保持正负进气口无差压的状态下手动清零)。
Open the panel and short press the manual reset button to reset.(Please manually reset it when ehrrer is no differential pressure between the positive and negative air inlets.)

响应时间和波特率设置 Response time and Communication Baud rate setting

时间 Time	0.5s Default	1s	2s	4s
拨码位置 DIP Switch				
波特率设置 Baud rate Setting				
	波特率:9600 Baud rate:9600			波特率:19200 Baud rate:19200

地址设置(仅适用于RS-485型) Address Setting(Only for RS-485 Type)



1	2	4	8	16	32	64	128
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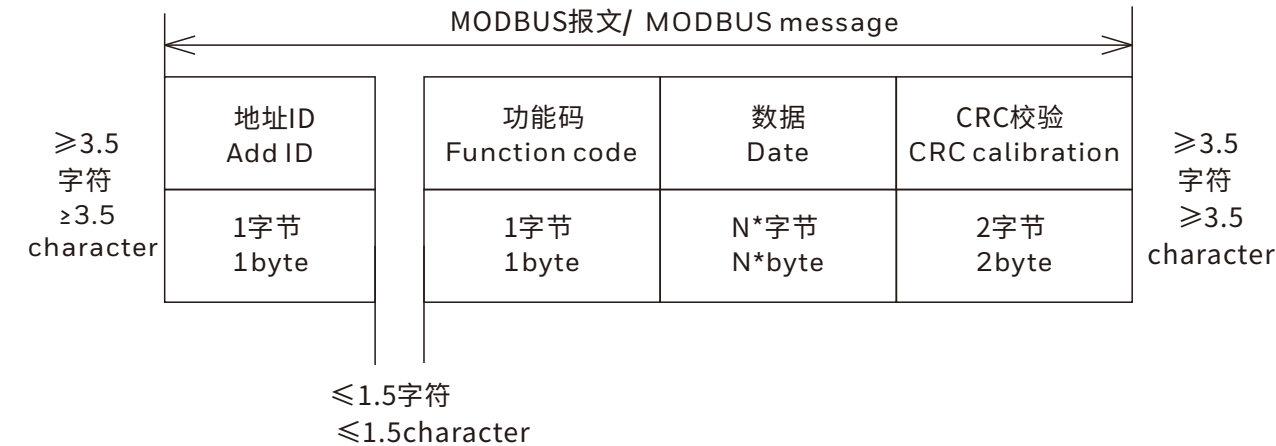
拨至ON侧,则相应加上下标ADDRESS栏数字,图示拨码地址为:
1+4+128=133 (0X85H);
Dial to the On side, then add the subscript ADDRESS column correspondingly, The dialing address is :1+4+128=133(0X85H);
注意:只有当拨码地址为0时,可以通过软件修改设备ID地址。
Note:Only when the dial code address is 0, the device ID address can be modified by software.

通讯协议(仅适用于RS-485型) Communication protocol(Only for RS-485 Type)

本通讯协议按照ModBus RTU标准协议执行, 可通过485总线实现远程一对多信号采集。
This communication protocol is implemented in accordance with the ModBus RTU standard protocol, which can realize remote one-to-many signal acquisition through the 485 bus.

字符格式 Character format

Start: 1Bit
Data: 8Bit
Parity: None
Stop: 1Bit
Baud Rate:9600bps、 19200bps



通讯规约 Communication protocol

- 从机ID地址 Slave ID Address
从机ID地址默认值为0X01, 可通过地址寄存器进行修改, 详见(寄存器参考表)。
The default value of the slave ID address is 0X01, which can be modified through the address register, see(Register Reference Table)
- 读保持寄存器(功能码0X03) Read holding regiser(function code 0X03)
主机可通过该功能实现对从机寄存器数据的读取, 可同时读一个或者多个寄存器。
The host can read the slave register data through this function, and can read one or more registers at the same time.

通讯代码举例: Communication code example:

主机命令: Host Order	01	03	00 01	00 01	D5 CA
	从机ID Slave ID	功能码 Function code	寄存器起始地址 Register Initial address	读取寄存器的值 Read the number of registers	CRC校验 CRC calibration
从机命令: Slave Respond	01	03	02	03 E8	D8 FA
	从机ID Slave ID	功能码 Function code	数据长度 data length	数值 Data	CRC校验 CRC calibration

• 写单个寄存器 (功能码0X06) Write a single register(function code 0X06)

主机可通过该功能实现对从机寄存器数据的写入, 只能对单个寄存器进行操作。

The host can use this function to write the slave register data, and can only operate on a single register.

主机命令: Host Order	01	06	00 06	04 D2	EB 56
	从机ID Slave ID	功能码 Function code	寄存器地址 Register Initial address	写入寄存器的值 Write the number of registers	CRC校验 CRC calibration
从机命令: Slave Respond	01	06	00 06	04 D2	EB 56
	从机ID Slave ID	功能码 Function code	寄存器地址 Register Initial address	写入寄存器的值 Write the number of registers	CRC校验 CRC calibration

• 广播写寄存器 (功能码0X06) Broadcast write register(function code 0X06)

主机可通过该功能对总线上所有从机进行寄存器数据写入, 从机ID地址统一为0X00.从机不做应答。

The host can use this function to write register data to all slaves on the bus,and the slave ID addresses are unified as 0X00. The slave does not respond.

主机命令: Host Order	00	06	00 05	00 01	EB 1B
	从机ID Slave ID	功能码 Function code	寄存器地址 Register Initial address	写入寄存器的值 Write the number of registers	CRC校验 CRC calibration

从机无应答 No response from slave

注意:该功能会对总线上所有从机进行群操作, 请谨慎使用。

Note:This function will perform group operation on all slaves the bus, please use it with caution.

寄存器参考表 Register reference table

寄存器地址 Register Address	寄存器定义 Register Definition	读写方式 Read and write	具体功能描述 Specific function description
0x0001	压力值 Pressure value	只读 Read only	HSDP-A100M/ML的压力值为读取值/10:(当读取值0xFC18为-100.0Pa) HSDP的压力值为读取值;(当读取值 $\geq$ 0x8000时,压力值为负数) The pressure value of HSDP-A100M/ML is read value/10: (When reading the value 0xFC18 is -100.0Pa) The pressure value of HSDP is reading value; (When the reading value $\geq$ 0x8000,the pressure value is negative)
0x0002	单位 Unit	可读写 Read and write	1=Pa 2=mmH2O 3=mbar 4=inH2O 5=mmHG 7=KPa (0=拨码设置 默认:0) (0=Dial code setting Default:0)
0x0003	响应时间 Response time	可读写 Read and write	1=0.5s 2=1s 3=2s 4=4s (0=拨码设置 默认:0) (0=Dial code setting Default:0)
0x0004	波特率 Baud rate	可读写 Read and write	1=9600bps 2=19200bps (0=拨码设置 默认:0) (0=Dial code setting Default:0)
0x0005	从机ID Slave ID	可读写 Read and write	可设置0x01~0xFF(0x01~0xFF can be set)0x00为广播地址 默认: 0x01(0x00 is the broadcast address Default:0x01) (地址拨码为0时可设置) (can be set when the address dial is 0)
0x0006	清零 Clear	只写 Write only	写入1234 (0x04D2) 进行清零操作, 读值为压力值 Write 1234(0x04D2) for clearing operation,the read value is the pressure value

异常码解析表 Exception code analysis table

异常码 Exception code	错误原因 Reason	解决方案 Solution
0x02	寄存器地址异常或错误 Register address exception or error	对照寄存器地址参考表, 坚持读取寄存器起始地址 是否可读 Check the starting address of the read register against the register address reference table to see if it is readable
0x03	写入寄存器的值错误 Wrong value written to register	对照寄存器地址参考表, 检查写入读取寄存器的值是否 在列表内 Check if value written to the register is in the list against the register address reference table

常见问题及解决方法 / Problems and Solutions

1. 量程或单位与设置不符。

Measurement range or unit not the same with setting.

a) 拨码开关未拨到位, 下电重拨后重新启动。

Check the setting of DIP switch, offsite and restart.

2. 加压后输出值无变化或变化不准。

No output change or inaccuracy when measurement range change.

a) 检查接线连接是否正常。

Check the wiring as correct setting.

b) 加载压力是否超过爆破压力直接冲坏压力芯体。

Check if high pressure broken the inner sensor.

c) 使用介质是否存在腐蚀性或者与所购产品使用介质存在出入 (现有差压变送器均为无腐蚀性气体)。

Check the measurement medium to ensure if compatible with requirement, should noncorrosive gas.

d) 检查进气软管有无异物阻塞 (颗粒物或者水柱) 或泄露。

Check whether the air tube is blocked by foreign matter (particulate matter or water column) or leaking.

e) 使用环境温度是否超出补偿温度范围 (压差变送器温度补偿范围 -10~60°C)。

Whether the ambient temperature exceeds the compensation temperature range (compensation temperature range is -10~60°C).

f) 有无加压情况下进行清零误操作, 如有则在确定无输入压力状态下再次清零。

Zero calibration should be operated under no pressure impact, if any impact, please try again when removed.

3. 零点压力值有轻微漂移。

Slight drift of zero pressure.

a) 待漂移稳定后进行清零操作。

Push button to manual zero calibration after the drift is stabilized.

有害物质名称及含量 / Hazardous Substance Table

部件 Parts	有害物质 / Harzardous Substances					
	铅 Lead (Pb)	汞 Mercury (Hg)	镉 Cadmium (Cd)	六价铬 Chromium VI Compounds (Cr6(VI))	多溴联苯 Polybrominated Biphenyls (PBB)	多溴二苯醚 Polybrominated Diphenyl Ethers (PBDE)
防水接头/Waterproof Connector	O	O	O	O	O	O
密封条/Sealing Strip	O	O	O	O	O	O
螺钉/Screw	O	O	O	O	O	O
上盖/Top Cover	O	O	O	O	O	O
下盖/Bottom Cover	O	O	O	O	O	O
PCBA	O	O	O	O	O	O
电气插座/Terminal Block	X	O	O	O	O	O
本表格依据SJ/T 11364的规定编制。 This table is prepared in accordance with the provisions of SJ/T 11364.						
O: 表示该有害物质在该部件所有均质材料中的含量均在 GB/T 26572 规定的限量要求以下。 Indicates that the hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement of GB/T 26572.						
X: 表示该有害物质至少在该部件的某一均质材料中的含量超出 GB/T 26572 规定的限量要求。 Indicates that the hazardous substance contained in at least one of the homogeneous materials for this part is above the limit requirement of GB/T 26572.						
未列入表内的其他部件,皆不含任何超出限量要求的限制使用物质。 All other components not listed in the table, do not contain restricted substances above the threshold level.						

安全说明 Security Instructions

本节列出了用户使用霍尼韦尔空气压差变送器时,必须遵循的一些安全指导和提示。

- 确保设备的物理安全。只有授权人员才能访问设备和总线。
- 确保设备安装、运行、维护管理的安全性。
- 请确保设备处于隔离的内部网络中。
- 请勿打开设备或损坏设备外观,导致设备内部暴露。

注意: 上述是霍尼韦尔推荐的操作及安全管理,但并不局限于此。如果您发现任何安全漏洞。

请报告security@honeywell.com

This section lists the few security guidelines and tips that you must follow for the Honeywell air differential pressure transmitter.

- Ensure the physical security of the device. Only authorized personnel can access the device and bus.
- Ensure the security of equipment installation, operation and maintenance management.
- Ensure that the device is on an isolated internal network.
- Do not open the device or damage the appearance, resulting in internal exposure.

Note: These are the tips that Honeywell recommends. But is not limited to. If you find any security vulnerability. Report it to security@honeywell.com.

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