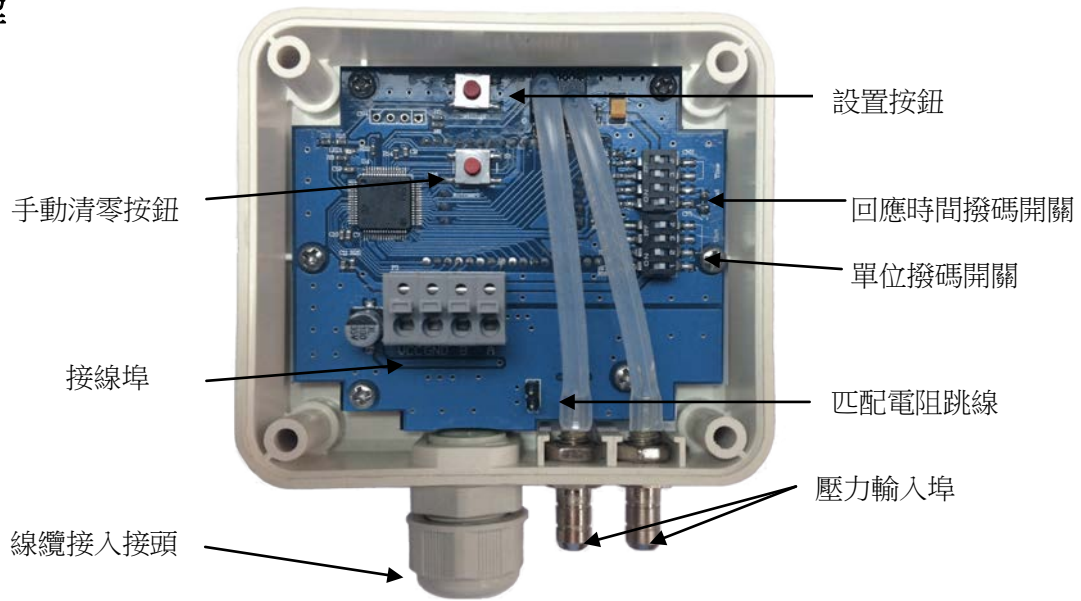


DP1 差壓傳送器(含 RS485) 操作手冊

功能詳解



DP1-1SEXX 內部電路圖

1. 顯示功能

顯示壓力值，同時可切換顯示單位 Pa、mmH₂O、inWG、mmHG、daPa、KPa、hPa、mbar。

2. 設置功能

通過面板背面（顯示面為正面）設置按鈕進行精度校準。以量程-1,000~1,000Pa 為例，按按鈕進入校準介面，將壓力源調至-1,000Pa，繼續按鍵保存當前值為-1,000Pa，之後每增加 500Pa 進行一次校驗。若校準時前一個值大於等於後一個值，則校驗失敗顯示“**Err**”，校驗值不保存。（需在高精度壓力源下進行校驗，用戶請勿輕易使用）

3. 撥碼開關設置

設置種類	Pa	mmH ₂ O	mbar	inWG	mmHG	daPa	KPa	hPa
指撥	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
開關	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
位置	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

最下面一位為開機自動置零（開機自動置零資料不保存，即當自動置零關閉時，零點位置恢復致最後一次標定值）。



回應時間撥碼開關設置回應時間：請依照下圖將撥碼開關撥到相應位置

設置種類		0.5S	1S	2S	4S
指撥	4				
	3				
開關	2				
	1				

回應時間撥碼開關設置 RS-485 通訊模式：請依照下圖將弄碼開關撥到相應位置。(只適用於 RS-485 通訊款)



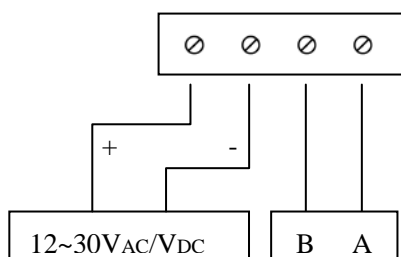
圖 4 排針為 RS-485 A-B 線匹配電阻跳線，當通訊距離超過 300 米時，可選擇將末端儀錶跳線連接，以降低通訊電路信號反射干擾。

4. 手動清零

按面板背面（顯示面為正）按鈕可進行手動清零，零點將被保存。(如果客戶現場安裝時發現通電後液晶顯示壓力值或輸出信號有偏差時，請保持與安裝方式平行的狀態下手動清零)

5 接線

4 線式 RS-485 型

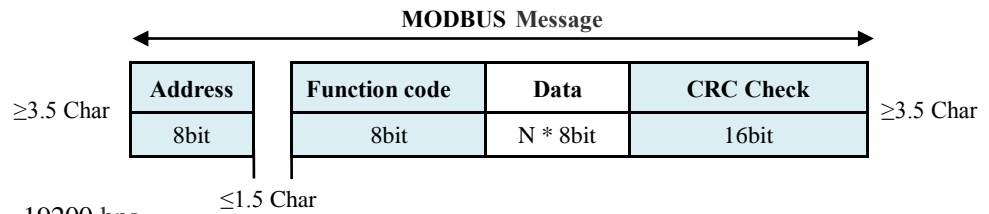


DP1 Protocol

This protocol operate in RS485 hardware for one to many control as well as signal collection under the standard of Modbus RTU.

1. Character fomate

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



In the RTU,two characters should be spaced out less than 1.5 characters of time;otherwise this frame message would be considered as imcomplete and be abandoned by receiver. 3.5 characters of time would be needed between two frame messages.

2. Communication protocol

2.1 Slave equipment ID address

Slave address is the identity for each equipment, The default value is 0x01 and could be altered from range 0x01~0xFF through communication .Among them,0x00 would be braodcasting address,detailed as table(2.4).

2.2 Read Holding Registers (Function code 0x03)

Host equipment could read data from slave registers numbered in one or many through this function.

Sequence format:

Host reading requests					
Slave ID address	Function code= 0x03	Starting Address	No. of Registers	CRC LO	CRC HI
8Bit	8Bit	16Bit	16Bit	8Bit	8Bit
Slave response sequence					
Slave ID address	Function code= 0x03	Data bytes	Data	CRC LO	CRC HI
8Bit	8Bit	8Bit	N * 8Bit	8Bit	8Bit
Slave inaccurate response sequence					
Slave ID address	Function code= 0x03	Abnormal code= 0x02 or 0x03		CRC LO	CRC HI
8Bit	8Bit	8Bit		8Bit	8Bit

Communication protocal example

Host dispatch sequence: 01 03 00 01 00 02 95 CB
 Slave ID Function Starting address No. of Registers CRC Check

Slave response sequence: 01 03 04 03 E8 00 01 BB 83
 Slave ID Function Byte Count Data CRC Check

Slave inaccurate response sequence: 01 83 02 C0 F1
 Slave ID Function Data length CRC Check

2.3 Preset Single Register (Function code 0x06)

Host could input data to register and could only operate a register a time.

Sequence format:

Protocol

Host input requests for register sequence					
Slave ID address	Function code = 0x06	Register address	Preset Data	CRC LO	CRC HI
8Bit	8Bit	16Bit	16Bit	8Bit	8Bit
Slave response sequence					
Slave ID address	Function code = 0x06	Register address	Preset Data	CRC LO	CRC HI
8Bit	8Bit	16Bit	16Bit	8Bit	8Bit
Slave inaccurate response sequence					
Slave ID address	False code = 0x86	Abnormal code = 0x02 or 0x03		CRC LO	CRC HI
8Bit	8Bit	8Bit		8Bit	8Bit

Communication protocol example

Host dispatch sequence: $\frac{01}{\text{Slave ID}}$ $\frac{06}{\text{Function}}$ $\frac{00\ 03}{\text{Register address}}$ $\frac{00\ 01}{\text{Preset data}}$ $\frac{B8\ 0A}{\text{CRC Check}}$

Slave response sequence: $\frac{01}{\text{Slave ID}}$ $\frac{06}{\text{Function}}$ $\frac{00\ 03}{\text{Register address}}$ $\frac{00\ 01}{\text{Preset data}}$ $\frac{B8\ 0A}{\text{CRC Check}}$

Slave inaccurate response sequence: $\frac{01}{\text{Slave ID}}$ $\frac{86}{\text{Function}}$ $\frac{02}{\text{Data length}}$ $\frac{C3\ A1}{\text{CRC Check}}$

2.4 Broadcast preset register (Function code:0x06)

Host could input register data to all slaves of the bus with this function in the address 0x00. Slave no response.

Sequence format:

Host spread broadcast to input register sequence					
Slave ID address = 0x00	Function code= 0x06	Register address	Preset Data	CRC LO	CRC HI
8Bit	8Bit	16Bit	16Bit	8Bit	8Bit
Slave no response					

Communication protocol example

Host dispatch sequence: $\frac{00}{\text{Slave ID}}$ $\frac{06}{\text{Function}}$ $\frac{00\ 05}{\text{Register address}}$ $\frac{00\ 01}{\text{Preset data}}$ $\frac{59\ DA}{\text{CRC Check}}$

Note: The host could manipulate slaves grouply and could modify slave ID address without knowing this slave ID address. Be careful assimilation of slave address through this function in case.

3. Register Address Table

Register address	Function	Read&write mode	Detail description
0x0001	Pressure value	readonly	The resolution of pressure is 1Pa, reading value 0x0000 = 0Pa, 0x03E8 = 1000Pa; When the differential pressure reach to negative,the reading value will be 0x10000 + n (current pressure value), reading value 0xFFFF = -1Pa,0x FC18 = -1000Pa
0x0002	Unit setting	read&write	1 = Pa 2 = mmH ₂ O 3 = mbar 4 = inWG 5 = mmHG 6 = daPa 7 = Kpa 8 = hPa 0 = dial-up switch setting default:0

Protocol

0x0003	Response time setting	read&write	1 = 0.5s 2 = 1s 3 = 2s 4 = 4s 0 = dial-up switch setting default:0
0x0004	Communication mode setting	read&write	1=9600bps 2=19200bps 0 = dial-up switch setting Default:1
0x0005	Slave ID address setting	read&write	type 0x01~0xFF, 0x00 to set broadcast receiving address default:0x01
0x0006	Zero resetting	read&write	type 1234 (0x04D2) would zero resetting with the data

4. Analysis Of Error Codes

0x02	Illegal register address
0x03	Illegal input data

