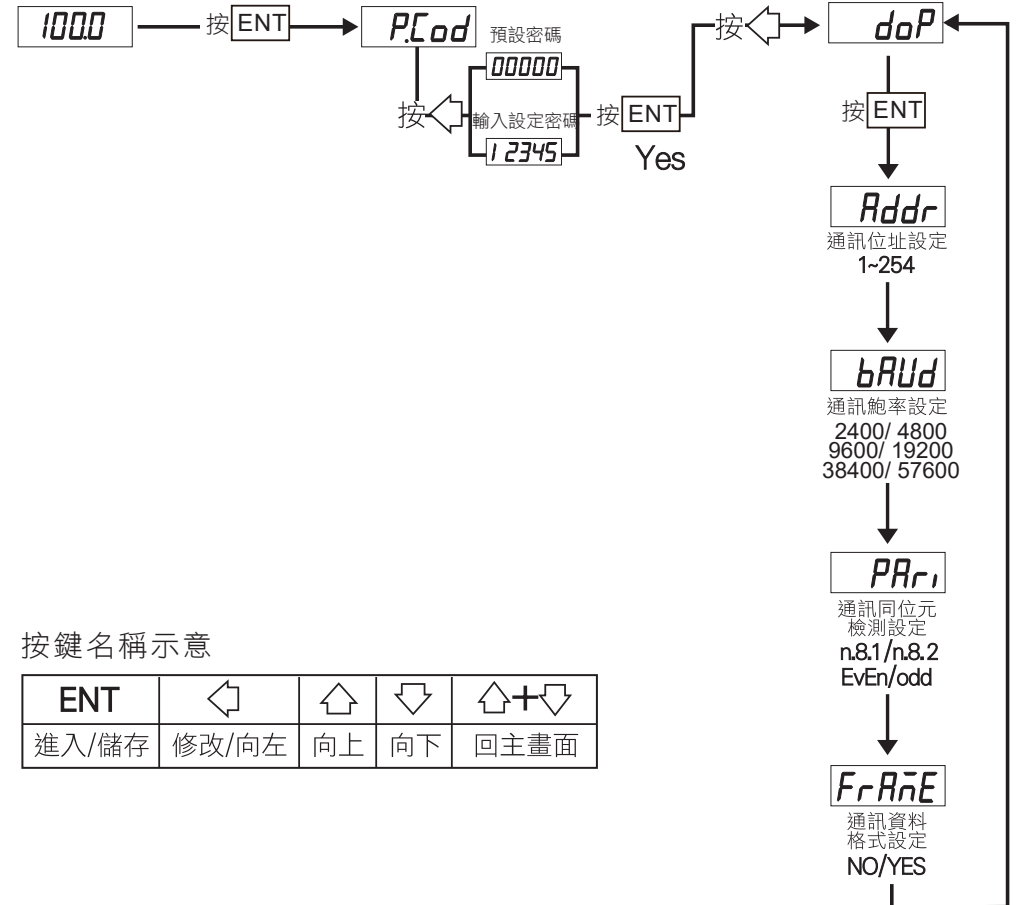


黑球溫度通訊協定位址表

資料格式 16Bit / 32Bit, 帶正負號即8000~7FFF (-32768~32767), 80000000~7FFFFFFF (-2147483648~2147483647)				
Modbus	HEX	名稱	說明	動作
40001	0000	DISPLAY	目前顯示值, 輸入範圍 D8F1~270F(-9999~9999)	R
40004	0003	DP	小數點位置, 輸入範圍0000~0003(0~3)0:10 ⁰ , 1:10 ¹ , 2:10 ² , 3:10 ³	R/W
40005	0004	BAUD	通訊速率, 輸入範圍0000~0005(0~5) 0: 2400, 1: 4800, 2: 9600, 3: 19200, 4: 38400, 5: 57600	R/W
40006	0005	PARI	通訊同步檢測位元, 輸入範圍0000~0003(0~3)0:N.8.1, 1:N.8.2, 2:EVEN, 3:ODD	R/W
40007	0006	AVG	顯示平均次數, 輸入範圍0001~0063(1~99)	R/W
40008	0007	DISPLAY	目前顯示值, 輸入範圍0000~7FFFF(0~32767)	R
40009	0008	ADDR	通訊位址, 輸入範圍0000~00FF(1~254)	R/W
40019	0012	CODE	通關密碼, 輸入範圍 0000~270F(0~9999)高位元	R/W
40020	0013		通關密碼, 輸入範圍 0000~270F(0~9999)低位元	R/W
40021	0014	DSPL	最小輸入對應顯示值, 輸入範圍D8F1~270F(-9999~9999)高位元	R/W
40022	0015		最小輸入對應顯示值, 輸入範圍D8F1~270F(-9999~9999)低位元	R/W
40023	0016	DSPL	最大輸入對應顯示值, 輸入範圍D8F1~270F(-9999~9999)高位元	R/W
40024	0017		最大輸入對應顯示值, 輸入範圍D8F1~270F(-9999~9999)低位元	R/W
40026	0019	DISPLAY	目前顯示值, 輸入範圍D8F1~270F(-9999~9999)高位元	R
40027	001A		目前顯示值, 輸入範圍D8F1~270F(-9999~9999)低位元	R
40031	001E	DISPLAY	目前顯示值, 輸入範圍D8F1~270F(-9999~9999)高位元	R
40032	001F		目前顯示值, 輸入範圍D8F1~270F(-9999~9999)低位元	R
40039	0026	DISPLAY	目前顯示值, 輸入範圍D8F1~270F(-9999~9999)高位元	R
40040	0027		目前顯示值, 輸入範圍D8F1~270F(-9999~9999)低位元	R

操作流程及顯示

正常顯示畫面



按鍵名稱示意

ENT	←	↑	↓	↑+↓
進入/儲存	修改/向左	向上	向下	回主畫面

SDCO 通訊參數

RS-485通訊介面, 硬體 D+, D-

Slave Address: 1~247

- Baud rate: 9600, 19200, 38400, 57600, 115200
- Parity: None, Even, Odd
- Data length: 8 bit
- Stop bit: 1 or 2 bit
- Default Address = 1, Data format= 9600, N81

Modbus (ref PI-MBUS-300)

- Support RTU mode
- Broadcast support (Address 0)
- Bit addressable items (i.e. Coils and Discrete inputs) will not be implemented
- Measurement Values are represented in IEEE 754 single-precision 32-bit floating point type
http://en.wikipedia.org/wiki/IEEE_754
- Modbus protocol structure:
 - 1st byte: Address (1~247)
 - 2nd byte: Function code (1 byte)
 - 3~Nth bytes: Data bytes
 - N+1th~N+2th byte: CRC (16 bits), LSB first

溫度/濕度/濕球溫度通訊協定位址表

Item No.	Add.	Add. HEX	Parameter	Point Type	Data Type	Value
1	1025	0401H	溫度	HOLDING REGISTER	Floating Pt.	°C
2	1029	0405H	濕度	HOLDING REGISTER	Floating Pt.	%
3	1033	0409H	露點	HOLDING REGISTER	Floating Pt.	°C
4	1037	040DH	霜點	HOLDING REGISTER	Floating Pt.	°C
5	1041	0411H	濕球	HOLDING REGISTER	Floating Pt.	°C
6	1045	0415H	飽和氣壓	HOLDING REGISTER	Floating Pt.	mbar
7	1049	0419H	氣壓	HOLDING REGISTER	Floating Pt.	mbar
8	1053	041DH	混合比	HOLDING REGISTER	Floating Pt.	g/kg
9	1057	0421H	絕對溼度	HOLDING REGISTER	Floating Pt.	g/m³
10	1061	0425H	比焓	HOLDING REGISTER	Floating Pt.	kJ/kg

- The base address is 1 rather than 0 in **ModScan** application.
- The register shown on the table is 1 byte whereas the ModScan 2 bytes.
- So the corresponding value against address 1029 of the "table" would be address 1027 of the Modscan
(e.g. 05 of the table equals to 40003 of the ModScan)

Item No.	Address	Value
1	01	<3B3EH>
2	05	<41C0H>
3	09	<A7EDH>
4	13	<4273H>
5		<2000H>
6		<4495H>
7		<0000H>
8		<0000H>

SDCO RS-485通訊協定表(軟體)

Item No.	Add.	Add. HEX	Parameter	Data Bytes	Data type	Value
Information						
1	17-26	0011H-001AH	Firmware version	10 bytes	ASCII	
2	33-48	0021H-0030H	Serial Number	16 bytes	ASCII	
RS-485 Slave Address, Baud rate, Data format						
3	49	0031H	Slave Address	1 byte	unsigned Integer	1-247
4	51	0033H	Baud rate	1 byte	unsigned Integer	0: 9600 1: 19200 2: 38400 3: 57600 4: 115200
5	53	0035H	Data type	1 byte	unsigned Integer	0: N81 1: N82 2: E81 3: E82 4: O81 5: O82

Item No.	Add.	Add. HEX	Parameter	Data Bytes	Data type	Value
Physical Quantities						
6	1	001H	OUT1	4 bytes	IEEE 754	Relate to OUT1 setting
7	5	005H	OUT2	4 bytes	IEEE 754	Relate to OUT2 setting

ASCII format, Item No. 1-2

1st Word		2nd Word		3rd Word		4th Word		5th Word		6th Word		7th Word		8th Word	
Hi byte	Lo byte	Hi byte	Lo byte	Hi byte	Lo byte	Hi byte	Lo byte	Hi byte	Lo byte	Hi byte	Lo byte	Hi byte	Lo byte	Hi byte	Lo byte

“ABCDEF0123456789” is represented in byte of hexadecimal as
<41><42><43><44><45><46><30><31><32><33><34><35><36><37><38><39>

IEEE754 format, Item No. 6-7

Data Hi Word, Hi Byte		Data Hi Word, Lo Byte		Data Lo Word, Hi Byte		Data Lo Word, Lo Byte	
SEEE	EEEE	EMMM	MMMM	MMMM	MMMM	MMMM	MMMM

Where
S represents the sign bit where 1 is negative and 0 is positive
E is the two’s complement exponent with an offset of 127 i.e. an exponent of zero is represented by 127, an exponent of 1 by 128 etc.
M is the 23-bit normal mantissa. The highest bit is always 1 and, therefore, is not stored.
Using the above format the floating point number 23.83 is represented in byte of hexadecimal as
<41><BE><A3><D7>:

Data Hi Word, Hi Byte	Data Hi Word, Lo Byte	Data Lo Word, Hi Byte	Data Lo Word, Lo Byte
0x41	0xBE	0xA3	0xD7

通訊範例

Read Temperature Measurement Value

Request the host (PC or PLC) to polling the data of SDCO			
Field Name	Value	Type	Byte
Slave Address	1~247	Byte	1
Read Holding registers	03	Byte	1
Starting Address Hi	04	Byte	1
Starting Address Lo	00	Byte	1
No. of registers Hi	00	Byte	1
No. of registers Lo	02	Byte	1
CRC Lo	CRC Lo	Byte	1
CRC Hi	CRC Hi	Byte	1

*Registers of Temperature are 0x0400 ~ 0x0403

Response SDCO response data to the host (PC or PLC)			
Field Name	Value	Type	Byte
Slave Address	1~247	Byte	1
Read Holding registers	03	Byte	1
Byte Count	04	Byte	1
IEEE 754 Data Lo Word, Hi Byte	0xA3	Byte	1
IEEE 754 Data Lo Word, Lo Byte	0xD7	Byte	1
IEEE 754 Data Hi Word, Hi Byte	0x41	Byte	1
IEEE 754 Data Hi Word, Lo Byte	0xBE	Byte	1
CRC Lo	CRC Lo	Byte	1
CRC Hi	CRC Hi	Byte	1

*the floating point number 23.83 is represented in byte of hexadecimal as <41><BE><A3><D7>

Read Relativity Humidity Measurement Value

Request the host (PC or PLC) to polling the data of SDCO			
Field Name	Value	Type	Byte
Slave Address	1~247	Byte	1
Read Holding registers	03	Byte	1
Starting Address Hi	04	Byte	1
Starting Address Lo	04	Byte	1
No. of registers Hi	00	Byte	1
No. of registers Lo	02	Byte	1
CRC Lo	CRC Lo	Byte	1
CRC Hi	CRC Hi	Byte	1

*Registers of Relativity Humidity are 0x0404 ~ 0x0407

Response SDCO response data to the host (PC or PLC)			
Field Name	Value	Type	Byte
Slave Address	1~247	Byte	1
Read Holding registers	03	Byte	1
Byte Count	04	Byte	1
IEEE 754 Data Lo Word, Hi Byte	0x77	Byte	1
IEEE 754 Data Lo Word, Lo Byte	0xCF	Byte	1
IEEE 754 Data Hi Word, Hi Byte	0x42	Byte	1
IEEE 754 Data Hi Word, Lo Byte	0x13	Byte	1
CRC Lo	CRC Lo	Byte	1
CRC Hi	CRC Hi	Byte	1

* the floating point number 36.87 is represented in byte of hexadecimal as <42><13><77><CF>: