Haiwell User's Manual of Temperature Extension Module

1.Product Model List

Model	Power Consumption	Dimension
H04DT	0.5VA	30*95*82mm
H32DT	1.0VA	30*95*82mm

2.Indicator Description

①POW:Power indicator,green. Continuous ON - Power good; OFF - Power error.
②LINK:Communication indicator. According to the severity of the error indication in 3 colors: Green, Flashing Red, Steady red. Red from normal to severely.
③AI: AI indicator. Red. Continuous ON- The sensor is properly connected   OFF-The sensor is not connected or incorrectly wired. According to the different states of the indicator, users are recommended to take the following actions:

State of the LINK Indicator		Indication Information	Actions to Take
Green	Keep dark	Host is not recognition module and no communication	Normal
	Keep light	Host identified modules and no communication	
	Quick jitter	Serial, parallel communication	
Red	Flashing light and dark	No parallel / serial communication	Firmware incomplete
	Alternating dark and jitter	Parallel / serial communication	
Note:	Jitter	Flicker	Alternately
	30 second's on with 30	0.5 second's on with 0.5 second's off	0.5 second's off with 0.5 second's jitter

State of the AI Indicator		Indication Information	Actions to Take
Red	Keep dark	Missed sensor	Normal
	Flicker	Sensor Access Exception	Check sensor connect
	Keep light	The sensor is properly connected	Normal

3.Environmental specifications for Product

Item	Environment Specification
Temperature/Humidity	Operating temperature:0~+55℃ Storage temperature:-25~+70℃ Humidity: 5~95%RH, No condensation
Vibration Resistance	10~57 HZ, amplitude=0.075mm, 57HZ~150HZ acceleration=1G, 10 times each for X-axis, Y-axis and Z-axis
Impact Resistance	15G, duration=11ms, 6 times each for X-axis, Y-axis and Z-axis
Interference Immunity	DC EFT:±2500V Surge: ±1000V
Over Voltage Resistance	500VAC/1min between DC terminal and PE terminal
Insulation Impedance	≧5MΩbetween all input/output points to PE terminal @500VDC
Operating environment	Avoid dust, moisture, corrosion, electric shock and external shocks

4.The main parameters of extension module

Item	H04DT	H32DT
Input interface	SHT1x/SHT7x or DS18B20 sensor	DS18B20 sensor
Input Quantity	4 Channel 4 point	2 channel, each channel 16 point
Communication Interface	without	RS485
Communication speed	without	2400~115200bps Baud rate
Communication protocol	without	Standard Modbus
The power supply mode	PLC host internal power supply	PLC host internal power supply or independent external supply of 24VDC
Measured distance	≤ 200 meters（Wire resistance50Ω）	≤500 meters（Wire resistance50Ω）
Measured range	DS18B20:-55 ~ +125℃ SHT11: -40 ~ 123.8℃ 0 ~ 100%RH	DS18B20:-55 ~ +125℃
Isolation type	No isolation between channels, analog and digital optical isolation	

5.Extension module wiring and wiring diagram
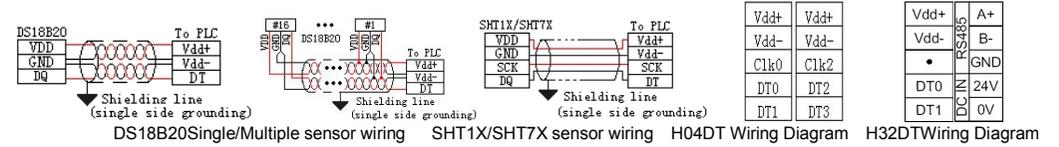
DS18B20Single/Multiple sensor wiring   SHT1X/SHT7X sensor wiring   H04DT Wiring Diagram   H32DTWiring Diagram

Note:①VDD (Vdd +) and GND (Vdd-) for the sensor power supply side, Can conveniently wiring;
②For detailed Sensor pin wiring definition ,please refer to technical information DS18b20 or SHT11;
③The cable between the DS18b20 sensor and module, recommend the use of four-core shielded twisted pair; One group connect ground line (Vdd-) and the signal line (DT),another group connect power connection(Vdd +) and ground line (Vdd-).

6.Extension module parameter table（Note: CR number is corresponding to the Modbus register address）

CR Number	H04DT Function Dedcription	H32DT Function Dedcription	
00H	Low byte is the module code,High byte is the module version		
01H	Communication Address		
02H	Communication protocol: Low 4 bit of low byte: 0 -N,8,2 For RTU 1 -E,8,1 For RTU 2–O,8,1 For RTU 3 -N,7,2 For ASCII 4 -E,7,1 For ASCII 5 -O,7,1 For ASCII 6 -N,8,1 For RTU High 4 bit of low byte:: 0 –2400 1 –4800 2 –9600 3 –19200 4 –38400 5 –57600 6 -115200		
03H~08H	Module Name		
09H~0EH	Factory Information		
0FH	Error Codes :0: Normal 1: Illegally firmware status 2: Firmware incomplete 3: System data access exception 4: No external power supply		
10H~13H	Channel 0~3 Sensor temperature input value	10H~1FH	Channel 1 No.1~16 Sensor temperature value
14H~17H	Channel 0~3 Sensor humidity input value		
18H~1BH	Channel 0~3 Sensor singal types(0-DS18B20、1-SHT11)		
1CH	Logo used in engineering		
1DH~20H	Lower specification limit Channel 0~3 Sensor data		
21H~24H	Upper specification limit of Channel 0~2 Sensor data	20H~2FH	Channel 2 No. 1~16 Sensor temperature value
25H~28H	Channel 0~3 A/D data bits		
29H~2CH	Channel 0~3 zero correction		
2DH	Channel 0~3 16 Sensor break alarm		
2EH~2FH	Retention		
		30H~31H	Channel 1~2 Sensor resolution
		32H~33H	Channel 1~2 16 Sensor break alarm
		34H~4FH	Retention

7.H32DT Sensors access and temperature value display

Each channel of the sensor temperature value stored sequence is done automatically by the system, as follows:
1. If multiple sensors have been connected before H32DT module is powered on, the H32DT module will automatically search all the sensors, and random writes (CR10H ~ 2FH) register, namely the sensors in the register in order to order.
2. To make multiple sensors sequentially deposited in the register, you should access again after H32DT module to electricity sensor. Steps are as follows: after H32DT module is powered on and connected to the sensor before, channel indicator is destroyed, the temperature of 16 channel show that the maximum 1250.According to time order access sensors, access time interval should be longer than 10 seconds, read the temperature value of sequential writes register (channel 1 is CR10H ~ 1FH, 2 for CR20H ~ 2FH).
3. Replace a sensor does not affect the other sensor order. Replacement of multiple sensors, sequential writes in empty out the register section temperature, other sensor order remains the same.
4. Ranked sensors in order to maintain when power supply drop.Charged state of disconnected channel, will clear the order of the transducer.
5. If a sensor from the passage above, the passage indicator lights flashing alarm.In CR50 and CR51 alarm information.

8.Attention

1. H32DT module acquisition Temp stored in the analog internal registers (CR10F ~ 2FH),the host can command (FROM) read directly, or using RS485 communication port to read;
2. H04DT module acquisition Temp\HR stored in the analog internal registers (CR10H~ 17H),the host can command (FROM) read directly;
3. In the process of module using, due to the external factors causes data line or the power line short-circuit, sensor work abnormal,and the module will reset all sensor sort order.
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