UT-5521-LCD
温湿度传感器说明书

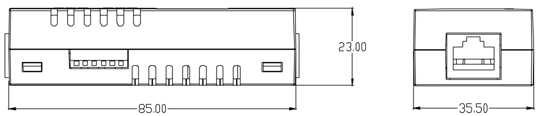
一、特点

‾l ي Ω ｇ‰
RS485 S w ɣ
ɺ ᵉ ʅ ש ، ρ
LCD ذ ש ĭ ש ĭ Ą Ē ƶ ﷺ
ʹ ʅ̃₂ ɲ Δ ß ₇ ĭ ש
ﻗﻲ Ķ Modbus RTU
ڲ ɜ 6 µ Δ Ą Ē ص ` ψ
ڲ ɜ ⁼

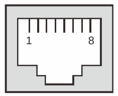
二、主要性能指标

	ש	ש
ß	-20~70Ń	0%RH~100%RH
ש	Ŷ ¢0.3Ń -10 60Ń	Ŷ3%RH(25Ń,20%RH~80%RH)
S w ɣ	RS485	
͵	MODBUS	
o ɥ	200W RS485	
ɜ	5Vdc~30Vdc	
♦ ψ	<10mA	
♦ ψ ש	-10~70Ń	
pꝭ ש	-20~80Ń Ƕ	

三、外形尺寸（mm）

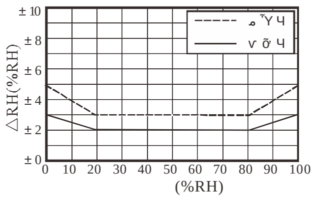


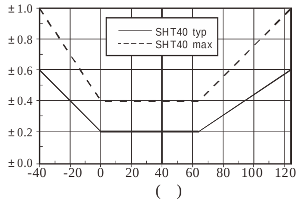
四、接线说明



ˆ	1	2	3	4	5	6	7	8
⁝ ..	V+	V+	NC	485+	485-	SGND	GND	GND

五、精度与测量范围对应关系





六、LCD显示

Ω₂ Ů ꜝ LCD ذ ꓤ Ή ذ ĭ ש ĭ Ą Ē ƶ ﷺ Î

ﷹ ذ ڲ ﺦ ש ذ Ą Ē ﷺ ذ

七、地址设定

6 µ ص ` ψ ، ə Ą Ē Ą Ē ß 0 63 ´ Ä ﭺ˜
ﺁ Ą ˛

ž  1 ĭ 2 µ ص Ă OFF ɵ˥ ON Ą Ē ʼ 1×1+1×2=3

ž  5 ĭ 6 µ ص Ă OFF ɵ˥ ON Ą Ē ʼ :1×16+1×32=48 Î

SW1	SW2	SW3	SW4	SW5	SW6	HEX
OFF	ON	ON	ON	ON	ON	01
ON	OFF	ON	ON	ON	ON	02
OFF	OFF	ON	ON	ON	ON	03
ON	ON	OFF	ON	ON	ON	04
…	…	…	…	…	…	…
OFF	OFF	OFF	OFF	OFF	OFF	3F

八、通讯协议

ﷺ 9600 8 µ ﯖ ﭺ µ 1 µ 6 ﻄ µ أ ﻟﻰ
، ﻻ ﭺ ψ

Ы	Ą Ē	₳ Ἐ	ῷ Ą Ē	ɜ ﯖ	ﻟﻰ
ש	ADD/00	04	00 00	00 02	CRC (Li Hi)
Ą Ē	ADD/00	03	00 00	00 01	CRC (Li Hi)
ﷺ	ADD/00	03	00 01	00 01	CRC (Li Hi)
ש Ḱ ﻌﻰ Ч	ADD/00	03	00 02	00 01	CRC (Li Hi)
ש Ḱ ﻌﻰ Ч	ADD/00	03	00 03	00 01	CRC (Li Hi)
ש ذ µ	ADD/00	03	00 04	00 01	CRC (Li Hi)

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Ы	Ą Ē	₳ Ἐ	ש	Ὦ ₆	ﻟﻰ
ש	ADD/00	04	04	D0 D1 D2 D3ᶻ	CRC(Li Hi)
Ą Ē	ADD/00	03	02	00 ADD	CRC(Li Hi)
ﷺ	ADD/00	03	02	0000(9600)/0001(19200)	
ש Ḱ ﻌﻰ Ч	ADD/00	03	02	D0 D1ᶻ	CRC(Li Hi)
ש Ḱ ﻌﻰ Ч	ADD/00	03	02	D0 D1ᶠ	CRC(Li Hi)
ש ذ µ	ADD/00	03	02	0000(Ń)/0001(°F)	CRC(Li Hi)

، ﻻʼ ﭺ ψ

Ы	Ą Ē	₳ Ἐ	ῷ Ą Ē	Ὦ ₆	ﻟﻰ
ʼ Ą Ē	ADD/00	06	00 00	00 ADD	CRC(Li Hi)
ʼ ﷺ	ADD/00	06	00 01	0000(9600)/0001(19200)	CRC(Li Hi)
ʼ ש Ḱ ﻌﻰ Ч	ADD/00	06	00 02	D0 D1ᶻ	CRC(Li Hi)
ʼ ש Ḱ ﻌﻰ Ч	ADD/00	06	00 03	D0 D1ᶠ	CRC(Li Hi)
ʼ ש ذ µ	ADD/00	06	00 04	0000(Ń)/0001(°F)	CRC(Li Hi)

ᵗ ﻻ ᵉ ʅ

Ы	Ą Ē	₳ Ἐ	ῷ Ą Ē	Ὦ ₆	ﻟﻰ
ʼ Ą Ē	ADD/00	06	00 00	00 ADD	CRC(Li Hi)
ʼ ﷺ	ADD/00	03	00 01	0000(9600)/0001(19200)	CRC(Li Hi)
ʼ ש Ḱ ﻌﻰ Ч	ADD/00	06	00 02	D0 D1ᶻ	CRC(Li Hi)
ʼ ש Ḱ ﻌﻰ Ч	ADD/00	06	00 03	D0 D1ᶠ	CRC(Li Hi)
ʼ ש ذ µ	ADD/00	06	00 04	0000(Ń)/0001(°F)	CRC(Li Hi)

CRC 0xA001(1010 0000 0000 0001)
03 01 03 00 00 00 05 85 C9
5

D0D1 =(D0D1-4000)/100
D2D3 =D2D3/100
D0D1 100

D0D1 100

“ RECYCLABLE ”
100×48×34mm

UT-5521-LCD 1 ×1
×1

UT-5521-LCD
Temperature and Humidity Sensor

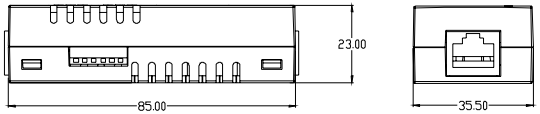
Ⅰ.Feature

Wall hanging or magnetic attraction installation
RS485 signal output
Linear response and integration of temperature and humidity
LCD displays the temperature, humidity, address and Baud rate
Special sensitive element with wide measurement range and high precision
Standard Modbus RTU protocol is used for the communication protocol.
Provide 6-digit hardware address dial switch
Provide the communication indicator light

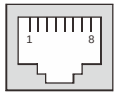
. Main Performance Indexes

	Temperature	Humidity
Measurement range	-20~70Ń	0%RH~100%RH
Measurement precision	Ŷ ¢0.3Ń -10 60Ń	Ŷ3%RH(25Ń,20%RH~80%RH)
Signal output	RS485	
Communication protocol	MODBUS	
Port protection	Surge 200W RS485	
Power supply	5Vdc~30Vdc	
Operating current	<10mA	
Operating temperature	-10~70Ń	
Storage temperature	-20~80Ń (non-condensing)	

Ⅲ. Boundary dimension (mm)

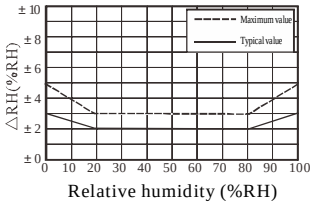


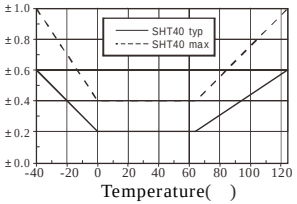
Ⅳ. Wiring Instruction



Pin	1	2	3	4	5	6	7	8
Definition	V+	V+	NC	485+	485-	SGND	GND	GND

Ⅴ. Relation between precision and measurement range





Ⅵ. LCD display

The sensor has the LCD display, which can visually display the temperature, humidity, address and Baud rate.

Full display effect | Temperature and humidity display | Address and Baud rate display

Ⅶ. Address setting

The 6-digit dial switch is used to set the product address, with the address range of 0~63 and a binary format. The calculation example is as follows:

Switch 1 and 2 to OFF and others to ON, the address is 1 × +1 × 2=3;

Switch 5 and 6 to OFF and others to ON, the address is 1 ×16+1 ×2=48.

SW1	SW2	SW3	SW4	SW5	SW6	Address(HEX)
OFF	ON	ON	ON	ON	ON	01
ON	OFF	ON	ON	ON	ON	02
OFF	OFF	ON	ON	ON	ON	03
ON	ON	OFF	ON	ON	ON	04
…	…	…	…	…	…	…
OFF	OFF	OFF	OFF	OFF	OFF	3F

Ⅷ. Communication protocol

Baud rate: 9,600 8 data bits, 1 stop bit and no verification.

Read operation of mainframe:

Function	Address	Command	Initial address	Read value	Verification
Read temperature and humidity	ADD/00	04	00 00	00 02	CRC (Li Hi)
Read address	ADD/00	03	00 00	00 01	CRC (Li Hi)
Read Baud rate	ADD/00	03	00 01	00 01	CRC (Li Hi)
Read corrected temperature value	ADD/00	03	00 02	00 01	CRC (Li Hi)
Read corrected humidity value	ADD/00	03	00 03	00 01	CRC (Li Hi)
Read temperature display unit	ADD/00	03	00 04	00 01	CRC (Li Hi)

Write operation of mainframe:

Function	Address	Command	Byte length	Contents	Verification
Read temperature and humidity	ADD/00	04	04	D0 D1 D2 D3	CRC (Li Hi)
Read address	ADD/00	03	02	00 ADD	CRC (Li Hi)
Read Baud rate	ADD/00	03	02	0000(9600)/0001(19200)	
Read corrected temperature value	ADD/00	03	02	D0 D1	CRC (Li Hi)
Read corrected humidity value	ADD/00	03	02	D0 D1	CRC (Li Hi)
Read temperature display unit	ADD/00	03	02	0000(Ń)/0001(°F)	CRC (Li Hi)

Write operation of mainframe:

Function	Address	Command	Initial address	Contents	Verification
Write address	ADD/00	06	00 00	00 ADD	CRC (Li Hi)
Write Baud rate	ADD/00	06	00 01	0000(9600)/0001(19200)	CRC (Li Hi)
Write corrected temperature value	ADD/00	06	00 02	D0 D1	CRC (Li Hi)
Write corrected humidity value	ADD/00	06	00 03	D0 D1	CRC (Li Hi)
Write temperature display unit	ADD/00	06	00 04	0000(Ń)/0001(°F)	CRC (Li Hi)

Slave response:

Function	Address	Command	Initial address	Contents	Verification
Write address	ADD/00	06	00 00	00 ADD	CRC (Li Hi)
Write Baud rate	ADD/00	03	00 01	0000(9600)/0001(19200)	CRC (Li Hi)
Write corrected temperature value	ADD/00	06	00 02	D0 D1	CRC (Li Hi)
Write corrected humidity value	ADD/00	06	00 03	D0 D1	CRC (Li Hi)
Write temperature display unit	ADD/00	06	00 04	0000(Ń)/0001(°F)	CRC (Li Hi)

CRC verification generates polynomial 0xA001 (1010 0000 0000 0001).
03 command can read several parameters one time. For example,
01 03 00 00 00 05 85 C9 reads 5 parameters one time.
The temperature display unit modification only changes the temperature display unit, rather than influence the communication data format.

Notes:
D0D1 temperature value, unsigned integer datum of fixed point.
Actual temperature is (D0D1-4000)/100.
D2D3 humidity value, unsigned integer datum of fixed point.
Actual humidity is D2D3/100
Unsigned integer datum of fixed point. D0D1 is 100 times of the actual corrected value. Due to the self-heating effect of the equipment, the measured temperature is higher than the actual temperature and the corrected value should be deducted from the measured result.
Unsigned integer datum of fixed point. D0D1 is 100 times of the actual corrected value. Due to the self-heating effect, the measured humidity is lower than the actual humidity and the corrected value should be added to the measured result.

Product Packaging

Cattlehide box packaging: " ECYCLABLE " printed on the back surface and packaging dimension: 100 × 48 × 4mm.

Packing list: UT-5521-LCD *1 and certificate of quality *1
Ingredient list of hazardous substances*1