

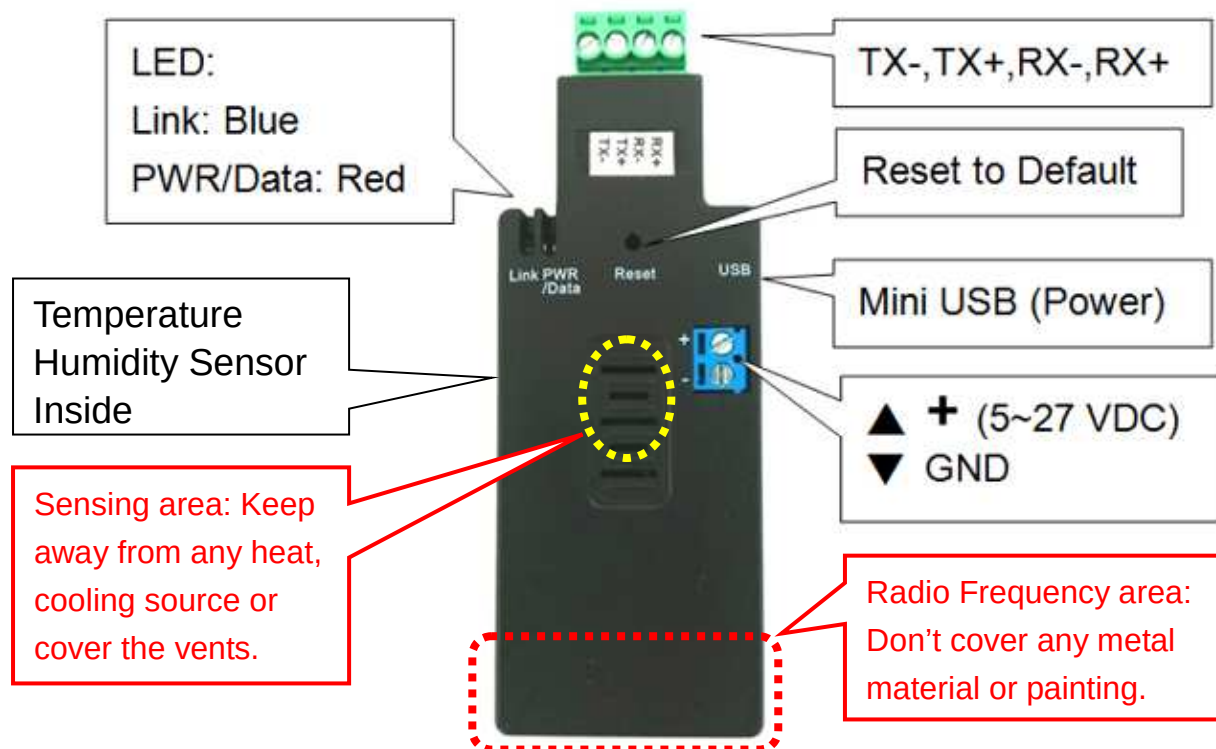
BLE Humidity and Temperature Sensor tag & RS-485 transmitter

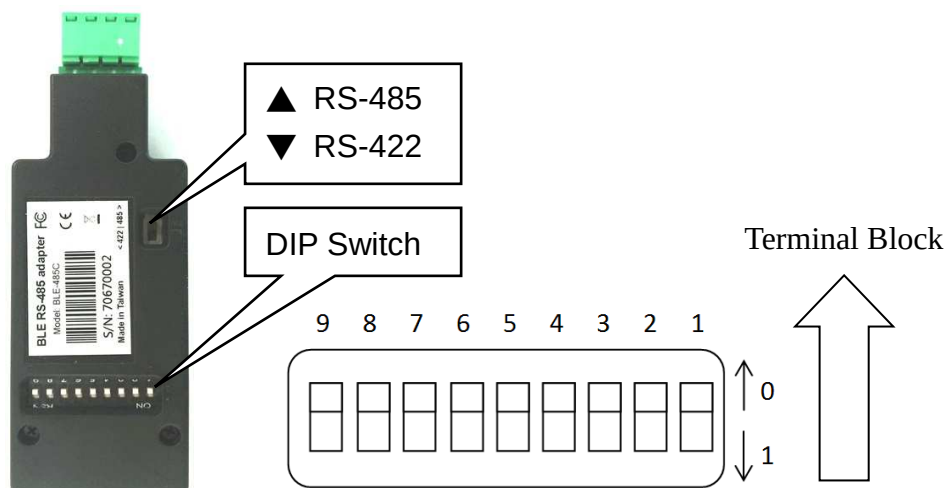
Model: TH-485

1. Package content:

RS-485 sensor adapter  White Box Dimension: 11 x 6 x 5 (cm) Total Package Weight: 105 g 	Package Contents: ● RS-485 sensor adapter x 1 ● A4 User manual x 1 ● Mini USB Cable x 1 
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2. Profile:





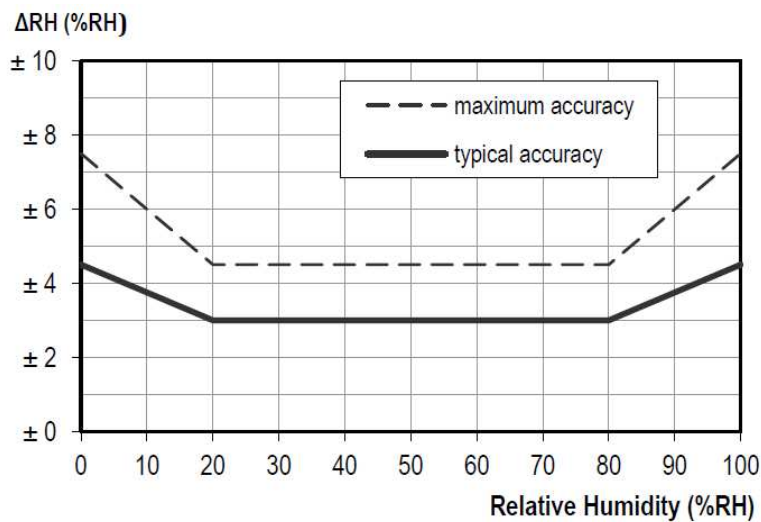
1	2	3	4	5	6	7	8	9
Config	Format	Report	Base-1	Base-2	Time-1	Time-2	Time-3	Time-4
0: HW 1: SW	0: Raw 1: Tag	0: Auto	00: Second 01: Minute 10: Hour 11: Day *Remark		0000:1 1100:13 0001:2 1101:14 0010:3 0110:7 0011:4 *Remark	0100:5 0101:6 1010:11 0111:8	1000:9 1001:10 1011:12	1110:15 1111:16
		1: Poll	Poll the sensor value by the command set via RS-232 or RS-485, please check the command table. If you set the Modbus RTU command, the pin setting will indicate the Modbus ID: 1~64 The following string indicates the DIP No.: [4] [5] [6] [7] [8] [9] 000000:1 010000:17 100000:33 110000:49 000001:2 010001:18 100001:34 110001:50 000010:3 010010:19 100010:35 110010:51 000011:4 010011:20 100011:36 110011:52 000100:5 010100:21 100100:37 110100:53 000101:6 010101:22 100101:38 110101:54 000110:7 010110:23 100110:39 110110:55 000111:8 010111:24 100111:40 110111:56 001000:9 011000:25 101000:41 111000:57 001001:10 011001:26 101001:42 111001:58 001010:11 011010:27 101010:43 111010:59 001011:12 011011:28 101011:44 111011:60 001100:13 011100:29 101100:45 111100:61					

		001101:14	011101:30	101101:46	111101:62
		001110:15	011110:31	101110:47	111110:63
		001111:16	011111:32	101111:48	111111:64

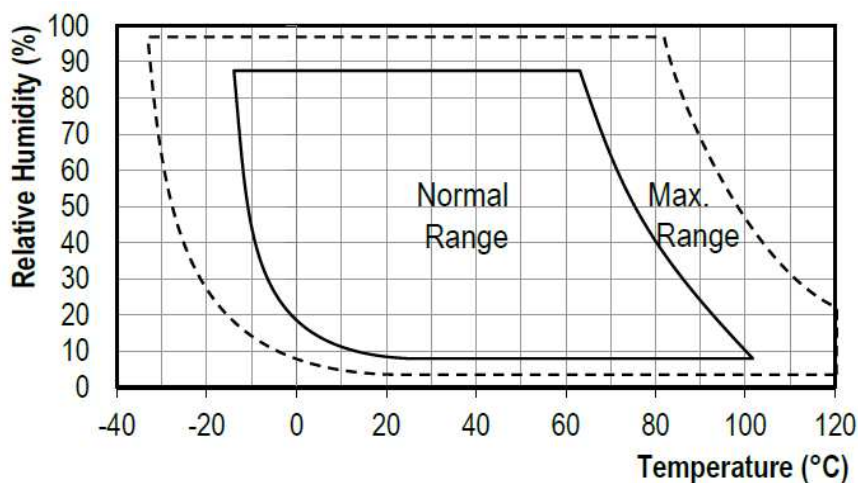
3. Specifications:

3.1 Humidity

Parameter	Condition	Value	Units
Resolution ¹	12 bit	0.04	%RH
	8 bit	0.7	%RH
Accuracy tolerance ²	typ	±3.0	%RH
	max	see Figure 2	%RH
Repeatability		±0.1	%RH
Hysteresis		±1	%RH
Nonlinearity		<0.1	%RH
Response time ³	τ 63%	8	s
Operating Range	extended ⁴	0 to 100	%RH
Long Term Drift ⁵	Typ.	< 0.25	%RH/yr

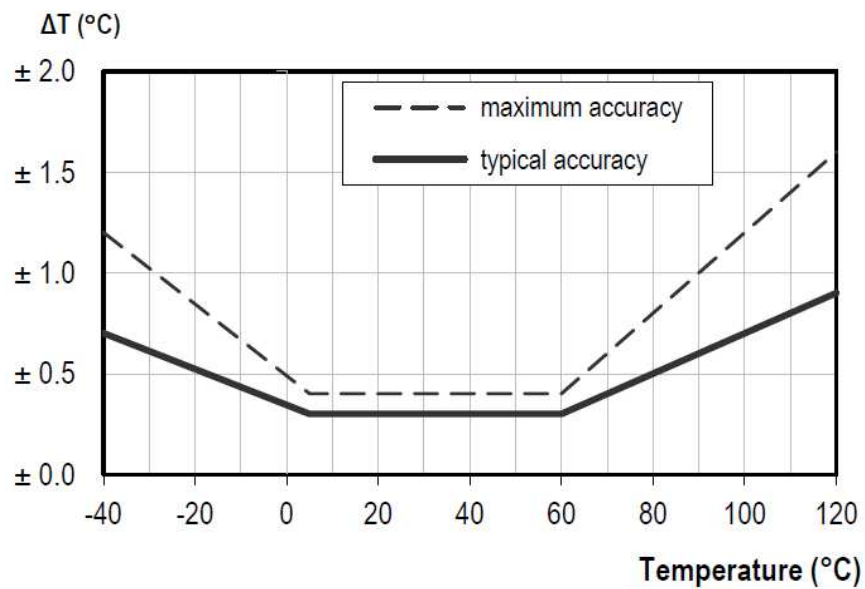


Operation range:



3.2 Temperature

Parameter	Condition	Value	Units
Resolution ¹	14 bit	0.01	°C
	12 bit	0.04	°C
Accuracy tolerance ²	typ	±0.3	°C
	max	see Figure 3	°C
Repeatability		±0.1	°C
Operating Range	extended ⁴	-40 to 125	°C
Response Time ⁷	τ 63%	5 to 30	s
Long Term Drift ⁸	Typ.	< 0.02	°C/yr



4. Output data format:

4.1 RS-485: The sensor ID is unique.

\$<Sensor ID>,<Temperature>,<Humidity>%

EX:

```

COM10 - Tera Term VT
File Edit Setup Control Window Help
$00A050D492A0,+26.1,+61.0%
$00A050D492A0,+26.1,+61.0%
$00A050D492A0,+26.1,+60.0%
$00A050D492A0,+26.1,+60.0%
$00A050D492A0,+26.2,+68.0%
$00A050D492A0,+26.1,+68.0%
$00A050D492A0,+26.1,+68.0%
$00A050D492A0,+26.1,+68.0%
$00A050D492A0,+26.1,+67.0%
$00A050D492A0,+26.1,+67.0%
$00A050D492A0,+26.1,+67.0%
$00A050D492A0,+26.1,+67.0%
$00A050D492A0,+26.1,+67.0%
$00A050D492A0,+26.1,+67.0%
$00A050D492A0,+26.1,+67.0%
$00A050D492A0,+26.1,+67.0%

```

4.2 BLE Sensor Tag

The protocol support the IOT applications, please check the RTLS product on the web site. The transmitter will broadcast the sensor value via BLE beacon. The BLE reader or smartphone will receive the data via BLE protocol. It will support one to many sensors data collection.

\$<msg type>,<reader id>,<tag type>,<tag id>,<battery>,<button>,<motion>,<sensor>,<RSSI>#

Field	Description
\$	start of report
msg type	Type of message ex. 0: general scanner, 1: tag scanner
reader id	6 bytes ID of reader in hex => 12 chars
tag type	type of tag ex. 1: tag w/o g-sensor, 2: tag w/ g-sensor ..
tag id	6 bytes ID of tag in hex => 12 chars
tag batt	batt voltage of tag in 1/10 volt unit
tag button status	button status ex. 0: released, 1: pushed
tag motion status	motion status ex. 0: non-moving, 1: moving
sensor	Temperature Humidity sensor data
tag rssi	tag read rssi
#	end of report

Ex:

```

COM10 - Tera Term VT
File Edit Setup Control Window Help
$1.00A050D4958B,1.00A050D492A0,00,0,0,3031312B31392E35420000,-42#
$1.00A050D4958B,1.00A050D492A0,00,0,0,3032312B33442E30300000,-43#
$1.00A050D4958B,1.00A050D492A0,00,0,0,3031312B31392E35410000,-43#
$1.00A050D4958B,1.00A050D492A0,00,0,0,3032312B33442E30300000,-43#
$1.00A050D4958B,1.00A050D492A0,00,0,0,3031312B31392E35380000,-43#
$1.00A050D4958B,1.00A050D492A0,00,0,0,3032312B33442E30300000,-44#
$1.00A050D4958B,1.00A050D492A0,00,0,0,3031312B31392E35370000,-45#
$1.00A050D4958B,1.00A050D492A0,00,0,0,3032312B33432E30300000,-44#
$1.00A050D4958B,1.00A050D492A0,00,0,0,3031312B31392E35370000,-43#
$1.00A050D4958B,1.00A050D492A0,00,0,0,3031312B31392E35350000,-53#
$1.00A050D4958B,1.00A050D492A0,00,0,0,3032312B33432E30300000,-60#
$1.00A050D4958B,1.00A050D492A0,00,0,0,3031312B31392E35340000,-63#
$1.00A050D4958B,1.00A050D492A0,00,0,0,3032312B33432E30300000,-59#
$1.00A050D4958B,1.00A050D492A0,00,0,0,3031312B31392E35330000,-61#
$1.00A050D4958B,1.00A050D492A0,00,0,0,3032312B33432E30300000,-54#
$1.00A050D4958B,1.00A050D492A0,00,0,0,3031312B31392E35320000,-68#
$1.00A050D4958B,1.00A050D492A0,00,0,0,3032312B33432E30300000,-66#
$1.00A050D4958B,1.00A050D492A0,00,0,0,3031312B31392E35320000,-61#
$1.00A050D4958B,1.00A050D492A0,00,0,0,3032312B33432E30300000,-57#
$1.00A050D4958B,1.00A050D492A0,00,0,0,3031312B31392E35320000,-62#
$1.00A050D4958B,1.00A050D492A0,00,0,0,3032312B33432E30300000,-57#
$1.00A050D4958B,1.00A050D492A0,00,0,0,3031312B31392E35310000,-61#
$1.00A050D4958B,1.00A050D492A0,00,0,0,3032312B33432E30300000,-57#

```

5. AT command:

*RST: Reset

READ? : Read the sensor value

6. RS-485 Modbus RTU: 9600,8-N-1

Read:

ID	Fucntion	Data	CRC16
1 Byte,0x01~0x7F	0x03	0x00	2 Byte

Response:

ID	Fucntion	Data Length	Data	CRC16
1 Byte,0x01~0x7F	0x03	0x04	4 Byte	2 Byte

Remark: All contents are subject to change without notice.



Ubiquitous Connect

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