




BLE Humidity and Temperature Sensor tag & RS-232 transmitter

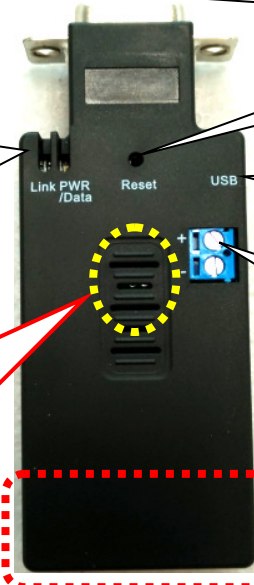
Model: TH-232

1. Package content:

<p>RS-232 sensor adapter</p>  <p>White Box Dimension: 11 x 6 x 5 (cm) Total Package Weight: 105 g</p> 	<p>Package Contents:</p> <ul style="list-style-type: none"> ● RS-232 sensor adapter x 1 ● Screw x2, Screw nut x 2 ● A4 User manual x 1 ● Mini USB Cable x 1 
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2. Profile:

2.1 Top view:



DB9 (Female)

Reset to Default

Mini USB (Power)

▲ + (5~27 VDC)
▼ GND

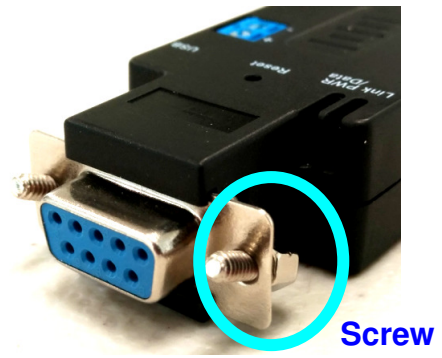
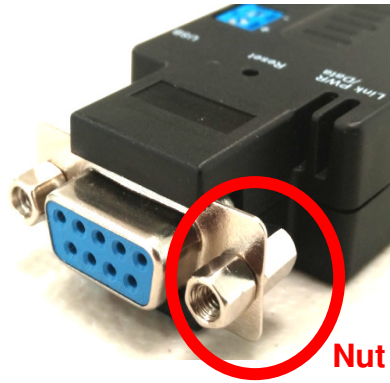
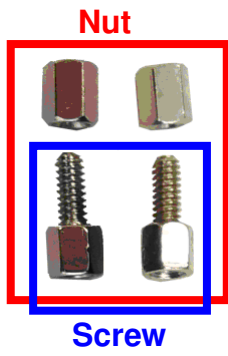
LED:
Data: Blue
PWR: Red

Sensing area:
Keep away from any heat, cooling source or cover the vents.

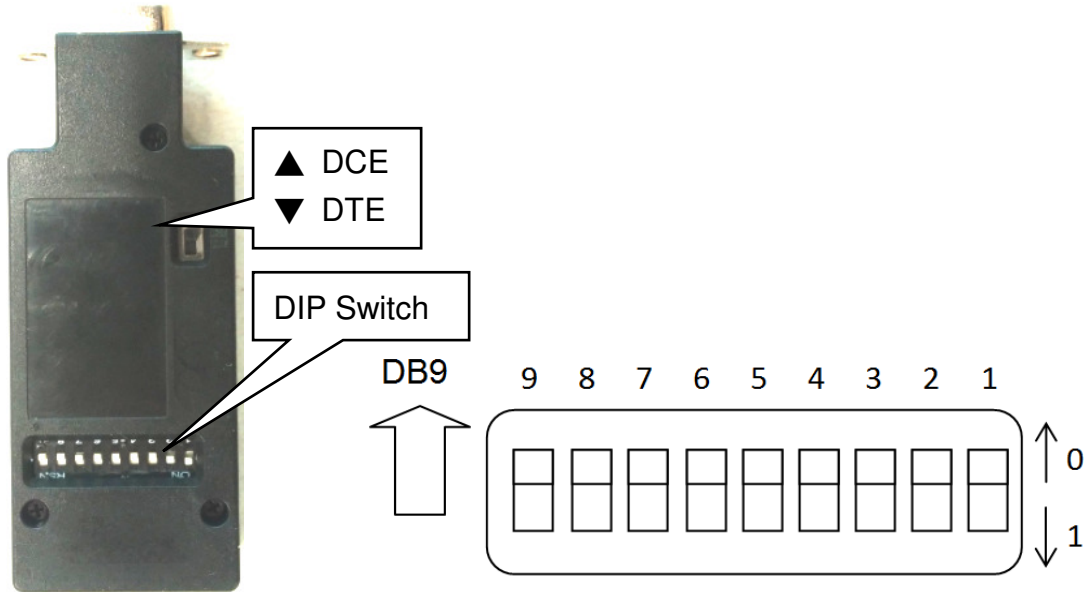
Radio Frequency area: Don't cover any metal material or

2.2 DB9 connector:

There're 2 screws and 2 nuts inside the package, the screw or nut are available.



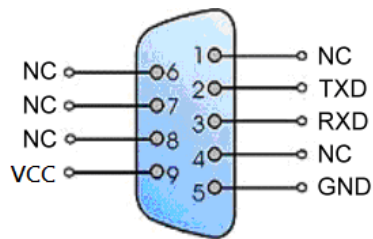
2.3 Rear Side:



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 0011:4	0100:5 0101:6 0110:7 0111:8	1000:9 1001:10 1010:11 1011:12	1110:15 1111:16 *Remark
		1: Poll	Poll the sensor value by the command set via RS-232 *RST: Reset READ? : Read the sensor value					

2.4 Power input: **Choose one**

2.4.1 DB9 pin9

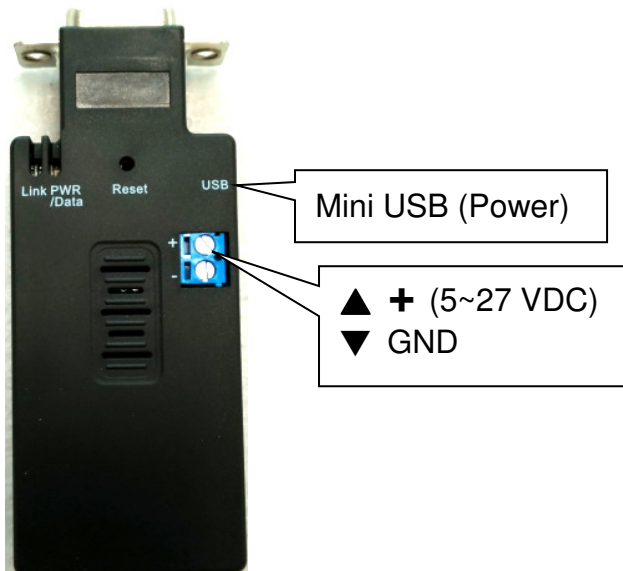


VCC: 5~27V DC.

Warning: If you need to power the transmitter via mini USB or terminal block, please don't power input via the pin 9.

2.4.2 Mini USB

2.4.3 2P terminal block



3. Output data format:

3.1 RS-232: 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%
```

3.2 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#

```

3.3 AT command:

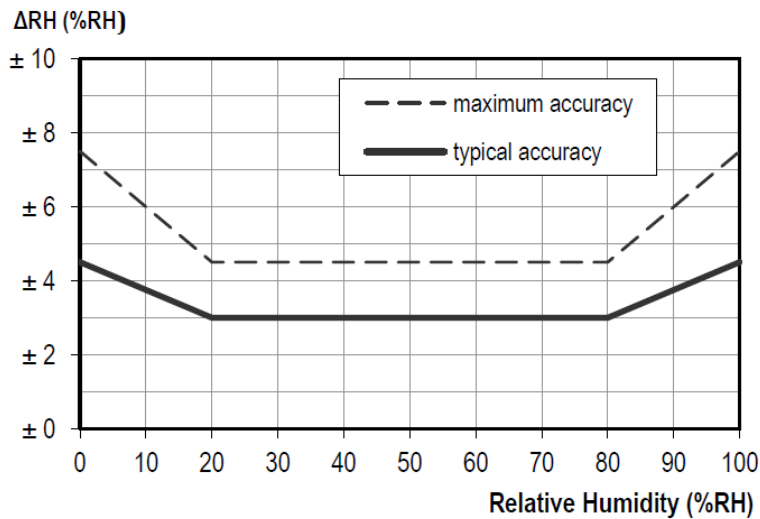
*RST: Reset

READ? : Read the sensor value

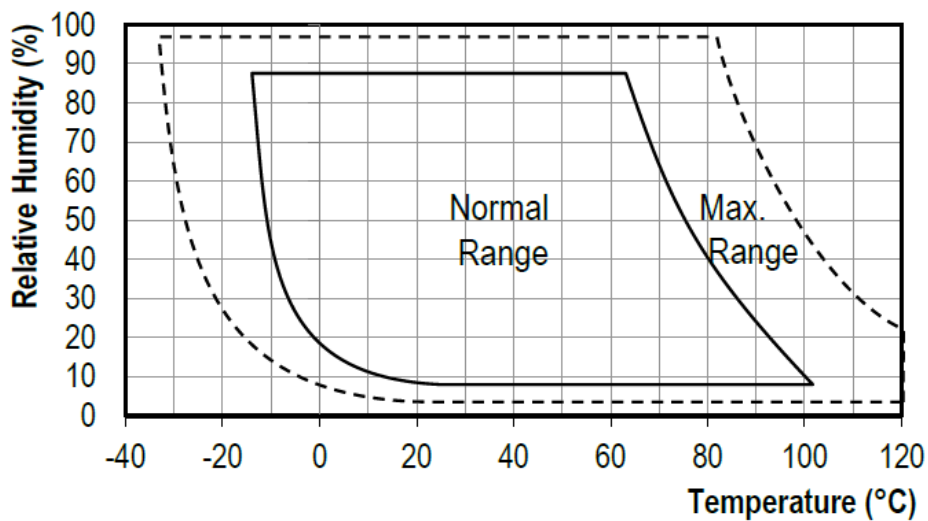
4. Specifications:

4.1 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

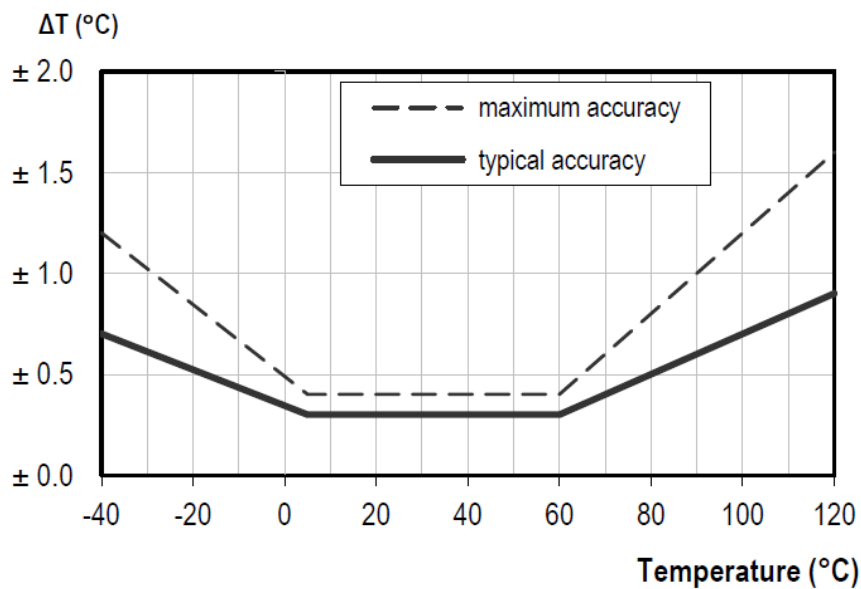


Operation range:



4.2 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



Remark: All contents are subject to change without notice.



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