



Part Number: UM0034-002

Model Number: FA01L03-UM0034-002Z

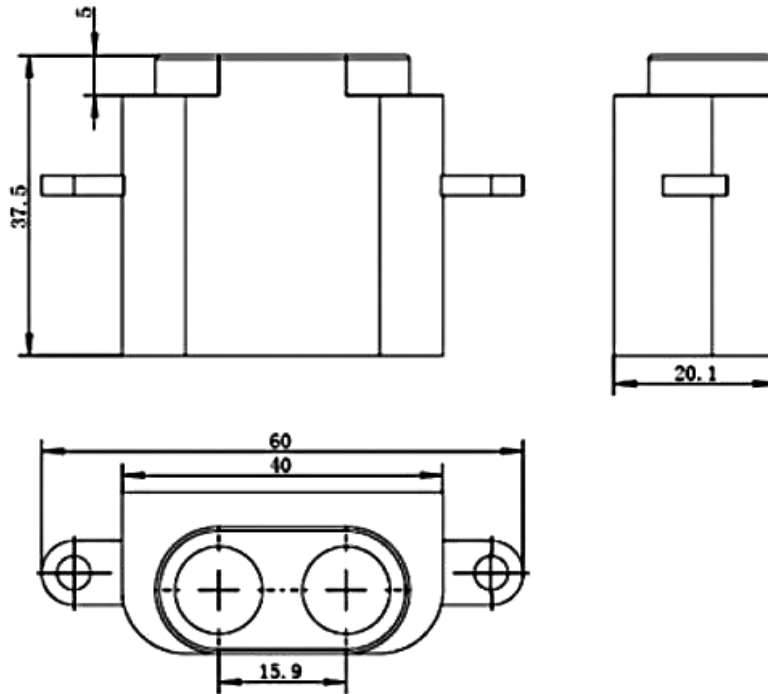
Overview

The ultrasonic rangefinder measures the time interval between emitting the ultrasonic pulses and receiving the echo to determine the distance to nearby objects.

Features include its small size, is easy to install, it is intelligent with accurate measurements, has a small blind zone with high sensitivity and has good anti-interference ability.

Possible applications include an Intelligent garbage can, Intelligent water dispenser and intelligent liquid level detection systems.

Appearance and Dimensions, Unit: mm



Tolerance Rating	Tolerance Type	0 ~ 3	3 ~ 6	6 ~ 10	10 ~ 14	14 ~ 18	18 ~ 24	24 ~ 30	30 ~ 40	40 ~ 50	50 ~ 65
MT3	A	±0.06	±0.07	±0.08	±0.09	±0.10	±0.12	±0.14	±0.16	±0.18	±0.20

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Electrical Specifications

Principal:	
Measuring Principal	Ultrasonic Sensing
Performance:	
Sensor frequency	60KHz
Sensing distance	Max. 1200mm
Measuring range	20mm ~ 1200mm
Measurement accuracy	1cm
Blind Zone	20mm
Power-on delay	<1s
Wake-up method	The host inputs a high level pulse greater than 10us to wake the ranging module from sleep
Measurement cycle	50ms
Output:	
Output	UARR
Signal Output Method	UART (TTL level) output measurement distance in mm
Rated Operating Conditions:	
Working Environment	Indoor/Outdoor
Operating Temperature	0°C ~ 85°C
Storage Temperature	-40°C ~ 85°C
Relative Humidity	≤95% (no condensation)
Power:	
Power Supply	DC5V
Working Current	Standard operating condition: ≤9mA Sleep mode: <200uA

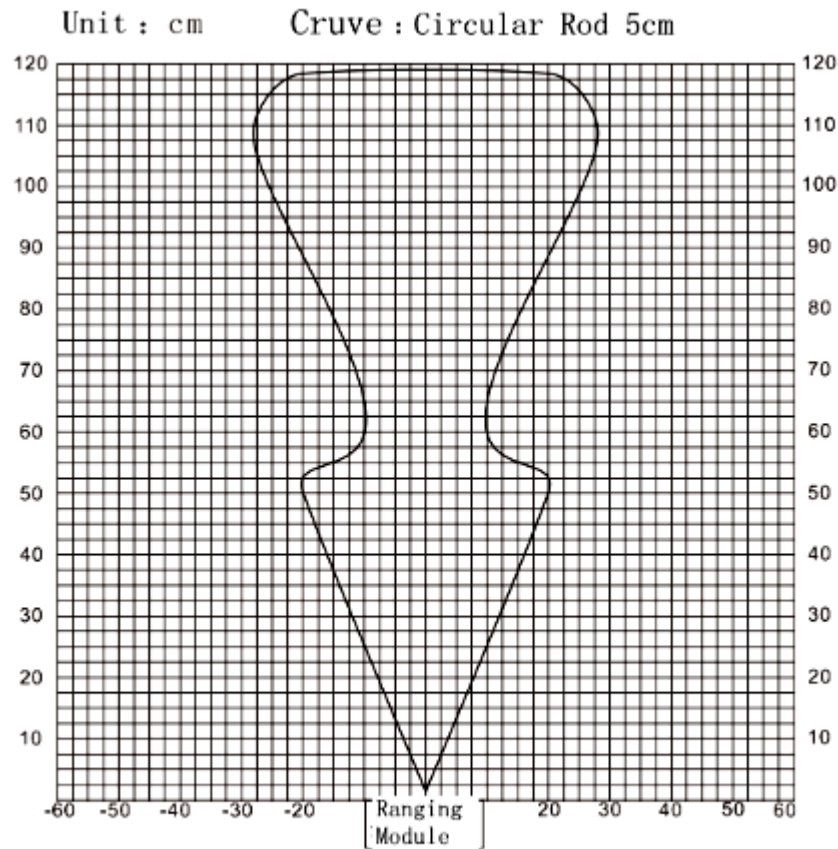
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Response Curve

Sensor response characteristic curve



Notes: The area inside the curve is the area in which a 7.5 cm (diameter) circular rod can be detected.

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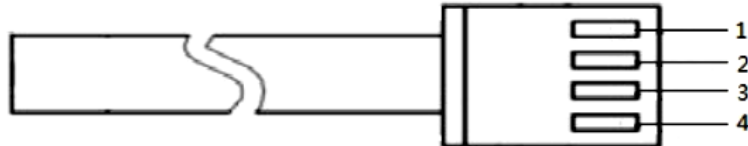
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Output type

Interface definition

Lead output is used, the lead terminal is XH2.54 TJC4 plug, and the terminal color is black. The lead name is shown below:



Pin No.	Function of pin	Lead Wire Color	Remark
1	VCC	Red	DC 5V
2	GND	Black	GND
3	RX	White	Wake-up signal (high-level pulse greater than 10us)
4	TX	Yellow	UART (TTL level outputs ranging data)

After the ranging module is powered on, it automatically enters the mode state after one ranging activity. The host can input a high-level pulse greater than 10us through the RX pin to wake up the ranging module from the sleep state and perform ranging. After the ranging is completed, the ranging data is sent to the host through the serial port, and then the ranging module automatically enters sleep mode until the host sends a high-level pulse to wake it up.

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UART (TTL Level) Communication Protocol

The measurement result is output in UART (TTL Level) in mm. The output is one data frame every 10 bits, and the time frame format is as follows:

bit 1	bit 2	bit 3	bit 4	bit 5	bit 6	bit 7	bit 8	bit 9	bit 10
start bit	data bit								stop bit

Baud rate: 9600 bps

Data Format

1. Send the character “n” in characters, 1 byte.
2. Send the character “0”, 1 byte in characters.
3. Send the decimal character “.” in characters, 1 byte
4. Send the character “v” in characters, 1 byte.
5. Send the character ‘a’ in characters, 1 byte.
6. Send the character “1” in characters, 1 byte.
7. Send the character “=” in characters, 1 byte.
8. Send the ten digits of the measurement result in characters, 1 byte.
9. Send the ones digit of the measurement result in characters, 1 byte.
10. Send the end character 0xff.

Output example: n0.val=25 means the distance from the probe to the object is 25mm.

The distance measurement result is 3 digits:

1. Send the character “n” in characters, 1 byte.
2. Send the character “0”, 1 byte in characters.
3. Send the decimal character “.” in characters, 1 byte
4. Send the character “v” in characters, 1 byte.
5. Send the character ‘a’ in characters, 1 byte.
6. Send the character “1” in characters, 1 byte.
7. Send the character “=” in characters, 1 byte.
8. Send the hundreds of digits of the measurement result in characters, 1 byte.
9. Send the ten digits of the measurement result in characters, 1 byte.
10. Send the end character 0xff.

Output example: n0.val=895 means the distance from the probe to the object is 895mm.

The distance measurement result is 4 digits:

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Data Format, Continued

1. Send the character “n” in characters, 1 byte.
2. Send the character “0”, 1 byte in characters.
3. Send the decimal character “.” in characters, 1 byte
4. Send the character “v” in characters, 1 byte.
5. Send the character ‘a’ in characters, 1 byte.
6. Send the character “1” in characters, 1 byte.
7. Send the character “=” in characters, 1 byte.
8. Send the thousands of measurement result in characters, 1 byte.
9. Send the hundreds of digits of the measurement result in characters, 1 byte.
10. Send the ten digits of the measurement result in characters, 1 byte.
11. Send the ones digit of the measurement result in characters, 1 byte.
12. Send the end character 0xff.

Output example: n0. val=1010 means the distance from the probe to the object is 1010mm.

Revision History:

Version	Date (MM/DD/YY)	DWN	Statement
A2	03/09/2018		

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