UM0034-002
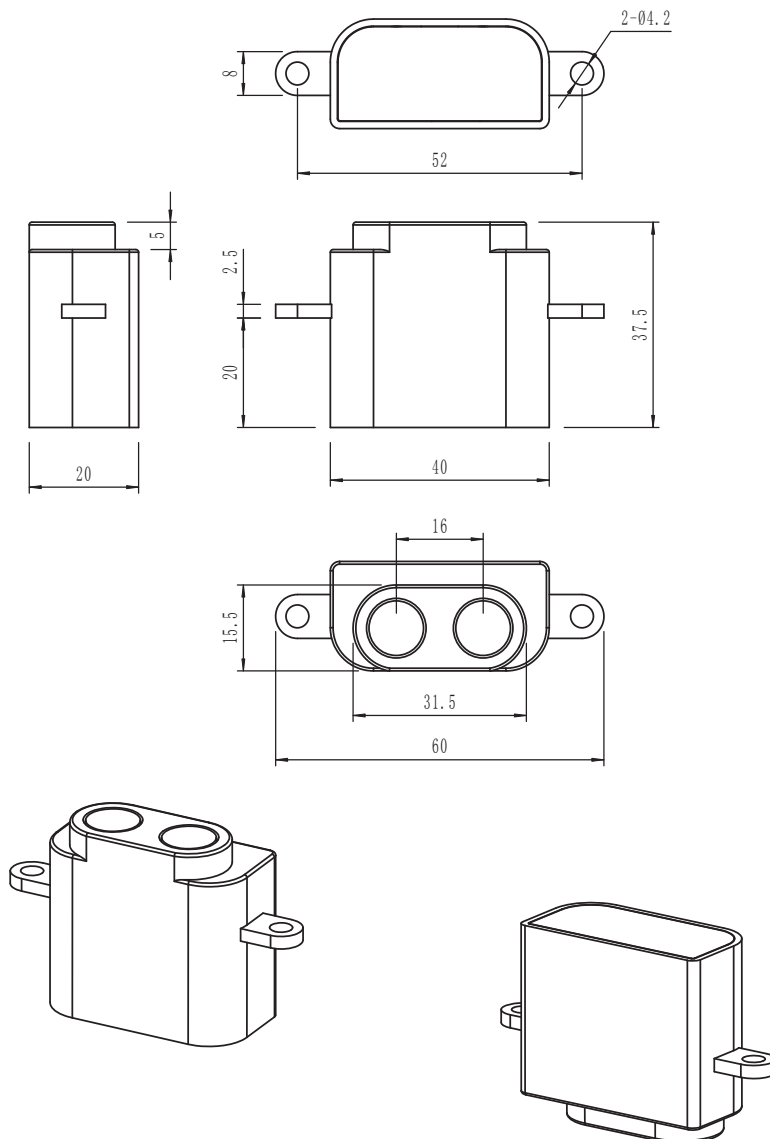
SPECIFICATIONS

■ Model:FA01L03-UM0034-002Z

■ Appearance and Dimensions (mm)

Tolerance Level	Tol. 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

■ Electrical Specification

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	UARR
Signal Output Method	UART (TTL level) output measurement distance in mm
Rated Operating Conditions：	
Working Environment	Indoor/outdoor
Operating Temperature	0°C～65°C
Storage Temperature	-20°C～65°C
Relative Humidity	≤95% (no condensation)
Power Supply	DC 5V
Working Current	Standard Operating Condition：≤9mA Sleep Mode：＜200uA

■ Response Curve
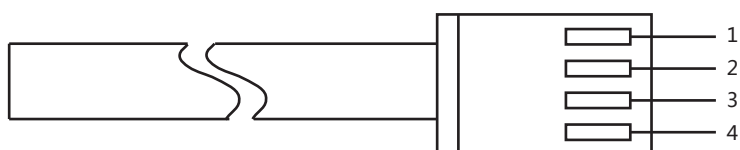
Sensor response characteristic curve (Unit: cm)
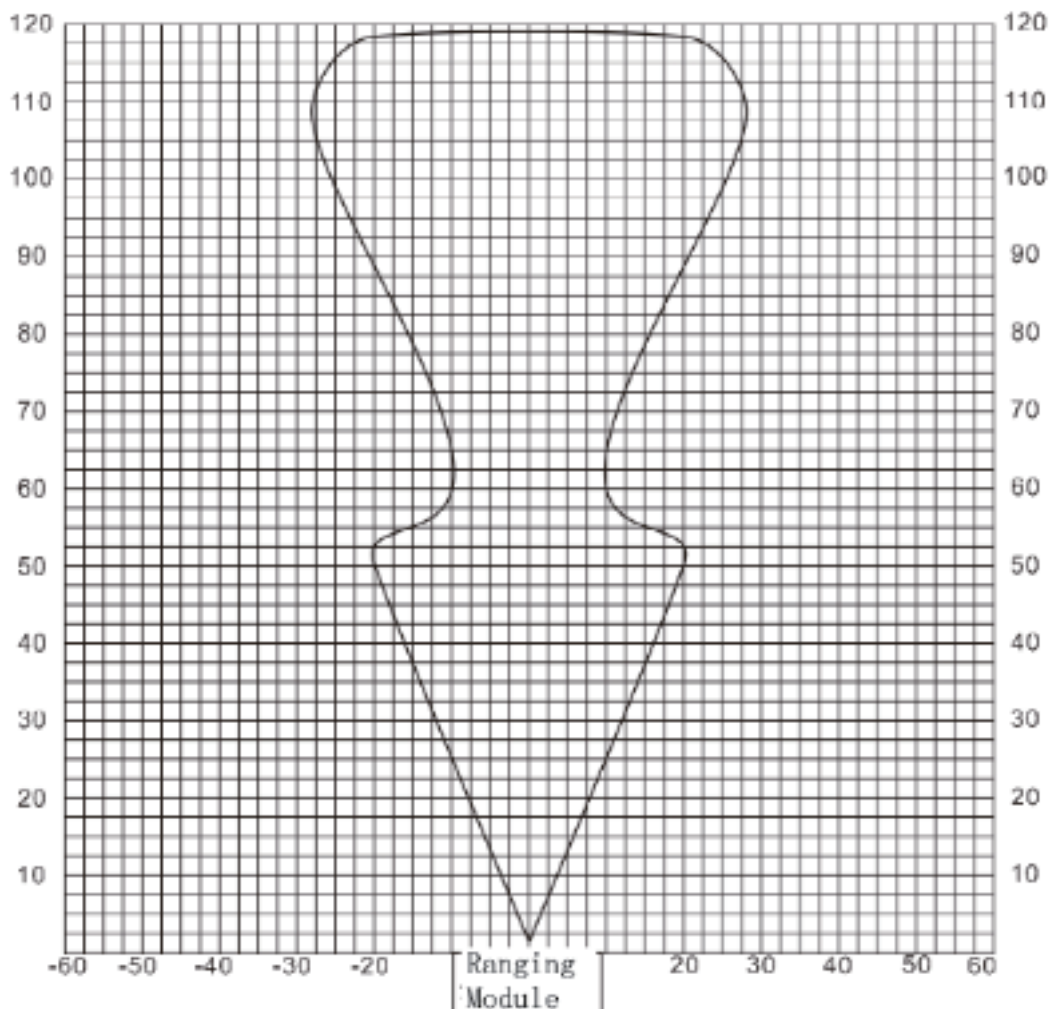
Notes: The area inside the curve is the area in which a 7.5 cm (diameter) circular rod can be detected.

■ Output Type

Interface definition

Lead output is used with the XH2.54 TJC4 plug terminal. The pin functions are shown

Pin Number	Pin Function	Wire Color	Notes
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.

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 frame format is as follows:

bit1	bit2	bit3	bit4	bit5	bit6	bit7	bit8	bit9	bit10

Bit1:Start bit   bit2~bit9：Data bit   bit10：Stop bit   Baud Rate：9600 bps

Data Format

The distance measurement result is 2 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 "l" 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 "l" 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 ones digit of the measurement result in characters, 1 byte.

11. Send the end character 0xff.

Example output: n0.val=895 means the distance from the probe to the object is 895mm.

The distance measurement result is 4 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 "l" in characters, 1 byte.

7. Send the character "=" in characters, 1 byte.

8. Send the thousands of measurement results 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. Indicates that the distance from the probe to the object is 1010mm.