Taidacent Waterproof Ultra-Precision Ultrasonic Sensor Presence and Detection Parking Occupancy Sensor Vehicle Presence Detector Ultrasonic Range Detector in Outdoor (PWM)

1.Summary

Ultrasonic distance sensor module of TD-A02-V2.0 is a high performance, and designed by using a enclosed type and splinched waterproof probe, which has a certain dust waterproof level, suitable for the wet and poor measurement occasions. smaller blind zone distance of 3cm apply to different detection conditions, simple operation and they are the commercial grade module with high-performance and high reliability.

2. Product characteristics

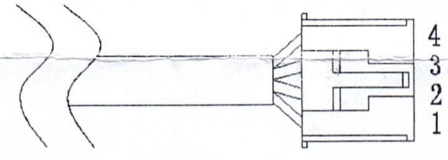
• Blind zone distance: 3cm blind • Power supply:3.3～5V • Low power design, standby current < 5ua • Average working current≤5 • Peak-peak value current≤40 • Flat object range: 3～450 • Reference angle≈60 • Room temperature measurement: ±(1+S*0.5%)

3. Product advantages and application

- Smaller blind
- Strong anti-interference;
- Data output, stable and reliable;
- Minimize power consumption
- Fast response time;
- Strong antistatic
- Wide working temperature;
- High measurement accuracy;
- Level distance measurement
- Parking management system
- Robot obstacle avoidance , automatic control;
- Detect the objects close to and the existence of external objects;

120V OUTPUTS
Red = Red
Yellow = orange
Green = Black

4. Output pin definition



Number	Interface name	Interface description	Remark
1 Red	VCC Red	Power input lead	
2 BLK	GND BLK	Power ground lead	
3 Yel	RX GRN	Trigger input lead	(1)
4 WHT	TX WHT	PWM output lead	(1)

5→1
7→1

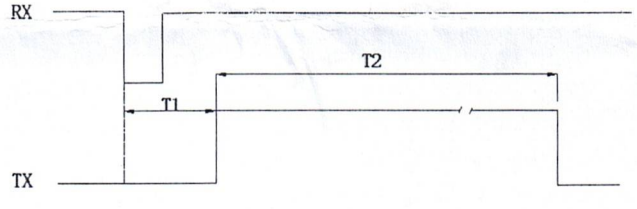
Remark:(1)The function of lead and pin corresponds to the output mode of product model one by one, and cannot coexist with other output modes.

5. PWM output format

When the trigger input lead "RX" receives a trigger pulse with a falling edge, the falling edge will trigger the module to work once, and the output lead "TX" will output a PWM high-level pulse width signal of TTL level, and the trigger cycle of the module must be greater than 70ms. If the module does not detect an object, the output lead "TX" will output a fixed pulse width of about 35ms.

In PWM output mode, the module is in standby mode, and the watchdog will be activated once every 2 seconds; when RX lead receives the falling edge pulse for less than 2 seconds, the watchdog will not be activated in standby mode.

6. Sequence diagram and Computer mode



Plane mode T2 = 0.18-35ms (PWM high level pulse width time)

Formula: S = t * V / 2 (s is the distance value, t is the PWM high level pulse width time, V is the sound propagation speed in the air).

At room temperature, the sound velocity V is 348m / s, and the simplified formula s = t / 57.5 (at this time, the distance s unit is cm, and the time t unit is microsecond). For example: when the PWM high level pulse width time T3 of the output lead "TX" is 10000us.

S = t / 57.5 = 10000 / 57.5 ≈ 173.9 (CM), indicating that the current measured distance is 173.9 cm.

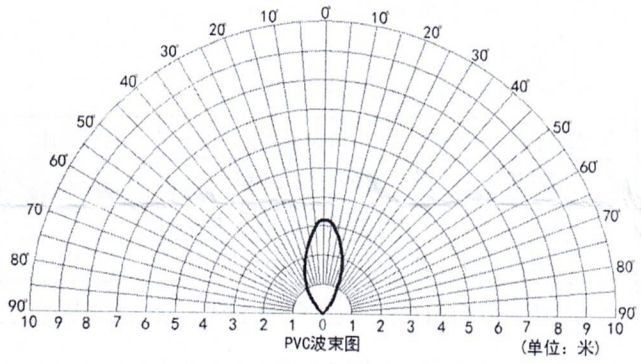
7. Model selection description

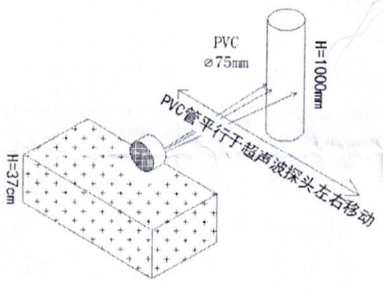
The output format of this range module is divided into four types and eight types with or without waterproof shell. Users can choose the corresponding model according to the actual application. If there are special requirements to modify the angle, communication protocol, etc., we need to communicate with you when purchasing.

Num	Model	Features	Output mode
1	TD-A02YYU-V2.0	Split waterproof probe	UART automatic
2	TD -A02YYT-V2.0		UART controlled
3	TD -A02YYM-V2.0		PWM
4	TD -A02YYGD-V2.0		Switching quantity
5	TD -A02YYUW-V2.0	Split waterproof probe, waterproof shell	UART automatic
6	TD -A02YYTW-V2.0		UART controlled
7	TD -A02YYMW-V2.0		PWM
8	TD -A02YYGDW-V2.0		Switching quantity

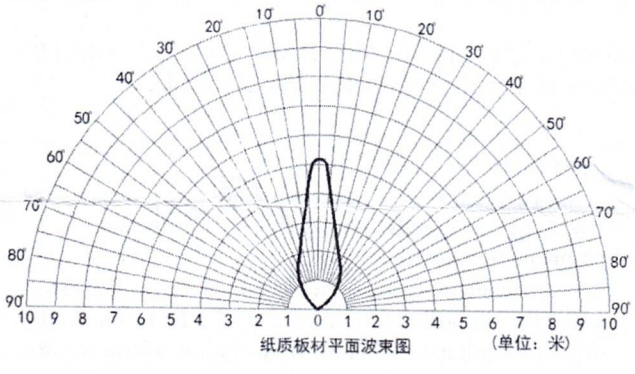
8.The effective detection range

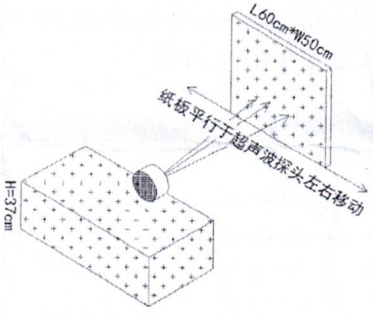
（1）The tested object is the white cylindrical tube, material is PVC, height is 1000mm, diameter is 75mm.





（2）The tested object is the corrugated case, perpendicular to 0°axle wire, length is 60cm, width is 50cm.





Any problems, please feel free to contact our engineer Bill Yuan, and his email: billyuan12@gmail.com