HTTM Series

Capacitive touch module

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1. Model description

HTTM-□◇△

HTTM is HelTec Touch Model shorthand;

□ → Number of keys: S- single key, D- double keys, T- triple keys, F- four keys;

◇ → Version attribute: C- conventional version, S- Special Edition (customized version);

△ → backlight colors: B- blue, R- red, G- green

For example:

HTDS-SCR: singlekey, the conventional version, red backlit touch module

HTDS-FSB: four-keys, customized version, blue backlit touch module

2. Introduction of touch buttons

Touch keys have been widely used in the applications of portable media players and mobile handheld terminals, which have large capacity and high visibility. Because of its convenience, convenience, fashion and low cost, more and more electronic products begin to shift from traditional mechanical keys to touch keys.

2.1 Existing customer application cases

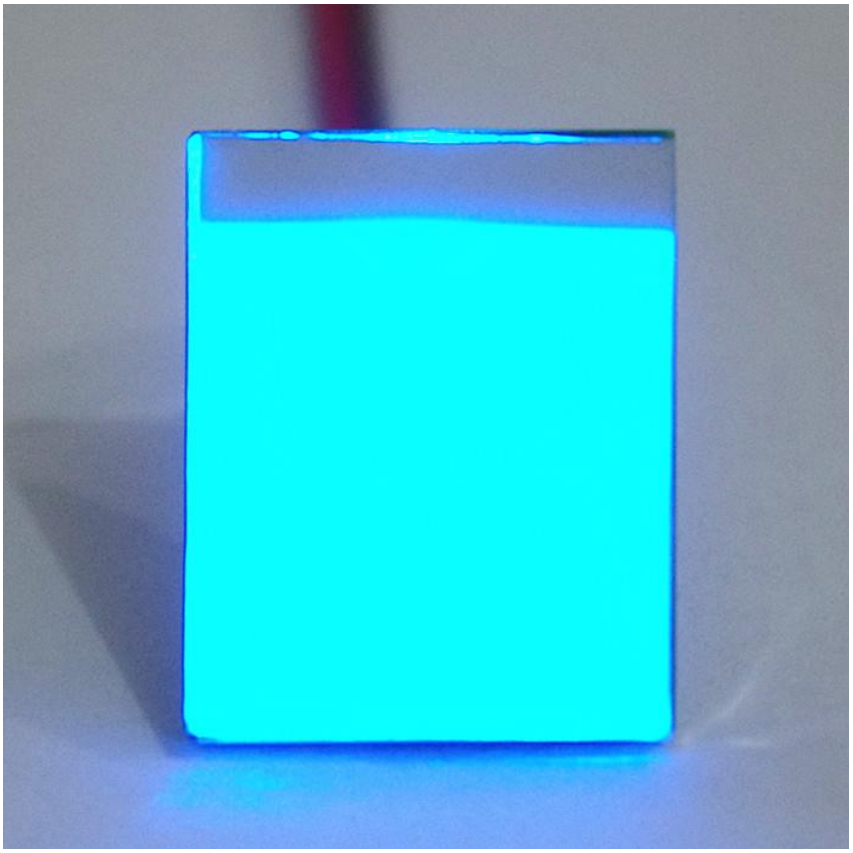
- Operating panel of range hood;
- Touch switch;
- Handheld Family Air Environment Detector;
- Keyboard of Industrial Control Equipment with Waterproof Function;
- Vehicle mounted equipment;

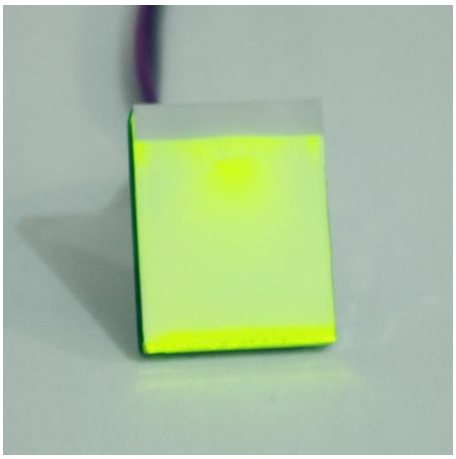
- Bluetooth Tester Information Display.

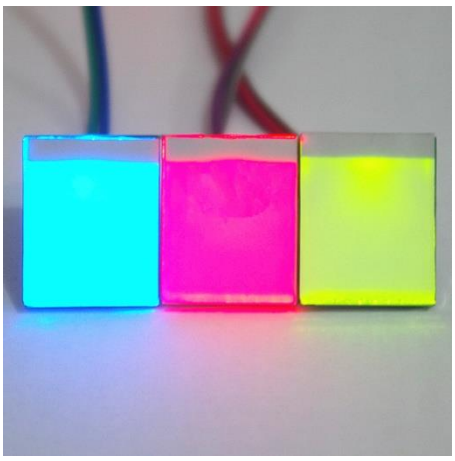
2.2 HTTM series touch key module has the following features:

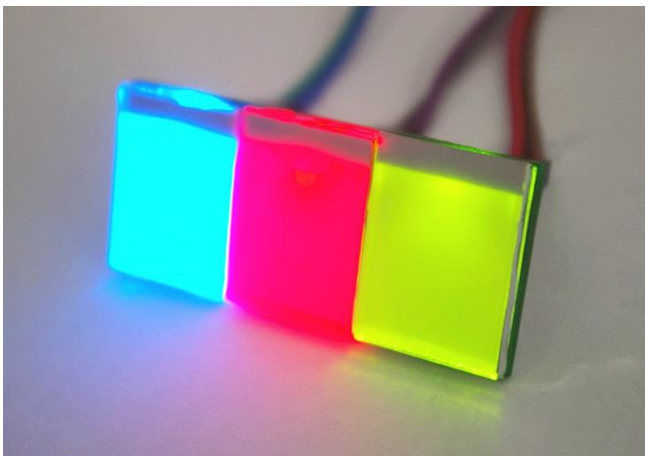
1. There is no mechanical parts, no wear, infinite life, reduce maintenance costs later;;
2. The sensing part which can be placed in any insulating layer (usually a glass or plastic material) behind, it is easy to seal with the surrounding environment into the keyboard, in order to play the role of moisture and water;
3. The panel arbitrary pattern, button size, any shape design, characters, trademarks, and other transparent window with arbitrary, so that the overall stronger sense of product
4. Compared with the physical buttons, touch buttons and more difficult to damage;
5. You can modify the resistance of the back, adjust the output signal of the latch output or keep the output level (see 3.3.2);;
6. + 2.7V ~ + 6V wide input voltage range, + 3.3V signal output can be directly used to drive relays, optocouplers, LED lights and other original documents;
7. -30 ~ + 70 ℃ operating temperature range;
8. The touch sensitive, no lag, delay, flicker and other adverse reactions;
9. Built-in anti-jamming algorithm, with excellent anti-jamming performance.

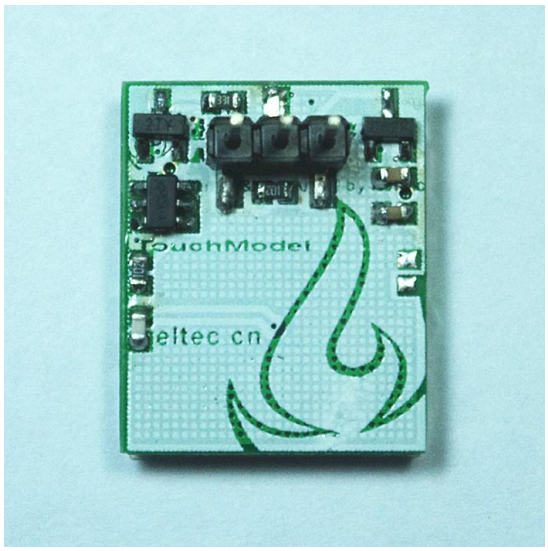
2.3 Appearance and effect of products










TouchModel
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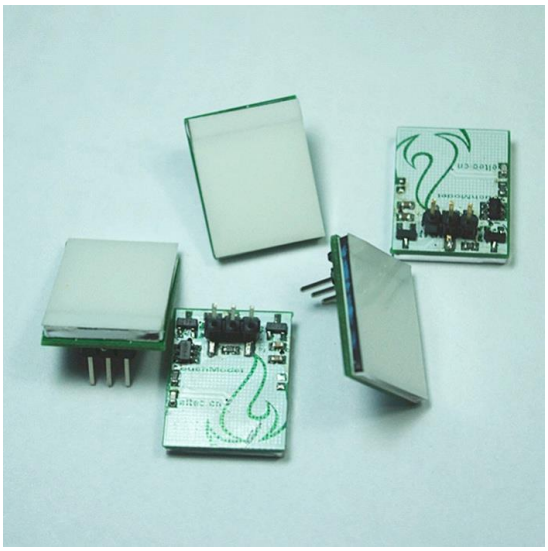

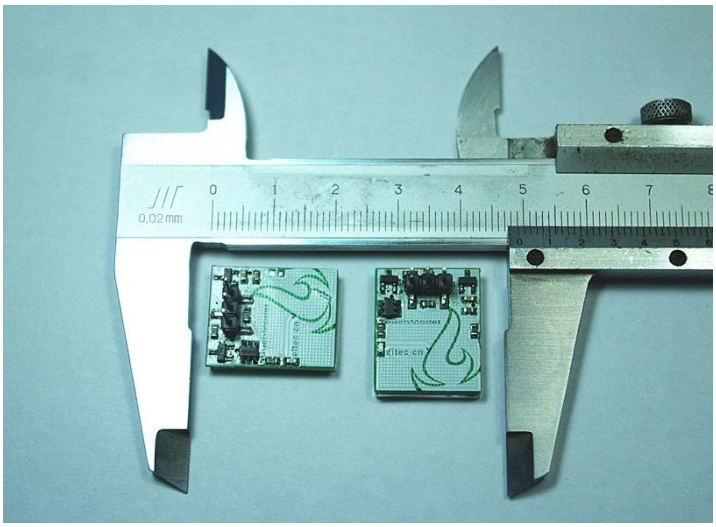
0.02mm

3. Technical specification

3.1 Introduction to the Principle of Touch Key

The capacitive touch-sensing button is actually just a small copper-clad pad on the PCB. The touch-sensing button and the surrounding ground signal constitute an inductive capacitance. When the finger is close to the area above the capacitance, it will interfere with the electric field and cause the capacitance to change accordingly. Based on this change in capacitance, it can be detected whether the human body is close to or touching the touch button.（figure 3-1）。

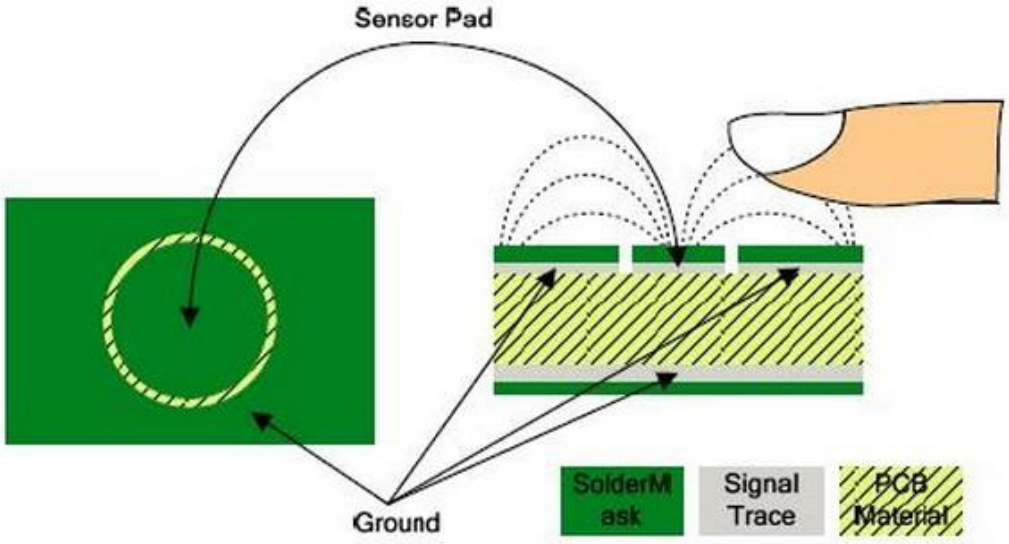

figure 3-1 Principle sketch of touch key

The grounding plate is usually placed below the keyboard to shield interference from other electronic products. This kind of design is influenced by parasitic capacitance, temperature and humidity on PCB. The detection system needs to continuously monitor and track this change and make adjustments to the baseline value.

The reference capacitance value is generated by a PCB with a specific

structure,When the dielectric changes, the capacitance also changes.

3.2 Pin definition and technical parameters

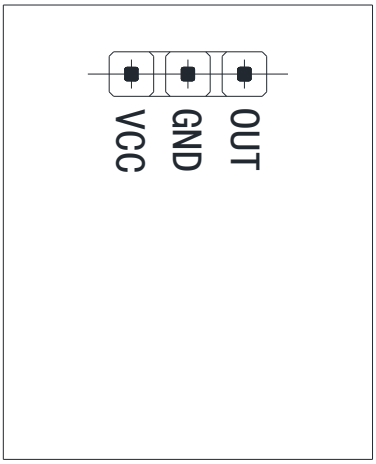

figure 3-2 Pin definition of single-key module

- Operating voltage: +2.7～6V
- Working temperature: 30～+70℃
- OUT pin output voltage: +3.3V±0.1V
- OUT pin Maximum Output Current: 500mA

3.3 Notes for Use

3.3.1 Output mode selection

You can "select resistance mode" by modifying the back to adjust the output signal of the latch output, or to keep the output level. （figure 3-3）

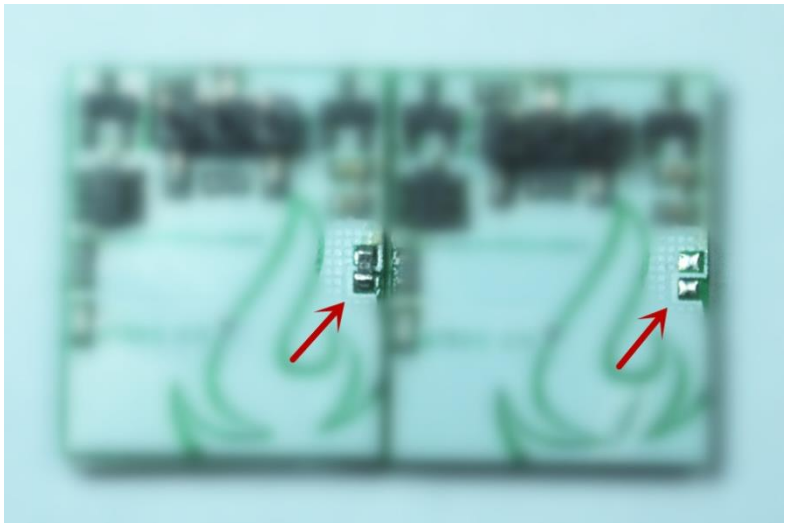

figure 3-3 Mode selection resistor

- **No resistance welding - temporaty mode:** Touch and after OUT pin output remains high, the touchpad is lit backlight, touch again it becomes a low level;
- **0-10K resistance welding - latched mode:** TouchPad touch is detected, OUT pin will output high, the backlight is lit, otherwise OUT output low, the backlight turns off.

The default is not resistance welding, which is the default mode is temporaty.

3.3.2 Adaptive process

The module integrates excellent adaptive algorithm, that is, the touch chip detects the change of the capacitance of the touch disk every time the power is turned on.（Temperature, humidity, type of shield and other factors can change the capacitance size.）, the sensitivity and anti-interference level of touch are automatically modified.

This process will be completed automatically every time the power is turned on. It takes about 70 ms, so... When the occlusion of the touch module changes, it is

normal that the touch keys are insensitive, and the wrong action may occur. You only need to re-energize the module to solve the problem.

3.4 Mechanical dimension

- **HTTM-SC Single key module size**

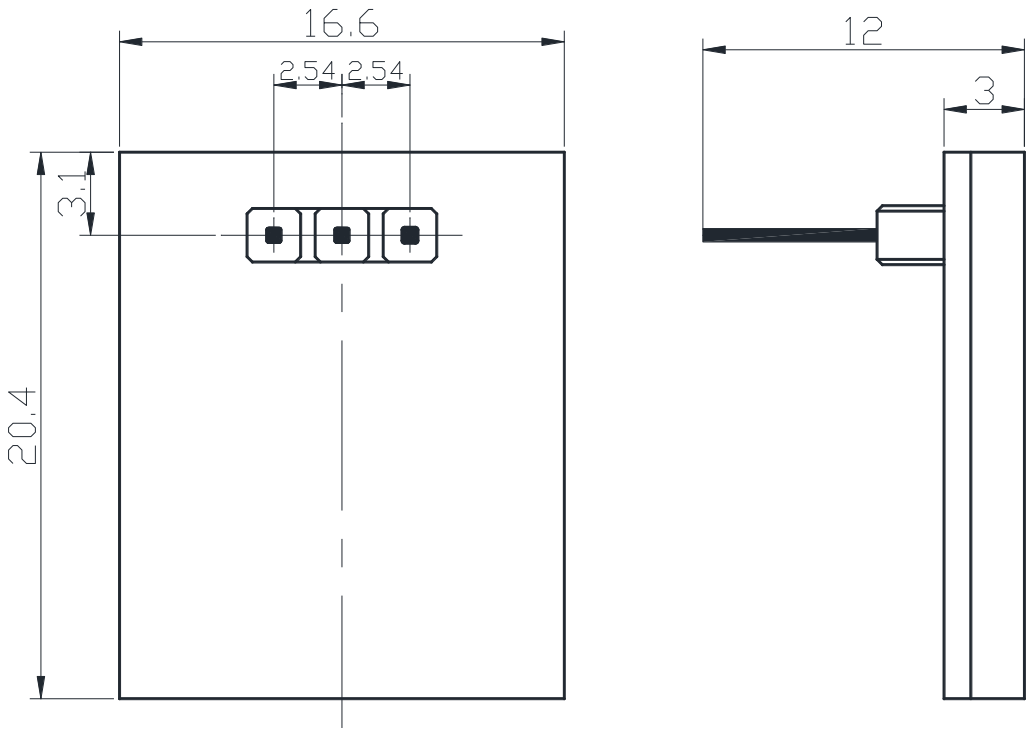

Figure 3-4 HTTM-SC Single key module size

4. Conclusion

Purchase HTTM-SC：http://heltec.taobao.com

More product information, please visit the official website of Heltec Automation：http://heltec.cn

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