

***tyco***

*Electronics*



**Touch Control Technology**

# Touch Control Technology

Tyco Electronics Touch Control Technology is robust solid-state touch recognition technology. This innovative technology provides a robust solution to your switch control needs.



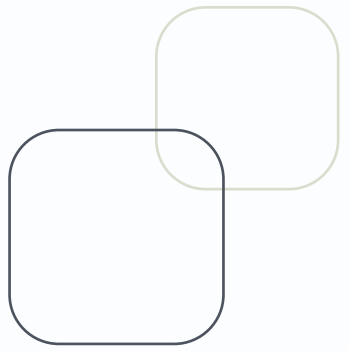
## Why Touch Control Technology?

TCT products provide a cost effective design option to existing solid-state technologies, such as capacitive, infrared, piezo-effect, field effect, or other types. Tyco Electronics Touch Control Technology delivers speed, reliability, accuracy, flexibility, and durability. The technology has incorporated features to minimize susceptibility to outside noise. It is also immune to activation due to conductive liquid on the surface, such as water or cooking sauces, making it well suited for kitchen and industrial controls. The design of the Touch Control Technology allows for easy integration or retrofit into existing control switch applications.

## How Does It Work?

TCT works on the principle of synchronized signal detection through capacitive or resistive coupling (human touch) of known generated pulses. The TCT microcontroller generates pulses into an earth or virtual ground and then sees the return of that pulse. Coupling between the operator and the touch pad will suffice to return the pulse.

# Key Features



## Robust

- Synchronized detection protects the signal integrity from industrial electronic noise
- Spread spectrum signals prevent false activation and maintain a low EMI level
- Advanced noise cancellation algorithms allow TCT to operate in a wide range of environments
- Signal and power isolation built into TCT systems make them resistant to fluctuating operating environments
- 24V pulses ensures TCT penetrates through thick dielectric materials and provides protection over industrial noise

## Simple

- Easily integrated into existing keypad applications such as membrane keypads
- Simple connection between TCT and the control circuitry, with minimal interconnects
- Fully adaptable to any control circuitry; no proprietary interface required

## Flexible

- Practically any dielectric material including glass, plastic, polycarbonate, marble and wood can be used for touch surfaces
- Adjustable key sensitivity
- Custom graphics can be printed directly on the touch surface or on an overlay
- Touch surfaces can be designed to incorporate tactile response features
- Compatible with contoured touch surfaces
- Dielectrics up to 24 mm thick depending on required material and sensitivity are available
- A wide range of key sizes, shapes and spacings can be designed
- Options include backlighting, lighted keys and incremental switches
- Key sensitivity permits use with or without gloves

## Durable

- Resistant to harsh chemical exposure and can be sealed from environmental effects
- No moving parts to wear out

### Touch Control Technology Technical Specifications

Response time < 100 ms  
Cycle life tested to 20 million cycles  
Minimum Operating Temperature -40°C  
Maximum Operating Temperature 105°C  
Can be sealed to IEC 60529, IP67  
(where applicable)  
See product spec 108-47010



# What Are the Applications?

## **Appliances**

Cooking, Refrigeration  
Dish Washer, Coffee machine, Small Appliances

## **Automotive**

Door Switch, locks  
Safety, occupancy detection  
Entertainment and navigation systems

## **Commercial**

Weigh Scale  
Fuel Pumps  
Elevators

## **Fitness Equipment**

Stair Equipment, Cycle, Treadmill, etc.

## **Fixtures**

Bath, Spa  
Shower

## **Gaming**

Slot machines  
Video Gaming  
Wheel Games  
Bar Top Gaming

## **Home Automation / Security**

HVAC – A/C Control

## **Industrial**

Human Machine Interface (HMI)  
Robotics

## **Medical Equipment**

Diagnostic equipment  
Operating room equipment

## **Military**

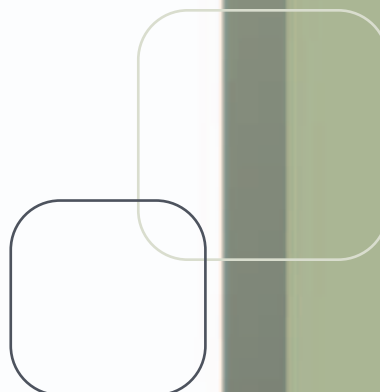
Instrumentation

## **Point of Sale Terminal**

Restaurant, Retail  
Automated Banking Machines (ABM's)  
Kiosks, etc.

## **Vending Machines**

Dispensing equipment



# We Offer

## Microcontrollers:

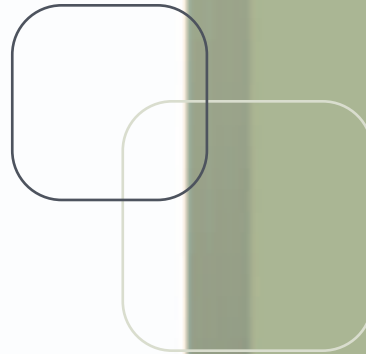
- Microcontrollers are available that allow TCT to interface directly with customer control circuitry
- TCT microcontrollers are available in 10, 15, 24, 36, 56 maximum key versions; the number of required keys, configuration and required layout of the application will determine the appropriate microcontroller.
- Serial and parallel outputs
- Incremental switch enabled versions are available.

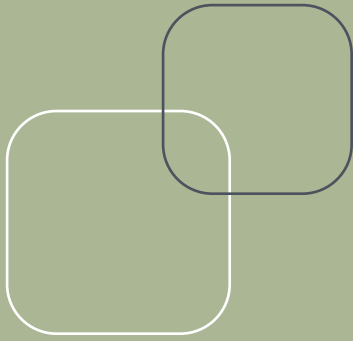
## Keypads:

- Tyco Electronics can provide keypads tailored to your specifications.

## New Developments

- Power conservation mode
- Alternate output protocols including I2C, SPI etc.
- Protection from key bridging due to spills.





# Benefits of Touch Control Technology

## **Design Freedom**

- Thick dielectric materials can be used as the touch surface.
- A wide range of dielectric materials will work with TCT.
- Unlimited aesthetic possibilities.
- Contoured touch surfaces are possible.
- Key geometry, sizing and spacing is flexible.
- Smart keypads are possible with TCT.
- Keypads can be sealed.

## **Simple to Use and Apply**

- No special interfaces are required.
- Minimal interconnects are required between TCT and control circuitry.
- TCT seamlessly replaces existing membrane keypads.

## **Dependable**

- False user activation is virtually impossible.
- No mechanical parts to wear out.

## Contact information

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