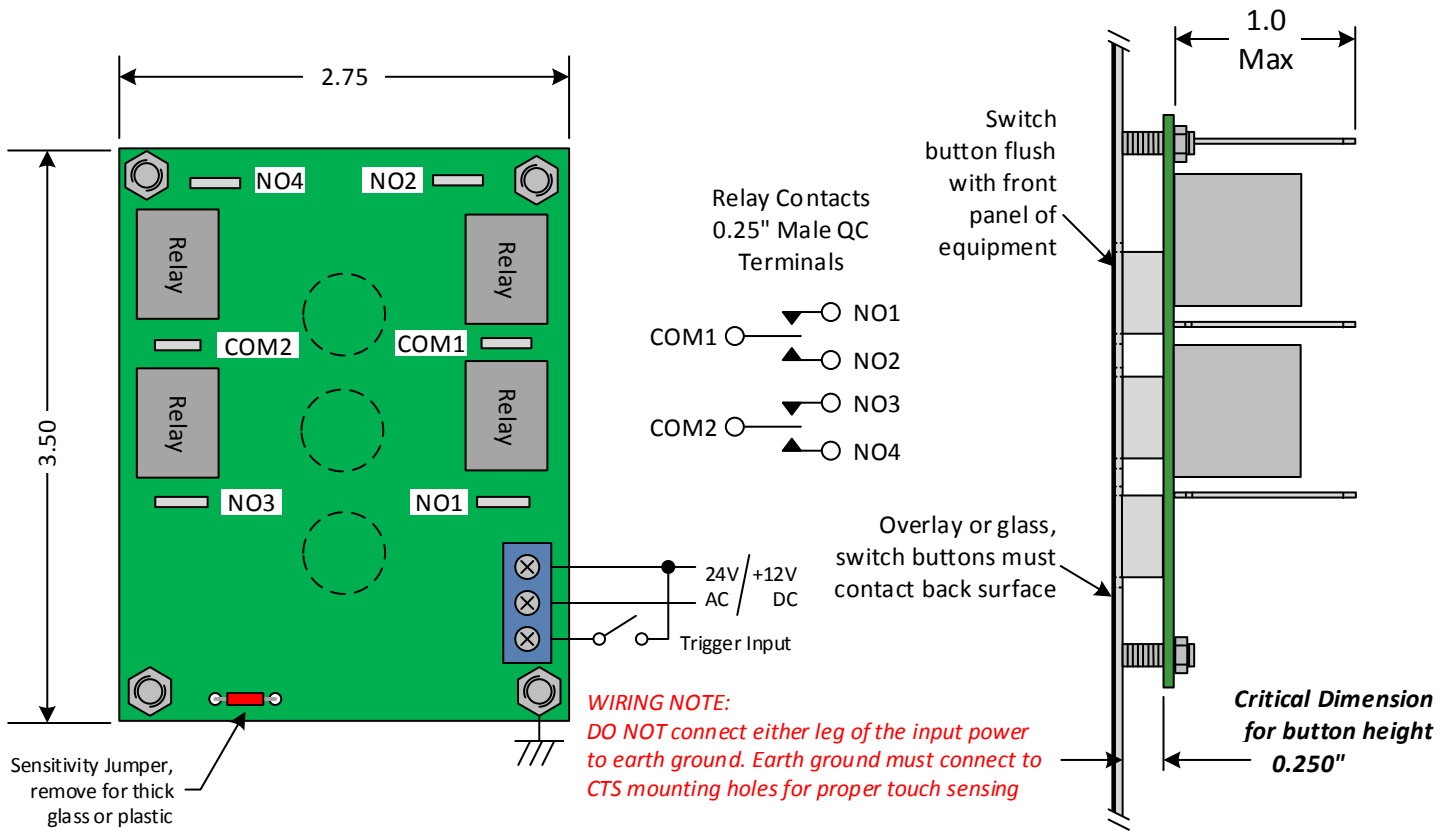# CTS™ Capacitive Touch Switch

The Artisan Capacitive Touch Switch is a unique solution for replacing electro-mechanical switches in harsh environments, it is mounted behind a metal or plastic front panel and is covered by a protective overlay, thus making it virtually impervious to misuse by the operator and contamination by the environment or frequent cleaning.

The CTS™ provides up to four high power output relays and three capacitive sensing buttons so it can provide reliable switching operation for any application ranging from a single pole normally open pushbutton up to a double pole double throw toggle switch. *The switching action is fully programmable by the factory and can be configured for any application including those that standard electro-mechanical switches cannot perform.*

CAPACITIVE TOUCH TECHNOLOGY: The CTS™ uses the capacitive coupling of the human body to earth ground and can be sensed through up to 10mm of plastic or glass. The only requirement is good mechanical contact to the front face of the conductive sensing button. *No moving parts to wear out so it is highly reliable and is impervious to cleaning, any residue left from improper cleaning, hot cooking oils, or food product spillage. This technology will respond to human touch even through thick gloves.*

OPERATION: When power is applied to a CTS™ switch the center LED will flash five times to indicate that it is initializing, when the LED stops flashing the switch is ready to operate. Touching any of the installed buttons will cause the corresponding LED to flash at a high rate to show that the touch has been sensed. There is a standard delay of 250mS between touching the switch and the change of the output relay(s).

2.75

3.50

NO4 NO2

Relay Relay

COM2 COM1

Relay Relay

NO3 NO1

24V / +12V
AC   DC

Trigger Input

Sensitivity Jumper, remove for thick glass or plastic

WIRING NOTE:
DO NOT connect either leg of the input power to earth ground. Earth ground must connect to CTS mounting holes for proper touch sensing

Relay Contacts
0.25" Male QC
Terminals

COM1 ○———○ NO1
        ○———○ NO2
COM2 ○———○ NO3
        ○———○ NO4

1.0 Max

Switch button flush with front panel of equipment

Overlay or glass, switch buttons must contact back surface

Critical Dimension for button height 0.250"

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Ordering Information . . . .

Model	-Poles	-Buttons	-Function	-Volts
CTS	-1A -1C -2A -2C	-YYY Y=1 or 0 3 buttons = 111, etc	-(code)	blank = 24VAC/DC -12 = 12V DC

Pole Codes:
1A = Single pole normally open (SPNO)
1C = Single pole double throw (SPDT)
2A = Double pole normally open (DPNO)
2C = Double pole double throw (DPDT)

Sample Applications . . . .

TOGGLE SWITCH:
The graphic to the right shows an example used on a commercial fryer which requires a DPDT maintained toggle switch with a center off position to enable the users to fry food, filter the oil, or turn the system off. This application uses all three touch buttons and double pole double throw outputs. The function code for a maintained switch with center off is NFN (maintai**N**ed o**F**f maintai**N**ed). All three buttons are used so the buttons code is 111. The part number required here is: **CTS-2C-111-NFN**
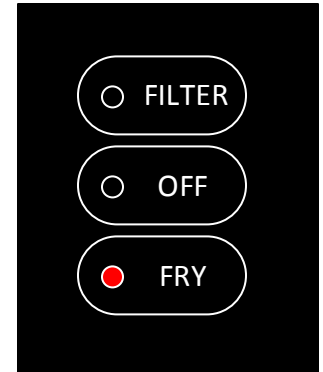
MAIN POWER SWITCH:
Another common application is the main power switch for a piece of equipment, for which we want the user to touch it once to be on and touch it again to be off. This type of function is called **ALT**ernating, the system only needs to switch one line so one pole and one switch is all that is required, the customer wants only the center button to be installed. That part number would be: **CTS-1A-010-ALT**
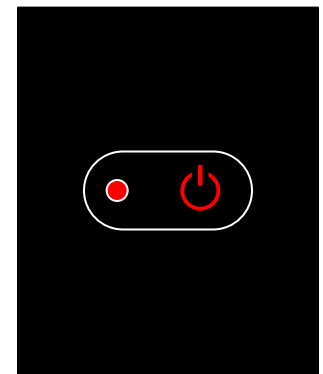
An advanced version of this application would be where you want the user to touch *and maintain their touch for 2 seconds* before changing from off to on or on to off, that would be to ensure that cleaning or mistaken touches do not change the state of the machine. That function is **T**ime **D**elay **A**lternating so that function code would be TDA followed by the time delay which would be 02. This part number: **CTS-1A-010-TDA02**

UP / DOWN SWITCH:
Our last application is for controlling up and down motion, where a momentary touch to start in the desired direction is all that is needed as the rest of the system takes care of stopping the action once it starts. This requires a single pole double throw output and two switch buttons. The function code for this would be **M**omentary **M**omentary, so the full part number would be: **CTS-1C-110-MM**.
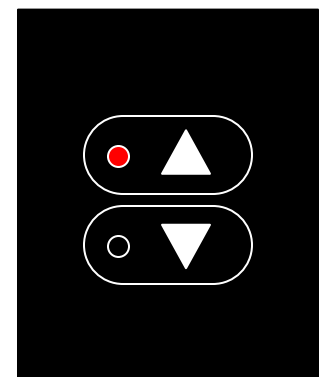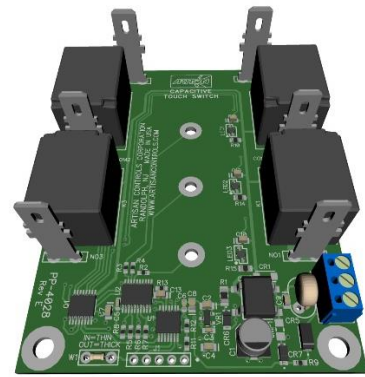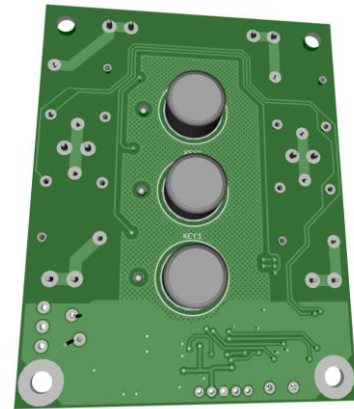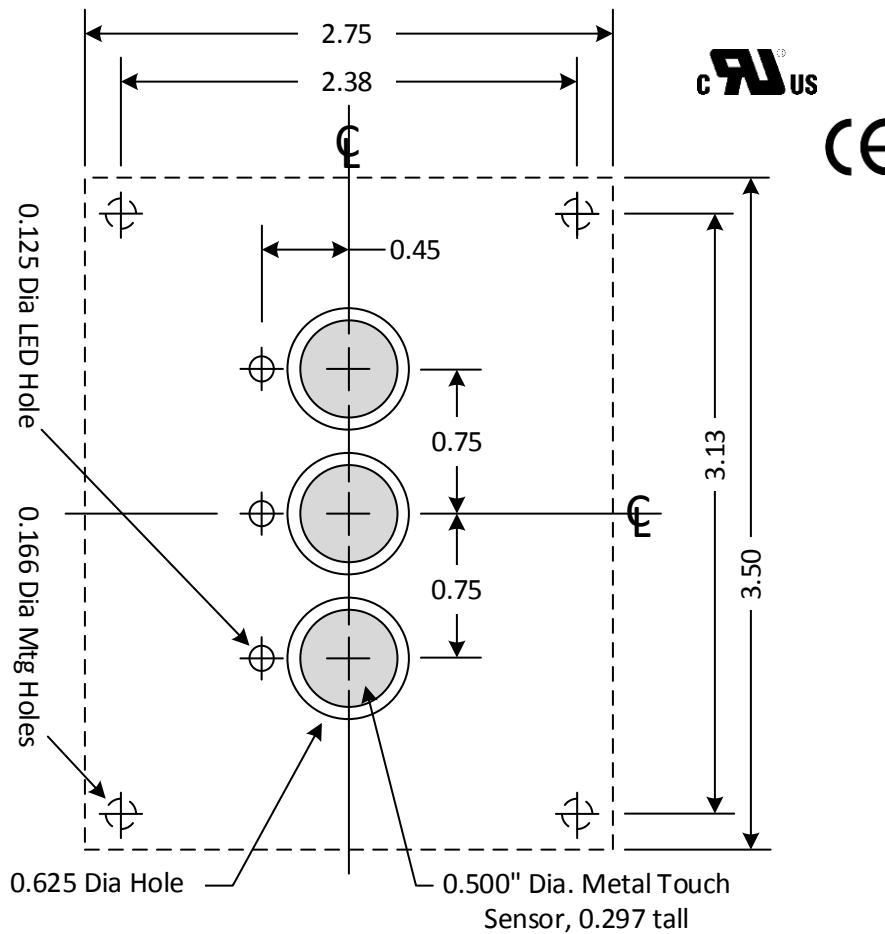
CUSTOM FUNCTIONS:
As the above examples show, Artisan can create any type of function including switching logic and timing for your application. All you need to do is provide us with a description of your application and we can make a switch that will do all the functions of your panel switch and more. The Trigger Input can be used for limit detection, thermostatic control, or standard single-shot or delay on break timing. We can also manufacture the CTS™ to operate on 12VDC, add a -12 to the part number

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Mounting/Dimensions . . . .

2.75
2.38
0.45
0.125 Dia LED Hole
0.166 Dia Mtg Holes
0.75
0.75
3.13
3.50
0.625 Dia Hole
0.500" Dia. Metal Touch Sensor, 0.297 tall

c ᴙ US
CE

Three button switch with DPDT output shown

Specifications . . . .

Operating Voltage: 24V AC, ±20%, 50/60Hz, supplied by a transformer rated UL Class 2 minimum, 24VDC ±20%. 12V DC, ±20% optional

Operating Power: 1.8W - 75mA max @ 24VAC, 150mA max @ 12VDC.

Operating Modes: Any combination of momentary, maintained, alternating (push on / push off), time delay, and custom functioning modes including those requiring a trigger input.

Touch Sensitivity: The CTS™ is delivered from the factory with the sensitivity jumper installed for plastic overlays and thin glass coverings, remove the jumper for glass and/or plastic 1/8" thick or higher. Custom sensitivity settings are available on volume orders.

Relay Output Rating: 10A resistive @ 250VAC, 5A inductive (general use) @ 250VAC, 1/4Hp @ 125VAC, 1/2Hp @ 250VAC.

Mounting: Four 0.166" diameter mounting holes which must connect to earth ground for proper touch sensing.

Timing Accuracy: Better than ±2%

Operating Temperature: 0°C to 70°C.

Construction: Open printed circuit board with conformal coating over sensitive circuitry. All output connections are 0.25" male QC terminals, input power and trigger on rising cage connector (16-28AWG).

Safety Approvals: Certified to: CSA E60730-1 Ed. 4 2013/03/01, UL 60730-1 Ed. 4 2014/05/21, EN 60730-1 Part 1 2011/12/01, and IEC 60730-1 Ed. 4 2010/03/01 for Automatic Electrical Controls – General Requirements. UL file number E47858

Data Sheet © and Date: April 27, 2017

Link to CTS™ CB Test Certificate

Visit our website at: www.artisancontrols.com