

## USES REDUNDANT POSITIVE GUIDED RELAYS

# NOLATRON INC.

## TWO HAND MACHINE CONTROLS ANTI-TIEDOWN TIMER SERIES 3380

Nolatron's anti-tiedown controls are used in conjunction with two start switches to help protect machinery operators. The 3380 series helps to comply with OSHA, which requires a machine operator to have both hands on the start switches in order to start a machine cycle. This minimizes the possibility of the operator starting the machine while one hand is in the work area.

Both start switches must be activated within a fixed time interval to energize the output. This prevents an operator from "tying down" one of the switches while continuing to operate the machine.

The 3380 uses redundant positive guided output contacts which are cross-checked before every machine cycle. A single component failure will cause the control to shut down in a safe mode.

### Features:

**Double "positive guided" output relays-** Each relay is checked for proper status prior to beginning a machine cycle.

**Pin for pin compatibility-** The 3380 series can be used to replace the 3370 and 5570 series controls with no modification to wiring.\* This allows easy upgrading of existing machinery.

**Control reliable-** The 3380 series is designed to meet the OSHA classification of "control reliability" as defined in section 1910.217 (13).

\*Note: The 3380 series does not offer the normally closed output contact (pin number 4 of the 3370 series). Also, the switching output current rating of the 3380 is 8 amps, the 3370 series is rated for 10 amps).

### Specifications:

Physical	3 1/2"(88mm) High, 2 3/8" (60mm) Wide, 1 3/4" (45mm) Deep
Wiring Connection	Standard 8 pin octal base (socket sold separately)
Operating Voltage	115 VAC, 50/60Hz. (12 and 24VAC also available)
Power Consumption	.3 Watts (pin 3 energized) / 6 Watts (pin 2 energized)
Output Ratings	8 Amps @ 115 VAC (switching), 6 Amps @ 115 VAC(continuous)

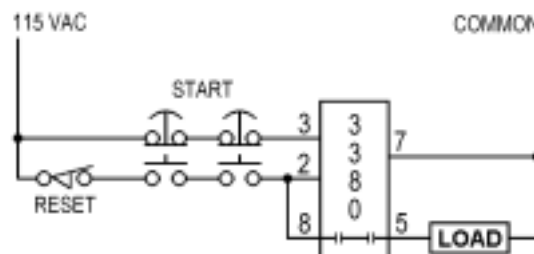


## SUGGESTED WIRING FOR MODEL 3380

**MOMENTARY OUTPUT:** In order for a machine cycle to begin, both start switches must be pressed within .5 sec. (this time is internally adjustable). The output will remain energized as long as the start switches are depressed.

The optional Reset switch can be opened to end the machine cycle regardless of whether the start switches are depressed. In some applications the Reset switch is used as a means to provide a "single stroke" of the machine.

Both start switches must be released before another machine cycle can be started. If either start switch is "tied down", the cycle can not be repeated.

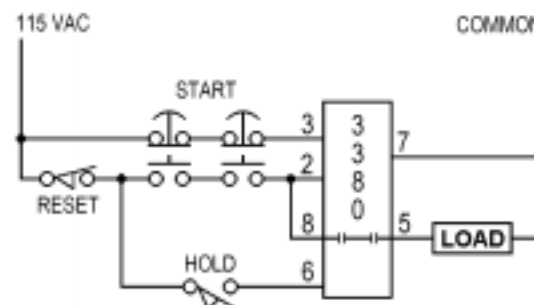


**MAINTAINED OUTPUT:** In order for a machine cycle to begin, both start switches must be pressed within .5 sec. (this time is internally adjustable). The output will remain energized as long as the start switches are depressed.

Closing the optional Hold switch will allow the load to remain energized after the start switches are released. *The Hold switch must not be closed until the pinch point is passed.* The Hold switch should stay closed for the rest of the machine cycle.

The Reset switch can be opened to end the machine cycle regardless of whether the Hold switch is closed or the start switches are depressed.

Both start switches must be released before another machine cycle can be started. If either start switch is "tied down", the cycle cannot be repeated.

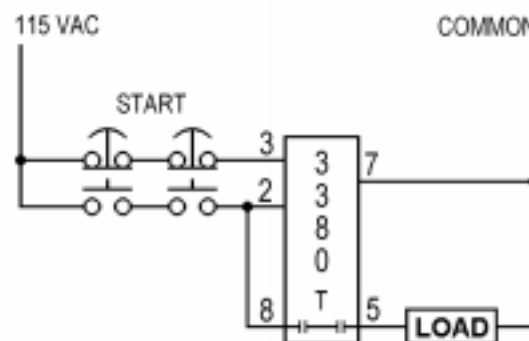


**Note: The Reset and Hold switches shown in the above wiring diagrams are optional and are not required for all applications.**

## SUGGESTED WIRING FOR MODEL 3380-T

**TIMED OUTPUT:** In order for a machine cycle to begin, both start switches must be pressed within .5 sec. (this time is internally adjustable). The output will energize the load for .5 sec. assuming that the start switches remain depressed. (The output time is internally adjustable with a range of .2 -1 sec.).

Both start switches must be released before another machine cycle can be started. If either start switch is "tied down", another cycle cannot be repeated.



# USES REDUNDANT POSITIVE GUIDED RELAYS

## TWO HAND MACHINE CONTROLS ADJUSTABLE TIMED OUTPUT CYCLE

### ANTI-TIEDOWN TIMER

### SERIES 3381



The 3381 series contains all the anti-tiedown features of the 3380 series, with the addition of adjustable time output. The 3380 series is Pin for pin compatible with 3371 controls.

Part No.	Time Range
3381-5	.5 - 5 sec.
3381-10	1 - 10 sec.
3381-50	5 - 50 sec.
3381-100	10 - 100 sec.
3381-360	36 - 360 sec.

#### Specifications:

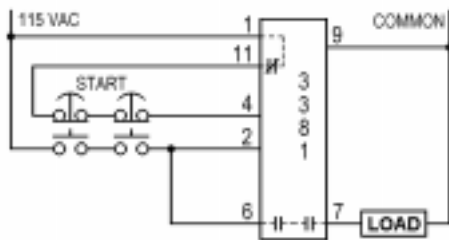
Voltage - 115 VAC, 50/60Hz (12 & 24VAC also available)

Output - relay SPST 8A. (resistive load) 1/6 HP @ 120 VAC

Physical - plug-in 11 pin, size: 4.75 x 2.375 x 1.75

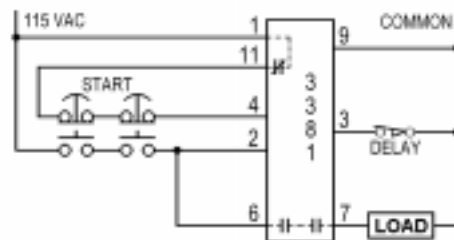
Timer - solid state knob adjustable  $\pm 1\%$  repeatability

### SUGGESTED WIRING FOR MODEL 3381



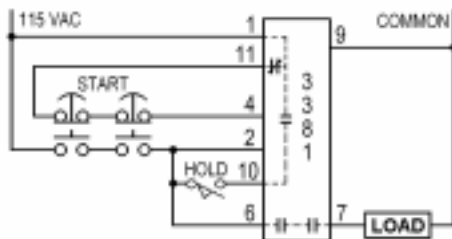
#### TIMED OUTPUT

Both start switches must be pressed within a fixed time to operate. The load will remain energized until the timer runs out or one or both switches are released.



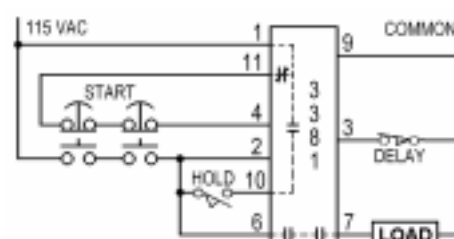
#### DELAYED TIMED OUTPUT

This circuit has the feature of time delay. When the two start buttons are activated, the load will stay energized until the timer runs out. However, the timer will not time out while the delay switch is closed. The control will reset if either start switch is released or upon time out.



#### MAINTAINED TIMED OUTPUT

This circuit has the added feature of maintained output. When the two start buttons are activated and the hold switch is closed, the load will stay energized after the start buttons are released. When the timer runs out, the control will reset.



#### MAINTAINED AND DELAYED TIME OUTPUT

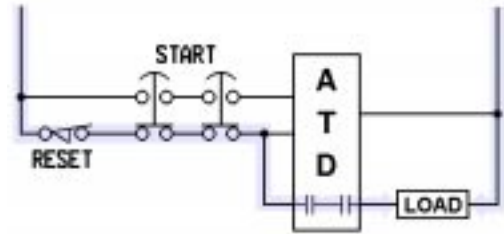
This circuit has the feature of maintained output in addition to delayed operation. The operation is identical to the delayed circuit above but the control will continue to energize the load even if one or both start switches are released. The control will reset when the timer times out.

**Series 3381E** - Same as series 3381, but with remote output adjustment capability. The supplied potentiometer should be connected from pin 3 to pin 8. Time ranges are the same as 3381.

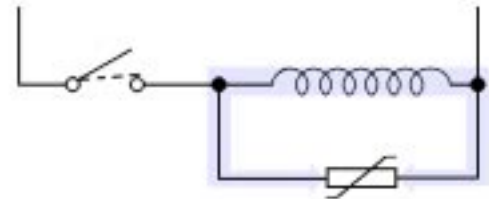
## APPLICATION NOTES

**HAND SWITCHES** - The 3380 and 3381 series are designed to operate with mechanical hand switches only. The normally closed and normally open contact of each switch must be isolated and of the "break before make" type. The user must determine the compatibility and safety of the hand switches. **These controls are not designed to be interfaced with electronic hand sensors** (request information on series 4480 & 4481).

**LOAD CIRCUIT** - Whenever possible, the load should receive power through the start switches as shown to the right. In this circuit if either start switch or the reset switch is opened, the power to the load will be interrupted by the switch as well as the output relay contacts. This circuit will offer additional safety when de-energizing the load.



**LOAD TRANSIENT DAMAGE** - If the load is a solenoid, a motor, a relay coil or a transformer, it will have inductive properties. When a relay contact breaks the current to an inductor, a high voltage will result across the contact. This high voltage may damage the contacts when they begin to separate. Good transient suppression (placed across the load) can greatly reduce this damaging high voltage and increase operating life. **Order Nolatron Part # 30165 - Load Suppressor**



**LIMITED ONE YEAR WARRANTY:** Nolatron, Inc. warrants its products against defects in material and workmanship under normal and proper use for a period of one year from date of shipment. Nolatron's obligation under this warranty is limited to furnishing, without charge and at our discretion, either replacement or repair of any defective part. This warranty does not apply under the following conditions: (1) When the product has been operated at other than specified voltage or currents. (2) When the product has sustained contact damage due to improper load transient protection. (3) When the product has been subjected to abuse or has otherwise been tampered with. The foregoing warranty is exclusive and in lieu of all other warranties of quality whether written, oral or implied. Nolatron is not liable for damage or injury which may result from the use of these products.

**WARNING:** These anti-tiedown controls are not intended for use without adequate point of operation safety guards. It is the user's responsibility to assess all potential hazards when installing safety equipment. The user must see that these controls are properly installed, cared for and operated to meet all applicable local, national and OSHA codes and requirements. Failure to comply could result in serious bodily injury and/or property damage.