

Model 4485 - Anti-Tiedown Control with a PLC Interface

ANTI-TIEDOWN The 4485 control requires a machine operator to have both hands on start switches in order to start machine operation. This will minimize the possibility of the operator starting the machine while his hand is in the work area. Both start switches must be released and reactivated in order to start another cycle. If one or both start switches are "tied down", the control will not operate.

PLC INTERFACE The 4485 has an additional solid-state output that allows the control to interface with a programmable controller (PLC). The output of the 4485 can be wired to supply power to the outputs a PLC. This means that the PLC outputs can only be energized when both start switches are activated. This helps prevent an unwanted energizing of a machine load due to PLC failure.

REDUNDANT OUTPUT CONTACTS The 4485 series uses double "positive guided" output relays. Each relay is checked for proper status prior to beginning a machine cycle.

CONTROL RELIABILITY The 4485 series is designed to meet the OSHA classification of "control reliability" as defined in section 1910.217(13).

HAND SWITCH INPUTS Model 4485 is designed to interface with dry contact single pole hand switches and electronic hand sensing devices with a relay output. Each hand switch must remain closed for a time of .075 seconds before the control will respond. A current of 60-80 milliamps will then flow through the hand switch. In the open position, approx 30 VDC will be across the hand switch contacts.

LOW VOLTAGE DETECTOR The 4485 contains a low voltage detector that will inhibit operation and cause the control to reset if the supply power line voltage drops below 90 VAC. The 4485 will reset on short duration dips of the supply voltage, which may result from switching power to a load with a light gauge supply wire.

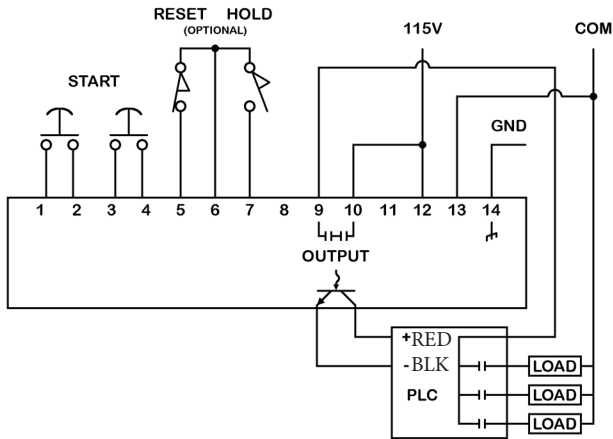
NOTE: Some electronic hand sensing devices will operate erratically under low voltage conditions. Therefore, these devices must be connected to the same power source as the 4485 to allow monitoring of these conditions.

SYSTEM CHECK CYCLE When power is turned on, the 4485 will begin a system check cycle. This cycle will take approximately 5 seconds to complete. During this time, the output is disabled and a machine cycle can not be initiated. If hands are on the start switches during this cycle, the output will not be energized until both hands are removed and reapplied.

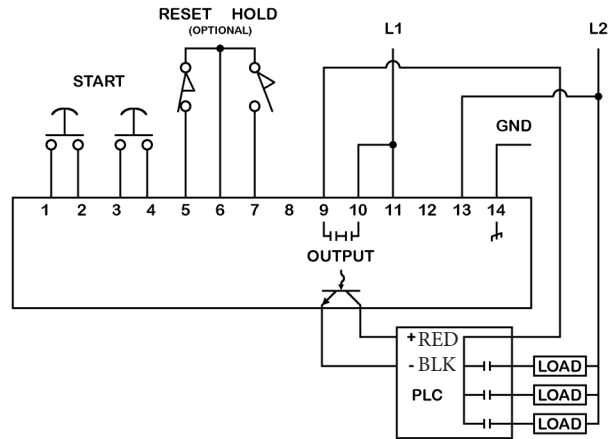
DETACHABLE TERMINAL STRIP The 4485 is wired using a detachable terminal strip, which is included with the control. **If there is no terminal strip included with your control, please contact Nolatron for a replacement.**

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. The user must also determine the compatibility and safety of switching devices used with this control. **A safety check should be performed at the beginning of each shift, or when there is a change to the machine setup.** Failure to comply could result in serious bodily injury and/or property damage.

115VAC WIRING DIAGRAM



230VAC WIRING DIAGRAM



OPERATION: As each start switch is closed, it will be delayed for .075 seconds* before an internal relay is energized. If both start switches are closed within a time of .5 seconds**, the output contact will close and the load will energize. The output contact will remain closed until one or both start switches are opened. Both switches must be released before another cycle is initiated.

MAINTAINED OUTPUT: An optional Hold switch can be wired into the circuit for the 4480 (see wiring diagram) to provide a maintained output. When the two start switches are activated and the Hold switch is closed, the load will remain energized even after the start switches are released. The Hold switch must not close until after the pinch-point is passed, and should remain closed for the rest of the machine cycle. Opening the Hold switch will de-energize the output.

If the optional Reset switch is opened at any point during the machine cycle, the output will de-energize and the control will reset. Both start switches must be opened and the Reset switch must be closed before another machine cycle can be initiated.

Note: Remove the jumper wire between terminals 5 & 6 when installing a Reset switch (customer supplied dry contact with no voltage potential). If the jumper is removed and a Reset switch is not installed, the control will not operate.

* This time was factory set and is adjustable (potentiometers marked "SW1 & SW2 TIME").

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A load suppressor (Part No: 30165) is recommended for each inductive load.

Specifications:

Physical	12cm x 10cm x 5cm (4.7" x 3.7" x 2.0")
Power Requirements	115 VAC, 50/60 Hz. @ .1 Amp -OR- 230 VAC, 50/60 Hz. @ .05 Amp
Power Line Monitor	115V - Reset if supply drops below 90 volts (rms) for more than 15ms 230V - Reset if supply drops below 180 volts (rms) for more than 15ms
Output Load Rating	8 Amps @ 115/230 VAC (switching), 6 Amps @ 115/230 VAC(continuous)
DC Output Rating	Sink or Source up to 50ma, 1500V optical isolation, RJ11/6-4 port
Start Switch Delay	0.05 to 0.15 seconds, factory set at 0.075 seconds
Time Between Switches	0 to 0.7 seconds, factory set at 0.5 seconds
Delay on Power-up	5 seconds (approx)
Temp Range	Up to 60°C (140°F)