

INSTALLATION INSTRUCTIONS FOR ANTI-COLLISION SYSTEMS

MODELS
GS-DCX1 AND GS-DCX2

DATE ISSUED 2012

GOODLIN SYSTEMS INC.

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INTRODUCTION

The GS-DCX anti-collision control system is designed to prevent a car coming off the conveyor from colliding with a car that hasn't left the exit area. This may happen if the exiting car stalls, is obstructed, or is forgotten. The system uses a set of two sensors or loops to watch the traffic at the exit of the car wash. If a collision is possible the system will shut down the conveyor until the vehicle sitting at the exit end moves away. It then restarts the conveyor. The GS-DCX1 requires one sensor "loop" and a computer channel to signal the control box when a vehicle is coming to the end of the wash. The GS-DCX2 requires two sensors "loops" to operate.

Every location is unique to the requirements of the loop placement, or the loop, computer channel set-up. We have example diagrams inside this manual. These are to be used as a guide only. The system will operate with different spacing than what is listed inside. You must watch how the traffic flows off the end of the conveyor to determine the best arrangement of the loops for your location.

SPECIFICATIONS

POWER INPUT: 110 VAC 60Hz

POWER OUTPUT: 24 VAC 60Hz .25 AMPS (FOR LIGHT CIRCUIT ON GL-14)

RESPONSE TIME: 200-100 milliseconds

ENCLOSURE: Size 8"W x 10"H x 6"D Type UL environmental 1,4,12, and 13 non-metallic

PRESENCE MODE: Activation upon presence of metal 15 minute hold time

START/STOP RELAY: SKNP 10 Amp 24vdc coil

FREQUENCY: Three selectable frequencies. Range 25-100 kilohertz

LOOP PROTECTION: Isolation transformer allows operation with poor quality loops, including a single point, short to ground. Lightning protection: The detector can withstand a 10 microfarad capacitor charged to 1,000 volts to be discharged directly into the loop terminals, 2,000 volts with an earth ground.

ALL COMPONENTS ARE UL APPROVED

DETECTION FIELD THEORY

The detection field is like an invisible set of bubbles or lines crossing from one side of the sensor* to the other. When power is first applied, the detector remembers the way the bubble is formed. The field will only be altered or reshaped by the presence of new metal. The detector will remember and accept this new shape if it is reset; thus the sensor can be placed by metal as long as the metal stays where the detector remembers it was. Any new metal entering the field will reshape the field. It is this reshaping, or changes, that the detector will see and activate on. Also note that the closer the metal is to the sensor, the less it has to move to reshape the field. The amount of metal also has an effect on the amount of change in the field. The more metal the more change. When the metal is removed from the field the bubble returns to the original state the detector remembers, thus the detector deactivates. IF THE FIELD DOES NOT RETURN TO ITS ORIGINAL SHAPE THE DETECTOR DOES NOT DEACTIVATE. AN UNSTABLE LOOP CAUSES THIS. Thus is seen by the detector turning on then off frequently without metal entering the fields. Most detectors have an internal check that phases out any detection/activation in a preset amount of time. If a car was to set over a loop for more than 30 minutes, the detector would automatically reset the field and be ready for any new metal. There is a model available that will not automatically reset itself. This model is a permanent presence detector. This model is available with any of our systems at no extra cost.

MOST INSTABILITY PROBLEMS ARE CAUSED BY THE MOVEMENT IN THE FIELD BY CLOSE, LARGE METAL PIECES. THE MOST CONCENTRATED PART OF THE FIELD IS ABOUT 4-6 INCHES FROM THE SURFACE OF THE SENSOR*.

* SENSOR IS THE LOOP OR COIL WINDINGS THAT SET UP THE FIELD

INSTALLMENT PROCEDURES

- 1.) PICK OUT A GOOD TIME FOR INSTALLATION! An evening that has a relatively slow next day is preferred in case of trouble or complications.
- 2.) TEST THE CARWASH FOR PROPER WORKING ORDER! MAKE SURE THE EQUIPMENT WORKS BEFORE WORKING ON IT! This way if something is wrong after you start you can tell it's the equipment and not the installation of the new system.
- 3.) Find a suitable place for the control box. If a GL-14 or GL-SM8-B is used make sure the sensor cord can reach between the sensor and the control box.
- 4.) Make sure you have a constant 110vac power for this system. It is recommended that this be a constant circuit, and **NOT INTERLOCKED**. It is recommended that power to and on the control box is kept on at all times. The heat generated by the transformer will keep the control box free of condensation. **It is highly recommended to not have any piping run into the top of the control box.** This prevents water from running down the pipe to the control box.
- 5.) After installation test the car wash for proper operation.

Important:

All Interlocks should remove the power from the START button whenever a STOP button is pressed and held. If you can momentarily start the conveyor with the START button while holding down the STOP button your interlock is wired wrong. This is an unsafe condition and should be corrected.

This unit, upon stop condition will signal both START and the STOP at the same time. Upon reset or clear condition the STOP drops out leaving the START activated for about a second thereby restarting the conveyor.

Not all Interlocks are the same and may need other wiring then shown.

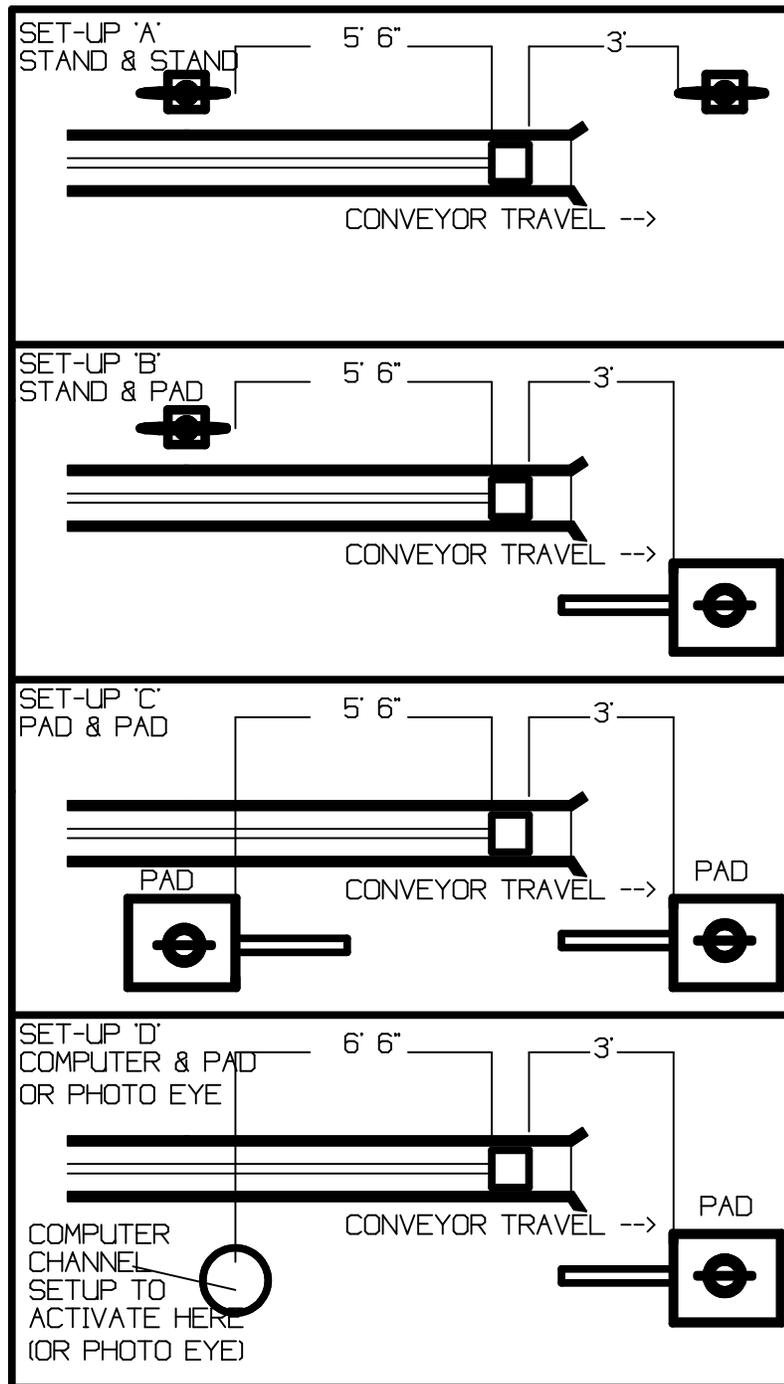
Side wiring for Power Input is for all GS-DCX units

Only that the GS-DCX1 needs the computer channel to operate as the 1st detector.

SENSOR LAYOUT

This damage Control Box can be used with many combinations of sensors. Depending on Employees, Roller Distance, Conveyor Types and other factors.

Set-ups A, B and C are for the GS-DCX2 model. Set-up D, for the GS-DCX1 model. The Stand and Pad work the same. Saw cut or pre-made loops can also be used.



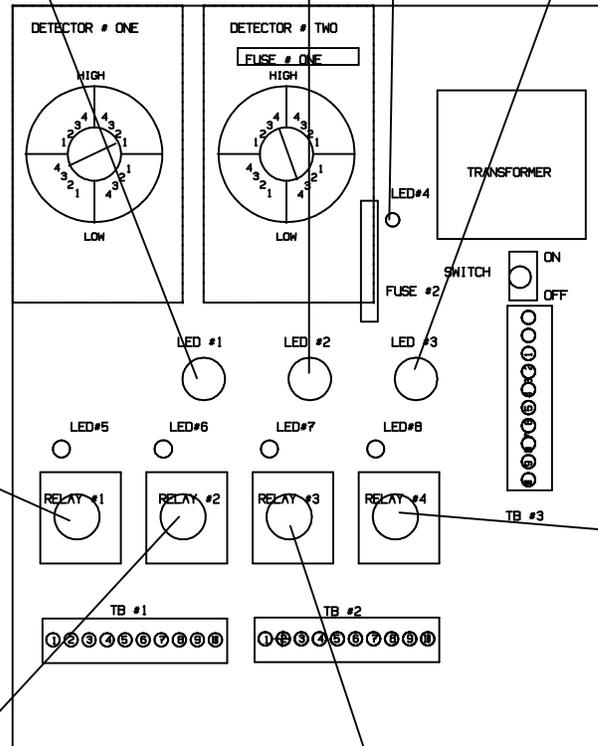
COMPONENT FUNCTIONS

YELLOW LED IS FOR
CAUTION CONDITION
A CAR IS AT THE EXIT

GREEN LED IS FOR
GOOD CONDITION
SYSTEM SHOWS NO
CAR AT EXIT END

RED LED IS FOR STOPPED CONDITION
THIS SHOWS THE SYSTEM HAS
STOPPED THE CONVEYOR
2ND CAR COMING INTO EXIT END
1ST CAR IS STILL AT EXIT END

POWER ON
INDICATION



RELAY #1 IS THE
STOP RELAY

IS ACTIVATES ON RED
OR "STOP" CONDITION

IT DEACTIVATES ON
GREEN CONDITION

THE #4 RELAY IS
THE AUXILIARY OUTPUT
RELAY FOR DETECTOR #2

IT IS ACTIVATED WHEN
DETECTOR #2 IS
ACTIVATED

THIS IS USED FOR EXTRA
FUNCTIONS AND NOT
NEEDED FOR THE
OPERATION OF THE SYSTEM

RELAY #2 IS THE START RELAY

IT ALSO ACTIVATES ON RED OR
STOP CONDITION

IT DEACTIVATES 3 SECONDS
AFTER THE SYSTEM RESETS TO
GREEN CONDITION.

THE #3 RELAY IS
THE AUXILIARY OUTPUT
RELAY FOR DETECTOR #1

IT IS ACTIVATED WHEN
DETECTOR #1 IS
ACTIVATED

THIS IS USED FOR EXTRA
FUNCTIONS AND NOT
NEEDED FOR THE
OPERATION OF THE SYSTEM

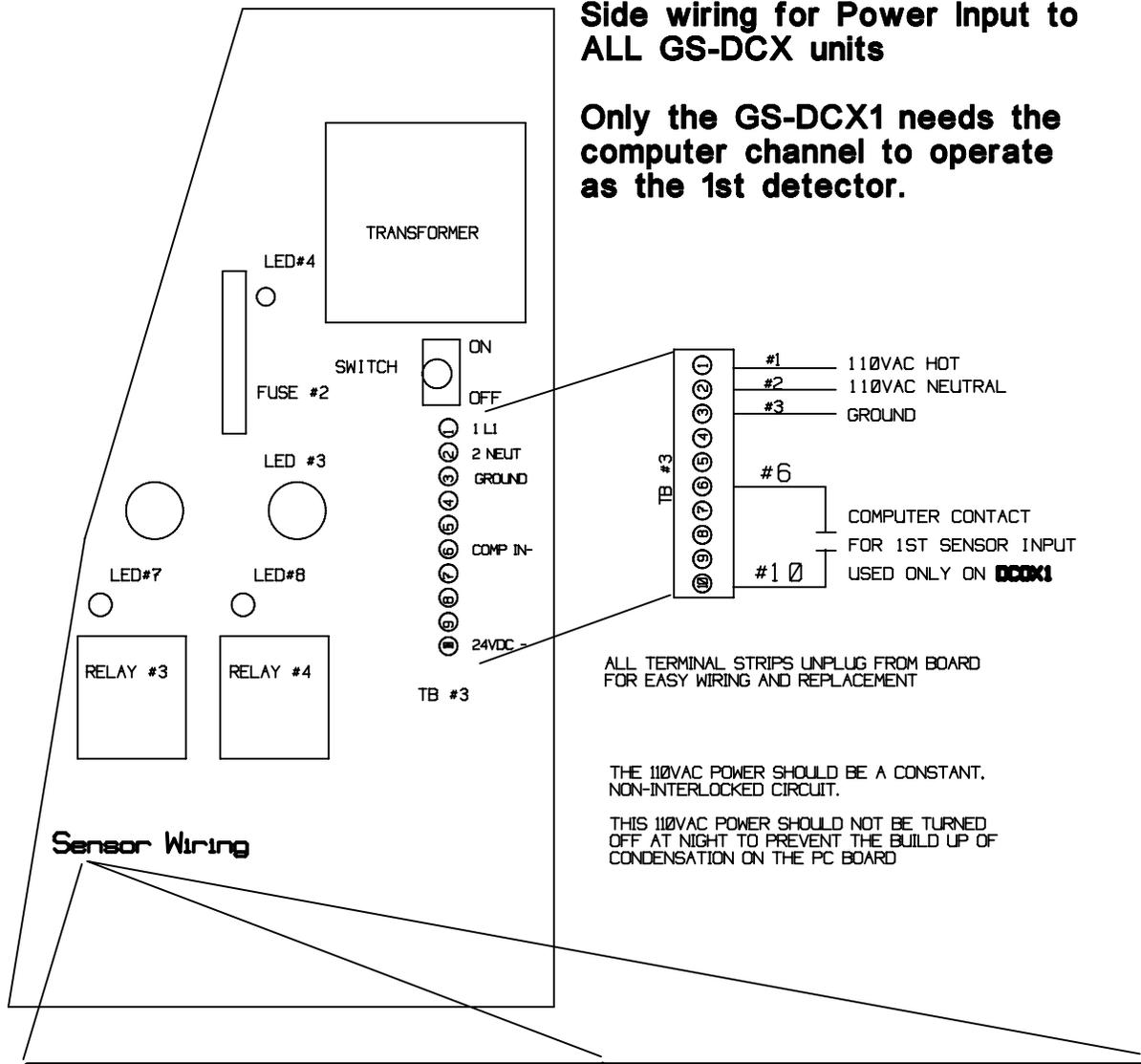
AUXILIARY RELAYS ENABLE THE DAMAGE CONTROL SENSORS TO ACTIVATE
OTHER DEVICES SUCH AS AN AIR DOOR, STOP & GO LIGHT, ETC.

ALL THE LEDS ABOVE THE RELAYS INDICATE WHEN THE RELAY IS ACTIVE

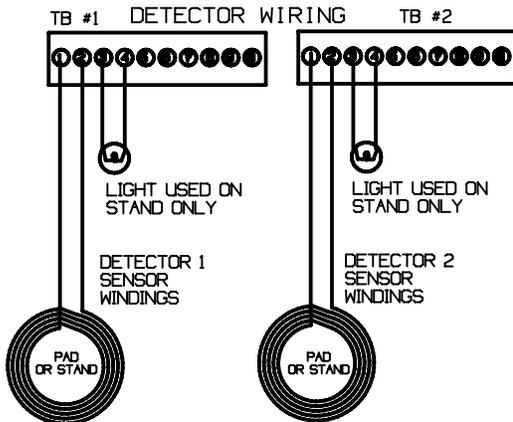
SEE WIRING DIAGRAMS FOR MORE INFORMATION

Needed Basic Hookups for Operation

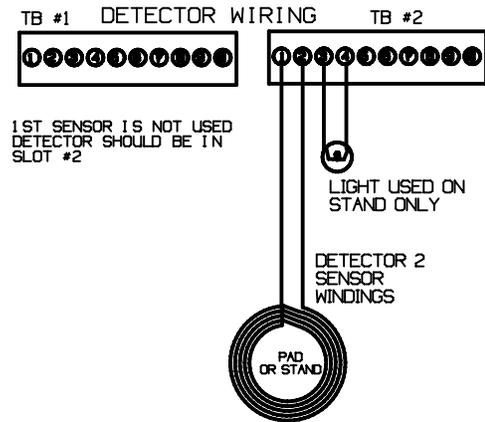
Interlock Interface Not Shown Here



SENSOR WIRING FOR DCX2

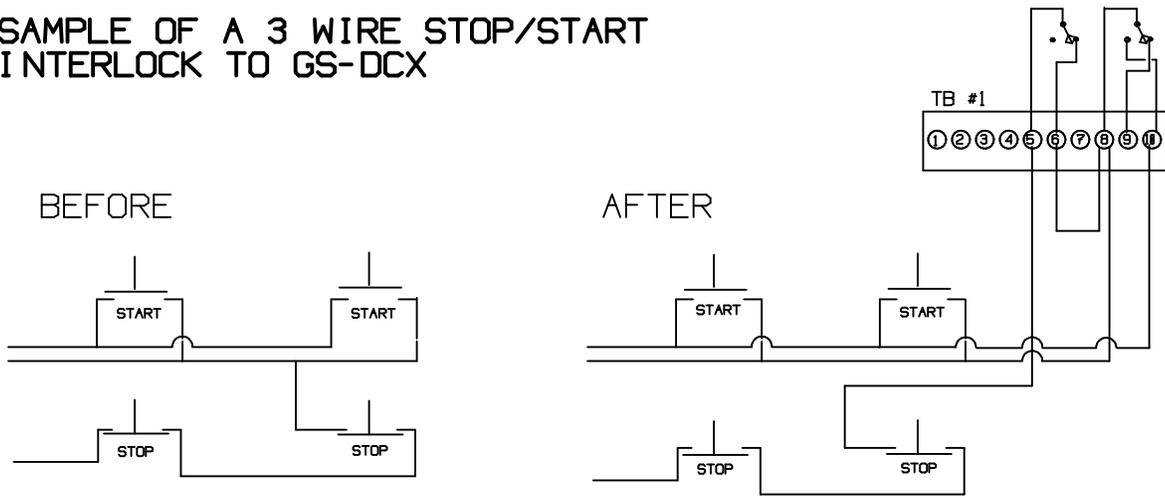


SENSOR WIRING FOR DCX1

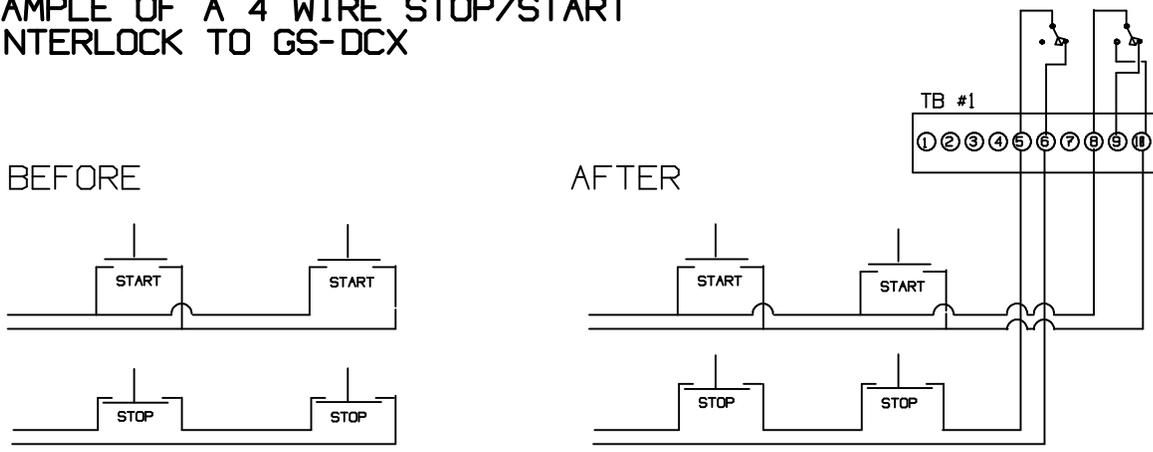


SAMPLE DIAGRAMS

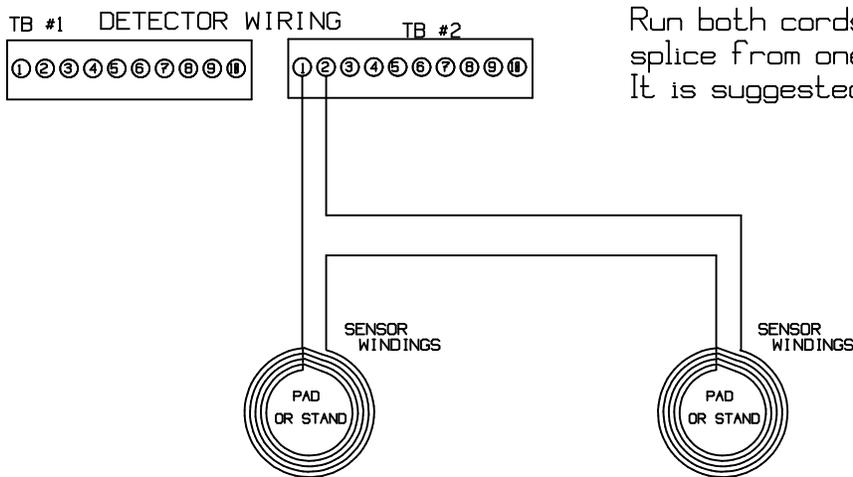
SAMPLE OF A 3 WIRE STOP/START INTERLOCK TO GS-DCX



SAMPLE OF A 4 WIRE STOP/START INTERLOCK TO GS-DCX



HOOING UP 2 SENSORS TO 1 DETECTOR USED ON SOME EXIT DOOR APPLICATIONS



Run both cords into the control box and splice from one cord to the other. It is suggested to solder this connection

Field Note:

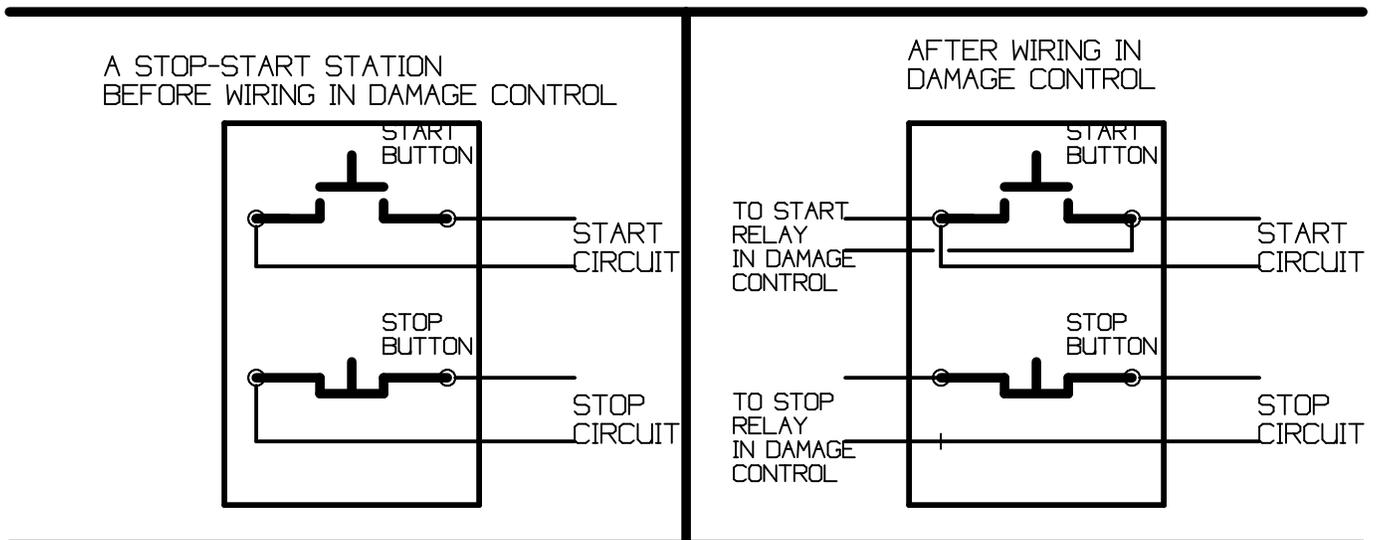
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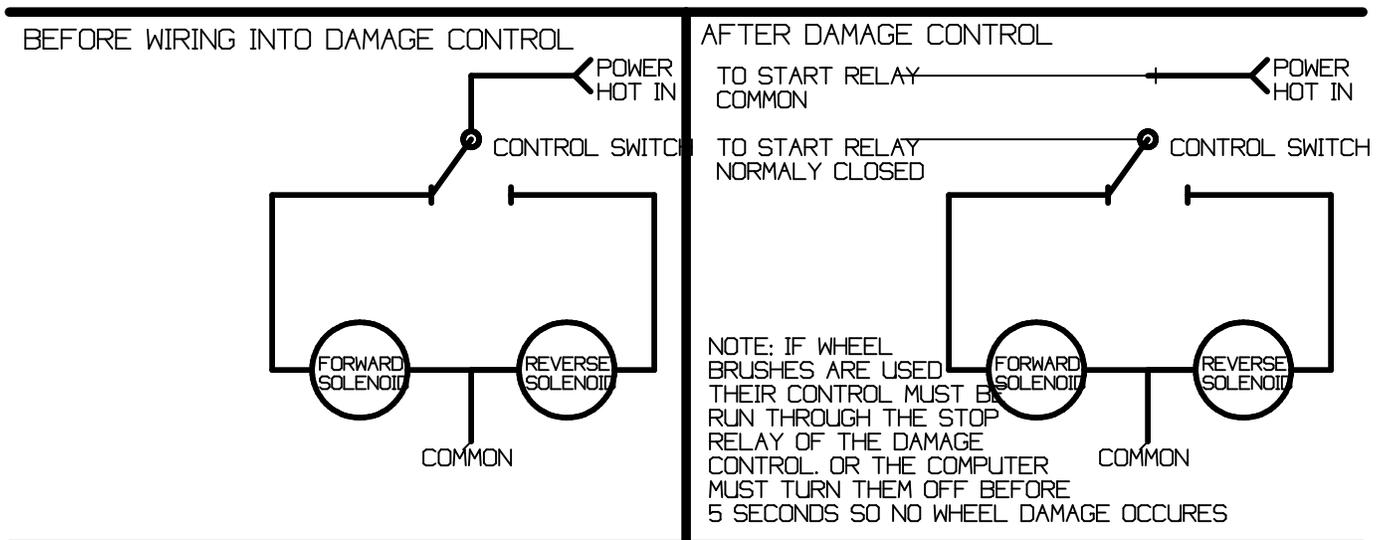
This unit, upon stop condition will signal both START and the STOP at the same time. Upon reset or clear condition the STOP drops out leaving the START activated for about a second thereby restarting the conveyor.

Not all Interlocks are the same and may need other wiring then shown.

Sample set up for a 4 wire interlock button station to damage control hookup.



Sample of a Solenoid Control to damage control.
CONVEYOR FORWARD-REVERSE SOLENOID SETUP



COMMON PROBLEMS AND SOLUTIONS

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1.) THERE IS NO POWER TO BOARD.

- A.) MAKE SURE POWER SWITCH IS PUT TO THE ON POSITION.
- B.) NO 110VAC POWER OR NUETRAL TO THE BOARD. TEST INCOMING POWER
- C.) BLOWN FUSE: CHECK WIRING AND REPLACE FUSE

2.) NO POWER TO RELAY, POWER LIGHT ON BOARD, DETECTOR IS WORKING

- A.) BLOWN FUSE: CHECK WIRING AND REPLACE FUSE
- B.) TRANSFORMER LEG BROKEN DURING SHIPPING. REMOVE BOARD AND PULL ON TRANSFORMER WHILE LOOKING AT LEGS. SOLDER LEG FROM THE TOP OF THE BOARD OF CALL GOODLIN SYSTEMS INC.
- C.) CHECK WIRE JUMPER ON TB#1. MAKE SURE JUMPER IS PROPERLY CONNECTED.

3.) NOT ENOUGH SENSITIVITY, SKIPPING OR NOT PICKING UP TRUCKS

- A.) IMPROPER DETECTOR SETTING: READJUST THE DETECTOR.
- B.) LARGE METAL PRESENT TO CLOSE TO SENSOR. RELOCATE THE SENSOR OR METAL.

4.) DETECTORS PRESENCE LIGHT IS FLASHING RAPIDLY

- A.) THE DETECTOR DOES NOT SEE THE SENSOR OR LOOP.
- B.) WIRING INTO CONTROL BOX WRONG
- C.) BAD SPLICE
- D.) LOOP OR SENSOR NOT WIRED IN AT ALL
- E.) CABLE FROM LOOP OR SENSOR IS DAMAGED

1.) DETECTOR IS STAYING ON AFTER CAR LEAVES LOOP OR SENSOR

- A.) LOOP IS UNSTABLE: TRY TO ADJUST DETECTOR. CHECK FOR MOVING METAL.
- B.) BAD DETECTOR. CALL GOODLIN SYSTEMS INC.

2.) SYSTEM DOES NOT STOP CONVEYOR/OR RESTART CONVEYOR

- A.) SYSTEM IS NOT WIRED CORRECTLY INTO START/STOP STATION
- B.) MAKE SURE SYSTEM IS GOING INTO STOP MODE.
- C.) PADS NOT WIRED INTO CORRECT TERMINAL BLOCKS
- D.) COMPUTER CHANNEL NOT PROGRAMMED CORRECTLY
- E.) START/STOPS WIRED INCORRECTLY INTO TERMINALS

3.) CONVEYOR STILL RUNS WHEN DCX IS IN STOP MODE ALL OF #7 IS GOOD.

Interlock is incorrectly wired – You should never be able to hold the stop and start at the same time and have the conveyor start up (run). Any Stop opened should remove ALL power to the Start circuit.

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SAMPLE WIRING FOR DOOR SAFETY AND GO LIGHT

