Brakelight

GT Off-Road Racing | Data Acquisition

Param Pithadia

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# Overview

## Introduction

We use one [red brake light](https://www.commandelectronics.com/shop/surface-mount-22-led-tail-light-with-reflex-oval) (red LED and red lens) on the back of the car, connected to the brakes through two [hydraulic brake light switches](https://www.pegasusautoracing.com/productdetails.asp?RecId=1146&utm_source=google&utm_medium=cpc&utm_campaign=3601&gclid=CjwKCAiA44LzBRB-EiwA-jJipGupxgKcW7YcPsHyYyO5n_cYGnxzYTWsWfH0poyU-KA27puF54duwRoCE98QAvD_BwE).

## Point of Contact

Ryan Chen ([rchen390@gatech.edu](mailto:rchen390@gatech.edu)): Created documentation standard

# Hardware Reference

## Circuit

Diagram

Description automatically generated

The brake light will turn on if pressure is detected in either switch, closing the switch and completing the path between the battery and the light, that is why the two brake switches are wired in parallel, and the battery and light are in series. For installing the brake switches, please talk to the breaks lead.

Diagram, schematic

Description automatically generated

We can also include two brake pressure sensors, but that is up to the discretion of the breaks lead.

### Wiring

When wiring the kill switch, there are some important things to note. The red wire is vcc, the white wire is gnd, and ***the black wire we do not use*** so you can just fold it back and cover it with heat shrink.

A picture containing table, indoor

Description automatically generatedA picture containing indoor

Description automatically generated

When crimping the connectors on, after stripping the wires slide the green rubber covers onto the wire, align the pin’s largest back ring with the rubber cover, and then use the crimping tool to crimp. A picture containing floor, indoor

Description automatically generatedA picture containing text, indoor, table, desk

Description automatically generated

Then you can just push the pins into their housing. Remember that male pins go with female housing. Refer to the wiring standards document to confirm which pin is gnd and which is vcc. When pushing both pins into their housing, make sure that they are in the same orientation to properly align the pins in the center of the housing and protect them from breaking.

A picture containing person, indoor

Description automatically generatedA hand holding a black video game controller

Description automatically generated with low confidence

# Software Theory of Operation

# References

# Revision History

1/7/2021 (Ryan Chen) – This is an example of a revision comment. Removed parts list from references and added Excel template for Bill of Materials. Removed parts list from references and added Excel template for Bill of Materials.

2/22/2021 (Ryan Chen) – Updated automatic lists for template.

2/16/2023 (Param Pithadia) – Added circuit section and hyperlinks for parts.