

# DTECTS

## Drive Trace Electrical Current Transducer Solution

Ergsense LLC Oct '17  
[www.ergsense.com](http://www.ergsense.com)

Continuous monitoring & detection, for motors where you need it most. Vision & report for the operations your business requires, and with the encapsulation of simplicity DTECTS desires - simple and clean, for longterm success.

### Power Parameters:

- Voltage
- Current
- Power
- Frequency
- Power Factor

### Monitoring:

- Compares readings from the monitor system to your specifications
- Alerts or alarms on configuration - SMS, web, email, etc.

### Environmental Parameters:

- Ambient Temperature
- Motor Surface Temperature
- Motor Tilt and Vibration

### Interfaces:

- Local
- Web
- Comm (WiFi, Bluetooth)

Commit: #  
Date: x

Author: Justin Reina  
Design: Tamm Aldridge

Ergsense Internal.

**DTECTS**

Title Page

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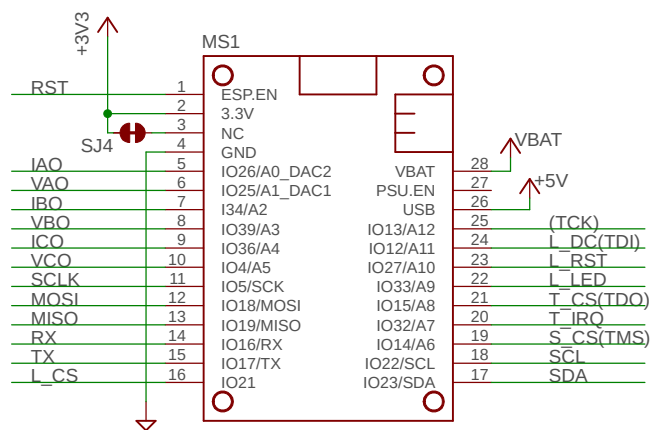
Rev:  
1.0\*

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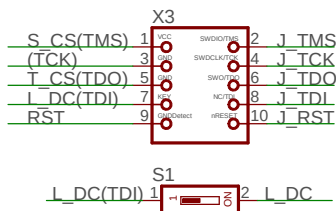
# MCU & Control

## Feather

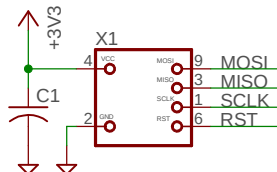


## JTAG-Conn

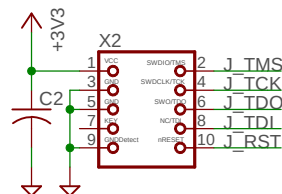
MCU <-> JTAG



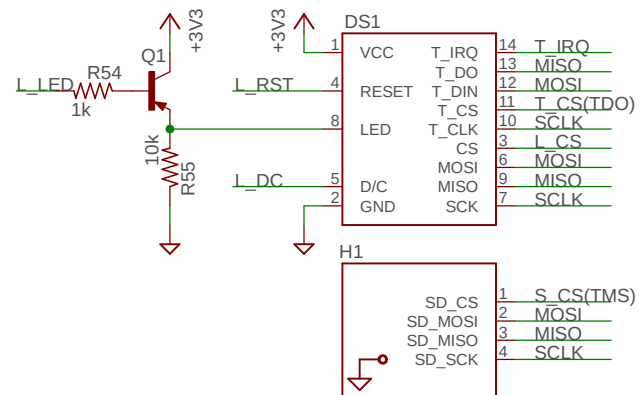
## SAM-ICE



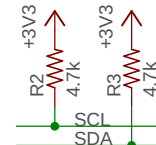
## ESP-JTAG



## LCD Connect



## Pullups



JTAG-Conn allows disconnection of ICSP while in use

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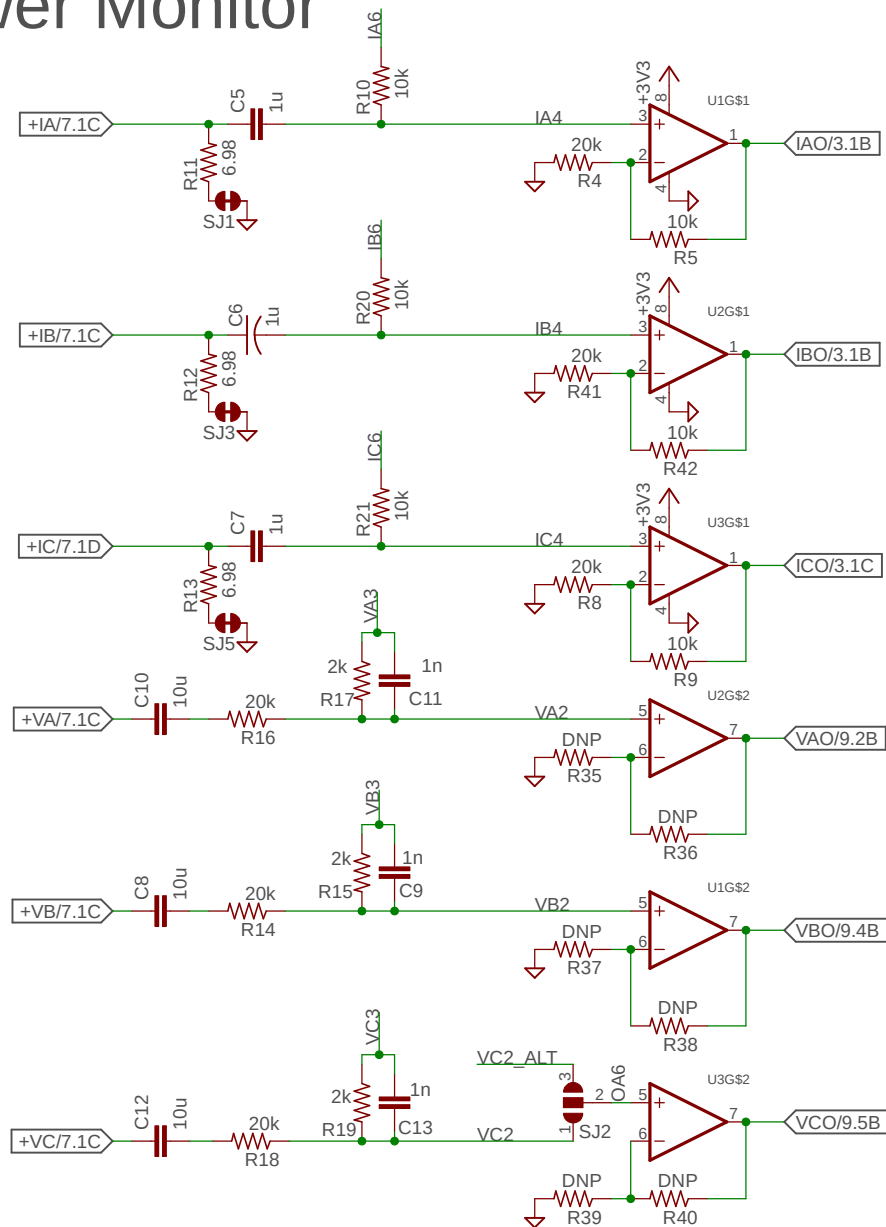
MCU & Control

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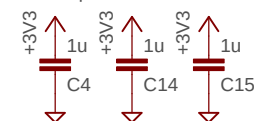
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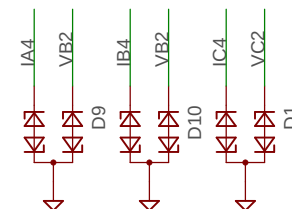
# Power Monitor



Rail Caps



Line Protection



See P.6 'Monitor Config' for connection of jumpers. See doc/Jumpers Descrip.pdf for net names applied here

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Power Monitor

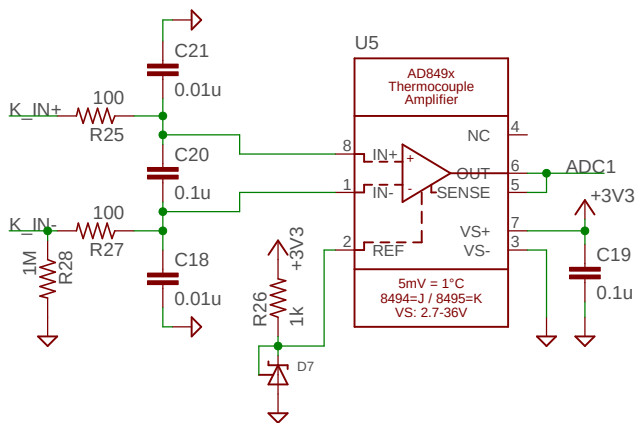
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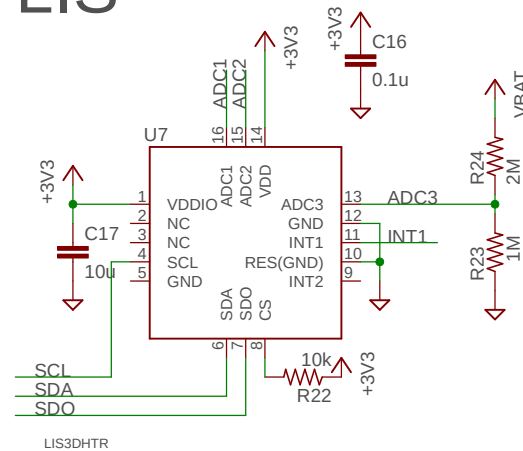
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# Environmental Sense

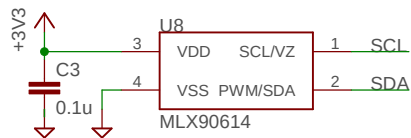
## AD8495



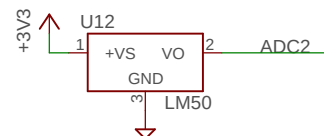
## LIS



## MLX



## LM50



Accel - LIS  
Ext Temp - AD8495  
Brd Temp - MLX90614  
Brd Temp - LM50

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Env Sense

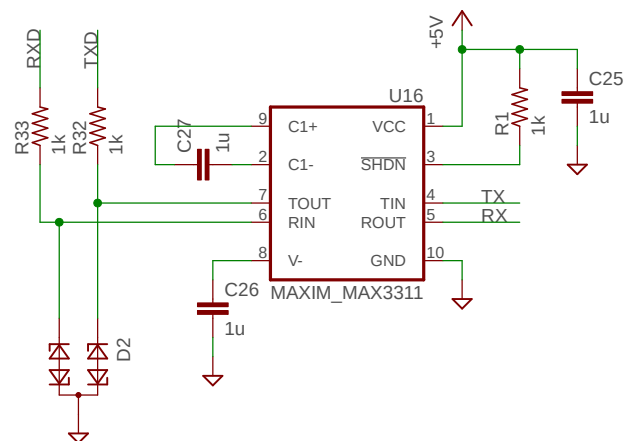
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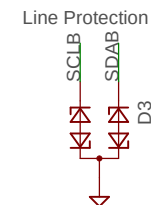
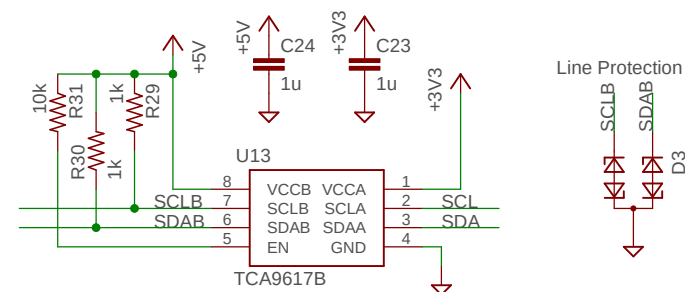
# Communications

## Serial Module



## TCA9617B

(I2C)

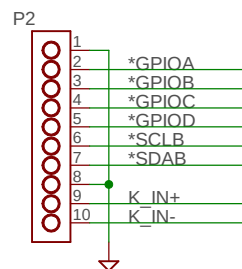


LCD Module contains both LCD (DS1) and SD Card (H1)

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Communications	
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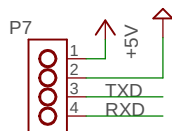
# External I/O

## IO

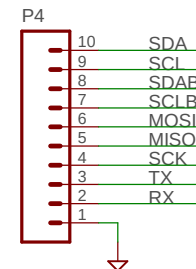


## Serial

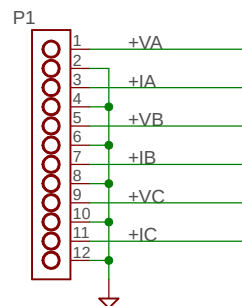
Ribbon cable ext.



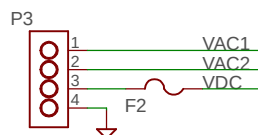
## Comm B.O.



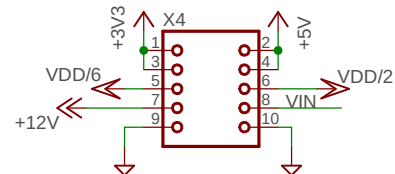
## Ain



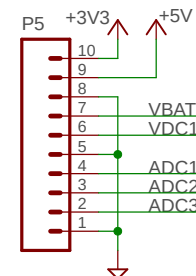
## Pwr



## Pwr B.O.



## Signal B.O.



@loc X3 Top-side  
@loc X4 Bottom-side  
@note X4 DNP

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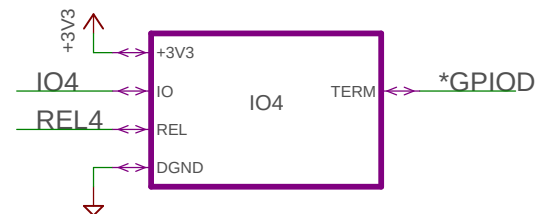
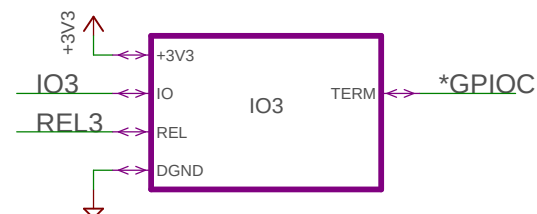
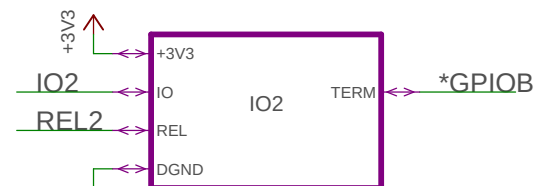
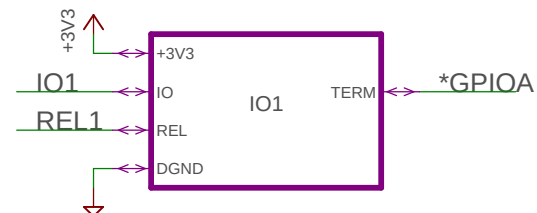
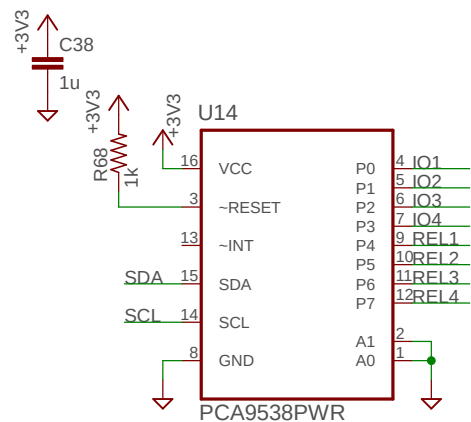
External I/O

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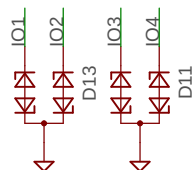
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# DTECTS I/O



Line Protection



See P.11 'PCA-I/O' for description of IO connection (IQ1-3)

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DTECTS I/O

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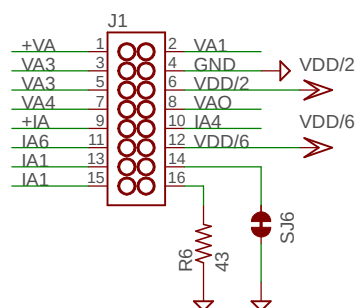
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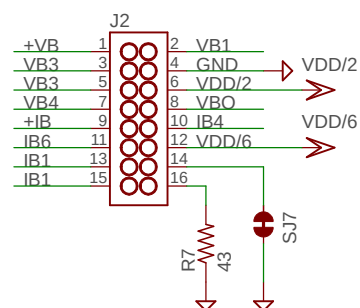


# Monitor Config

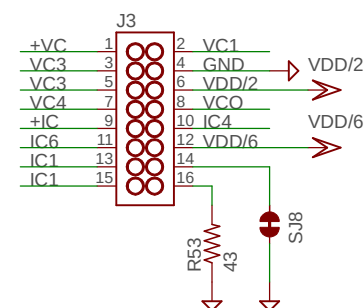
Monitor A



Monitor B



Monitor C



Use headers J1-J3 to establish custom configurations for the Monitor circuits (P.2). See doc/Jumpers Descrip.pdf for connection description

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Monitor Config

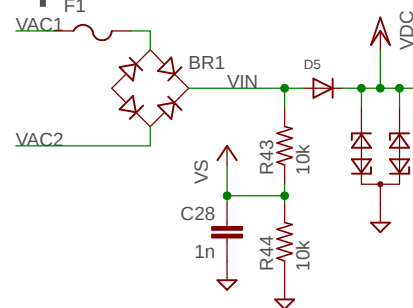
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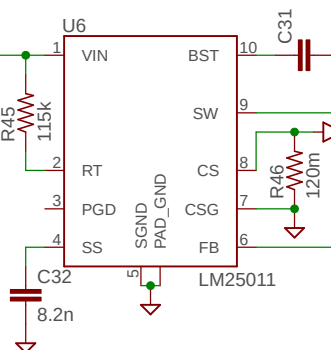
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# DTECTS PSU

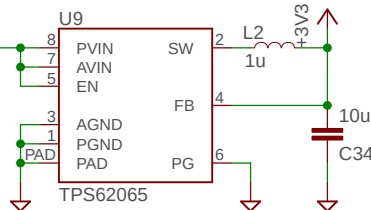
## Input



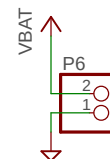
## LM25011



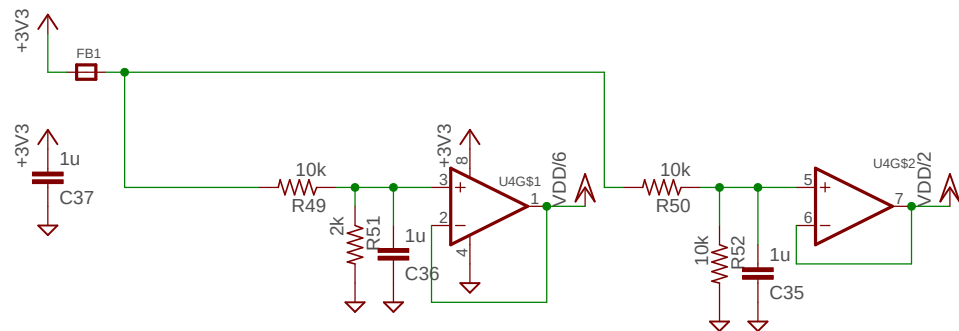
## TPS62065



## Battery



## Ref



VDD/2 and VDD/6 for low-frequency  
high-impedance loads only

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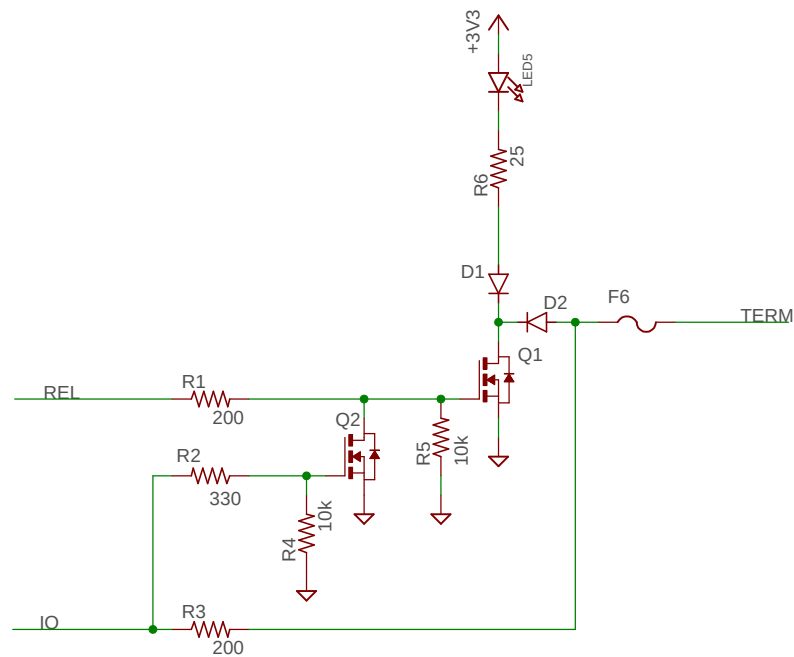
Power Supply

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# PCA I/O MODULE



Provided IO:  
 - IO: Direct GPIO  
 - REL: Relay Actuation

Note:  
 - 'IO' disables 'REL' with Q2

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PCA I/O Module

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