

+24V Volt supply for GPI

- Relay maximum 0.9A for 75msec  
2 relays total current 1.8A

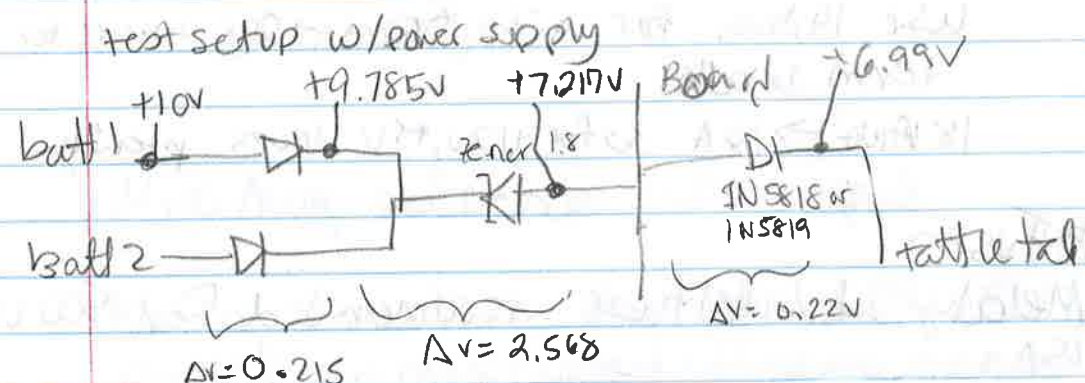
Solid state relays:

Input current is 15mA typical  
total 30mA

Current required at +24V is 2.2A  
Need supply that is

1.8V +

Camera input controller diode  
Wiring harness



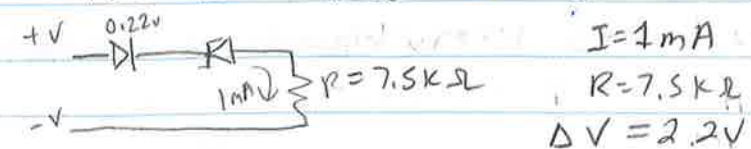
$$\Sigma \Delta V = 0.215 + 2.568 + 0.22 = 3.003V$$

Current is 3mA in test setup

Desired drop is about 1.5V

Zener dropping +2.568V when it should be dropping +1.8V

test 1. Put 1mA load



test 2: Test load in data sheet was 250mA

$$\frac{7.7V}{250mA} = 30.8K\Omega$$

$$I = 240mA$$

$$R = 31K\Omega$$

$$\Delta V = 1.86V$$



(max) Meter use 174mA for 1.79V drop

Yellowmeter uses 754mA for 2.2V

Using multimeter tattle tale + daughter board  
draws about 3mA @ idle

7mA @ programming

3mA in program

~~4.4mA~~

During mission 3.12mA while still charges

only ~~200~~ 200mA due to daughter card

Tattle tale only w/o daughter card

Sleeping w/ serial port removes

0.06mA

Wakes at 0.34mA briefly

With <sup>RS45</sup> cable plugged in but not plugged  
into computer current is

2.16 mA @ 7.328 V  
this is the closest to deployment mode

Battery pack

$$3 \times 40 \text{ Whr} = 120 \text{ Whr}$$

$$2.16 \text{ mA} \times 7.328 \text{ V} = 16 \text{ mW}$$

$$\frac{120 \text{ Whr}}{16 \text{ mW}} = 7581 \text{ Hr}$$

$$= 315 \text{ days}$$

$$\approx 10.53 \text{ months}$$

\* In Sargasso III deployment of 10 months  
pack nearly dead, only a couple more days.

Replace 1.8 V ~~shot~~ zener w/ 2 silicon diodes  
1N4001 in series

$$\text{at } 10 \text{ V}, 240 \mu\text{A}, R = 30.8 \text{ k}$$

$$\Delta V = 1 \text{ V}$$

total voltage drop is 1.2 V in harness phase

0.22 V on board will yield 1.4 V drop  
in harness

Drop is 1.15 V for 1 mA

$$11.8 \text{ V} - 1.15 \text{ V} - 0.22 \text{ V} = 10.43$$

test ~~at~~ w/ turtle tale

$$I = 3.1 \text{ mA}$$

$$V = 11.8 \text{ V}$$

$$V_{\text{@ turtle tale}} = 9.3 \text{ V}$$

$$\Delta V_{\text{diode pair}} = 1.26 \text{ V}$$

w/ 3 diodes (1N4001) 11 V input  $\rightarrow$  8.6 V at  
turtle tale total voltage drop is 2.4 V @ 3 mA

w/ L1 batt pack unloaded voltage 11.8 V  
voltage at turtle tale is 9.37 V

M+R