



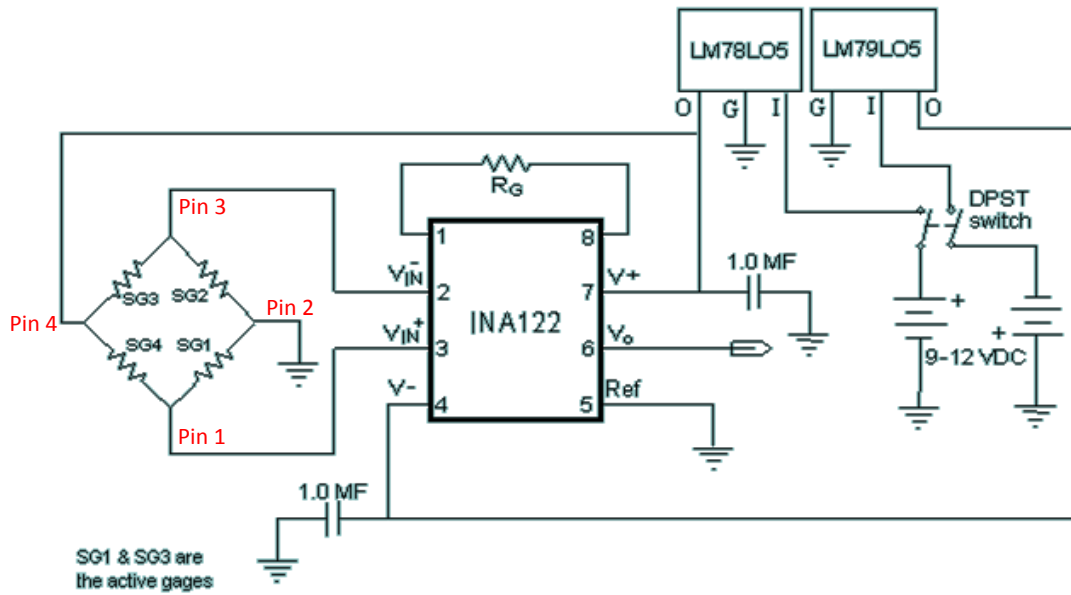
A PRACTICAL GUIDE TO WIRING THE LOAD CELL AND AMPLIFIER

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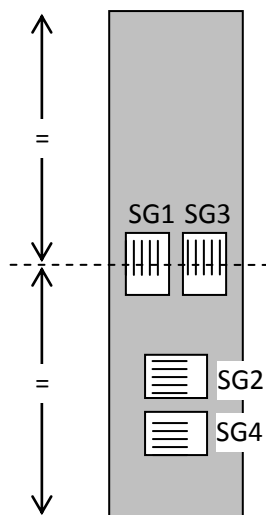
August 2013

Website: <http://www.nakka-rocketry.net/strainlc.html>

CIRCUIT DIAGRAM



MOUNTING STRAIN GAGES ON LOAD CELL BODY



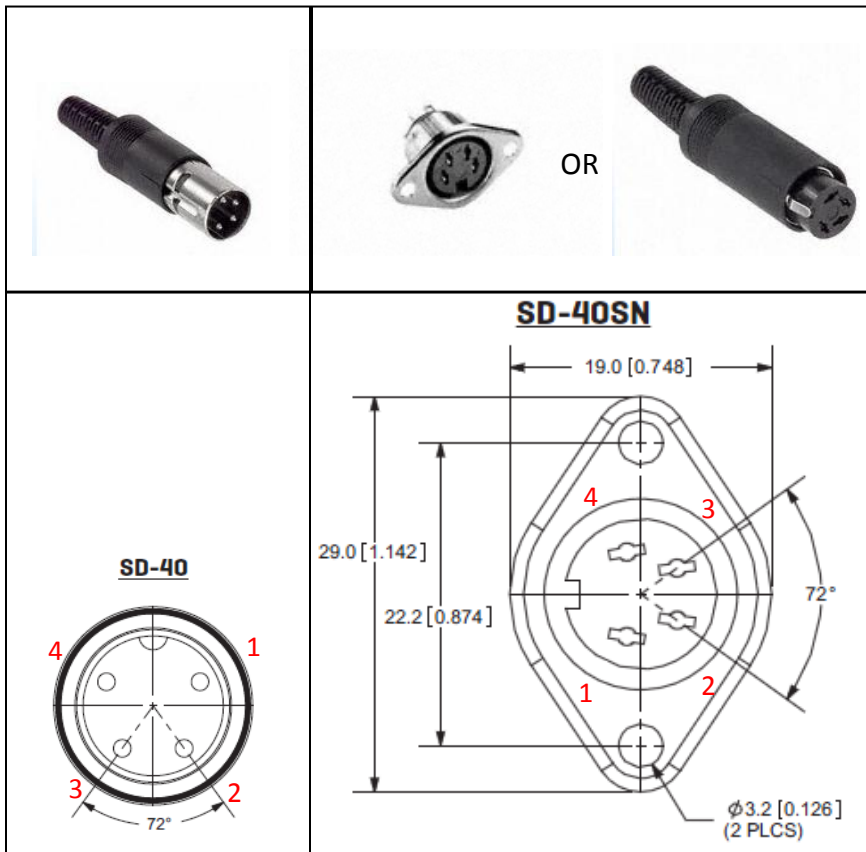
*View on load cell body
(edge)*

**Mount active gages SG1 & SG3 at
midspan of edge.
Mount SG2 & SG4 approximately at
location shown.**

CONNECTORS: (TYPICAL)

Connected to:	Gender	Digikey p/n	Vendor p/n	Type
Load cell	Male	CP-1040-ND	SD-40	Free-hanging
Amp box (use either)	Female	CP-1240-ND	SD-40SN	Panel mount
	Female	CP-1140-ND	SD-40J	Free-hanging

Alternative: CP-1034-ND (locking plug) and CP-1234-ND (locking receptacle)



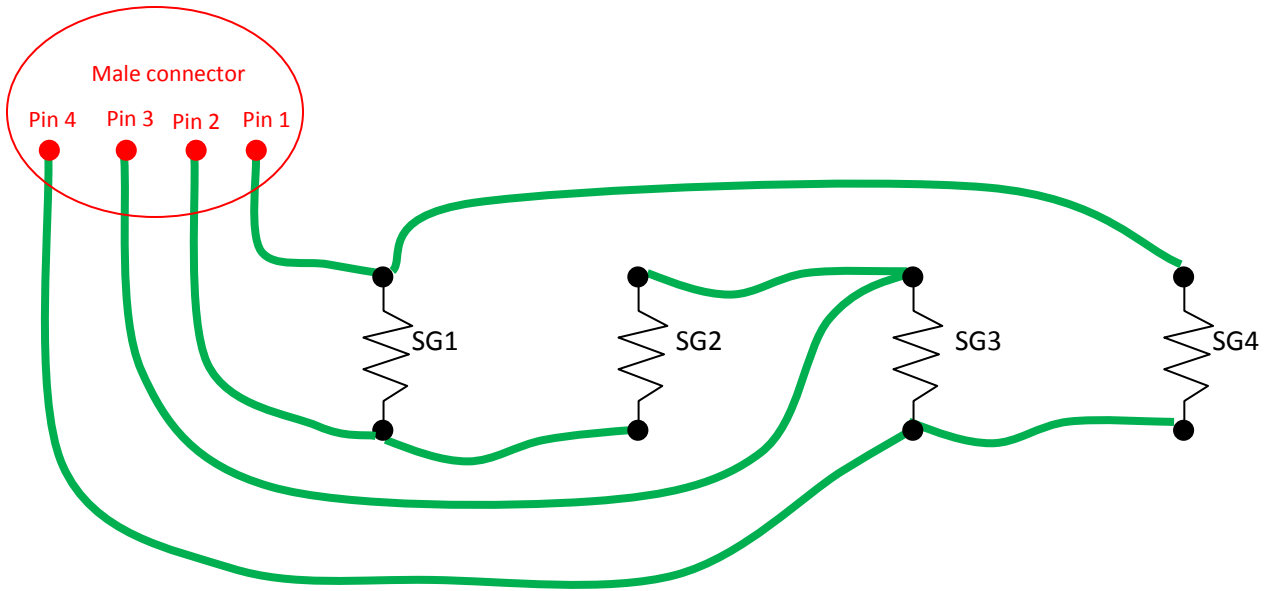
Notes:

- 1) Pin numbers indicated in RED text
- 2) Views show mating faces

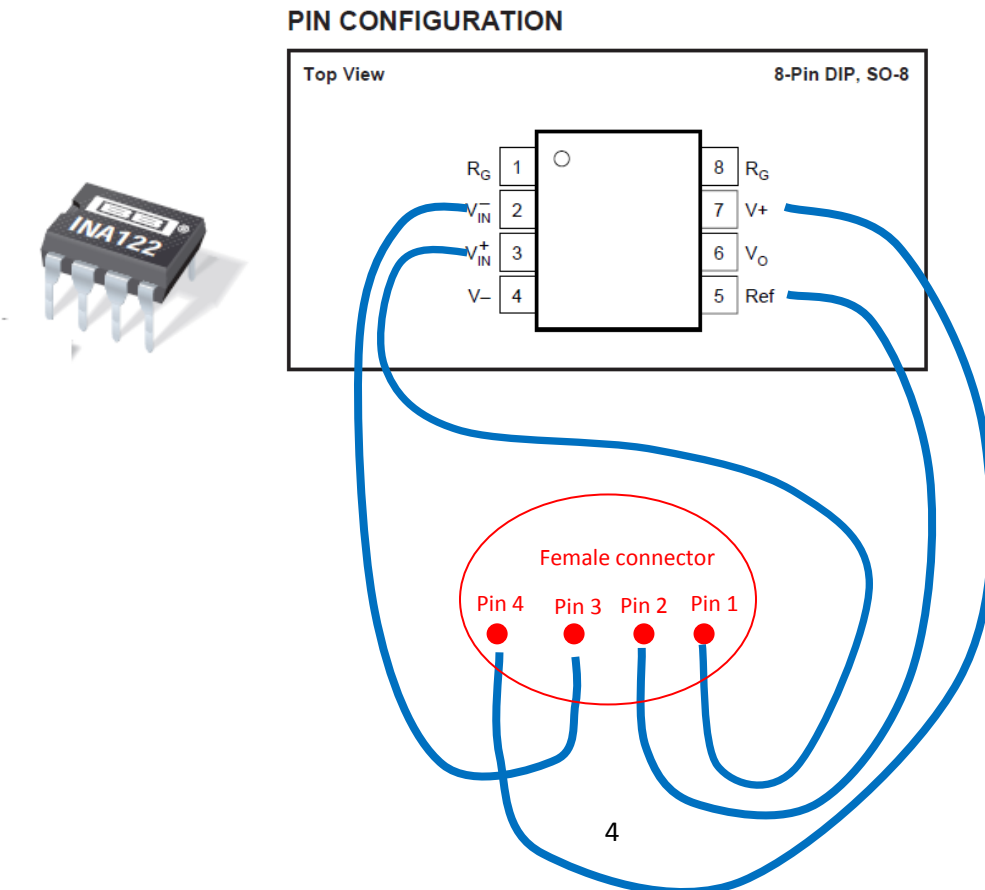
To prevent “noise” in the signal, a **shielded** 4-conductor cable should be used to connect the load cell to the amplifier box.

example: Digikey p/n W504-100-ND or A131-100-ND

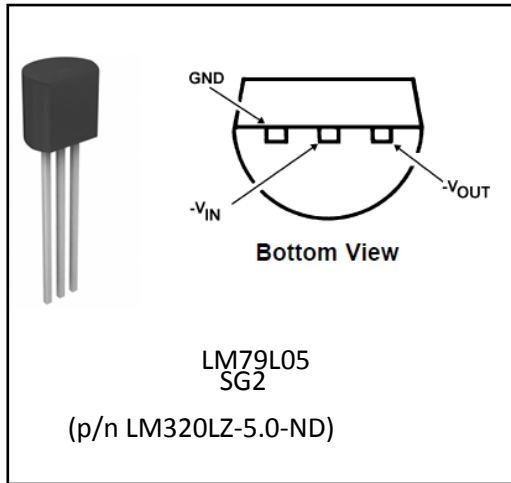
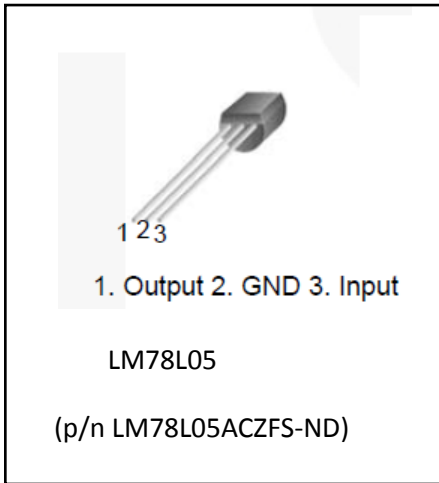
Wiring strain gages to load cell male connector



Wiring amplifier to load cell female connector



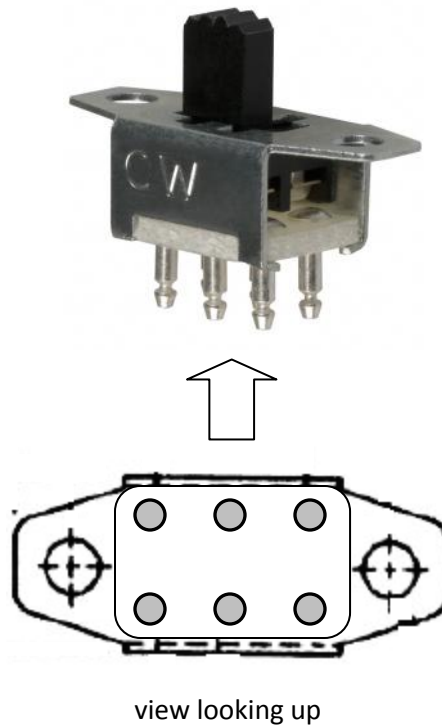
VOLTAGE REGULATORS



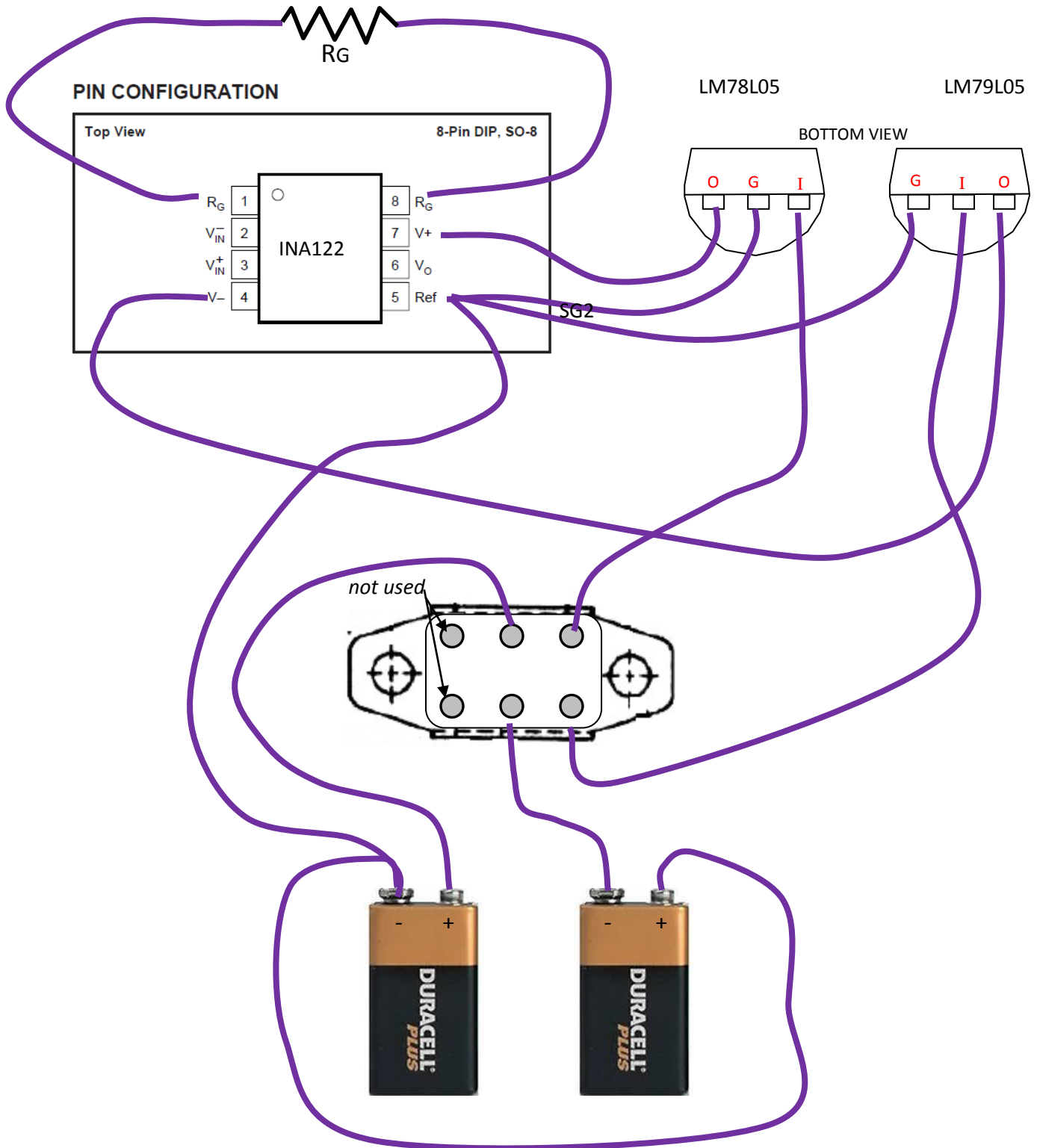
POWER SWITCH

Switch (DPDT) SW102-ND Double Pole Double Throw (DPDT)

Alternatively, a DPST (Double Pole Single Throw) switch may be used. DPDT are generally more common and cheaper.



Wiring the Regulators, Switch and Resistor



Wiring the Amp to the DATAQ unit

Any suitable analog-to-digital converter may be used to convert the analog output of the load cell amplifier to a digital signal. DATAQ.com sells affordable units that work admirably for data collection of hobby rocket motors performance. For example, DI-145, DI-149 and DI-155 units are economical choices.

Connection to the amplifier circuit is simple. The figure below shows the connection to the DI-145 unit, however, connection to the other units is similar. Any input channel may be used.

