

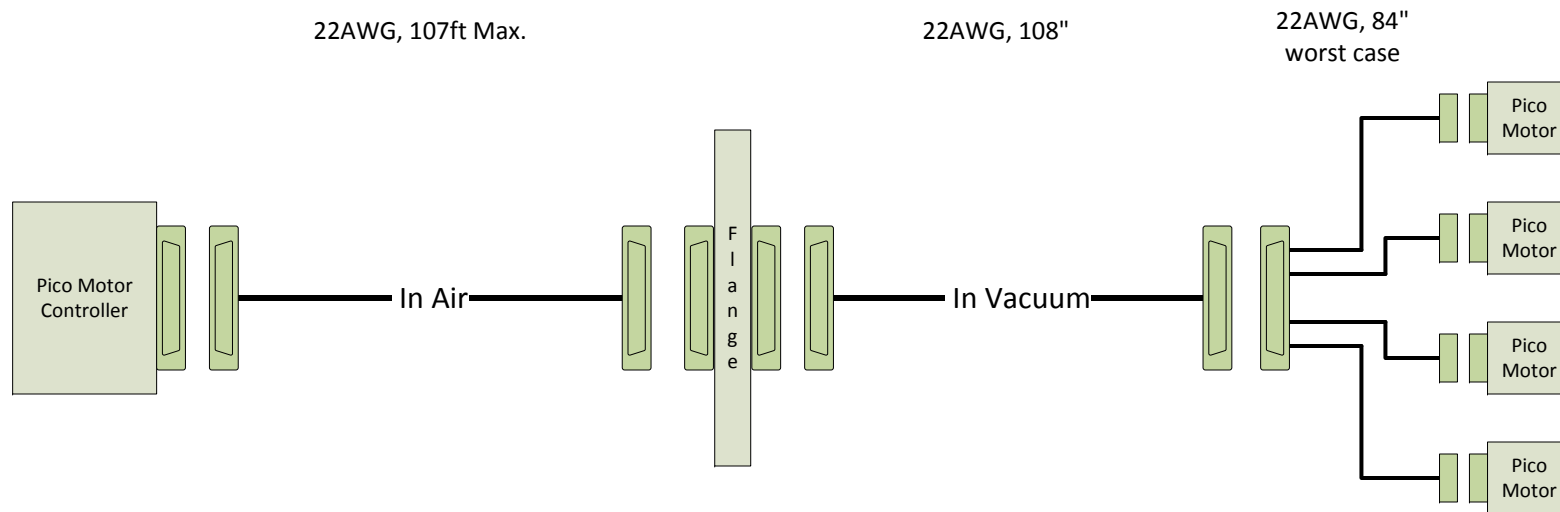
22 awg 743 inches per ohm

Cooner Stranded Wire Data

CZ 1105 28 awg 200 inches per ohm

CZ 1104 29 awg 141 inches per ohm

Analysis Specific to HAM1/HAM3 Pico Motor Installation



Allowable In-air Resistance:

$$2\Omega - 0.264\Omega - 0.002\Omega * 2 = 1.73\Omega$$

$$\text{Assuming } 22\text{AWG wire } 743"/\Omega * 1.73\Omega = 1285"$$

Max Allowable in-air cable length = 107ft

In-vacuum Resistance Totals:

$$192 \text{ inches} / 743 \text{ inches} * \Omega = 0.258\Omega$$

$$\text{Contact Resistance} = 3 * 0.002\Omega = 0.006\Omega$$

Total One-way Resistance = 0.264 Ω

- Per Lockheed analysis of 4/21/2003, the maximum one way cable resistance is 2 Ω
- Each connection point resistance assumed to be 0.002 Ω
- All cabling assumed to be 22AWG
- Cable resistance assumed to be 743 inches per Ω

LIGO T1400022-v1

10 August, 2012 R. Abbott