



## Hi-Z Power Injectors MODEL Hi-Z PI-100

**>>PLEASE Read and Understand the use & application of the PI-100 before deployment<<**  
**In this manual the W/L reference means Wireless.**



### **SPECIFICATIONS:**

- Maximum Voltage (E) = 30VDC [depending of E value may require separate power supply to feed system and protect shack switch]
- Maximum Current (I) = 1 Amp **(customer should supply a fused source to not overload the PI-100)**
- Requires 2 units (one to inject the voltage and the other extract the power over RG6)

**Applications:**

- Hi-Z Antennas Phased RX Arrays – no need for control cables
- Any application that requires voltage to be supplied over RG6 (F style connectors)

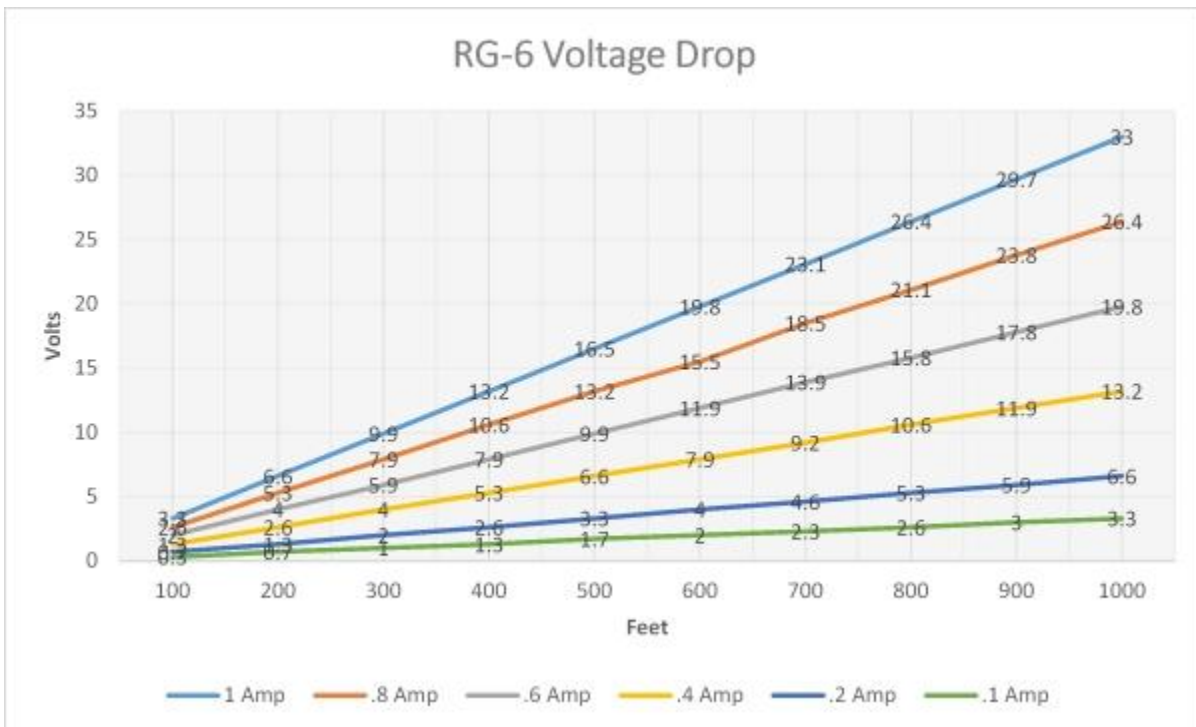
75 Ohm Coax Data:

- DX Engineering RG-11/U 75-ohm Bulk Coaxial Cable DXE-11U
- Coaxial Cable, RG-11/U, 14 AWG, Low-Loss Foam, Waterproof, Direct Bury, Type III PE, UV Black Jacket, Per Foot

The PI-100 can be used to supply DC voltage over RG6 coax. The limitations are specified in the specifications section. Using the PI-100 injectors dramatically improves the efficiency of your installation by supplying power over RG-6 coax to remote electronics, where remote control is required and the need to supply power over an existing coax is available. This approach reduces overall cost (eliminating a control cable) and achieving dual use of your RG-6 (for RF back from an RX array and supplying power).

To determine the sizing of the power supply review the following chart. This shows the graphic representation of voltage required at the shack end as a function of voltage vs. total current draw required for the total remote power budget (remote Hi-Z Wireless RX subsystem plus all other power consumption).

If the RG6 cable is long and then current (I) required is high then the DC power requirement at the shack end will be high. In fact, the Hi-Z shack switch can handle  $\leq 20$  VDC. So if we exceed that value, then a separate power source will be required for the power over coax need. The shack switch will run off the station DC power source.



>>>This graph assumes high quality RG6 coax. The cheaper RG6 available at building supply companies are NOT considered is this graph.<<<

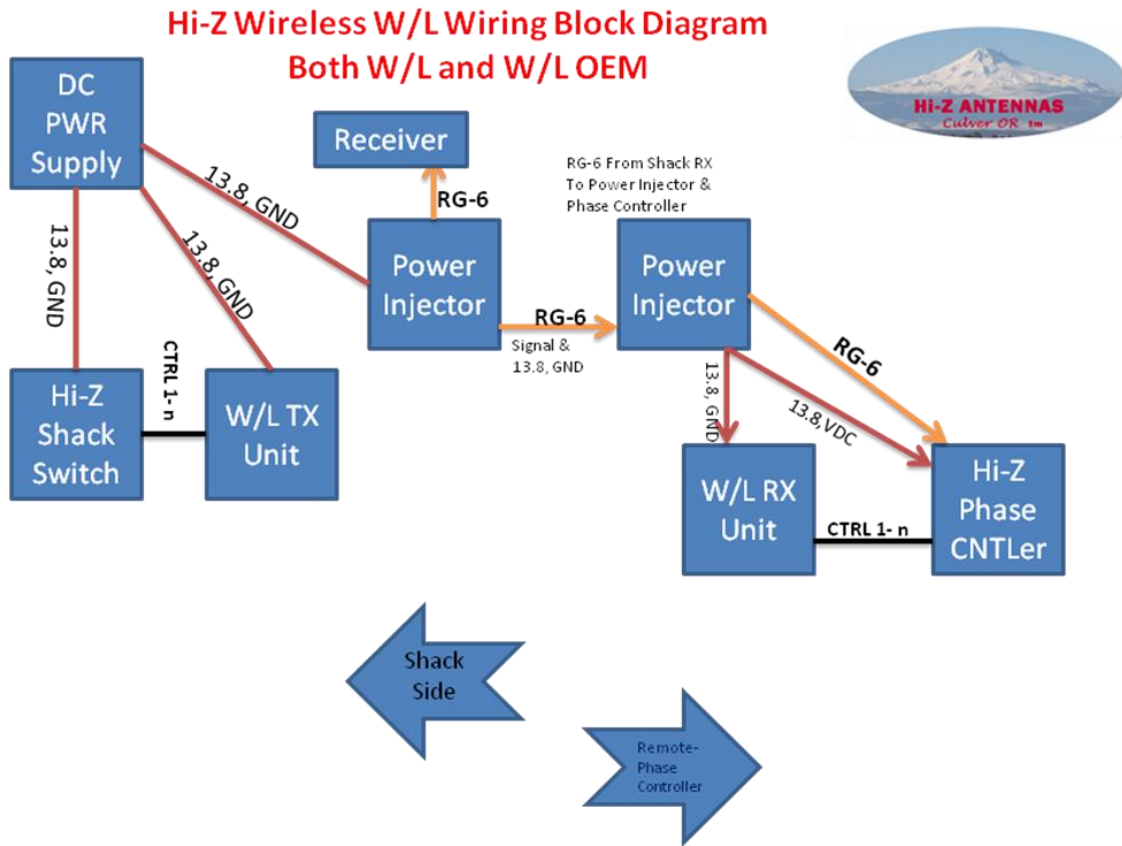
Now we will run a proposed installation. Using this example to understand how to determine the correct supply voltage will assist you in selecting a power supply.

Your remote power budget requires 13.8 VDC. The RG6 coax run is going to be 400 feet. Note above the yellow graph as this is the 400ma line / graph. Reading the value of the yellow (400ma line) on the horizontal note the 400 foot point. Now go up to the 400 foot point, note the voltage (E) drop is 5.3 VDC. SO to achieve 13.8VDC at the remote electronics the following is correct.

We need a supply of 13.8VDC plus the E drop of 5.3VDC = 19.1VDC. **Be careful not to over voltage equipment.**

**Wiring and Installation for Hi-Z RX Array Systems**

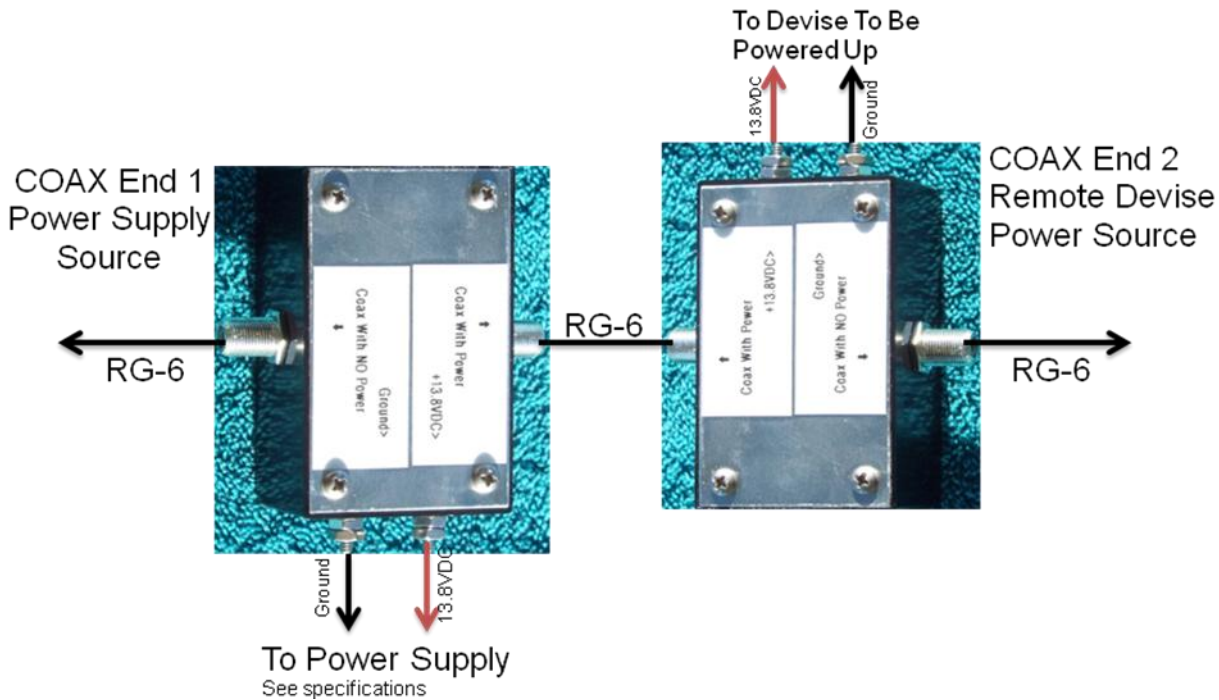
Review the following diagram.



**GENERIC Installation**

Please examine the following block diagram. This is a typical generic install in the simplest terms. On the left side is the PI-100 where the source power supply is connected and the right side PI-100 where the power that is supplied over the coax is extracted and ready for connection to the remote devise.

### PI-100 Typical End to End Installation Block Diagram



### Pictorial of Hi-Z Components prior to installation.

### Hi-Z Wireless End to End View (from shack to field)

