

## Array Solutions Bias-T PLUS User Manual

### Description

The Array Solutions Bias-T PLUS is a 1.8-148 MHz stand alone weatherproof unit that permits the application of DC control signals of up to 400ma on your coax cable. By inserting the control voltage on the coax cable feed-line, you eliminate the requirement for external DC wires for powering remote devices.

The Bias-T PLUS weatherproof assembly means that it can be placed indoors or outdoors for maximum flexibility. Typically, one Bias-T PLUS will be placed indoors for inserting DC on your coax feed-line, and one Bias-T PLUS will be placed at the remote device where the DC voltage is extracted.

### Specifications

|                        |  |
|------------------------|--|
| Frequency Range:       | 1.8-148 MHz                                  |
| SWR:                   | <1.1:1 across the full frequency range       |
| RF Power Handling:     | 1.5KW SSB/CW/RTTY                            |
| Lightning Protection:  | Internal Gas Discharge Tube                  |
| DC voltage limit:      | 50VDC maximum, positive or negative polarity |
| DC current capability: | 400 milliamps maximum                        |
| DC Interface:          | 2.1x5.5mm jack                               |
| RF Interfaces:         | SO-239 UHF connectors (RF, RF+DC)            |
| Size:                  | 4x4x2.5"                                     |

### Installation and Control

Typically one Bias-T PLUS will be located in your shack where it is convenient to attach the coax feed and a switched 12VDC input. A second Bias-T PLUS is typically remotely located near the device you wish to power. Figure 1 shows a typical connection diagram.

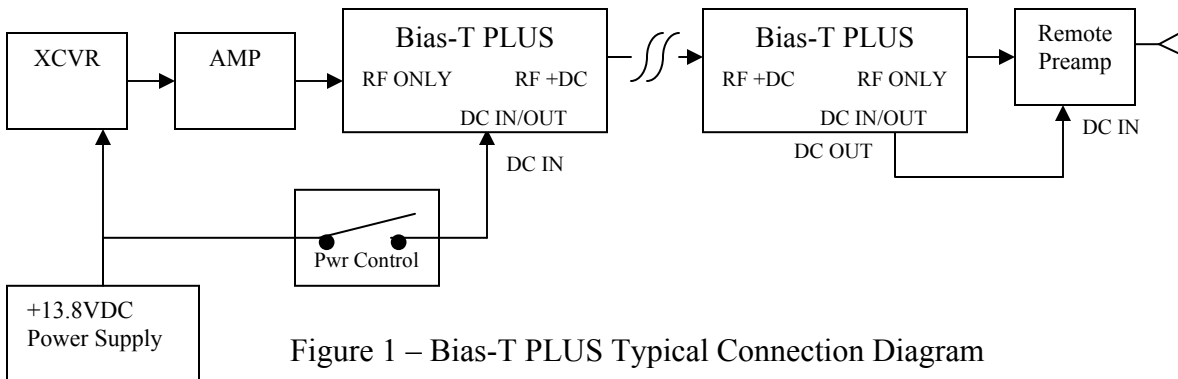


Figure 1 – Bias-T PLUS Typical Connection Diagram

**Note:** It is very important to pay attention to the orientation of the Bias-T PLUS in your system so that you do not apply DC bias voltage directly to your transceiver or amplifier RF connector. I.e., the DC-blocked side (RF ONLY) should *always* be the side connected to your transceiver or amplifier. Figure 2 shows the connection/flow diagram of the Bias-T PLUS.

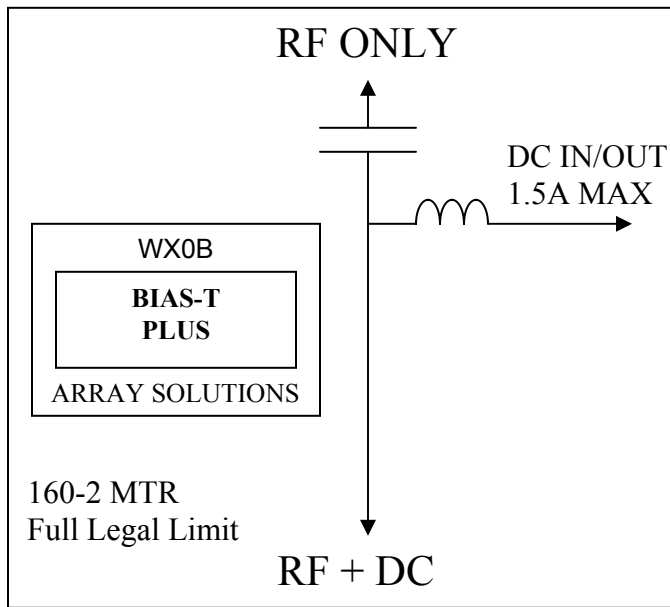


Figure 2: Bias-T PLUS Cover Label

Depending on your powering requirements, you may wish to apply either positive or negative voltage to the Bias-T PLUS. This may be desirable for providing control for up to a 3-way remote RF switch (plus, zero, and minus voltages for control). However, if a negative control voltage is used, it **MUST** be derived from an isolated DC source where the negative lead of the isolated source does not connect to the common station ground. The use of a “wall wart” type of power source is perfect for this application.

**Warning:** Always ensure that your control voltage polarity is compatible with the requirements of your remote device. Applying the incorrect polarity could damage a remote device.

**Warning:** Always verify that there are no items on the coax feed-line which could cause a DC short or very low impedance on the coax line. Such items would include baluns or remote switches that ground the coax when not in use. A DC low impedance or short on the coax will draw excess current through the Bias-T PLUS and may damage the inductors in the Bias-T PLUS.

For a power control switch, you may wish to use one position of an Array Solutions RatPAK controller, an optional Array Solutions Power Control switch, or you may wish to build your own switch assembly.

#### Array Solutions Power Control Switch

The Array Solutions Power Control Switch houses the switch control function in a convenient package. Two cables enter the rear of the switch assembly: 1) A 4-foot DC input wire with stripped and tinned ends for attaching to your connector of choice, and 2) A 6-foot cable terminated with a 2.1x5.5mm DC connector that plugs directly into the

Bias-T PLUS. Double-sided tape is provided so that the Power Control Switch may be conveniently and firmly mounted at your operating position.



Array Solutions Power Control Switch