Comba Public Safety BDAs utilize control channel signal levels in P25 based trunked system networks as the means for monitoring and alarming for donor antenna malfunctions. It is rare – but there are cases where the network is NOT a trunked network; therefore, there are no control channels available for use in donor antenna monitoring and alarming. In these cases – please use the alternate methodology for donor antenna monitoring and alarming described below.

**Using DC voltage and the AUX port to monitor the Donor antenna line**

<table>
<thead>
<tr>
<th>Components Required</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bias T, N (M-F), with BNC for DC port, 700MHz-900MHz, or wider</td>
<td>2</td>
</tr>
<tr>
<td>50 Ohm terminator with BNC connector</td>
<td>1</td>
</tr>
<tr>
<td>BNC to twin-lead adaptor</td>
<td>1</td>
</tr>
</tbody>
</table>

![BDA Diagram](image)

**Figure 1**

Bias T

BNC to twin-lead adaptor

50 Ohm Terminator

Dry contact alarm cable (included with the Comba BDA)
Connections: (Figure 1)

1. Connect one Bias T into the donor antenna line at donor antenna end
2. Connect the other Bias T to the BDA’s DT port
3. Each Bias T has an RF port, a DC port, and an RF&DC port - connect the Bias T units according to the following diagram:

   ![Diagram of Bias T connections]

4. Connect the 50 Ohm terminator to the DC port on the Bias T at the donor antenna end
5. Connect the BNC to twin-lead adaptor to the DC port on the Bias T at unit end
6. Connect the BDA AUX port to the BNC to twin-lead adaptor with the dry contact alarm cable (included with the Comba BDA)
7. Connect the **Black wire** to the adaptor’s pin marked ‘+’
8. Connect the **Grey wire** to the adaptor’s pin marked ‘-’
9. Connect the two Bias T units to the coaxial donor cable
   
   *(NOTE: Adaptors/jumpers (N-M to N-M) may be needed for the coax connections)*

Important notes:

1. If there are any other components on the coaxial cable between the two Bias T that will block the DC - this solution will not function correctly.

   For example, some surge arrestors will pass DC (e.g. Polyphaser GT-NFF-AL) - these can be used in between the Bias T units. Some surge arrestors will block DC - these can’t be used in between the Bias T units

2. Water proof the Bias T if used outdoor or as required by the AHJ
Software Configuration:

1. Device-Overview: Click “Modify” Ext Alm4 and select “Enable Ext Alm4”

2. Management-Alarm Setting: Click “Modify” Ext Alm 4’s name and re-name appropriately (for example, “DT monitoring”) for alarm indication
Dry Contact Alarm Definition:

Port ALM1:

- Alarm 1: Signal Booster Failure (RED-CLOSED, BLUE-OPEN, WHITE-COM)
- Alarm 2: Antenna Malfunction (BLACK-CLOSED, PURPLE-OPEN, BROWN-COM)

Antenna Malfunction consists of:

- Low Input (using control channel signal level on P25/trunked systems)
- Ext Alarm 4 (using this Bias T based DC monitoring solution for non-trunked systems)
- VSWR (for service antennas)

Users may Enable/Disable any of the antenna alarms to customize the Antenna Malfunction dry contact alarm.

IMPORTANT: If the network is not a P25 system or does not utilize control channels, disable the DL Low alarm in the “Device-Overview” page