

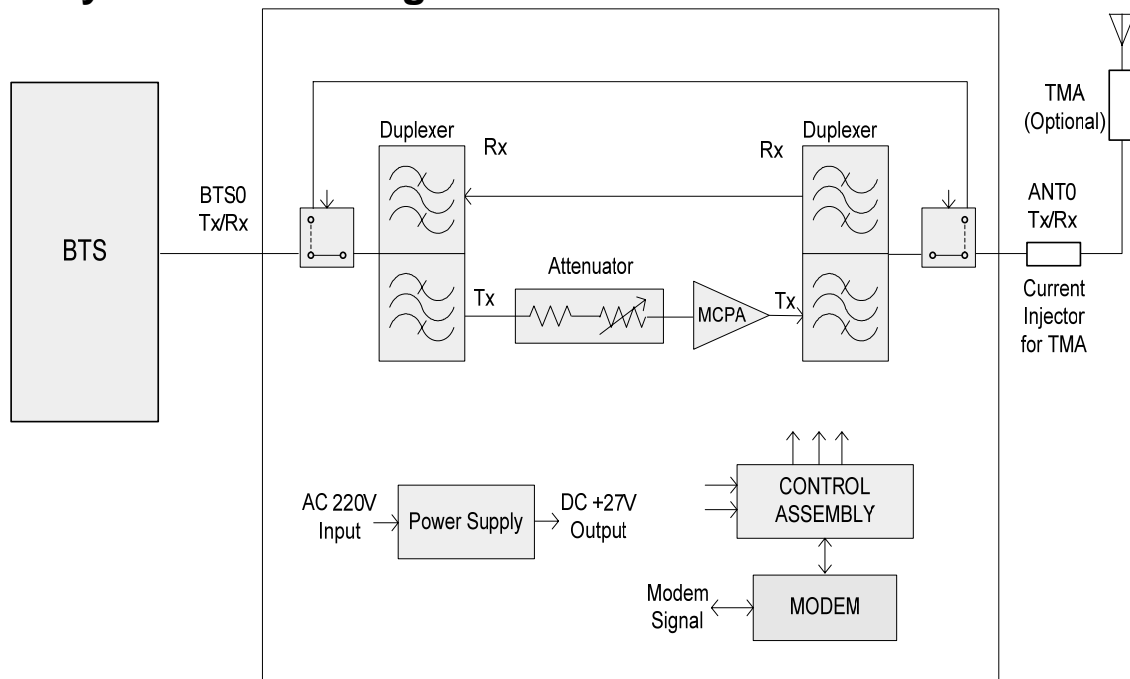
# LPA2100-160-SW01 SPECIFICATION

## 1. System advantages

Bravo Tech Inc 's newly introduced Multi-Carrier High Power Outdoor Booster platform provides higher downlink EIRP and improved uplink sensitivity at the same time to extend the coverage of existing cellular networks. This multi-carrier based product platform can also work with customized BTS to extend capacity of original BTS with a low system total cost. This product platform features:

- Support multi-carrier CDMA signals, with mixed mode operation
- Output maximum power 160W, support carriers number up to 4.
- Very High System Efficiency
- Extensive product monitoring and control (local and remote)
- Centralized system control/display/alarms
- Great system reliability supported by architecture built-in redundancy
- Powered by 30VDC available
- Extensive protection for lightning, voltage surge, and any high failure rate assemblies
- Compact system size and light weight

## 2. System Block Diagram



### 3. Electrical Specifications

| PARAMETER                                    | SPECIFICATION  |                                  |
|--|--|----------------------------------|
| Frequency                                    | 2110 ~ 2155 MHz  |                                  |
| Output Power                                 | 160Watts average max. ( CDMA2000, PAR: 8.0dB)  |                                  |
| Spurious Emission                            | -45dBc@ $\Delta f=885-1.25\text{MHz}$ , 30kHz RBW<br>-55dBc@ $\Delta f=1.25-1.98\text{MHz}$ , 30kHz RBW<br>-55dBc@ $\Delta f=1.25-2.25\text{MHz}$ , 30kHz RBW<br>-13dBm@ $\Delta f=2.25-4\text{MHz}$ , 30kHz RBW |                                  |
| RF Gain                                      | 57.0 $\pm$ 1.0dB @ frequency range, +30Vdc, room temp.   |                                  |
| Normal Operating Voltage                     | +30Vdc $\pm$ 1.0Vdc  |                                  |
| Operating Voltage                            | +29Vdc ~ +31Vdc  |                                  |
| RF Gain Variation over Voltage & Temperature | $\pm$ 1.5dB @ +29 $\leq$ Vsup $\leq$ +31V, -20 $^{\circ}$ C to +50 $^{\circ}$ C  |                                  |
| Gain Flatness                                | Peak to Peak 0.2dB over any 5MHz   |                                  |
| Input/Output Return Loss                     | -16dB min.   |                                  |
| Output Protection                            | Mismatch protected with isolator   |                                  |
| Efficiency                                   | $\geq$ 12% @ +30Volts, Po=+52dBm   |                                  |
| Operating Temperature                        | -20 $^{\circ}$ C to +50 $^{\circ}$ C (Air Temperature inside System),  |                                  |
| Input Power ALC                              | Operating point  | Output power:52.5dBm $\pm$ 0.5dB |
|  | Operating range  | 6dB min                          |
|  | Over Pwr   | Output Pwr:53dBm $\pm$ 0.5dB     |

### 4. Alarm and Functions Specifications

TTL output for the alarm pins. Normal is High, Alarm is Low.

#### 4.1 Over temperature alarm

Alarm and shutdown at 85 $^{\circ}$ C base temperature, auto-recover at 65 $^{\circ}$ C base temperature.

#### 4.2 Over power alarm

Alarm and shutdown when output power is over 52.5dBm, no auto-recover.

#### 4.3 ALC

4.3.1 **ALC level:** 52.5 $\pm$ 0.5dBm

4.3.2 **ALC range:**  $\geq$ 6dB

#### 4.4 Over driver alarm

Alarm and shutdown when input power is over+1dBm, no auto-recover.

#### 4.5 Transistor fail alarm

Alarm and shutdown when gain reduce 10dB, no auto-recover

#### 4.6 VSWR alarm

Alarm and shutdown when reject is over 43dBm, no auto-recover.

## 5. Description of the connectors

### 5.1 RF Part

| Port Name | Type              | Warning  |
|-----------|-------------------|--|
| Input     | SMA Female (50 Ω) | Normal :-5.2dBm<br>maxium input power +1dBm.     |
| Output    | N Female (50 Ω)   | Normal :51.76dBm<br>maxium output power 52.5dBm. |

### 5.2 DC power

| Port Name | Type                                | NO    | Warning                     |
|-----------|-------------------------------------|-------|-----------------------------|
| DC IN     | D-Sub type<br>DSCD175PS1M<br>(Male) | A1、A2 | VDC type +30V, range 24~32V |
|           |                                     | A3、A4 | GND to VDC                  |

### 5.3 Communication

Connector type: USB

Note: Manufacturer use to debug.

### 5.4 LED Indication



Figure 1 Power Amplifier Indicators

Table 1 Specification of Power Amplifier Indicator Light

| Item | Label     | Color  | State | Specification                          |
|------|-----------|--------|-------|--|
| 1    | MAJOR ALM | Red    | On    | Power amplifier alarms and shuts down  |
|      | MINOR ALM | Yellow | Off   |  |
|      | RF ON     | Green  | Off   |  |
| 2    | MAJOR ALM | Red    | Off   | Power amplifier alarms but still works |
|      | MINOR ALM | Yellow | On    |  |
|      | RF ON     | Green  | Off   |  |
| 3    | MAJOR ALM | Red    | Off   | Power amplifier works normally         |
|      | MINOR ALM | Yellow | Off   |  |
|      | RF ON     | Green  | On    |  |

**5.5 Warning**

1. Check the power supply voltage is between 24V and 32V or not before electrify, better to setup in 30V. Power of power supply shall bigger than 1400W.
2. Ensure the power supply polarity is right, port A1、A2 are anode, and port A3、A4 are cathode.
3. Ensure the output line is connected and input power is not over load before connect the RF input line.
4. Use the type N connector as output connector, for the high output power, suggest to using the  $\phi 3$  upwards RF cable to connect. At the same time, output matching demand all right, SWR more than 1.5 is better, but less than 3.0.
5. Product operating should be cooled by air flow, air flow more than 150cfm.
6. Product operating room temperature can't above 50° ,also can't below -20°.

## 6. Dimension

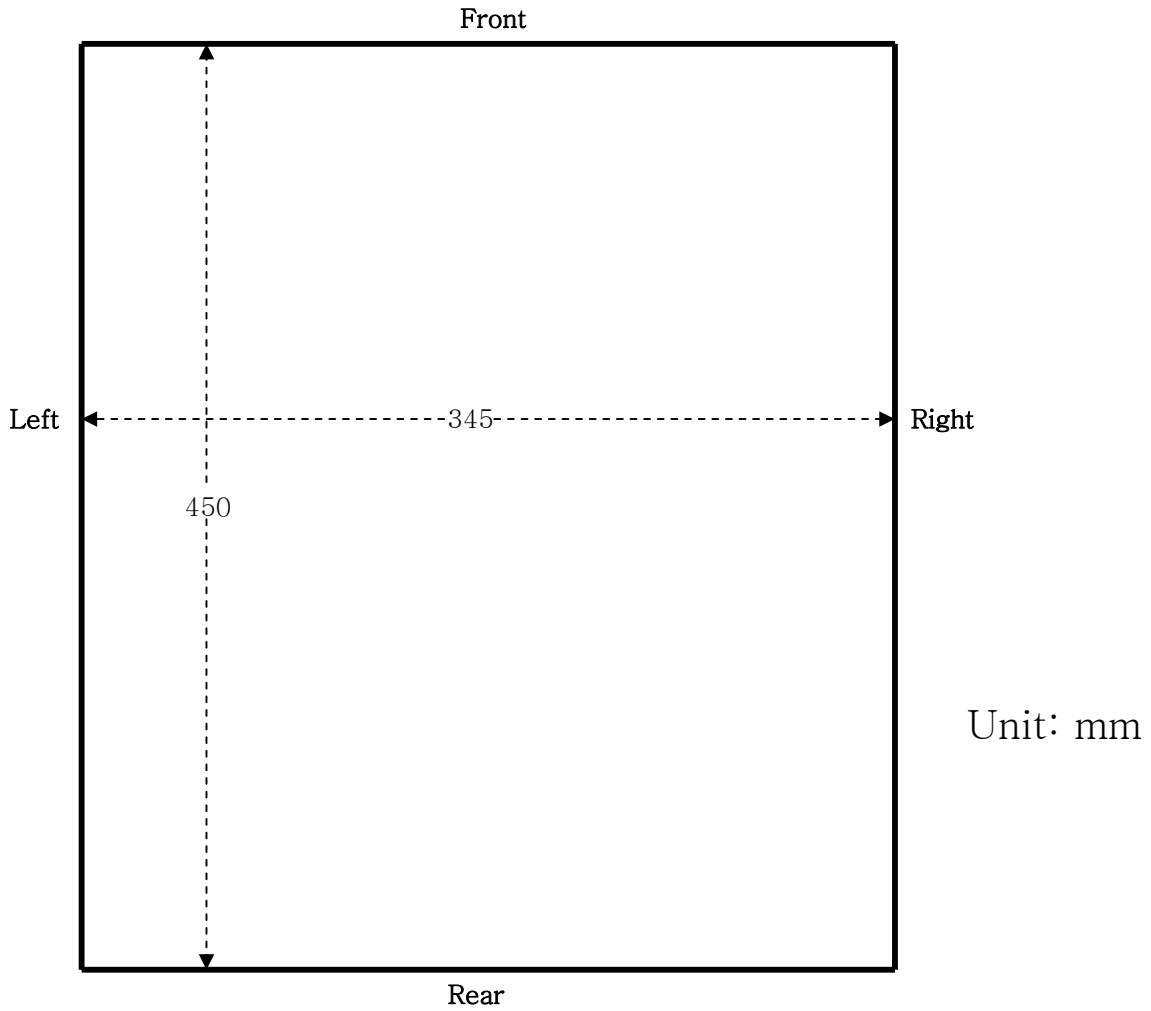


Figure 2 Dimension

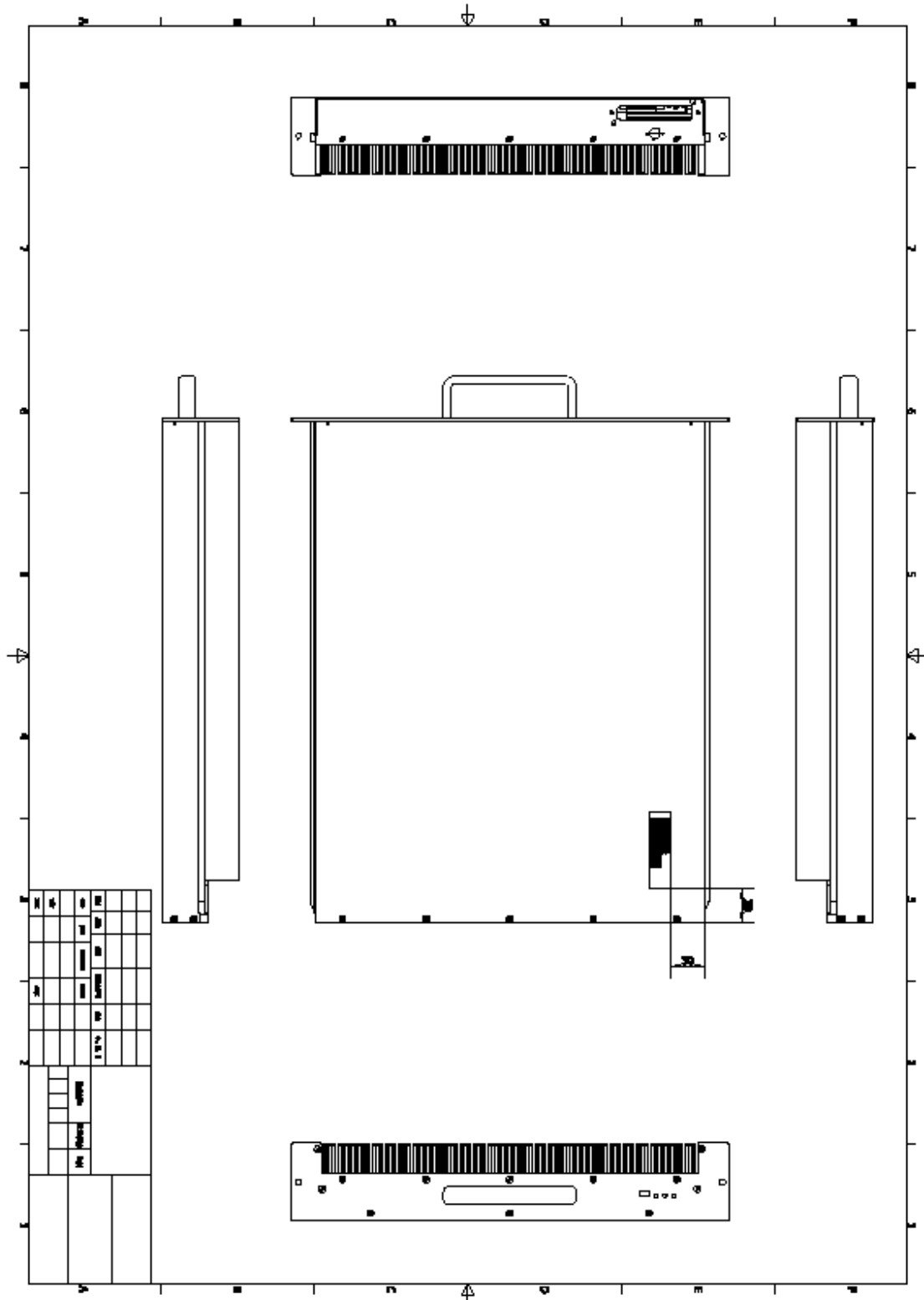


Figure 3 Mechanical drawing

## 7. Assembled

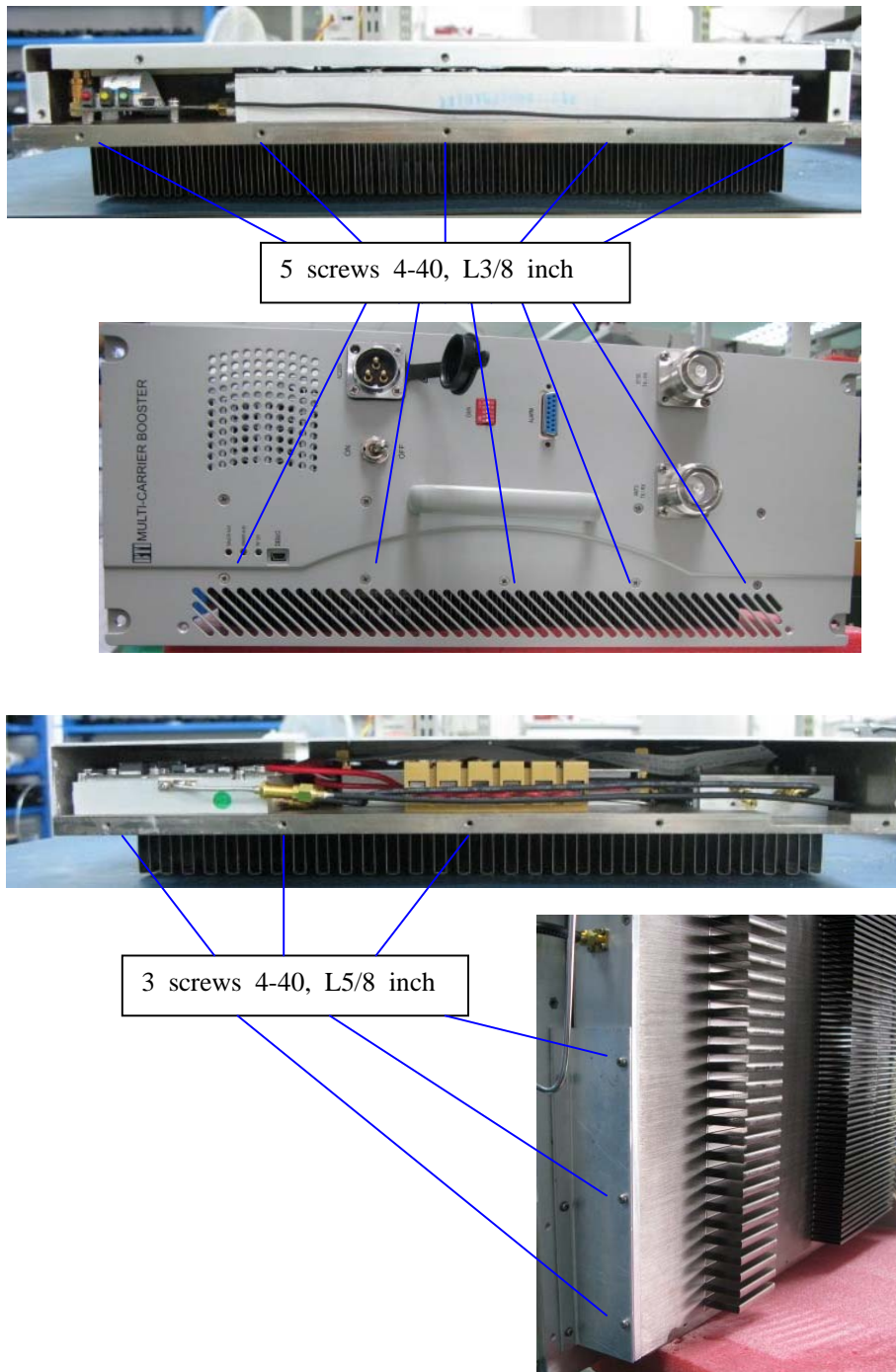


Figure 4 Assembled Instructions

1. Lock 5 screws 4-40, L3/8 inch with Philip's type screwdriver to fasten the front side of PA to the Front Plate of Booster as shown above.
2. Lock 3 screws 4-40, L5/8 inch with Philip's type screwdriver to fasten the back side of PA to a connection board which is connected to the soleplate of Booster.