

QOTANA TECHNOLOGIES 160W solid state EMC Power Amplifier 18GHz~26.5GHz
Features

- Automatic Calibration
- Built in temperature compensation
- Adjustable attenuation: 31.5dB range, 0.5dB step size
- Saturated Output power +52dBm typical
- Supply Voltage: 110V/220V AC


Typical Applications

- Microwave Radio and VSAT.
- Telecom Infrastructure.

Parameter	Min.	Typ.	Max.	Units
Frequency Range		18-26.5		GHz
Gain		60		dB
Gain flatness		±5.0		dB
Gain Variation Over Temperature (-45 ~ +85)		±3.0		dB
Input return loss		15		dB
Output return loss		15		dB
Output 1dB Compression Point (P1dB)		47		dBm
Saturated Output Power (Psat)		52		dBm
Isolation S12		80		dB

Weight	35 lbs	Impedance	50ohms
Power supply connector	D-SUB COMBO 3POS	Material	Aluminum/copper
Input / Output Connectors	Input: SMA female Output: WR42	Package Sealing	Epoxy Sealing (Standard)
			Hermetically Sealed (Option with extra charge)

QOTANA TECHNOLOGIES 160W solid state EMC Power Amplifier 18GHz~26.5GHz

Absolute Ratings

Supply Voltage	85-264VAC
RF Input Power (RFIN)	Psat-Gain

Note: Refer to the Gain curve

Biassing Up Procedure

Step 1	Connect input and output
Step 2	Turn on AC power
Step 3	Enable RF output

Power OFF Procedure

Step 1	Turn off RF output power
Step 2	Turn off AC power
Step 3	Disconnect Input and Output

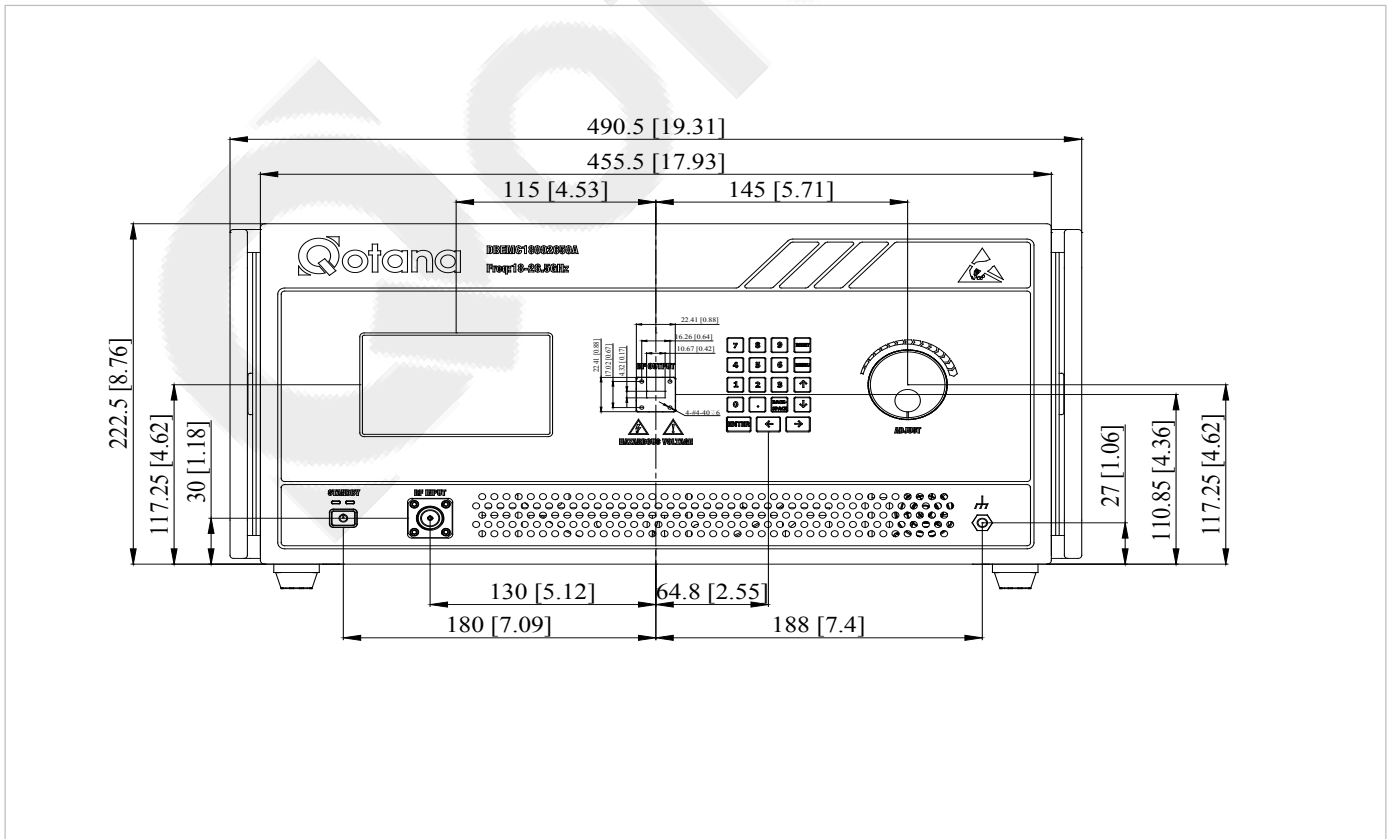
Environmental Specifications

Operational Temperature	-40°C~+85°C (Case Temperature below 85)
Storage Temperature	-50°C~+105°C
Altitude	30,000 ft. (Epoxy Sealed Controlled environment)
	60,000 ft. 1.0psi min (Hermetically Sealed Uncontrolled environment) (Optional)
Vibration	25g RMS (15 degrees 2KHz) endurance, 1 hour per axis
Humidity	100% RH at 35°C, 95%RH at 40°C
Shock	20G for 11msec half sine wave, 3 axis both directions

Outline Drawing:

All Dimensions in mm (inches)

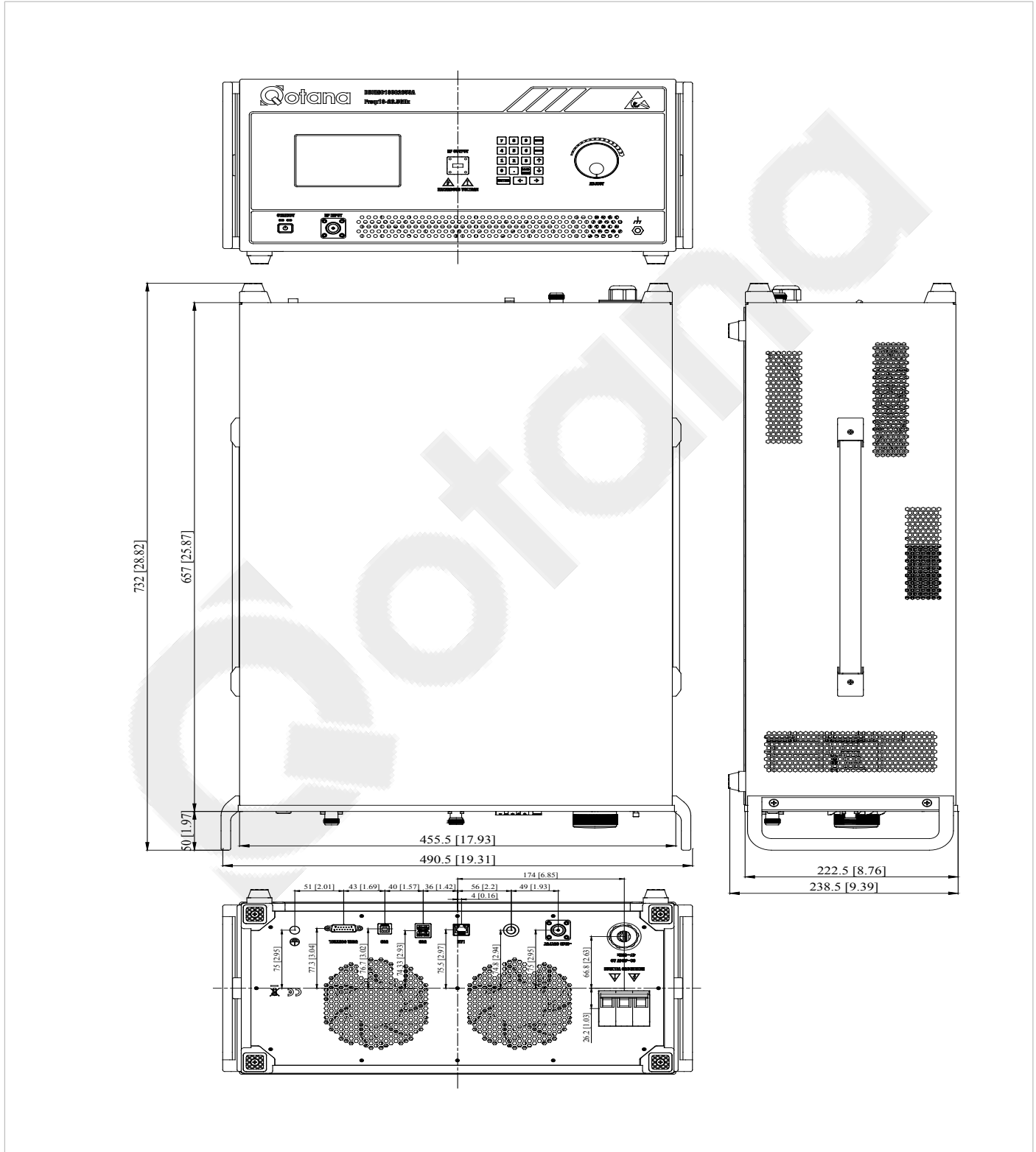
Heat Sink required during operation(Sold Separately)

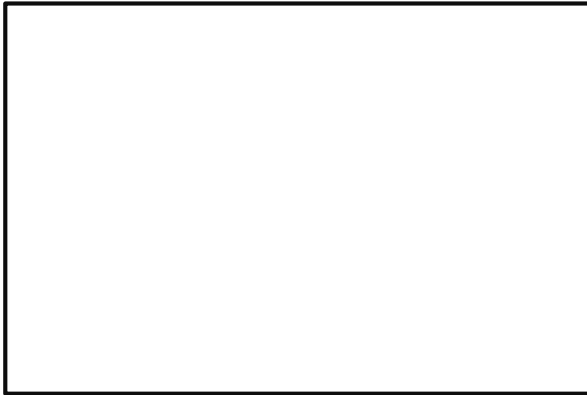
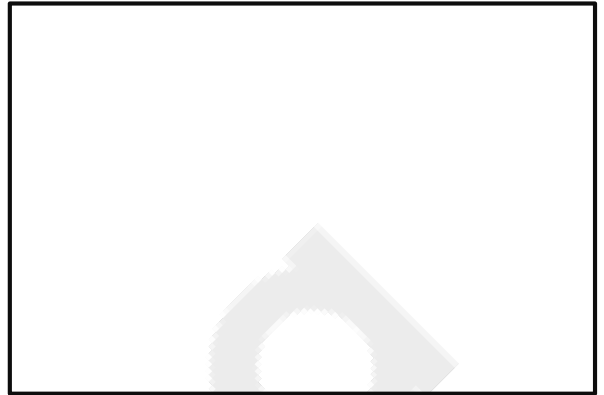


Outline Drawing:

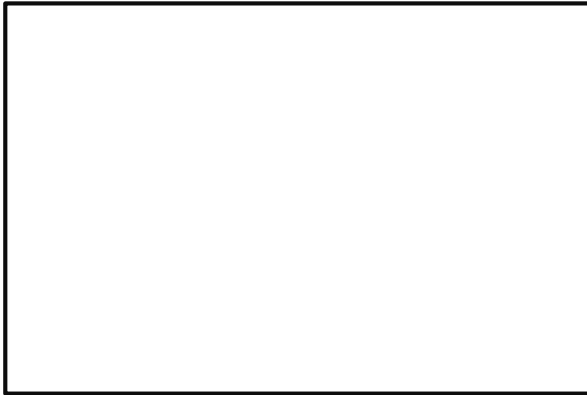
All Dimensions in mm (inches)

Heat Sink required during operation(Sold Separately)



Gain**Input VSWR****Isolation****Gain vs. Output Power****P1dB & P3dB vs. Frequency****Current**

Left IM3 vs. Pout



Right IM3 vs. Pout



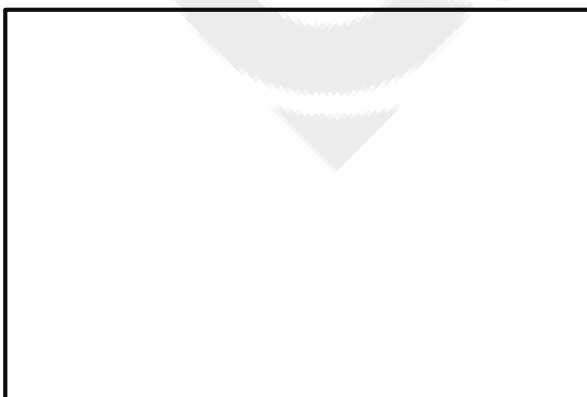
Power Added Efficiency



2nd Harmonic Wave Output Power



3rd Harmonic Wave Output Power



4th Harmonic Wave Output Power

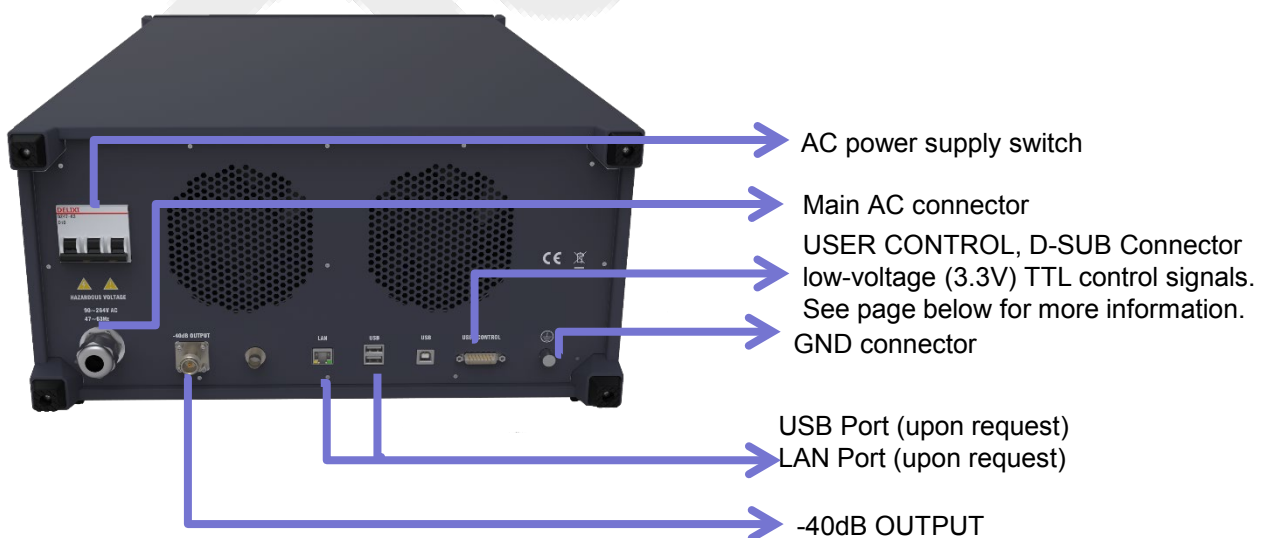


EMC Equipment User Manual

Front Panel



Rear Panel



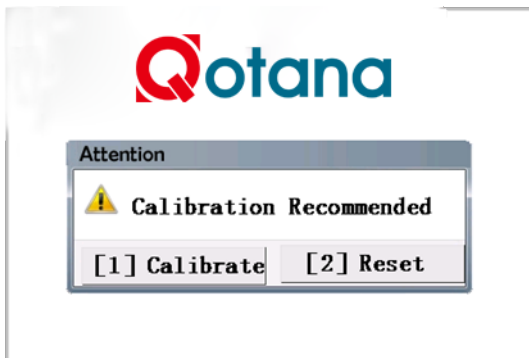
Front Panel LCD Screen Display

Switching On Instrument



Please follow the instructions on the front panel LCD screen after switching on the power. Press “1” on keypad to continue.

Self Calibration Screen

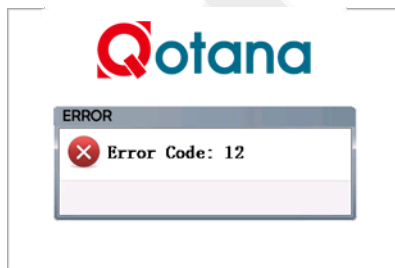


Calibration is may be recommended “[1] Calibrate” to execute instrument self calibration process.

“[2] Reset” to reboot the instrument.

*Please turn OFF RF input power, and terminate the RF output port while applying calibration function

Instrument Protection Alarms

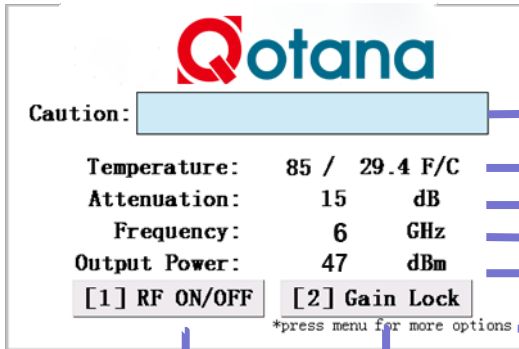


The front panel LCD screen will display the error code or error message when instrument self protection is triggered. Front panel alarm indicator will light up.

To eliminate the error code, press “RESET” on front panel keypad to reboot the instrument and clear the alarms.

If error code can not be eliminated after reboot, please contact sales@qotana.com.

Instrument Status Display Page



Indicates instrument RF output status. It will display:
Output is Ready to Turn on or RF Output is ON

Instrument temperature

RF output attenuation (change with adjustment knob)

RF input signal center frequency

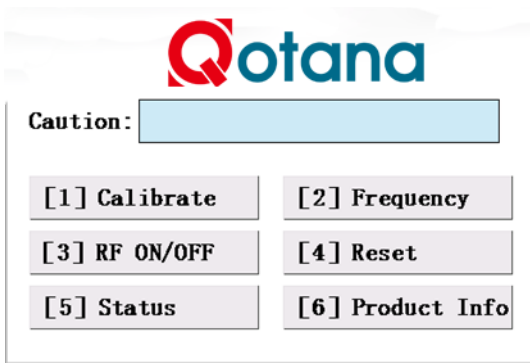
Instrument RF output power

Press "Menu" on keypad to enter instrument functions selection menu

User can set a constant gain for the unit. Equipment will automatically adjust the gain at certain frequency

Switches On or Off for instrument RF output port

Instrument Function Selection Page



To enter this function selection page, press "Menu" on front panel keypad while the instrument is showing the status page.

Press the corresponding number on front panel keypad to select:

"[1] Calibrate" calibrates the instruments.

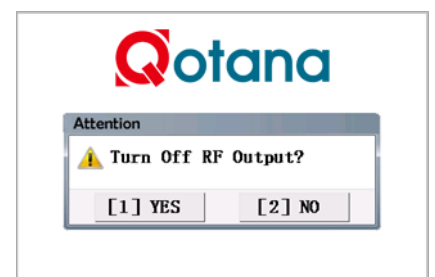
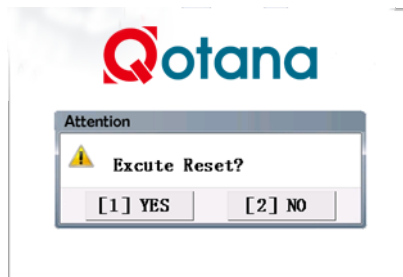
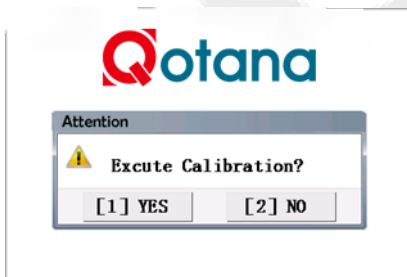
"[2] Frequency" enters RF input signal center frequency.

"[3] RF ON/OFF" switches the RF output port on or off.

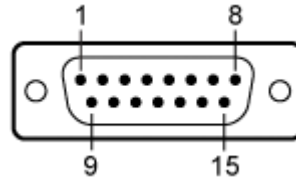
"[4] Reset" Restarts the instrument (Turns RF output off)

"[5] Status" enters instrument status display page.

"[6] Product Info" displays product part number and serial number



All action functions will ask for confirming execution when selected from function selection menu.

User Control Connector on Rear Panel


Pin #	Name	Function	Initial State	Description	Applied
1	Reset	Control		Resets PA when logic <u>LOW</u> is applied and released	Yes
2	Driver Disable	Control	LOW	Applying logic <u>HIGH</u> disables driver of amplifiers	Yes
3	Drain Disable	Control	LOW	Applying logic <u>HIGH</u> disables drain of amplifiers	Yes
4	RF IN Over	Indicator	LOW	Pin will be latched to logic <u>HIGH</u> when input signal is over limit	No
5	Temp Over	Indicator	LOW	Pin will be latched to logic <u>HIGH</u> when amplifier is driven over temperature	Yes
6	Current Over	Indicator	LOW	Pin will be latched to logic <u>HIGH</u> when drain current limit is reached	Yes
7	ID Imbalance	Indicator	LOW	Pin will be latched to logic <u>HIGH</u> when an imbalance in the drain current of the combining branches occurs	Yes
8	PA input power	Indicator		PA input power is represented by voltage	No
9	PA output power	Indicator		PA output power is represented by voltage	No
10	PA output reflection power	Indicator		PA output reflection power is represented by voltage	No
11	VSWR	Indicator	LOW	Pin will be latched to logic <u>HIGH</u> when output reflection is over limit	No
13	+5V	Power Supply	+5V	+5V DC is supplied for reference	Yes
14	GND	Ground	GND	Ground	Yes
15	GND	Ground	GND	Ground	Yes

HIGH/LOW voltages are standard TTL signals:
 0.0V-0.8V = LOW
 2V-5V = HIGH

QOTANA TECHNOLOGIES and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice. Visit www.qotana.com for additional data sheets and product information.