



# T&C

Power Conversion

# 0113S RF POWER SOURCE

T&C POWER CONVERSION

**120 Watts RF Power at 13.56 MHz for Industrial and Laboratory Applications.**

**FEATURING:**

- **13.56 MHz up to 120 Watts in peak power**
- **Low harmonic level at 100W, better than -50 dBc any harmonic**
- **Measuring forward, reflected and power VSWR simultaneously**
- **Back Panel Control & Monitoring of all RF power Source functions. Data acquisition: Status Monitoring & Power Measurement via Analog Port**
- **AGC Power Leveling: Output Power Control to better than  $\pm 1.5W$  of set value.**
- **Pulse operation in MGC/Burst mode**



*RF Power Source  
Front Panel view*

RF Power Source Model 0113S is a robust source of RF power for laser modulation, plasma generation, general laboratory and general industrial applications. Featuring leading edge solid state design for all generator stages and a built-in crystal oscillator at 13.56 MHz, it provides everything for a complete and reliable, controlled RF power delivery system. It reflects the T&C ongoing commitment to provide RF power products of the highest quality, incorporating the current requirements for complete remote control and data acquisition features.

### OPERATION

The 0113S produces 120W of RF power at a frequency of 13.56 MHz, with low harmonic distortion. Calibrated into a 50 Ohm Load and accurate when unit operates into matched load. Outside of matched condition, the model 0113S power measurement system provides an accurate reading of VSWR. High level VSWR is also monitored for pro-

tection of output stage and is set for 50W limit. Rear panel LED indicators are standard for RF ON and AC ON.

The forced-air cooling system and the internal power supply are designed to permit operation over a wide range of temperature. The rear panel AC line switch is selectable for either 120 VAC or 240 VAC operation.

### OUTPUT PROTECTION

0113S is protected by its internal monitoring system for 120 Watts of total Forward Power and 50W of Reflected Power. This will protect the RF power source output stage from extreme mismatch at the Output.

### GENERAL

T&C generators are designed to be reliable, compact and light in weight. The use of conservatively rated components ensures high reliability and eliminates the need for periodic retuning.

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# 0113S RF Power Source Specifications



## Class Of Operation

Class B

## Frequency Of Operation

13.56 MHz

## Frequency Stability

0.005% or better

## RF Power Output

120 Watts into 50 Ohm nominal

## Operation as amplifier. Contact T&C for further details.

**Output as amplifier in MGC/Burst Mode**  
0 dBm IN, scale of 5V (1 or 10V) CTL IN  
pin 5  
120W +/-2W

NOTE! Scale for MGC is not linear.

## RF Input Drive for AGC

Recommended +0 to +3 dBm for the best operation

## Input Drive Source(amplifier)

Signal or function generator, analog computer input capable of up to 2 V<sub>p-p</sub> @ 50 Ohm

## Internal RF Source

Crystal oscillator at 13.56 MHz

## Input and Output Impedance

50 Ohm

## IN / OUT VSWR

1.2:1 max - input

3:1 max - output

## Output VSWR Protection

50 Watts max reflected power limit. Automatic, limits typically within 0.5 ms after reverse power reaches 50 Watts or power amplifier current preset limit.

## Harmonic Level @ 100W

Better than -50 dBc for any harmonic.

## Spurious Output

- 55 dBm equivalent noise level generated by internal circuits

## Output Blanking/Pulsing

For pulsed applications, T&C amplifiers and generators offer blanking of the output signal for minimum noise RF spectrum. Less than 1µs Rise/Fall time

## Dynamic Power Range

1 to 120W, settings within +/- 2W  
NOTE: 0 to more than 120W

## Output Control Interface (Communications)

SubD 25 Analog I/O .

## Power Monitor Scale

User selectable levels down to 1 watt (within the available Scale) within tenths of watt accuracy.

Available scale:  
5V=120W

## Pulse Specifications

Pulse Width from 2 µs to continues, user defined.

## RF Power Margin

(Open Loop Max Power/Rated Power)-1\*100  
20 %

## RF Connector

OUTPUT N Female  
Rear Panel

## AC Power Connection

IEC Standard Power Entry

## AC Circuit Protection

Internally fused on the main DC Power Supply, 10A.

## AC Input Current (RMS)

**RF Out 100W:**

100 to 120 VAC - max. I = 6.0 A

200 to 240 VAC - max. I = 3.0 A

## Cooling

Forced air, temperature controlled, heatsink temperature monitored for equipment safety at 70C limit.

## Dimensions

H135 mm x W211 mm x L325 mm  
( 5.3" x 8.3" x 12.8" )

## Weight

5.6 kg, (12.5 lbs)

## Panels

**Front:** blank panel, air intake.

**Marking:** company name, product number.

**Back:** air exhaust.

Hardware location for RF OUT, AC Input Receptacle, AC Switch and Indicators, Fan Guard, Safety Ground Stud, Analog Communication Port DB25.

**Markings:** safety labels, GND and AC Line Table, Serial Number Label.

## Mounting

Half Rack, 3U high.

Optional: Rack Mount Kit, Adapter Kit, Coupling Screws.

## Environmental conditions

**Temp.:** 0° to 40° C ambient

**Humidity:** 80%

Equipment intended for ISM applications in laboratory and light industrial environment.

## T&C Power Conversion, Inc.

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Rev. A, November, 2009