iSPA641

RF Synthesizer/Amplifier
(Preliminary)

0914

The iSPA641 is a programmable frequency synthesizer and power amplifier. It is ideally suited for driving Isomet Germanium and Quartz acousto-optic modulators where stable programmable frequency tuning is required. This driver includes a micro-controller and high speed synthesizer. Initial set-up and diagnostics are made via a USB interface. Once programmed, 1 of 16 output frequencies are selected from high speed dedicated external inputs. An analog modulation input signal provides control the output power level. A separate digital gate input provides On:Off control.

Diagnostics include:
- RF power level indication
- AOM and driver temperature (depends on AOM model)
- DC supply voltage and current

Protection includes:
- Over temperature shut down
- DC supply over-voltage clamp
- External thermal interlock.

The iSPA641 operates from a +24V or +28Vdc supply. LED's indicate the status of the thermal interlocks, DC supply and RF output activity. Heatsinking is by an integral water cooled base. Basic operating software with Windows GUI is provided.

SPECIFICATION

Power Output (Total)	:	> 180 Watts Max CW (24V supply)
Load Impedance	:	50Ω
Harmonic Distortion	:	>20dB below fundamental
1dB Frequency range	:	Programmable 35-55 MHz
Frequency stability	:	± 25ppm
Frequency accuracy	:	± 25ppm
Frequency programming resolution	:	1Hz using Isomet GUI
Frequency step change settling time	:	< 100nsec
Power Level Control	:	0.0V OFF to 5.0V fully ON
On:Off Gate Control	:	LVTTL Compatible (> 2.0V = RF On)
RF ON to OFF Ratio	:	37dB below full power
Output Switching Speed	:	< 400/100ns Rise/Fall, 0 to 150 Watts
RF Output	:	TNC Connector
Interlock enable	:	Binder 719, 3-pin (connect to AO)
Power Supply	:	+24V to +28Vdc, 0.25% regulation, < 8A
Power Input	:	Feed through filter solder tag
Temperature Range	:	0º to 50ºC, Thermal shutdown if exceeded Integral water-cooled heatsink is provided.

OUTLINE DRAWING

RF Output
TNC

RF Out   **INT**

220

25-way male
D-type

+24Vdc 0V

**RF DRIVER
MODEL :
S/N :**

CTRL

ISOMET

71

120

240

INTERLOCK Input
Binder 719 Series
Male Socket

G1/8" Thread with
Legris Push-in Water Fittings
LF3101-08-10

5

230

Mounting Holes (4 places)
M5 Thread

20

Water cooled Heatsink
Must not exceed 50deg C
Use Corrosion Inhibitor in coolant

80

Driver Amplifier Outline

Dimensions : mm
1" = 25.4mm

Underside View
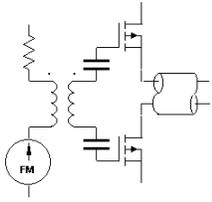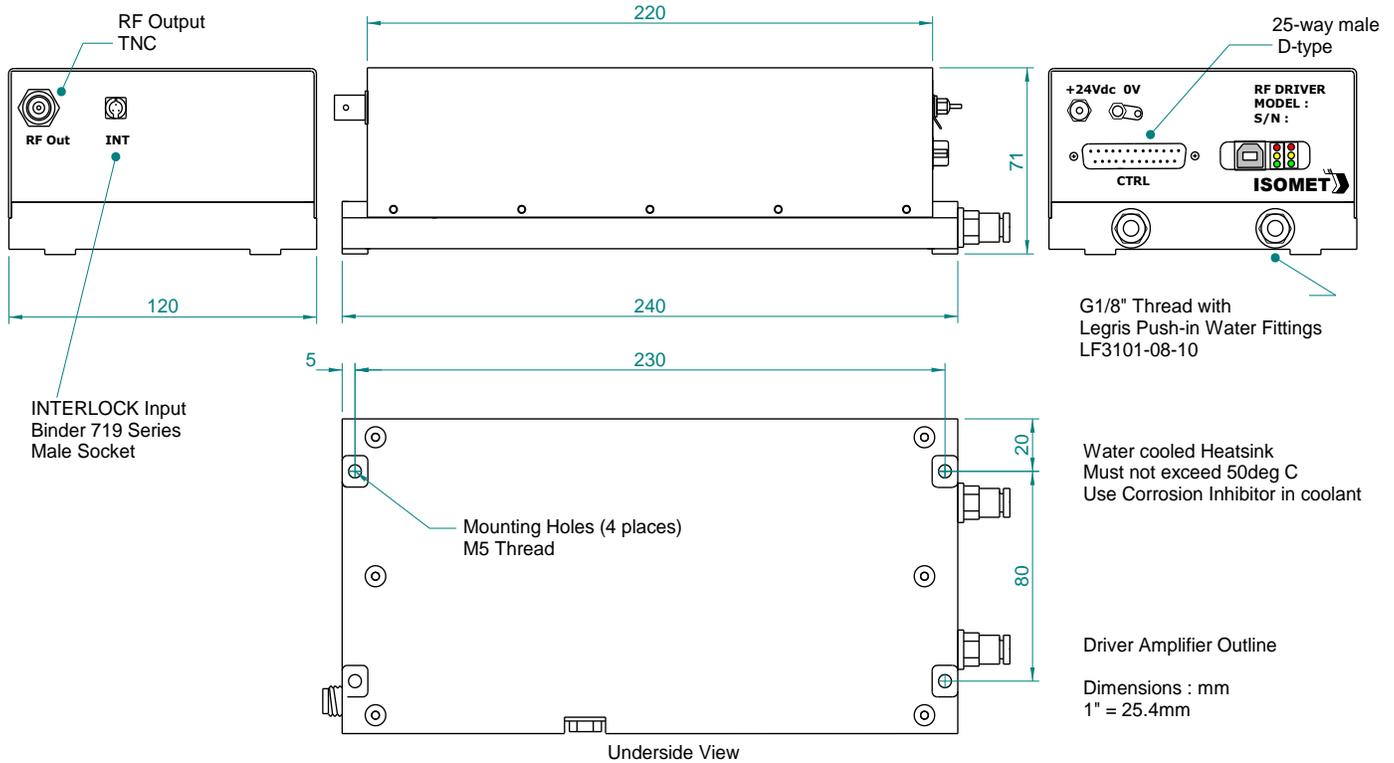
Control signals 25 pin 'D' type Male

Function		Sig Pin	Rtn Pin
Register address P3	In	1	14
Register address P2	In	2	15
Register address P1	In	3	16
Register address P0	In	4	17
Reserved	In	5	18
Mod'n level	In	6	19
-Gate On:Off (-OHL)	In	7	20
STATUS	Out	8	21
Reserved		9	22
Reserved		10	23
Reserved		11	24
UdClk	In	12	25
- RESET	In	13	25