

iVSA050-2-90 (BR)

Tuneable and RF Driver (PRELIMINARY)



0426

The iVSA050 is a dual output tuneable RF driver comprising a high-speed ADC, DDS and pair of class-A power amplifiers. It is configured to drive *ISOMET* beam steered Acousto-Optic deflectors with ~180Watts total RF power across a frequency band of 40 to 60MHz.

The design uniquely combines the simplicity of VCO control with the stability and functionality of a digital synthesiser. The user interface includes a 0 to +10V frequency tuning input and a 0 to +10V amplitude modulation input. The frequency range and scaling are configurable within the bandwidth of the power amplifiers. Additional optional control signals are provided via 26way D-type and SMB.

Each tuned frequency can be modified by a pre-programmed LUT compensation function. This function automatically applies AO device specific phase and amplitude calibration data to the outputs. Active phase control across the multiple RF outputs is ideal for driving Isomet (acoustic) beam steered AO deflectors. Programmable functions, firmware updates, LUT, maximum power and ancillary IO functions are download via mico-USB or RS485 and stored in non-volatile EEPROM. Once programmed, the driver will start and operate without connection to a host PC.

SPECIFICATIONS

Oscillator Type:	Voltage controlled DDS synthesizer
Analog input sampling rate	~ 2.5MHz
Power Out:	>90 Watts CW per output into 50Ω
Load VSWR:	< 3:1 for best results.
Output RF Power Variation vs. Freq':	≤ 1 dB (with no LUT applied)
Spurious Outputs:	Harmonics > 20dB below fundamental
Amplifier 3dB power bandwidth:	35-65MHz
Tuning Range:	40-60MHz typical, user programable.
Tuning Voltage, (J11) SMB connector:	0 to 10V for user programmed tuning range.
Tuning Voltage Impedance:	1Kohm (nominal), DC coupled.
Frequency Stability:	± 5KHz (analog input dependent)
Sweep response, large signal	>300KHz
Modulation Input, (J10) SMB connector:	0-10V for 100% depth of modulation
Input Impedance:	1Kohm (nominal), DC coupled.
ON-OFF Ratio:	> 40dB
Amplitude rise/fall time	< 300/100ns at 75W
DC Power Input:	+24Vdc at 16A regulated to ±0.25% Filtered screw terminal.
Temperature Range:	0°C to 60°C ambient. Temperature at mounting face must not exceed 70°C. Water cooling available.
*Options: multiple combinations possible:	
- BR:	Brass water cooled heatsink
- Y / - V:	0-1V / 0-5V analog input range

Refer application note AN1906 regarding Coolant Specification

ALL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

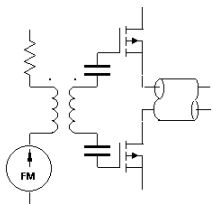
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Quality Assured.

In-house: RF & Digital design
Software Development
OEM manufacture



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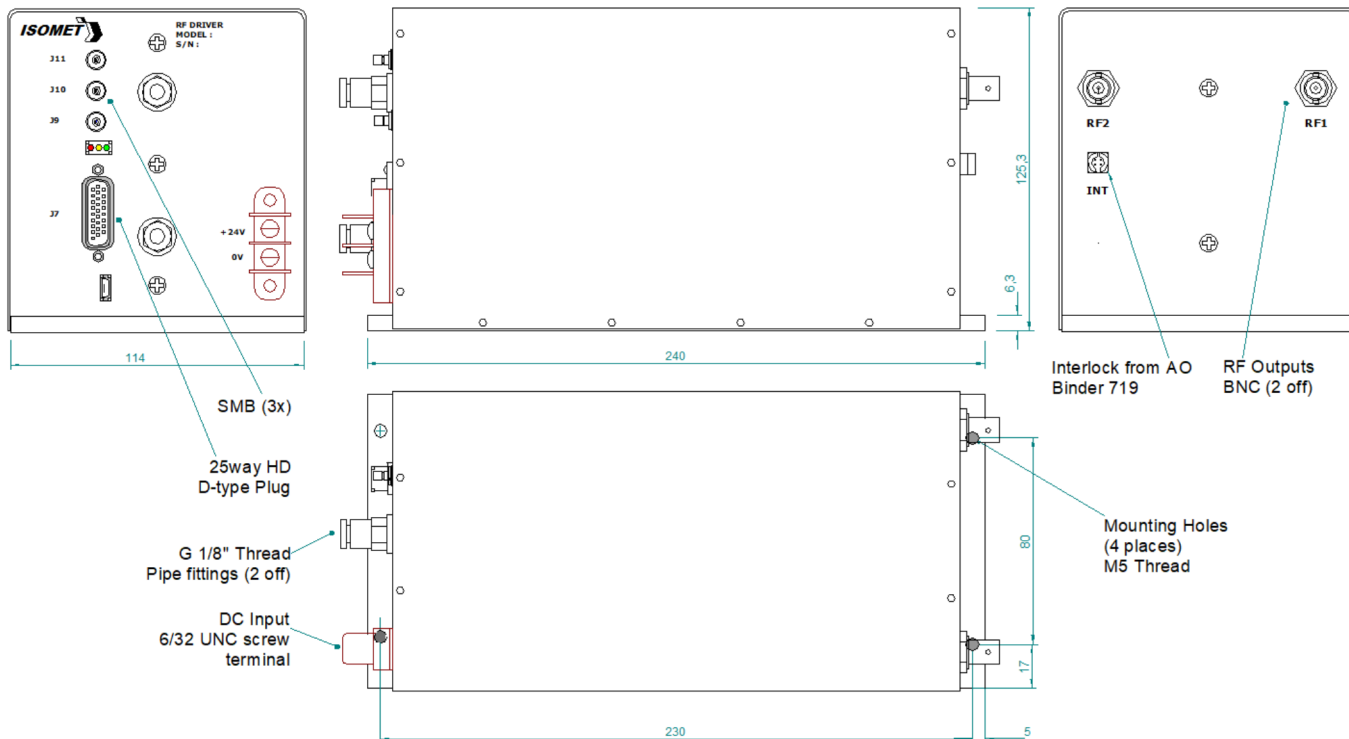
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OUTLINE DRAWING

Water cooled.



Control signals: (J7) 26-pin high density 'D' type Male

All signals optional except GATE

Ext RF MOD1, (0-10V)
Ext RF MOD2, (0-10V)
Reset (TTL)
Profile 0 (TTL)
Profile 1 (TTL)
Profile 2 (TTL)
Profile 3 (TTL)
GPIO 0 (TTL)
GPIO 1 (TTL)
GPIO 2 (TTL)
GATE (TTL)
RS485

MUST BE APPLIED

Connector: INT, Binder 719 3pin Male
Interlock enable, (connect to AO)

Control signal: (J9) SMB
J9, Configurable multi-function IO

As input -
As output -

Connector pin

: +sig pn1, -rtn pn3 (Auxiliary control)
: +sig pn2, -rtn pn3 (Auxiliary control)
: +sig pn4, -rtn pn7 (Active high RESET)
: +sig pn5, -rtn pn7 (DDS register select)
: +sig pn6, -rtn pn7 (DDS register select)
: +sig pn8, -rtn pn7 (DDS register select)
: +sig pn9, -rtn pn7 (DDS register select)
: +sig pn11, -rtn pn13 (user programmable IO)
: +sig pn12, -rtn pn13 (user programmable IO)
: +sig pn16, -rtn pn13 (user programmable IO)
: **+sig pn17, -rtn pn18 (Active high ENABLE)**
: +sig pns 22,23,25,26, -rtn pns 21,24

: +sig pn1, -sig pn2 (Closed = on)

hold frequency
sync output

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