Gooch & Housego
ENABLING PHOTONIC TECHNOLOGIES

AODF DUAL DRIVER
Dual 15 W Output

Gooch & Housego's dual 15 W output RF Driver provides two independent RF channels with a fast parallel interface as well as USB controllability.

Ideally suited for controlling a two element phased array acousto-optic (AO) deflector, the driver can also be used to drive two single element AO deflectors for two dimensional scanning. The Dual Driver has additional flexibility for controlling AO tunable filters. With its arbitrary waveform playback capability, multiple wavelengths can be simultaneously diffracted by tunable filters and multiple beam spots can be generated by AO deflectors.

Two independent 15 W RF drivers are housed in a compact form factor with a fast parallel frequency programming interface. Remote control over a USB interface through an intuitive command set is also available. Dual amplitude and relative phase control inputs are included on the rear panel with the parallel interface connectors. The default, power-on is Stand-alone mode, not requiring PC control; connecting the USB connection enables a Host PC mode. The waveform playback mode is also available for user-defined application specific waveforms, e.g. custom frequency chirp or FM modulations.

The Dual Driver is available in two frequency bands, and each unit includes a monitor output that covers the entire 20-450 MHz frequency band. Driver functionality can be re-configured over the USB interface; for further details please contact us.

Front and rear view

Key Features
- Two 15 W independent RF outputs
- Parallel interface for frequency programming
- USB interface and compact command set
- 20-450 MHz in three bands
  - Low band 20-150 MHz
  - Mid band 40- 260 MHz
  - High band 140-450 MHz
- Re-configurable functionality
- Playback mode for custom waveforms
- Amplitude and phase modulation
- 10 spare definable control inputs

Key Benefits
- Dual RF outputs
- Compact form factor
- Host PC control or fast interface
- Functional re-configurability

Applications
- OEM AODF/AOTF systems
- Via drilling/micro-machining systems
- Optical inspection systems

97-0600X-XX

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General Specifications

Parameter		Min	Max	Units
Output frequency range:	low band model	20	150	
	mid band model	40	260	MHz
	high band model	140	450	
Rated RF output power[1,9]		15		W
RF power flatness[2] across frequency band, nominal power			+/- 0.5	dB
2nd harmonic distortion at rated RF output power		-25		dBc
Non-harmonic spurious free dynamic range		-50		dBc
Standard output waveform[3]		Sinusoid		n/a
Independent RF outputs			2	n/a
Number of programmable tones per output[4]		5		n/a
Frequency resolution[5]		1		kHz
Frequency stability, 15°C to 50°C ambient temperature			+/- 0.5	ppm
Frequency settling time after latch signal assertion[6]			200	nS
Frequency update rate (parallel interface)			5	MHz
Amplitude control (analog input) range, each output channel[7]		40		dB
Amplitude blanking		60		dB
Relative phase control (analog input) range, relative[8]		0	+/- 180	Deg.
Amplitude/phase control modulation bandwidth			5	MHz
DC voltage input range[9]		24	28	V
DC total system power			100	W
Playback mode waveform file size (per output, 1 GHz clock)			300 k	Samples
Operating temperature range (ambient)		15	50	°C

All specifications at $T_{ambient} = 22$ °C

1 Rated amplifier output level, requires adequate heatsinking. Contact us for details.

2 Power flatness set internally at factory. User compensation array can be loaded over USB interface.

3 Default output waveform is sinusoidal. User-defined waveforms loaded in playback mode.

4 Standard firmware build is 1 frequency tone per output port.

5 Frequency tuning word (FTW) is 20 bits.

6 Total latency time from assertion of latch signal to appearance of new frequency at RF output (FTW pre-loaded at interface).

7 Output power linear with input control voltage.

8 Sets phase of output #2 relative to output #1, defined only for identical programmed frequencies on both outputs.

9 Rated output power at 28 VDC.

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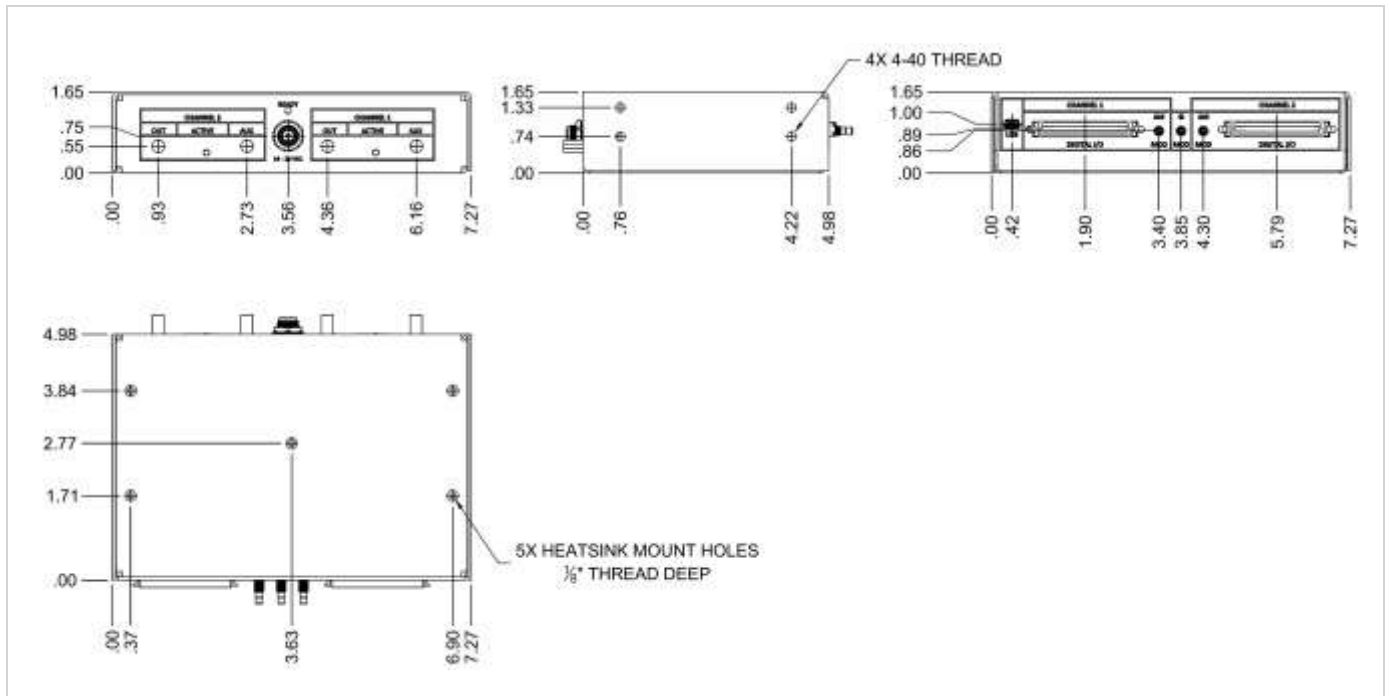Preliminary Product Datasheet - Revision No. 2.4   June 2017

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Command Set (Host PC Mode via USB interface)

Command	Action
freq X, YYY	Sets output frequency YYY (MHz) on channel X (1 or 2)
amp X, YY	Sets output power YY (00 – 99) on channel X (1 or 2)
pha YYY	Sets relative phase to YYY (0 to 360 degrees)
latch X	Latch command for channel X, latches the pre-loaded FTW
soft on	Allows USB control of output power levels
soft off	Reverts system to hardware mode, requires analog amplitude control

Interface Description

Interface Definition	Connector	Levels	Input / Output Assignments
Parallel interface, Ch #1, #2	MDR Mini-D 68 pin (x2)	TTL	Frequency word [19:0], spares (5), latch In (1), trigger in (1), blank (1), sync (1), status out (1)
Amplitude modulation inputs	SMB (x2)	0 – 1V	Ch #1, Ch #2
Phase modulation input	SMB (x1)	0 – 1V	Relative phase between channels
USB	USB Mini-B	USB	USB 2.0 Interface (mass storage)
Main RF output	SMA (x2)	RF Output	Main RF output ports, per model
Aux RF output	SMA (x2)	Aux Output	Auxiliary RF output, 20 to 450MHz
Main DC power input	2mm Power Jack	24 – 28VDC	Main DC power input

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Outline Drawings

For further information

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