

AQS1004-FC-x

RF Driver/Amplifier with Soft-Start



0312

The AQS1004 is a combined waveform generator, RF oscillator, and 4W power amplifier in a single compact unit.

This driver features Isomet's "Soft-Start" RF amplitude control and is well suited to driving acousto-optic Q-switches such as the Isomet Q1080 and Q1087 series. The Soft-Start technique applies a mix of digital and analog modulation signals to control the RF amplitude. Almost any envelope or ramp shape can be programmed. The output timing and pulse widths are determined by an internal PLL waveform generator or by user supplied external signal(s).

Driver protection includes opto-isolated digital inputs, an internal over temperature interlock, and DC supply over-voltage clamp diode. An external interlock (for connection to the AO device thermal switch) and RF output enable inputs are also provided.

The AQS1004 will operate from a +24V to +28Vdc supply. Output status bits are supplemented by LED's, indicating the operating condition of the driver and associated Q-switch. The maximum RF output power is adjusted by means of a pre-set potentiometer.

Model Selection:

	<u>Freq</u>	<u>Option</u>
AQS1004 -	FC	x
24.0MHz	24	
27.12MHz	27	
40.68MHz	40	
80.0MHz	80	

SPECIFICATION

Power Output	:	> 4 Watts Max CW (28V supply) > 3 Watts Max. CW (24V supply)
Load Impedance	:	50Ω
Harmonic Distortion	:	>20dB below fundamental
Mismatch Tolerance	:	The Driver will not oscillate
Centre Frequency fc	:	As requested
Frequency stability	:	± 0.003%
Frequency accuracy	:	± 0.005%
Modulation Control Voltages	:	
Digital	:	Opto-isolated 15mA max.
Analog	:	0.0 to 4.0V, 300ohm i/p impedance (nominal)
RF On/off Ratio	:	40dB below full power
Output Switching Speed	:	< 0.05μs Rise/ < 0.05μs Fall, 0 to 4 Watts
Interlock (Input)	:	Open OFF, closed ON
Power Supply	:	+24V to +28Vdc, 0.5% regulation, < 1 A
Temperature Range	:	0° to 60°C, Thermal Shutdown Interlock

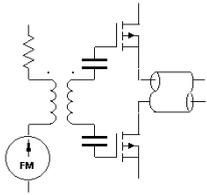
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Quality Assured.
In-house: RF & Digital design
Software Development
OEM manufacture



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Connections

RF Output : BNC

Control signals : 25 pin 'D' type Male

Pin	Signal	Pin	Signal
1	AOQ Thermal Interlock Input	14	Analog Input
2	Internal/External Rep Rate Select	15	Analog Output
3	External Rep Rate Input	16	Isolated 0V input, (opto supply)
4	Internal/External Pulse Width Select	17	Gnd
5	Nc	18	Isolated 0V input, (opto supply)
6	Isolated +5Vdc input, (opto supply)*	19	Gnd
7	+5Vdc output *	20	Isolated 0V input, (opto supply)
8	Nc	21	Isolated 0V input, (opto supply)
9	Slope/Modulation Start	22	Isolated 0V input, (opto supply)
10	Status Bit 1	23	Modulation in Slope Enable
11	Status Bit 2	24	Reset
12	Status Bit 3	25	RF Enable
13	Status Bit 4		

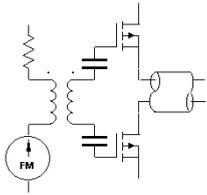
* Internal 5V and Isolated 5V supplies can be linked at the connector

User Controls

Function	Adjustment	Specification
Rep Rate	8-bit via 2 Hex Rotary Switches plus Range Select Switch	1 – 120KHz
Pulse Width	8-bit via 2 Hex Rotary Switches	1 – 16.5 usec
RF On/Off RF CW/Modulated Rep-Range Select (2) Slope-Range Select	DIL 6-way Lever Switch	Select Function
Waveform Shape	1 of 16 via Hex Rotary Switch	EPROM stored
Shape Period	24 turn potentiometer plus Range Select Switch	18usec – 13.7msec
RF Power	24 turn potentiometer	< 25% - 100%

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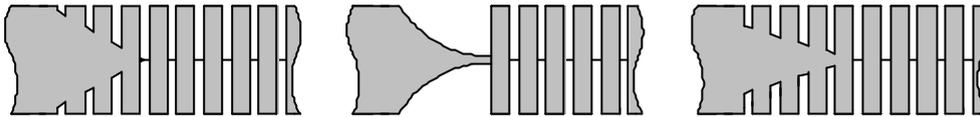
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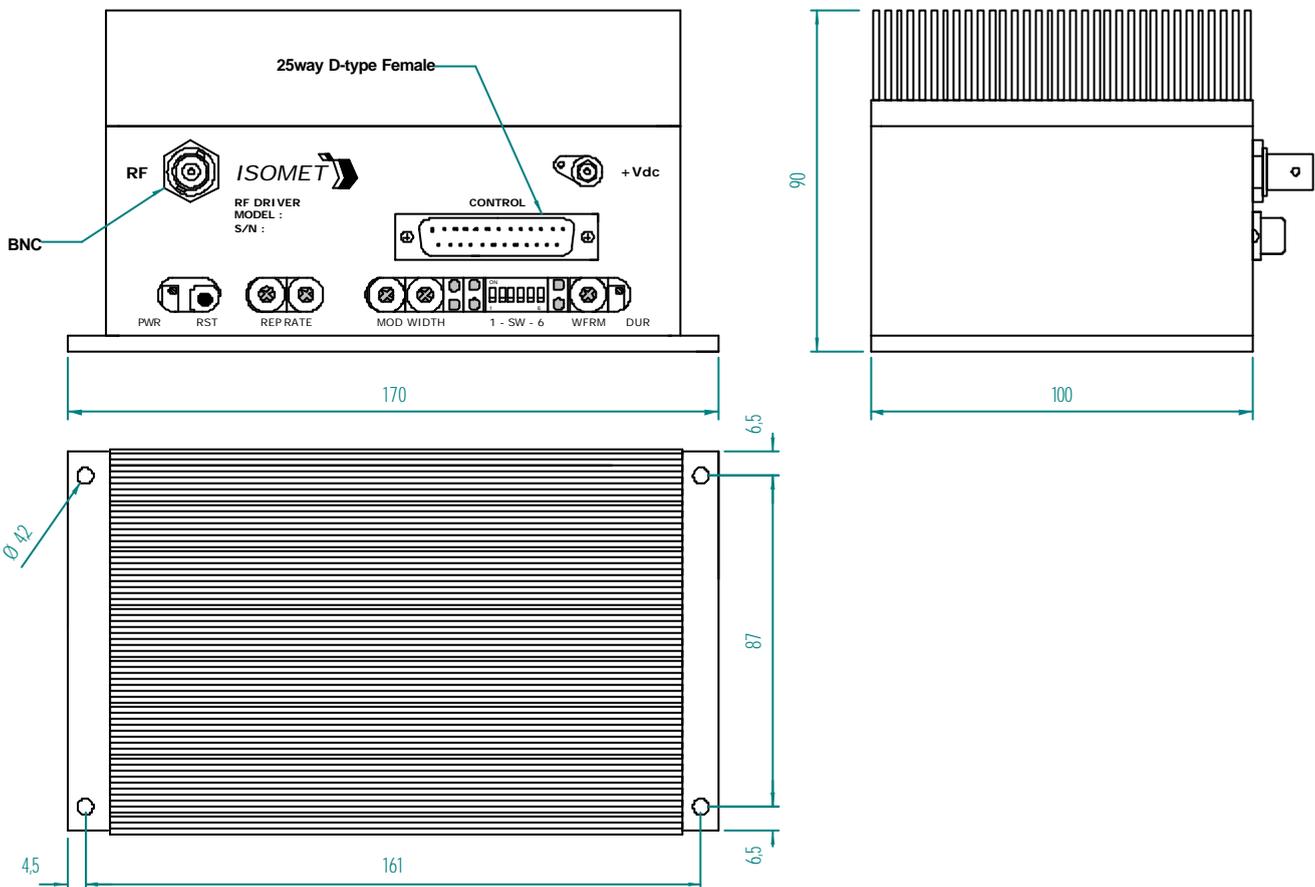


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Typical Output RF Envelopes



Outline Drawing



Dimensions : mm

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