

RF Drivers - Fixed Frequency Drivers -



OEM Version



Laboratory Version

Instruction for Fixed Frequency RF Drivers

Brimrose offers a large variety of RF Drivers compatible with our Acousto-Optic components. The following instructions will help you choose and pick the proper fixed frequency driver for your application. If there are any questions please contact Brimrose Corporation of America.

Fixed Frequency Driver Guide:

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Applications

Frequency

Modulation

RF Power

Options

A-Modulator
B-Deflector
C-Combination modulator
D-Dual or multiple frequencies
E-Multiple channel unit
F-Optical frequency shifter
G-Custom driver
H-Q-switch
I-Tunable filter

10MHz-1700MHz
 X= customer specified

A-CW
B1-Analog amplitude
B2-Digital amplitude
C1-Analog frequency
C2-Digital frequency
D-Dual fixed frequency
S-Single sideband
*****-Any of the above features may be combined.

Fo-Fixed optimized to cell's performance
Vo-Variable optimized to cell's performance
Fn-Fixed, 'n' watts nominal
Vn-Variable from 0.1'n' to 'n' watts

DC-Custom supplied DC 'n' voltage
B-BNC connectors in place of SMAs
E-200-250VAC 50-400Hz
M-O.E.M. or customer specified enclosure or outline

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Fixed Frequency Driver Specifications

Types	Laboratory Version	OEM Version
Model #	FFA-____*-(B1 or B2)-F____**-ER50	
Carrier Frequency	____MHz	
Frequency Control	Quartz crystal referenced phase locked loop	
Harmonic Content	≤ -15 dBc	
Frequency Stability	0.0015% minimum after 15 minute warm-up	
Output Power **	Power is optimized for peak efficiency with supplied AO device.	
Modulation B1 Modulation Input	Analog Amplitude; DC-50 MHz 0 - 1 V, 50 Ω input impedance	
Modulation B2 Modulation Input	TTL Compatible; DC-50 MHz 0 - 5 V, 330 Ω input impedance	
Operating Power	90-240 VAC +/-10% 50-60Hz, 55W max.	+24 VDC, 1A
Enclosure	The unit will be packaged in a 7.5 in wide by 3.5 in high by 8.75 in deep instrument case. The rear panel heat sink increases depth to 10.5 inch max. Size is exclusive of connectors.	OEM Enclosure. The unit will be packaged in a 4 in wide by 1.6 high by 4 in deep instrument case. Size is exclusive of connectors.
Environmental	Nominal Laboratory conditions: Max ambient temperature - +35 deg C; the unit is not sealed against moisture or condensing humidity. A detachable AC line cord is provided.	Max temperature: 0-35 deg C ambient. Mounting flange must be heat sunk. Temperature at the mounting flange must not exceed 60 deg C.
Option ER50	50 dB amplitude extinction ratio for B2 modulations. System extinction ratio will be ~ 43 dB.	

* Carrier Frequency is defined by AO Modulator

** Output Power to match the AOM requirement

If there are any questions please contact Brimrose at office@brimrose.com.

RF Drivers - Variable Frequency Drivers -

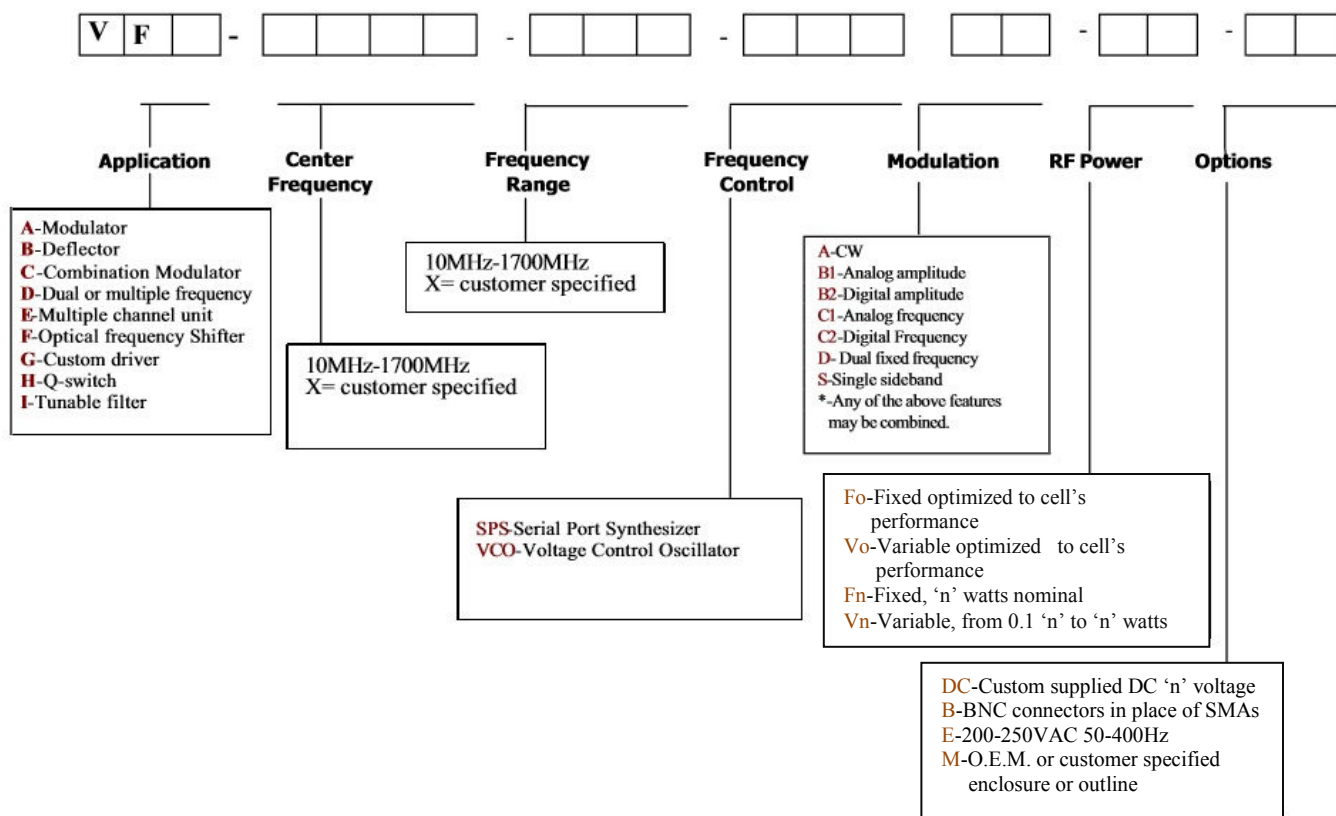


Laboratory Version

Instruction for Variable Frequency RF Drivers

Brimrose offers a large variety of RF Drivers compatible with our Acousto-Optic components. The following instructions will help you choose and pick the proper variable frequency driver for your application. If there are any questions please contact Brimrose Corporation of America.

Variable Frequency Driver Guide:



Brimrose Corporation of America

Variable Frequency Driver Specifications

Driver Model #	VFB-XX-YY-V-A-F2	VFE-XX-YY-V-B1-F2/2Ch
Frequency Range	Corresponding to the AO Device Requirements	Matching the 2-D AOD controlled by application of external tuning voltage
Tuning Voltage	0 - 10 V analog (-2 to +20 VDC no damage)	
Frequency Stability	1% nominal after 15 minute warm-up, constant temperature	
Scanning Speed	50 micro sec from min to max frequency with step change in tuning voltage	
Output Power	Power is optimized for peak efficiency with supplied AO device.	
Modulation Type	Analog Amplitude or TTL Compatible (optional) DC-50 MHz	
Modulation Input	50 Ω ; 0-1 V or 330 Ω ; 0-5 V	
Operating Power	90-240 VAC \pm 25% 50-60 Hz	
Enclosure	The unit will be packaged in a 190 mm (7.5 inch) wide by 100 mm (4 inch) high by 220 mm (8.75 inch) deep instrument case. The rear panel heat sink increases the depth to 240 mm (9.75 inches) maximum. The size is exclusive of connectors. A detachable AC line cord and RF cable are provided.	
Environmental	Nominal Laboratory Conditions: The maximum temperature is +35° C. The unit is not sealed against moisture or condensing humidity.	

In addition to the standard product shown above, customer configurations are available for specialized applications.

If there are any questions please contact Brimrose at office@brimrose.com.

RF Drivers - DS-1 AOTF Controller -

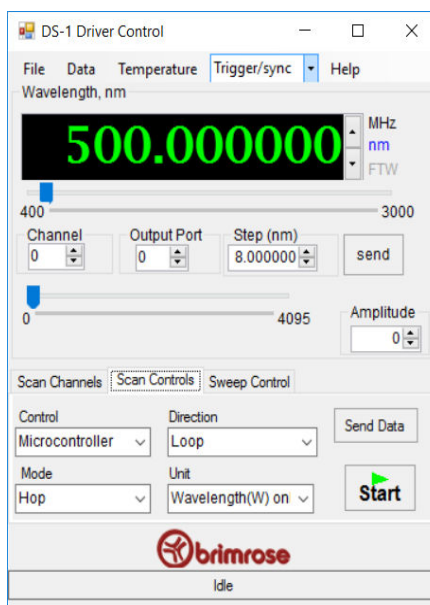


KEY FEATURES

- Control of AO operation in either frequency or wavelength domain
- Wavelength-frequency calibration by customer allowed
- Three scan modes (stop, loop, and bounce) for both sweep and hopping
- Control up to 4 RF output channels
- Sweep or hopping of more than one channel at the same time
- Minimum 8ns frequency sweep interval (8ns increment)
- Minimum 1ms frequency hopping interval
- Standard 1000 frequency hopping steps *
Up to 65000 steps upon customer's Request *
- Synchronization output signal during scan operation (option)
- External trigger input and sync output for frequency sweep/hopping (option)
- Customer accessible configuration file (including frequency and amplitude range control)

* For PC controlled frequency hopping.

DS-1 AOTF Controller



The DS-1 Model AOTF Controller is a high performance radio frequency generator. It provides fast frequency sweep using direct digital synthesizer incorporated into a self-contained case with AC power supply. A modular cable with a DB9 connector interface allows frequency control via the personal computer's serial port. USB connection can also be provided, instead of serial port connection.

Applications for this driver include AOTF wavelength controller for both TeO₂ and Quartz devices and level intensity output of incoherent or coherent light source at any wavelength with built-in feedback loop.

The synthesizer software provides frequency and amplitude control of the output RF signal when the synthesizer is connected to a PC's serial port. Operating systems of Windows 7/8/10 versions are supported. The program has an easy to use graphical interface for controlling the DS-1, which can control up to 4 channels of RF signal.

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DS-1 AOTF Controller Specifications

Model No.: DS1-__-__-A-M			
Parameter	Value	Unit	Note
Frequency Range	__ to __	MHz	To match AOTF or AO Device Frequency
Frequency Resolution	1	Hz	
Frequency Stability	+/- 25 optional +/-1	ppm	0 to 40°C, after 15 min warm-up
Output Power	2	Watt	50 ohm impedance
Total Harmonic	< 15	dBc	
Analog Modulation Input - B1	0 - 1	V	B1 or B2 must be added to the model number. If none, please place A.
Digital Modulation Input - B2	0 – 3.3	V	
Trigger Input	0 – 3.3	V	3.3V CMOS compatible
Sync Output	0 - 3	V	3.3V CMOS compatible
Minimum Interval	20ns for linear scan 40 µsec for random scan		
Computer Interface	USB		Serial Communication (COM on PC), ASCII command
Power Supply	+24.0 / 1	VDC / A	
RF Connector	-	SMA	
Option TRI-TRO	Trigger Input / Sync Output		
Enclosure Type	140mm W x 95mm H x 55mm D, OEM Enclosure. Max. temperature: 0-35° C ambient. Mounting flange must be heat sunked. Temperature at the mounting flange must not exceed 60°C.		

If there are any questions please contact Brimrose at office@brimrose.com.

SPF AO CONTROLLER UNIT

The SPF II Model AOTF Controller is a high performance radio frequency generator. It provides fast frequency sweep using direct digital synthesizer incorporated into a self-contained case with AC power supply. A modular cable with a DB9 connector interface allows frequency control via the personal computer's serial port. Applications for this driver include AOTF wavelength controller for both TeO₂ and Quartz devices and level intensity output of incoherent or coherent light source at any wavelength with built-in feedback loop. The synthesizer software provides frequency and amplitude control of the output RF signal when the synthesizer is connected to a PC's serial port. Operating systems of Windows 95/98/98SE/2000/XP versions are all supported. The program has an easy to use graphical interface for controlling the SPF II, which can control up to 4 channels of RF signal.

The features of this driver include

- Control of AO operation in either frequency or wavelength domain.
- Wavelength-frequency calibration by customer allowed.
- Three scan modes (stop, loop, and bounce) for both sweep and hopping.
- Control up to 4 RF output channels.
- Sweep or hopping of more than one channel at the same time.
- Minimum 8ns frequency sweep interval (8ns increment).
- Minimum 1ms frequency hopping interval.
- Standard 1000 frequency hopping steps*. Up to 65000 steps upon customer's request*.
- Synchronization output signal during scan operation (option).
- External trigger input for frequency sweep/hopping (option).
- Customer accessible configuration file (including frequency and amplitude range control)

* For PC controlled frequency hopping.

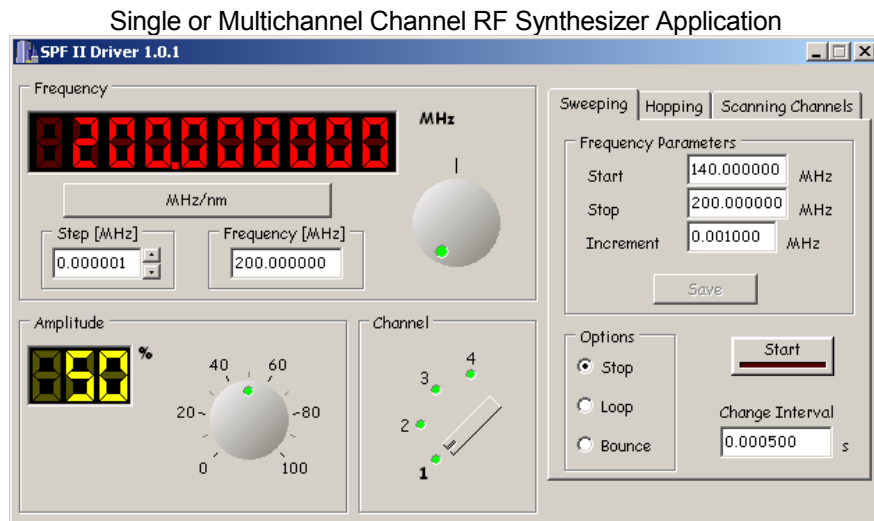
Computer Requirements

- PC Compatible Computer (Pentium 200MHz or Faster)
- Windows 95/98/98SE/2000/XP
- One Available RS-232 Port
- 10MB available Hard Drive Space

Software Provided Software Provided

1. A program written in C++ allows for frequency and timing control of the synthesizer when connected to a PC's serial port.

In this application the user can control the RF synthesizer's frequency and amplitude. The top left section of the main window displays the frequency. The user can change the RF frequency by typing the value in the edit box provided or by changing the knob position. The knob's position can be changed with the mouse or by pressing the arrow keys or page up/down keys. The arrow keys change the frequency by the step while the page up/down keys change by the step times 10.



The bottom left section is used to set the amplitude of the RF signal. The amplitude can be set by changing the knob position. The arrow keys change by 1% and the page up/down keys by 10%. The middle bottom section is used in the multichannel driver. When the software controls the single channel driver the rotary switch is disabled. The right section of the main window is used to specify parameters for the sweeping and hopping modes. In a multichannel version, the software allows to sweep or hop on multiple channels at a time.

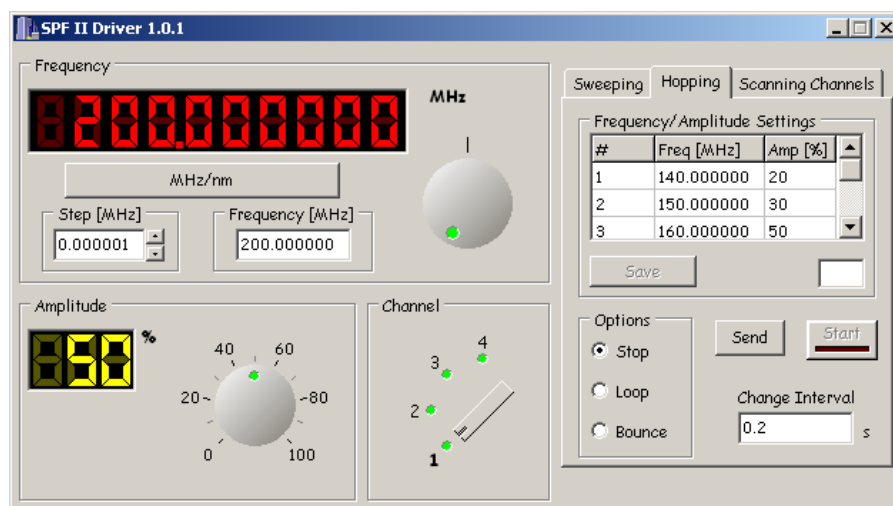
The additional options specify the way the sweep will be executed.

STOP - at the end of the range the sweeping will stop

LOOP - when the end of the range is reached the sweep starts over from the start frequency until the stop button is pressed.

BOUNCE - at the end of the range the sweep will start in the other direction towards the beginning of the range. When the beginning of the range is reached the sweep will start again. This sequence will be repeated until the stop button is pressed.

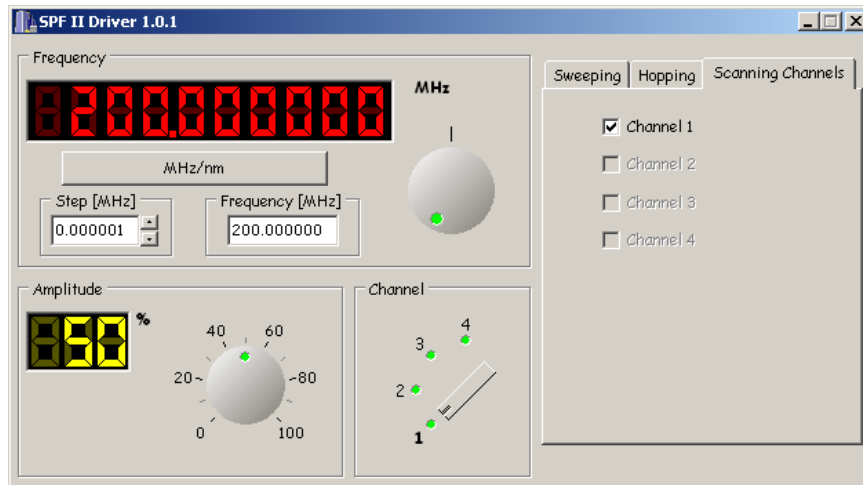
Interval specifies, in seconds, the gap between the consecutive frequency updates.



NOTE: Since Windows is not a real time operating system the time interval is the application time not a real time. It means that if the operating system schedules some time to execute other applications in the system the real time interval can be different then the specified.

The frequency hopping section provides the table for the frequency and amplitude values. The parameters change start with the first entry in the table. The maximum number of frequency-amplitude pairs is 10. As with the sweeping setting the RF signal parameters can be changed in STOP, LOOP or BOUND modes.

In multichannel type of drivers user can scan (sweep or hop) more than one channel at the same time, while keep the rest unchanged. This is done by uncheck those channels the user wants to keep a constant frequency and amplitude in the "Scanning Channels" tab. When the program is start, all available channels are set as scanning by the program.



The user can specify which channels to scan when the start button is clicked.

2. Direct access to the driver is also available using dynamic link library (upon request) to control the frequency and amplitude of RF output through the RS232 port.

Options

R.F. Modulation Options

A.M.: Analog Amplitude Modulation

A.S.K.: Amplitude Shift Keying or Digital Amplitude Modulation

F.M.: Analog Frequency Modulation

F.S.K.: Frequency Shift Keying or Digital Frequency Modulation

P.A.M.: Pulse Amplitude Modulation (internal or external pulse generator available)

Other Options

DCn: Customer Supplied DC "n" volts

B: BNC connectors in place of SMAs for RF output

E: 200-250 VAC 50-400 Hz power

M: O.E.M. or customer specified enclosure or outline

X,Y,Z: Customer specific option