



**NEOS TECHNOLOGIES**

A Gooch & Housego Company

**OPERATING MANUAL  
VOLTAGE CONTROLLED OSCILLATOR**

MODEL NUMBER:

**21XXX-YYY-ZASVCO-2CH**

DOCUMENT NUMBER: 51A18411

This Operating Manual is for use with Variable Frequency AOM Drivers with model numbers:

**XXX** = The Lower frequency of between 27 and 200 MHz

**YYY** = The Higher frequency of between 27 and 200 MHz

**Z** = 1 or 2 Watts output power    **A** = Analog Modulation

**S** = Rack Mountable System Box

**Dual Voltage Controlled Oscillator**

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## **SECTION I**

### **INSPECTION**

Examine the shipping carton for damage. If the shipping carton or packing material is damaged it should be kept for the carrier's inspection. Check the contents of the shipment for completeness, mechanical damage, and then test the equipment electronically. Operating procedures are contained in Section VI. Notify the carrier and NEOS Technologies. If the contents are incomplete, or the equipment does not pass the electrical testing please notify NEOS Technologies.

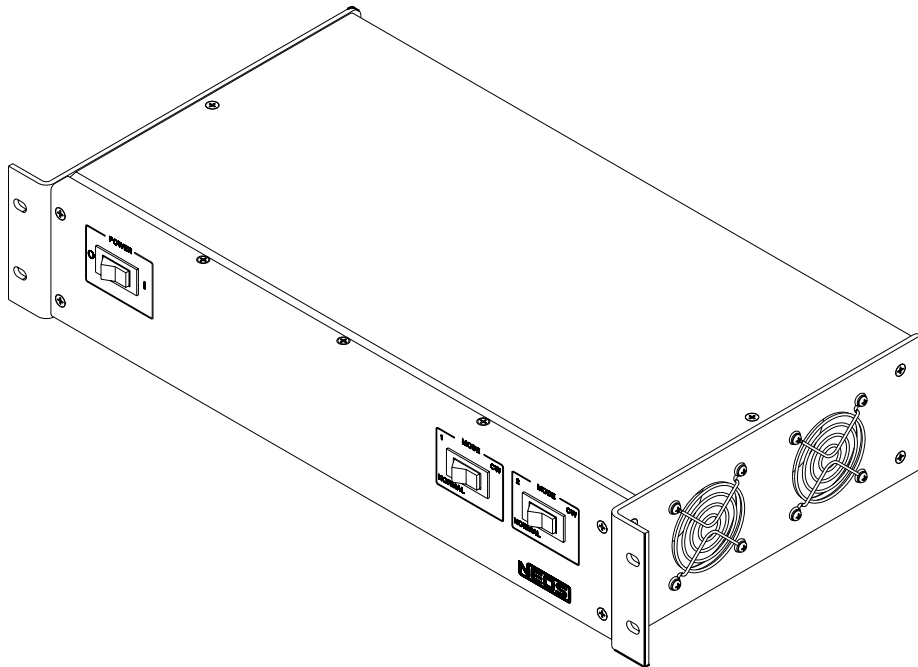
If there is any problem with the use of this equipment, or if the equipment fails to function as expected contact NEOS Technologies, do not try to trouble shoot or repair this equipment. Consult with a NEOS service engineer. If the equipment needs repair or replacement, contact NEOS Technologies, Inc for a Return Authorization Number.

## SECTION II GENERAL DESCRIPTION

The 21XXX-YYY-ZASVCO is a dual voltage controlled oscillator in a rack mountable system box.. It is designed to supply two RF outputs of up to 2 Watts of RF energy into an Acousto-Optic Beam Deflector or 50 Ohms. The system requires 100 to 240Volts AC power input, An analog modulation voltage (0 to 1 VDC) (x 2), and a frequency control voltage (2 to 15 VDC typical) (x 2) for operation (See the driver Acceptance Test Report for data for control voltage vs. frequency).

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### The 21XXX-YYY-ZASVCO



### SECTION III. SPECIFICATION

PARAMETER:	SPECIFICATION:
Number of Voltage Controlled Oscillators:	2 with independent control
Output Frequency:	<b>XXX to YYY MHz</b> Where XXX to YYY Typically is less than an Octave bandwidth, with frequencies from 35 to 200 MHz .
Spurious Levels:	-45 dBc Maximum
Harmonic Distortion:	-15 dBc Maximum
Frequency Control Voltage (2X):	2 to 15 Volts Typical
Analog Input (2X):	$\pm 1$ Volt into 50 Ohms, 0 Volts = minimum RF output 1 Volt = maximum RF output
Extinction Ratio:	30 dB Minimum
RF Rise / Fall Time	20 ns Typically, 30 ns Maximum $P_{RF}$ : 10 to 90 %
RF Output Power:	<b>Z</b> Watts - 1 to 2 Watts Nominal – Adjustable, Factory set for optimum performance when paired with a NEOS AO Device.
Output Power Flatness:	1.5 dB Maximum
Output Impedance:	50 Ohms Nominal
Power Input:	90 to 240 VAC @ 50 / 60 Hz Fused @ 3 Amps

#### MAXIMUM RATINGS:

Supply Voltage:	264 VAC
Power Output:	No DC Feedback Allowed
Ambient Temperature:	+ 45 <sup>0</sup> C

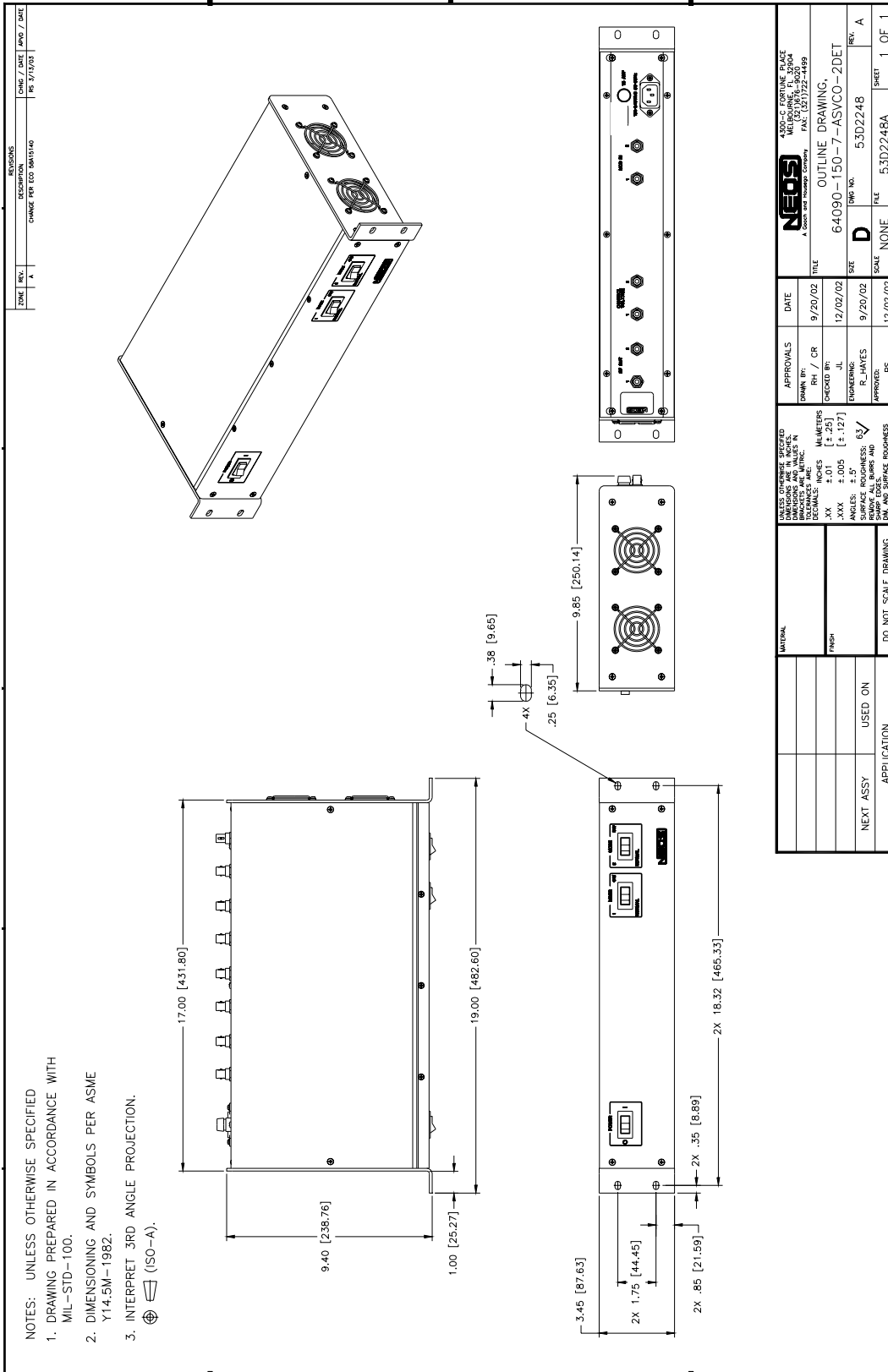
#### CONNECTORS & MECHANICAL:

RF Output Connectors:	BNC Female (2X)
Modulation Input Connectors:	BNC Female (2X)
Frequency Control Connections:	BNC Female (2X)
Power Supply Connections:	3 pin IEC panel mount EMI Filtered.

#### RELATED DOCUMENTS:

Outline Drawing:	53D2248
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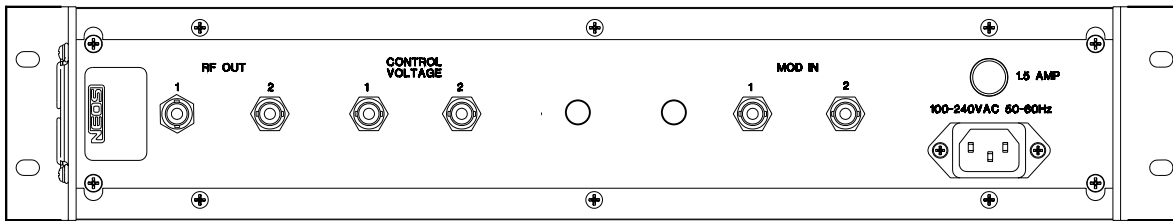
# SECTION IV OUTLINE DRAWING



## SECTION V CONTROLS AND CONNECTIONS

### BACK PANEL:

- A.    RF OUT  
      BNC (X 2)                      The output of the driver supplies 1 or 2 Watts of RF energy into the Acousto-Optical Beam Deflector or 50 Ohms.
- B.    FREQUENCY  
      CONTROL  
      VOLTAGE  
      BNC (X 2)                      This port accepts a control voltage between +2 and +10 Volts. The exact control voltage vs. frequency is supplied with the acceptance test results for each driver.
- C.    MODULATION  
      INPUT(X 2)                      This port accepts an analog modulation voltage between "0" and +1Volt. +1 Volt is full on.



### FRONT PANEL:

- E.    POWER SWITCH                  Applies AC power to the system.
- F.    NORMAL/CW  
      MODE SWITCH  
      (X 2)                              "CW" Position: The RF output power is set to full on.  
  "NORMAL" Position: The output follows the mod in voltage to set the output power.



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## SECTION V OPERATING PROCEDURES

### TESTING:

Connect each of the "RF out" to a 50 Ohm load capable of dissipating 2 Watts.

Connect a VCO control voltage to each of the "CONTROL VOLTAGE" (BNC connectors). See the driver ATR for voltage vs. frequency data.

Connect a 0-1DC voltage for amplitude adjustment to each "MOD IN" (BNC connector) (1VDC = full on). DO NOT EXCEED 1VDC.

Turn on the Power Switch.

With the "Mode" switch in the "Normal" position, and with 1 Volt applied to each of the "MOD IN" inputs, adjust the control voltage to the low, center, and high frequency as required to test the driver. See the driver ATR for voltage vs. frequency data. Or, if a sweep generator is available, sweep the control voltage from the low to high voltage as listed on the ATR. Measure each of the parameters as listed on the driver ATR.

With the "Mode" switch in the "CW" position, adjust, if necessary, the driver output power level control (white one turn pot on pc board inside the driver box) for the power required for maximum diffraction efficiency of the AO devices or to a power which does not exceed the maximum allowed for the AO devices. **Warning: With the "Mode" switch in the "CW" position, the driver will output 2 Watts of RF power. Do not exceed the maximum allowed for the AO devices or damage will occur.** If damage results due to overpowering the AO device, the warranty will be void.

### OPERATION:

With the "Mode" switch in the "Normal" position, set the input "MOD IN" control voltage to that which is required to produce the RF power required to achieve the maximum diffraction efficiency for each AO device. See AO device ATR for required power settings.

Attach each of the AO devices to the RF outputs with a 50 Ohm cable.

**Follow the instructions in the AOBD device manual to align and adjust the devices as required in your optical system laser beam.**

With the "Mode" switch in the "Normal" position, apply the necessary signals to the frequency and amplitude control as desired.