



**NEOS TECHNOLOGIES**

A Gooch & Housego Company

**OPERATING MANUAL  
ANALOG DRIVER SYSTEM**

MODEL NUMBER:

**21XXX-YAS**

**DOCUMENT NUMBER: 51A14098B**

This Operating Manual is for use with AOM Drivers with model numbers:  
**XXX** = a fixed frequency of between 27 and 300 MHz crystal controlled  
**Y** = 0.4, 1, or 2 Watts output power    **A** = Analog Modulation  
**S** = Rack Mountable System Box

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**SECTION I**  
**INSPECTION PROCEDURE**

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.

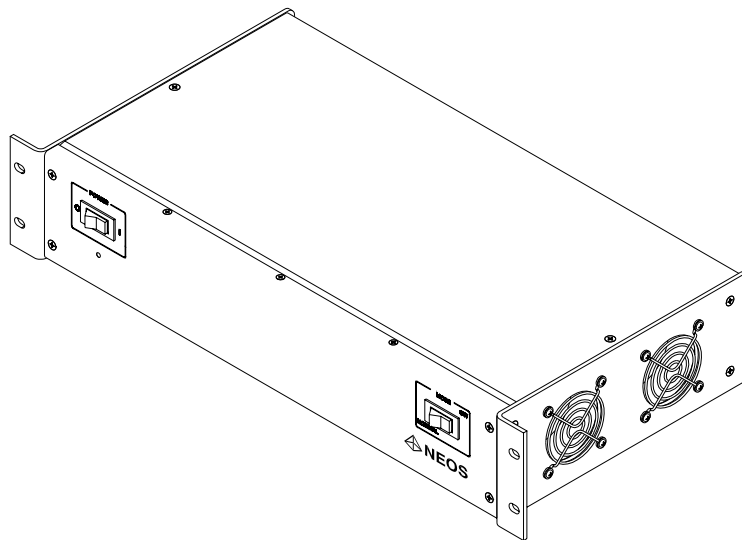
If there is any problem with the use of this equipment, or if the equipment fails to function as expected contact NEOS Technologies, do not try to trouble shoot or repair this equipment. Consult with a NEOS service engineer. If the equipment needs repair or replacement, contact NEOS Technologies, Inc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

## SECTION II DESCRIPTION

The model **21XXX-YAS** is a crystal controlled RF frequency generator designed to supply a signal of **XXX MHz.**, where **XXX** is a fixed frequency of between 27 and 300 MHz. at up to two Watts maximum output; and is used to drive the NEOS Technologies 15000, 23000, 24000, 26000 free space series and fiber coupled series acousto optic modulators. The standard output power setting **Y** is typically 0.4, 1 or 2 Watts.

The unit is supplied as a rack mountable box containing a RF module, DC power supply and cooling fans, with front panel controls for ac power on / off and control of the unit's modulation mode – (CW or Normal). In the CW mode position, the unit is set to output RF power at the power level set by the RF power adjustment and ignores the modulation signal. In the “Normal” position the output signal can be modulated by an analog external signal (0 to  $\pm 1$  Volt) applied to Analog Modulation input and output RF power at the power level set by the RF power adjustment. The output power level is adjustable through the hole in the cover of the internal module. If purchased with a NEOS AO Modulator, the RF power level will be preset for optimum performance

### 21XXX-YAS



**SECTION III  
SPECIFICATIONS**

**PARAMETER:**

**SPECIFICATION:**

Output Frequency:

**XXX MHz**

Where **XXX** = a fixed frequency of between 27 and 300 MHz

Stability:

$\pm 0.01\%$  Quartz Stabilized

Spurious Levels:

-50 dBc Maximum

Harmonic Distortion:

-15 dBc Maximum

Analog Input:

$\pm 1$  Volt into 50 Ohms

$\pm 1$  Volt = Full RF Power as set by the RF power adjustment

pot.

0 Volt = Minimum RF Power

**Output Frequency**

**Rise Time**

**Fall Time**

**Extinction Ratio**

27 to 50 MHz  
P<sub>RF</sub>: 10 to 90 %  
< 30 ns typical

P<sub>RF</sub>: 90 to 10 %  
< 30 ns

Minimum  
< -50dB

50 to 150 MHz  
< 18 ns typical

< 18 ns

< -40dB

150 to 300 MHz  
< 8 ns typical

< 8 ns

< -30dB

RF Output Power:

**(Y)**

0.4, 1, or 2 Watts, Nominal  
Adjustable, Factory Set for Optimum Performance  
When Paired with a NEOS AO Device

Power Input

100 to 240 Volts AC 50 – 60 Hz

**MAXIMUM RATINGS:**

Supply Voltage:

+ 264 Volts AC

Power Output:

No DC Feedback Allowed

Case Temperature:

+ 45<sup>0</sup> C

**CONNECTORS & MECHANICAL:**

RF Output Connector:

BNC Female

Modulation Input Connector:

BNC Female

Input Power Connector

3 pin IEC Panel Mount EMI filtered

**RELATED DOCUMENTS:**

Outline Drawing:

53D1702

Physical Size:

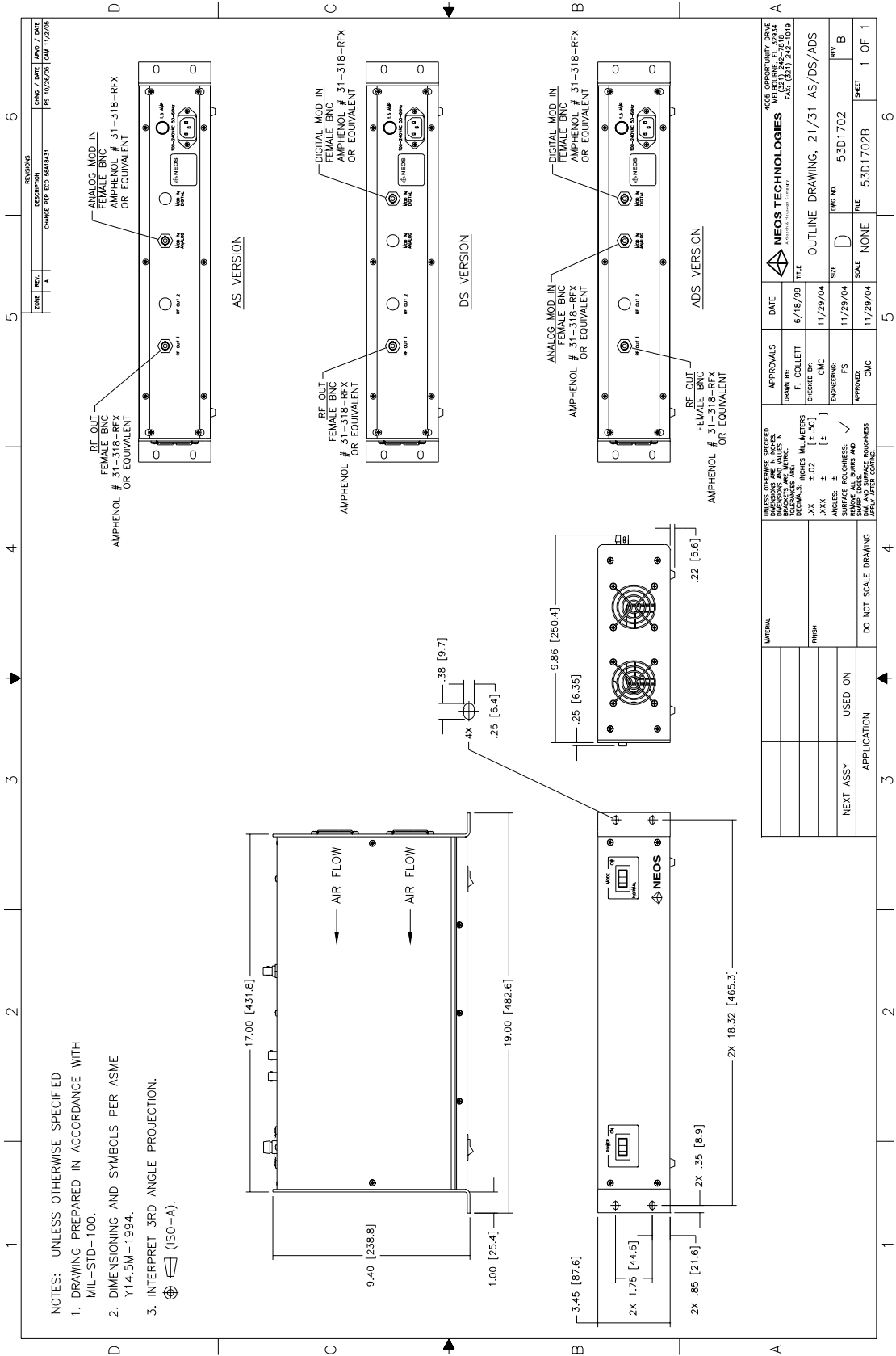
Rack Mount

19.01"W X 3.48"H X 10.03"D

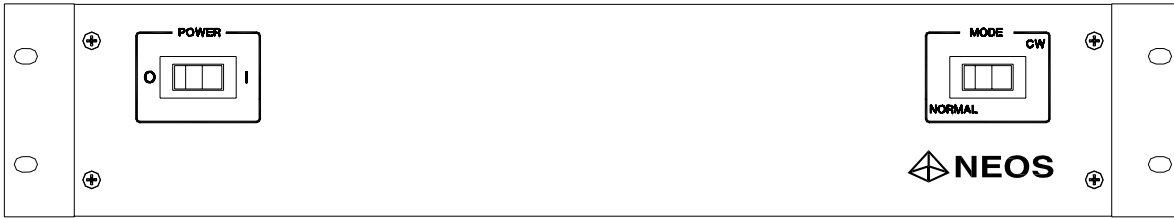
Mounting Hole Spacing:

1.75 H X 18.31 W

**SECTION IV**  
**OUTLINE DRAWING:**



**SECTION V  
CONTROLS AND  
CONNECTIONS**



FRONT

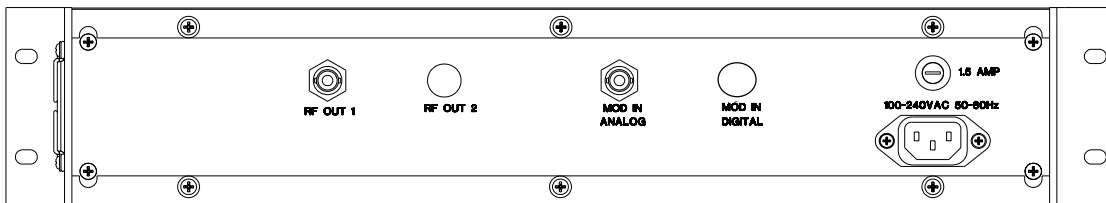
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A. Power Switch

Turns on primary power.

B. Mode Switch

1. In the "CW" position the unit outputs RF power at the power level set by the RF power adjustment and ignores the modulation signal.
2. In the "NORMAL" position the unit's output signal can be modulated by an analog external signal (0 to  $\pm 1$  Volt) applied to Analog Modulation input and output RF power at the power level set by the RF power adjustment.



REAR

53D1702

A. RF Out

Outputs a fixed frequency of between 27 and 300 MHz (factory set) and nominally set to output 0.4, 1, or 2 Watts. It must be terminated with a 50 Ohm load capable of dissipating the rated power or an AOM.

B. Modulation Input

The modulation input accepts analog 0 to +1 volt signal into 50 Ohm. 1 Volt input will produce Full RF Power as set by the RF power adjustment pot. and a 0 Volts input produces minimum RF power output. All above signals are referenced to the shield of the BNC connector.

C. Level Adjust (inside the internal module)

The RF level adjustment is factory set and is accessible through a hole in side of the module inside of the box. Warning, do not adjust the RF output power level to a value greater than that required by the AOM or damage will occur.

## SECTION VI.

### OPERATING PROCEDURES

#### TESTING PROCEDURE:

- With the power off, attach a 50 Ohm load capable of dissipating the rated power level to the "RF Output" of the unit with a 50 Ohm cable. See the acceptance test results.
- Turn the power switch on.
- With the front panel "MODE" switch in the "CW" position:  
Measure the frequency and output power of the driver. ( Note: power is factory pre-set to match the NEOS AO device for optimum performance and is listed on the AO device Acceptance Test Results form. Other parameters are listed on the Acceptance Test Results form included with this driver.
- Adjust, if necessary, the output power to the power level necessary for the AO device to be driven. The adjustment is internal to the module inside the system box.

**Warning: The RF power should never exceed that specified for the AO device driven. See the AO device manual for power limitations and other warnings.** If damage results due to overpowering the AOM, the warranty will be void.

- Apply an external 0 to +1 Volt analog modulating signal to the Modulation Input.
- With the front panel "MODE" switch in the "NORMAL" position:  
Measure RF output for specifications for this driver as listed in the Acceptance Test Results form included with this driver.
- The driver has been designed and has been tested to meet the specification. Notify NEOS Technologies, Inc if the driver does not pass the electrical testing.

**OPERATION PROCEDURE:**

- With the power off, attach the NEOS 15000, 23000, 24000, or 26000 free space series or Fiber coupled series or other acousto optic modulator device to the driver with a 50 Ohm cable.
- Turn on the power switch.
- With the front panel "MODE" switch in the "CW" position:
- **Follow the instructions in the device manual to align and adjust the optical modulator for as required for optimum performance.**
- With the front panel "MODE" switch in the "NORMAL" position:  
Apply an external 0 to +1 Volt analog signal to the Modulation Input as desired.