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NEOS TECHNOLOGIES

A Gooch & Housego Company

**OPERATING MANUAL
DIGITAL DRIVER SYSTEM**

MODEL NUMBER:

21XXX-YDS

DOCUMENT NUMBER: 51A14097B

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, 2 Watts output power **D** = Digital Modulation

S = Rack Mountable System Box

Document approved for release: W Seale Date: 11/11/05

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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.

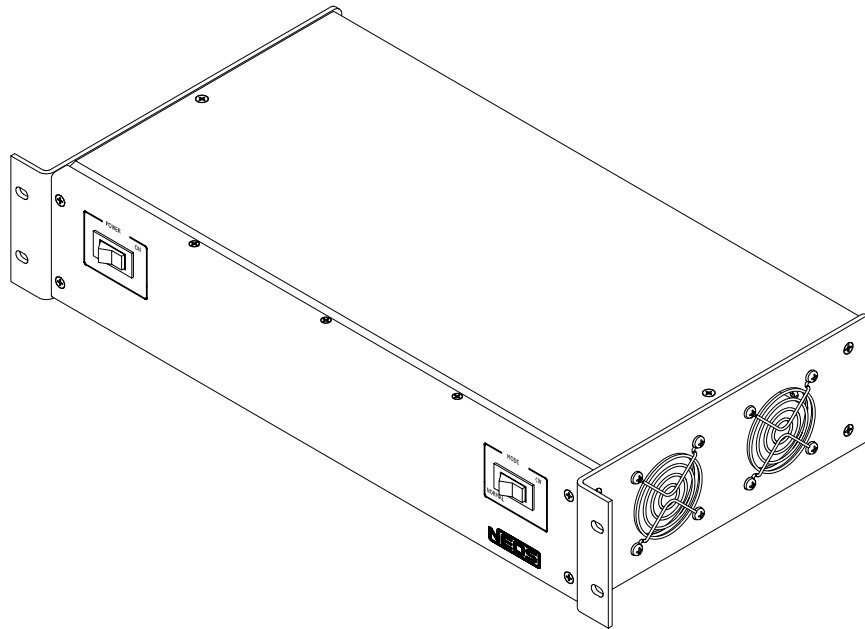
If there is any problem with the use of this equipment, or if the equipment fails to function as expected contact NEOS Technologies, do not try to trouble shoot or repair this equipment. Consult with a NEOS service engineer. If the equipment needs repair or replacement, contact NEOS Technologies, Inc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

SECTION II DESCRIPTION

The model **21XXX-YDS** 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 a Digital TTL external signal applied to Digital 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-YDS



53D1702

DIGITAL DRIVER SYSTEM

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ECO # 58A18442

SECTION III
SPECIFICATIONS

21XXX-YDS

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
MODULATION INPUT	TTL Levels "1" is full ON, "0" is OFF

Output Frequency	Rise Time	Fall Time	Extinction Ratio
	P_{RF} : 10 to 90 %	P_{RF} : 90 to 10 %	Minimum
27 to 50 MHz	< 30 ns typical	< 30 ns	< -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 ⁰ C

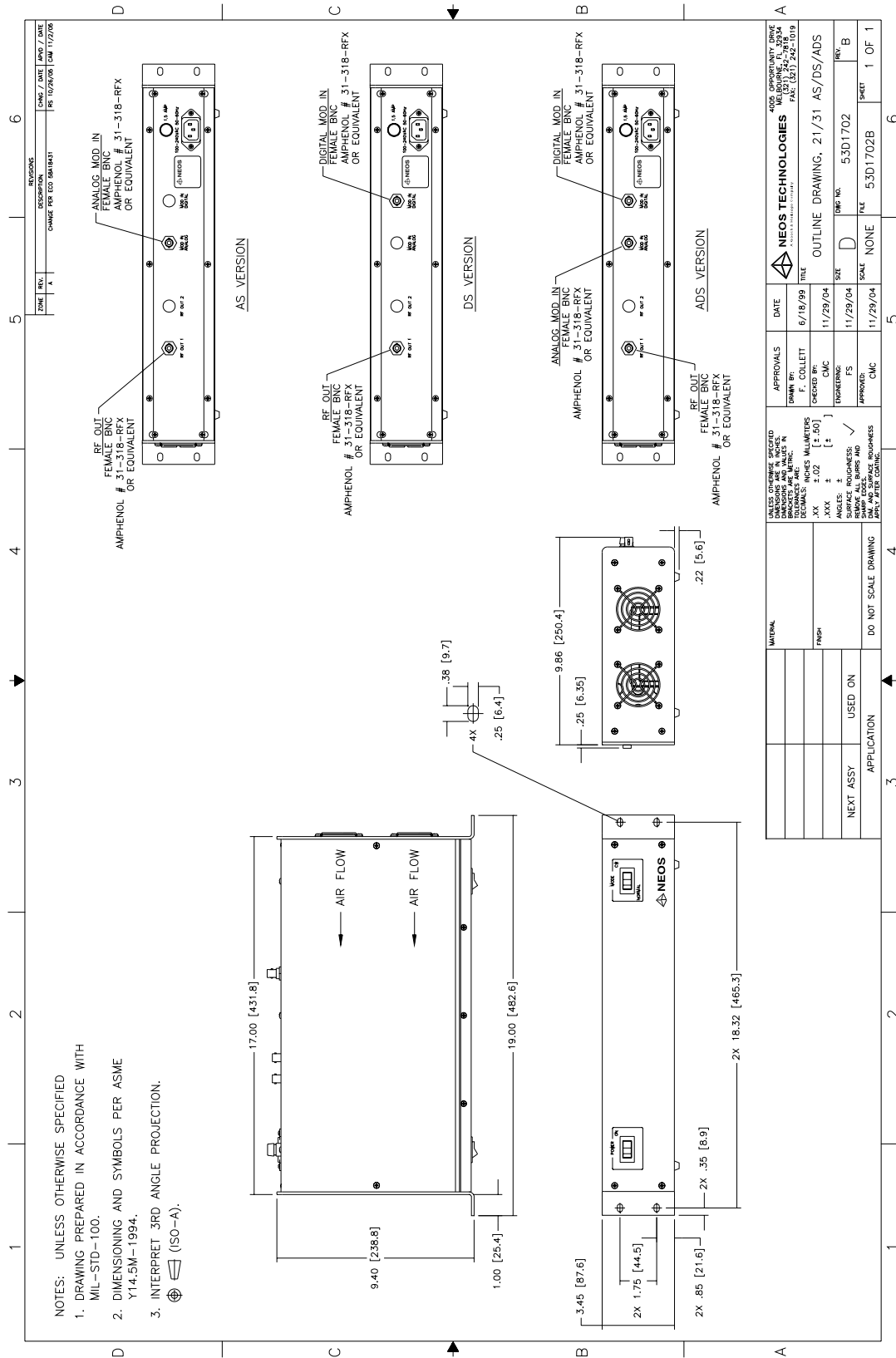
CONNECTORS & MECHANICAL:

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

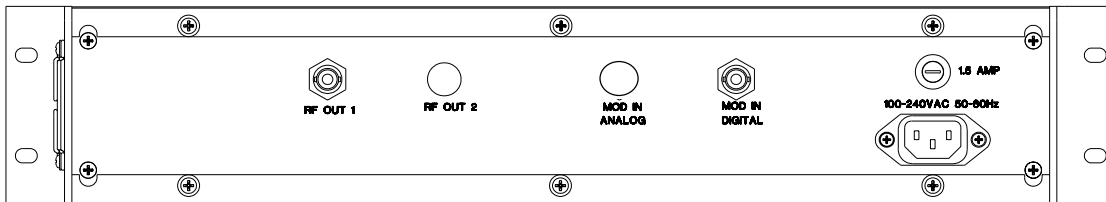
53D1702

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 Digital TTL external signal applied to Digital 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 Digital TTL signal into 50 Ohm. A "1" input will produce Full RF Power as set by the RF power adjustment pot. and a "0" input produces minimum RF power. 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 Digital TTL 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, 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 Digital TTL signal to the Modulation Input as desired.



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