



NEOS TECHNOLOGIES

A Gooch & Housego Company

OPERATING MANUAL
AO MODULATOR DRIVER

MODEL NUMBER:

31XXX-YYDM

Where XXX = 24 to 250 MHz

YY = 2 TO 20 Watts

DOCUMENT NUMBER: 51A17632B

Document approved for release: W Seale Date: 12/22/05

US OFFICE: NEOS Technologies, Inc. ♦ 4005-Opportunity Drive ♦ Melbourne FL 32934 ♦ USA
Tel: 1-321-242-7818 ♦ Fax: 1-321-242-1019

UK OFFICE: Gooch & Housego ♦ The Old Magistrates Court ♦ Ilminster, Somerset TA19 0AB ♦ UK
Tel: +44 1460 52271 ♦ Fax: +44 1460 54972

TABLE OF CONTENTS

SECTION	DESCRIPTION	PAGE
I.	INSPECTION PROCEDURE	3
II.	DESCRIPTION	4
III.	SPECIFICATIONS	5
IV.	OUTLINE DRAWING	6
V.	CONTROLS AND CONNECTIONS	7
VI.	OPERATING PROCEDURE	8

SECTION I
INSPECTION PROCEDURE

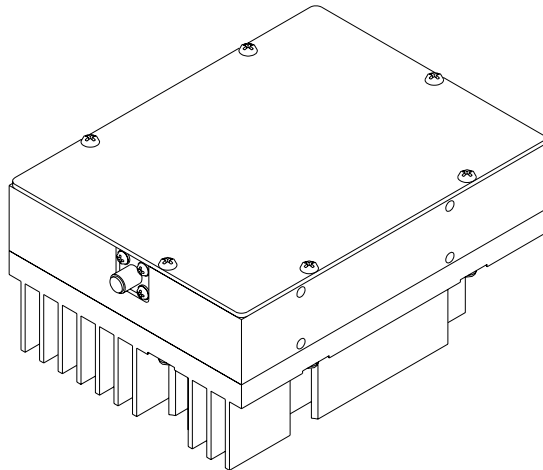
Examine the shipping carton for damage. If the shipping carton or packing material is damaged it should be kept for the carrier's inspection. Check the contents of the shipment for completeness, mechanical damage, and then test the equipment electronically. Operating procedures are contained in Section 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 31XXX-YYDM is a crystal controlled RF generator is designed to supply a RF signal that is digitally modulated in amplitude and is used to drive the NEOS 23000 or 35000 series acousto optic modulators that require more that 2 Watts of drive power. The XXX in the model number is the RF output frequency and is typically 24 to 250 MHz. The RF power output (YY) is factory set to the requested drive power when ordered and can typically deliver from 2 to 20 Watts into 50 Ohms load. The maximum output power of the unit can not be adjusted above the factory set limit and is typically set to that required for the matching AO device.

The 31XXX-YYDM system driver consist of a crystal controlled oscillator, a TTL Digital modulation circuit, a pre amplifier stage, and a output power amplifier stage is supplied as a OEM Module. The RF signal is switched in amplitude from maximum extinction to full power by the TTL Digital signal input to the “Digital Mod in” port. The output power is adjustable through the hole in the side. If purchased with a NEOS AO Modulator, the RF power will be preset for optimum performance. The customer must supply the required DC power and signals to drive this unit as well as required cooling air.



53D1597

SECTION III
SPECIFICATIONS

31XXX-YYDM

<u>PARAMETER</u>	<u>SPECIFICATION</u>
Frequency (XXX)	24 to 250 MHz +/- 0.01 %
Spurious Levels:	-40 dBc maximum
Harmonic Distortion:	-15 dBc maximum
Extinction Ratio:	40 dB minimum
RF Rise / Fall Time	30 ns Maximum 24 to 70 MHz 20 ns Maximum. 70 to 150 MHz 15 ns Maximum 150 to 225 MHz 10 ns Maximum 225 to 250 MHz
Mod In TTL	TTL Levels, TTL High = RF on
Power Output (YY)	6 Watts Typical, Adjustable to factory set limit. See Acceptance Test Report. RF output factory set for optimum performance when paired with a NEOS AO Device.
Output Impedance	50 Ohms nominal
Supply Voltage	24 Volts DC
Supply Current:	3 Amps maximum
Operating Temperature:	+10 to +55 °C
Air Flow Through Heat Sink	>17 liters / second @ 25°C

MAXIMUM RATINGS:

Supply Voltage:	+28 Volts
Power Output:	No DC Feedback Allowed
Storage Temperature:	-20 to + 85°C

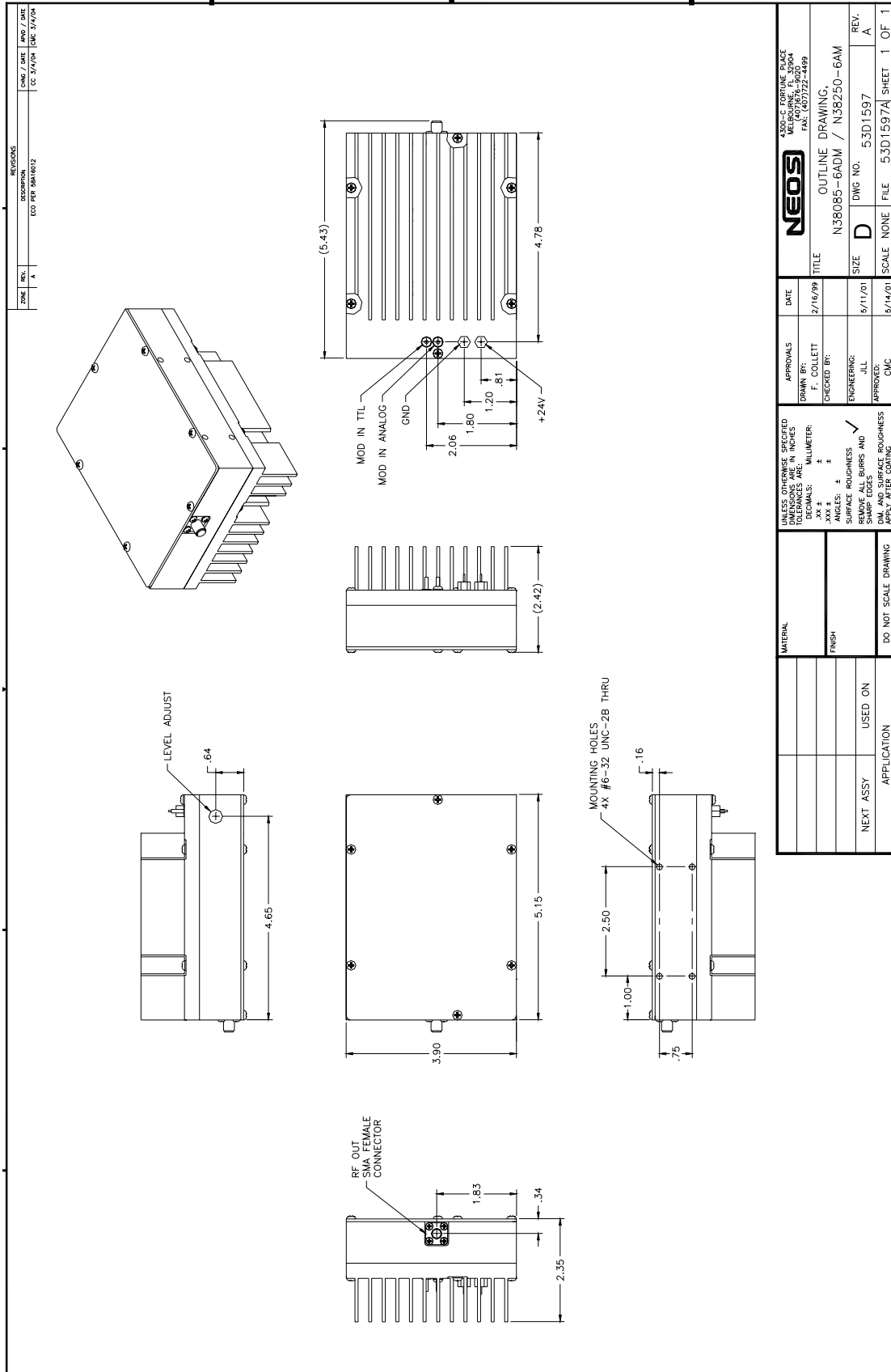
CONNECTORS AND MECHANICAL:

RF Output Connector:	SMA Female
Modulation Input Connector:	Solder Post
Power Supply Connectors:	V _{cc} Solder Post Return Solder Post

RELATED DOCUMENTS:

Outline Drawing:	53D1597
------------------	---------

SECTION IV OUTLINE DRAWING



SECTION V CONTROLS AND CONNECTIONS

CONTROLS

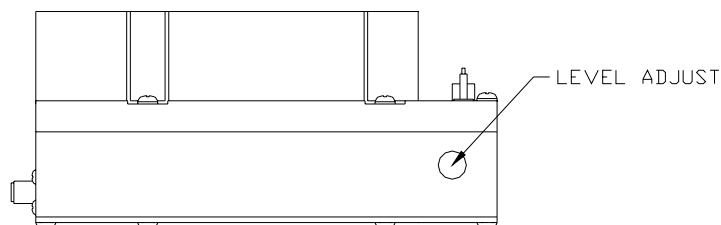
- A. Level Adjust Accessible through the hole in the side of the module inside the rack mountable box. The RF output power level is factory adjusted. **WARNING:** Do not adjust the RF output power to a value above that which is required for the AOM. Applying RF power in excess of the rated maximum will result in damage and will void the Warranty. Adjust the RF power before connecting to the AOM. See figure 1 below.

INPUTS/OUTPUTS

- B. RF Out: The system output is XXX MHz signal at YY Watts typically. *
SMA Female Connector.
- C. Mod Input: This input accepts TTL level signals and digitally modulates the RF carrier.
TTL High = RF on. (Mod In Solder Post, Return on Ground Solder Post.)
- D. Power in: +24 Volts DC @ 3 Amp. (+24 V Solder Post, Return on Ground Solder Post.)

* If purchased with a NEOS AO Modulator, the RF power will be preset for optimum performance.

Figure 1



SECTION VI OPERATING PROCEDURES

TESTING PROCEDURE:

With the power off, attach a 50 Ohm load capable of dissipating the RF power level specified on the Acceptance Test Report to the "RF Output" of the unit.

Apply +24 Volt to the 24V INPUT of the module.

Apply a TTL HI to the Modulation Input port

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 accessible through the hole in the cover.

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 a TTL modulating signal to the Modulation Input port.

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:

To use the driver, with the power off, attach the NEOS 23000 or 35000 series or other acousto optic modulator device to the driver with a 50 Ohm cable.

Apply +24 Volt to the 24V INPUT of the module.

Apply a TTL HI to the Modulation Input port. Port is internally pulled High.

Follow the instructions in the AO device manual to align and adjust the optical modulator, as required.

Apply a TTL signal to the Modulation Input as desired.