



NEOS TECHNOLOGIES

A Gooch & Housego Company

OPERATING MANUAL

AO MODULATOR DRIVER

MODEL NUMBER:

31XXX-YYDS

Where XXX = 24 to 250 MHz

YY = 2 TO 20 Watts

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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 31XXX-YYDS 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 maximum required for the AO device and can typically deliver 2 to 20 Watts into 50 Ohms load.

The 31XXX-YYDS 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 rack mountable box with power supply, cooling fans, and control switches. The front panel switches control input power on / off and RF output Mode: CW / Normal. In the CW mode the RF signal is output continuously at full power. In the Normal mode 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.

SECTION III
SPECIFICATIONS

PARAMETER:	SPECIFICATION:
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 250 to 250 MHz
Mod In TTL	TTL Levels, TTL High = RF on
Power Output (YY)	6 Watts Typical, Adjustable 2 to set limit. See Acceptance Test Report for max. RF output. Factory set for optimum performance when paired with a NEOS AO Device.
Output Impedance	50 Ohms nominal
Power Requirements	100 to 240 VAC @ 50 - 60 Hz Fused @ 1.5 Amps
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
Power Connection:	3 pin IEC Panel Mount EMI Filtered
Physical Size:	10.03" D x 3.48" H x 19.01" W
RELATED DOCUMENTS:	
Outline Drawing:	53D1702

SECTION V

CONTROLS AND CONNECTIONS

CONTROLS

A. Power Switch

The switch applies AC power to the unit.

B. Mode Control Switch

This switch in the “CW” position sets the unit to output RF continuous and ignores any modulation signal.

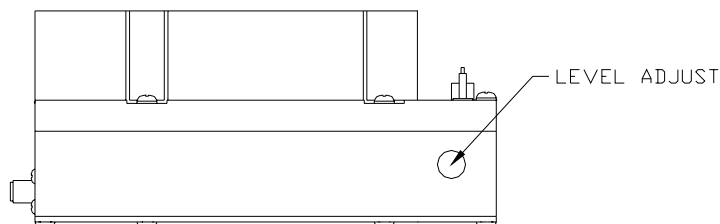
This switch in the “Normal” position sets the unit to output RF modulated by the TTL level digital modulation signal input through the “Mod in” port.

- C. 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

- D. RF Out: BNC Female connector - The system output is 85 MHz signal at 6 Watts typically.
*
- E. Mod Input: BNC Female connector - This input accepts TTL level signals and digitally modulates the RF carrier. TTL High = RF on.
- F. Power in: 100 to 240 Volts AC @ 1.5 Amp. 3 pin IEC Panel Mount EMI Filtered

Figure 1



53D1597

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 100 to 240 Volt 50 –60 Hz to the unit under test.

Set the Mode switch set to CW.

Turn the AC power switch on.

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 of the power level necessary for the AO device to be driven. The adjustment is accessible through the hole in the side of the module under 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.

With the Mode switch set to Normal, 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 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 to the driver with a 50 Ohm cable.

Apply 100 to 240 Volt 50 –60 Hz to the unit.

Set the mode switch to CW

Turn the AC power switch on.

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

With the Mode switch set to Normal, apply a TTL modulation signal to the Modulation Input as desired.