



NEOS TECHNOLOGIES

A Gooch & Housego Company

OPERATING MANUAL
AO MODULATOR DRIVER
MODEL NUMBER:

21080-SAS

DOCUMENT NUMBER: 51A00586C

APPROVAL: R. V. Belfatto DATE 1/23/03

US OFFICE: NEOS Technologies, Inc. ♦ 4005 Opportunity Drive ♦ Melbourne, FL 32934 ♦ USA

Tel: (321) 242-7818 ♦ Fax: (321) 242-1019 ♦ Email: neos@neostech.com

UK OFFICE: Gooch & Housego ♦ The Old Magistrates Court ♦ Ilminster, Somerset TA19 0AB ♦ UK

Tel: +44 1460 52271 ♦ Fax: +44 1460 54972 ♦ Email: sales@goochandhousego.com

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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 V. 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.

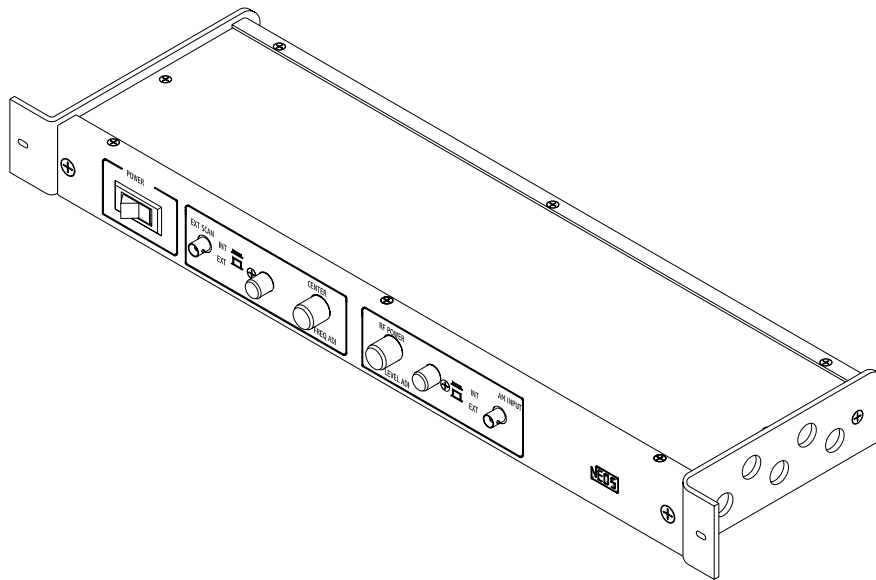
SECTION II. DESCRIPTION

The model 21080-1SAS is a RF frequency generator designed to supply a signal of variable frequency and amplitude of up to 1 watt maximum output, centered at 80 MHz., and is used to drive the NEOS Technologies 23000 or 24000 series acousto optic modulators.

The output signal can be modulated by a 0 to 1 volt analog external signal applied to the Analog Modulation input when the push button switch on the front panel is in the external position. The frequency can be varied by (-)5 to (+)5 volt analog signal applied to the external scan input when the push button switch on the front panel is in the external position.

With the "Scan Switch" in the internal position, the system output a 5 MHz scan which can be centered from 75 to 85 MHz. with the scan center frequency knob.

With the "Analog Modulation" push button switch on the front panel in either position the output power can be varied with the level adjustment knob.



21080-1SAS

45A8730

**SECTION III
SPECIFICATIONS**

SPECIFICATION	PARAMETER
RF Frequency:	Variable 70 To 90 MHz, centered @ 80 MHz
External Scan Input:	(-) 5 to (+) 5 volts
Internal Scan:	5 MHz normal, Adjustable in center frequency from 75 to 85 MHz.
Output Power:	1 watt maximum Factory adjusted to match the AO Device.
Rise and Fall Time:	< 40 ns
Extinction Ratio:	> 27 dBc (minimum)
Harmonic Distortion:	> 15 dBc (minimum)
Applied Power:	100 To 240 VAC @ 1amp
Analog Modulation:	0 To +1 volt analog into 50 ohms
Outline Drawing	53D3127 (12D1221)

SECTION IV CONTROLS AND CONNECTIONS

A. Power Switch

Turns on primary power.

B. Scan Mode Switch

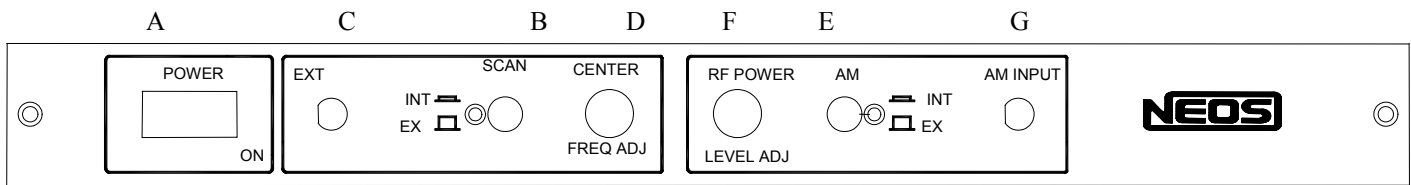
1. In the "INT" position the RF Frequency can be adjusted with the front panel knob.
2. In the "EXT" position the RF Frequency will follow the external scan signal applied.

C. External Scan Input BNC

Accepts (-)5 to(+)5 volts analog signal to vary the output frequency.

D. Center frequency adjust Knob

Adjust the center frequency for either internal or external mode. The knob is normally set to the center position.



E. Mode Switch

1. In the "INT" position the RF is can be adjusted with the RF Power Adjustment.
2. In the "EXT" position the RF output will follow the modulation signal applied.

F. RF Power Adjust Knob

Adjusts the RF Output Power from 0 to 1 watt maximum.

G. AM Input BNC

Accepts 0 to 1 volt analog signal into 50 ohms to vary the output power.



H. RF Output BNC

RF Output Note: this must be loaded with either a 50 Ohm load or a AO device.

SECTION V. OPERATING PROCEDURES

TESTING PROCEDURE:

With the power off, attach a 50 ohm load capable of dissipating 1 watt to the "RF Output" of the unit.

Turn the power switch on.

With the front panel "SCAN" push button switch in the "INT" position and the "AM" push button switch in the "INT" position:

Measure the frequency spectrum and output power of the driver. (Note: power may be 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.

Apply an external 0 to +1 volt analog signal to the "AM Input".

With the front panel "AM" switch in the " EXT" position:

Measure RF output power as specified for this driver as listed in the Acceptance Test Results form included with this driver. **Note: the Output Power Level adjustment knob, adjust the output power in both the internal and external operation modes.**

Apply an external -5 to +5 volt analog signal to the "EXT SCAN Input".

With the front panel "SCAN" switch in the " EXT" position:

Measure RF Frequency sweep as specified 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 23080, 24080, or other acousto optic modulator device to the driver with a 50 ohm cable.

Turn on the power switch.

With the front panel "SCAN" switch in the "INT" position and the "AM" push button switch in the "INT" position.

Adjust, if necessary, the "**Output Power Level**" adjustment knob to adjust the output power to the required power for the AO Device in both the internal and external operation modes.

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.

Follow the instructions in the device manual to align and adjust the device as required.

With the front panel "SCAN" switch in the "EXT" position:

Apply an external -5 to +5 volt analog signal to the "**EXT SCAN Input**". Adjust the low and hi Frequency cut off by adjusting the scan voltage range if necessary. **Note: Don't exceed – 5 volts on the low end or + 5 volts on the upper end.** Adjust the center frequency of the scan with the "**Center frequency**" adjust knob if necessary.

With the front panel "AM" switch in the "EXT" position: Apply an external 0 to +1 volt analog signal to the "**AM Input**" as desired.

CIRCUIT DESCRIPTION

The N21080X-1SAS consists of a sweep generator board, a RF module, and a power supply.

The sweep board uses a constant current source to generate a saw tooth that controls the sweep of the oscillator in the internal mode. In external mode, a -5 to $+5$ Volt input signal will sweep the output frequency of the driver. In either mode the center frequency adjustment knob will adjust the center frequency of the sweep with in the limits of the oscillator output range.

The RF module consist of a 70 to 90 MHz voltage controlled oscillator, a mixer to control the amplitude of output power level to the power amplifier and a output power amplifier to drive a 50 Ohm load. A (0 to 1 analog signal) signal will modulate the amplitude of the output power. In either mode the "RF Power Level" adjustment knob will adjust the maximum output power.

The power supply applies the needed voltages to operate the driver.