

NEOS TECHNOLOGIES

A Gooch & Housego Company

OPERATING MANUAL

**POLYCHROMATIC ACOUSTO-OPTIC MODULATOR
FOUR CHANNEL RF DRIVER
FOR THE 48062 PCAOM**

MODEL NUMBER:

64040-75-.1-4CH-5M

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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 the equipment fails to function as expected, contact NEOS Technologies. Do not try to trouble shoot or repair this equipment. Contact NEOS Technologies, Inc for a Return Authorization Number.

SECTION II

DESCRIPTION

The PCAOM driver generates the precise RF frequency to select the proper laser wavelength out of the visible light spectrum. The driver has four channels combined into one output. Each channel is factory set to cover the common laser wavelengths in the visible spectrum. Channel one has the capability of being switched between two different wavelengths with the push of a button. The standard configuration of wavelengths is as follows: Channel 1 – 647 nm or 632 nm, Channel 2 – 514 nm, Channel 3 – 488 nm, and Channel 4 – 476 nm. If requested, NEOS will set the wavelengths as specified on a custom basis.

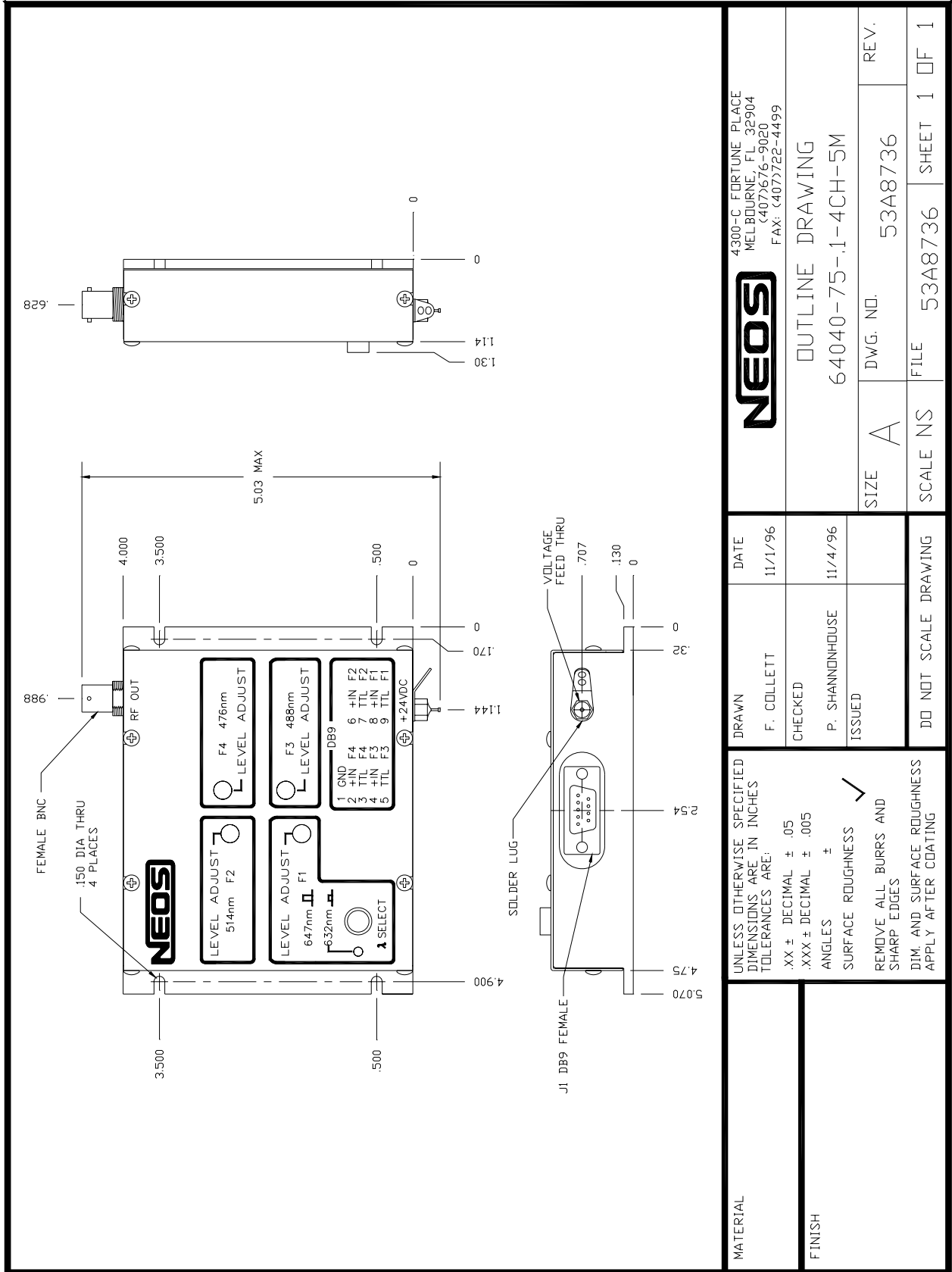
The extinction ratio must be high for most applications. There are two ports for modulation on each channel: an AM (analog modulation) port and a TTL blanking port. The TTL modulation extinction ratio is > 60 dB. The TTL port turns off the RF output when a TTL low is applied. The analog modulation has an extinction ratio of > 60 dB. The analog port requires a 0 to 5 Volts input. The analog port and the TTL blanking input impedance is high, therefore, the driver can be easily driven from existing pc boards. The rise/fall time of the driver is 200 nanoseconds. For a 2.0 mm beam in the PCAOM, the system will support a modulation rate greater than 100 KHz. The driver generates all RF signals by using crystal oscillators. The frequency is factory set and cannot be adjusted.

The OEM Module comes in a 1.30" x 5.03" x 5.07" OEM Module. Each channel has a trimpot with a range adjustment of 40 to 200 mW accessible through a hole in the module. The channel 1 wavelength select button is accessible on the top of the module. See the pin outs for the D connector shown in figure 1.

SECTION III
SPECIFICATIONS

<u>PARAMETER</u>	<u>SPECIFICATION</u>
Number of Channels	Four
Frequency Stability	±0.01%
Power Out	40-200 mW / Channel
Wavelengths	CH 1 647 nm or 632 nm
*CH 1 wavelength selectable by switch	CH 2 514 nm CH 3 488 nm CH 4 476 nm
Analog Inputs (4)	0-5 Volts into 6K Ohms
Blanking Inputs (4)	TTL, 4.7 K Ohms, no input or high is not blanked
Rise/Fall Time	200 ns typical
Extinction Ratio	Analog > 60 dB TTL > 60 dB
Power	+24 VDC at 800mA
Connectors:	
RF out:	BNC Female
Data in:	9 Pin D-Sub female
Outline Drawing	53A8736

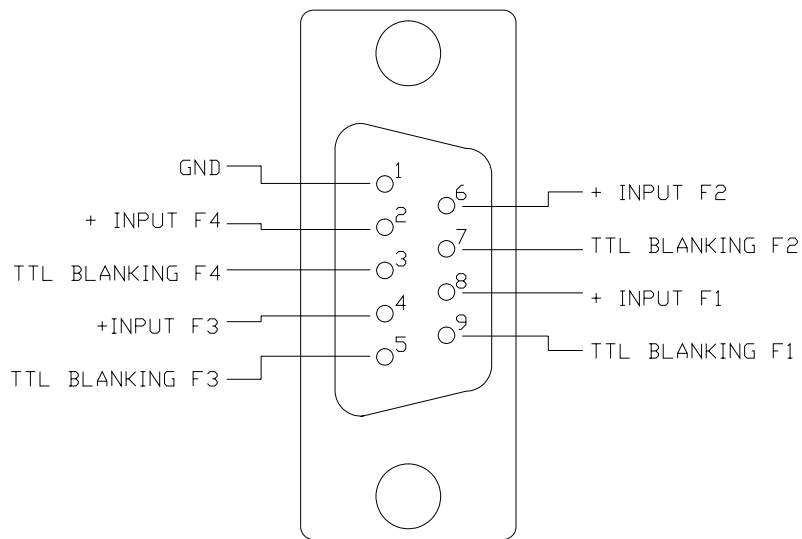
SECTION IV OUTLINE DRAWING



MATERIAL	NEOS		4300-C FORTUNE PLACE MELBOURNE, FL 32904 (407)676-9020 FAX: (407)722-4499	
	DRAWN	DATE	OUTLINE DRAWING	
FINISH	F. COLLETT	11/1/96	64040-75-1-4CH-5M	
	CHECKED	11/4/96	SIZE	REV.
				A
				53A8736
				DWG. NO.
				53A8736
				FILE
				SHEET 1 OF 1
				SCALE NS
				DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
 .XX ± DECIMAL ± .05
 .XXX ± DECIMAL ± .005
 ANGLES ±
 SURFACE ROUGHNESS ✓
 REMOVE ALL BURRS AND
 SHARP EDGES
 DIM. AND SURFACE ROUGHNESS
 APPLY AFTER COATING

PINOUT J1 DB9 FEMALE
N64040-75-1-4CH-5



45A8729

Figure 1

SECTION V
CONNECTION AND CONTROLS

A. Controls

Channel 1 Select Push Button on top of module.

Up selects 647 nm. Down selects 632 nm. (Led on)

Channel Power Adjustment Pots – accessible through holes on module.

B. Inputs/Outputs: **J1** (figure 1)

Blanking Modulation Inputs (4X)- This input accepts TTL level signals and modulates the carrier. When a TTL high is input to this port there is no blanking for the selected wavelength. When a TTL low is input the selected wavelength is blanked.

AM Inputs (4X) - 0 to 5 Volts single ended input with 6K Ω input impedance.

+24VDC – Input Power Feed-through.

Ground Lug – Power return.

SECTION VI

OPERATING PROCEDURE

C. Testing Procedure:

1. Before applying power connect the RF output to a load capable of dissipating 1 Watt or connect to a "good" PCAOM.
2. Apply 24 VDC at 800 mA to the +24VDC Feed-through.
3. Input proper modulation signal into driver, then measure power and frequency for each channel or measure light for each wavelength and diffraction efficiency.
4. The unit is operating if 40 to 200 mW are output at the correct frequency from each channel. See the acceptance test report for this unit for frequency for each channel.

Operating Procedure:

1. Attach the PCAOM to the RF output of the driver with a 50 Ohm cable.
2. Apply 24 VDC at 800 mA to the +24VDC Feed-through
3. Input proper modulation signal into driver so as to select the 488 nm wavelength. (f3) TTL High on pin 5; 5 Volts on pin 4; TTL low on pins 3, 7, and 9; 0 Volts on pin 2, 6, 8.
4. Align the **48062** PCAOM to the laser beam (Horizontal Polarization Required) and adjust the Bragg angle to output maximum diffraction efficiency into the + First order beam (away from the connector).
5. Without readjusting the Bragg angle, select each of the other three wavelengths, one at a time, and adjust the power adjustment for each wavelength for maximum diffraction efficiency.
5. Apply the appropriate control signals to select the desired wavelengths and effects.