



NEOS TECHNOLOGIES

A Gooch & Housego Company

OPERATING MANUAL

**TWO PORT FIBER COUPLED
ACOUSTO-OPTIC MODULATOR ASSEMBLY**

MODEL NUMBER:

23080-1-1.06-FO-LTD

23080-1-1.06-FO-LTD-HP

23080-1-1.06-FO-LTD-2HP

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TABLE OF CONTENTS

<u>SECTION</u>	<u>DESCRIPTION</u>	<u>PAGE</u>
I.	INSPECTION PROCEDURE	3
II.	DESCRIPTION	4
III.	SPECIFICATIONS	5
IV.	OUTLINE DRAWINGS	6
V.	OPERATING PROCEDURE	7

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. Notify the carrier and NEOS Technologies. Check the contents of the shipment for completeness, mechanical damage, and then test the equipment electronically. Operating procedures are contained in Section V. 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

TWO PORT FIBER COUPLED ACOUSTO-OPTIC MODULATOR ASSEMBLY

23080-1-1.06-FO-LTD
23080-1-1.06-FO-LTD-HP
23080-1-1.06-FO-LTD-2HP

The two port fiber coupled Acousto-Optic Modulator (AOM) assembly consists of a highly efficient acousto-optic modulator assembly that is fiber coupled with single mode fibers for input and output. The AOM is designed for operation at 1.06 μm . Its operation is independent of optical polarization. The standard fiber connector used is the FC/PC with the FC/APC or SC/APC fiber connector as optional. A typical modulation rise time is 75 ns maximum.

Normally the standard configuration is to couple the diffracted (+) plus first order out of the AOM, however, optional configurations are possible upon request to couple the (-) minus first order or the zero order out of the AOM. The plus first order output will have the light frequency shifted UP by 80 MHz from the light frequency applied at the input. If the minus first order output is requested, it will have the light frequency shifted DOWN by 80 MHz from the light frequency applied at the input. If the zero order output is requested, it will remain un-shifted. If either of the first order light is coupled out of the AOM, the low loss mode will be when the RF driver is turned on. If the zero order light is coupled out of the AOM, the low loss mode will be when the RF driver is off. The 23080-1-1.06-FO-LTD-2HP and 23080-1-1.06-FO-LTD are bi-directional so either fiber can be used for input or output. **The 23080-1-1.06-FO-LTD-HP is unidirectional and the input light must enter on the input side.** See Outline drawing 53D3030 for input information. If the light enters the output side, the un-diffracted light will not be blocked and will be focused by the internal lens into the cladding of the fiber, which will result in damage.

NEOS manufactures a matching RF driver designed to optimize performance. If, however, another RF drive source is used, the RF power should never exceed 2.0 Watts at a frequency of 80 MHz. If damage results due to overpowering the AOM, the warranty will be void. The selection of a digitally controlled 80 MHz RF driver such as the NEOS 21080-1DS allows the 23080-1-1.06-FO-LTD to be used as a switch and /or as a frequency shifter. The selection of an analog controlled 80 MHz RF driver such as the NEOS 21080-1AS allows the 23080-1-1.06-FO-LTD to be used as an attenuating switch and/or as a frequency shifter.

For operation in the cavity of a fiber laser the 23080-1-1.06-FO-LTD-2HP should be ordered.

SECTION III
DEVICE SPECIFICATIONS

23080-1-1.06-FO-LTD (-HP) (-2HP)

<u>PARAMETER</u>	<u>SPECIFICATION</u>	
Interactive Material	TeO ₂	
Acoustic Mode	Longitudinal	
Operating Wavelength	1060 nm	
Window Configuration	AR Coated	
Operating Frequency	80 MHz	
Back Reflection	-30 dB	
Throughput Loss	2.5 dB maximum	
Contrast Ratio	40 dB minimum	
Light Polarization	Random	
Rise Time	50 ns	
RF Power Level	< 1.25 Watt	
Impedance	50 Ohms	
VSWR	<1.2:1 @ 80MHz	
Optical Power Capability for models:		
23080-1-1.06-LTD-FO: < 0.5 Watts @ 1.06 nm (Used external to laser cavity) Bi-directional	23080-1-1.06-LTD-FO-HP: 0.5 Watts to 2 Watts @ 1.06 nm (Used external to laser cavity) Uni-directional	23080-1-1.06-LTD-FO-2HP: 0.5 Watts to 2 Watts @ 1.06 nm (May be used internal to laser cavity) Bi-directional
Packages: 53B0946	53D3030	53D3031
Fiber Connectors	FC/PC, FC/APC, or others optional	
Fiber type:	Single mode 9/125, 1 meter long Polarization maintaining, 8/125 optional	

Recommended Drivers:

Analog Driver System: 21080-1AM
Analog Driver Module: 21080-1AM

Digital Driver System: 21080-1DS
Digital Driver Module: 21080-1DM

SECTION IV. OUTLINE DRAWING

REV. | DESCRIPTION | DATE | APPROVED

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MATERIAL SPECIFICATION

NOTES: UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES FRACTIONS DECIMALS ANGLES .XXX±.005 ±

PART OR IDENTIFYING NO.

CONTRACT NO.

DRAWN G.KOTOWSKI 5/2/96

CHECKED P.S.

ISSUED V.S. 5/2/96

MATERIAL

FINISH

DO NOT SCALE DRAWING

PARTS LIST

APPROVALS

DATE

5/2/96

SCALE 1/1

FILE 53B0946

SHEET 1 OF 1

NEOS

OUTLINE DRAWING, N26027-1-1.5-F0

NEXT ASSY

USED IN

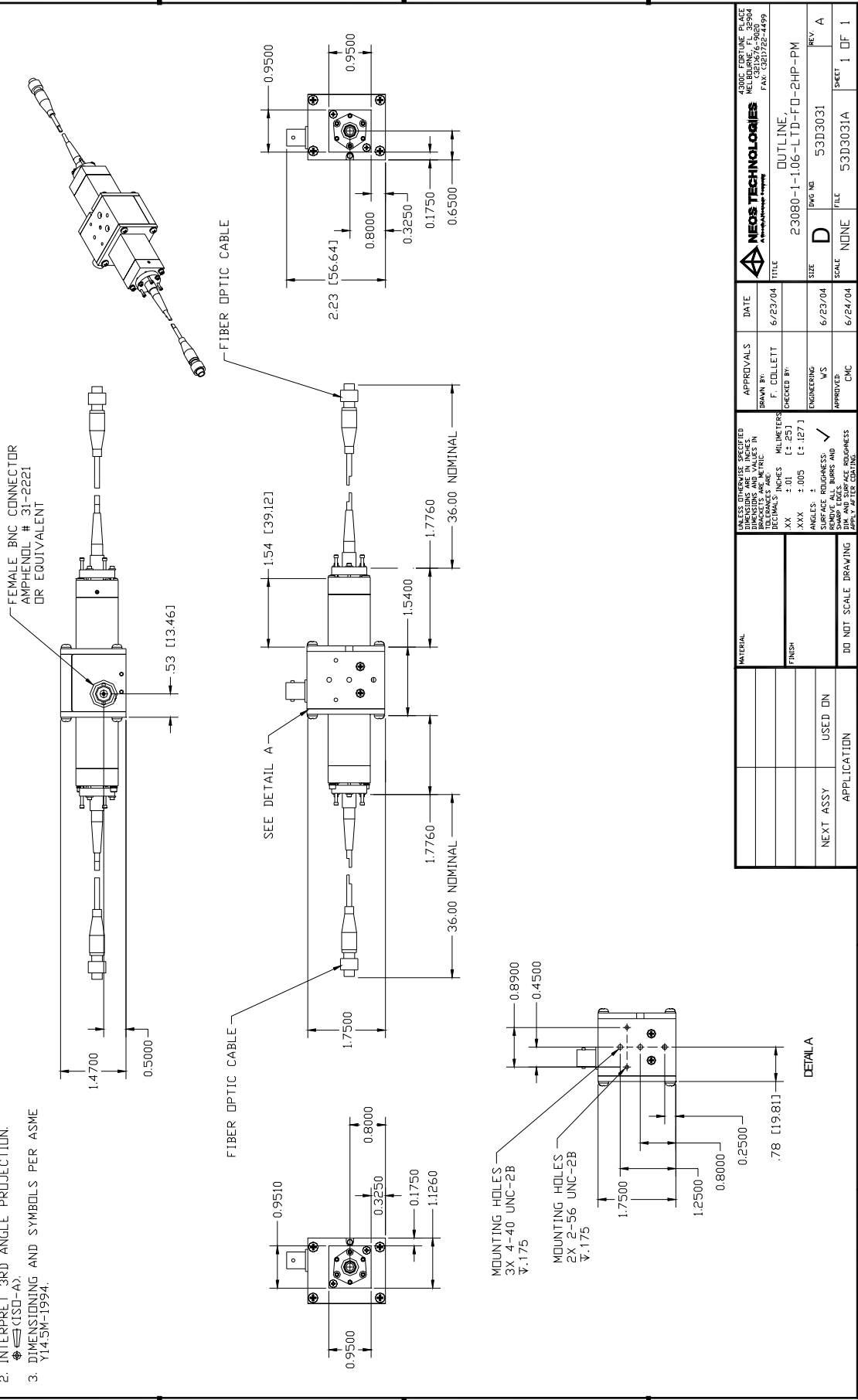
APPLICATION

SIZE FSCM NO. DWG. NO. 53B0946

REV B

ZONE	REV	DESCRIPTION	CNC / DATE	APPD / DATE
	4	CHANGE PER EGD 08/13/08	FG 7/14/04	GC 7/15/04

NOTES: UNLESS OTHERWISE SPECIFIED:
 1. DRAWING PREPARED IN ACCORDANCE WITH MIL-STD-100.
 2. INTERPRET 3RD ANGLE PROJECTION.
 3. DIMENSIONING AND SYMBOLS PER ASME Y14.5M-1994.



		4300C ECHTUNE PLACE MELBOURNE, FL 32904 TEL: 321.722-4499 FAX: 321.722-4499	
DATE	6/23/04	APPROVALS	DRAWN BY: F. COLLETT CHECKED BY: [blank] ENGINEERING: WS APPROVED: CMC
TITLE	OUTLINE	SIZE	DWG NO: 53D3031
FILE	23080-1-1.06-LTD-FO-2HP-PM	SCALE	SCALE: NONE
SHEET	1	REV.	A
DO NOT SCALE DRAWING		SHEET 1 OF 1	

SECTION V

OPERATING PROCEDURE

When attaching a mating fiber to the fibers on the 23080-1-1.06-LTD-FO, 23080-1-1.06-LTD-FO-HP, or 23080-1-1.06-LTD-FO-2HP, be sure the connector end is clean. Cleaning the connector ends with a cotton swab damp with acetone will ensure there will be a low loss, dirt free connection. The use of index matching fluid is recommended if minimal connection loss is needed. Rotating the ferrules of one of the connectors will also help in aligning the fibers correctly and in turn minimize loss. Note that the 23080-1-1.06-LTD-FO and 23080-1-1.06-LTD-FO-2HP are bi-directional and either fiber can be used as the input. The 23080-1-1.06-LTD-FO-HP is uni-directional and the light must enter the input side as indicated in the outline drawing 53D3030.

Attach the 80 MHz RF driver to the unit with a 50 Ohm cable. Do not exceed 2.0 Watts. See the Acceptance Test Report for each specific device for the settings required for the RF drive power for testing and use of the 23080-1-1.06-LTD-FO, 23080-1-1.06-LTD-FO-HP, or 23080-1-1.06-LTD-FO-2HP. See the driver manual for other information on input signals required for operation.

If either of the first order light is coupled out of the AOM, the low loss mode will be when the RF driver output is on. If the zero order light is coupled out of the AOM, the low loss mode will be when the RF driver output is off.

The operation of the 23080-1-1.06-LTD-FO, 23080-1-1.06-LTD-FO-HP, or 23080-1-1.06-LTD-FO-2HP normally requires no adjustment or internal cleaning. Do not try to make any adjustment of the fiber flange, nor, try to disassemble the device as this action will void the warranty.