



NEOS TECHNOLOGIES

A Gooch & Housego Company

OPERATING MANUAL

**THREE PORT FIBER COUPLED
ACOUSTO-OPTIC MODULATOR ASSEMBLY**
MODEL NUMBER:

26055-1-1.55-3FO-LTD

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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. 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

THREE PORT FIBER COUPLED ACOUSTO-OPTIC MODULATOR ASSEMBLY

26055-1-1.55- LTD-3FO

The three 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. The AOM is designed for operation at 1.55 μm . Its operation is independent of optical polarization. The standard fiber connector used is the FC/PC with the FC/APC or SC/APC as optional. The AOM is not direction sensitive, so optical signals may flow in both directions. A typical modulation rise time is 120ns maximum.

The input beam is coupled to the AOM via the input connector (Port 1) on the front panel. The zero order or un-diffracted beam is coupled out of the AOM via the zero order connector (Port 2) and the first order diffracted beam is coupled out of the AOM via the first order connector (Port 3) on the front panel. See figures 1 + 2. The low loss path with the RF off (driver in the normal mode with 0 volts for an analog system or TTL low for a digital system) is via the input (Port 1) and zero order (Port 2) connectors. The low loss path with the RF on (driver in the CW mode or in the normal mode with 1 volt for an analog system or TTL high for a digital system) is via the input (Port 1) and first order (Port 3) connectors. The path between port 2 and 3 are isolated by -50dB . Note: The first order output will have the light frequency shifted UP by 55 MHz from the light frequency applied at the input. The zero order output will remain un-shifted.

NEOS manufactures a matching RF driver designed to optimum performance. If, however, another RF drive source is used, the RF power should never exceed 1.0 Watt at a frequency of 55 MHz. If damage results due to overpowering the AOM, the warranty will be void.

The selection of a digitally controlled 55 MHz RF driver such as the NEOS 21055-1DS allows the 26055-1-1.55- LTD-3FO to be used as a switch and/or as a frequency shifter. The selection of an analog controlled 55 MHz RF driver such as the NEOS 21055-1AS allows the 26055-1-1.55- LTD-3FO to be used as an attenuating switch and/or as a frequency shifter.

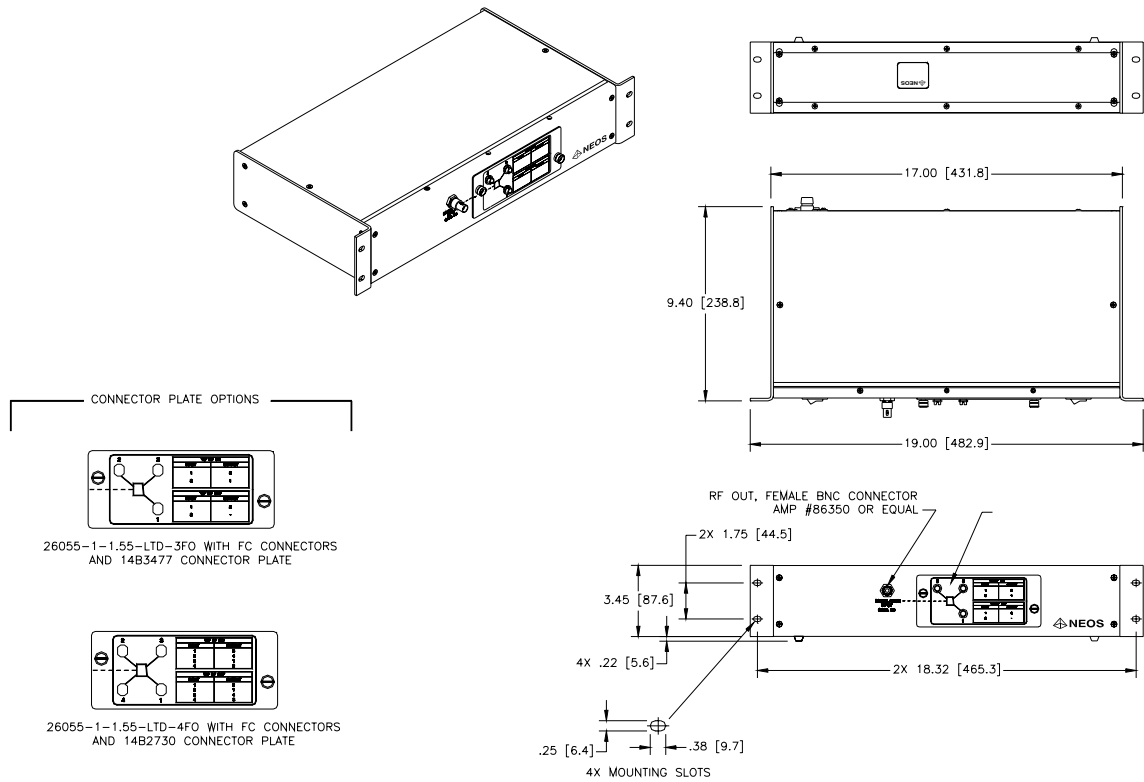
SECTION III**DEVICE SPECIFICATIONS**

26055-1-1.55- LTD-3FO

<u>PARAMETER</u>	<u>SPECIFICATION</u>
Interactive Material	AMTIR
Acoustic Mode	Longitudinal
Operating Wavelength	1550 nm
Window Configuration	AR Coated
Operating Frequency	55 MHz
Insertion loss* (Maximum)	3.5 dB (0 order) Port 1 to 2 4 dB (1 st order) Port 1 to 3
Light Polarization	Random
Polarization Dependent Loss	<0.15 dB
Contrast Ratio	16 dB (0 order) Port 1 to 2 50 dB (1 st order) Port 1 to 3
Crosstalk (Typical)	-50 dB Port 2 to 3
Rise Time	100 ns Maximum
RF Power Level	<1 Watt
Impedance	50 Ohms
VSWR	<1.2:1 @ 55 MHz
Package:	53D3700
Connector Type:	FC/PC Standard, FC/APC or others optional
Fiber Type:	Single Mode Fibers, 9/125
Acceptance Test Procedure:	42A15063
Acceptance Test Results form:	52A14091
Recommended Driver:	
Analog System Driver: 21055-1AS	Digital System Driver: 21055-1DS
Analog Module Driver: 21055-1AM	Digital Module Driver: 21055-1DM

* Not including loss at FC/PC connector interfaces

SECTION IV
OUTLINE DRAWING
 26055-1-1.55- LTD-3FO
 FIGURE 1



53D3700

Dimensions are in inches

Tolerances:

Decimal: .xx = .01 .xxx = .005

Dimensions in [] are in mm.

Millimeter: .xx = .25mm .xxx = .127mm

Angle: = ± 30'

SECTION V
CONTROLS AND CONNECTIONS

Front Panel:

BNC Connector: input: 55 MHz RF @ <0.5Watt.

RF ON = low loss path port 1 to port 3

RF OFF = low loss path port 1 to port 2

Without input RF signal:

Low loss path port 1 to port 2

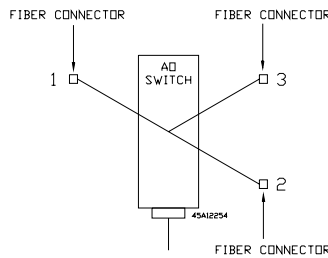


FIGURE 2
SCHEMATIC

45A12254

SECTION V
OPERATING PROCEDURE

When attaching a mating fiber to the fibers on the 26055-1-1.55- LTD-3FO, 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 Ferrule of one of the connectors will also help in aligning the fibers correctly and in turn minimize loss.

Attach the 55 MHz RF driver to the 26055-1-1.55- LTD-3FO with a 50 Ohm cable. Do not exceed 1.0 Watt. See the Acceptance Test Report for each specific device for the settings required for the RF drive power for testing and use of the 26055-1-1.55- LTD-3FO. See the driver manual for further 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. See the driver manual for further information on input signals required for operation.

The operation of the 26055-1-1.55- LTD-3FO normally requires no adjustment or internal cleaning. Do not try to make any adjustment of the internal fiber flanges, nor try to disassemble the device as this action will void the warranty.