

## SCOPE

The Naval Surface Warfare Center, Corona, Measurement Science Department, Code MS32 requires twenty-eight (28) variable optical attenuators for building linearity calibration standards. The attenuators will be mounted to a Printed Circuit Board (PCB) and installed in a very limited space within the linearity standard. The attenuators are also required to be able to communicate with a controller via RS232 communications for complete control of the attenuator. The variable optical attenuators must meet all of the specifications listed on the specification sheet of this document. The variable optical attenuators are required for the NAVSEA Fiber Optic Calibration Standards projects.

## 2.0 BACKGROUND

The NSWC, Corona, Code MS-32, is our RF/Electro-Optics Metrology Branch. MS-32 primarily provides engineering support and life cycle management of all test equipment in the NAVY and Marine Corps inventory

## 3.0 SPECIFICATIONS

Specifications/Salient Characteristics for the required Optical Attenuators.

Shipping shall be included in the total cost

### Specifications Variable Optical Attenuator

<b>Fiber / Performance</b>	
Cable	62.5/125 $\mu$ m graded index multimode (GI MM)
Connector	ST-compatible
Calibrated wavelengths	850 nm, 1300 nm
Insertion Loss (IL)	< 2.0 dB typical (excluding connector loss)
Attenuation range	IL to 40 dB
Attenuator repeatability	$\pm$ 0.03 dB up to 10 dB $\pm$ 0.10 dB up to 30 dB
Attenuator accuracy	$\pm$ 0.3 dB
Maximum optical power	50 mW (17 dBm) CW
Attenuator set point resolution	0.01 dB
<b>Physical</b>	
Dimensions	2.8 $\times$ 1.5 $\times$ 0.8 in (not including pigtailed fibers)
Power	Logic: +5 VDC Motor: +6 to +12 VDC
Control Interface	RS-232 , Rx and Tx lines Baud rate: 9600 Data bits: 8 Parity: none Stop bits: 1 Flow control: none
<b>RS-232 communications</b>	
	(all commands in ASCII format, non-case-sensitive)
Transmission complete signal	Done<CR><LF>
Home attenuator command	H<CR>
Return configuration command	CD<CR>

Set attenuation command	An.nn<CR>
Return attenuation command	D<CR>
Set wavelength command	Wn<CR>
Set insertion loss command	Ln.nn<CR>
<b>PCB Mounting</b>	
Mounting threads	2-56
Mounting dimensions / thread-hole pattern (inches) (all dimensions $\pm 0.02$ inch)	

