

HAT

Hermetic Neutral Density (ND) Attenuator



DiCon's HAT is a fiber optic variable attenuator that uses a motorized graded neutral density filter — precisely positioned in the optical path — to control the level of attenuation.

This product is ideal for multimode fiber applications given that its unique neutral density filter attenuates the entire light beam diameter, thus minimizing the effect of different mode fills.

The product's compact size and simple interface make it a convenient drop-in alternative for many fiber optic applications.

Features

- 0 to 60 dB attenuation range
- Stable attenuation independent of mode fill
- Hermetically sealed for long term reliability
- User friendly control

Applications

- Bit error rate (BER) testing
- System characterization
- Loss simulation

ORDERING INFORMATION

HAT - - - - - -

Fiber Type

- 50** 50/125 μm MMF
- 62** 62.5/125 μm MMF

**Other fiber options are available upon request*

Test Wavelength

- 850** 850 nm
- 980** 980 nm
- 1310** 1310 nm
- 1550** 1550 nm

**Use "/" to add multiple wavelengths (E.g., 850/1310)*

***Other wavelength options are available upon request*

Fiber Jacket

- B** 250 μm Bare Fiber
- L** 900 μm Loose Tube Fiber

Connector Type

- FC** FC/UPC
- FC/APC** FC/APC
- LC** LC/UPC
- LC/APC** LC/APC
- SC** SC/UPC
- SC/APC** SC/APC

**Other connector type are available upon request*

Pigtail Length

- 1** 1 Meter
- X** Specify X Meters

**Tolerance is +/- 0.1 m*



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OPTICAL SPECIFICATIONS^{1,2}

Attenuation Range	0 - 60 dB max.	
Excess Loss ^{3,4}	0.6 dB typ., 0.8 dB max.	
Back Reflection	-25 dB max.	
Repeatability ⁵	±0.05 dB max.	
Attenuation Accuracy	0 - 30 dB	±0.2 dB max.
	30 - 40 dB	±0.3 dB max.
Tuning Speed ⁶	0 - 30 dB	170 ms min. / 1400 ms max.
	0 - 60 dB	170 ms min. / 2600 ms max.
Optical Power	500 mW max.	
Operating Temperature	0°C to 50°C	
Storage Temperature	-20°C to 70°C	
Humidity	40°C / 90% RH / 5 days	

1. Measured separately for each Test Wavelength at room temperature
2. Tested with Encircled flux compliant light source
3. Measured with 3-jumper method or equivalent. See TIA/EIA 526-7
4. Add a maximum of 0.2 dB IL if multiple wavelength band operation is selected.
5. Repeatability is defined by randomly cycling between a handful of attenuation states more than 100 times each.
6. Startup time and Reset time is typically <10 secs. The operation is invalid during this time.

ELECTRICAL SPECIFICATIONS

Control Type	RS232, I ² C or USB
Supply Voltage	5 VDC or 12 VDC
Power Consumption	1.6 W max. Operating
	1.9 W max. Start Up
Connector Type	Samtec P/N: STMM-108-02-G-D
Mating connector	Samtec P/N: TCSD-08-01-F-N

MECHANICAL SPECIFICATIONS

Dimensions in mm

