

## Four stage OTDM Multiplexer

Product Code: OMUX-4-160 / 640



### Product Description

The optical time domain multiplexer (OTDM) is designed for STM-64 based ultra high-speed transmission and test systems ranging from 10 Gbit/s up to 640 Gbit/s, depending on the multiplexer version. The multiplexer consists of four stages, where each stage can be switched on or off independently. Therefore, for e.g. a 10 Gbit/s input signal, the output delivers a 10, 20, 40, 80 or 160 Gbit/s signal. In particular, if a  $2^7-1$  PRBS pattern is applied as input signal, the multiplexer ensures also a true  $2^7-1$  PRBS pattern at the output. The multiplexer designed for a 40 Gbit/s input signal can deliver a respective output signal of either 40, 80, 160, 320 or even 640 Gbit/s. The suppression of the spurious sub-harmonics is better than 40 dB. Either single or dual output polarization are possible. All devices reveal an excellent stability.

The OMUX can be ordered with two separate options:

**Option A, Polarizer:** If required the OMUX can be delivered with an integrated polarizer at one output. This enables easy adjustment of the polarization state at the output.

**Option B, Delayline adjustment:** To match the multiplexer exactly to the applied input data rate the time delay in each stage must be adjusted. By using the configuration option B the delay lines are motor driven to change the delay length  $L$  very precisely. Time delay range is about 100 ps, setting accuracy is better than 0.1 ps. The control of the delay line is managed by pressing push-buttons at the hand held, which shows position of each delay line. One position for each stage can be stored.

### Features

- Fiber based delay line multiplexer
- Four independent stages
- True PRBS output pattern
- Output bit-rate up to 640 Gbit/s
- Low insertion loss
- Excellent long-term stability
- Allows polarization multiplexing

### Applications

- Very high bit rate OTDM communication systems
- High-speed time domain lightwave characterization

### Absolute Maximum Ratings

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Storage temperature	$T_{stg}$	non condensing	-20		+60	°C

## Operation Conditions

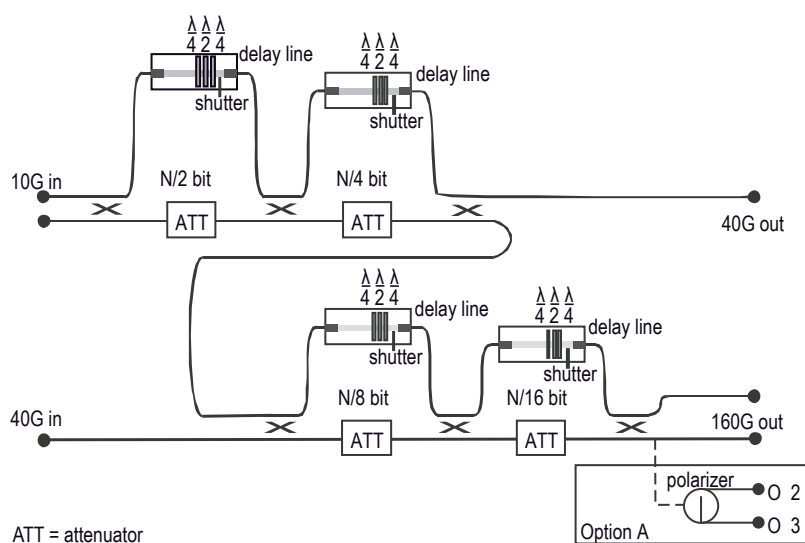
Parameter	Symbol	OMUX 4 - 160	OMUX 4 - 640	Unit
Operating ambient temperature range	$T_{amb}$	10 ... 40	20 ... 40	°C
Operating wavelength range	$\lambda$	1500 ... 1600 or 1260 ... 1360 <sup>1)</sup>		nm
Input data rate		$N * 9.95328$ ; $N = 1,2,4,8$	$N * 39.813$ ; $N = 1,2,4,8$	dBm
Output data rate		$N * 9.95328$ ; $N = 1,2,4,8,16$	$N * 39.813$ ; $N = 1,2,4,8,16$	dBm

## Optical and Electrical Specifications

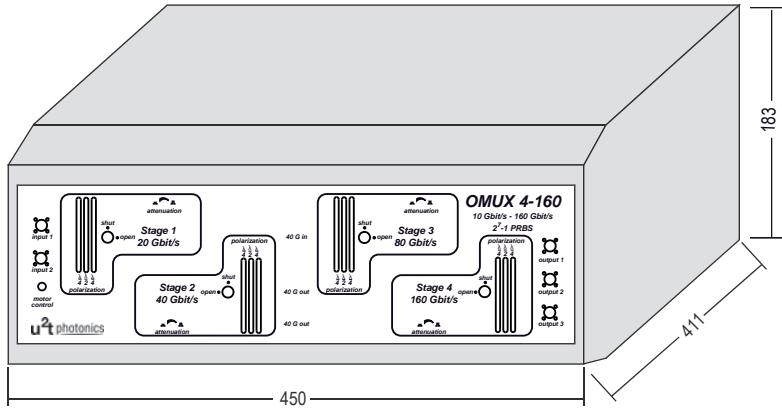
Parameter	Symbol	OMUX 4 - 160	OMUX 4 - 640	Unit
Excess loss		< 10	< 12	dB
Subharmonics supression		> 40	t.b.d.	dB <sub>el</sub>
Output polarization		single or dual		
Input data format		$2^7-1 \dots 2^{31}-1$ PRBS		
Output data format		$2^7-1$ PRBS (for $2^7-1$ input)		
Weight		9.1		kg

Notes: 1) Please define by order code (see Ordering information on page 3)

## Block Diagram



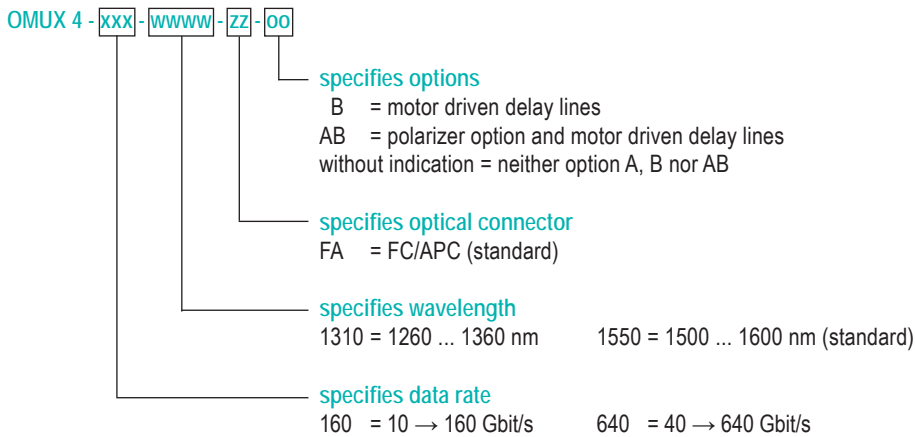
## Mechanical Dimensions



All dimensions in mm.

## Ordering Information

Please use the following table to select your required configuration of the photoreceiver.



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