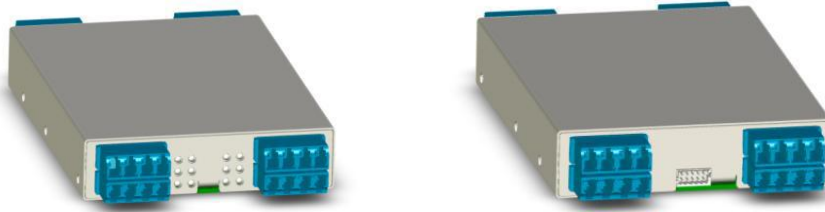


LightBend™ Quad Optical Line Protection Tap Module



DATASHEET

[Return to the Webpage](#)



The Quad OLPT (Optical Line Protection Tap) Module consists of four dual 1x2 non-latched optical switches and eight 1x2 optical splitters. In addition, the module consists of the complementary electrical circuitries for driving the optical switch, with an I2C interface.

Specifications

Parameter	Min	Typical	Max	Unit	
Optical					
Operation Wavelength	1240	1550	1640	nm	
Insertion Loss ^[1]	Switch	0.5	0.8	1	dB
	Splitter		3.0	3.5	dB
	Switch & Splitter		3.5	4.4	dB
Coupling Ratio	Splitter	50/50			
Crosstalk	55	75		dB	
Return Loss	45	55		dB	
Switching Time, power saving off		2	5	ms	
Repeatability		0.05	0.1	dB	
Polarization Dependent Loss		0.07	0.25	dB	
Switch type	Non-Latching				
Durability	3x10 ⁷			cycle	
Optical Power Handling		300	500	mW	
Operation Temperature	-10		70	°C	
Storage Temperature	-40		85	°C	
Electrical					
Suppler Voltage (Vdd)	4.75		15	V	
Power Consumption		45	1500	mW	
SMBus/I2C bus speed			400	kbps	
Logic level low	-0.5	0	0.6	V	
Logic level high	3	3.3	5.5	V	
Physical					
Connector	LC/UPC				
Fiber Type	SMF-28				
Fiber Cover	900 um loose tube			Um	
Package Dimensions	140x101.6x25.4			mm	
Weight	TBD			gr	

Notes:

[1]. It is related to the light path configuration. Measured without connectors for 1xN. For multimode fiber, use a laser source with CPR<15

Features

- No Signal Distortion
- Ultra Low Insertion Loss
- Broad Band
- All Fiber Types

Applications

- Quantum System
- Sensor System
- Instrument
- Spectroscopy

Rev 06/03/25

© Photonwares Corporation

P +1 781-935-1200

E sales@photonwares.com

W www.agiltron.com

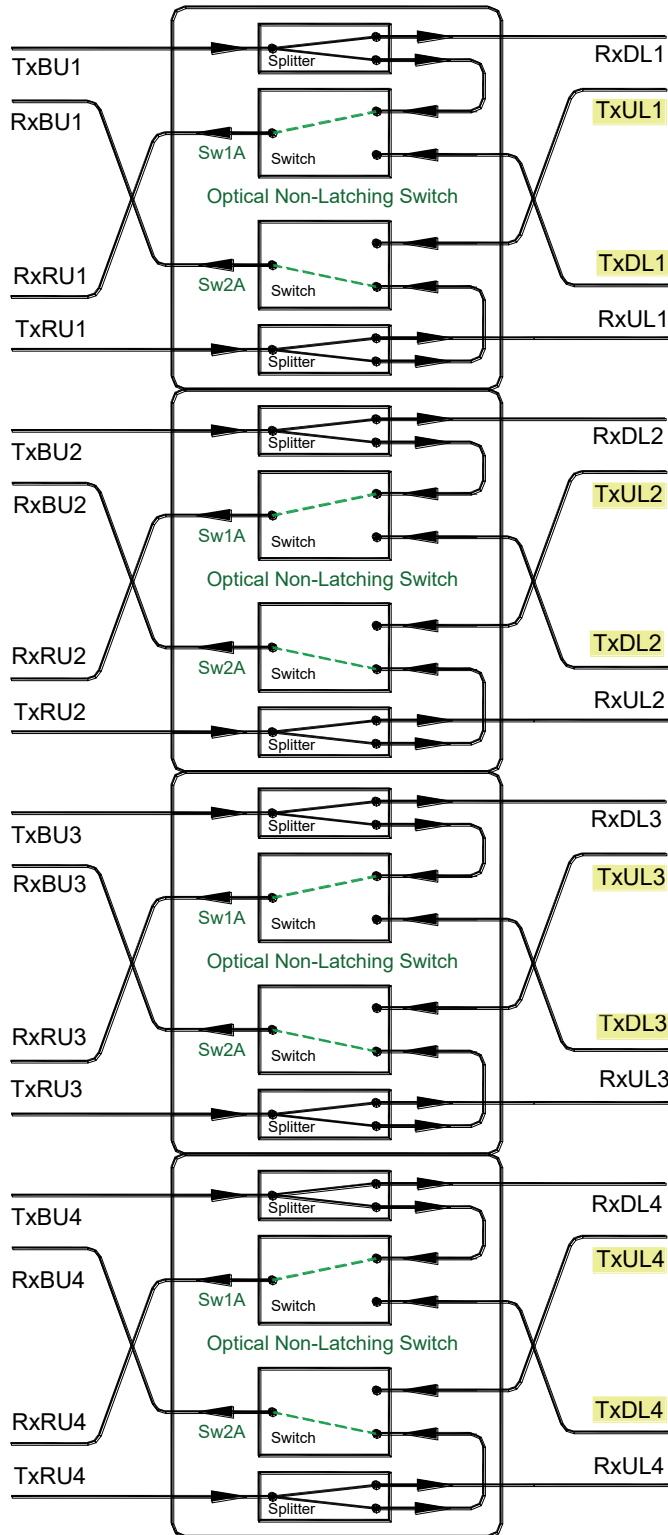
Information contained herein is deemed to be reliable and accurate as of the issue date. Photonwares reserves the right to change the design or specifications at any time without notice. Agiltron is a registered trademark of Photonwares Corporation in the U.S. and other countries.

LightBend™ Quad Optical Line Protection Tap Module



DATASHEET

Functional Block Diagram



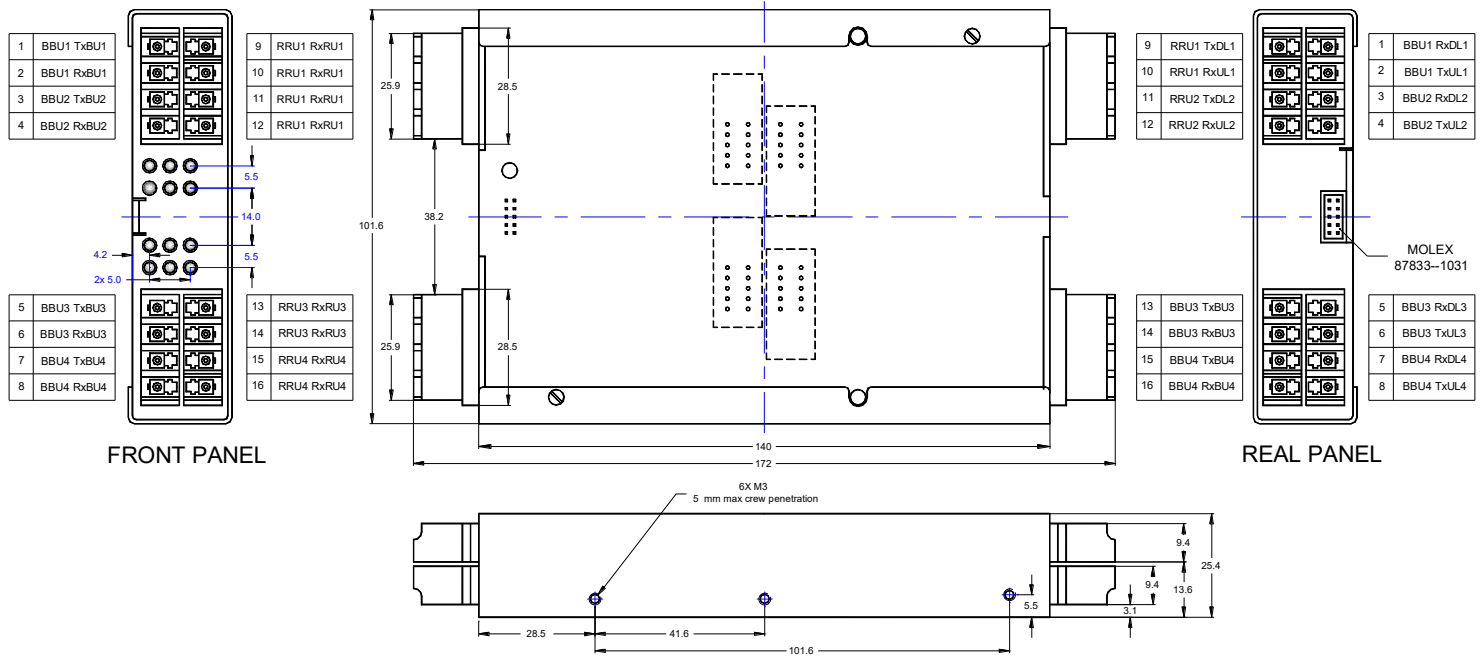
- Power off will reset the switches to default green path **~10 second after power off.**
- Startup will reset optic SW I2C controller less than **~1 second after startup to default green path.**

LightBend™ Quad Optical Line Protection Tap Module



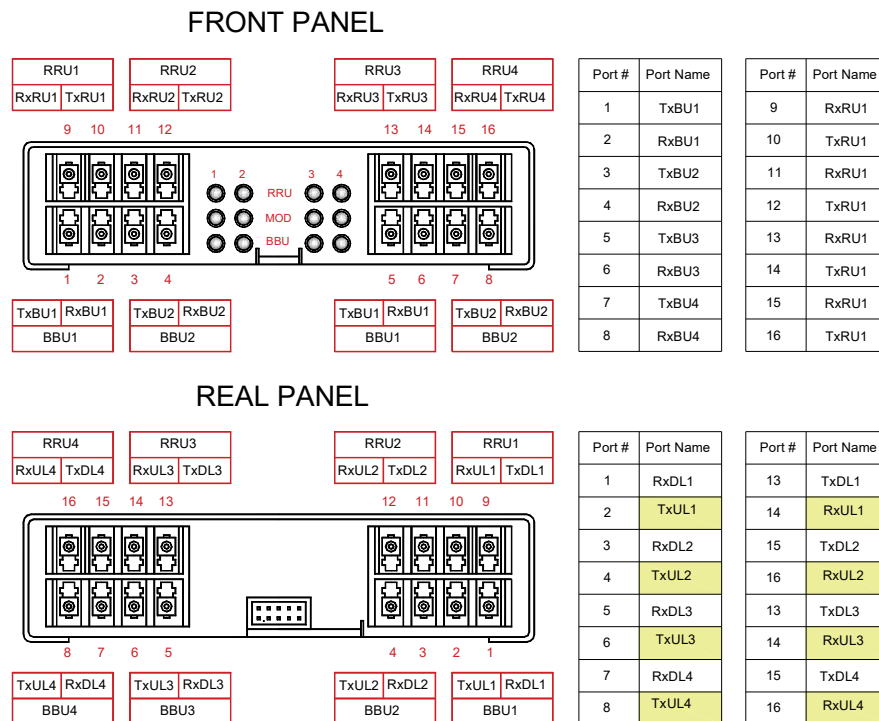
DATASHEET

Mechanical Dimensions (mm)



*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

Fiber Connectors Configuration



Electrical Pin Configuration

Connector type: **MOLEX 87833-1031**

Pin Number	Description		
1	SMBus/I2C SD		400kbps
2	SMBus/I2C SCL		
3	SMBus/I2C Addr0 ¹	"1" when not connected	"0" if connected to ground
4	SMBus/I2C Addr1 ¹	"1" when not connected	"0" if connected to ground
5	SMBus/I2C Addr2 ¹	"1" when not connected	"0" if connected to ground
6	Ground (GND)		
7	disconnect		
8	SMBus/I2C Reset		
9	Ground (GND)		
10	Supply voltage (VDD)		

1. Signa connected to internal pull-up resistor.

LED's SW I2C

16-bit I2C-bus LED driver with programmable blink rates

Refer to NXP **PCA9552** for additional details on timing and transmission protocol

LED	
0	RRU1 Green
1	MOD1 Green
2	MOD1 Yellow
3	BBU1 Green
4	RRU2 Green
5	MOD2 Green
6	MOD2 Yellow
7	BBU2 Green

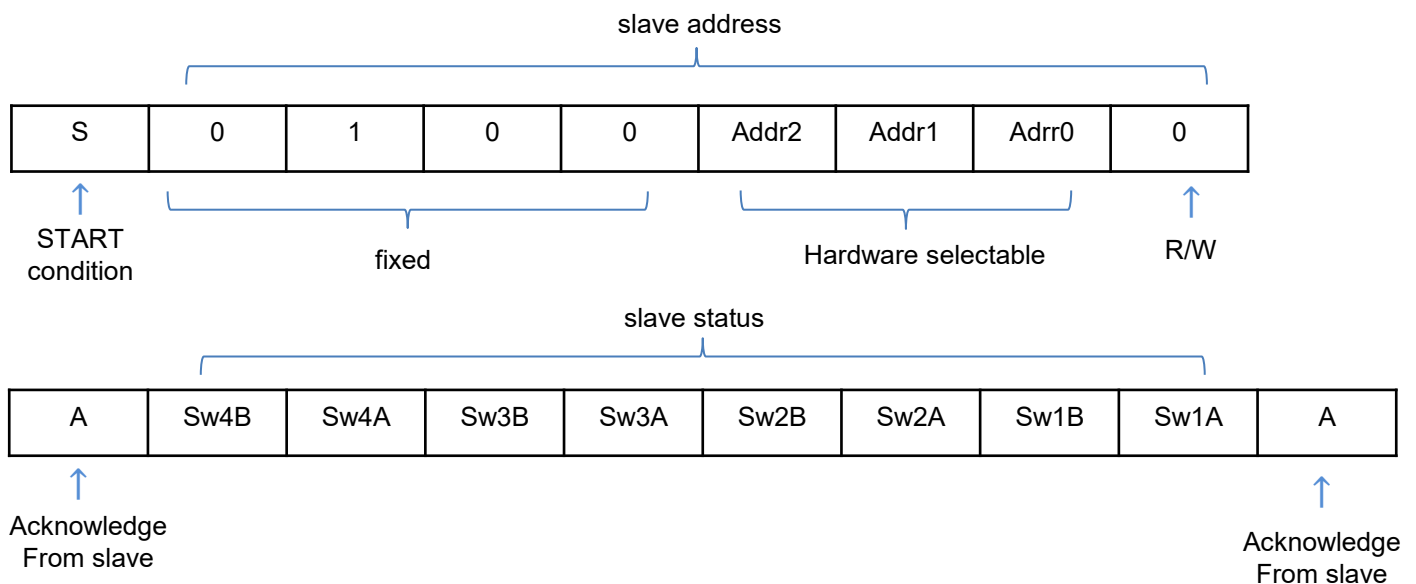
LED	
8	RRU3 Green
9	MOD3 Green
10	MOD3 Yellow
11	BBU3 Green
12	RRU4 Green
13	MOD4 Green
14	MOD4 Yellow
15	BBU4 Green

Optical SW I2C

12C/SMBUS ADDRESS MAP

Addr2	Addr1	Addr0	Address (hex)
0	0	0	20h
0	0	1	21h
0	1	0	22h
0	1	1	23h
1	0	0	24h
1	0	1	25h
1	1	0	26h
1	1	1	27h

CONFIGURING OPTICAL SWITCHES



- Switch status bit 0: CROSS
- Switch status bit 1: BAR (default at startup and power off, green path on function block diagram)
- Refer to NXP PCA8574 for additional details on timing and transmission protocol

LightBend™ Quad Optical Line Protection Tap Module



DATASHEET

Ordering Information (Part Number)

	☐	☐	☐	☐	☐	☐	☐	☐
Prefix	Type	Wavelength	Switch Type	Package	Fiber Type	Connector ^[1]	Interface	Control Voltage
LOPM ¹ -	Dual Line = 02 Three Line = 03 Quad Line = 04 Special = 00	1240-1640 = B 1060 = 1 C+L = 2 1310 = 3 1410 = 4 1550 = 5 650 = 6 780 = 7 850 = 8 1310/1550 = 9 Special = 0	Non-latching = 2 Special = 0	Standard = 1 Special = 0	SMF-28 = 1 MM 50/125 = 5 MM 62.5/125 = 6 Special = 0	None = 1 FC/PC = 2 FC/APC = 3 SC/PC = 4 SC/APC = 5 ST/PC = 6 LC/PC = 7 Duplex LC/PC = 8 Quad LC/PC = 9 LC/UPC = U Special = 0	USB = 1 RS232 = 2 Ethernet = 3 GPIB = 4 Special = 0	4.75~15 V = 1 Special = 0

1. LOPM: LightBend™ Quad Optical Line Protection Tap Module.

[1]. The default connector configuration uses fiber with 0.9 mm buffer protection. The connector cannot be installed directly onto bare fiber because the bare fiber is prone to damage during shipping. However, the connector can be assembled on bare fiber if a 3 cm protective loose tube is added for reinforcement. The customer may remove this protective tube after testing. The optical power handling of a standard connector is less than 0.5 W for SMF-28 fiber and decreases further for smaller-core fibers.