SW-1016
1 x 16 Optical Switch with Power Monitor

Triple Play Communications

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Key Features

- 1 x 16 MEMS based, hitless, bidirectional optical switch
- Optical power monitoring of single channel with low IL
- Powered directly from USB interface or supplied AC/DC adapter
- USB GUI runs on Windows platform
- Embedded browser based GUI used for Ethernet control
- 10/100BaseT Ethernet interface, Static or Dynamic IP
- MTP connector used to allow small size, 6.3" x 3.0" x 1.3"
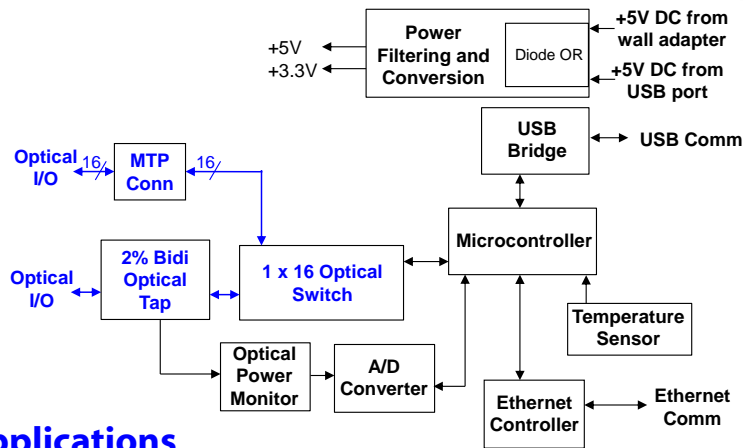
Applications

- Remote optical switching using Ethernet connection
- Multiple optical channel signal monitoring
- Network protection with fast, hitless switching
- Instrumentation
- R&D design verification testing

Overview

The SW-1016 module provides fast, hitless 1 x 16 optical switching with optical power monitoring in a small, portable, cost-effective solution for use in remote switching or network monitoring applications as well as an R&D environment. This bidirectional optical switch is also available in other configurations including 1x4, 1x6, 1x8, 1x12, and 1x32.

The module includes an optical power monitor which uses a 1% tap to minimize insertion loss. An onboard temperature sensor allows the power monitoring circuitry to be calibrated during production test to provide measurement resolution of ±0.01 dB and linearity (relative accuracy) of ±0.1 dB over an operating temperature range of 0°C to 40°C.

The SW-1016 can be USB powered and connects directly to a Windows based computer which runs the graphical user interface (GUI) software. The USB GUI (see screen on right) provides complete control and status of all optical switching and power monitoring functions.
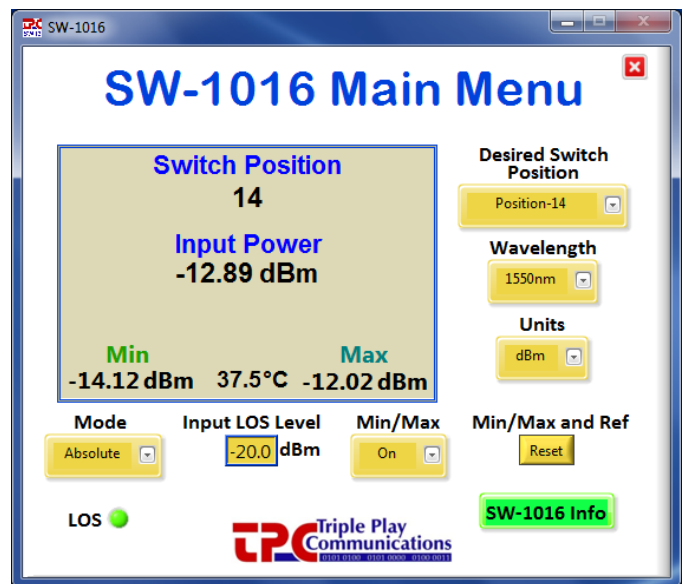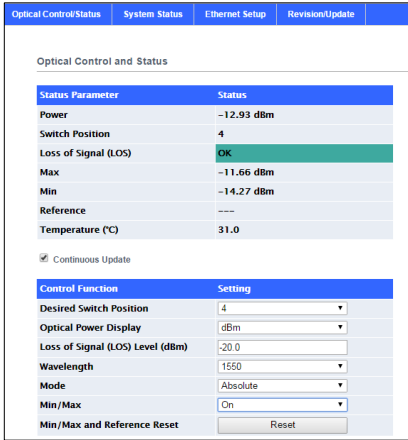
An AC/DC adapter is also provided to power the SW-1016 when its Ethernet interface is used to allow the SW-1016 to be controlled using either Static or Dynamic IP addressing. In this configuration, a standard HTML browser (e.g. Firefox, Chrome, Internet Explorer) provides the user interface and the various control and status HTML pages are integrated into the microcontroller's firmware (see screen on left). Additionally, any iPhone or Android device can provide the full user interface as shown below using the standard Ethernet connection and phone's browser.

Optical Switch and Power Monitor Specifications

Parameter	Minimum	Typical	Maximum
Insertion Loss (1x16, including external MTP cable)			2.0 dB
Isolation	50 dB		
Switching Time (Hitless)			50 ms
Optical Power Rating			500 mW
Dynamic Optical Power Measurement Range	-50 dBm		+10 dBm
Resolution	±0.01 dB		
Relative Accuracy/Linearity	±0.1 dB		
Absolute Accuracy[1]	±1.0 dB		
Calibration Wavelengths	1310 nm	1550	1610 nm
Fiber Type		SM	
Optical Connectors (standard, others available)		FC and MTP[2]	

Electrical, Mechanical, and Environmental Specifications

Parameter	Minimum	Typical	Maximum
Power Interface (USB or AC/DC Adapter)		+5V	
Operating Current		300 mA	350 mA
Communications Interfaces		USB, Ethernet	
Operating Temperature Range	0 °C		40 °C
Dimensions		6.3" x 3.0" x 1.3"	

Part Numbers for Ordering

Description	Part Number
SW-1016 Optical Switch	SW-1016 -▢▢▢▢
Number of Outputs: **04**, **06**, **08**, **12**, **16**, **32**	
Single Mode Fiber: **S**	
1310/1550/1610:**A**, 1310/1550:**S**, 850:**8**, 1550:**C**, 1310:**3**, 1610:**L**	
FC/PC for single port: **F**, FC/APC for single port: **A**	
16 fibers of 24 fiber MTP/APC Elite male[1]: **M**	

Note 1: Single to multi-channel direction is ±1dB, reverse direction is ±2 dB
Note 2: External MTP breakout cable to LC, FC, or other connector type will be quoted separately

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Rev 3-2016

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