

## Product Brief



### Key Features

- Optically isolated continuous power up to 500 mW for customer applications
- Bidirectional data communication up to 3 Mb/s data rate
- Time synchronization for customer application board; link-to-link <100 μs
- Wide range of customer application interfaces (SPI, I<sup>2</sup>C, Analog Input, GPIOs)
- System Lifetime Monitoring for predictive system maintenance and built-in testing
- Combination of up to 16 links in a distributed system
- Link length up to 2 km, working with standard OM1 glass fiber (62.5 μm/125 μm)
- Robust design for industrial applications

### Applications

Optical isolation of power and data for remote sensors for remote sensors and actuators.

# AFBR-PDPEK521

## Evaluation Kit for Optical Power and Data Link

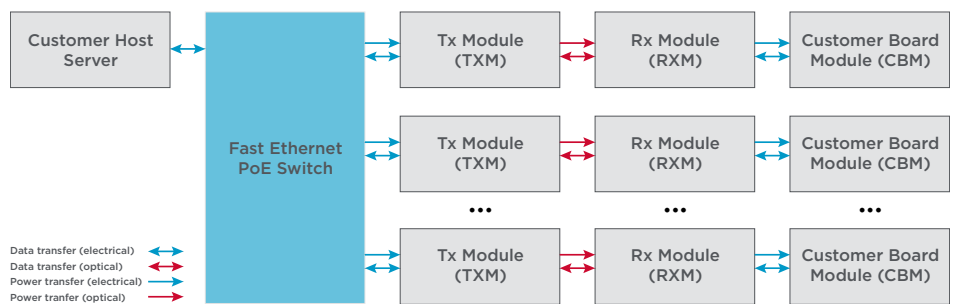
### Overview

Broadcom is offering a generic optical power and data link evaluation kit that can interface to sensors and actuators, supplying them with optically isolated power and bidirectional data. The link incorporates Broadcom's optical power and data components (optical power converter [AFBR-POCX0XL] and laser [AFBR-POLX120]) and targets industrial applications requiring 100% galvanically isolated power and data while ensuring the highest reliability and performance. Built-in test functionality and system lifetime monitoring enhance reliability and alert the system user.

This optical power and data link supplies up to 500 mW of isolated electrical power, while simultaneously managing all data transmission for uplink and downlink communication. Network integration is accomplished over a PoE (Power over Ethernet)-compatible router and a continuous feedback loop ensures that adequate power is supplied at any given moment. Multiple links can be integrated in a distributed manner, while maintaining high time synchronization accuracy between individual links.

A remote firmware update capability keeps the installation current, allowing maintenance and failure identification in remote and difficult locations.

Figure 1: Power and Data Link - Power and Communication Interfaces



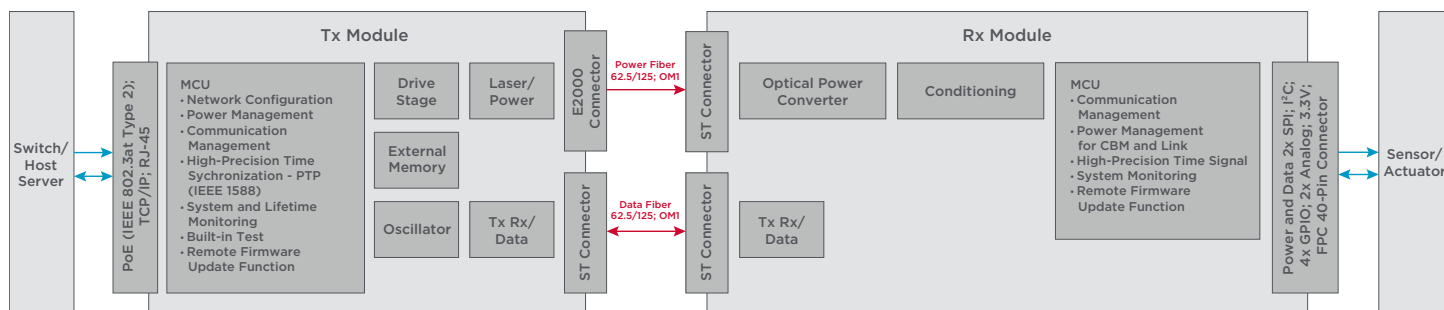
### Ordering Information

Description	Part Number
Evaluation Kit	AFBR-PDPEK521

### Evaluation Kit Components

TxM ( Transmitter Module), RxM (Reciever Module), 10m Duplex patchcord OM1 with E2000 connectors, 3x ST to E2000 short fiber adapter, 2x E2000 Duplex optical wall connector, FPC Cable, Reference Sensor Board

Figure 2: Tx and Rx Modules



## AFBR-PDPEK521 Specifications

Operational Conditions				
Parameter	Min.	Max.	Unit	Comment
Storage Temperature TxM	-30	+80	°C	Non-condensing
Storage Temperature RxM	-40	+85	°C	Non-condensing
Operating Temperature TxM	-30	+65	°C	
Operating Temperature RxM	-40	+85	°C	
Power Consumption TxM		15	W	Maximum rating
Power Consumption RxM		100	mW	Maximum rating
Output Load RxM		500	mW	Typical at 50m fiber distance
Data Rate		3	Mb/s	
Optical Specifications				
Parameter	Min.	Max.	Unit	Comment
Optical Wavelength Power	780	850	nm	
LOP Data	-15	-7	dBm	
Optical Wavelength Data	825	875	nm	
Laser Classification				Laser Class 4 IEC60825-1
Connectivity				
Parameter	Value		Comment	
TxM Power	E2000/PC		Pigtailed to laser (10 cm)	
TxM Data	ST/PC			
RxM Power	ST/PC			
RxM Data	ST/PC			
Optical Fiber Transmission	62.5/125; OM1		Attenuation 3.5 dB/km at 850 nm	
TxM Power and Data	RJ-45		PoE, IEEE 1508.3, Type 2	
RxM Power and Data	40-pin FPC		3.3V; 2x SPI; I²C; 4x GPIO; 2x Analog	
Mechanical Specifications				
Parameter	Value		Unit	
Dimensions TxM	150 x 85 x 42		mm	
Dimensions RxM	84 x 36 x 26		mm	
Weight TxM	480		g	
Weight RxM	100		g	

## Mechanical Drawing

Figure 3: Rx Module Schematic (Dimensions in Millimeters)

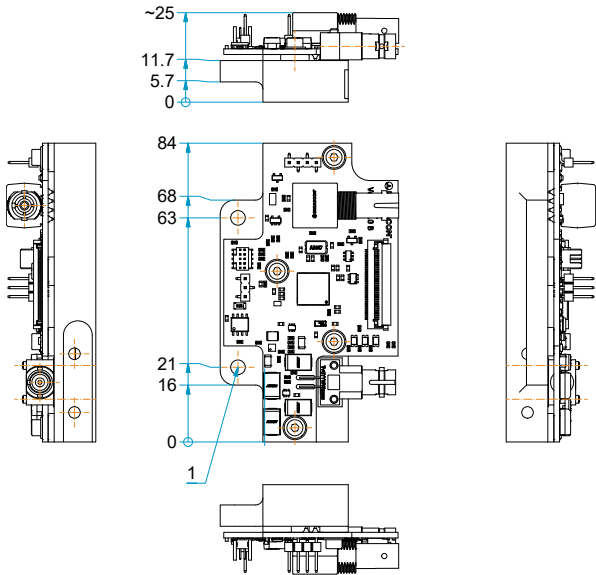
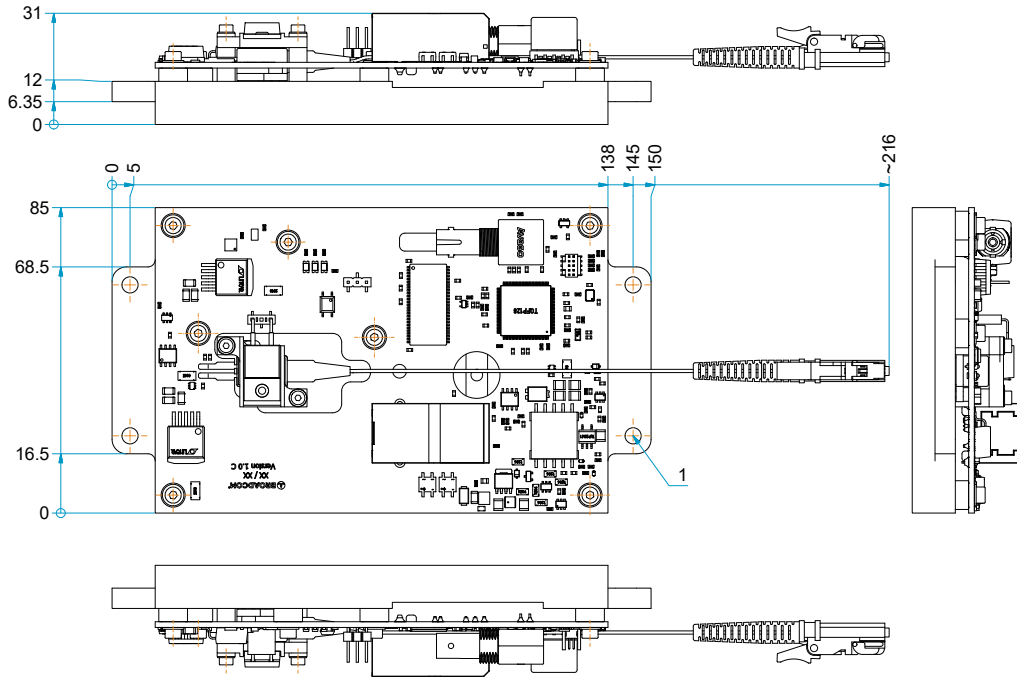


Figure 4: Tx Module Schematic (Dimensions in Millimeters)



## User Safety

