

MIH[®] PoF Platform

PoFP Series

Datasheet



Key Features:

- Flexible Arduino-based platform
- Provides voltage isolated power
- Bidirectional noise free communication
- Plug and play interface
- Class 1 laser safety compliant
- 250mW electrical output at 3.3V and 5V from the SIM

Applications:

- PoF sensor system development
- PoF robotic system development
- PoF remote devices development
- PoF data communication system development

Power over Fiber (PoF) is the delivery of power via laser light through a fiber optic cable, where the delivered light is converted to electricity by a PV cell on the receiving end, also known as photovoltaic power converter (PPC). Targeting the utility, electric vehicle, renewable, rail traction, and other industries, MHGP's innovative PoF solution provides three major benefits: **(1) noise immunity**, **(2) voltage isolation**, and **(3) spark free operation**.

PoF Platform (PoFP)

The PoF Platform (PoFP) is a development platform to help designers build their own PoF based product for unique applications. It is an Arduino based, easy-to-use hardware and software platform, containing a power interface module (PIM) and a sensor interface module (SIM, which includes a PPC for converting the laser light to electricity). The PIM sends laser power to the SIM, and communicates with the SIM optically via a transmitter and receiver. The PPC on the SIM powers the communications and conditioning electronics on the SIM. The SIM provides a completely voltage isolated conditioned DC power output of 250mW at 3.3V and 5V to customer electronics, such as sensors.

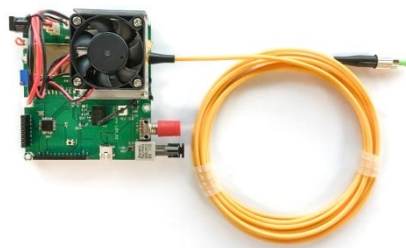
The PoFP aims to make PoF more accessible to inventors, makers and research teams. In doing so, new applications for PoF will proliferate, as new products get to market faster, and at lower cost. PoFP provides a turnkey PoF solution enabling rapid integration of application specific features, thus dramatically reducing development timelines, budgets, and technical risk for innovative PoF products.

The PIM module requires an external DC power source to drive a 2.5W laser. The laser power is transmitted through the fiber to a PPC placed on the SIM to generate electric power for the SIM and customer electronics. Tx and Rx devices on both the PIM and SIM allow for bidirectional communication via fiber between the PIM and SIM.

The SIM also includes standard analog and digital data interfaces (SPI, I2C and USB, as examples) for receiving data from customer electronics, which it then transmits to the PIM.

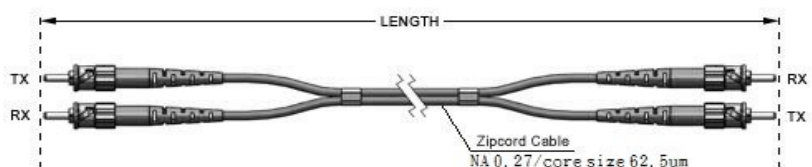
PIM Technology Specifications

Microcontroller	Atmega328P
Operation Voltage	5V
Input Voltage (recommend)	6V
Input Voltage (Limit)	5~6V
Laser Power Output	0~2.5W
PC Interface	Mini USB
Digital I/O Pins	6, includes SPI, I ² C and PWM
PWM Digital I/O Pins	3
Analog Input Pins	7, 10 bits resolution ADC
DC Current per Pin	20mA (I/O pins) under steady state
Output Voltages	3.3V (limited to 50mA), 5V (limited to 200mA)
Data Fiber Optic Connector	ST/ST
PCB Dimensions	90mm x 80mm
Module Dimensions (L) x (W) x (H)	104mm x 91mm x 64mm
Weight	172g
Operating Environment	RT, 0% ~ 80% RH



Fiber Patch Cord (FPC)

Connectors	One zip-cord FPC with ST connectors for data transfer
Length (L)	3m or custom length options
Operating Environment	RT, 0% ~ 80% RH
Weight	59g



SIM Technology Specifications

Microcontroller	Atmega328P
Operation Voltage	5V
SIM DC Power Output	250mW
PC Interface	Mini USB
Digital I/O Pins	10, includes SPI, I ² C and PWM
PWM Digital I/O Pins	5
Analog Input Pins	8, 10 bits resolution ADC
DC Current per Pin	20mA (I/O pins) under steady state
Output Voltages	3.3V (limited to 50mA), 5V (limited to 50mA)
Power Fiber Optic Connector	FC
Data Fiber Optic Connector	ST/ST
PCB Dimensions	46mm x 55mm
Module Dimensions (L) x (W) x (H)	55mm x 68mm x 14mm
Weight	39g
Operating Environment	RT, 0% ~ 80% RH

