

Power over Fiber Platform Datasheet

PoFP Series



Key Features:

- Flexible Arduino-based platform
- Provides voltage isolated power
- Bidirectional noise free communication
- Plug and play interface
- Class 1 laser safety compliant
- Up to 0.25W electrical output at 3.3V and 5V from the SIM

Description:

Power over Fiber (PoF) is a novel power delivery technology which delivers electrical power by sending laser light through lightweight, non-conductive fiber optic cable to a remote photovoltaic receiver or photovoltaic power converter (PPC) to power remote sensors or electrical devices. MHGP's innovative PoF solution provides three major benefits: (1) noise immunity, (2) voltage isolation, and (3) spark free operation.

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 SIM provides completely voltage isolated, conditioned DC power up to ~250mW at 3.3V and 5V to customer electronics, such as sensors.

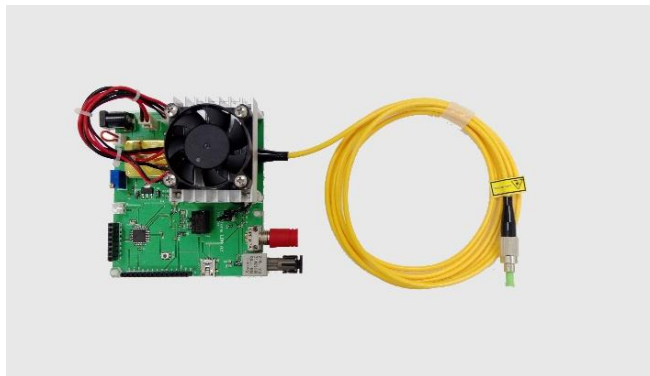
The PoFP aims to make PoF more accessible to inventors, makers and research teams. In doing so, new applications for PoF will proliferate, as new products get to market faster, and at lower cost. PoFP provides a turnkey PoF solution enabling rapid integration of application specific features, thus dramatically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

The PIM module requires an external DC power source to drive a 1W 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.

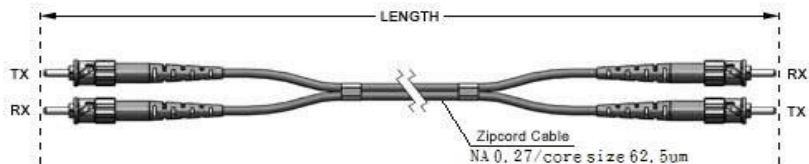
PIM Technology Specifications

Microcontroller	Atmega328P
Operation Voltage	5V
Input Voltage (recommend)	6V
Input Voltage (Limit)	5~6V
Laser Power Output	0~1W
PC Interface	Mini USB
Digital I/O Pins	6, include SPI, I ² C and PWM
PWM Digital I/O Pins	3
Analog Input Pins	7, 10 bits resolution ADC
Output Voltage	3.3V ± 10%, 5V ± 20%
Power Fiber	3m, 62.5um, NA 0.27, FC
PCB Dimension	90mm x 80mm
Module Size (L) x (W) x (H)	104mm x 91mm x 64mm



Fiber Patch Cord (FPC)

Connectors	One zip-cord FPC with ST connectors for data transfer
Length (L)	3m or custom length options
Core Size	62.5 um
NA	0.27
Operating Environment	- 20 °C ~ 80 °C, 0% ~ 100% RH (no condensation)



SIM Technology Specifications

Microcontroller	Atmega328P
Operation Voltage	5V
PPC Output Power	Power output by PPC up to 250mW
PC Interface	Mini USB
Digital I/O Pins	10, include SPI, I ² C and PWM
PWM Digital I/O Pins	5
Analog Input Pins	8,10 bits resolution ADC
Output Voltage	3.3V ± 10%, 5V ± 20%
PCB Dimension	46mm x 55mm
Module Size (L) x (W) x (H)	55mm x 68mm x 14mm

