

## High Power Optical Data (HiPOD) System



### Key Features

- Delivers fully isolated electric power through noise immune, non-conductive optical fiber
- Power from multiple laser channels are combined to achieve up to 5 watts electrical power
- Provides voltages from 6 VDC to 16 VDC
- Operates in either the 800 or 900 nm wavelength range
- Utilizes common 62.5  $\mu\text{m}$  or 105  $\mu\text{m}$  fiber
- Hot swap capability of laser modules
- Convenient rack-mount laser drawer
- Power display and on/off control on each individual laser module
- Automatic channel shutdown for fiber disconnect
- Remote unit powers external electronics and provides bi-directional communication using RS-232 data protocol
- Standard fiber and data connectors used throughout system

### Applications

- Electronic circuits operating in:
  - High RF, EMI, and magnetic fields
  - High voltage environments
  - Extreme environmental conditions
  - Fiber communication networks
  - Telecom systems
  - Data communication networks
  - GPS and wireless communication systems
  - Current monitoring circuits in electric power distribution grids
  - Military communication and sensor systems

The High Power Optical Data (HiPOD) system is a fiber-based self-powered data transmission system consisting of a local unit and a remote unit. Up to 5 watts of fully-isolated electrical power can be provided by the remote unit to drive electronics in environments that are hazardous, electrically-noisy, remote, inaccessible, or exposed to extreme weather. Uplink and downlink data channels, controlled through a data module in the local unit, permit duplex communications with the remotely located electronic assembly.

The laser drawer located in the local unit can accept up to eight laser modules to power the remote electronics. Each laser module is easily installed within a chassis rack and can be removed for maintenance while the other modules remain powered. Each laser module sends light over its own individual fiber link to illuminate a photovoltaic power converter (PPC) located in the remote module. The PPC converts the optical light to electrical power with up to 50% efficiency. Power from each individual PPC is combined to generate 5 watts of electrical output from the remote unit. The laser power channels can be configured to operate in either the 830 nm or 940 nm wavelength range. Optical energy can be delivered in each channel via common 62.5  $\mu\text{m}$  and 105  $\mu\text{m}$  multimode fiber over distances up to 500 meters depending on the laser module/PPC combination selected.

The remote unit converts the optical light to electrical energy to drive remote electronics, and to facilitate data communications between the remote electronics and the local headend. Two 62.5  $\mu\text{m}$  multimode fibers are used to transmit data in the RS-232 data protocol between the remote unit and the data module installed in the local unit.

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## Specifications

Parameter	Local Module	Remote Module
<b>Physical</b>		
Dimensions (W x D x H)	19 x 18 x 10 in. (incl. fiber connectors)	12 x 17 x 7 in.
Mounting arrangement	19 inch rack mount	Bracket mount
<b>Electrical</b>		
Power input	350 W (115 V AC, 60 Hz)	-
Power output		
Optical power per channel	Up to 5 W CW	-
DC output power per channel	-	650 mW, 6-16 V, at 500 meters
Number of power channels	Up to 8	Up to 8
Data output		
Uplink channel	RS-232	RS-232
Downlink channel	RS-232	RS-232
<b>Environmental</b>		
Operating temperature	10 to 30°C	-30 to 40°C
Storage temperature	-30 to 40°C	-30 to 40°C
Humidity	0 to 80% RH	0 to 80% RH
Cold start time	3 minutes	3 minutes
<b>System</b>		
DC output power	-	Up to 5 W (8 combined channels)
Optical wavelength		
Data	830 nm	830 nm
Power	830 or 940 nm	830 or 940 nm
<b>Fiber Interface</b>		
Fiber cables (power), 62.5 μm or 105 μm multimode fiber up to 500 meters		
Fiber connector type	E2000	FC
Number of power fibers	Up to 8	Up to 8
Fiber cables (data), 62.5 μm multimode fiber up to 500 meters		
Fiber connector type	ST	ST
Number of data fibers	2	2

**Safety Specifications**
**Module**
**Specification**

Local Module	Master on-off switch powers down all laser modules Auto shutdown when downlink data fiber is disconnected
Laser Module	Key interlock (rear) On-off switch (front) Laser power readout (optional-front) Auto shutdown when power fiber is disconnected (rear) Output power danger labels (side and rear)
Remote Module	Fiber connector assembly installed within sealed housing Output power danger labels (within connector assembly housing)

**Safety and Operating Considerations**
**JDSU Products comply with US 21 CFR 21 Chapter J, as applicable**

The laser light emitted from the laser modules is invisible and is harmful to the human eye (retinal hazard). Avoid Exposure to Eye or Skin when the laser modules are in operation, with connectors or panels off and interlocks defeated.

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