



# LIGHT INJECTION AND OUTPUT TECHNOLOGIES



# THE TECHNOLOGIES

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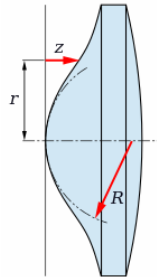
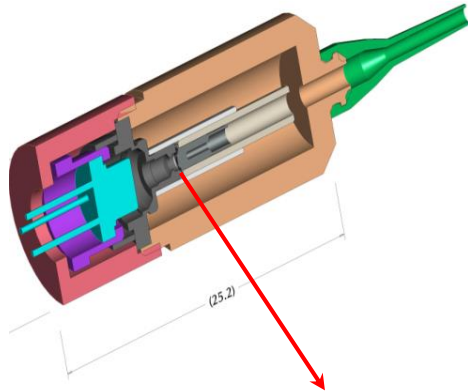
## ■ Injection:

- Pigtailed Laser with Active Laser Welding
- Laser Modules
  - MAT (Module Active Transmitter)
  - MDD E-2000™ (Microwave link)

## ■ Output and Injection components:

- IMOD (Interface Module)
- Connectors based on PSf, PSI, PSb Optical Interface

# Injection Pigtailed Laser with Active Laser Welding



- **Technology:** SM and PM oriented.
- **Wavelengths:** 405nm- 1550nm
- **Light injection:** > 55%  
→ Thanks to a **special lens** and the Diode active alignment on X/Y/Z axis.
- **Connectors:** All Diamond types

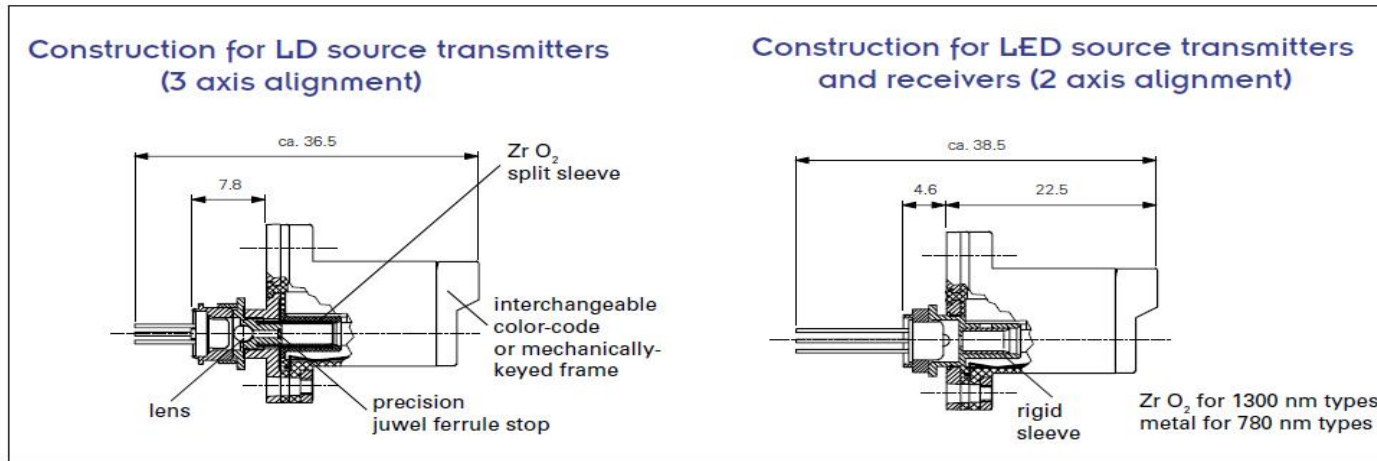


# Injection

## Standard MAT (Module Active Transmitter)

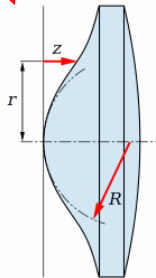
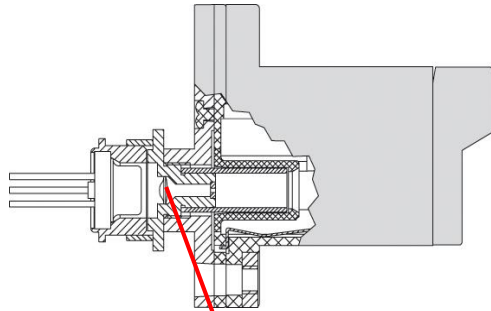


- **Laser** and **LED** transmitter modules (MAT) based on E-2000™ connector housing.
- MAT active device transmitter modules permit the direct coupling of optical signals into fibers terminated with E-2000™ connectors. (MAR receivers perform the reverse receiving function)



# Injection

## Example of a customized MAT (Module Active Transmitter)



Duplex and compact



Simplex

- **Technology:** MM & SM
- **Wavelengths:** 405nm-1310nm / 1550nm (SM)

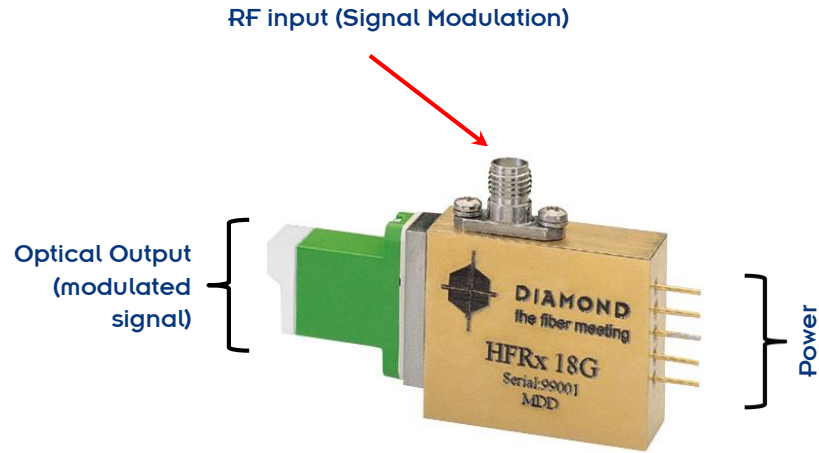
- **Light injection:** > 55%

Thanks to a **special lens** and the Diode active alignment on X/Y/Z axis.  
(With ball lens **only 8% of light injection**)

- **Connector:** E-2000™

# Injection

## MDD E-2000™ (Microwave link)



MITEQ: <http://www.miteq.com/page.php?ID=26&Z=Fiber+Optic+Links>

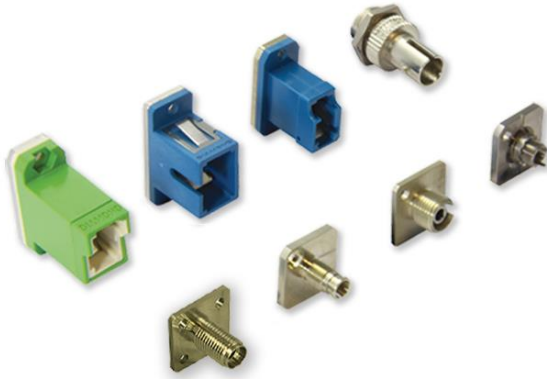
- The MDD E-2000™ photonic/microwave receptacle is offered for both analogue and digital links and has high modulation capacity, up to 18 Ghz.
- Diamond performs the active alignment on X/Y/Z axis between SM fibre and the laser diode including the optical isolator

### ■ Typical applications

- Communication systems
- Antenna
- Digital and cellular signals
- Inter-facility RF communication Links
- Radio over fiber
- Radar, Aircraft and shipboard

# Output components

## IMOD (Interface Module)



- The Interface Module (IMOD) has been developed as a half adapter for free space application of optical connector.
- The two major reasons for using a high quality IMOD are the need of **repeatable positioning** in both axial and radial direction between each connector and each IMOD.

IMOD are available in three different configurations:

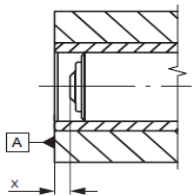


Fig. 1

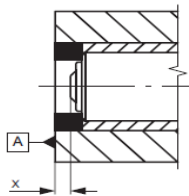


Fig. 2

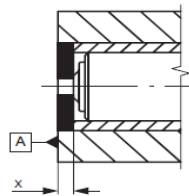


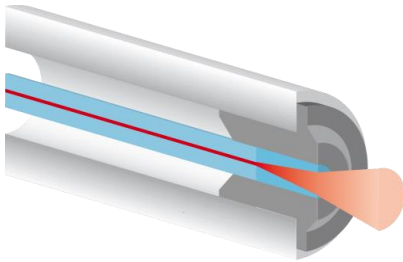
Fig. 3

# Output and injection components

## Connectors based on PSf, PSI, PSb Optical Interface

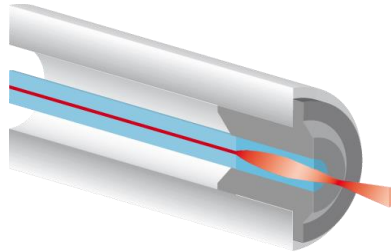


- These Power Solution Technologies are considered Optical Interfaces for free space applications



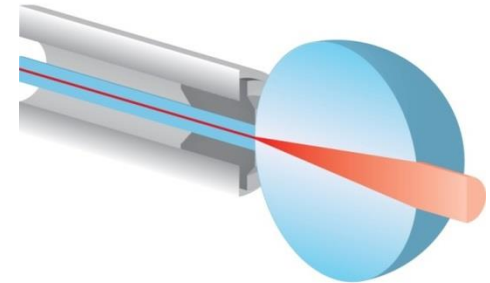
### PSf (Diverging)

The Power Solution free space (PSf) technology reduces the power density at the glass-air interface by splicing a rod of pure silica on the fiber termination (SM, PM or MM).



### PSI (Focused)

The Power Solution lensed (PSI) technology allows the beam shaping of a SM or MM fiber close to the ferrule front face.



### PSb (Collimated)

The Power Solution ball lens (PSb) technology reduces the power density at the glass-air interface by adding a ball lens on the ferrule front face. (SM, or MM).