

Canobeam™ free space optics

What we do

For over 20 years Molex has manufactured comprehensive copper and optical fiber data transport solutions for the transmission of voice, data and imaging signals

Peace of mind

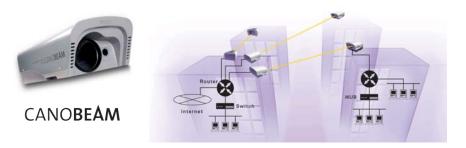
The Canobeam Free Space Optics units are covered by a 1 Year Product Replacement Warranty



Canobeam - Free Space Optics

Canobeam^{TM*} is a Free Space Optics solution that provides a point-to-point wireless optical beam transmission system. As part of the Molex total product range, Canobeam is ideal for campus and building-to-building connectivity as either a primary or backup backbone link. The robust Canobeam can be installed outside or in a window for point-to-point applications.

Fiber Optic Cable has proven to be the preferred backbone media to link buildings and users, but sometimes installing fiber optic cable is not the most feasible option - over roads, bodies of water, railways or where the cost of installing fiber is prohibitive. Molex recognizes this and has a global partnership with Canon to provide a secure high bandwidth Free Space Optics solution.



Highlights of Canobeam MFSO-100 series

- High speed economical transmission from 25Mbps to an ultra-fast 1.25Gbps
- High-quality, reliable wireless communications to a distance of up to 2km
- Auto Tracking that compensates for movements in the building due to temperature variations or vibrations
- Built-in Management Board to manage transceivers via SNMP or Telnet
- Protocol independent, like fiber optic cable
- Installation and operating costs are typically lower than installing fiber optic cable

Accommodates a wide range of transfer speeds and distances

There are three models available in the Canobeam family: MFSO-110, MFSO-120 and MFSO-130. Each model covers different needs in terms of data transfer speeds (from 25Mbps to 1.25Gbps) and over transmission distances of up to 2km. The specifications of each model are outlined in Table 1.1 overleaf.

Auto Tracking provides stable communications

All of the models within the Canobeam MFSO-100 Series employ Canon's patented Automatic Tracking Function that maintains ideal beam alignment, compensating for slight movement in the building due to temperature variations and vibration due to wind and other factors.

3R Function (Re-shaping, Re-timing, Re-generating)

The 3R function with MFSO-130 can be used to normalize the signal waveform with Gigabit Ethernet transmissions in order to permit relay transmissions without deterioration of signal quality between buildings that are more than 1km apart or that do not provide good line of site.

Reliability and Security

Since the Auto Tracking feature always provides maximum power to the receiver, the unit is capable of highly reliable and stable communications. Canobeam also offers high security as the point to point wireless transmission using an optical beam is virtually impossible to tap into due to its narrow footprint.

By specifying Molex you will be partnering with a global company which focuses exclusively on data transport systems. This commitment in maintaining data integrity is evident in every aspect of our business. The Free Space Optics solution, Canobeam, comes with a 1 Year Replacement Warranty as standard. When you specify the Molex solution you benefit from global resources, standards exceeding performance and innovative solutions.







Canobeam[™] free space optics

Americas

Corporate Headquarters +1 630 969 4550

Asia Pacific

Australia +61 3 9971 7111 China +86 21 5048 0889 India +91 80 4129 3500

EMEA

United Kingdom +44 (0)1489 572 111 Czech Republic +420 222 191 418 Poland +48 22 32 60 720 Russia +7 495 642 64 55 Ukraine +38 (044) 494 2642 Middle East +971 4 288 7573 South Africa +27 11 807 2577



Canobeam - Free Space Optics

Transmission Distances at Varying Degrees of Atmospheric Attenuation

| Weather Condition ¹ | Light Haze | Thin Fog | Light Fog |
|--------------------------------|-----------------------|--------------------|---------------------|
| Precipitation ² | Light Rain @ 2.5mm/hr | Heavy Rain@25mm/hr | Cloudburst@100mm/hr |
| Attenuation/km | 3dB | 10dB | 30dB |
| Visibility ³ | 4333 | 1300 | 433 |
| FSO-110 Distance ³ | 1750 | 1000 | 520 |
| FSO-120 Distance ³ | 5490 | 2360 | 1010 |
| FS0-130 Distance ³ | 3650 | 1720 | 780 |

Visibility distances are approximate.

Above values are approximate.
Above values are calculated by transmission margin, beam divergence, Gaussian intensity distribution of light.
Actual transmission distance should be considered with scintillation, backlight noise, and other factors.

1. E.J. McCartney, Optics of the Atmosphere, J. Wiley & Sons, New York, 1976

2. T.S. Chu and D.C. Hogg, Effects of precipitation on propagation at 0.63, 3.5, and 10.6 Microns, Bell Syst. Tech. J., 47, pp. 723-759, 1968.

3. All distances expressed in meters Above values are different from Canon recommended transmission distances described in specifications.

Canobeam Specifications

| FS0-100 Series | FSO-110 Type SFP | FSO-120 Type SFP | FSO-130 Type SFP |
|-----------------------------|--|--------------------|------------------|
| Transmission Distance | 20-500m | 100-2000m | 100-1000m |
| Transmission Speed | 25-156Mbps | 25-156Mbps | 1.25Gbps |
| Transmission Device | Laser Diode | | |
| Laser Wavelength | 785±15nm | | |
| Laser Output Power | Approx.7mW | ox.7mW Approx.11mW | |
| Safety Class of Laser | Class 1M | | |
| Receiving Device | Si PIN-PD | | Si APD |
| Auto Tracking Adjustment | Yes (Horizontal: ±1.2° Vertical: ±1.2°) | | |
| 3R Function | - | - | Yes |
| Media Interface | SFP SLOT x1 | | |
| Console Port | RS-232C(DSUB-9Pin), 10Base-T(RJ-45) | | |
| Operation Temperature Range | -20°C - +50°C | | |
| Power | 100-240VAC 50/60Hz (-48VDC optional -Please contact a Molex for more information) | | |
| | | | |
| Power Consumption | Approx. 20W | | |
| Installation Environment | Indoor or outdoor (Weatherproof : IP56) | | |
| Dimensions | 246(W) x 168(H) x 487(D)mm | | |
| Weight | Approx. 8Kg | | |

Canobeam Ordering Information

| Part No. | SAP No. | Description |
|-------------------|-----------|---|
| MFSO-110-Type SFP | 180600108 | 25-156 Mbps FS0 Wireless 50-500 Meter |
| MFS0-120-Type SFP | 180600109 | 25-156 Mbps FS0 Wireless 100-2000 Meter |
| MFSO-130-Type SFP | 180600110 | 1.25 Gpbs FS0 Wireless 100-1000 Meter |

 $^{{}^{\}star}$ Canobeam is a registered trademark or trademark of Canon