molex®
one company › a world of innovation

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

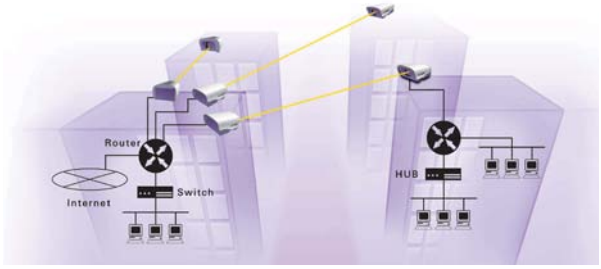
Peace of mind
The Canobeam Free Space Optics units are covered by a 1 Year Product Replacement Warranty

Canobeam - Free Space Optics

Canobeam™* 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.

CANOBEAM



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.

molex®
one company › a world of innovation

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
FSO-130 Distance[3]	3650	1720	780

Visibility distances 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

FSO-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	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 FSO Wireless 50-500 Meter
MFSO-120-Type SFP	180600109	25-156 Mbps FSO Wireless 100-2000 Meter
MFSO-130-Type SFP	180600110	1.25 Gpbs FSO Wireless 100-1000 Meter