

# MetaliCom LLC

## Fiber Optic Versus Copper.

YR-2011





# Why Fiber Optic

- ***Smaller & Lighter*** - A fiber optic cable is much smaller and lighter in weight than copper cable
- ***Pack more in existing duct work*** – Because of its small size and bend radius, fiber can be more easily installed in existing ducts for system expansion & retrofits
- ***More information than Copper*** – Fiber can carry many more signals and deliver them with greater fidelity than either copper wire or coaxial cable.
- ***Video Quality independent of distance*** – Unlike copper, fiber systems retain their high quality over the entire distance
- ***Higher Data Rates*** - Support much higher data rates, and at greater distances than coaxial cable
- ***No Ground Loops***
- ***Secure*** – Fiber is ideal for secure communications since it does not radiate signals and is virtually impossible to tap.
- ***Totally immune to interference***
- ***Non Corrosive*** – Can be placed in environments adverse to copper.



# Types of Video Transmission Pathways

Feature	Coax	Cat 5 & 6	Optical Fiber
Distance (max)	300 meters	300 meters	40+km
Ease of Deployment	Difficult – heavy cable	Moderate	Easy – light, multi-strand cable
# of Video on one cable	One	Multiple – compressed	Up to 128 real-time (uncompressed)
Security	Ability to tap	Ability to tap/hack	SECURE



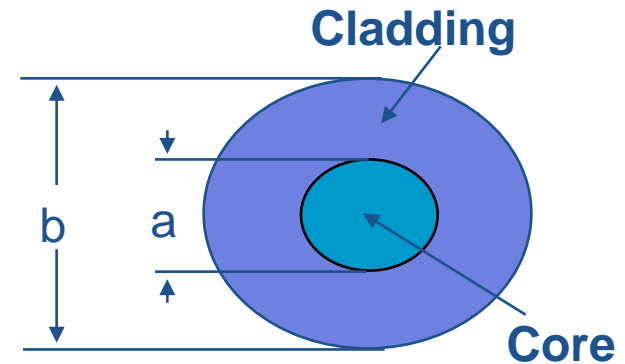
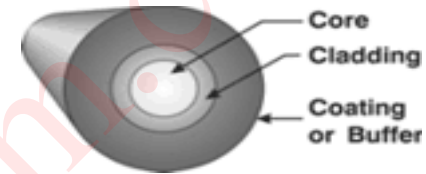
# Common Optical Fiber Types

## Multi Mode

- $62.5\mu\text{m}/125\mu\text{m}$
- $50\mu\text{m}/125\mu\text{m}$

## Single Mode

- $9\mu\text{m}/125\mu\text{m}$



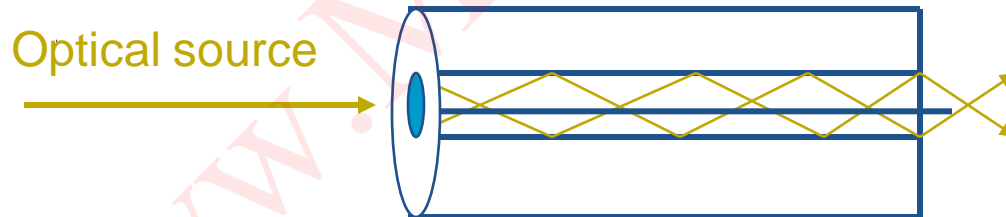
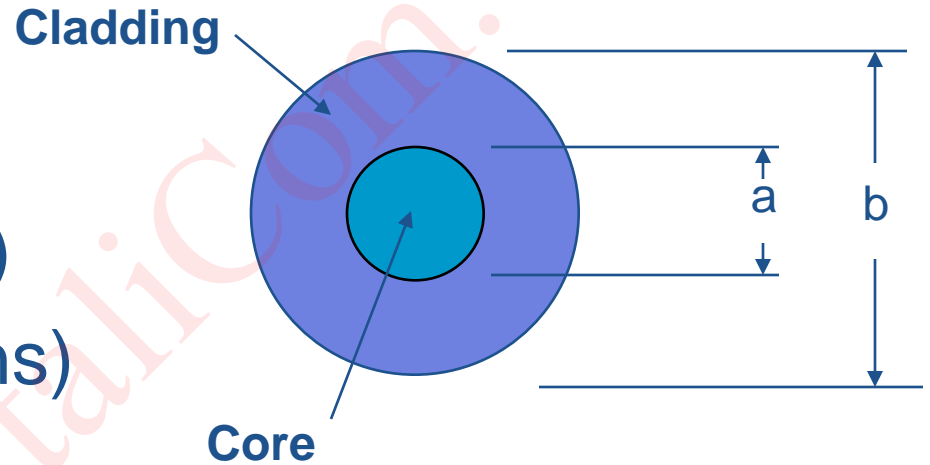
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# Fiber Types

## Multimode

- **Orange** Jacket
- 50/125 (microns)
- 62.5/125 (microns)

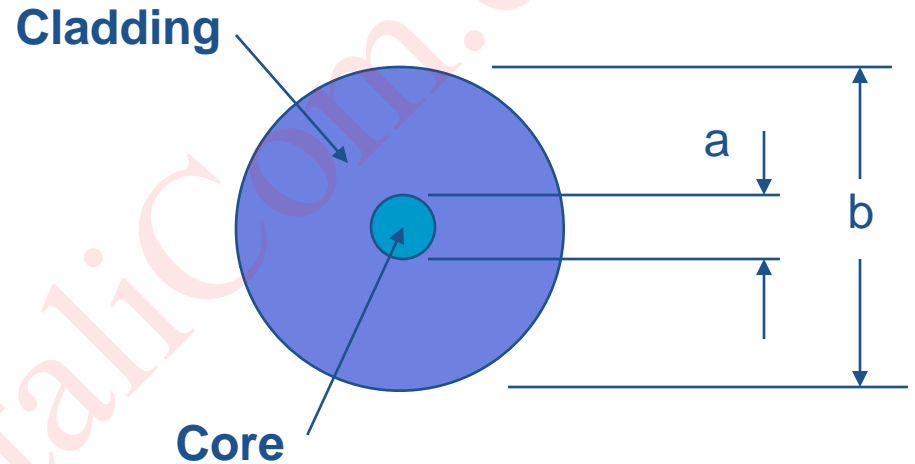




# Fiber Types (con't)



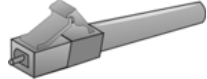


## Singlemode

- **Yellow** Jacket
- 9/125 (microns)





# Standard Optical Connector Types

Connector	Insertion Loss	Repeatability	Fiber Type	Applications
<b>FC</b> 	0.25 - 0.50 dB	0.20 dB	SM, MM	Datacom, Telecommunications
<b>ST</b> 	Typ. 0.40 dB (SM) Typ. 0.50 dB (MM)	Typ. 0.40 dB (SM) Typ. 0.20 dB (MM)	SM, MM	Pro A/V Communications Security
<b>LC</b> 	0.20-0.70 dB	0.20 dB	SM, MM	Pro A/V Fiber Optic Network
<b>SC</b> 	0.20-0.45 dB	0.10 dB	SM, MM	Datacom
<b>SC Duplex</b> 	0.20-0.45 dB	0.10 dB	SM, MM	Datacom



# Summary of Fiber Benefits

- High performance over long distances
- Send large quantities of information
- Multiple data formats over a single fiber
- Secure
- Immune to EMI
- Small Lightweight cables
- Easy to Handle, low cost





# Thank you

[www.MetaliCom.com](http://www.MetaliCom.com)

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