Smart Link Better Life.

YOFC Unveils MaxBand® OM4 Pro/Ultra Series of Multimode Fibres Enhancing Data Center Efficiency in the AI Era

In the field of short-haul optical communications for data centers, transmission solutions using vertical cavity surface emitting lasers (VCSELs) and multimode fibres (MMFs) are favored for their cost-effectiveness. For 25 Gbaud transmission, OM3 and OM4 fibres have become the dominant choice for link coverage ranging from 70 to 100 meters. However, as data centers transition to higher transmission speeds, the industry is shifting towards the use of 100G/Lane VCSEL transceivers. This shift has introduced new challenges for fibre, the medium for data transmission. Issues such as the central wavelength drift of the light source and bandwidth limitations of traditional OM4 fibre at 850nm or longer wavelengths may lead to a reduction in link transmission distance.

Over the past two decades, the rapid growth in the number of Internet users and connected devices has dramatically boosted traffic to global cloud platforms and enterprise data centres. This surge has positioned data centres at the forefront of technological innovation. In recent years, the widespread adoption of AI technology has prompted data centres to evolve toward more efficient computing. As a result, data centre operators worldwide are striving to develop faster, denser, more cost-effective, and more energy-efficient infrastructures.

To address these challenges, Yangtze Optical Fibre and Cable Joint Stock Limited Company (hereinafter referred to as "YOFC") has leveraged its deep technical expertise in MMFs to design the high-performance MaxBand® OM4 Pro/Ultra series of MMFs, specifically tailored for 100G/Lane optical transceivers. These new fibre products enhance the transmission efficiency of data centers.

• MaxBand® OM4 Pro:

It offers an effective modal bandwidth of over 4700 MHz*km in the 850nm to 870nm wavelength range. This significantly improves the average bandwidth within this range and effectively addresses the issue of reduced transmission distance caused by central wavelength drift.

• OM4 Pro: Broadened Bandwidth, Future Ready

Traditional OM4 fibre provides high bandwidth at 850nm but is limited in bandwidth for longer wavelengths with a narrow operating window. By expanding the operating window to 850~870nm, YOFC's MaxBand® OM4 Pro fibre effectively compensates for signal degradation resulting from wavelength shifts in optical modules. This ensures high-quality signal transmission, reduces connectivity costs for AI data centers, and enables a seamless upgrade for data center multimode connectivity solutions to 400G, 800G, and higher speeds.

• OM4 Ultra: Dual Windows, Double Performance

OM4 Ultra fibre extends the operating window to 910nm, achieving dual operating windows of 850~870nm and 910nm. This innovative design supports 400Gb/s, 800Gb/s, and 1.6Tb/s single-wavelength and dual-wavelength transmission systems. Utilizing wavelength division multiplexing (WDM) technology, it enables high-speed transmission through fewer fibres, paving the way for potential upgrades to 1.6Tb/s in data centers.

• OM5: All-round High Bandwidth, Pioneer in Multi-wavelength Transmission

YOFC MaxBand® OM5 fibre provides comprehensive high bandwidth in the 850~950nm wavelength range. It supports BiDi or SWDM multi-wavelength transmission systems from 40Gb/s to 1.6Tb/s, offering a robust fibre foundation for future SWDM transmission solutions of 1.6Tb/s and above.

• Fully Upgraded and Compatible

With the advancement of data center technology, YOFC's MMFs have evolved from single-window to wide-window, dual-window, and multi-window solutions, offering comprehensive fibre options to customers. These innovative fibre products not only fulfill the demand for higher-speed networks but also ensure backward compatibility, facilitating seamless integration with existing technologies. By providing new fibre optic solutions, YOFC supports the green and low-carbon development of large-scale data centers in the age of AI, driving data centers toward a more efficient and environmentally friendly future.

As a global leader in optical communications, YOFC has been deeply committed to innovation in MMFs for many years. Their MMF products are widely used around the world, earning the trust and praise of numerous customers. With these groundbreaking solutions, YOFC is dedicated to satisfying the growing demand for data transmission with enhanced efficiency and reliability. In doing so, the company is facilitating the growth of data centers in the AI era and beyond by addressing their need for higher speeds.

• MaxBand® OM4 Ultra:

It provides high bandwidth at wavelengths of 850nm to 870nm and 910nm. This meets the demand for 100G/Lane single-wavelength unidirectional and bidirectional transmission over distances of up to 100 meters, significantly enhancing transmission distance for single-channel 100G and Terabit BiDi links.

Fibre Subtype	Minimum Effective Modal Bandwidth (Mkz-km)				
	850nm	860nm	870nm	910nm	953nm
MaxBand® OM4 Standard Efficiency MMF	4700	\	\	\	\
MaxBand® OM4 Pro High Efficiency MMF	4700	4700	4700	\	\
MaxBand® OM4 Ultra High Efficiency MMF	4700	4700	4700	3100	\
MaxBand® OM5 Standard Efficiency MMF	4700	\	\	\	2470

Figure 1: YOFC's Optimized MMF Bandwidth for 100G/Lane

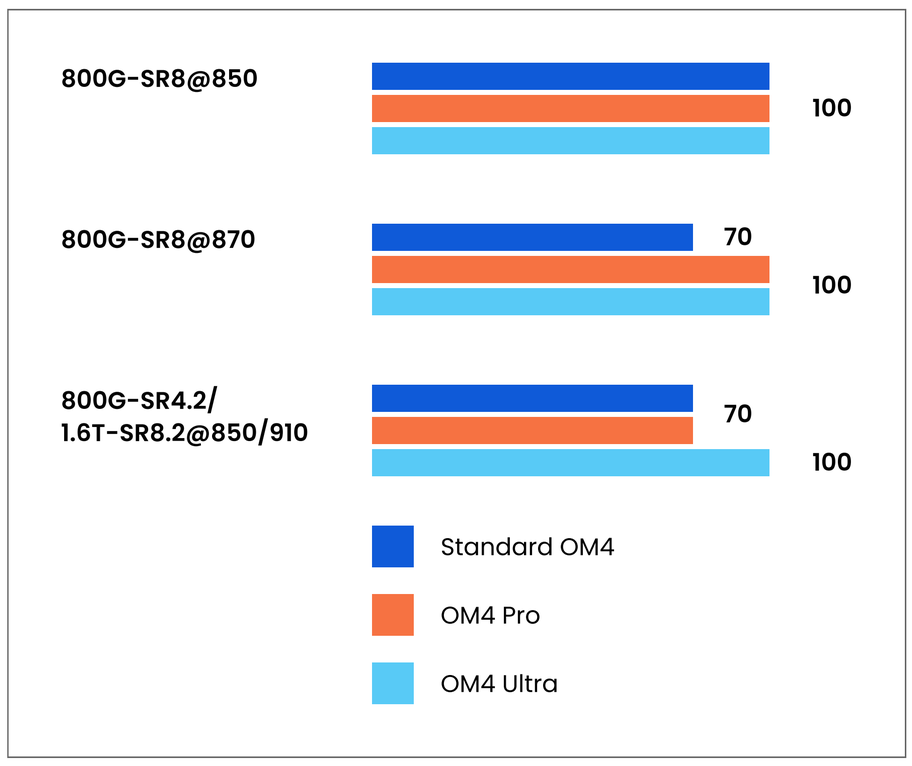

Figure 2: Transmission Distances for 100G/Lane Using Different Optical Fibres

YOFC's MaxBand® OM4 Pro/Ultra series of MMFs are fully compatible with existing OM4 and OM5 fibre optic standards, as well as systems based on these standards.