

Sumitomo Bakelite Co., Ltd.  
April 20, 2023

**Started development of an optical branching connector with vibration and dust resistance  
Aimed at product sales and commercialization in fiscal 2024**

Tokyo, Japan – April 20, 2023 Sumitomo Bakelite Co., Ltd. (TOKYO: 4203 HQ: Shinagawa-ku, Tokyo, President and Representative Director: Kazuhiko Fujiwara) is pleased to announce that it has started the development of an optical branching connector with vibration and dust resistance that takes advantage of our company's proprietary polymer waveguide technology, with the aim of product sales and commercialization in fiscal 2024. In addition, we are doing a collaborative project with Sumitomo Electric Industries, Ltd. which holds the world's leading market share in the field of automotive wire harnesses, to develop a branching connector for optical harnesses.

**Background of development**

In recent years, the development of the Internet of Things (IoT) and Big Data has been rapid. At the same time, optical communication networks continue their technological advancement in transmitting large amounts of data at high speed.

Besides the communications infrastructure, consider the equipment for autonomous vehicles, industrial robots, factory automation (FA), medical, broadcasting, and the like. As the amount of information increases, there will be a desire for the processing terminals to be smaller, lighter, and lower power. To those ends, one method being investigated is the use of optical signals inside the equipment.

However, the use of optical transmission at multiple locations inside the equipment requires (1) photoelectric conversion modules, which increase cost, and (2) the difficulty of handling glass optical fibers. As a solution to these problems, our company has started development of a pluggable, multi-core, optical branching connector (Figure 1).

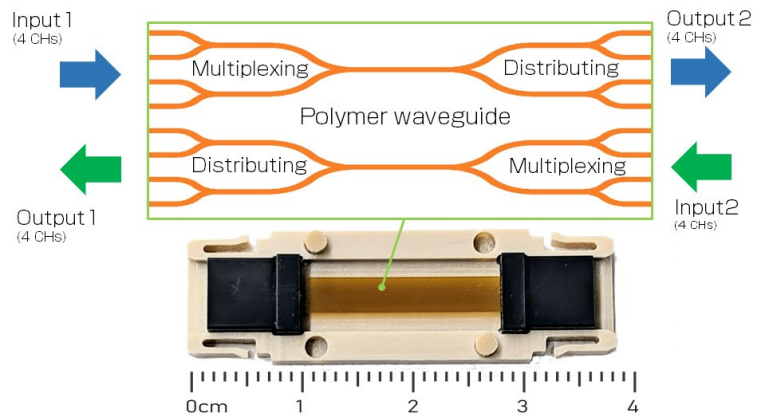


Figure 1: Multi-core, optical branching connector (Example of 4 CHs to 4 CHs)

**Product Features**

The product is based on our polymer waveguide \*1 (Figure 2) technology, which our company been developing since 2002. To meet the needs of customers, the film's circuit paths can multiplex and distribute the optical signals without excessive loss.\*2 It also has a pluggable function with optical fibers, and can be used by connecting to multimode fibers with the MT connectors \*3 that are popular in data centers. Being resistant to vibration, dust and heat, it can even be used in outdoor environments.

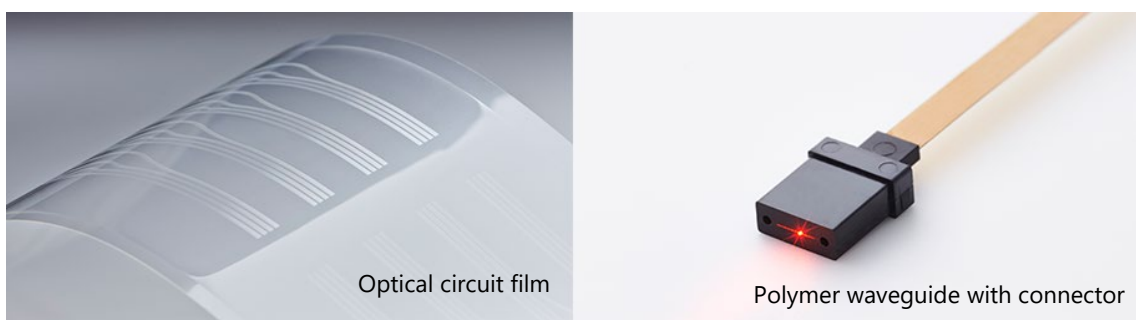


Figure 2 : Our company's polymer waveguides

### Future plans

We have begun sample work for adoption in a wide range of fields, including industrial robots, FA equipment, medical equipment and broadcasting equipment, and plan to begin sales of optical connectors during fiscal 2024. In addition, we are conducting joint development with Sumitomo Electric Industries, which is developing an optical harness for use in vehicles, where optical communication is becoming increasingly standardized. We aim to put it into practical use in fiscal 2026 (Fig. 3).

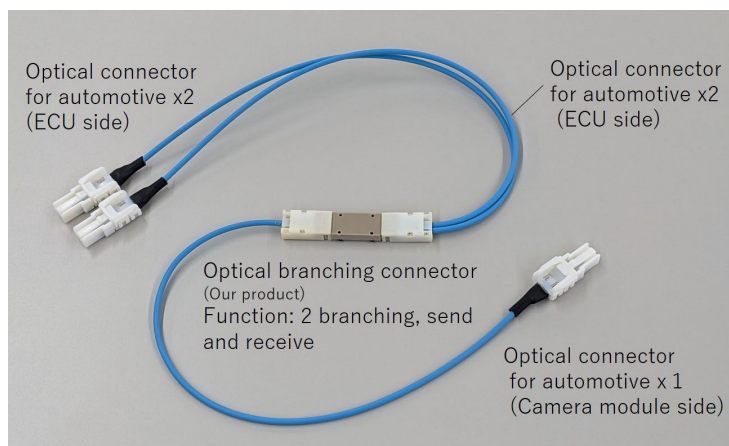


Fig. 3: On-automotive optical harness system targeted for practical use in fiscal 2026  
Mock-up of (provided by Sumitomo Electric Industries, Ltd.)

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### Notes:

\*1 Polymer optical waveguides made by Sumitomo Bakelite Co., Ltd.

<https://www.sumibe.co.jp/english/product/coin/>

\*2 Excess loss: refers to a loss that does not include the principle loss (half-value: 3 dB) that occurs every two branches

[https://www.sumibe.co.jp/english/product/coin/coin\\_001/index.html](https://www.sumibe.co.jp/english/product/coin/coin_001/index.html)

\*3 MT (Mechanically Transferable) connector is a type of optical connector which connects multi optical fibers with high precision and high density.



**SUMITOMO  
ELECTRIC**

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**Connect with Innovation**

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[https://inquiry.sumibe.co.jp/m/e\\_coin\\_waveguide](https://inquiry.sumibe.co.jp/m/e_coin_waveguide)

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