



Cleaner for optical connector One-Click®* Cleaner PRO Series – Start of Sales

We have started selling the “One-Click® Cleaner PRO” series of cleaners for optical connectors. Compared with our company’s conventional products, this product reduces cleaning time by about 45% and enables cleaning more than 775 times, about 1.5 times the previous number. Previously, it was necessary to replace the guide cap to clean the ferrule inside the connector plug and the ferrule inside the adapter alternately. Integrating the tip of the cleaner with the guide cap has eliminated the need to replace the guide cap, saving time by about 45% compared to our previous products. The integrated structure of the guide cap also



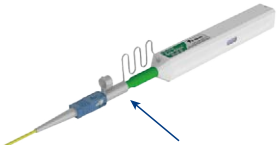
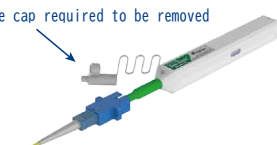
makes it easier to work in limited space and cleaning while holding other tools. In addition, improvements have been made to the cleaner’s internal structure, increasing the number of cleanable cycles to more than 775 cleans, about 1.5 times more than our company’s previous products. We will continue to meet customer’s needs and contribute to improve the workability of optical communications construction and building a high-quality optical network.

*One-Click® is a registered trademark of our company.

■ Table 1. Product specifications

	One-Click® Cleaner SC PRO	One-Click® Cleaner LC PRO
Product name		
Size (mm)	L: 185 × H: 17.5 × W: 17.5 (L: 220 when nozzle is extended)	L: 185 × H: 17.5 × W: 17.5 (L: 220 when nozzle is extended)
Number of cleaning cycles	775 or more	
Applicable Connectors	SC Connectors	LC Connectors

■ Operation method

	When cleaning the ferrule in the plug	When cleaning the ferrule in the adapter
One-Click® Cleaner PRO	 No need to put on guide cap	 No need to remove guide cap
Our company's conventional products	 Guide cap required	 Guide cap required to be removed

Dedicated site for One-Click® Cleaner PRO
<https://www.opticalcomponent.fujikura.com/products/one-click-cleaner-pro-2/>



Other lineup of cleaners for optical connectors
<https://www.opticalcomponent.fujikura.com/products/push-type-cleaners-3/>



■ Points relevant to the 17 SDGs

We will continue to meet customer needs and contribute to improving the workability of optical communications construction and building a high-quality optical networks.



Introduction of Leaky Coaxial Cable for Sub6-band Local 5G

The 5G communication technology is widely used in the mobile phone industry. Local 5G is a network use by companies, municipalities, and others who have acquired the license to use this technology and made it a private wireless network. A high-speed, secure, and reliable wireless communication environment can be built to meet their own purposes.

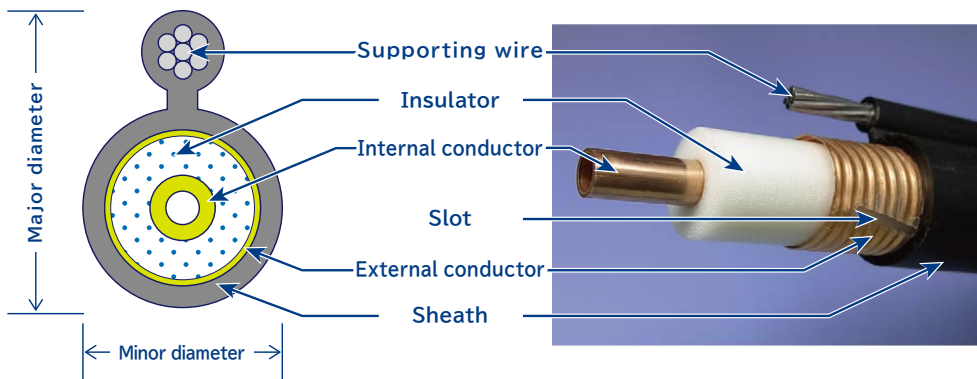
The LCX 20 D-S6 series leaky coaxial cable, developed by Fujikura Dia Cable, is a cable-type antenna that supports the Sub6 band local 5G allocated frequency band (4.6 to 4.9 GHz) and allows for a communication area to be built around the cable. The effective construction sites are long and narrow areas such as railways, roads,

tunnels and dams, and areas with many radio obstacles such as underground shopping malls as well as factory production lines, and this product is suited for building a communication area to meet the shape of the site. The product also has two types of polarization, horizontal and vertical (Table 2), which can be combined and installed to build high-speed communications using polarized MIMO.

We are also developing products that reduce the amount of radio emissions, making it easier to control the radio emission area. We will contribute to the promotion of DX in various industries by providing products that contribute to the construction of flexible and reliable local 5G areas.

■ Table 1 Leaky coaxial cable configuration for local 5G

Configuration		Units	Item
Internal conductor	Material	-	Copper tube
Insulator	Material	-	Highly expanded polyethylene
External conductor	Material	-	Copper tape (with pleats) with slot
Support wire	Material	-	Galvanized steel strand wire
	Number of pieces /element wire diameter	pieces/mm	7 / 1.6
Sheath	Material	-	Non-halogen flame-retardant polyethylene
Standard finish outer diameter Minor diameter × Major diameter		mm	29 × 39
Approximate mass		kg / m	0.7



■ Table 2 Leaked Coaxial Cable Performance for Local 5G (Frequency 4.6 to 4.9 GHz)

	EM-LCX20D-S6H6F	EM-LCX20D-S6V6F
Polarization	Horizontal	Vertical
Coupling Loss (dB)	60	60
Attenuation (dB/m)	0.23 (4.6GHz)	0.16 (4.6GHz)
	0.30 (4.9GHz)	0.20 (4.9GHz)

■ Points relevant to the 17 SDGs

Leaky coaxial cables using our company's proprietary technology will help build a flexible and reliable local 5G area, contributing to DX promotion in a variety of industries.



Offers the industry's smallest FPC connectors FF 51 Series

As mobile devices become smaller and thinner, there is a growing demand for even smaller FPC connectors. To meet this demand, we developed the FF51 series connector.

This product is the industry's smallest FPC connector, with a mating height of 0.50 mm.

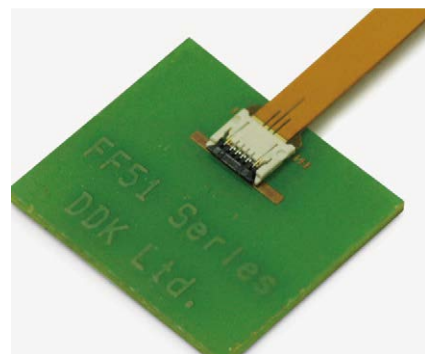
Despite being the industry's smallest connector and having the smallest core, it maintains high FPC cable retention performance with our company's proprietary locking structure and cable locking mechanism.

This connector was developed primarily for use in backlight connections for LCD displays.

■ Table 1. Product specifications

	Current products	New products
Series	FF18	FF51
Mating height	0.66mm	0.50mm
Pitch	0.40mm	0.35mm
Depth	3.50mm	3.00mm
Rated voltage	AC 50V (r.m.s.)/DC 50V	
Voltage resistance	AC 200 V (r.m.s.)/minute	
Insulation resistance	250 VDC 50 MΩ or more	
Operating temperature range	-55 to +85 degrees C	
Cable lock mechanism	available	
Number of cores	4 to 10 pin	4 pin

■ Figure 1. Appearance



■ Table 2. FF Series Lineup

Pitch Height	Pitch							
	0.50mm	0.40mm	0.35mm	0.30mm	0.25mm	0.20mm	0.175mm	0.15mm
1.05mm					FF10S Series	FFX2S Series		
1.00mm	FF14C Series							
0.95mm					FF10 Series	FF36 Series		
0.90mm	FF14 Series	FF14A Series		FF12 Series				
0.66mm		FF18 Series	FF18N Series		FF28 Series	FF26 Series	FF27 Series	FF29B Series
0.55mm							FFA2 Series	FFA1W Series
0.50mm			FF51 Series	FF52 Series	FF53 Series		FF57 Series	

■ Points relevant to the 17 SDGs

Connectors based on our company's proprietary technology respond to the development of wearable and mobile devices and contribute to making IT more accessible.



Development of Copper-Plated Membrane Circuits

Fujikura has developed “Copper-Plated Membrane Circuit”, applied with printing and plating technology. This technology is used to form efficient and low-resistance circuits on flexible films such as PET, and is an environmentally friendly method of circuit formation.

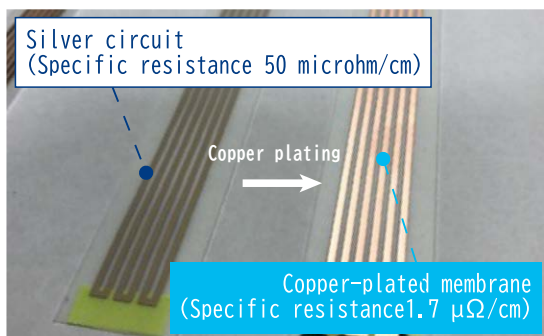
Usually, the main method for forming thin film circuits is the subtractive process, in which unnecessary parts are removed from the metal foil by etching and the necessary pattern is left. The method is complicated and the environmental impact is high due to the large amount of waste. On the other hand, our developed method is a simple additive process, in which circuits are formed by screen printing and electrolytic copper plating is applied to the silver circuit. It will shorten

the manufacturing lead time and reduce the environmental impact due to the low amount of waste.

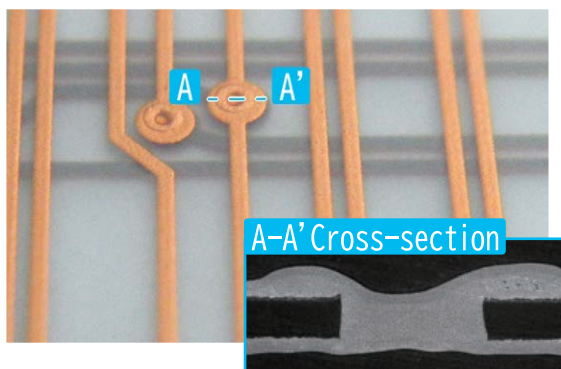
In addition, we have developed a technology for conducting circuits using through-holes, which enables the manufacture of double-sided circuits, same as FPC and rigid boards. In comparison to the single-sided circuits, the technology provides high flexibility and density for circuit design and can be applied to a wide range of electronic devices.

Hereafter, with the aim of applying copper-plated membrane circuits into actual products, we will continue to make further technological improvements, such as making them thinner and multilayer, to contribute to the value creation for our customers and the realization of a sustainable society.

■Figure 1 Copper-Plated Membrane Circuit



■Figure 2 Through Hole and Cross-section



■Points relevant to the 17 SDGs

The copper-plated membrane, realized by our own unique technologies, is manufactured by an additive method. The method contribute to the preservation of the global environment by minimizing industrial waste and pollutants.



✉ Electronic Components Division : ask-mbsw@jp.fujikura.com

Online publication of Fujikura Technical Journal (Fujikura Giho)

The Fujikura Technical Journal (Fujikura Giho, in Japanese) #136 is published online. See our latest research topics, i.e., cable sheaths development using MI-based data science, characterization of 6912 core bundled optical fiber (Wrapping Tube Cable®; WTC®) and multicore fiber links, development of switch amplifier for 5G base stations, and so on at our website.

Fujikura Technical Journal
(Fujikura Giho)
<https://www.fujikura.co.jp/rd/gihou/>

