Starting Mass Production of Sensor Film for Transparent Touch Keys

Fujikura has started to mass-produce a sensor film for transparent touch keys, with which a fine sliver mesh-like pattern is applied to a transparent electrode. By using Fujikura’s original gravure offset printing technology, this sensor film has been successfully commercialized without using expensive materials like ITO film, by forming a fine sliver mesh-like pattern for printing having a line length of 30μm. This sensor film is flexible and well designed so that it can be applied on a curved surface.

Function Module Technology Division
E-mail: asak-ribba@jpt.fujikura.com

Table: Product specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver mesh-like pattern</td>
<td>Line width: 30μm, Pitch: 1mm</td>
</tr>
<tr>
<td>Full spectrum transparency of a transparent electrode section</td>
<td>Over 80%</td>
</tr>
<tr>
<td>Flexibility</td>
<td>Radius of curvature: Over 0.5mm</td>
</tr>
</tbody>
</table>

R&D

Fujikura Receives “17th Superconductivity Science and Technology Award” from the Society of Non-Traditional Technology

The developers of “Yttrium-based ST (Tesla) High-Temperature Superconducting Magnet with a 400 kJ (Kilojoules) stored energy,” which was developed by Fujikura, have been awarded the 17th Superconductivity Science and Technology Award from the Society of Non-Traditional Technology.

This award publicly honors researchers who have obtained outstanding research results in the area of superconductors. Specifically, this award, which was created in order to encourage further development of the research, is presented to: (1) researchers whose research results have a worldwide impact on the basic research; (2) researchers who have contributed to the progress of high technology that could possibly represent a milestone in the development of applications; or (3) researchers who have played a leading role in promoting this field for the development of research or in domestic/international events.

Fujikura has succeeded in developing the world’s first practical Yttrium-based high-temperature superconducting magnet having a stored energy exceeding 100 kJ, and has validated the world’s highest performing Yttrium-based high-temperature superconducting wire, which has been developed over 25 years. This honorable award has been given to us in recognition of the superconducting magnet’s technological abilities and potential.

Fujikura will continue to promote further development of high-performance wires and to contribute to society by advancing the development of practical high-temperature superconducting coils and magnets aimed at use in the fields of industrial equipment and medical applications, which are expected to grow in the future.

Developed Yttrium-based High-temperature Superconducting Magnet
In recent years, environmental contamination and global warming caused by emissions of air contaminants, such as CO\textsubscript{2}, NO\textsubscript{x}, and SO\textsubscript{x}, have been highlighted, and countermeasures against these problems have become a major issue. One of the main sources of contamination is ships, such as a container ships that use heavy oil as fuel. A ship anchored in a harbor generates power by the engine installed in the ship. Especially, a refrigerated container ship must generate high power to keep the cargo frozen and emits air contaminants even while at anchor. As harbors are near densely-populated areas, pollution-related health damage is addressed as a serious problem, and we have been working on reducing air contaminants.

As one way to tackle these issues, we are introducing what is known as an on-shore power supply system, stopping the engine of a ship at anchor by supplying on-shore power of low environmental load. Before full introduction of the system to harbors and ships of countries around the world, this system was standardized by IEC/ISO/IEEE 80005-1 in July 2012. In the USA, adaptation of this system is made mandatory for over 50% of ships reaching ports in California by 2014 and over 80% of these by 2020 under CARB regulations, the California Air Resources Board.

Fujikura, as the first Japanese manufacturer, has developed cables and connectors for reeves according to this standard. From now, Fujikura will launch a public relations campaign to promote these products to ship-owners, system manufacturers, real manufacturers, and device manufactures, and plans to start delivering them by the end of this fiscal year.

Fujikura continues its commitment to develop environmental and energy products, and to contribute to realization of a low carbon society.

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### Release of Optical Camera Link Cable Assemblies for Full Configuration

Fujikura has released optical Camera Link\textsuperscript{+} cable assemblies, the FOCL\textsuperscript{+} series, for long distance transmission of high resolution and high speed signals from industrial digital cameras this month.

The company has been a provider of the active optical cable assemblies, the FOCL\textsuperscript{+} series which comply with the Camera Link standard, and has been receiving favorable reputations. Utilizing optical transmission technologies, the FOCL\textsuperscript{+} series are able to transmit image signals up to 100 meters.

The cable assemblies which will be released this month conform to Full Configuration (8Bit-8Tap) which is an upper connection configuration for transmitting high resolution signals in Camera Link standard. They realize maximum 100 meters transmission of high resolution and high speed signals by using two cable assemblies - one FOCL\textsuperscript{+} cable and an FOCL\textsuperscript{+} cable.

*1. Camera Link: Camera Link is standardized by the Alta Imaging Association, USA. This is one of the interface standards to transmit image signals output from industrial digital cameras to image processing boards.

### Main features

- The maximum transmission distance which is restricted up to 100 meters in Camera Link standard is extended up to 100 meters without applying repeater.
- The electrical interface is the same as the one for the conventional metal cable.
- The cable assemblies have power supply functions to cameras.
- The cables are more flexible than conventional metal cables and easier to handle.
- High flex cables are available as an option.
In recent years, environmental contamination and global warming caused by emissions of air contaminants, such as CO₂, NOx, and SOx, have been highlighted, and countermeasures against these problems have become a major issue. One of the main sources of contamination is ships, such as a container ships that use heavy oil as fuel. A ship anchored in a harbor generates power by the engine installed in the ship. Especially, a refrigerated container ship must generate high power to keep the cargo frozen and emits air contaminants even while at anchor. As harbors are near densely-populated areas, pollution-related health damage is addressed as a serious problem, and we have been working on reducing air contaminants.

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**Newly Establishing Kabinburi Plant in Thailand**

Fujikura’s main FPC factories, Ayutthaya Factory (Rojana Industrial Park, Ayutthaya Province) and Nanakorn Factory (Nanakorn Industrial Zone, Pathumthani Province), were submerged and badly damaged by the flood that hit Thailand in October, 2011. Both factories have already been restored after taking post-flood countermeasures. In the light of its BCP (business continuity plan), however, Fujikura acquired land in Kabinburi Industrial Zone, Prachinburi Province, located 24 meters above sea level, which is free of flooding. We proceeded with the construction of new factory, which is now completed. The new Kabinburi factory is located 200 km northeast of Bangkok, which is three hours by car, and along the national highway Route 304, which is known as a transportation crossroads.

Initially, the new Kabinburi factory will mainly perform the front-end process production work (up to the surface treatment) of FPCs. Eventually the new factory will handle the entire process, from the front-end process to the back-end process. Many state-of-the-art production lines are installed in this factory with the aim of higher efficiency and higher productivity than found in our existing factories.

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**Release of Optical Camera Link Cable Assemblies for Full Configuration**

Fujikura has released optical Camera Link+ cable assemblies, the FOCFL series, for long distance transmission of high resolution and high-speed signals from industrial digital cameras this month.

The company has been a provider of the active optical cable assemblies, the FOCFL series which comply with the Camera Link standard, and has been receiving favorable reputations. Utilizing optical transmission technologies, the FOCFL series are able to transmit image signals up to 100 meters.

The cable assemblies which will be released this month conform to Full Configuration (8-bit-8tap) which is an upper connection configuration for transmitting high resolution signals in Camera Link standard. They realize maximum 100 meters transmission of high resolution and high-speed signals by using two cable assemblies -- an FOCFL cable and an FOCFL-B cable.

*1. Camera Link: Camera Link is standardized by the ASI (automated Imaging Association), USA. This is one of the interface standards to transmit image signals output from industrial digital cameras to image processing boards.

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**Main features**

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- Example of transparent touch keys
- Sensor film for transparent touch keys
- Applications
  - Household appliances
  - Small electronic devices
  - Switches
  - Others
- Product specifications
  - Item: Silver mesh-like pattern
    - Full spectrum transparency of a transparent electrode section
    - Line width: 30μm, Pitch: 1mm
    - Over 80%
    - Flexibility: Radius of curvature: Over 0.5mm

Function Module Technology Division  E-mail: inst-md@fujikura.com

Cable Tech Show 2013

July 30 (Tue) to July 31 (Wed), 2013 10:00 to 17:00
Tokyo International Forum, Exhibition Hall (Fujikura booth 04)

Cable Tech Show 2013, whose theme is “Toward New Digital Age! Cable promoting the life of safety and security and contributing Smart Society” is a general exhibition aiming for further development of the CATV industry and for development of cable technologies in an era of fusion of broadcasting/communication and wired/wireless amalgamations.

Under Fujikura’s main theme of “FTTH optical wiring,” we will introduce optical wiring materials, such as indoor cables, field-installable optical connectors, and optical termination boxes; optical connector cleaners; fiber fusion splicers; redundancy optical switches; and cable protectors manufactured by KYOEI HIGH OPT Co., Ltd.

We look forward to welcoming you to our booth.

Transmission and Telecommunications Division  E-mail: telcom@jp.fujikura.com

Fujikura Receives “17th Superconductivity Science and Technology Award” from the Society of Non-Traditional Technology

- EUC/ISO/IEEE 80005-1 Development of Cables and Connectors for On-Shore Power Supply System (High Voltage Shore Connection (HVS/C) System)
- Newly Establishing Kabinburi Plant in Thailand
- Launch of Optical Camera Link Cable Assembly for Full Configuration
- Starting Mass Production of Sensor Film for Transparent Touch Keys

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- Developed Yttrium-based High-temperature Superconducting Magnet

Superconductor Business Development Division  E-mail: ask-sc@jp.fujikura.com