Optical switch integrated CMP system
for semiconductor manufacturing

Chemical Mechanical Polishing system for semiconductor manufacturing

Measurement of semiconductor wafer surface state with integrated 2x(1xN) optical switch

In a CMP (Chemical Mechanical Polishing) process of manufacturing the semiconductor wafer, optical light is applied to measure the actual wafer’s surface state. By integrating LEONI’s FiberSwitch® 2xN optical switches into the CMP process, the measurement efficiency can be enhanced by the synchronously switching of 2 ports. A light source and a detector can be shared, so the system is downsized. LEONI supplies various types of 1xN and 2xN single- & multimode switches, i.e. Large-Core fibers up to 800 μm, PM, UV-VIS, VIS-IR and broadband.

As an OEM service partner we can also easily integrate the switch into the final measuring system.

Specifications for Optical Switch

<table>
<thead>
<tr>
<th>Number of channels</th>
<th>1x2, 1x4, 1x8, 1x12, 1x16, 2x4, 2x8 (2 ports are switched synchronously)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating wavelength [nm]</td>
<td>Depending only on fiber characteristics</td>
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<tr>
<td>Switching frequency [s⁻¹]</td>
<td>≤ 30</td>
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Light source
Detector

2x(1x2) optical switch

➔ The irradiation port and the receiver port are switched synchronously
➔ The throughput can be enhanced by combining the optical switch

Irradiation probe
Receiver probe

Semiconductor wafer

Irradiation probe
Receiver probe

2x4 optical switch

mol 1x16 19° 2 HU

mol 2x4