Introduction

All of the standard Mirrorcle MEMS Drivers and Controllers have a 10-pin 1.27mm pitch connector as the output of the driver – to be connected to the MEMS mirror package connector. This 1.27mm pitch connector requires a 0.635mm pitch ribbon cable. A low capacitive cable needs to be used to drive the MEMS mirror from the standard driver output connector, and a limit is placed on the maximum length of the driver output cable.
Standard Driver Limitations

- The circuit used to drive the MEMS mirrors in both the MEMS Driver and MEMS Controller has a load driving capacity of ~50pF per channel.
- Typical MEMS devices have a capacitive load of ~25pF per channel.
- This limits the maximum length of the cable with 0.635mm pitch to be ~45cm. A 30cm cable is provided with the MEMS Controller and MEMS Drivers shipped by Mirrorcle.
- In some customer applications, driving a longer distance may be required. The simplest solution would be to place the driver as close to the MEMS mirror as possible, and the input to the driver can be driven using low-voltage components like line drivers and buffer op-amps.
- If a longer cable is required, Mirrorcle recommends the user to transition from the 0.635mm pitch cables to a larger pitch, lower capacitance cable for the long distance, and transition back to the standard connector before terminating at the MEMS mirror.
Example of Cable Extension

- MEMS Mirror
- MEMS Driver
- Standard 1.27mm pitch connector
- Standard 0.635mm pitch cables
- Transition to larger pitch, low capacitance cables
- 1.27mm pitch, low capacitance ribbon cable
## MEMS Driver Output Connector Pinout

### Output: 10 - Pin Header

<table>
<thead>
<tr>
<th>J2-Pin</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>HV_A (X+)</td>
<td>MEMS Channel X+</td>
</tr>
<tr>
<td>2</td>
<td>GND</td>
<td>Ground</td>
</tr>
<tr>
<td>3</td>
<td>HV_B (X-)</td>
<td>MEMS Channel X-</td>
</tr>
<tr>
<td>4</td>
<td>GND</td>
<td>Ground</td>
</tr>
<tr>
<td>5</td>
<td>HV_C (Y-)</td>
<td>MEMS Channel Y-</td>
</tr>
<tr>
<td>6</td>
<td>GND</td>
<td>Ground</td>
</tr>
<tr>
<td>7</td>
<td>HV_D (Y+)</td>
<td>MEMS Channel Y+</td>
</tr>
<tr>
<td>8</td>
<td>GND</td>
<td>Ground</td>
</tr>
<tr>
<td>9</td>
<td>N/C</td>
<td>No Connection</td>
</tr>
<tr>
<td>10</td>
<td>N/C</td>
<td>No Connection</td>
</tr>
</tbody>
</table>

*Mating Cable Socket for J2: – Digikey Part ID: SAM8219-ND (30cm length)*
Additional Notes and Recommendations

- Note to use shorter length cables to start and end with the standard connector sockets. E.g. if the max length is limited to 45cm, using two 15cm length cables before transitioning to the larger pitch, low capacitance cable can keep the overall cable capacitance low.
  - Digikey part # of 10cm, 0.635mm pitch cable: SAM8777-ND
Thank You for Choosing

Additional Resources:

- Mirrorcle MEMS Mirrors – Technical Overview
- Mirrorcle Documentation Portal
- Mirrorcle Web Page – Support
- Mirrorcle Web Page – Application Notes
- Mirrorcle Web Page – Publications

If you have any further questions or suggestions please email us:
support@mirrorcletech.com

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