2D-S (Stereo) Optical Array Probe
Specifications

- Two independent 128 pixel photodiode arrays with optics configured for 10 micron pixel resolution, resulting in a maximum field of view of 1.28 mm.
- Electronics can operate at true airspeeds up to 200 m/s.
- Particles up to 1.28 mm are completely imaged, and even larger particles can be sized in the direction of flight.
- Sensor Head operates up to 60,000 feet altitude.
- De-ice heaters are temperature controlled and user can change set point in flight.
- 2D-S is designed for unmanned use, with AI parameters to optimize performance without supervision.
- Probe is hermetically sealed and fits into a standard PMS airborne canister. Hermetically Sealed PMS can available as separate option.
2D-S Power Requirements

<table>
<thead>
<tr>
<th>Input</th>
<th>Voltage</th>
<th>Frequency</th>
<th>Power</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer (in cabin)</td>
<td>115 VAC - 240 VAC</td>
<td>50-60 Hz</td>
<td>200 W</td>
<td>Data System Power</td>
</tr>
<tr>
<td>Probe AC1</td>
<td>115 VAC</td>
<td>50-60 Hz or 400 Hz</td>
<td>570 W</td>
<td>Heaters</td>
</tr>
<tr>
<td>Probe Electronics</td>
<td>28 VDC</td>
<td>DC</td>
<td>140 W</td>
<td>Sensor Electronics</td>
</tr>
</tbody>
</table>

2D-S Probe Electrical Interface Requirements:

Power:
3 conductors (1-AC and 1-return 1-frame) (5.0 A max)
2 conductors (+28v, Gnd) (5.0 A max)

Signaling:
4 conductors (twisted pair or Cat 5/6 for Ethernet)

Connectors:
PMS Can connector: Standard 24 Pin Amphenol connector
   24 pin (Amphenol 26-159-24)
   Mate for cabling = (Amphenol 26-190-24)
Two circular connectors at the Data System (out to probe):
5 pin (MS3122E14-5S 1003). Mate for cabling = (MS3126F14-5P 1003)
23 pin (MS3122E16-23S 1003). Mate for cabling = (MS3126F16-23P 1003)
   (only 4 pins are used)

Weights & Size:

Probe (w/o can): 19 lbs; 35” x 7” x 7”
   (8.6 kg; 89 cm x 18 cm x 18 cm)

Data system: 25 lbs; 19” x 18” x 3.5”
   (12 kg; 48 cm x 46 cm x 9 cm)
Smaller options are available
2D-S Mechanical Specifications:

2D-S’s have operated in numerous field campaigns including:

NSF RICO
NASA CR-AVE
NASA TC4
NASA NAMMA
MACPEX
DOE SPARTICUS
NSF ICE-T