ExactaWave™ Wave Height Control System

The ExactaWave wave height control system automatically maintains consistent solder wave height for increased accuracy and productivity. The system is designed to control the engagement of the solder wave to the PWA. This removes the necessity for the operator to adjust the wave depth due to process variations. Because the PCB being soldered is held at a fixed distance below the rail, a very accurate contact between the board and the solder wave is maintained.

The ExactaWave system compensates for changes in solder level, dross accumulation and setup changes made during maintenance. Thus, a set-point entered in a recipe always produces the same result. In addition, the system compensates for incorrect adjustment of lead clearance and simplifies process setup by providing an initial wave height setting. Plus, the system is integrated into the soldering machine’s control software, thus allowing it to operate in standby mode.
System Benefits

CLOSED-LOOP WAVE HEIGHT CONTROL
A sensor mounted in the conveyor rail directly measures the height of the solder wave relative to the PCB in the conveyor. The control also adjusts the solder pump speed to exactly maintain the solder wave height.

PROCESS ACCURACY
Positioning of the sensor in the conveyor rail very close to the PCB being soldered; this produces minimal error between the sensor reading and the actual solder contact experienced by the PCB being soldered.

WAVE HEIGHT CONTROL SOFTWARE
Software is integrated with the board tracking software, thus making it possible to compensate for distortions in wave height readings caused by the board passing through the solder wave.

BOARD TRACKING
The use of board tracking allows the solder wave to run only when needed. The solder wave can be in standby mode when no boards are approaching the solder wave. The pump speed required to produce the wave height set point under current conditions is stored in software so the wave can quickly return to the correct wave height when a board approaches the wave.

SENSOR COIL
The ExactaWave sensor coil is custom designed to Speedline ELECTROVERT’s specifications. (Worldwide patents applied for.)

EXACTAWAVE SPECIFICATIONS

<table>
<thead>
<tr>
<th>Control range</th>
<th>0.240” (6mm) below V-groove to 0.220” (5.5mm) above V-groove. (Note: Center of V-groove of fingers is zero reference)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control tolerance</td>
<td>±0.005” (0.1mm)</td>
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<tr>
<td>Minimum board spacing</td>
<td>8.0” (203mm)</td>
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<td>for standby mode operation</td>
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