

Measuring the solder-wave height on wave soldering machines

The height of the solder wave is an important criterion to get highest quality results during soldering PCB's on wave soldering machines. There are two options to measure the height of the solder wave.

This can be achieved by measuring on the surface of the solder wave itself with a sensor installed above the solder wave. This method eliminates any influence of the level in the solder pot and of the contamination in the solder pump.

Second possibility is to measure the level in a bypass tube of the wave. The height of the solder wave is linear to the height in the bypass. The obtained sensor readings are used to control the soldering process.

Requirements for the measuring system

- Measuring range: 12.7mm (0.5inch)
- Accuracy: $\pm 0.2\text{mm}$
- Resolution (static): $\pm 0.1\%$ FSO
- Dynamic range: 10kHz (-3dB)
- Temp. Stability 70°C to 110°C $\pm 0.02\%$ /K / (158°F to 230°F) $\pm 0.036\%$ /°F

Measuring system

DT3019-EU12/250SW-A-C4



Application

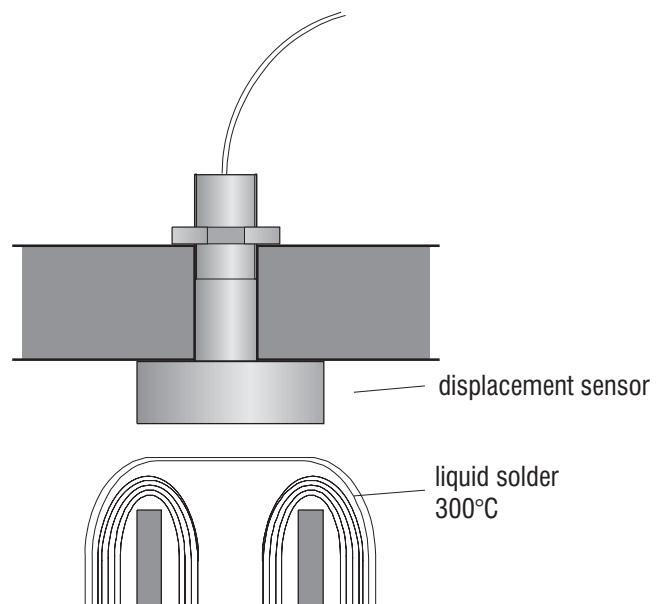
Environmental conditions

- Temperature:
- Electronics 10°C to 50°C (50 to 122°F)
- Sensor 10°C to 200°C (50 to 392°F)
- Medium (sensor): air, fluxer, liquid solder up to 300°C (572°F)

Selection criteria

- The eddy current-measurement systems works in contaminated environment (e.g. fluxer, vapor, ...)
- Robust Sensor - short time submersion of the sensor in liquid solder 300°C (572°F) is possible without any damage
- High Temperature stability, by active temperature compensation

Principle 1: Direct measuring



Principle 2: Measuring by a bypass tube

