

Solutions for thermal management ...



*Measuring system Vapourphase*

- VP Electronics
- Measuring Board

Spezifikation **PTP®**

**P**rofessional **T**emperature **P**rofiler

## *Measuring Board - REFLOW VP*

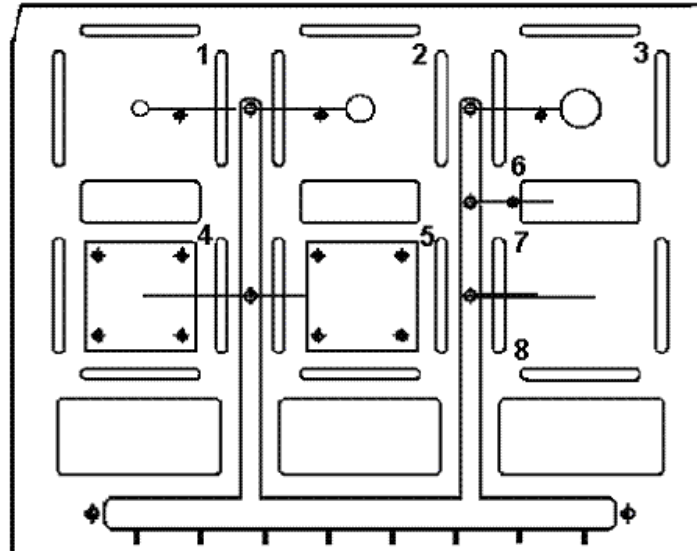
Prepared for taking up the PTP® electronics with real time data transmitter via Bluetooth™

Maximum ambient temperature for 20 s [°C]	350
Long time ambient temperature [°C]	280-300
Size (standard board) [WxL]	175x390 mm
Max. height (from conveyor / pin chain)	40 mm
Tolerance of thermal sensors [°C], K-Type, class 1, IEC 584	$\leq +1.5$
After calibration [°C] (option)	$\leq +0.2$
Max. temperature K-type plug connector brown [°C]	320
Max. temperature K-type thermal cable PTFE isolation [°C]	260

## RoHS

The PTP® electronics are produced according to the ROHS (Restriction of the use of certain Hazardous Substances in electrical and electronic equipment) directive.

## Sketch measuring board REFLOW Vapourphase



## Oven Check Up / Profile Optimization

All 8 thermocouples can and should be used simultaneously during each measurement. Sensor 1 is used to get the liquidus information of the applied solder paste. Furthermore it stands for a small thermal mass. The sensors 2 and 3 are different and compared with sensor 1 very high thermal masses. Thermocouple 4 and 5 are mounted on a flat measurement standard, which corresponds geometrically to a BGA. On package and ball position are the thermocouples fixed and used to measure local temperatures or differences between.

Measuring point 6 seizes the atmosphere temperature on surface PCB level. Measuring points 7 and 8 deliver temperatures and/or temperature differences (upper and lower surface), which particularly with multi-layer printed circuit boards can occur. The thermo-conductors and plugs are designed for use in temperatures of  $< 260^{\circ}\text{C}$ . This corresponds to the usually used maximum temperature setting for vapour phase installations (mostly GALDEN in the range of  $230$  to  $< 240^{\circ}\text{C}$ ). The connection with the electronics is always done directly via the inbuilt high temperature plugs. During a possible exchange of thermocouples or connection cables respectively, original replacement parts should always be used. That way, measurement errors that are usually evoked by thermo voltages at contact points, are prevented.

Since the energy transfer in vapour phase systems differs from convection systems, different measurement arrangements are necessary than usually used in reflow soldering systems for convection. The measurement arrangement realized on the PTP® takes this into account.

The PTP measurement board is designed that the condensed medium can run out during the steam-phase process continually, in that way no heat isolating liquid layer can develop on the measurement fields.

## Option: Delivery of customized measuring boards on request!

On the measuring board PTP® Reflow Vapourphase are 8 Sensors, they are best for oven check up and profile optimization.

## Trademarks

Bluetooth™ is a trademark owned by the Bluetooth SIG, Inc,  
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