



THERMAL SYSTEMS

# ProMetrics

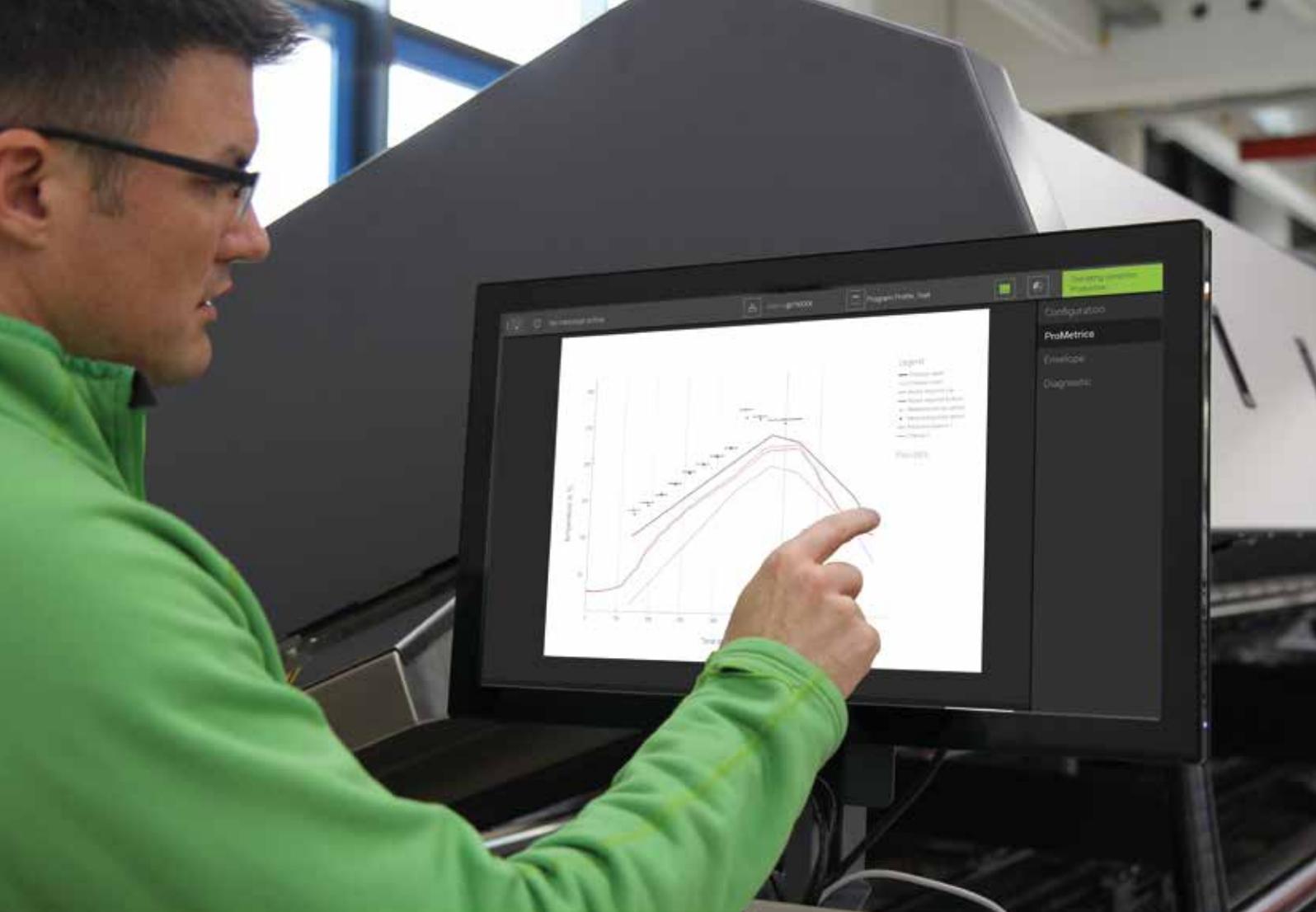
PWI – Monitoring Tool



**New!**  
Graphical  
Process  
Supervision



Vision-Series  
Convection Soldering



## Profiling and monitoring of the soldering process for highest quality requirements

**ProMetrics was developed for monitoring thermal profiles during the soldering of electronic assemblies. It checks how well the created profile meets the required predefined specifications. An envelope graph visualizes deviations of the temperature profile from the specified temperatures. ProMetrics can be used for single and dual lane systems with and without vacuum.**

To use ProMetrics effectively, software as well as hardware components are combined for optimal quality control of your temperature profile. For data acquisition, the Solderstar software with associated license dongle is required. Temperatures of a reference board or of the products to be soldered are recorded by means of a measurement data logger in order to be able to check the process stability of the system. The system is equipped with sensors for recording temperatures.



#### HIGHLIGHTS

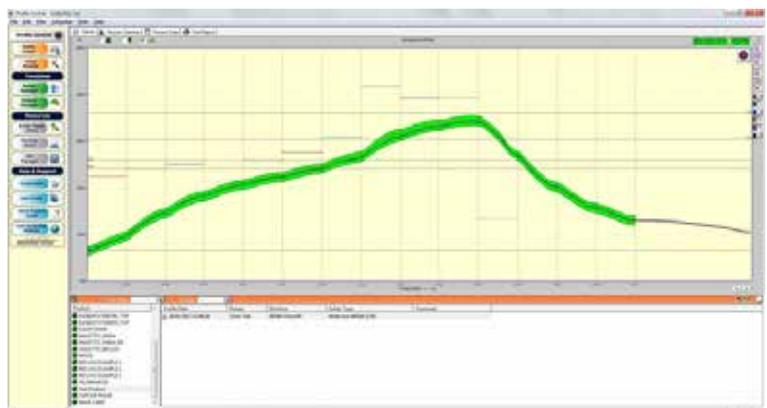
- › Perfect profiling and monitoring of the soldering process
- › Process traceability for highest quality requirements
- › Data acquisition for profiling via Solderstar's data logger
- › Suitable for single and double track systems of the Vision series with and without vacuum
- › Display of envelope graph and temperature profile in ViCON
- › In ViCON integrated system, no interfaces to other systems
- › Complete data control via MES

## Temperature profiling with equipment from Solderstar

With Solderstar's many years of experience, we have a competent partner by our side for the creation and optimization of temperature profiles during reflow soldering. The Solderstar PRO thermoprofiling systems include a compact data logger with Solderstar Smartlink connectors. The system transmits live profile data directly to Solderstar's AutoSeeker software from Solderstar.



Measurement Data Logger - R-0925P-RF from Solderstar

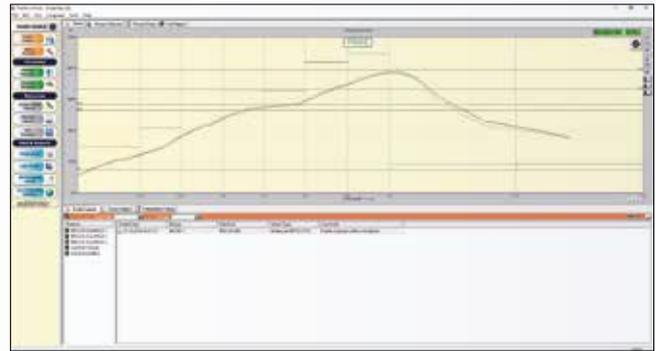


AutoSeeker Profile Optimization Software from Solderstar

# Procedure for temperature profiling

## Step 1

A temperature profile is created with the aid of a test board and the measurement data logger located on it. A reference assembly is then sent through the reflow soldering system. During this process, the transport speed and the zone temperature on the assembly are measured. The measured profile is the result of the environment within the soldering system and the thermal properties of the assembly.



Display of the temperature profile in the Solderstar software

## Step 2

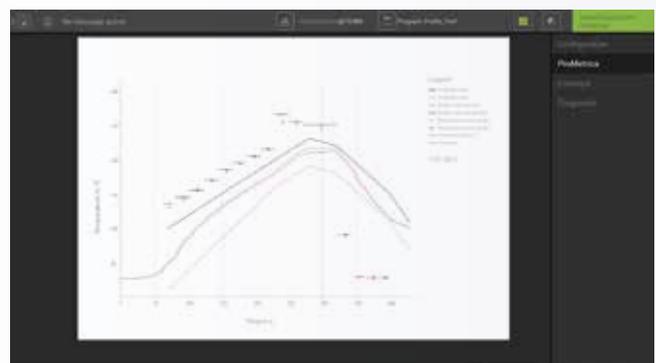
In the meantime, the values for the envelope curve can be entered on the ViCON interface. Every time an assembly enters the reflow soldering system, the board is tracked without gaps and the temperatures are recorded. As soon as the board leaves the reflow soldering system again, the temperature profile is compared with the reference board.



Input of the envelope curve in ViCON

## Step 3

This is indicated by an envelope graphic on the integrated monitor. Should a deviation of the parameters occur during the soldering process, it can be detected and evaluated immediately. Thus, a very accurate statement about the soldering process is possible.



Alignment with reference board in



Measurement with data logger



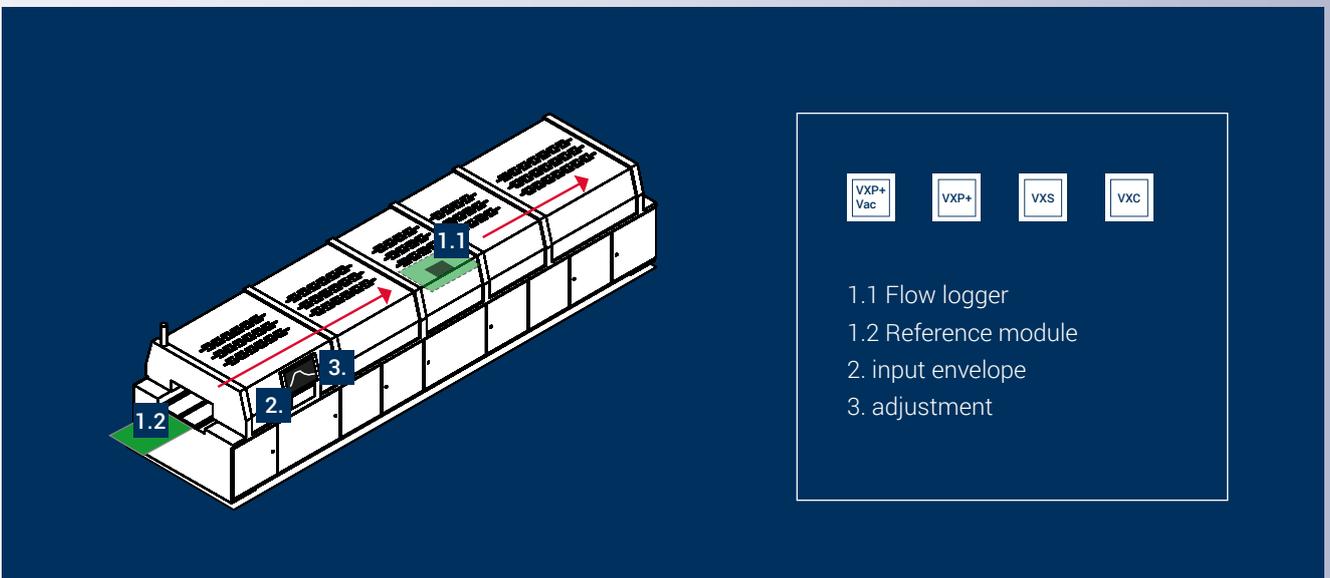
Reference board runs through the soldering system



Reference values of module 1



Checking the envelope graph

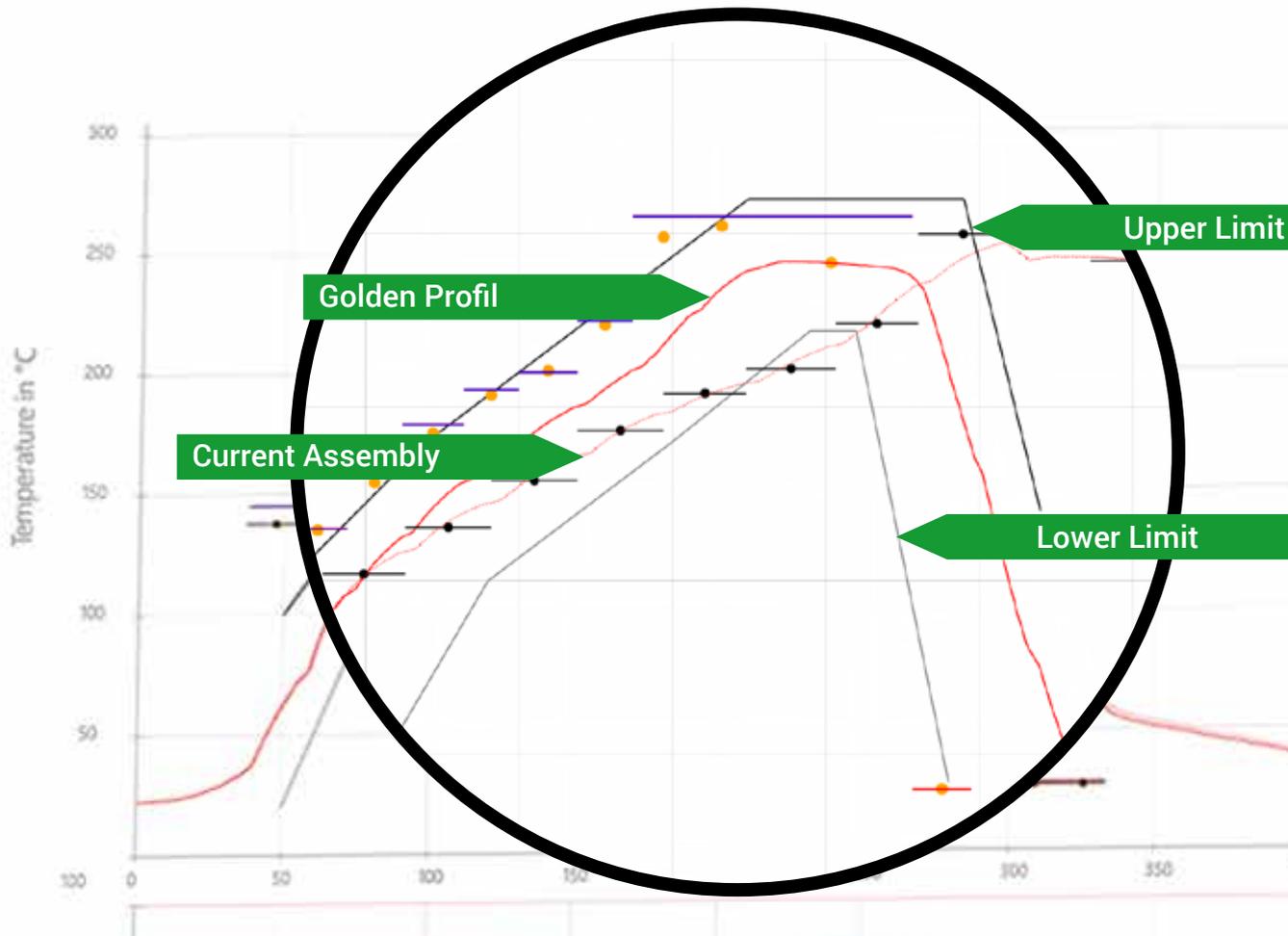


No message active

RehmService@P5388

vacuumPressureActual 941 [mbar] Pcb inside lane 1 1 [pcs] Speed lane 1 Actual 1120 [mm/min] Width lane 1 Actual 160.5 [mm] O2Analyse 2 Actual 200000 [ppm]

OutputTime (Local) 28.10.2021 13:13:46



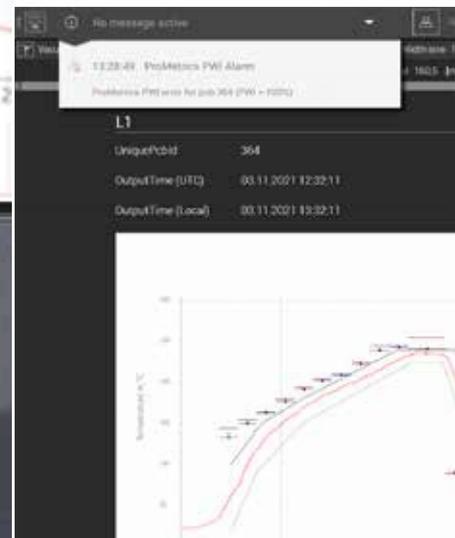
Configuration

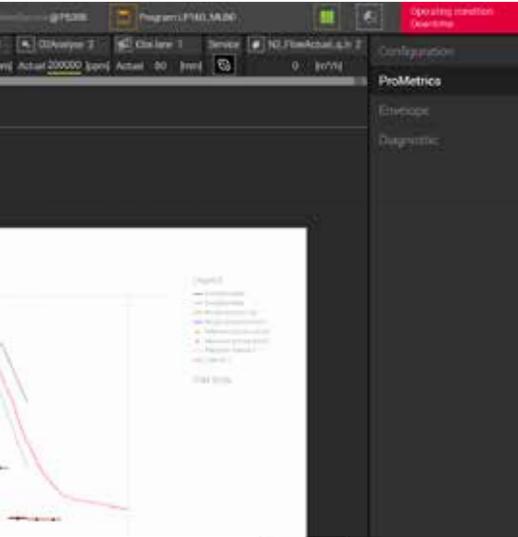
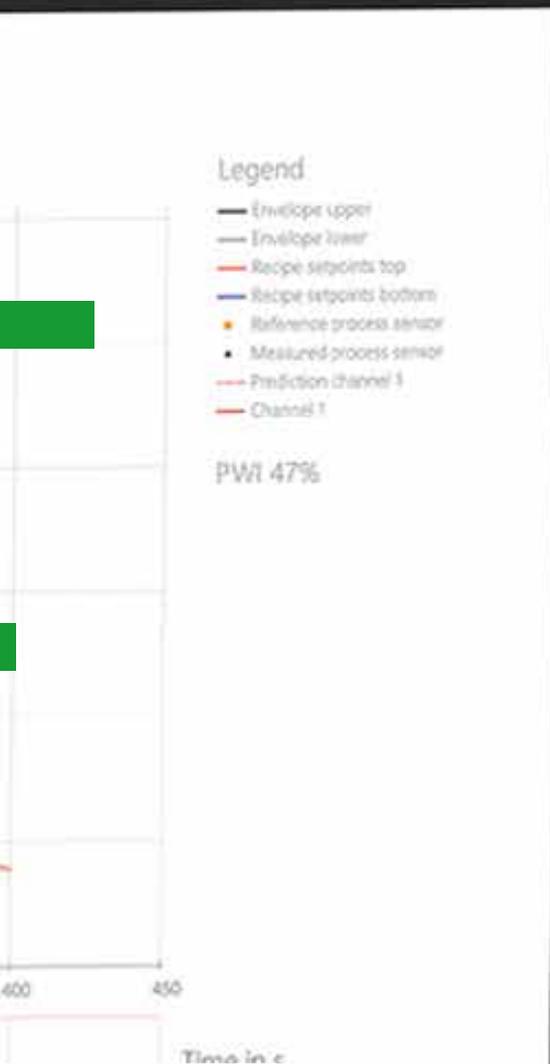
Envelope

Update

|        | Point 1 | Point 2 | Point 3 | Point 4 | Point 5 | Point 6 | Point 7 |
|--------|---------|---------|---------|---------|---------|---------|---------|
| Top    |         |         |         |         |         |         |         |
| X      | 80      | 80      | 128     | 215     | 240     | 275     | 300     |
| Y      | 100     | 150     | 180     | 240     | 240     | 240     | 170     |
| Bottom |         |         |         |         |         |         |         |
| X      | 80      | 75      | 128     | 200     | 230     | 250     | 300     |
| Y      | 20      | 90      | 150     | 205     | 225     | 225     | 90      |

Diagnostic





## Legend

### — Envelope upper/lower

Displays the upper and lower range of the envelope.

### — Recipe setpoints top/bottom

Represent the setpoints of the reflow system above and below, respectively. This corresponds to the zone lengths (temperature and time).

### ● Reference process sensor

Reference point of the temperature monitors in the system when the reference assembly with the logger is running through the system.

### ● Measured process sensor

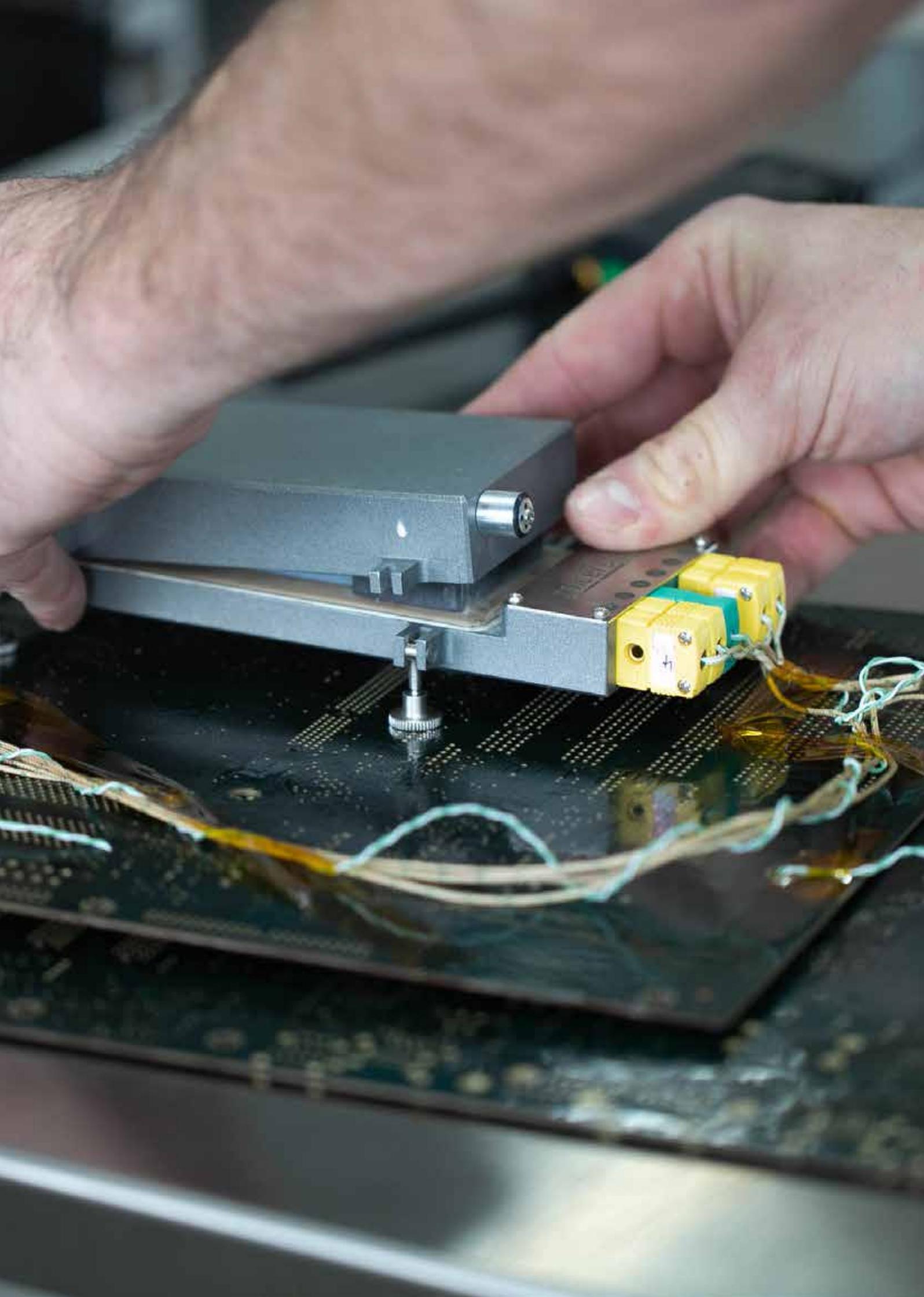
Reference point of the temperature monitors in the system when the current assembly is running through the system.

### --- Prediction channel 1

Prediction of the temperature curve by measured process sensor, reference process sensor and Channel 1

### — Channel 1

Temperature curve of channel 1 from the measurement data logger. Up to 6 channels are possible.

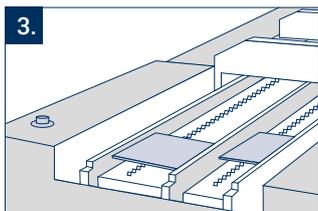
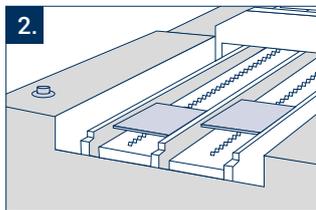
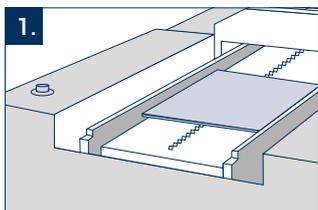


## Flexibel bei allen Anlagenvarianten

**With ProMetrics, we offer you for the first time a tool with which you can stably determine whether the preset profile lies within the defined envelope curve in single, double-track and also vacuum systems.**

The generation of real-time data per assembly allows the exact determination of the position of the assembly and reliably detects any deviations or delays in the soldering system, regardless of which convection reflow soldering system you are using. This means that process changes can be detected immediately. This leads to the greatest possible reliability in the calculation of the temperature profile of an assembly.

### ProMetrics for different types of machines



#### 1. single track transport

One adjustable rail

#### 2. double track transport

Two adjustable rails, synchronous/asynchronous  
Transport speed

#### 3. multi-track transport

Three adjustable rails, synchronous/asynchronous  
Transport speed

#### 4. vacuum system

Four adjustable stringers, synchronous width adjustment and  
Transport speed

### HIGHLIGHTS

- > For all Rehm reflow soldering systems with ViCON
- > Full function of the system also with vacuum systems single and double track
- > For vacuum systems in pressure and time-controlled operation

# Temperature profiling

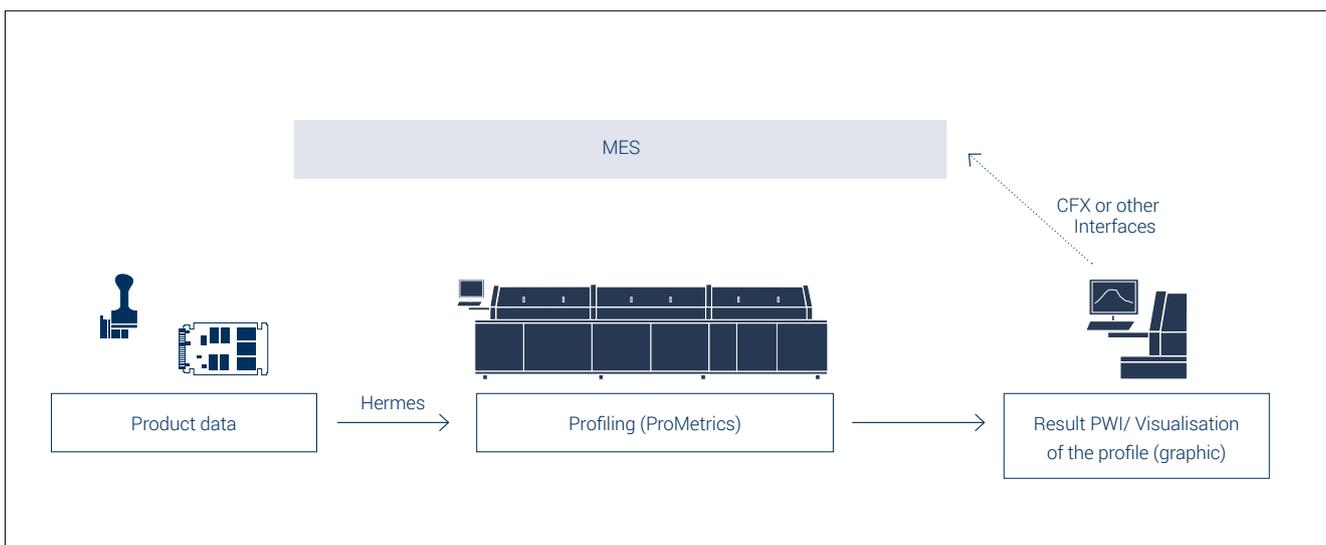
## Advantages of an integrated system

ProMetrics is a tool for profiling and monitoring the soldering process. The Solderstar software is integrated into the ViCON interface and helps with thermal profiling. The advantage of the integration is on the one hand the central availability of the information in the MES: There is a clear assignment of the data and a uniform logging in the ViCON. Repeated maintenance of data is not necessary and the susceptibility to errors is reduced.

On the other hand, real-time data is generated. The software tracks the exact path of the assembly through the reflow system and notices if the situation changes and there may be a delay. Thus, process changes can be detected immediately. This leads to the highest possible reliability in the calculation of the temperature profile of an assembly.

### HIGHLIGHTS

- > **Clear assignment of the data**
- > **Localization of the assembly in the system**
- > **Uniform logging in the ViCON**
- > **Complete data control via MES**
- > **Alarm messages in case of deviations from the temperature profile outside the envelope curve**



Keine aktiven Meldungen

AdminService@PS288

Program: Profile\_Sat

Transport: Helburg Service  
CD-Analyse 2 Geschw. Spz 1 LPi im Oben Spz 1  
Wachstumsdruck: 200000 [paol] 1799 [mm/min] 0 [paol] 504 [mmol] 1 76

Placeholder for a chart or graph

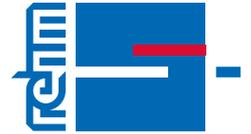
### Hüllkurve

#### Oben

|   |    | Punkt 1 | Punkt 2 | Punkt 3 | Punkt 4 | Punkt 5 | Punkt 6 | Punkt 7 |
|---|----|---------|---------|---------|---------|---------|---------|---------|
| X | W  | 30      | 120     | 140     | 185     | 250     | 280     | 0       |
| Y | FD | 100     | 200     | 230     | 220     | 150     | 80      | 0       |

#### Unten

|   |    | Punkt 1 | Punkt 2 | Punkt 3 | Punkt 4 | Punkt 5 | Punkt 6 | Punkt 7 |
|---|----|---------|---------|---------|---------|---------|---------|---------|
| X | W  | 40      | 120     | 140     | 185     | 250     | 280     | 0       |
| Y | FD | 10      | 160     | 190     | 180     | 110     | 40      | 0       |



THERMAL SYSTEMS



November 2021. Technische Änderungen vorbehalten.

## Rehm Worldwide

As a leading manufacturer of innovative thermal system solutions, we have customers on all continents. With our own locations in Europe, America and Asia as well as 27 agencies in 24 countries, we can serve the international markets quickly and offer excellent local service - worldwide and around the clock!

- Location
- Production site
- Representation



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