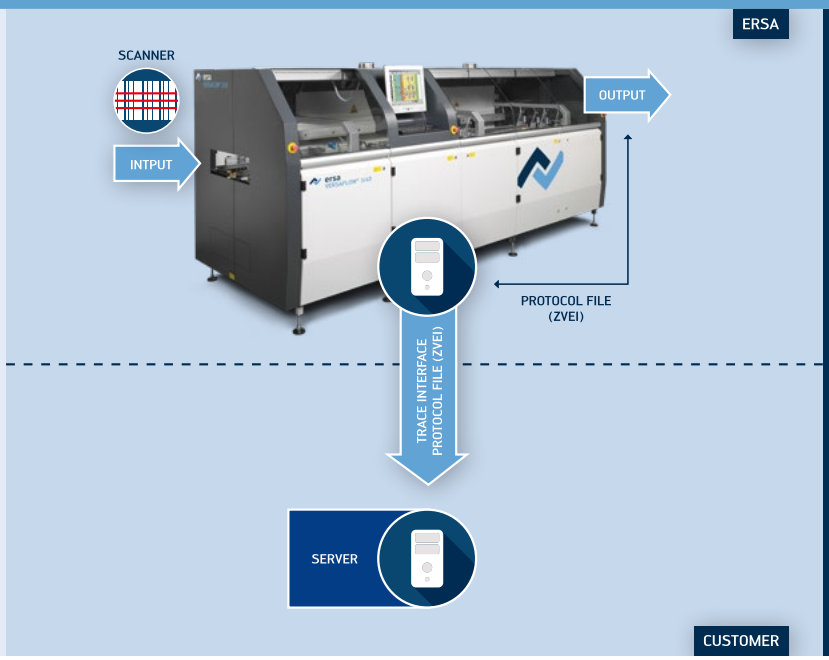
Ersa – Ready for Traceability

Trace-Interface for Transparent Production Processes

kurtz ersa

Ready for Traceability



In the ZVEI Standard, the XML-structure of the protocol file includes the following:

- *Unique ID of the product processed, e.g. bar code, matrix code → unitname*
- *Production equipment or work station → equipment*
- *Date and Time Stamp → starttime, endtime*
- *Status of the Processing, e.g. OK or NOK → state*

In addition, the following values can be optionally logged:

- *Parameters and nominal values → processing parameters*
- *Measuring data → measuring*
- *Library name*
- *Name of soldering program*

The high demands on quality placed on the electronics manufacturing industry is challenging Original Equipment Manufacturers (OEM'S) and Electronics Manufacturing Services (EMS's) to offer a secured means of tracing back the genesis of a product (traceability). Each individual assembly has to be identifiable as to its origin, its point in time of manufacturing and its process conditions. By providing a distinct and non-ambiguous marking, the origin of an end product can be traced back through the complete supply chain, right up to its individual components. Defects and causes for recall actions can thus be quickly and competently identified. The effort required to undertake a recall, for example, and the financial losses attending this, can therefore be very much reduced.

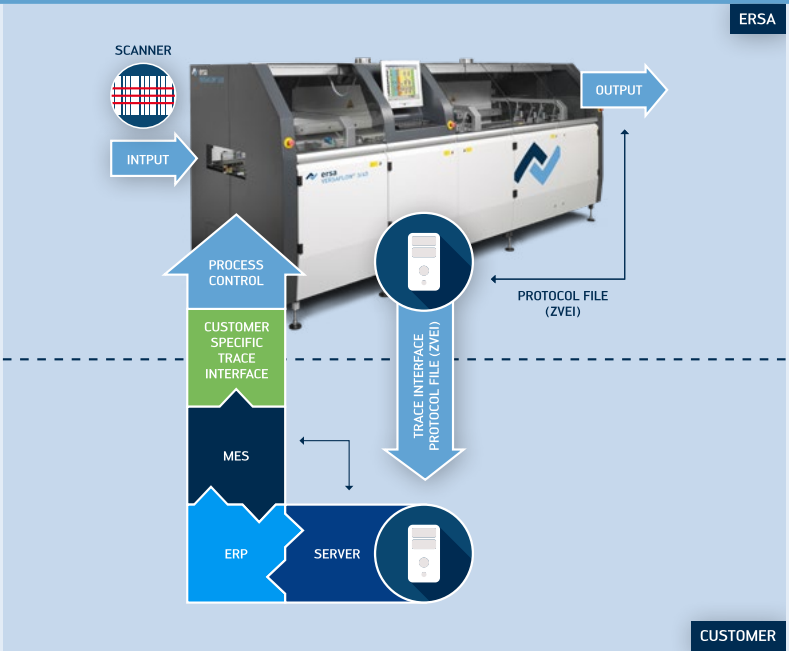
Ersa has met this challenge, and in cooperation with the ZVEI-association „Electronic Components and Systems" it has compiled a set of guidelines which take into consideration all demands that need to be met when introducing the concept of traceability into the manufacturing process.

Ersa itself offers a trace interface which fully corresponds to the ZVEI standard. Once the processing of the product is completed, it makes available, in the form of a XML protocol file, all important process parameters to a higher-level system, as for example a Manufacturing Execution System (MES).

Machine-dependent parameters, as well as any nominal and actual values such as conveyor speeds, preheat temperatures and preheat times, solder temperature and solder times, are acquired and documented under the designations "Parameters and Nominal Values" and "Measuring Data".

The following example shows a portion of the XML-structure of the protocol file which is created for each individual assembly. These protocol files can be logged on either the PC of the soldering system, or, when networking is available, on another PC or on a server. This provides the opportunity for a direct access to the stored protocol files, or, in those cases where the files are not stored on the PC of the soldering system, it should be possible to attain access to the remotely stored files by changing a few settings in the operating system (Microsoft Windows, for example). Furthermore, the XML-format facilitates a straightforward import by spreadsheet programs, where the data can then be easily and comfortably managed, interpreted and archived.

Trace-Interface for Transparent Production Processes



Example shows a portion of the XML-structure of the protocol file

```
<!--ZVEI document-->
<unitData
state="ok"
endtime="2012-01-23T08:40:11+01:00"
starttime="2012-01-23T08:39:05+01:00"
equipment="R014B-11C0065"
unit="Auto_Simulation"
noNamespaceSchemaLocation="unitData-1.0.xsd"
```

Through acquiring the distinct identifier of the assembly prior to the commencement of the process, for example by reading a matrix code or a bar code, the process conditions under which this specific printed circuit board has been soldered will be documented Thus, the date and the time when each board was processed, as well as its process conditions, can be identified through the Ersa Trace-Interface for each individual board processed.

Customer Specific Solutions:

Note: The process control, that is,the release by the MES (verifying the job data based on plausibility) of the soldering system for commencing the soldering process is not a component of the functionality of the Ersa trace interface described above.

The process control (process interlock), which rests with the MES supplied by the customers, assures that

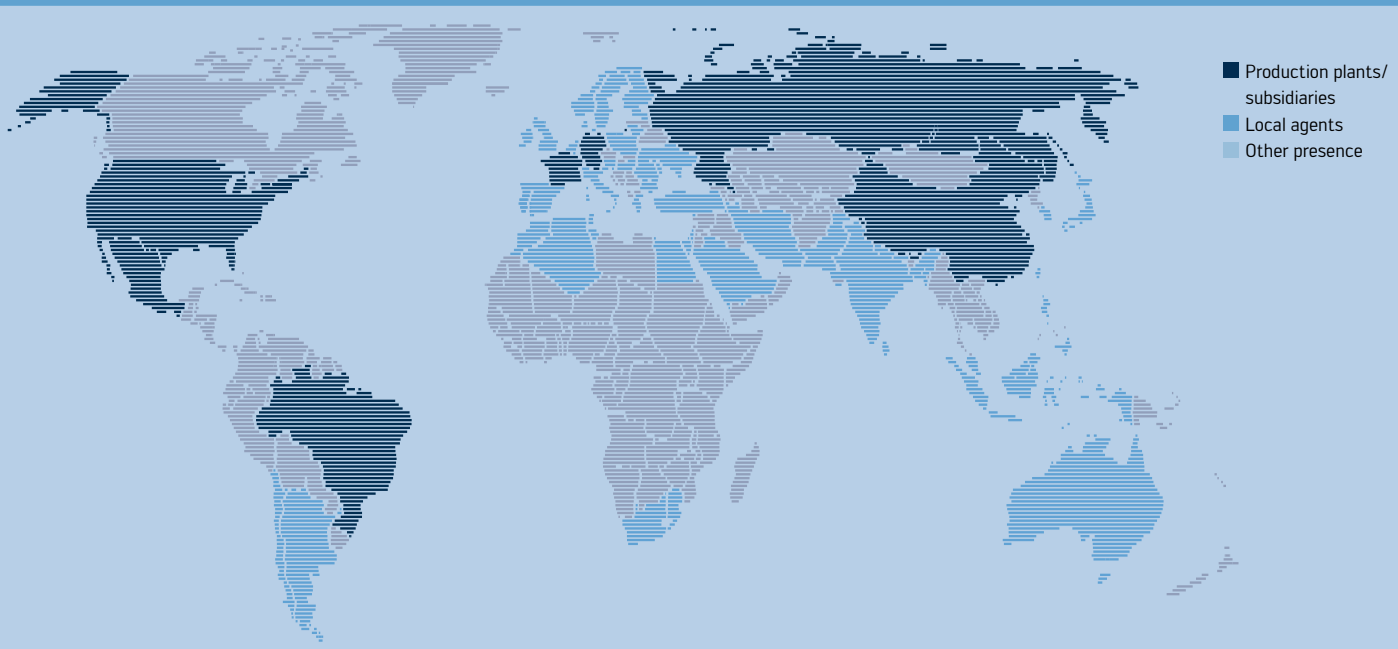
- defective products will not be further worked on and they are either moved through the system.
- incorrect products will be recognized, and they are either moved through the system or they are diverted/ moved out from the line.
- the correct process sequence is being maintained.

If process control from the MES is provided for in the production process of the customer, then the facility exists for the customer to send, via the scanner interface, data to the soldering system, data, which has been verified by the MES. The customer emulates for the soldering system the scanner and implements the process control himself. Furthermore, process control can also be effected through a customization of the Ersa trace-interface. The specific measures required on the software-side need to be discussed in detail between the customer and Ersa, and the measures decided upon need to be subsequently documented in the form of a system specification. The same need applies, if a protocol file differing from the ZVEI standard is requested. Either of the system specifications compiled serves as the basis for the development of a customer-specific trace interface. We would like to point out at this time, that for these customizations we can fall back on a number of already successfully completed projects for major international customers.

Through documenting all process relevant parameters and through the additional optional process control by means of a MES and a customer-specific trace interface, traceability as well as the quality assurance of the products manufactured is assured at any time. Therefore, Ersa systems are

Ready for Traceability!

Electronics Production Equipment
Worldwide present



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