

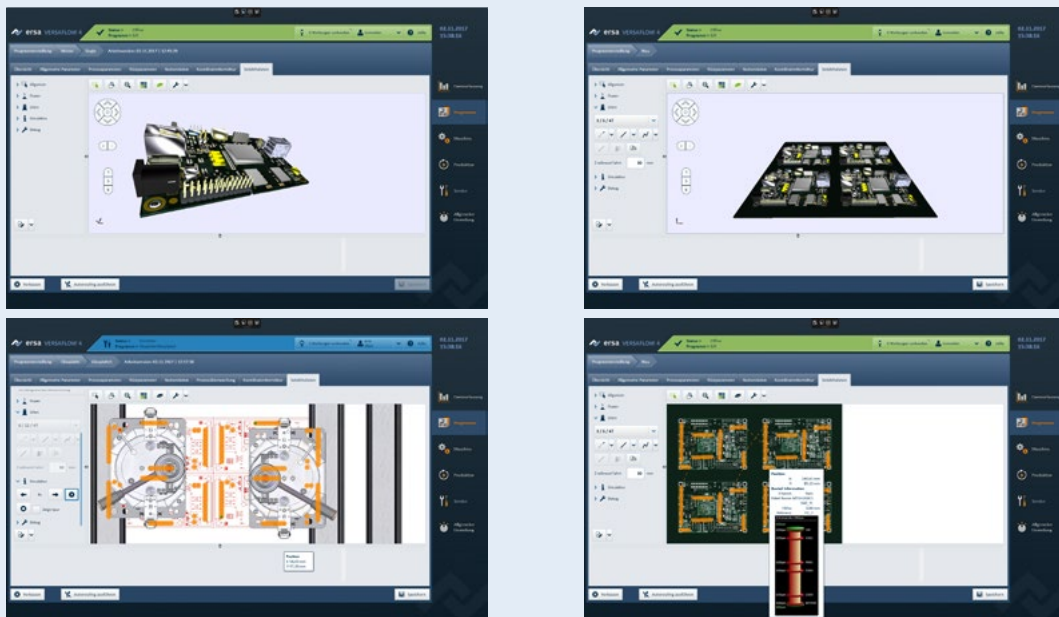
CAD Assistant 4

The future in solder program creation



CAD Assistant 4

Programming made fast, intuitive and easy



Highlights

- Intuitive programming with graphical user interface
- Autorouting optimizes cycle times
- Automatic and optimized division of the flux and soldering programs to the individual modules
- Collision-free movements through safety areas
- Programs can be tested with a simulation run
- 2 individual axis systems per module possible (VERSAFLEX and VERSAFLEX)
- Up to 3 solder modules possible in 1 machine
- Easy scaling of the boards
- CAD formats: ODB++, IPC 2581, GenCAD
- Picture formats: .jpg, .bmp, .png, .tif, .gif

Electronic assemblies are constantly getting more complex with most diverse components, densities and board designs. Therefore the fast and reliable programming of the soldering process becomes an important step in an efficient electronics production. In order to guarantee the highest uptime of the machine, the Ersa CAD Assistant 4 enables programming offline while the machine is running. These programs can be used without any detours directly on the machine because of the full integration with the operating software of the machine, ERSASOFT 5.

CAD Assistant 4 also supports the programming of modules with 2 independent axis systems (VERSAFLUX and VERSAFLEX). The data sets for the CNC axis systems – in the software presented as so called Widgets

– are edited with a simple “drag and drop”. Predefined widgets can be easily adapted to the current application. A plausibility test supports the programmer to avoid mistakes.

With the CAD Assistant 4 also pictures can be used instead of CAD data to program the board. All movements of the fluxer and solder pot axis systems are entered graphically on the PCB picture and are provided with process data. All these program data can be tested for any errors by a simulation run and can be used immediately in the selective soldering machine.

Moreover, the CAD Assistant 4 offers an autorouting function that will calculate the fastest soldering program using the algorithms of the travelling salesman principle.

Modern Data Processing Using CAD data or pictures



Data processing (ODB++/Scan)

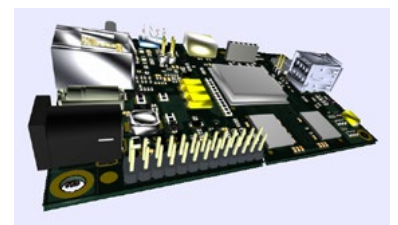
The CAD Assistant 4 offers the user new possibilities to create a soldering program. The import of 3D data provides the process engineer with additional information that supports him in programming. These data include information about the conductive layers of the boards, drilling information, component part lists, placement data and exact measurements. This means that the exact free space around the solder joints is known at every spot on the board.

The ODB++ is a data exchange format that can be exported from the layout programs available on the market. But of course, also the other current 3D and CAD data like GenCAD or IPC 2581 can be used. Furthermore, also the import of pictures of the PCB remains possible. Here too, all standard formats (jpg, bmp, png, tif, gif, etc.) can be used. In this case, the 2D picture will be displayed on the screen and the programmer adds the single soldering jobs.

Ersa recommends the use of ODB++ data, which offers enormous advantages in creating new soldering programs.

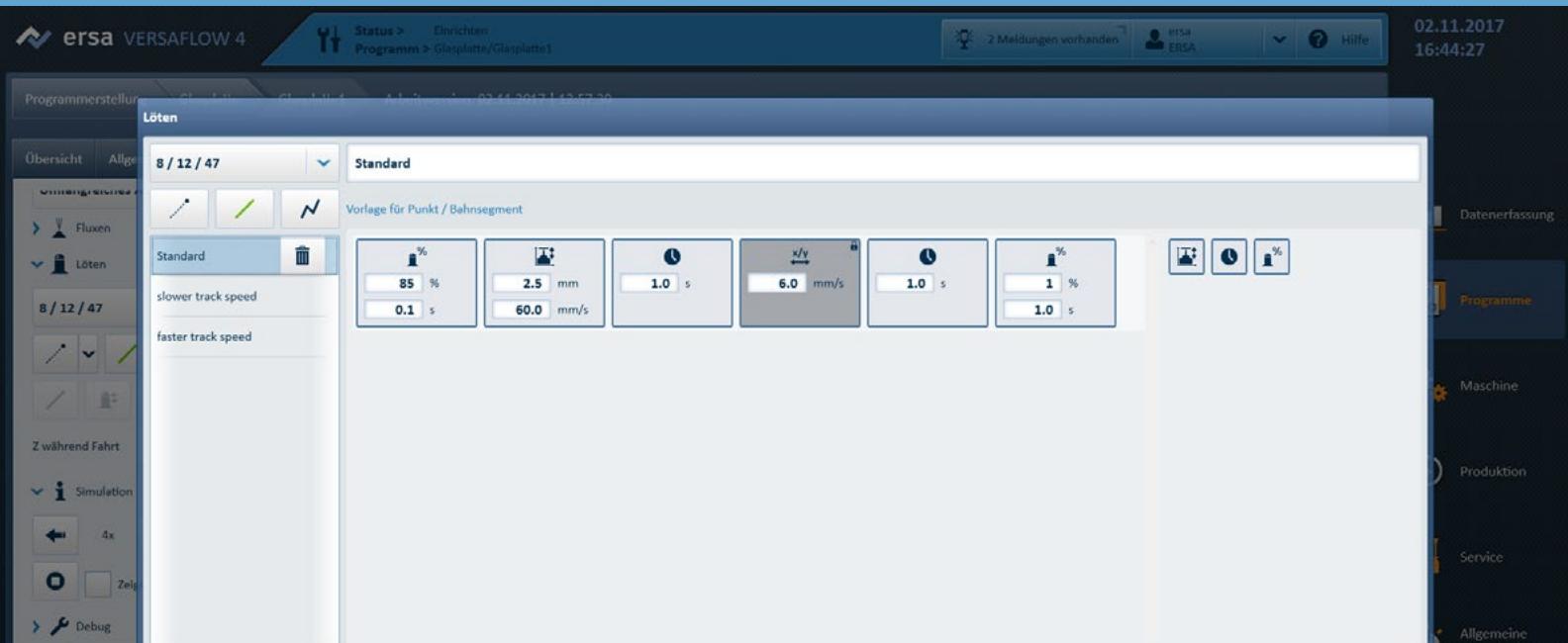


3D view of a panel

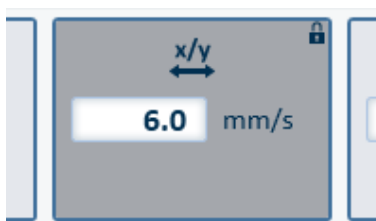


3D view of a single board

Automated programming by using innovative template libraries



Component-related templates



Certain parameters of the templates cannot be changed

Templates offer the process engineer a fast start in program creation with the CAD Assistant 4. The software already provides several predefined templates for different nozzle sizes and operation modes which can be used for the creation of soldering programs. The templates are always depending on the nozzle size because every size comes with different parameters.

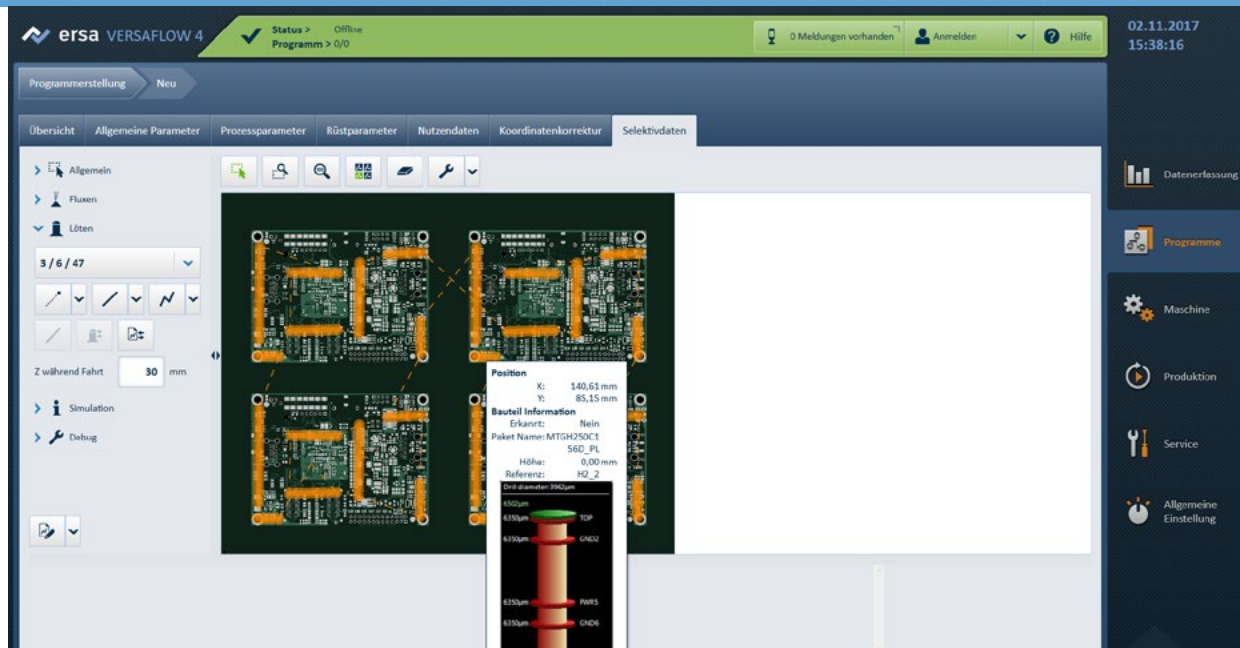
These templates can be adapted, newly defined and saved individually for future usage. When changing the parameters of the templates, the process engineer has an enormous flexibility at hand. He can easily adapt

the sequence of the CNC axis system – in the software displayed as so called widgets – by drag & drop. Created templates can simply be transferred from one machine to the next by the export and import function.

Additionally the software offers the possibility to authorize different user levels. This ensures that in protected templates only preset values can be adapted or changed by the user. For example, it can be set that the soldering direction and speed in a certain template cannot be changed, but the contact time at the individual point can be adjusted individually.

Take advantage of your own data!

Added values through ODB++

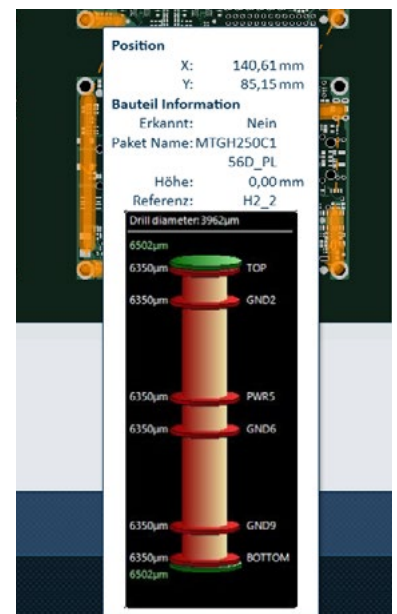


The use of ODB++ data offers the process engineer huge advantages when creating new soldering programs. A precise processing of the data is made possible by the use of the full 3D CAD information of the board and the components. Information like heat capacity, drilling information etc. are crucial for the optimal creation of soldering programs.

Components and the process parameters linked to these components are saved in a database. In this way, the predefined parameters can be used when programming new PCBs that include known components with the already defined process

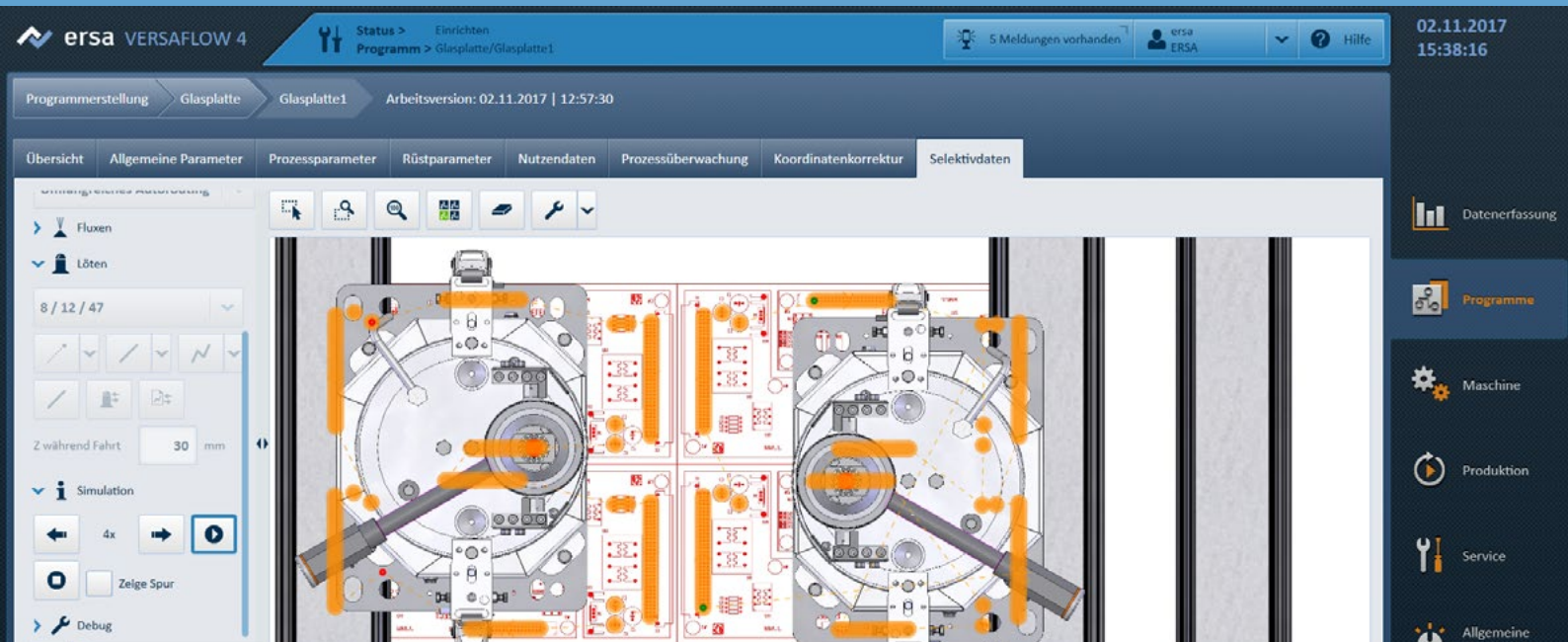
parameters. Of course, these can still be changed by the operator when needed. Additionally the software offers the possibility to link and save the flux and soldering parameters together. Based on the ODB++ data of the board, the CAD Assistant will provide additional information on the used components, drilling holes and individual layers in the PCB.

On basis of the known component information, certain keep-out areas can be defined automatically. This saves the time-consuming manual routing around these areas.



Precise component information of every component

Real-time monitoring of performance: Optimized travelling paths and cycle times



Autorouting divides the program optimal over the different solder pots



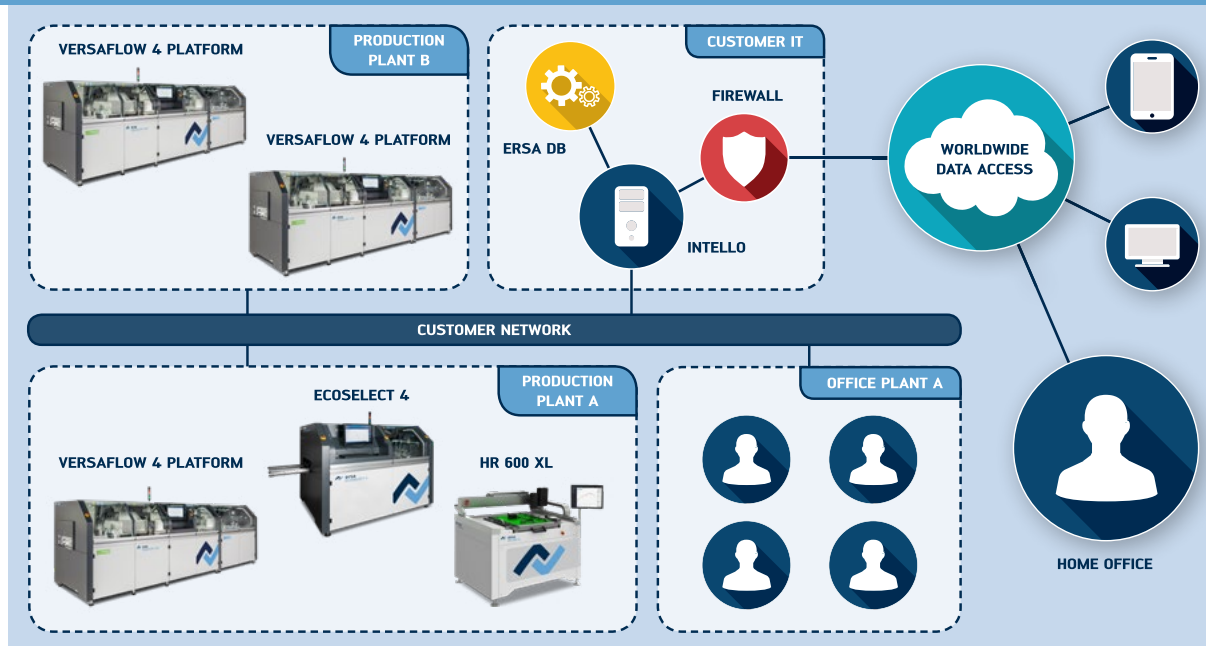
Graphical presentation of the soldering path in 3D

While programming, the process engineer defines the solder nozzle for each solder joint. Then the intelligent autorouting algorithm assigns the individual jobs to the available solder modules and solder pots. While doing this, the software takes the different nozzles and tools into account so that the correct tool is used at each joint. The autorouting algorithm is designed to calculate the fastest path. The software offers the possibility to simulate the soldering sequence and soldering paths in real time still in the office.

This offers huge advantages, especially for the highly flexible VERSAFLUX and VERSAFLEX modules. Additionally, the autorouting algorithm will avoid any collisions in the flux and/or soldering modules. Also, the autorouting function can be adapted when needed. In this way, high-mass components or sensitive components can be prioritized and soldered first.

All in one

CAD Assistant 4 integrated in the machine software



The ERSASOFT 5 platform is a data-base-driven system to collect all data. This ensures a structured way of saving any data. In this way, the data can be retrieved easily if it is needed e. g. for a longtime report. Additionally the database also offers a higher security due to an automatic backup interval.

This database can be set up in the data center of the customer. In this way, multiple machines can share the same database and exchange data amongst each other. When a product

is manufactured in several different factories, this ensures that the process is the same at every location. No matter where the machine is located around the globe. Furthermore, it is possible to upload datasets later on, in order to correct or eliminate existing errors.

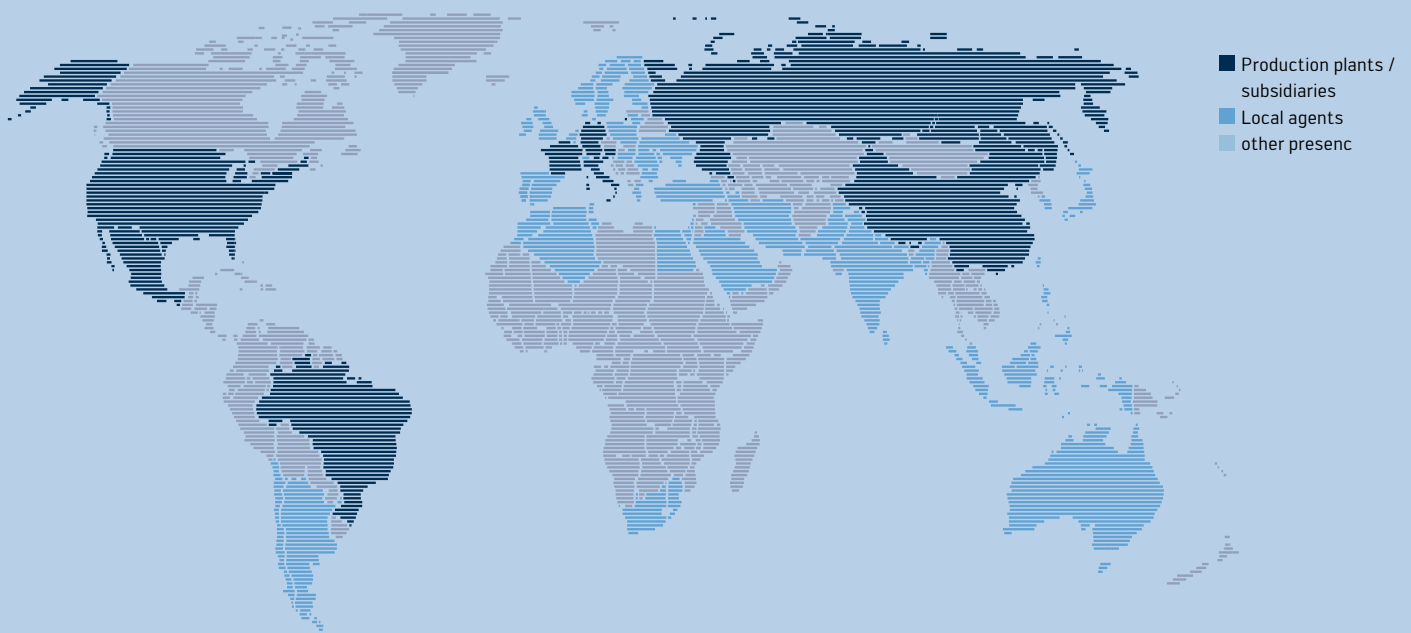
The ERSASOFT 5 and associated CAD Assistant 4 is available for the selective soldering machines of the VERSAFLOW 4 generation. This includes: SMARTFLOW 2020, ECOSELECT 4, VERSAFLOW 4/55, VERSAFLOW 4 XL.



Innovative ERSASOFT 5



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