

SIPLACE Manufacturing Solutions

INTELLIGENT WORKFLOW OPTIMIZATION



Major efficiency improvements on your shop floor are best achieved by optimizing the whole SMT process. Intelligent software solutions play an important role in this endeavor, especially where typical manufacturing workflows are concerned. The SIPLACE portfolio gives you the basic tools you need to optimize their everyday SMT manufacturing operations. And the SIPLACE team gives you the support you need to make these improvements reality.

SIPLACE

The central question for each electronics manufacturer is: How can I make my SMT placement process even more productive and competitive?

SIPLACE shows you how. Today the greatest advances in productivity and efficiency come no longer from the individual machine, but from the interaction of all processes and from the intelligent combination of innovative hardware, software and service modules which can be individually adapted to various production tasks and processes.

Consequently, SIPLACE solutions make the workflows in your production the starting point for optimizing the overall process – from data processing to production scheduling and material logistics to production monitoring.

Take a look at the innovative SIPLACE solutions for:

- Production planners
- Setup and machine operators
- Line managers
- Production managers
- Maintenance managers

Optimize your production processes with SIPLACE workflow solutions and support from the SIPLACE team.

Production planning

Production planners require concrete and reliable information to do their job properly and get orders out the door on time. The best results can be achieved if production processes and deadlines can be synchronized. SIPLACE offers the perfect solutions for this approach.

With innovative software from SIPLACE, the production scheduler can optimize the order sequence send the jobs to the line with state-of-the-art setup concepts. We also make sure that your systems are transparently integrated into your ERP system and offer SMT-specific material logistics that synchronize the processes between your lines and your component warehouse.

In this context it is important to remember that the SIPLACE Software Suite lets you work across lines and platforms in a single system from a single source.

Your challenges:

- Minimize the setup effort in job preparation and production
- Minimize the downtime caused by setup changeovers
- Ensure that the required materials are available
- Overcome the limitations of classic ERP systems

The SIPLACE solution:

SIPLACE SiCluster MultiLine Production scheduling for all your lines

SIPLACE SiCluster MultiLine simplifies and improves the production scheduler's job significantly.

In combination with the SIPLACE Production Planner, SIPLACE SiCluster MultiLine creates family setups that take into account all your SIPLACE lines on the production floor. Restrictions like line configurations, quality management systems and feeder options are automatically considered as well. The production planner can even select with a mouse click whether he wants to optimize for maximum placement speed or minimum setup times.

SIPLACE SiCluster Professional and SIPLACE Pro optimization tools Optimized line utilization

The SiCluster Professional option for SIPLACE Pro automatically identifies shared components, generates family setups and efficiently groups components on the feeder tables. It also assigns standard components which are needed for multiple setups to constant feeder tables. You benefit from quicker and more efficient setups while maximizing your line utilization.

SIPLACE Pro Split Table Mode Option Non-stop product changeovers thanks to virtual setup area assignments

The Split Table Mode option is a simple and ingenious way to virtually allocate your changeover tables. Within floating setup you set up the reels for the next product(s), while the first product (or product family) runs. Your SIPLACE line switches over seamlessly when the first board for the new product enters the line.

SIPLACE Material Manager Production scheduling with material availability checks

The SIPLACE Material Manager is the material logistics solution that was designed for the special needs of electronics manufacturers. Components are managed on the package (e.g. reel) level, and inventories can be tracked in various storage locations (warehouse, active feeder pool, line, etc.). It also manages moisture-sensitive devices (MSDs) and records their exposure times.

Another benefit: It keeps track of your material consumption much more accurately, because it computes it no longer based on placement programs and lot sizes, but based on exact numbers reported to the Material Manager by each machine. The system is also able to trigger material withdrawals and generate path-optimized pick lists.

Setup preparation and machine operation

Setup preparation and machine operators have wide-ranging and demanding jobs. They make sure that your lines keep running trouble-free. They are also responsible for correctly setting up and verifying the various components and for making sure that they are replenished on time. That's why it is so important to give them the tools they need to simplify and automate these processes as effectively as possible.

Your challenges in setup preparation

- Avoid setup preparation errors
- Reliable setup verification in the active feeder pool
- Provide feeders in a timely manner to avoid production delays

Your challenge in machine operation

- Set up and tear down feeders without errors
- Replenish components in a timely manner to avoid production delays
- Ensure efficient production without expensive training

The SIPLACE solution

SIPLACE Setup Center **Reliable setup verification**

SIPLACE Setup Center safeguards processes, prevents errors and accelerates product changeovers irrespective of whether you execute setup changes online or offline, with changeover tables, with feeders in preassigned positions, or with state-of-the-art random setup concepts. You simply scan the barcode ID of the component reel that is loaded in the feeder. The software reconciles the data with the placement program information and approves the combination or signals an error. Features like these protect your setup process.

SIPLACE Material Setup Assistant **Less material travel back and forth**

The SIPLACE Material Setup Assistant prevents excessive material travel between the warehouse and the setup preparation area. It creates transparency, analyzes the production schedules for all lines and uses the feeder LEDs to signal which feeders should stay in place since they will be needed later.

SIPLACE Material Tower: **Hardware for smart workflows**

The SIPLACE Material Tower is the first storage system for component reels which runs completely integrated with SIPLACE Material Manager. The rectangular, very compact SIPLACE Material Tower takes less than 10 seconds for software-controlled issuing of materials. Several SIPLACE Material Towers at the same location can be clustered – remaining completely transparent for SIPLACE Material Manager software.

The SIPLACE Material Tower also can be used as an intermediate storage for setup preparation areas as well as a storage for replenishment in immediate vicinity to the SMT lines.

SIPLACE Random Setup **Place feeders anywhere**

With SIPLACE Random Setup you install your SIPLACE X-feeders wherever there is room. With Random Setup, your SIPLACE line will automatically adjust your placement programs and processes to work with the current feeder locations. This enables you to prepare for upcoming product changeovers while the current product is still running – simply by setting up the feeders and components for the next product in any available slots. The SIPLACE X-feeders register with the placement machine automatically.

SIPLACE Line Monitor **Everything under control**

The SIPLACE Line Monitor provides all relevant status information for your SMT line at a glance. Traffic light functions warn against critical situations before they become line-stoppers.

SIPLACE Modular Training **Custom-tailored training modules**

SIPLACE's modular training concept makes it easier to schedule training for setup preparation and machine operators. Training seminars take place in familiar surroundings and are based on production-specific requirements.

SIPLACE Station Software and Smart GUI **For a faster and more professional production**

Our user-friendly graphical user interface (GUI), which is available in 15 different languages, quickly turns users into professional operators.

SIPLACE Station Software identifies incomplete component descriptions and makes it possible to teach components during the production run directly on the machine.

Line management

Line managers have a very demanding and diverse job. They have to introduce new products, administer hundreds of placement programs, handle a broad spectrum of components and generally monitor the productivity of their lines. They must have everything under control and be able to provide answers at all times.

Your challenges:

- Have total control of your productivity
- Schedule production jobs to meet their respective deadlines
- Be able to respond quickly and flexibly to top-priority or rush jobs.

The SIPLACE solution:

SIPLACE NPI solutions with Dynamic Editing Quick and error-free new production introductions

With SIPLACE NPI solutions featuring Dynamic Editing you can generate an error-free placement program even when data is faulty or missing. Your central tool is SIPLACE Pro with Virtual Product Build. With easy-to-use software wizards, SIPLACE Pro guides you step-by-step from importing the data to verifying the placement program via a simulation feature. The resulting program runs on any SIPLACE machine.

Do you still have some final corrections to make on fiducials, pickup positions or placement positions? No problem with Dynamic Editing. On the station monitor, teaching a new component shape takes less than a minute, and corrections of placement positions are easy since the machine's internal vision systems handle all the measurements. This saves extra trips and time.

The result: optimized first-yield results.

SIPLACE LED Pairing Always the correct combination

With SIPLACE LED Pairing, users can administer LED brightness classes, display them in the placement program and assign them to the appropriate resistors. When an LED of a different brightness class is picked, SIPLACE LED Pairing selects the matching resistor automatically. And the program also handles assigning and placing LEDs and their corresponding resistors on both sides of the PCB. The system checks whether the correct program with the corresponding resistors has been loaded. If not, it displays a message asking the user to load it. SIPLACE LED Pairing makes the LED placement process a lot easier.

SIPLACE Alternative Components One placement program – many component alternatives

SIPLACE Alternative Components lets you define alternative components for each position. This makes it easy to seamlessly switch to a functionally identical alternative if a manufacturer encounters a delivery bottleneck,

even if these components have a slightly different shape or packaging. As an additional benefit, you no longer have to administer the many program variants that were necessary in the past.

SIPLACE Engineering Data Manager (EDM) Consistent production data made easy

SIPLACE EDM takes the placement programs created in SIPLACE Pro and stores them on a central server, from which it downloads the programs to the line computer just before the start of the production run. This ensures program consistency.

If data changes are needed on the line, the operator can still make them, provided he has the required authorization. Your benefit: SIPLACE EDM records all such changes automatically, documents them and can integrate them into the master version of the program on the central server in accordance with a defined approval process.

SIPLACE Vision Teaching Station A powerful tool for your NPI process

The SIPLACE Vision Teaching Station uses the same digital camera technology that makes your SIPLACE placement machines so special. This makes it possible to describe components that are not available in your own repository or in SIPLACE's component shape libraries in just a few easy steps with help from the following features:

- The Auto-Learn function, which automatically records the shape and dimensions of new components
- The Offline Teaching function, with which you record component shapes away from your lines while the production continues unhindered
- Export to SIPLACE Pro: Once the component has been described, its data is exported to SIPLACE Pro, where it is filed and becomes available to all SIPLACE platforms
- Import of saved vision dumps from SIPLACE machines

Production management

Responsible for the entire production floor, the production manager must make sure that products are made and shipped on time and with the required quality. To do this, he needs the maximum transparency provided by the innovative and intelligent SIPLACE line monitoring tools. Should something nevertheless go wrong, he must have access to a reliable solution for tracing the production generation process. SIPLACE offers the perfect tools for such demanding requirements.

Your challenges:

- Keeping an eye on your production numbers
- Recognize target deviations and respond accordingly
- Responsibility for producing pcbs and assembled products in the required quality and quantity

The SIPLACE solution:

SIPLACE Performance Monitoring

SIPLACE Performance Monitoring determines the line status and important key performance indicators (KPIs) in real time. It displays the results as absolute values as well as in the form of easy-to-read actual-vs.-target charts with customizable reference values.

SIPLACE Performance Monitoring delivers not only detailed data for analyses, but clear visuals to keep the production staff informed about job progress, target achievement and potential improvements.

SIPLACE Traceability

Recalls cost a lot of money. That's why you want a production environment that follows specifications to the letter and features seamless traceability. With SIPLACE Traceability, your production meets even the toughest requirements.

In our Traceability solutions we collect all production- and quality-relevant data from SIPLACE Setup Center, splice sensors, fill level meters, barcode readers and other sensors. You access this data via fast and powerful database tools.



Maintenance and repair

The main responsibilities of the maintenance engineer, who is often also the service expert, are clearly defined: he should make sure that the placement machines run smoothly and that his maintenance activities cause as few interruptions or delays as possible. To achieve this goal, many electronics producers have introduced intelligent maintenance concepts and maintenance workflows that integrate the machine maintenance into their everyday operations. Maintenance engineers must also know in what order their activities are best performed, which tools and materials they will need, and what can be done offline.

Your challenges:

- Verify your equipment such as machines, feeders and heads
- Be up-to-date on special service tools
- Maintain the placement equipment in a timely fashion without loss of production
- Repair and test individual machine parts
- In short: do what's needed to keep the line running

The SIPLACE solution:

SIPLACE Minor/Major Maintenance Being proactive delivers benefits

SIPLACE Minor Maintenance involves minor maintenance activities that are performed by the operators on a weekly basis. You can schedule these for specific days or perform them during breaks in the production process.

SIPLACE Major Maintenance activities are performed approximately every six months by people who have undergone special SIPLACE training. According to the requirements they have the choice to do it off- or online. However, you can also request SIPLACE technicians to perform this kind of maintenance for you.

Your benefits:

- You protect your investment and maintain the value of your SIPLACE machines
- You prevent unscheduled downtime
- You maximize the availability of your placement machines
- Older equipment operates within the specification, just like a new machine
- You reduce your total costs

SIPLACE Verification

Like everyone else, you probably receive more and more requests to document the capabilities of your machines, whether from customers or to comply with external standards or internal audit requirements SIPLACE Verification makes it easy to meet these demands when it's most convenient for you.

You can select from the following verification options:

- **Machine verification**
Checking your machines' capabilities
- **Camera verification**
Checking the controls and lighting for analog and/or digital imaging systems
- **Feeder verification**
Checking the general tape module functionality and positioning accuracy
- **Placement force verification**
Checking the programmable placement force levels

You can also perform your own machine verification with the help of the (internal) SIPLACE vision system. We will provide you with the necessary know-how and special tools as part of our Capability Transfer program.

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