

PULSEPRO

ASYS
GROUP



PULSE PRO

Smart Factory Manager

Smart Software Functions to Optimize
your Production.

PULSE PRO

Smart Factory Manager

Discover the compact software solution from ASYS to optimize your production. PULSE PRO offers six software modules that will help you to control automated material flows in the shop floor, to achieve a dynamic just-in-time supply for each production step and to track all data flows.

PULSE PRO is easily operated via a cockpit and meets the highest demands for simple handling. The high quality usability is based on the tasks of the operators. Even with complex contents and functions, the users find their way to their goal quickly and easily.

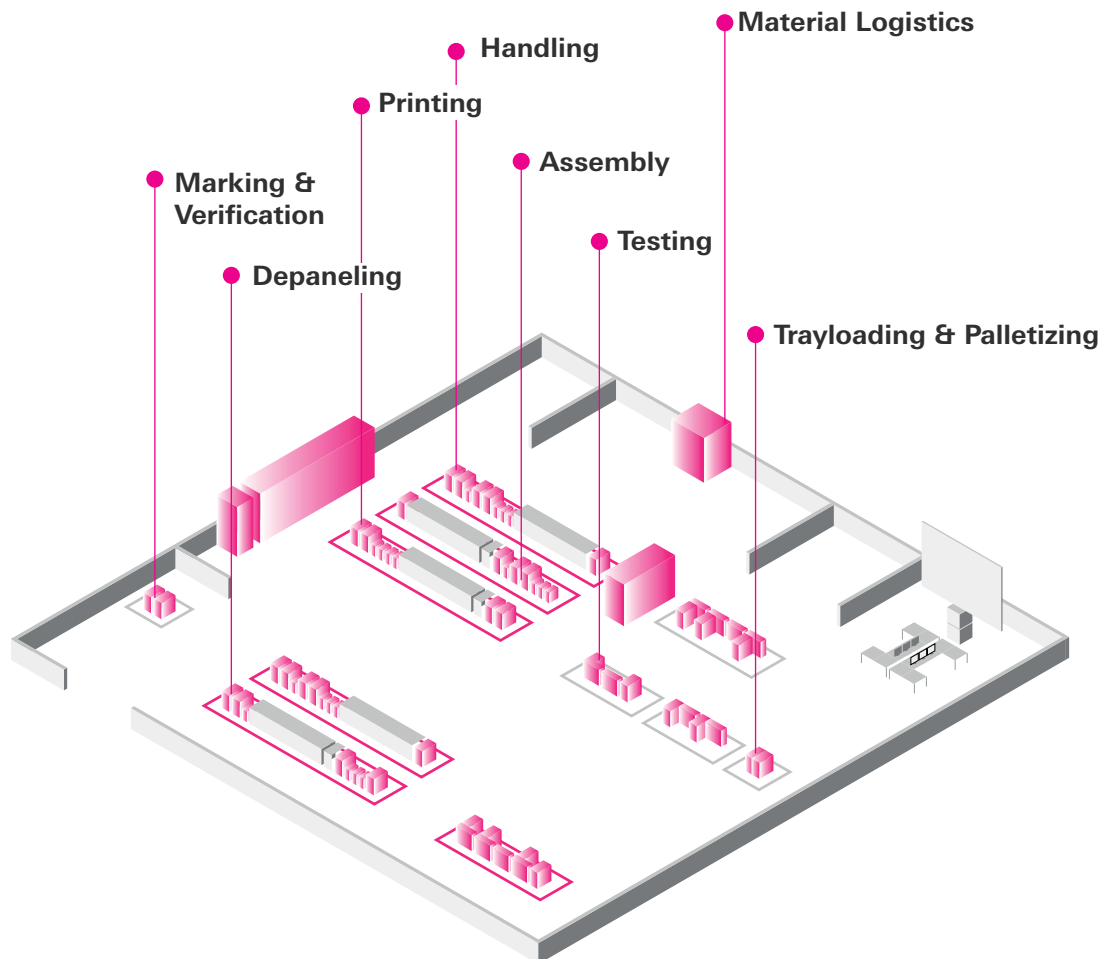
Software Modules

Observe & Control	Performance of the entire Shop Floor	10 – 13
Material	Automate, Control, Trace all Material Flows & Types	14 – 17
Plan & Execute	Precise Order Planning of the entire Shop Floor	18 – 21
Product Change	Stop Losing Time on Product Changeover	22 – 25
Program Preparation	Offline Programming of Machine	26 – 29
Factory Connect	Import & Export of Data	30 – 33

We offer with our machines
over 75% of the entire
Smart Factory.

Smart Factory

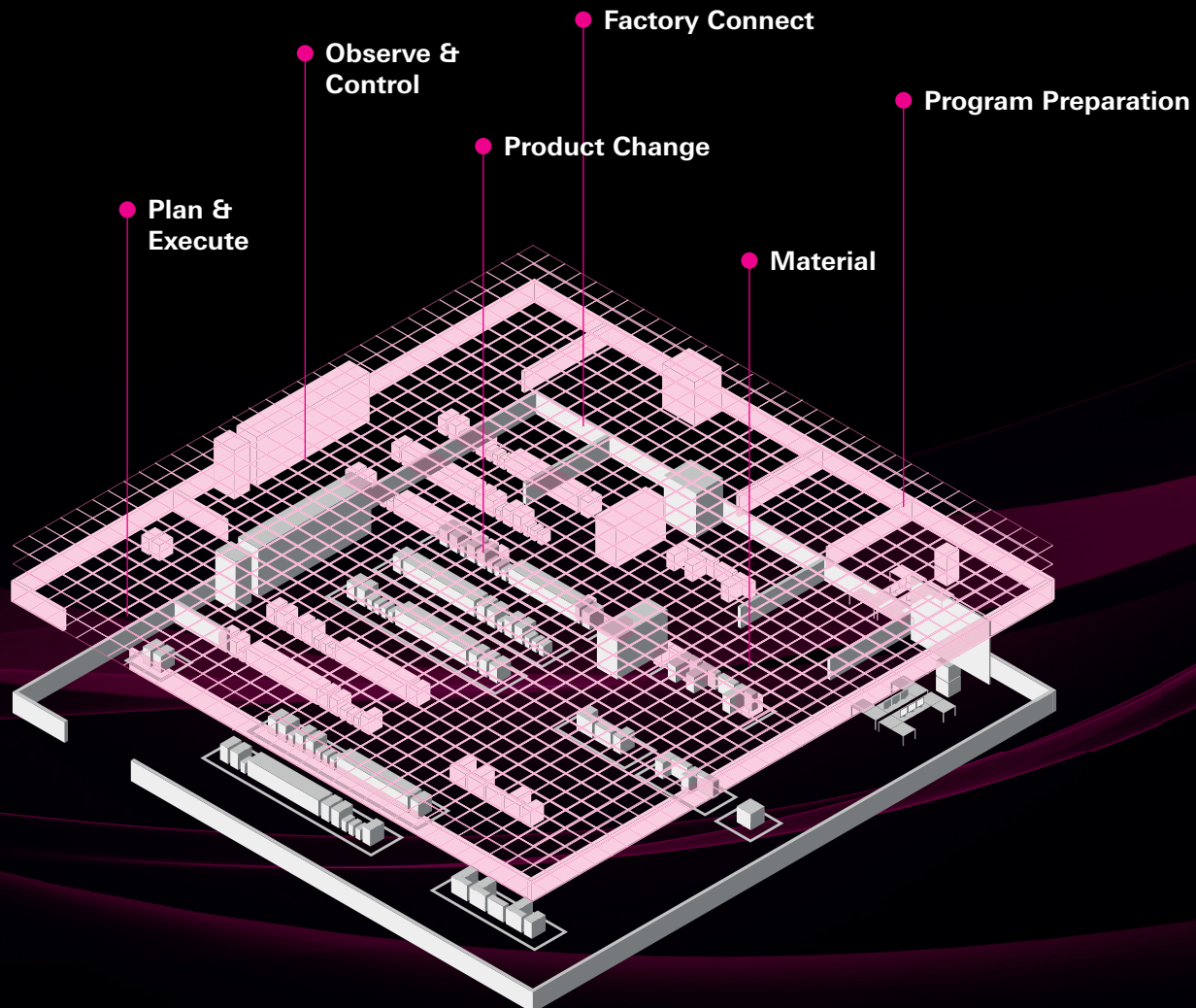
Machine Layer



PULSE PRO Software
solutions for the entire
Smart Factory.

Smart Factory

Software Layer

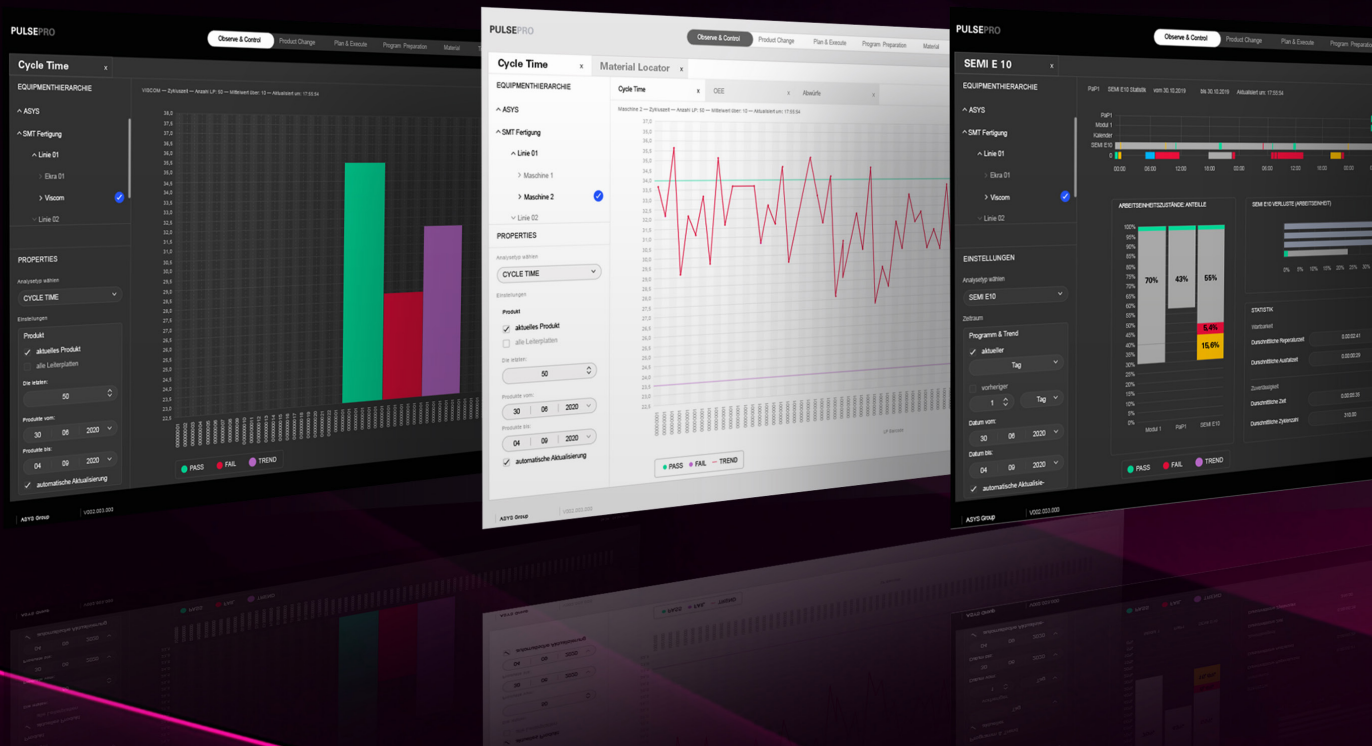


PULSE PRO

Advantages at a Glance

All functions in a uniform
look & feel

All software functionalities
in an organized and modular
structure

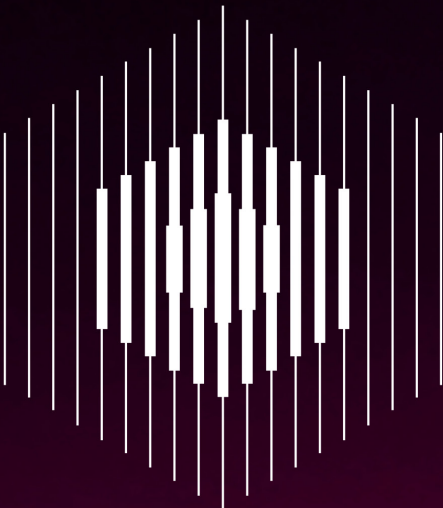
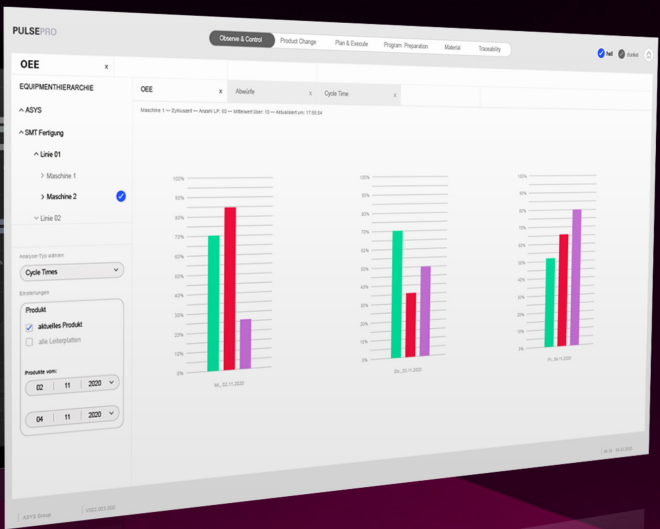


Easier control and visualization of automated material flows on the entire shopfloor

Operator has the production in sight and is able to achieve an optimum of productivity

Various functions with solutions on all layers

Closing the gap between Shopfloor and MES/ERP



PULSEPRO

Modules & Functions

Modules	Description	Functions	Function Area		
			Machine	Line	Factory
Observe & Control	Performance overview of the entire shopfloor	Shopfloor Statistics	●	●	●
		Smart Alerts	●	●	●
		Monitoring Cam	●	●	●
		Line Observer	●	●	●
		Dashboard Material	●	●	●
		Dashboard Line Materialflow	●	●	●
Product Change	Stop losing time on product changeover	Product Change		●	
		Product Change Lite		●	
Plan & Execute	Precise order planning of the entire shopfloor	Order Control		●	●
		Order Planner		●	●
		Manual Workstation		●	●
		Pre Setup Area		●	●
Program Preparation	Offline programming of machine	INSIGNUM Programming	●		
		DIVISIO Programming	●		
		SERIO Programming	●		

Modules	Description	Functions	Function Area		
			Machine	Line	Factory
Material	Automate, control, trace all material flows & types	Material Locator	●	●	●
		Component Manager	●	●	●
		Advanced Component M.		●	●
		Carrier Manager	●	●	●
		MSL Manager	●	●	●
		Mobile Robot Manager			●
		Fleet Manager OMRON			●
Factory Connect	Import & export of data	Sync Factory Calendar			●
		Import Order Data			●
		Import Order Sequence			●
		Import Material Data			●
		Sync SAP – Material			●
		CFX – Connect Smart Alerts	●	●	●
		ASYS Socket Interface	●		

Cycle Time

Material Locator

EQUIPMENTHIERARCHIE

ASYS

SMT Fertigung

Linie 01

> Maschine 1

> Maschine 2

Linie 02

PROPERTIES

AnalyzeTyp wählen

CYCLE TIME

Einstellungen

Produkt

☒ aktuelles Produkt☐ alle Leiterplatten

Die letzten:

50

Produkte vom:

30

04

2020

Produkte bis:

04

09

2020

☒ automatische Aktualisierung

Cycle Time

OEE

Abwürfe

Maschine 2 — Zykluszeit — Anzahl LP: 50 — Mittelwert über 10 — Aktualisiert um: 17:55:54



ASYS Group

V001.0

SEMI E 10

EQUIPMENTHIERARCHIE

ASYS

SMT Fertigung

Linie 01

> Maschine 1

> Maschine 2

Linie 02

EINSTELLUNGEN

AnalyzeTyp wählen

SEMI E10

Zeitraum

Programm & Trend

☒ aktueller

Tag

☐ vorheriger

1

Tag

Datum vom:

30

04

2020

Datum bis:

04

09

2020

☒ automatische Aktualisierung

ASYS Group

V001.0

PaP1 SEMI E10 Statistik vom 30.10.2019 bis 30.10.2019 Aktualisiert um: 17:55:54

PaP1

Modul 1

Kalender

SEMI E10

00:00 06:00 12:00 18:00 00:00 06:00

ARBEITSEINHEITZUSTÄNDE: ANTEILE

100% 95% 90% 85% 80% 75% 70% 65% 60% 55% 50% 45% 40% 35% 30% 25% 20% 15% 10% 5% 0%

70% 43% 55%

5,4% 15,6%

Modul 1 PaP1 SEMI E10

STATISTIK

Wartbarkeit

Durchschnittliche

Durchschnittliche

Zuverlässigkeit

Durchschnittliche

Durchschnittliche

Durchschnittliche

Durchschnittliche

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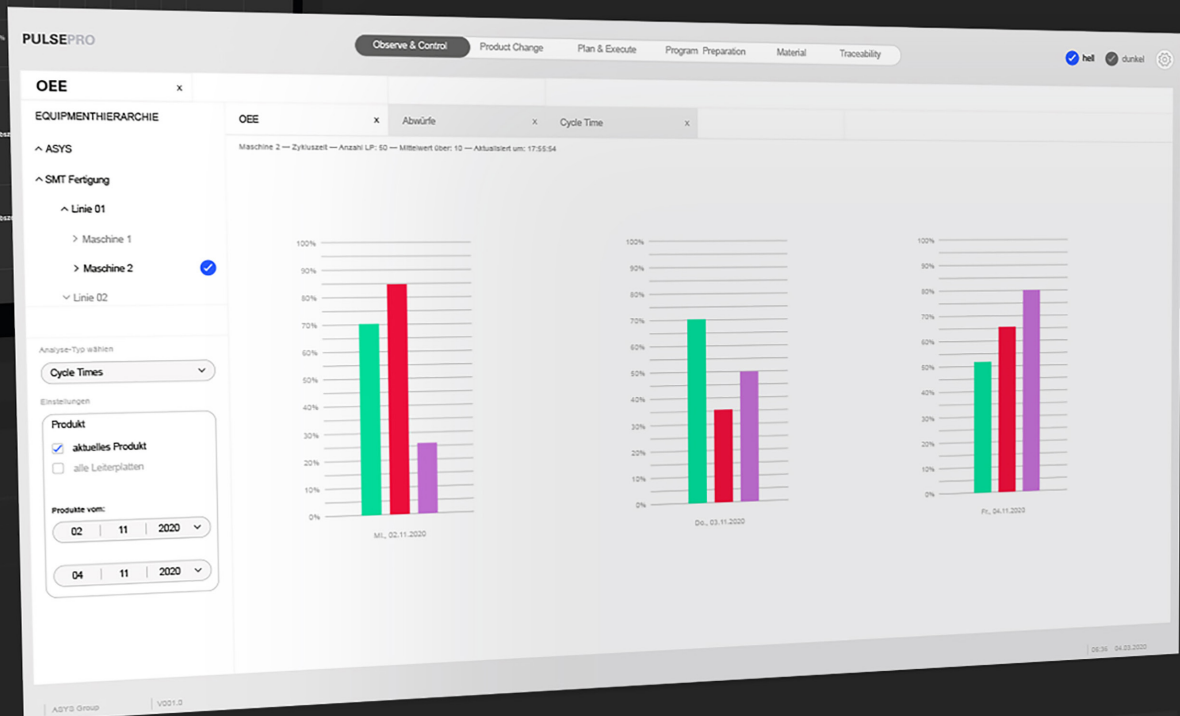
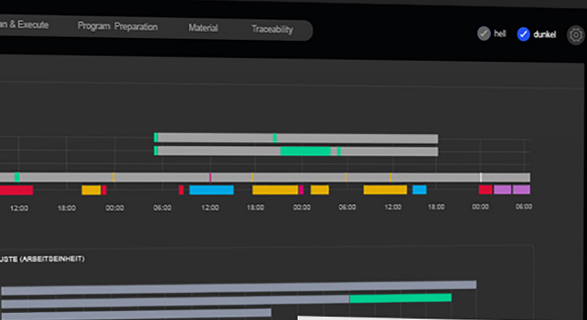
Durchschnittliche

Durchschnittliche

Software Module

Observe & Control

Performance of the
entire Shopfloor



Observe & Control



Observe & Control

The PULSE PRO module „Observe & Control“ offers a variety of monitoring possibilities to keep the overview of all connected machines. The operator always knows what is going on in every situation. The data is put into relation and is summarized according to standardized specifications. The tool maps the performance of the entire shop floor. Interrelationships become clearer, bottlenecks and downtimes are clearly visualized and can be effectively addressed or even avoided with foresight. Always following the goal of keeping production running and increasing productivity.

Module Highlights

Monitoring of the entire electronics production across all machines / lines

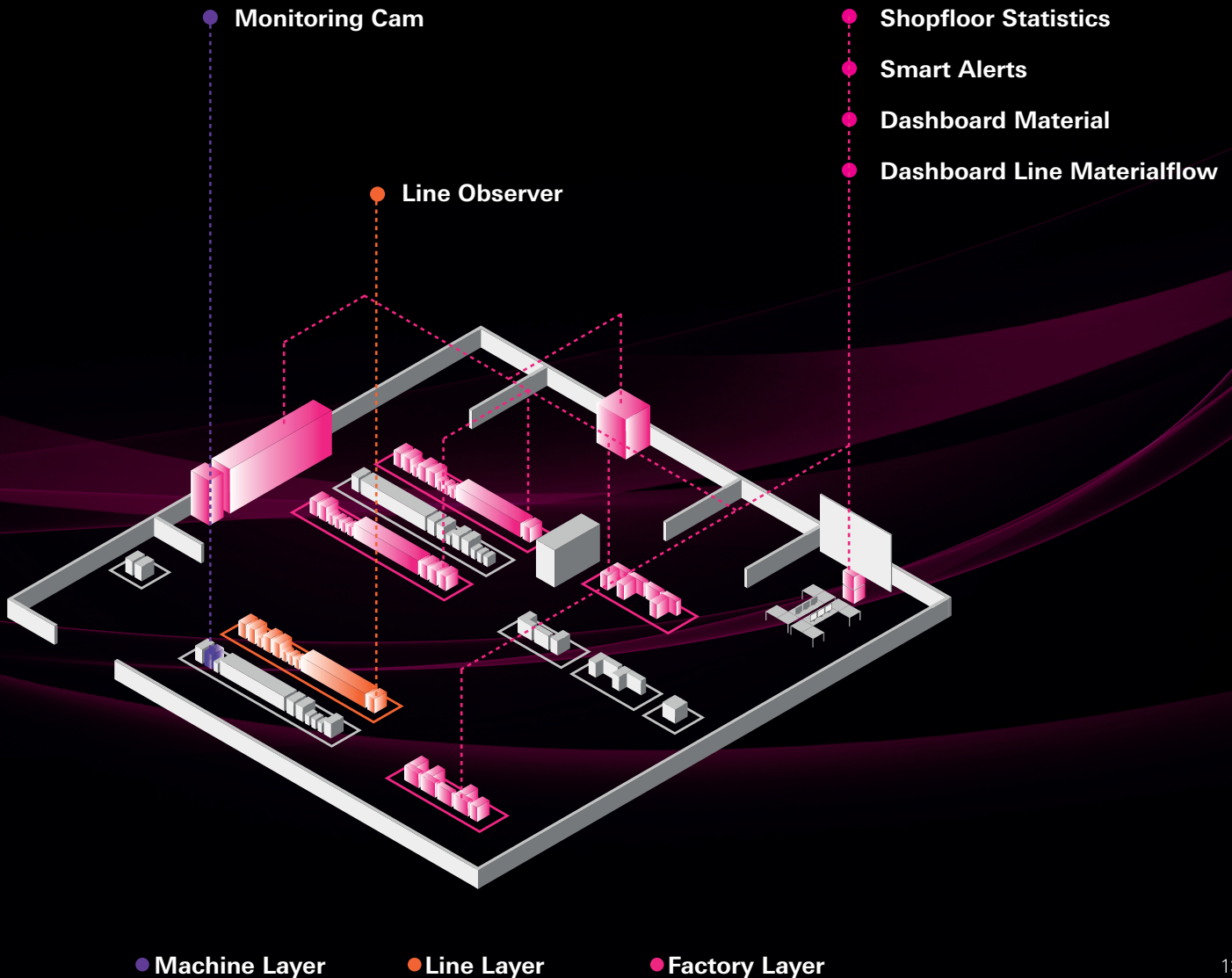
Acquisition of complete machine / process data

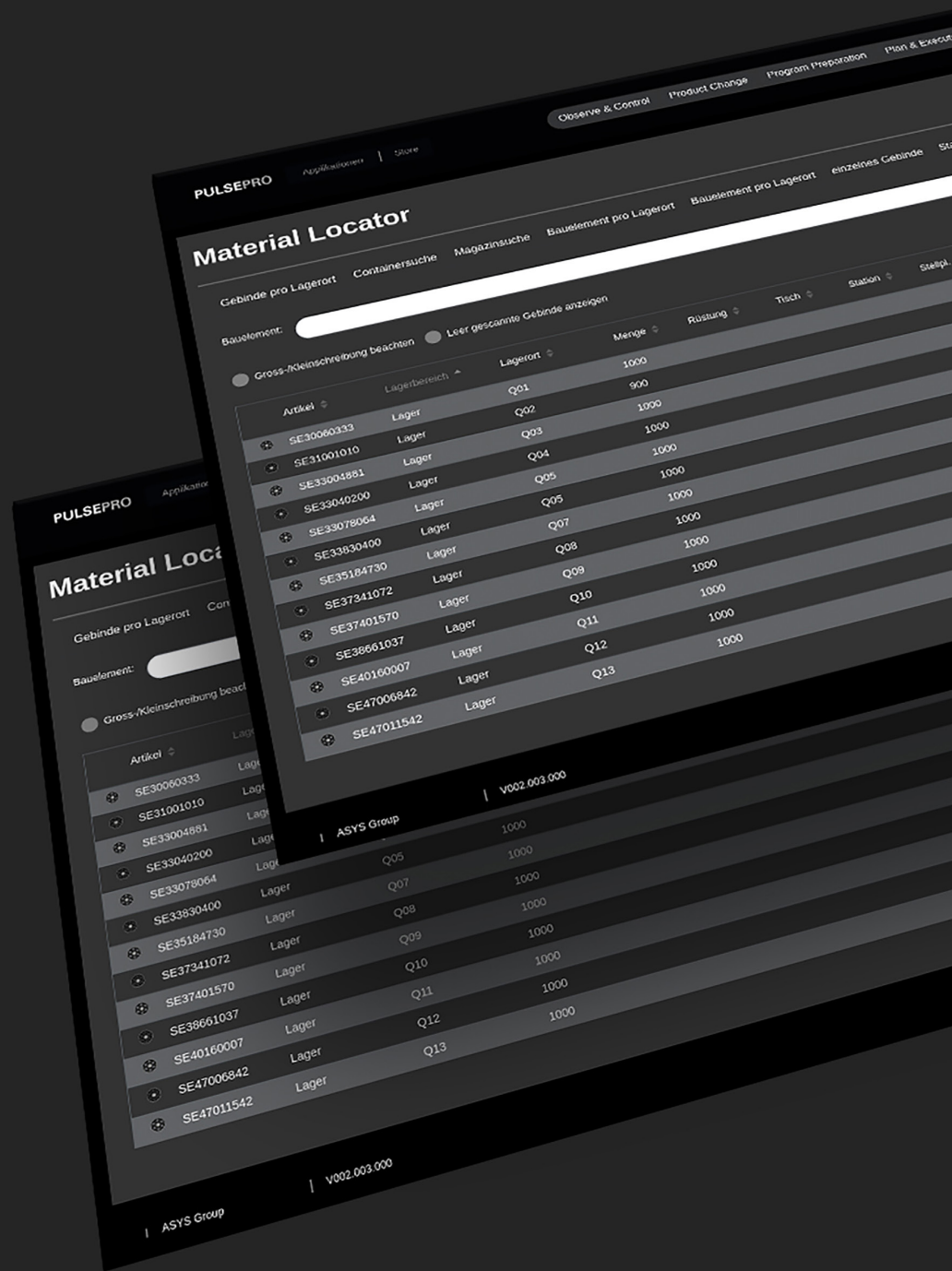
Increase of transparency, productivity and quality

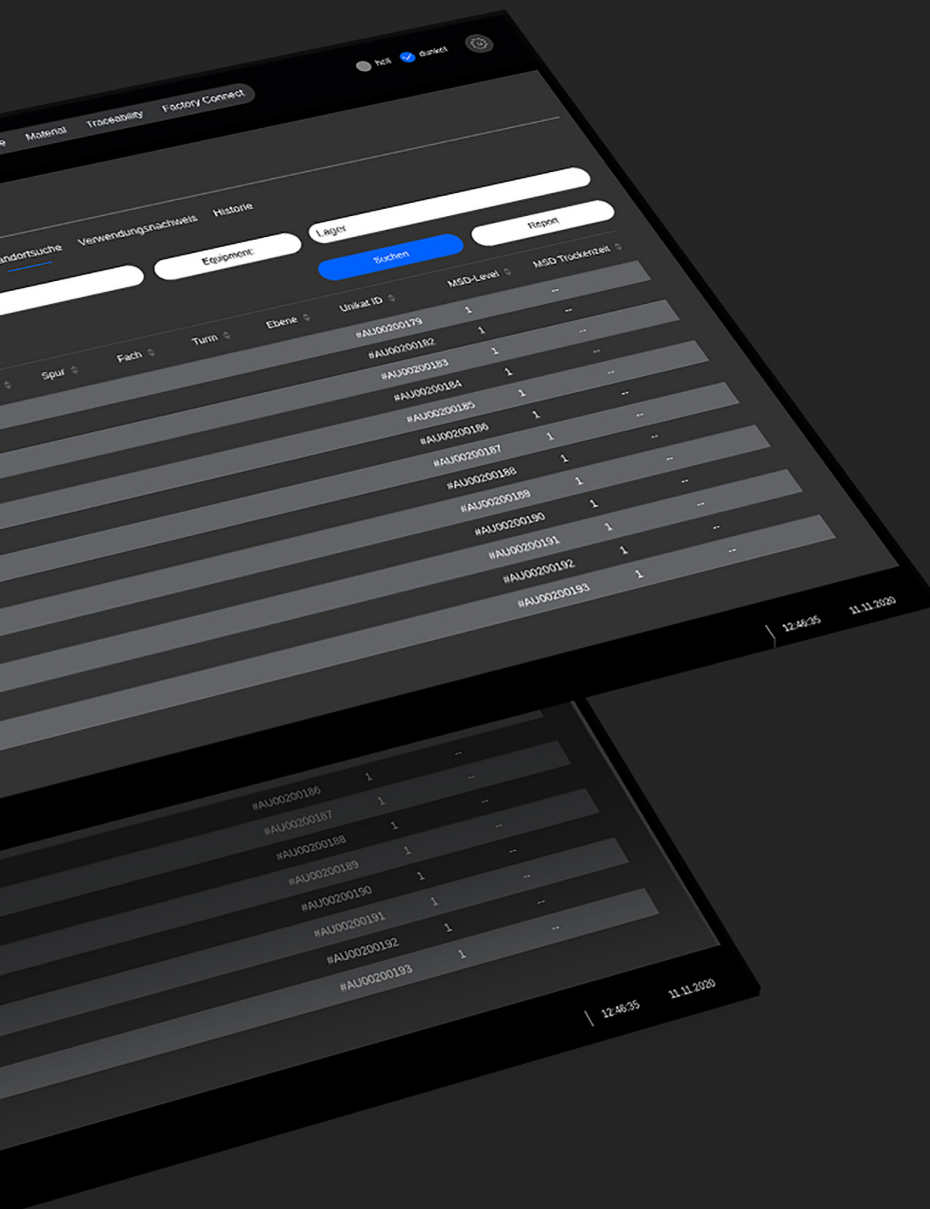
Cost reduction through support in process optimization

Observe & Control

Functions





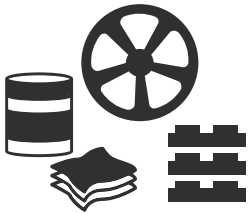


Software Module

Material

Automate, control,
trace all material
flows & types

Material



Material

The quantities and states of all materials on the entire shopfloor are clearly documented in the PULSE PRO module „Material“. All component reels, trays and PCBs are managed on the basis of Unique ID (UID) and the replenishment of material is controlled autonomously, which reduces the operator's workload. Furthermore, the floor life time of moisture-sensitive components is monitored. Based on the order planning, full or empty magazines are autonomously controlled within the entire shopfloor between lines and storage locations. Therefore all modules are integrated and connected for autonomous transport.

Module Highlights

Overview of quantities and states of all materials in the entire shopfloor

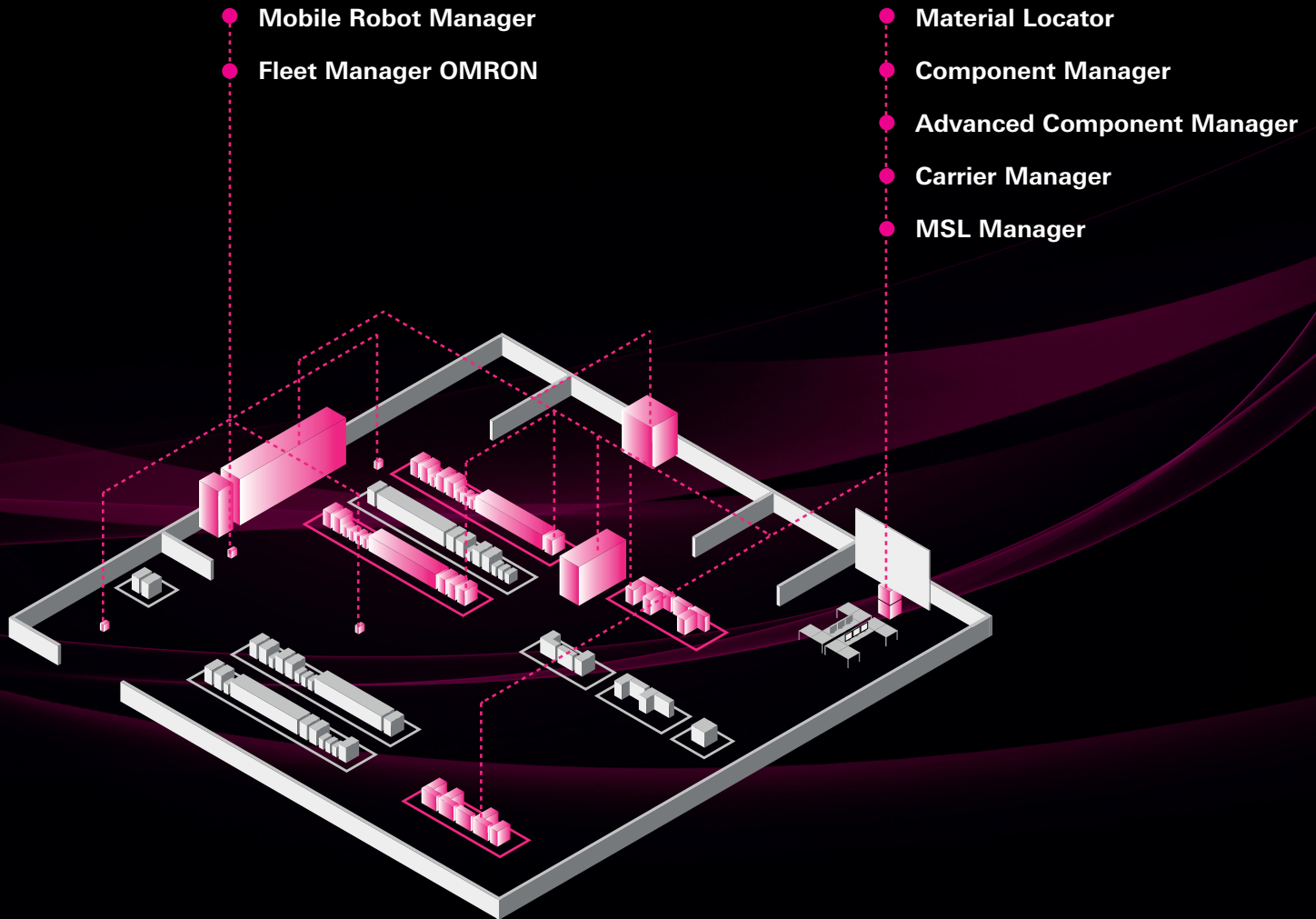
Autonomous magazine control and material replenishment for components and printed

Monitoring the floor life time of moisture-sensitive components

Integration and connection of all modules for autonomous transport

Material

Functions



● Machine Layer

● Line Layer

● Factory Layer

PULSEPRO

Observe & Control Product Change **Plan & Execute** Program Preparation Material Traceability

Order Planner

EQUIPMENTHIERARCHIE

- ASVS
- SMT Fertigung
 - Linie 01
 - Elekta 01
 - Viscom
 - Linie 02

STEUERUNG

- Ein-Angaben
Anfertigung der Linie einplanen
- Einplanen Auftrag
Plant den gesamten Auftrag ein
- Ausplanen
Entfernt den Auftrag aus der Planung
- Ageschlossenes Modul aktivieren
Ageschlossenes Modul auf einplanen
- Modul einplanen
Setzt die markierten Module auf einplanen
- Barcodeetikett drucken
Drucken des Barcodeetiketts
- Fischer
Verschiebt den Auftrag nach vorne
- Später
Verschiebt den Auftrag nach hinten
- Los zuweisen
Öffnet die Fehlerliste
- Fehlerliste
Öffnet die Fehlerliste
- Fehlerliste
Öffnet die Fehlerliste

GEPLANTE ARBEITSGÄNGE

05. März

11.00 | 12.00 | 13.00 | 14.00 | 15.00 | 16.00 | 17.00 | 18.00 | 19.00 | 20.00 | 21.00 | 22.00 | 23.00 | 24.00

Linie 1

Linie 2

Linie 3

30247812 (8803009)

30247812 (8803107)

30247812 (8803209)

30247812 (8803301)

30247812 (8803403)

30247812 (8803505)

30247812 (8803607)

30247812 (8803709)

30247812 (8803811)

30247812 (8803913)

30247812 (8804015)

30247812 (8804117)

30247812 (8804219)

30247812 (8804321)

30247812 (8804423)

30247812 (8804525)

30247812 (8804627)

30247812 (8804729)

30247812 (8804831)

30247812 (8804933)

30247812 (8805035)

30247812 (8805137)

30247812 (8805239)

30247812 (8805341)

30247812 (8805443)

30247812 (8805545)

30247812 (8805647)

30247812 (8805749)

30247812 (8805851)

30247812 (8805953)

30247812 (8806055)

30247812 (8806157)

30247812 (8806259)

30247812 (8806361)

30247812 (8806463)

30247812 (8806565)

30247812 (8806667)

30247812 (8806769)

30247812 (8806871)

30247812 (8806973)

30247812 (8807075)

30247812 (8807177)

30247812 (8807279)

30247812 (8807381)

30247812 (8807483)

30247812 (8807585)

30247812 (8807687)

30247812 (8807789)

30247812 (8807891)

30247812 (8807993)

30247812 (8808095)

30247812 (8808197)

30247812 (8808299)

30247812 (8808401)

30247812 (8808503)

30247812 (8808605)

30247812 (8808707)

30247812 (8808809)

30247812 (8808911)

30247812 (8809013)

30247812 (8809115)

30247812 (8809217)

30247812 (8809319)

30247812 (8809421)

30247812 (8809523)

30247812 (8809625)

30247812 (8809727)

30247812 (8809829)

30247812 (8809931)

30247812 (8810033)

30247812 (8810135)

30247812 (8810237)

30247812 (8810339)

30247812 (8810441)

30247812 (8810543)

30247812 (8810645)

30247812 (8810747)

30247812 (8810849)

30247812 (8810951)

30247812 (8811053)

30247812 (8811155)

30247812 (8811257)

30247812 (8811359)

30247812 (8811461)

30247812 (8811563)

30247812 (8811665)

30247812 (8811767)

30247812 (8811869)

30247812 (8811971)

30247812 (8812073)

30247812 (8812175)

30247812 (8812277)

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30247812 (8812685)

30247812 (8812787)

30247812 (8812889)

30247812 (8812991)

30247812 (8813093)

30247812 (8813195)

30247812 (8813297)

30247812 (8813399)

30247812 (8813501)

30247812 (8813603)

30247812 (8813705)

30247812 (8813807)

30247812 (8813909)

30247812 (8814011)

30247812 (8814113)

30247812 (8814215)

30247812 (8814317)

30247812 (8814419)

30247812 (8814521)

30247812 (8814623)

30247812 (8814725)

30247812 (8814827)

30247812 (8814929)

30247812 (8815031)

30247812 (8815133)

30247812 (8815235)

30247812 (8815337)

30247812 (8815439)

30247812 (8815541)

30247812 (8815643)

30247812 (8815745)

30247812 (8815847)

30247812 (8815949)

30247812 (8816051)

30247812 (8816153)

30247812 (8816255)

30247812 (8816357)

30247812 (8816459)

30247812 (8816561)

30247812 (8816663)

30247812 (8816765)

30247812 (8816867)

30247812 (8816969)

30247812 (8817071)

30247812 (8817173)

30247812 (8817275)

30247812 (8817377)

30247812 (8817479)

30247812 (8817581)

30247812 (8817683)

30247812 (8817785)

30247812 (8817887)

30247812 (8817989)

30247812 (8818091)

30247812 (8818193)

30247812 (8818295)

30247812 (8818397)

30247812 (8818499)

30247812 (8818601)

30247812 (8818703)

30247812 (8818805)

30247812 (8818907)

30247812 (8819009)

30247812 (8819111)

30247812 (8819213)

30247812 (88

Plan & Execute

Plan & Execute



Plan & Execute

All orders on the entire shopfloor are precisely planned in the PULSE PRO module „Plan & Execute“. The orders and production times are clearly displayed in Gantt diagrams. The automatic planner distributes selected production orders on n-SMD lines and can be optimized manually. The result is influenced by the planner by parameters (e.g. weighting of the delivery date, number of setup changes, etc.). The different simulation results can be created, deleted and compared. The best simulation result is transferred to the live planning.

Module Highlights

Automatic order planning for SMD lines in a separate simulation area

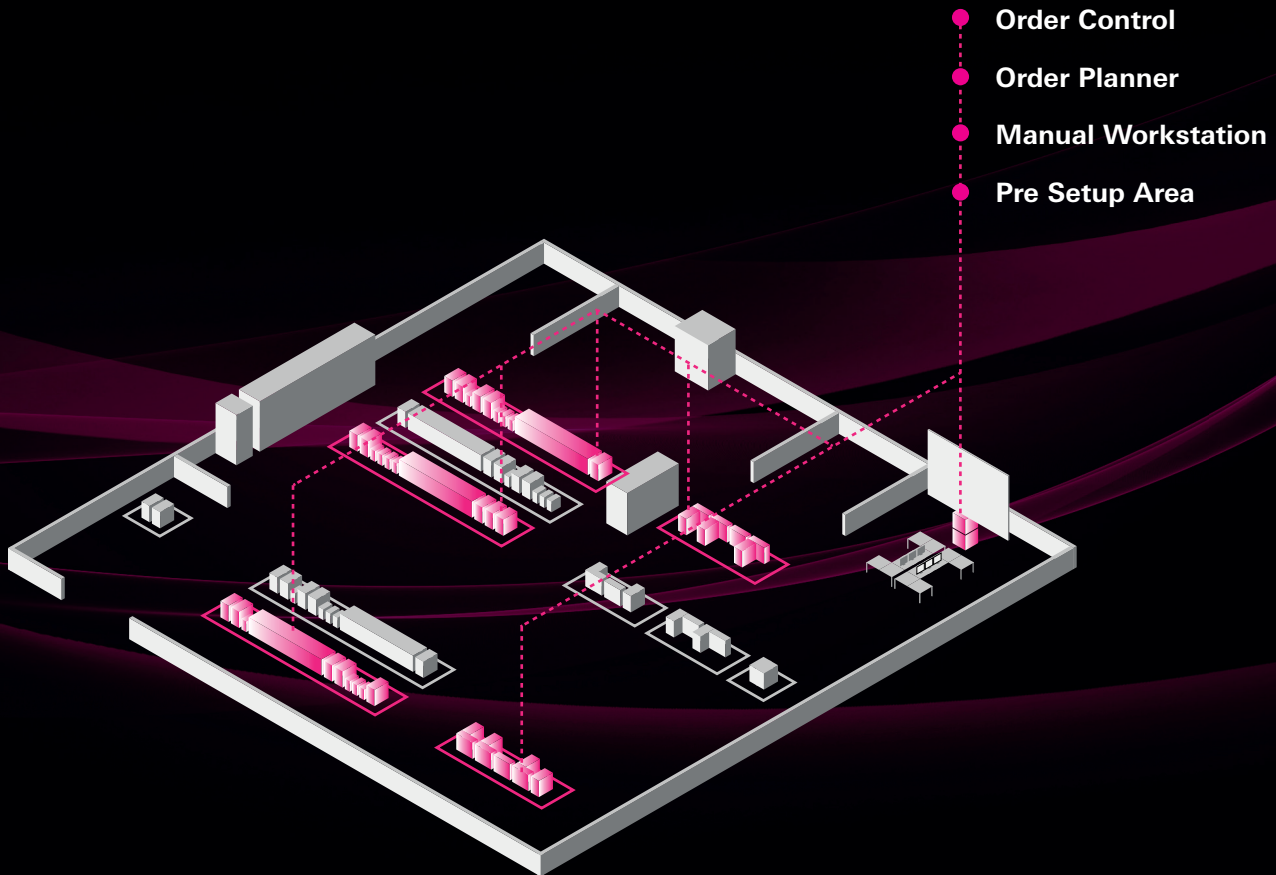
Optimal distribution of orders

Clear presentation of orders and production times in Gantt diagrams

Optimal transparency of current and planned order processing

Plan & Execute

Functions























● Machine Layer

● Line Layer

● Factory Layer

Product Change

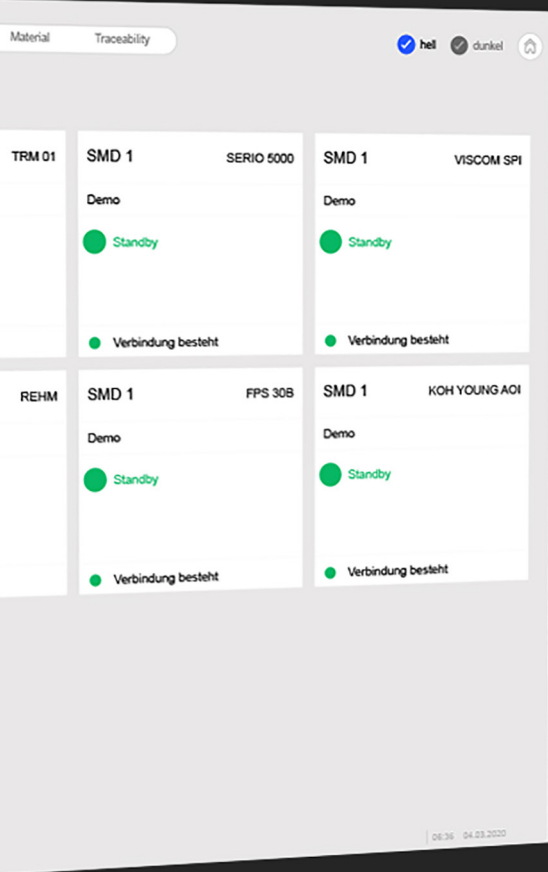
<div>SMD 1</div> <div>AES03 Speed</div> <div>Demo</div> <div> Fehler 10 Not-Halt Schalter gedrückt</div> <div> Verbindung besteht</div>	<div>SMD 1</div> <div>LSB03</div> <div>Demo</div> <div> Standby</div> <div> Verbindung besteht</div>	<div>SMD 1</div> <div>INSIGNUM 4000</div> <div>Demo</div> <div> Standby</div> <div> Verbindung besteht</div>	<div>SMD 1</div> <div></div> <div>Demo</div> <div> Standby</div> <div> Verbindung besteht</div>
<div>SMD 1</div> <div>TRM 01</div> <div>Demo</div> <div> Standby</div> <div> Verbindung besteht</div>	<div>SMD 1</div> <div>Fuji NXT 2</div> <div>Demo</div> <div> Standby</div> <div> Verbindung besteht</div>	<div>SMD 1</div> <div>TRM 01</div> <div>Demo</div> <div> Standby</div> <div> Verbindung besteht</div>	<div>SMD 1</div> <div></div> <div>Demo</div> <div> Standby</div> <div> Verbindung besteht</div>
<div>SMD 1</div> <div>TRM 03</div> <div>Demo</div> <div> Warnung PCB Inspektion</div> <div> Verbindung besteht</div>	<div>SMD 1</div> <div>AMS 03 Speed</div> <div>Demo</div> <div> Fehler 10 Magazin voll</div> <div> Verbindung besteht</div>		

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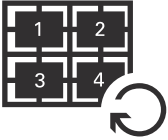
Software Module

Product Change

Stop Losing Time on
Product Changeover



Product Change



Product Change

In the PULSE PRO module „Product Change“ the product change at the line is triggered by only one click. The parameters are sent to all machines of the line and all settings are stored in a global database. These can be checked, changed and duplicated at any time. This results in a faster NPI (New Product Introduction) compared to programming on single systems. All ASYS Group machines as well as third party systems can be integrated.

Module Highlights

**Product change of a line
in a few minutes**

**Simple, controlled product
changeover of the entire line**

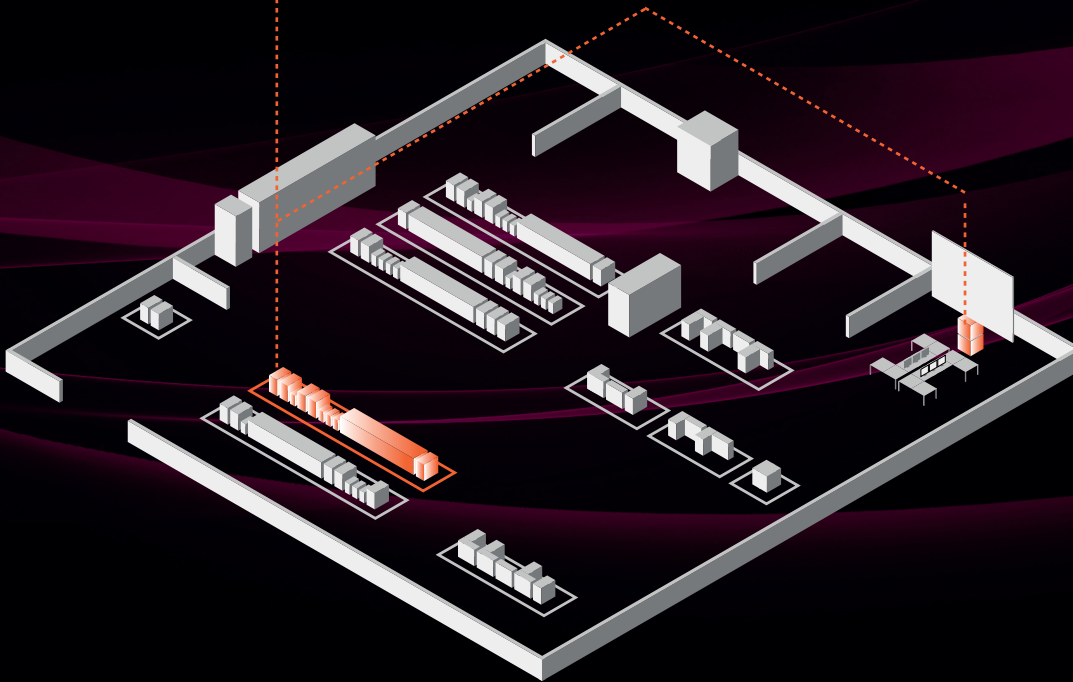
**Faster NPI compared to programming
on individual systems**

**Avoidance of
transmission errors**

Product Change

Functions

- Product Change
- Product Change Lite



● Machine Layer

● Line Layer

● Factory Layer

PULSEPRO

Observe & Control

Product Change

Plan & Execute

Program Preparation

Offline Programming x

SIMPLEX PRO

Produktgröße	Programm / Produkt	Taktzeit	Huberzahl	Sicherheitskreis	Abwägung
600 x 600 x 5 [mm]	AAC_14581_437	0:00:000 [s]	0 [rpm]	OK	
Länge x Breite x Höhe	3216421568/1654	Sekunden	U/min [rpm]		20.0 [kg]

ANSICHT

Kamera

Leiterplatte

SEITE

Seite 1

Seite 2

Achsen

X-Position

12.00 [mm]

Y-Position

12.00 [mm]

Position

Mark

Bookmark

ASYS Group

AYO

EKRA

Anschlbeschalt

Fiducial

Seite 1

Seite 2

Lesen-parameter

Kamera/Scanner

I/O

Achsen

Einrichten

Marken

Typ-Lage

Bookmark

Barcode

Bild aufnehmen

Produktion

Rezept

Handbetrieb

Maschine

autom. Einfahren

autom. Ausfahren

Wandelschalt

Bild aufnehmen

Marken erkennen

Marken lernen

User: Operator

V002.003.000

Seriennummer: 23027406235954

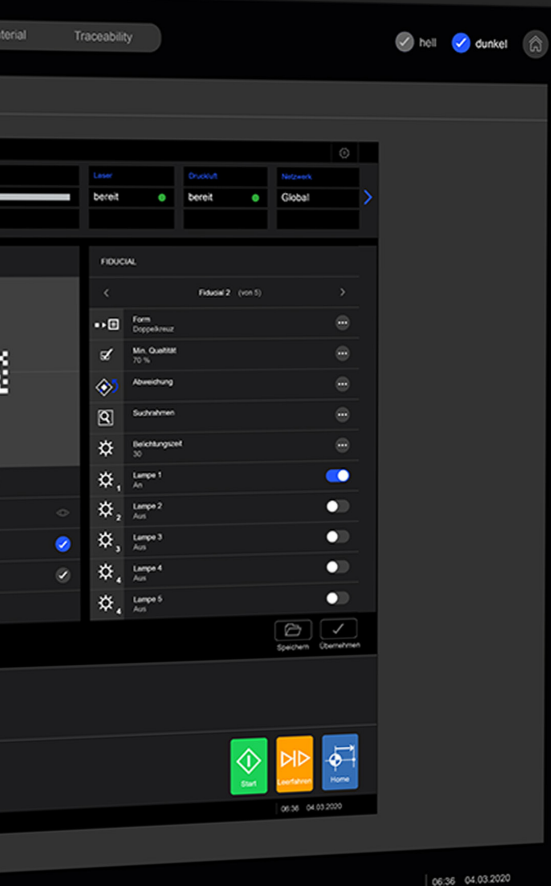
ASYS Group

V002.003.000

Software Module

Program Preparation

Offline Programming of
Machine



Program Preparation



Program Preparation

With the offline programming tools in the PULSE PRO module „Program Preparation“, the machines can be programmed at a PC workstation while another program is running. This reduces the downtimes significantly.

Module Highlights

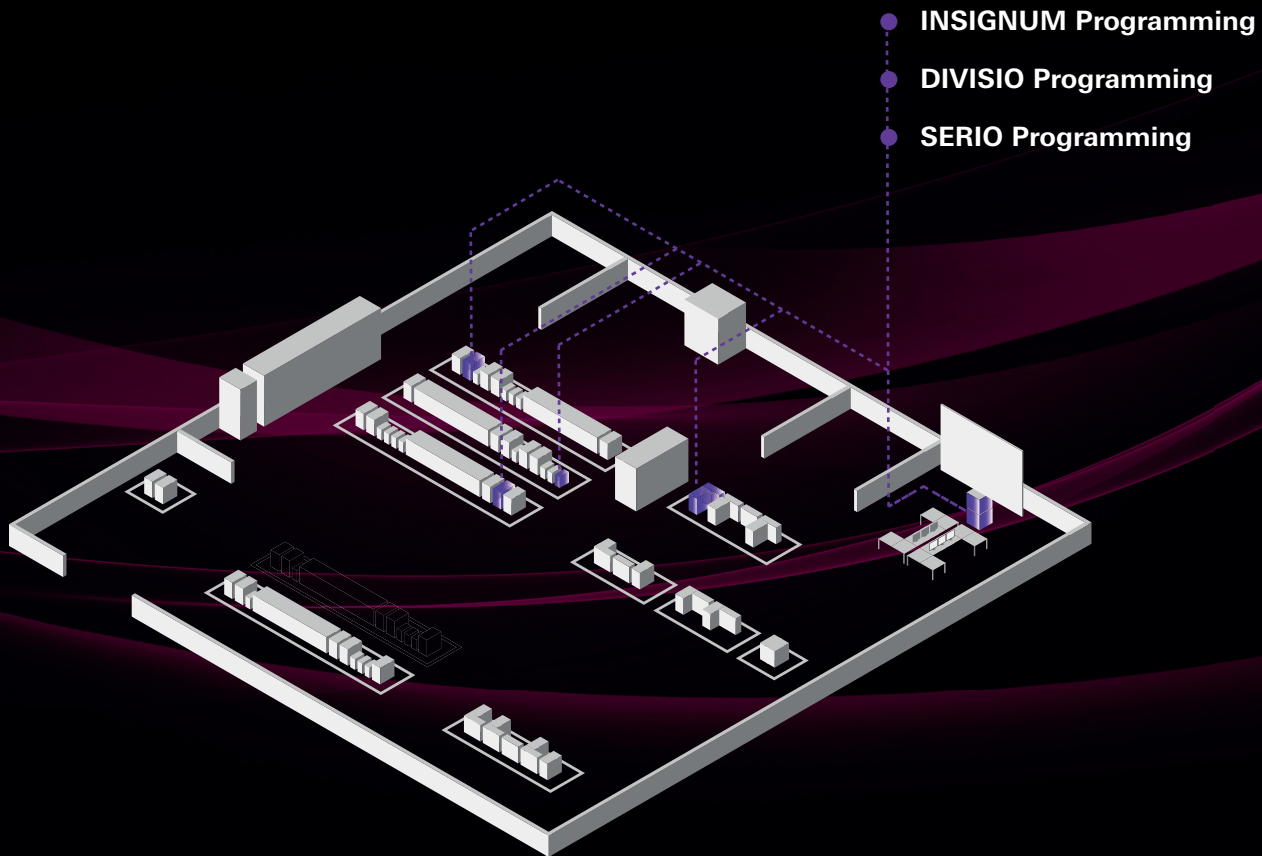
**Offline programming
during production**

No production stop

**No multiple programming
required**

Program Preparation

Functions



Factory Connect

x

MES / ERP



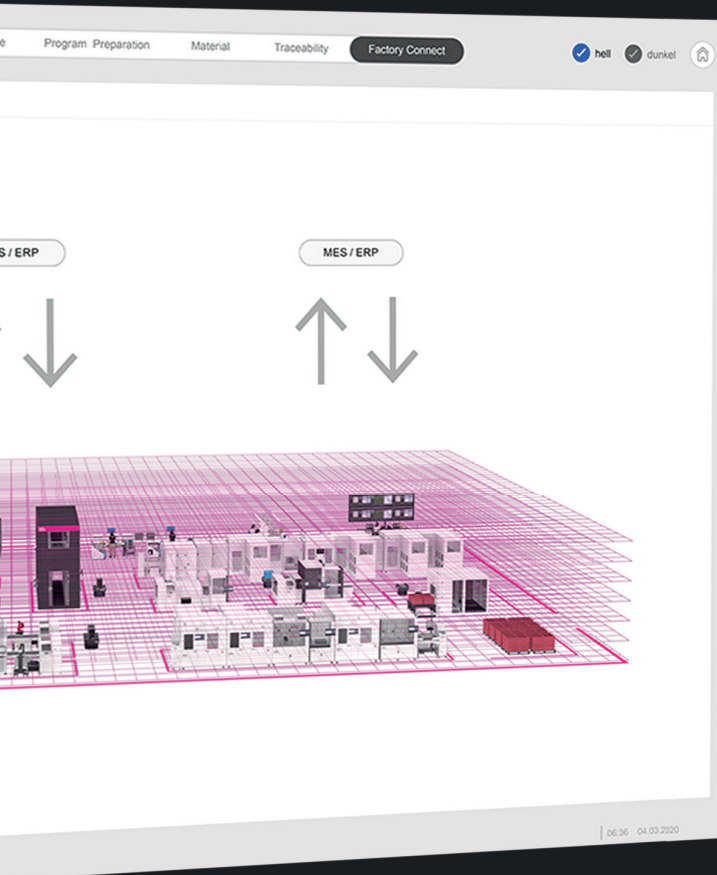
ME



Software Module

Factory Connect

Import & Export of Data



Factory Connect



Factory Connect

In the PULSE PRO module „Factory Connect“ data can be exchanged with an ERP/MES interfaces. The order data and material data (UID and RFID) can be imported from a superior system for detailed order planning. For a timely and optimal disposition, production accounts in the ERP system are adjusted and changed depending on the material movement in the production. Status and error messages from machines can also be automatically transferred to a higher-level system via the CFX interface (PULSE interface). Furthermore, an interface is provided for synchronizing a higher-level factory calendar.

Module Highlights

Automatic transfer of order data and material data from higher-level system for order and material management in PULSE PRO

Transfer of an externally created detailed order planning in PULSE PRO

Synchronization of a superior factory calendar

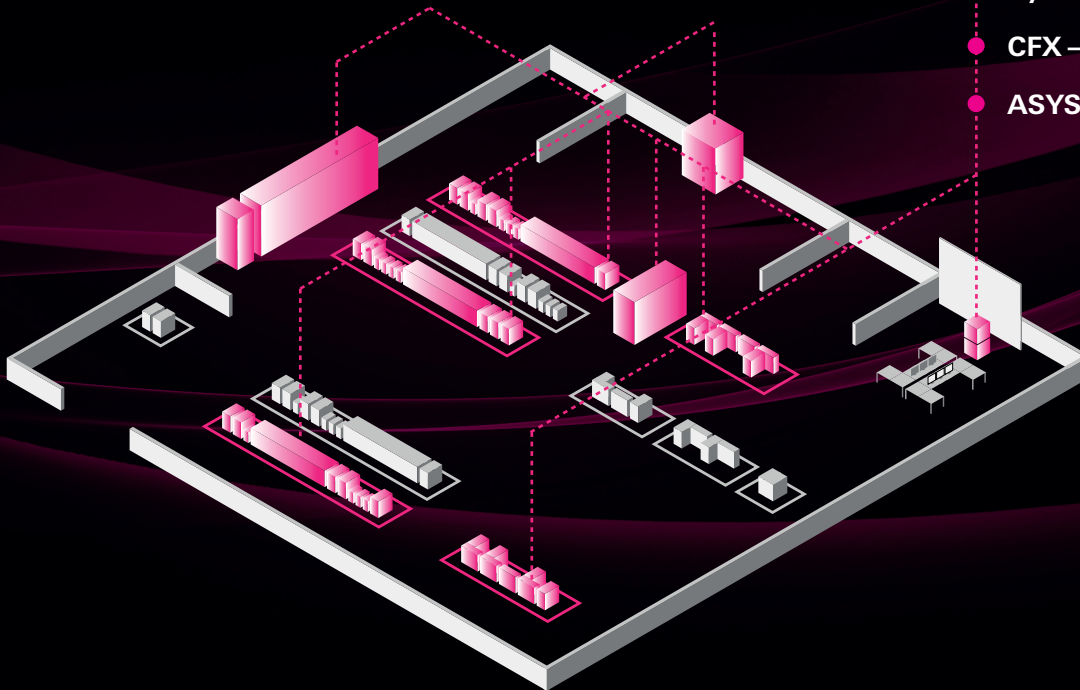
Reconciliation and modification of production accounts in the ERP system depending on material movements in production for real-time and optimal disposition

Functions

MES/ERP



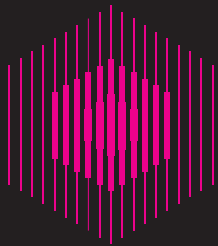
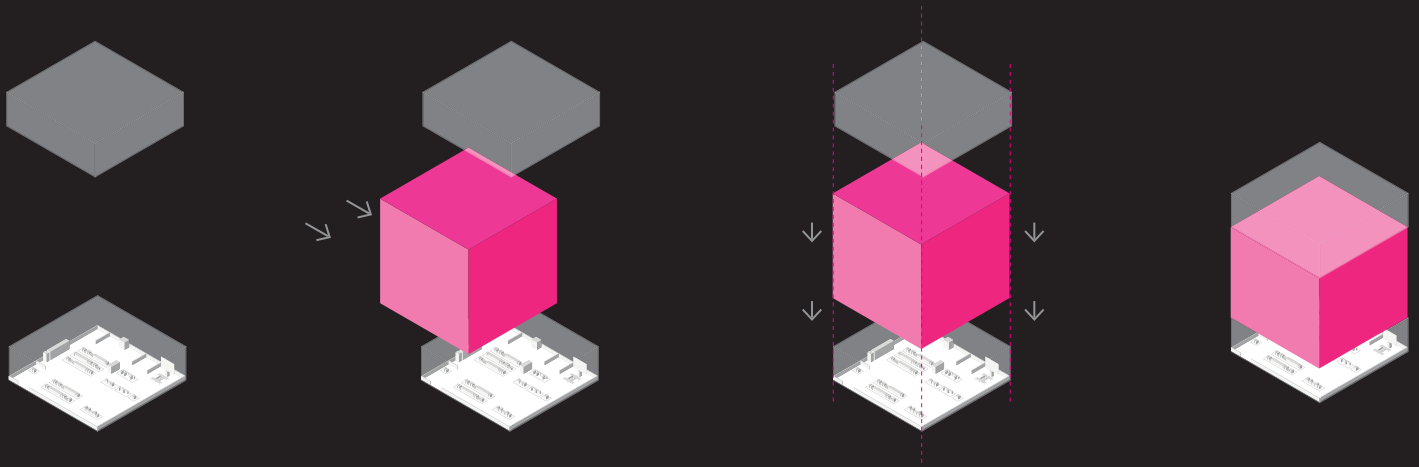
- Sync Factory Calendar
- Import Order Data
- Import Order Sequence
- Import Material Data
- Sync SAP – Material
- CFX – Connect Smart Alerts
- ASYS Socket Interface



● Machine Layer

● Line Layer

● Factory Layer



The Control Center of the Smart Factory

Closing the Gap between Shopfloor and MES / ERP

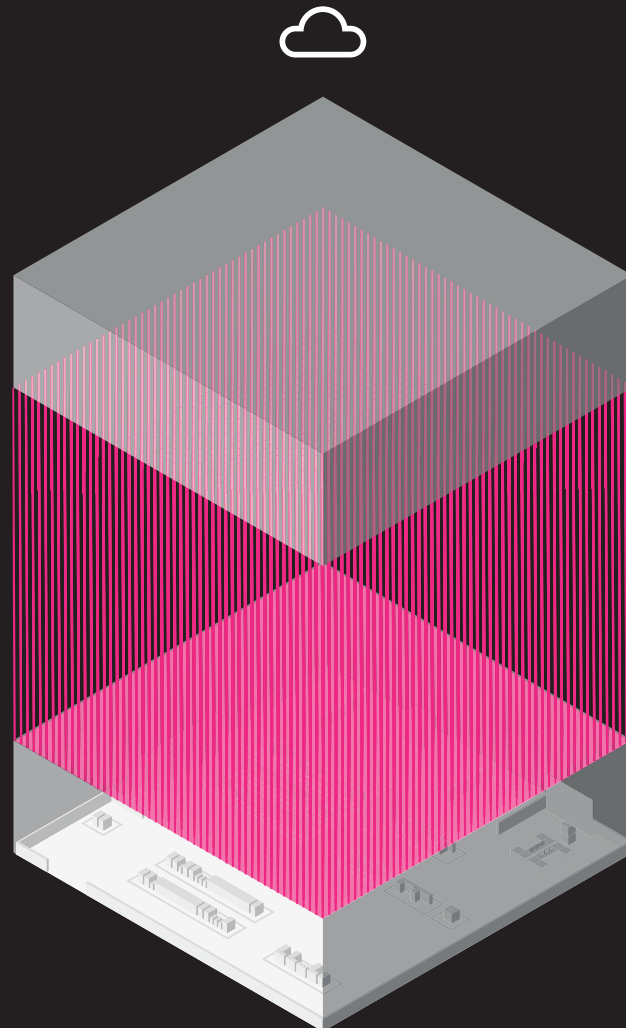
With PULSE PRO, the operator has the production in sight and can achieve an optimum of productivity. In this way, the faster growing complexity becomes manageable. PULSE PRO is the control center of the Smart Factory and offers solutions on all layers with the multiple functions. This closes the gap between

the shopfloor and the MES/ERP systems. PULSE PRO easily switches between existing systems and complements the functions that are still not or only in parts considered. The integration into a production line can be done in several steps if desired due to modularity and easy scalability.

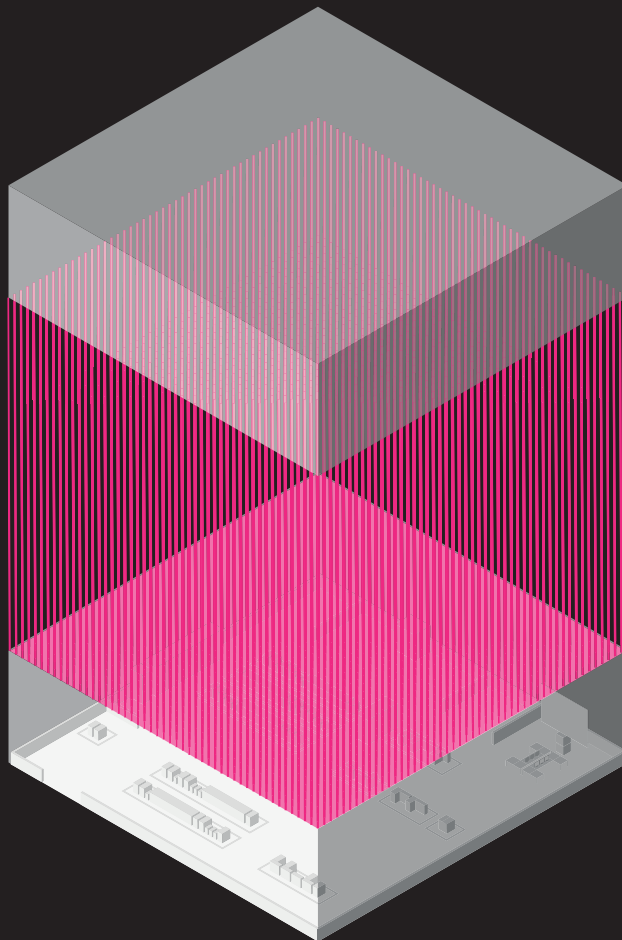
MES / ERP Layer

PULSE PRO Layer

Shopfloor Layer



solutions. The own powerful „ASYS Standard Interface“ is used for the connection of machines of different manufacturers. In addition, control systems can be networked with interfaces such as IPC/CFX or SEMI SMT-ELS. Additionally, the PULSE PRO software



● Shopfloor Layer

Open Interfaces & Connections to all Systems



Customer specific interfaces

AEGIS | AIS, BJI/BCI | BTE | camLine | ComCell | Cogiscan |
DM-Systems | FIS | IFM-Data Base | Infor | iTAC |
Mentor Graphics | OpCon | Predictor | SAP | SIMATIC-IT |
SPEA | SYSTEMA | TCPIP | Valor | ZVEI



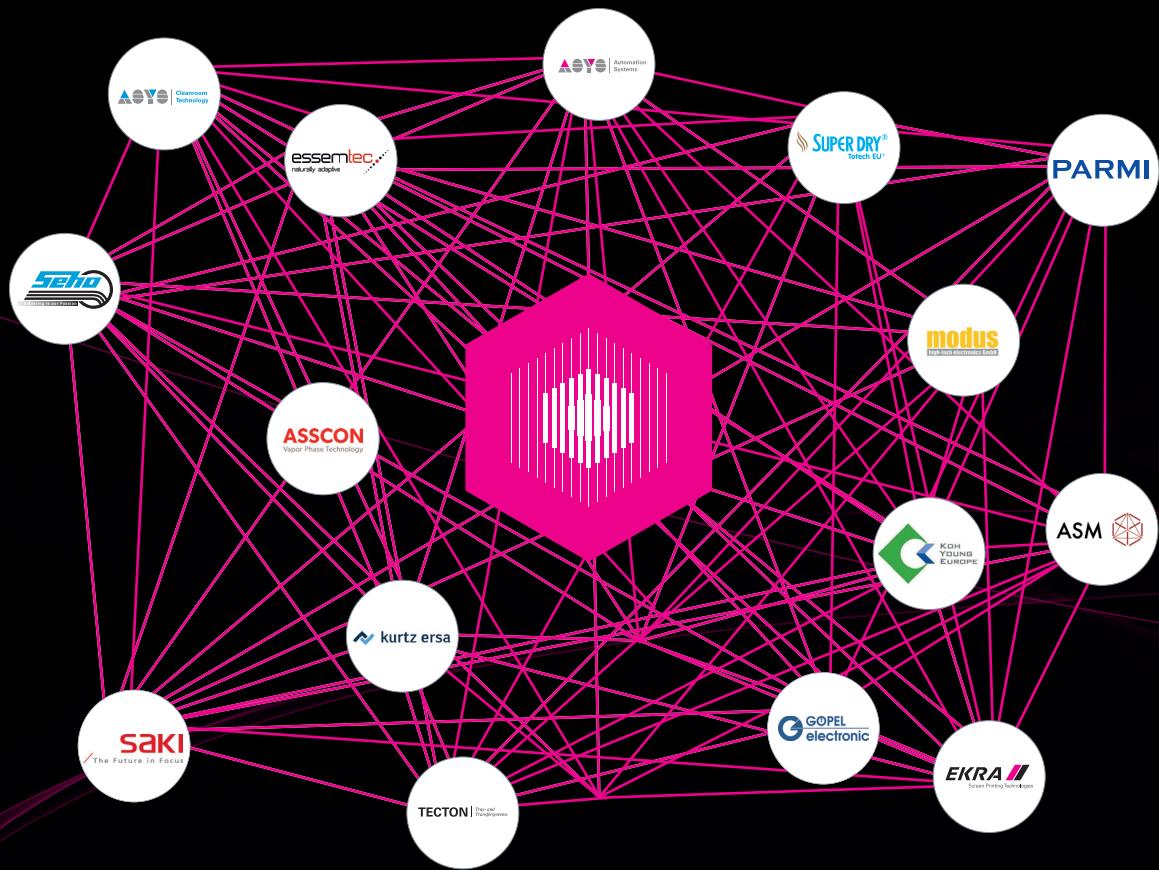
Easy-Link

OIB

iLNB



Community





»We are delighted to be represented on the PULSE PRO line by our 3D solder paste inspection. This is how we do intelligent process optimization for Industrie 4.0.«

Detlef Beer

Product Development
AOI-Component Inspection,
Viscom



The PULSE-Community is a strong network of manufacturers in the electronics industry. All those manufacturers have already integrated the „ASYS Standard Interface“ for the connection of their machines to ASYS Software Solutions. Thanks to this standardized connection the entire production line can be connected today. We offer the „ASYS Standard Interface“ free for any other manufacturers, in order to provide a maximum flexibility and functionality to your entire production line.



»You should always know what's happening...system monitoring is increasingly important for our processes, such as soldering.«

Michael Hanke

Head of Sales, Rehm



»Timing is everything. The tasklist helps our customers to keep a clear overview during assembly.«

Klaus Kölbel

Sales Manager, Fuji



»The SMT-line-monitoring recognizes defects even before they can occur and is even more effective with PULSE PRO. A reasonable Industrie 4.0 approach.«

Matthias Pfeifer

Head of Sales & Marketing,
SMT



»Our cleaning systems are moving right next to the line.«

Bert Schopmans

Director Sales/Application
Technology Deutschland, Kolb



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GROUP**

TRANSFORMING IDEAS

Automate, Digitalize & Connect

ELECTRONICS

AUTOMATE, DIGITALIZE & CONNECT

LIFE SCIENCE

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