



WAREHOUSE - PRINTER LOGISTICS SOLUTION

The **SOLID 90A3** in the automated packaging system of the new logistics centre

MICROPLEX USER REPORT

Increase through-put

A new logistics concept
Made possible by
Microplex printing
technology

About the customer

The customer operates on a global scale and combines multiple strong brands under one roof. Since its beginning in the early 70s the customer has become one of the best known companies in their market with more than 1,000 self managed stores and sales spaces, more than 2,500 shop-in-shops and approximately 300 franchised stores worldwide as well as brand online-shops. Overall the shops have 7,000 employees worldwide and distribution channels in roughly 60 countries.

The new (central) logistics centre – a milestone in the company's history

The new central logistics centre replaces the decentralised logistics warehouses and significantly increases the availability of the product. Previously the articles were already assigned to a specific sales channel during production, now this only happens when the product is picked. Therefore the customer can offer his customers the right items at the right time throughout all of the available distribution channels.

The challenge

The customer needs to pack, label and track up to 2,700 cartons (packages) and 10,000 units of hanging goods per hour, i.e. a total of 30 million items per year. This enormous performance can only be achieved with the aid of powerful hardware and software systems. An important area is the printing of invoices and labels, which are individually controlled and must be printed at the same time as the item arrives on the packing line. These documents are then fed to the consignments automatically as soon as a carton arrives on the inserter. To ensure this happens, the printer must have a number of absolute requirements:

- Fast print start (it must start printing immediately)
- High paper capacity (so the operator does not have to constantly refill the paper)
- Robust printing unit for several hundred thousand pages per month
- Intelligent communication with the system and the document feeder via GPIO-interface (SPS-Control), Staus-Out and SNMP
- Economical printing solution
- High availability of printing technology and service





PRINTING TECHNOLOGIES
ENGINEERED IN GERMANY



Central merchandise picking at the new logistics centre

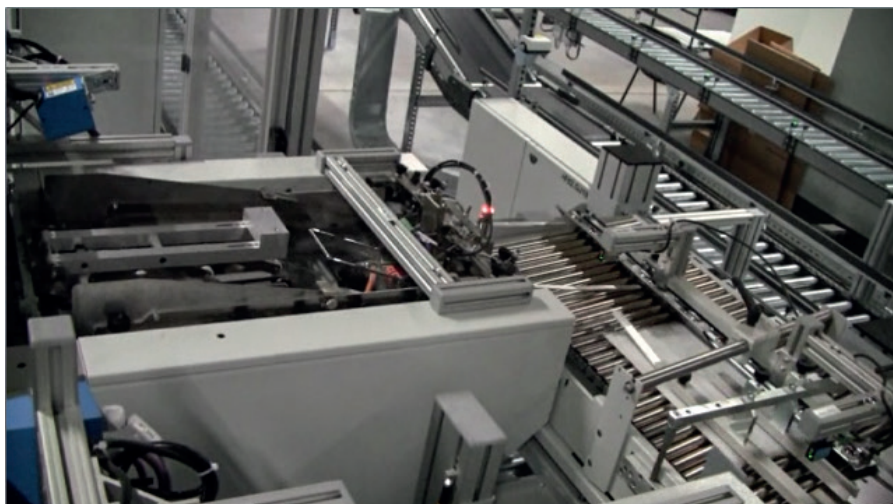
PERFECT COMMUNICATION WITH THE **MICROPLEX PRINT TECHNOLOGY**

Microplex printers fit seamlessly and interactively into the system environment.

The complex "Belegdruck" was realised and developed together with a well-known plant manufacturer. Within the plant, printers were installed, which meet all the requirements regarding all of the planned "real-time operation". The immediate choice for the production printing systems was the SOLID 90A3 from Microplex. This modularly expandable print system fulfils not only the technical prerequisites, but also jointly with the qualified sales and service partner SASS Datentechnik AG the requirements for service, support and system availability.

Print - Always nice to the beat

A particular challenge to the printers was the pulse of the plant. Normally a production printer cannot perform correctly when either a considerable amount of print data is sent to the printer at once or data is sent intermittently. The printer can maybe work at its normal speed but for the new logistics centre the data for the receipts are, however, collected at the rate of picking. This means, there are certain breaks between the individual documents. The printer therefore must have the flexibility to "take up" and continuously print, and to ensure it catches up with the datastream. Therefore the time taken for printing of the "first print job" is extremely important. Here, the Microplex printing solution was characterized by the flexibility of data acceptance and the flexibility of speed of the first print job out. Together with the project team, the system software (Firmware) was developed, for the printer on the one hand, the transfer and further processing of the printouts, on the other hand, have been optimized in such a way that the high demands placed by the through-put of the overall system.



The document feeder ensures uniform document tracking, different packages can be loaded automatically.

The **Microplex Print Controller (MPC)** is the result of our long-standing experience - controller technology that is ahead of its time.

The applied printing technology

The **Microplex Controller** supports integrators with its flexible design adapting the printer software (Firmware) to the requirements of the application.

The **emulations** facilitate the connection to different systems and applications. For example, SOLID 90A3 understands **Zebra data (ZPL II) and HP data (PCL5) at the same time**. This allows document printing and label printing with one machine without expensive modification of the application.

The **interfaces** like the programmable **GPIO (SPS-Control)** interface, the **STATUS-OUT** interface as well as the **SNMP** compatibility allow for a seamless integration of the Microplex printers into most systems.

The production printers from the SOLID range are used for the production of documents. The SOLID 90A3 was selected because of the nominal print performance of 90 A4 pages per minute, the enormous paper stock of up to 13,000 A4 pages, the high monthly print volume up to 400,000 A4 pages and a toner cartridge for up to 120,000 pages of A4. Important in the decision was also the knowledge that with an increase in the through-put the printers can be scaled upwards with the faster sister devices the SOLID 105A3 and the SOLID 120A3 being available without having to re-program and re-synchronization of the system.

Full control via programmable GPIO interface

The document is created within the system and then sent to the "smart" printer which is controlled via various bidirectional interfaces. Usually this is the case in thermal printers, namely a so-called applicator-interface, in which the requirement can be triggered e.g. an instruction to a label applicator via an electrical signal. Microplex printers also have this feature available for laser printing. The keywords here are programmable GPIO (SPS-Control), Status-Out and SNMP. There can be different operating conditions when interfacing with the neighbouring systems, information such as „page printed“, „printer ready“, „waiting for print release“, and much more. The Microplex printer's controlling system can not only deal with these requests but can also include for example the start or stop signal, it all depends on the requirement of the system and the controller can be programmed to respond accordingly. Thus, the printing system becomes an integral component of an intelligent overall logistics system.

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▼ The printer hardware



SOLID 90A3 - Highlights / Features

- Long maintenance intervals
- Refill toner during operation
- High printing speed
- Flexible removal options for paper feeding



About us

Based in far northern Germany since its foundation about 30 years ago and boasting a US subsidiary from 1998 onwards, the secret of the company's success can be summed up in a single sentence: "The development of custom-made print solutions for highly specialized industrial applications – often at the limits of what is normally technically possible".

In 1987, three engineers made the leap into self-employment and founded their own company – **Microplex**. The founders brought substantial intellectual capital with them: with their know-how, obtained in comprehensive fundamental research, one of the world's first-ever laser printers came into existence.

With the foundation of **Microplex**, development concentrated on custom-made printer controllers and software. Through a vast inherent basic and intense knowledge of physical processes, a constant sounding out of the enormous advances being made in electronics and digital technology, and combined with a deep understanding of the practical demands in the professional deployment of printers, this has led to the development of applications and products that are squarely oriented to the specific requirements of customers.

Today, **Microplex** offers a broad product range of professional printers with a highly flexible potential for deployment. Aimed towards industrial applications, **Microplex** products not only surpass the performance of most other printers, they also exceed the expectations of customers.

Our service

Customers want reliable solutions for the long term. **Microplex** ensures highest quality as well as customer-friendly maintenance and service intervals. And in the case of an urgent issue, our product specialists and partners are there on site to assist customers – even outside of regular office hours, if required. And so that customers can be in a position to manage their complex solutions independently, **Microplex** also offers individual training sessions. Besides providing the necessary specialist knowledge, valuable tips and tricks are shared too.

Our global partners are available to answer all questions on sales, service, support and installation.



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EMULATIONS AND BARCODES*:

Emulations simulate the printers and printer languages of other manufacturers. They let commands be interpreted enabling similar printouts to be generated. A key benefit of the Microplex Controller is that these printer languages can be implemented across all print technologies.

Thermal printers	Laser printers	Matrix printer	Further emulations
ZPL II, EPL2	PCL5	IGP/VGL	CUPS Raster
cab	IGP/PGL	EPSON FX-80	µ-Postscript
Datamax	XES	ANSI Genicom	HPGL
TEC	Prescribe	CODE-V	TIFF
IER-Command	Kodescript+	MT-600	IPDS
UBI FingerPrint	AGFA RENO	IBM ProPrinter	Diabolo 630
LDC	LN03+		LINEPRINTER
LabelPoint	BULL-MP6090		HP DesignJet
ETIMARK MP-1220			

Two-width codes	Multiple-width codes	Height-modulated codes	2D barcodes
Codabar	EAN-8	Postnet	Aztec-Code
Code39	EAN-13	Planet	PDF417
MSI	EAN-128	KIX	Datamatrix
Interleaved 2/5	Add-On-Codes	Royalbar	Maxi-Code
Interleaved 2/5 (3-Strich Datalogic)	Code 11	USPS One Code	USD-5
Interleaved 2/5 3-Strich Matrix)	Code 93, Code128, UPC-A, UPC-E		QR-Code

* Not all emulations and barcodes are provided as standard by all printers. Please refer to the respective printer datasheets for detailed information.



INTERFACES**:

Microplex printer offer interfaces for integration with existing systems and controllers:

Ethernet 10/100 MBit bidirectional (TCP/IP)

USB

Serial RS232 / RS422

Parallel IEEE 1284

W-LAN

Programmable GPIO-Interface

SPS-Control (EMBEDDED INTELLIGENCE - Enabling two-way communication between printer and a PLC)

** Not all interfaces and barcodes are supported as standard by all printers. Please refer to the respective printer datasheets for detailed information.

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