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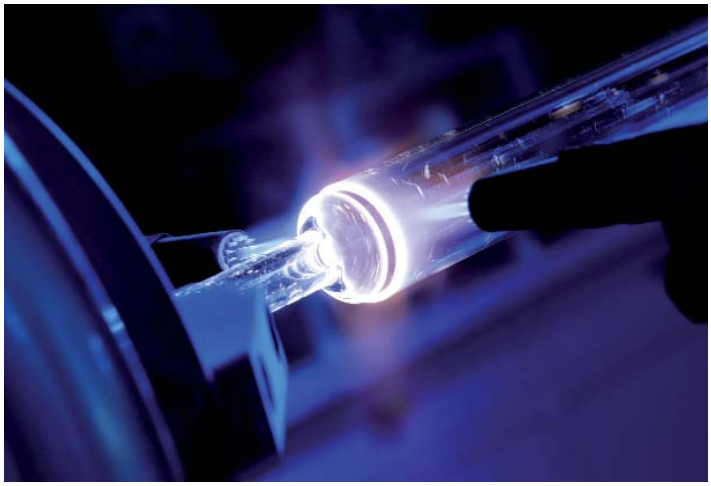
To Packaging & Printing

The Drive for Ultra-Fast Ultra Violet Drying and Curing Improves Control and Cuts Energy Usage by up to 50%



Pantec Engineering AG, a high end system designer, providing electronics solutions for the printing industry, has launched a highly innovative controller for UV-drying and curing applications (UVC) based on the powerful Control Techniques Unidrive SP range of AC drives. This product was developed in a unique project from Pantec in cooperation with Control Techniques' engineers.

The objective was to improve the efficiency and effectiveness of ultra-violet drying and curing systems widely used in the printing and manufacturing industries. Pantec's vision was to use a standard drive platform merging cost-effectiveness and the reliability of a proved technology. Their choice was to use Unidrive SP for their feasibility study where they quickly achieved the required ignition times for the UV-lamps.

Pantec Engineering has, for many years, worked closely with the Control Techniques Drive Centre in Zurich and knew the amazing versatility offered by their Unidrive SP range, which appeared to meet most of the UV-application's requirements – voltage, current and frequency control, communication with all industry-standard networks and, as a bonus, powerful on-board processing capabilities. So it was not surprising that the Unidrive SP was first choice from the beginning, just waiting for some pivotal changes to bring this drive-series into UV-applications.

"This was certainly an unusual application for a drive, but, working together with Control Techniques, we met this challenge," says Pantec's Key Account Manager Printing, Mario Koller. To meet the UV-application's requirements on the Unidrive SP, Control Techniques – under the leadership of Andreas Graf – developed a special program (a UV core) to support Pantec with the integration.

"Thanks to Andreas, this project was given high priority by Control Techniques", says Mario Koller, "and this was one of the key factors for this product's success," he adds.

Now, for each project, Pantec builds its UVCs in a panel with 5, 6, 8, 10 or 12 kW Unidrive SP drives per UV head, with additional Commander SK drives for the control of the cooling fans and the UVCs are also available in standalone version to be integrated to an existing panel.

The system offers major benefits to both UV-system supplier and their customers. Now projects can be more competitively priced, since separate PLC control of each head is not needed since the programming is carried out in each Unidrive SP's 'application' module. Additional modules provide connectivity to the end user's fieldbus network, and reliability exceeds the field customers' highest expectations.

KEY BENEFITS

- 97% EFFICIENT
- UPTO 50% ENERGY SAVED
- REDUCED OPERATING COSTS
- COST EFFECTIVE
- HIGH LEVEL RELIABILITY
- EASY CONNECTION TO CUSTOMERS NETWORKS

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And the users are enthusiastic! “From the beginning we were inspired by the scalability of the UVC-series, their reliability and their power effectiveness” says Stefan Richartz, Sales & Marketing Manager of Uviterno AG, a well known UV-System supplier in Switzerland. “Using the Pantec UVC based on Unidrive SP-platform is a huge success, putting us up amongst the world’s market leaders.”

In a typical printing application, the lamps are switched from the standby state to full power in 10 milliseconds, giving extremely accurate coverage of the printed area. If the cycle contains transportation time, or the web is reversed, the UV lamps are switched back to the 10% standby condition. If the media cannot tolerate any UV, shutters close to prevent any exposure. Most printing applications require 5-8 UV heads, but specialist applications can have as many as 30 heads.

The Pantec UVC also receives inputs of lamp temperature and initiates cooling to keep lamps at their optimum operating temperature, with fans being controlled by Control Techniques Commander SK AC drives. Air cooling (and ozone extraction), encompasses several lamps at once. Internal communication is generally via Control Techniques own high-speed bus, CT-Net.

The lamps used in UV-drying and curing applications are high pressure mercury vapour type, giving a wide UV spectrum for different drying needs. For special requirements for ink or lacquer drying, specialist iron, gallium, gallium-indium doped types are available to give specific spectra patterns. Capacity ranges from 80 to 240 watts/cm, with lamp sizes from 100 to 650-mm.

As well as improving effectiveness and being 97% efficient, with better, more accurate lamp switching, ease of connection to the customer’s own network and now meeting all international standards for safety and quality, the new control system is producing significant energy savings that can be as much as 50% compared with previous methods of control. On an 8-head system, this saving can translate to some 40kW – a major cost benefit for the end user!

Machine printing and production speeds are limited by the UV curing rate, so improvements in the accuracy of control of the UV curing system can have major effects on the overall output. UV curing systems, powered by Pantec UVC, featuring Control Techniques drives, offers users improved profits, as well as reduced operating costs.

The Unidrive SP AC variable speed drive range spans 0.75kW right up to 1.9MW. Unidrive SP is the world’s most advanced ‘solutions platform’ AC drive, configurable into five operating modes – open and closed loop, vector, servo and regenerating modes – connectivity to most industry standard networks and accepting 14 position feedback protocols. With a range of plug-in module options, its on-board PLC can be supplemented, as in this case, with programmable modules.

For further information on the Pantec UVC contact Mr. Andreas Graf, who is responsible for the UV-controller-Series at Control Techniques. He will establish the contact to Pantec for accurate clarification of your application demands.

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For further information please visit
www.controltechniques.com

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