

Counting on Quality

Vacuomatic is a world leader in the manufacture of sophisticated counting machines particularly for use in the security printing industry. Eurotech embedded computers “provide the brains” behind the sequencing and operator interface processes in this equipment.



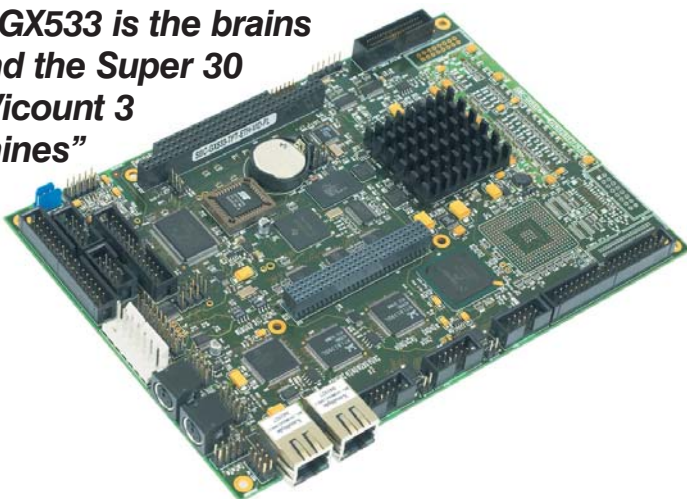
Eurotech and Vacuumatic

It is essential for printers and paper and packaging manufacturers to have an accurate method for counting and batching their products. This is especially true if you are dealing with banknotes, counting say 500 to 1000 sheets each carrying 40 x £50 denominations. In the security printing industry, which may regularly handle high value paper items such as currency, lottery material and licences, no margin of error can be permitted.

Vacuumatic, with its headquarters and manufacturing base in Colchester, leads the field in counting technology. While they actively market to commercial and industrial printers producing products from calendars to reams of photocopy paper, their core sector is security printing and their success in this area is impressive. Of the 120 private companies and government organisations producing and printing banknotes throughout the world, about 99% employ Vacuumatic machines in their sheet counting processes.

Dave Long, Technical Director of Vacuumatic, said that Eurotech's SBC-GX533 single board computer is an essential component in these machines. This features a low profile fanless design with an integrated 2D graphics accelerator that makes it ideal for interface panels between operator and machine. "The GX533 is the brains behind the Super 30 and Vicount 3 machines. It provides sequence control for the counting process and the colour touch screen interface produces a user friendly display for the Operator. The board connects to a CANbus network allowing complex interaction with other intelligent PCBs and Motors within the machine."

"The GX533 is the brains behind the Super 30 and Vicount 3 machines"



The Eurotech SBC-GX533 is a 5.25" form factor board based on an AMD Geode GX embedded processor. Supremely versatile and including all standard PC interfaces, the board has low power requirements and, at 146mm x 203mm, is very compact. With an operating temperature between -20°C to +60°C, it is RoHS compliant and ideal for use in systems with restricted ventilation.

Best of Both Worlds

Vacuumatic has been an innovator and inventor in counting technology for about 60 years and developed the first pin & blade counting machine for the security printers Portals, part of the De La Rue group, the world's largest manufacturer of banknotes, whose clients include the Bank of England. Pin & blade is still one of the counting methods used in the security printing sector, the other being via rotary disc.

One of Vacuumatic's innovative contributions to their field of technology is to have made both pin & blade and rotary disc available for their machines - including the newly launched twin head Super 30 and single head Vicount 3 Series. Both machines were developed entirely by Vacuumatic's in-house R&D team and incorporate feedback from security and commercial printing industry customers.



The Super 30 is the 4th generation of the company's twin head counting machines and incorporates the latest CANbus internal communications technology facilitated by the Eurotech single board computer. The Super 30 is also entirely lead-free in its production, making it the greenest machine ever produced by Vacuumatic. The Vicount 3 is unique in being the only single head machine on the market to incorporate both pin & blade and disc counting.



Working on the Papers

Vacuomatic is the only manufacturer to provide both pin & blade and disc technology, which allows them to give independent advice to customers on the best method for their particular application. In other words, they have the ability to conduct a consultancy role in the industry.

Counting, batch marking and tabbing for the printing industries may involve a wide variety of materials, requiring different methods to assess and record quantities. This also has a bearing on the speed of the counting process. While a Vacuomatic Tornado disc machine working on standard paper can count at speeds of up to 10,000 sheets per minute, specialised materials can require slower processing rates. In recent tests, the Super 30 counted perforated adhesive paper for postage stamps at the rate of 2,000 sheets per minute while a Vicount 3 machine managed 1,000 sheets per minute when dealing with heavy foils.

Banknotes need to be durable and the Bank of England favours specialist paper (known as mould paper) manufactured from cotton fibre and linen rags, which makes it much more robust than paper produced from wood pulp. Three printing processes are used – offset litho, letterpress and intaglio, the latter providing the raised print which gives Bank of England notes a distinctive feel, one of the many features that can be used to differentiate the genuine article from a forgery.

Invented in the 1940s and commercialised by Vacuomatic in the 1950s, pin & blade technology can be particularly apt for dealing with sheets that have been printed and inked. The process uses a vacuum to ensure reliable sheet separation. The mechanism works on a selected corner of a pile of paper, separating each individual sheet in an action similar to leafing through the pages of a book but without disruption to the stack. The system, which is also capable of simultaneous batch marking during the counting process, can achieve speeds of 3,000 sheets per minute in some applications while retaining total accuracy.

A simple test to demonstrate this is to remove one sheet from a stack and then recount. The machine will, without fail, register this each and every time.

Rotary disc counting also, like the pin & blade technique, uses the principle of counting in a vacuum and operating on the corner of the paper stack. A rotating precision engineered disc transfers the sheet corners individually from one side of its circumference to the other, each time registering the count. As mentioned earlier, this method can generate very high counting speeds and, like the pin & blade method, simultaneous tabbing and batching can also be achieved.

Eurotech's involvement with Vacuomatic goes beyond the supply of the embedded computer, with technical support on hand which requires a sound knowledge of the customer's products and markets. Covering a range of client sectors including defence, medical, energy, industrial engineering and transport, Eurotech has a wealth of experience in the design and manufacture of embedded single board computers, application ready platforms, configurable systems and ready to use solutions. The company has a strong focus on research and development to create innovative, integrated and scalable solutions for key market sectors.

“Eurotech’s contribution to our continued product development and success in the world marketplace for security printing has been invaluable.”

Dave Long, Technical Director of Vacuomatic



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