



Welcome to The Technology Business

Welcome to our latest edition of Service News, the aim of this publication is to provide you with articles and information that are applicable to your industry, whilst also telling you a bit about The Technology Business Limited.

Our objective at The Technology Business is to deliver the best combination of solutions and services to customers involved in manufacturing and process automation.

The range of services and products offered by The Technology Business is industry leading, with advances in the field of fault diagnosis, technical development and system integration being introduced on a regular basis. Products supplied by The Technology Business benefit from a technical and service support capability which is among the best in Europe.

At a local level, The Technology Business customers are able to draw on the vast experience of our team of engineers, system designers, technicians and strategic partners.

The Technology Business is unique in the market place, because of its commitment to investing in the development of its staff, services and technological infrastructure, whilst maintaining close contact with our customers. This gives The Technology Business the ability to react quickly to a customer's needs, whilst at the same time having the resources to ensure that the solution we offer is tried, tested and appropriate.

Weighing Up Our New Addition

Our team of engineers has years of experience designing installations, repairing products and providing on-site support to automation systems. This level of experience has recently been enhanced with the addition of our new Project Engineer.

Martin brings a wealth of knowledge and experience in the field of tension control, batch processing and weighing. His addition to the team means that we can now offer load-cell, dancer, scale and weighing system calibration services. His skills in designing, modifying and repairing these systems is second to none. If you want to discuss your process control, weighing or calibration needs then please contact us on 08707623031.



Inside this issue:

Window for Improvement	2
A Servo for All Seasons	2
All Wrapped Up	2
Indramat, Not So Tough To Repair That Is!	3
An On-Site Story	3
Competition	4
Knowledge and Experience are the Key	4

Headline News

- *How new life was breathed into an old punch press*
- *How we helped a bakery save some dough by getting them back in production*
- *Why information and experience are king in the service industry*
- *Enter our competition and save 25% off your first repair*

Window for Improvement

The Technology Business encounter many manufacturing companies that want to improve the quality of their products and the reliability of their plant, whilst reducing manufacturing time and wastage. Most companies are faced with the prospect of purchasing new machinery, which can prove prohibitively expensive, resulting in the required investment being continually delayed. However, replacement is not always necessary, as the example of one of our customers who makes traditional steel section windows demonstrates.

The customer, who is long-established in the industry, was able to benefit from our extensive range of abilities by allowing The Technology Business to re-life one of their punch presses that was fast approaching its centenary. The original mechanism installed on the machine used a nut and screw rod arrangement, driven by two pneumatic motors, for positioning clamps. The operator only had simple controls, relying on a tape measure to determine position. The Technology Business proposed a solution that would ensure that the machine worked well into the 21st century, whilst providing the process improvements the customer required.



The accuracy of the cuts, which had previously been of the order of millimetres, were now being performed to better than 0.1mm, an accuracy which was normally associated with modern machines. The set-up time, scrap levels and throughput were significantly improved and mechanical failings, such as air leaks were eradicated.

The nut and screw-rods were refurbished and the pneumatic motors were replaced with low maintenance brushless AC servomotors, fitted with low backlash gearboxes. The whole process was controlled by a two axis CNC positioning system, with the HMI and safety control circuits fitted in a floor standing operator console. The system design was done in close collaboration with the engineering team and production operatives, which resulted in a solution that not only worked, but was readily accepted by the machine operators.



The customer was so impressed with the performance and cost effectiveness of the solution provided, that they commissioned The Technology Business to re-fit their other two machines.

A Servo System for all seasons

Faced with the prospect of no spares or support for their brushed DC servo system, our customer called The Technology Business in to help. The customer had over 30 Numerically Controlled machining centres with up to 3 axes per machine, and we had been asked to quote for replacement of the servodrives.

The solution was simple, there were lots of products in the market place, it was surely just a case of choosing one. At The Technology Business we believe that the merits of a solution can only be measured when the long term effects and costs are considered. With this in mind, we sat down with the customer and considered the whole problem and the future life-expectancy of the machines. It was through this consultation process that we discovered that the servomotors fitted to the machines were custom made, expensive and failed regularly. The customer also wanted a cost-effective and low maintenance solution for the servomotor problem, which could be implemented on a staged basis, as and when required.

The Technology Business recommended that the customer move to Brushless servomotors due to their robustness and superior performance. The key to the solution was therefore to provide the customer with a servodrive that could control the existing brushed servomotors, which could be converted at a later date to a modern brushless machine with minimal modification to the wiring.

The Technology Business identified a drive suitable of achieving these performance requirements and once the budget was secured the systems were supplied and installed. The downtime on the machines has now been dramatically reduced and the customer has put plans in place to retrofit new brushless servomotors, supplied by The Technology Business, as the old servomotors

"The merits of a solution can only be measured when the long term effects and costs are considered."

All Wrapped Up

When one of our key customers needed a quick modification to the Siemens HMI and PLC they called The Technology Business. It was late Friday afternoon and the machine needed to be delivered the following Monday, complete with some new features.

The customer supplies wrapping, sealing and labelling machines, which are manufactured by their parent company in Italy, mainly to the UK food processing industry. Most of the customisation for the machines are done by the customers team of highly competent engineers. However, as can sometimes happen, their customer requested a modification to the design to enable the conveyor speed to be controlled remotely.

The process was controlled by a Siemens S7-200 PLC and HMI, both of which required modification to incorporate the desired

functionality. Having downloaded the software using a Siemens Field PG, our team of engineers faced the first challenge of translating the code's comments, which were in Italian, into English. This task being completed, the code was quickly modified and uploaded into the PLC and HMI.

After rigorous testing of the machine, The Technology Business certified it as fit for purpose and the customer was able to deliver the completed system on time.



Indramat, Not So Tough To Repair That Is!

One of our overseas customers had been experiencing problems with one of their machine's axis drives, which consisted of an Indramat Servo Amplifier KDS1.1 and Servomotor MAC90D, stalling when on load and being erratic at low speeds. Because the customer knew The Technology Business had repaired Indramat equipment in the past, they decided to send the amplifier and servomotor for test and repair.

When we received the unit into the factory it was allocated a tracking number and visually inspected. After initial passive tests, the servomotor was taken to the test area for powered testing. The servomotor was initially tested for tachogenerator output voltage and phase angle and the Hall-effect commutation devices were then checked with our state of the art diagnostic system. The commutation alignment matched our test specification exactly and the servomotor was connected to a dedicated Indramat test rig. The servomotor was operated across its full range load and speed, and passed with flying colours.

Initial inspection of the servo amplifier revealed ageing components, burning of the drive PCB and noisy bearings in the cooling fans. A detailed analysis of the servo amplifier's circuitry was performed and no further passive faults were found. The unit was then reassembled ready for a powered test.

Having connected the servomotor, servo amplifier, power supply unit and appropriate programming module, the system was powered up and tested on no-load. The initial findings were unusual, as the motor appeared to run correctly across the speed range. However, a more detailed inspection of the amplifiers



output revealed a considerable amount of noise and spikes. The system was then tested under load, and as the load increased the motor shaft started to cog and occasionally stalled. Utilising our PC based technical library, the information on the output stage of the drive was retrieved and a detailed investigation of the cause of the noise was followed.

The problem was narrowed down to the Hall effect current sensors, which are used to monitor the DC bus current and output phase currents. One of the phase current sensing modules was behaving in a very non-linear fashion, was extremely noisy and occasionally lost its output altogether. The Hall effect assembly was removed from the PCB and dismantled with great care. Because the current sensor design was custom to Indramat's requirements, it could not be replaced but it could be repaired. Having located suitable parts and fitted them, the servo amplifier's repair and refurbishment was completed (including changing that noisy fan). The unit was rebuilt and placed on test, the system was run over its full range of load and speed and performed perfectly.

To complete the repair and ensure the long term operation of both components, the servomotor was overhauled. The system was given a final test and after inspection was packaged ready for shipment.

This repair was a classic example of the challenges faced by our team and the commitment of The Technology Business to providing a quality product. Having delivered the unit safely back ,

the customer let us know that had we not been able to repair the unit the machine would have been scrapped.

An On-site Story

It was 2 o'clock Friday morning when the call came in from a local bakery, they needed someone on-site immediately as their main line had stopped running. As part of our service, we offer a 24 hour response to customers, every day of the year.

Upon arrival at the site, the customer took the The Technology Business' engineer to the machine, which had been powered down. The machine was then powered up and the main conveyor would not run when enabled from the operator's console. After some checks through the system, our engineer localised the fault to a Siemens Midi Master, which was sitting there dead with no display. The supply and interlocks to the inverter were checked and found to be satisfactory, which confirmed the fault was within the inverter.

After powering down and locking off the panel, the inverter was removed from the panel and the machine was made safe. The inverter was taken to The Technology Business' laboratory for investigation and repair. The engineer noted that the heatsink of the inverter was hot, even though it had not been running, which

was an important clue as to the fault.

Passive, safe-to-test, checks were performed on the inverter, before it was powered up. After a quick examination of various test points around the inverter, the fault was traced to a faulty switchmode power supply, which was not starting up. The supply is powered from the DC bus of the inverter and the circuitry relating to this was working correctly. However, reference to our database quickly identified that the start-up voltage to the switchmode IC was too low. The faulty component was located, replaced and the inverter was refurbished, including replacing the cooling fans, only one of which worked. The loss of cooling often being the catalyst for component failure.

The unit was fully tested and was returned to site. After reinstalling the unit the machine was powered up and by 5 am the line was back in production. As a result of this failure, a programme of refurbishment was agreed for all the other on site.

THE TECHNOLOGY BUSINESS LIMITED

Unit 1 Station Yard Trading Estate
Station Road
Holmes Chapel
Cheshire
CW4 8AA

Phone: 08707 623 031
Fax: 08706 220 262
Email: sales@thetechnologybusiness.com

We're on the Web
www.thetechnologybusiness.com

If you can name any two manufacturers from the picture shown below, we will give you 25% off your first repair with The Technology Business.

Please quote the Newsletter Issue and your answers on your order.

The offer is available to one site per company and is not applicable to product sales or projects.

We look forward to hearing from you soon on:

Tel. 08707 623 031

Fax. 08706 220 262



A Selection of Drives we have repaired

Knowledge and Experience are the Key

The Industrial Electronics and Motor Service industry is a challenging business, with little support from manufacturer's and even less time to perform the work. The industry is however growing and changing, the number of new companies offering services increases every year, whilst some of the big players are restructuring. The primary reason for this is that customers have moved from using the original equipment manufacturer's (OEM) or their own engineering resource, which is usually in short supply, to a more flexible approach.

The market is maturing, with customers expecting competitive prices and technical excellency, as well as the high levels of service response they have come to expect from independent repairers. The key to providing the customer's requirements is knowledge and experience, as these two factors will help to keep the cost of repairs down whilst maintaining high quality



Good IT and experienced engineers are the key

standards.

At The Technology Business we believe that automation of information storage and retrieval is the key to our success. Without this the job of storing data on repairs and looking up past faults would be virtually impossible. We also run a paperless office, so that any letters, faxes or information coming in is immediately converted to an electronic format. We will still keep paper copies for customers who have this requirement.

We have datasheets and repair reports on several thousand repaired items. Our experienced engineers are capable of working both on site as well as in the laboratory, which means that continuity can be maintained on the job through all its phases.

With our continuing investment in training and IT infrastructure we aim to be not only a market leader, but a technology and quality icon to our competitors.