

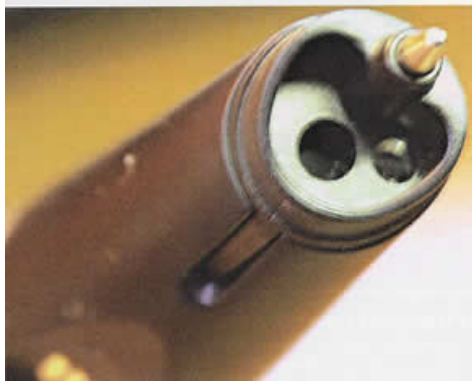
RECORD keeping on board ships takes up a large chunk of any officer's time. And, since the advent of ISM and the pending introduction of the ISPS code, the time spent on bureaucracy is increasingly becoming a heavy burden.

Two products – both combining new hi-tech hardware and custom written software – developed by UK-based company Datatrac could be the answer to reducing the burden of record keeping over a very broad spectrum of activities on board. As an added bonus, both systems will also reduce the risk of false record keeping and thereby increase confidence in the management of the ship.

One of the systems makes use of a digital pen and paper and can be used for such things as completing checklists, writing up logbooks and even transmitting drawings or sketches by e-mail or SMS to suitable mobile phones providing a particular make of digital pen is used.

The paper used with the digital pen looks much the same as any sheet of paper but it has imprinted on it a pattern of tiny carbon dots. The company that produces the paper has an almost infinite number of patterns so that each sheet can be considered unique although any number of sheets with the same pattern can be produced to order. A system of identification codes for the patterns allows the software used to recognise and duplicate the exact movements of the pen and to reproduce what was "written" as a JPEG computer file.

The pen which is chunkier than usual but still quite comfortable to hold, has a normal ink filled ball point cartridge to produce a visible mark and incorporates a



The business end of the digital pen – as well as the normal ball point it contains a camera

Keeping tabs on ships' records

Electronic form filling



Information from the digital pen being used to complete a voyage report

small camera that records its position in relation to the paper pattern on an internal memory chip. Each pen stroke is recorded in the memory and then downloaded to a computer using a cradle or holder.

When using the system to keep a digital record of, say, a checklist, the digital paper can be over printed with the form layout. It can then either be used to produce both a digital and written version of a "one off" document or, if the form is one that will be used regularly, the paper can be encapsulated or laminated and used time and time again with the past written information being wiped off each time.

Instant form filling

A more sophisticated use could involve printing a basic form – it could be as complex as a page from an engine room logbook – and then reproducing each specific field of the form on a label made from an identical paper as the basic form that can be placed anywhere on the ship. In the case of the engine room logbook as an example, each of the areas from where readings need to be taken and entered will have a unique label.

The engineer need only to go to the label and, using the digital pen, write on it the reading needed to be entered into the log. The pen records the figure as if it were being written on the complete form. At the end of his rounds, the pen would be placed into the holder and the information uploaded to the ship's computer.

Instantly, every reading would be transferred to a file version of the form held on the computer and be written into its proper place on the computerised form. A similar procedure could be used for a security officer inspecting various locations around the ship prior to departure from port and initialing labels placed at each location.

Because the system works by the pen recording its position in relation to the dot pattern of the paper, it will be necessary to keep the labels reasonably clean. However, since that only requires an occasional wipe with a cleaning fluid it should not present too much of a problem for most crews.

Tracking time

An important feature of the system is that as well as recording what is written, the pen also records the exact time of each stroke over the pattern of dots. So, in the case of the security officer, if he had

failed to visit a particular location but had instead merely initialled another label more than once or even written on a plain piece of paper, the computer software would in the first instance show two signatures at one location and in the second instance show no signature at all.

The software provided with the system allows a document produced with it to be analysed using a slider bar at the bottom of the screen. As the bar is moved, the sequence of penstrokes is shown on the screen and the image of the document is gradually built up. As the image emerges it is easy to see when and where any amendments or alterations have been made making it virtually impossible to tamper with what could be crucial information.

Although the system would be ideal for completing official and draft logbooks, approval would need to be given by the flag state before the electronic record could be accepted as an alternative. But there is nothing to prevent an operator from having official logbooks printed on digital paper and completing them using the digital pen as the ink cartridge will satisfy the need for a written version while the electronic record could be used for the company's own purposes.

Datatrak director Jennefer Tobin told *Solutions* that the system has interested a number of shipping companies including Northern Marine Management and Technip. She also said that the company has developed an ISPS code documentation system using the digital pen technology. The basic forms and procedures of the system can be customised to suit individual operators needs.

Certificates on chips

The second innovative system that Datatrak has developed requires a handheld PDA and uses micro-chip tags that are attached to equipment or placed at relevant locations around the ship. Each of the tags

A digital tag such as this can store up to 64kb of information



BELOW: Interrogating a tag with a PDA



is encased in an extremely robust ceramic and metal housing and can store up to 64kb of data. The tags used by Datatrak are UK made and are also used by the MOD because of their ability to withstand harsh environmental conditions where the maker gives a 100-year guarantee.

The data is read using an attachment to the PDA which just needs to be placed in contact with the tag. While it would be possible to use any PDA, Datatrak can supply a version with a rugged case more suitable to shipboard conditions. Depending on the particular application, the data on the tag can be pure information or it can activate specific software stored on the PDA. In the most passive form, the tags may just identify a location or piece of equipment that needs to be regularly inspected. Activating it will record on the

PDA that, at a particular time and date the person who had entered his or her password into the PDA was at that location.

Taking the idea further the tag could carry data identifying the serial number of a piece of equipment and as much more information as its memory would allow. More extensive information could be held on a computer or the PDA. Information might include certification details and maintenance history or it could even be instructions for carrying out work and maintenance on the equipment.

In that case, the operator would carry out the work and then update the tag and later transfer the information to the ship's main computer. If the equipment was being maintained or overhauled for survey purposes, the new certificate details would also be transferred to the tag.

Although the system has not yet been approved by a flag or classification society there is no obvious reason why it should not be. Were it to become approved it could satisfy port state control requirements as an alternative to paper certificates for equipment that are, as is well known, easily and all too frequently issued illegally.

● Details of the systems and equipment can be obtained from Datatrak on +44 1404 841117 or its website www.datatrak.com



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