

FSE

MIMIC MASTER

LIFE-CRITICAL
MONITORING
FROM KENTEC



Protecting
stock in a
fire-free
environment

HIDDEN DANGERS

What you can miss in a fire risk assessment

FULLY LOADED

Is the testing of unloaded columns good enough?

SITTING PRETTY

Portable extinguishers: more than part of the furniture

MIMIC SYSTEMS FOR LIFE CRITICAL CONTROL

Kentec Electronics' technical director **Robert Jefferys** explains how the modular nature of Kentec's mimic panel system is a flexible and expandable solution for the creation of an intuitive interface to achieve geographical fire alarm indication characterised by exceptional clarity.



Kentec's benchmark mimic panels are a flexible and expandable solution to achieve clarity for geographical fire alarm indication

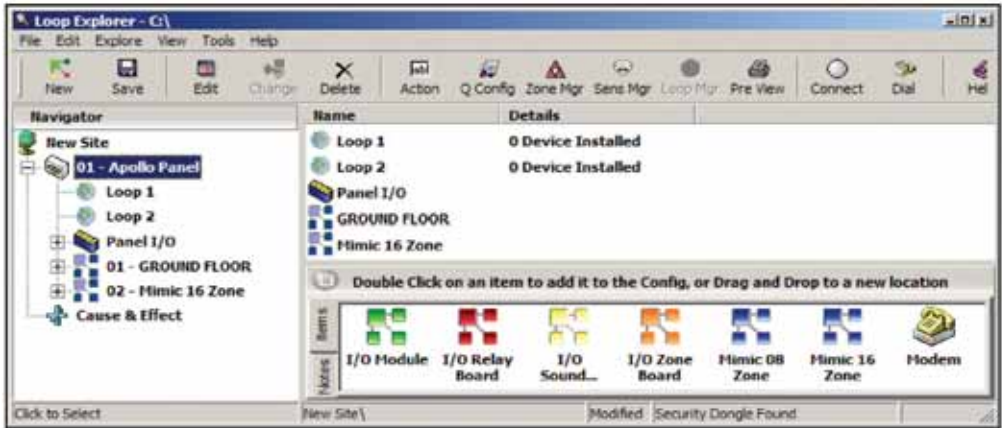
Mimetic schematics for life critical operator decisions are a feature of most control interfaces where there is a human factor in the evaluation of remote, automated systems. In avionics, for example, this principle has been applied for over half a century, since the form and function of the Artificial Horizon has not changed in the past 50 years – a tribute to a mimetic design that mimics situational awareness of the true world horizon in relation to the cockpit window view.

What's more, when considering the ergonomics of

control systems, a further instructive comparison can be drawn. Essentially, the cockpit of an aircraft is designed for the specific task of providing a safe and efficient interface where human factors of operator awareness, perception of risk and response times to warning systems are life critical.

Zonal situational awareness

A fire alarm control system is no less defined by industry safety objectives and, as with any modern technical



Mimic panels require Kentec's Loop Explorer software for rapid configuration of up to 500 indicators

interface in a critical system, the clarity of mode for alerting, informing, status feedback and guidance is the prime mover behind its efficient design.

Such an interface must be clear, intuitive and easy to understand under critical conditions. Just as in modern complex cockpits, the pilot is required to absorb many pieces of information, often under time critical conditions, so the operator of a fire safety control system must have all information coordinated, prioritised for urgency, and filtered to avoid overload and confusion.

These are design problems that Kentec has evaluated closely. Prohibitive cost and inherent unreliability currently precludes the use of the obvious medium for a graphical mimic display (a colour monitor driven by a PC) for most commercial fire alarm systems, but Kentec's design team believes they can demonstrate a simple and elegant solution for this often overlooked but essential part of fire alarm systems... the answer is the Kentec Matrix Mimic Panel.

'Fire! You are here!'

In designing the Matrix Mimic Panels, the principal aim has been to provide a clear, geographical indication of fire alarm activation to enable the user's speedy identification of the source of an alarm in a form that can be easily maintained and modified, to reflect extensions or changes to building or site layout and usage.

When linked to the fire control panel, a Mimic Panel is a graphical representation of the site or building layout to give users, at a glance, the location of the origin of a potential fire incident. The Matrix Mimic system uses bright, flexible fibre optic light guides, carrying LED-originated light to a high resolution grid, to illuminate zonal areas on a floor or site plan. This unique, rapidly configurable system dispenses completely with wiring and enables indicators to be moved, removed or added on site without the need for any wiring.

The indicators normally highlight a zone area on a site or a building map which, when combined with the usual 'You Are Here' legend, clearly identifies the location of the incident in relation to the observer. The information that modern fire control panels are required to display by the mandatory European standards for the equipment can often be confusing for an observer in an emergency situation – particularly if insufficient care has been taken by an installer to provide a concise description of the

location of an incident in the text description part of the fire panel display normally allocated for this.

Critical time may be saved by providing a graphical representation of the search area to identify where an alarm has originated, especially where the end users or fire authorities may be unfamiliar with either the site or operation of the fire system. This saving in time is essential to minimise delays in identifying potential hazards and the risk to lives and property.

Speedily configured zonal plans

To reinforce these requirements, British Standard BS 5839: Part 1:2002 recognises the benefits of such a graphical representation and recommends that a zonal plan is placed adjacent to the fire alarm panel. An active zonal plan with clear flashing indicators saves time in an emergency by reducing the need to cross reference information provided by the fire control panel. Many other countries also encourage the use of Mimic panels by reference to them in their local recommendations.

Normally, hardwired Mimic panels are custom built to suit the building to which they apply, using cable looms connected to LED indicators on the front plate. This is a time consuming, labour intensive and costly process.

Changing the layout of such a Mimic panel once it is installed is a major undertaking and normally requires replacement of the whole unit, which is also time consuming and costly. This inevitably leads in some cases to safety being compromised when the updating of Mimic panels is neglected, and they fail to reflect additions or changes to a building plan or site layout. This can potentially lead to end users or firefighters being presented with incorrect information in an emergency, clearly a dangerous and unsatisfactory outcome.

Minimising maintenance

The design team at Kentec has successfully tackled the problem of how users can update site layouts rapidly to reflect system changes or expansion. In response to this need, Kentec has developed the Matrix Mimic, a system that allows site or building plans and maps to be changed or updated with the minimum of cost and effort. Because no alteration to wiring is required, this essential maintenance of the fire system is made easy and accessible, encouraging updating to be carried out as a matter of routine.

The Kentec Matrix Mimic is constructed by overlaying a single or multi-colour Perspex plan or map onto a high resolution grid of holes in a metal plate, into which are fitted Fresnel lenses and fibre optic light guides. These fibre optic light guides then simply plug into special LED indicator receptacles on the circuit boards inside the panel, and carry the light to the required point on the plan.

Job done

This method allows the floor plan or map to be amended without any change to the wiring of the unit or removal of the unit from site. The existing front plate with the plan or map can be simply substituted by loosening a few screws, permitting indications to be added, removed or repositioned, and the revised plan or map screwed into place. Job done!

Matrix Mimic panels are controlled by data transmitted from Kentec Syncro analogue addressable fire control panels over a two wire RS485 data bus. Unlike many conventionally wired mimic panels which require a wire for each indicator, this method minimises the wiring required on site between the fire panel and the Mimic panel.

Up to 500 indicators can be supplied on the Matrix Mimic. These default to zonal fire indications but are fully programmable and can be controlled by complex cause and effect relationships set by the fire control panel configuration software.

All indicators can be configured to operate upon any event type, allowing the Matrix mimic to show other indications such as sprinkler or plant status and at point, zone or group level via Kentec's powerful and intuitive Loop Explorer configuration programme.

Indicators can be supplied in red, green or yellow and versions are available with or without basic controls such as Silence Alarm, Lamp Test and Reset and common indicators for Fire, Fault and Disablement. 16-way mimic extension PCBs can be supplied in kit form with fibre optic light guides and Fresnel lenses to enable the capacity of the mimic to be increased as required.

With high quality, full colour or monochrome floor plans, standard Matrix Mimic panels are housed in attractive, slim-line, steel enclosures styled to match Kentec's Syncro and Syncro AS fire alarm panels

compatible with the range. Other colours and finishes are available, however, to suit special architectural requirements.

There are several enclosure size options with standard enclosures capable of housing 24, 56 or 88 LEDs. Bespoke housings for up to 500 LEDs to suit more complex requirements can be easily accommodated. The Matrix is ideal for environments such as hospitals and administrative centres where the building layout may evolve over a period of time. As the building changes, so too can the Matrix Mimic, with very little cost or disruption.

Consistent EMC compliance

By their nature, Mimic panels depicting floor plans or maps are usually one off bespoke designs. This means that on conventional, wired Mimic panels, the electromagnetic compatibility characteristics will vary quite considerably from one unit to another. By contrast, because the indicators on Matrix Mimic panels are not wired but fed via electrically benign fibre optic cable, the electromagnetic compatibility characteristics are consistent and do not vary from one unit to another. A Matrix mimic panel tested for electromagnetic compatibility in a configuration with circuitry for the maximum number of indicators will, therefore, have the same characteristics irrespective of the map or floor plan layout, and can be confidently certified as compliant with EMC requirements.

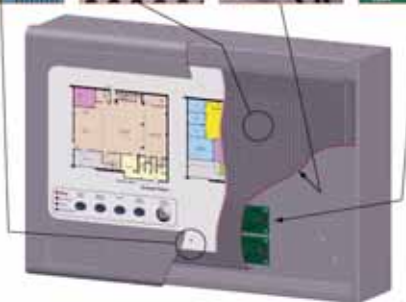
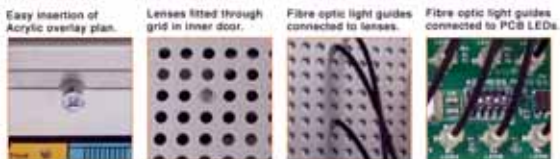
Kentec's Special Engineering department are able to produce Mimic design drawings for approval within a short time from receipt of an order and once the design is approved, the unit can be manufactured and shipped within a few days. The modularity of the Matrix Mimic's design not only provides an easy and speedy solution for ongoing maintenance but also reduces lead times and makes Kentec Mimic panels more of a standard product than a 'special'.

Kentec has a dedicated CAD engineering department which as well as designing fully bespoke special control solutions, regularly designs and produces Mimic panels in a variety of formats for use with either conventional fire alarm panels or analogue addressable fire alarm panels. The engineering department can rapidly produce high quality drawings for customer/client approval which accurately reflect the appearance of the final product.

Kentec pride themselves on creating products for intuitive control and, behind what they regard as the widest range of modular control solutions available on the market today, they have established an exceptionally high level of dedicated technical support services, including telephone assistance, technical e-mail bulletins and customer specific training. In addition, a sophisticated technical support call-logging database provides Kentec with up-to-date information and an accurate analysis of all calls taken.

In-house design, manufacture and software development, supported by a sustained programme of investment in expanded premises and state-of-the-art plant and machinery, have been key contributors to Kentec's commitment to offer customers products of true excellence, a world class comprehensive range and consistent quality of service.

Kentec products are independently tested and approved to EN 54 parts 2 & 4 and EN 12094 Part 1. The company is accredited to ISO 9001:2000 for its Quality Management Systems approval and ISO-14001:2004 for Environmental Management Systems. ■



Displays can be rapidly changed or updated with the minimum cost and effort

For more information please contact Kentec on 01322 222121 email robine@kentec.co.uk or visit www.kentec.co.uk