

EUROTECH'S ZEUS HELPS WITH TEXTING TRAFFIC

Variable message signs are seen on motorways and trunk roads worldwide, advising drivers of weather conditions, congestion ahead and other messages to help maintain safety and improve traffic flow. Eurotech's ZEUS single board computers are at work around the clock on motorways and highways throughout the UK, helping to keep these signs fully operational and communicating their critical information.

CASE STUDY



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The Highways Agency (HA), an Executive Agency of the Department for Transport, is responsible for traffic management on over 5,800 miles of motorways and trunk roads throughout England. This network carries a third of all UK road traffic and two-thirds of its freight traffic. Other agencies in Scotland, Wales and Northern Ireland, have similar widespread responsibilities. Sophisticated technology helps the HA and the other agencies to manage traffic flow at a time when traffic congestion is a major concern and road safety is seen as a national priority.



There is a range of equipment brought into play for traffic management. Loop detectors collect real-time traffic data such as vehicle count, speed and traffic density. Electronic variable message signs (VMS) and signals, strategically located across the motorway and trunk road network, can display advisory speed limits and inform motorists of what traffic conditions are ahead using text and pictograms. Currently, there are approximately 2,800 VMS on the Highways Agency network.

The Highways Agency states that VMS are essential to the effective control of traffic movement and initiatives such as Managed Motorways would not be possible without them. The signs are controlled in three ways:

- The National Control Centre, responsible for the strategic operation of the road network, which includes setting messages to create long distance diversion routes.
- Seven Regional Control Centres (RCCs) which set up tactical messages within their allocated region
- Motorway Incident Detection Automatic Signalling (MIDAS) system uses loop detectors to set advisory speed signals to warn of slow moving, or stationary, traffic ahead.

CONTINUOUS ROADSIDE MONITORING

Techspan, part of the Hill & Smith Technology Group, is a leading specialist in VMS design, manufacture, installation and maintenance and is one of only three suppliers of this technology to the Highways Agency. VMS will be familiar to all drivers on the network, warning them to slow down because of accidents, signalling junction closures and diversions and alerting them to road works ahead. However, they probably will not be aware of the technology and management systems that bring these messages into being.

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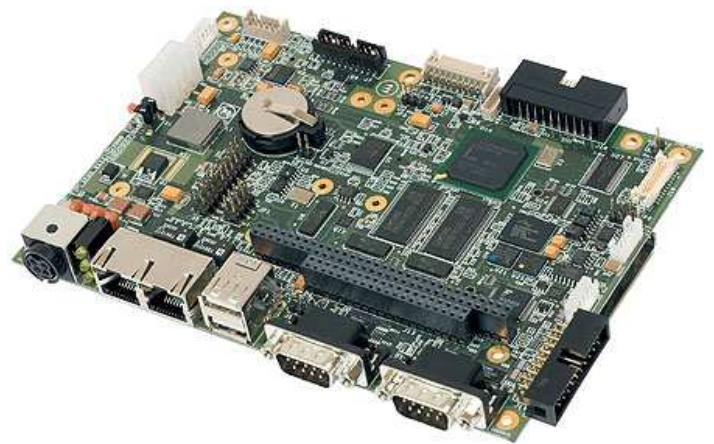


Critical to VMS operation is the Roadside Controller, measuring approximately 400mm (W) x 160mm (H) x 220mm (D), which is situated close to the gantry and provides the intelligent interface between the VMS and the road operator control room infrastructure. Each of these Roadside Controllers incorporates a Eurotech ZEUS embedded single board computer (SBC), which has the job of driving the panel displays. It ensures that the correct messages are being displayed and that any faults in the sign are immediately diagnosed and passed on to the traffic management control centre.

Ronald Taylor Lewis, Senior Design Engineer at Techspan, explained that as a component enclosed in the roadside control box, the Eurotech ZEUS SBC needs to be particularly robust, putting up with temperature changes and the impact of vibration from passing motorway or trunk road traffic. *“ZEUS facilitates the messaging and provides a continuous flow of vital information such as the status of the LEDs being used to display the message on the sign.*

It is proving ideal for this roadside application, given its reliability, form factor, range of communication interfaces and ultra low power consumption,” he said.

Techspan's signs are manufactured to HA specifications. Their MS4 system is the latest generation of VMS. With the ZEUS directing the messaging on up to two signs from each roadside control box, the MS4 system uses internationally recognised warning symbols in amber and red with a 20mm pixel matrix. The sign is capable of displaying text from 160mm to 400mm and pictograms up to 2000mm. A single Roadside Controller will also drive multiple Advanced Motorway Indicators (AMIs), familiar small square signs used to display speed restrictions.



With the Techspan MS3, seen across the UK mounted on cantilever gantries overhanging motorways and highways, the ZEUS is integrated into the sign itself rather than enclosed in a separate roadside controller.

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Eurotech's ZEUS is an ultra low power (2W typical consumption, 100mW in sleep mode) EPIC size SBC. Based on Marvell's XScale® 520MHz PXA270 RISC processor, it is highly cost effective and also extremely versatile. Apart from those supplied for the Techspan VMS operation, the ZEUS board is widely used as a crucial component for vehicle and asset tracking, mobile terminals and network communication controllers. Part of the success of this solution is the technical backup received from Eurotech, and Ronald Taylor Lewis at Techspan emphasises the high level of support received from the company throughout the HA project.

Road casualties in the UK have recently seen a welcome decline, decreasing by 35% from the years 1990 to 2009. HA's traffic management strategies and the technology behind them have played an important role in this positive development.

For more information on Eurotech please visit our website www.eurotech.com or contact our sales team at sales.emea@eurotech.com.