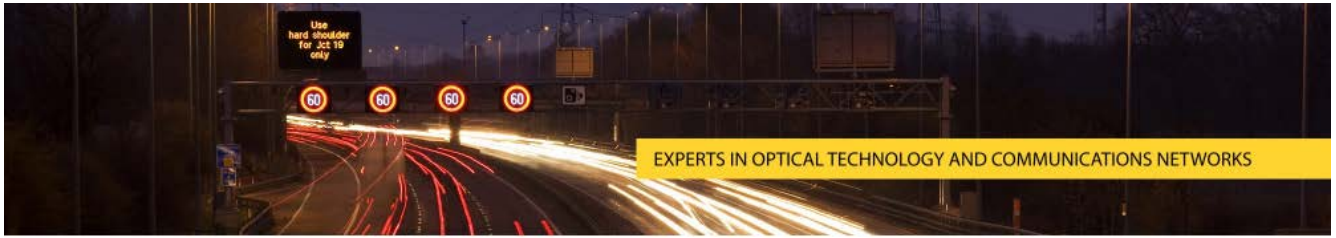
Regulations and developments in signs and technology – an ARTSM update

Mark Johnson – Technical Sales Director

Introduction

- Standards / Regulations update
  - EN12966
  - TSRGD
  - TOPAS
- Technology Developments

Introduction



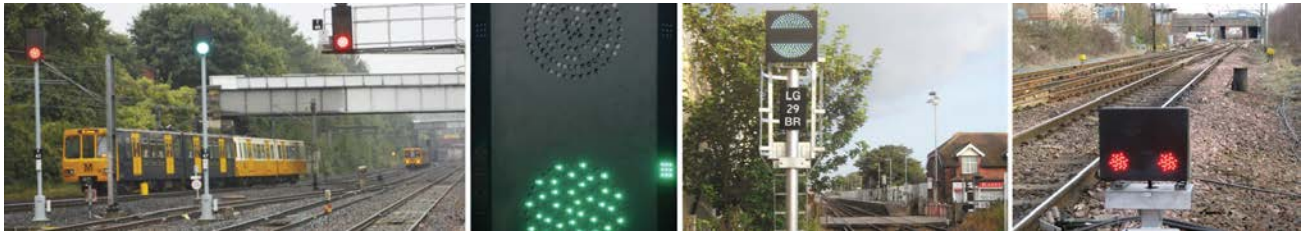
Variable Message Signs (VMS) has been involved in the design, manufacture, installation and through life support of driver information systems since 1989. We provide assistance and support as well as finished products and systems to Local Governments, Overseas Organisations, Network Rail and Airports as well as specialist tunnel signs and over-height vehicle detection systems.

Introduction

Strategic

Urban

Rail



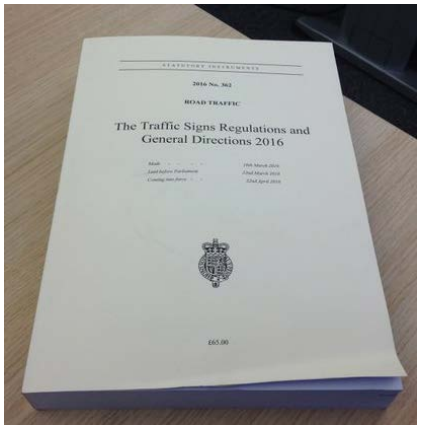
European Standard for Variable Message Signs – EN 12966

- Current Standard has been in place since 2005
- The latest version was published in December 2014 and will come into force during 2016

- Additional guidance sections
- Additional colour added
- Now covers temporary / portable VMS
- Products approvals under the original standard are still valid

The Traffic Signs Regulations and General Directions 2016 (TSRGD)

- A significant update to TSRGD
- Published in April this year
- Large number of changes for fixed signs
- For variable signs :
  - New schedule 16 added to bring together all regulations into one section
  - Harmonised with the European standard EN12966



DfT guidance leaflet – TAL 1/15

Department for Transport

Traffic Advisory Leaflet 01/15
January 2015

Variable Message Signs

GENERAL

The Road Traffic Regulation Act 1984[1] (RTRA) defines a traffic sign as: "any object or device (whether fixed or portable) for conveying to traffic on roads or any specified class of traffic, warnings, information, requirements, restrictions or prohibitions of any description…". Lawful traffic signs must either be prescribed by regulations or authorised by the Secretary of State.

The Traffic Signs Regulations and General Directions 2002[2] (TSRGD) define a variable message sign as: "a device capable of displaying, at different times, two or more aspects…". These aspects may take the form of a sign prescribed by TSRGD, a legend in accordance with Schedule 15 to TSRGD, a non-prescribed temporary sign or a blank grey or blank black face. Thus, the expression "variable message sign" (VMS) encompasses all types of variable sign from simple flap-type fixed signs to complex light-emitting panels.

This leaflet provides guidance to inform the use of light-emitting VMS capable of displaying text and/or pictograms. It does not apply to matrix signs as prescribed by regulation 46 of TSRGD and contained in Part I of Schedule 11 to the Regulations.

On all-purpose roads, VMS will generally be located in the nearside verge. On motorways and wide all-purpose roads (especially those with a hard shoulder) mounting on gantries may be necessary to prevent obscuration by large vehicles in the nearside lane(s).

The requirements in respect of siting, lateral clearance, etc are the same as those set out in Chapter 1 of the Traffic Signs Manual[3] for fixed signs.

On roads where the 85th percentile approach speed of private cars, as determined in accordance with TA 22/81[4], is greater than 40 mph, it is recommended that two VMS displaying the same legend are provided where possible. This is especially important if the information to be displayed is likely to conflict with that on fixed directional signs, for example a VMS message indicating a mandatory or advised diversion.

SIGN HOUSING ETC

A VMS may only be placed on or near a road if it is of a type approved by the Secretary of State. This type approval applies to the equipment in its entirety, including the content of all instructions stored in or executable by it, and any equipment used in connection with the sign. The requirements and approval process are set out in Highways Agency document TR 2516B[5], "Performance Specification for Discontinuous Variable Message Signs".

All parts of the sign other than those facing traffic should be coloured grey or black or be in a non-reflective metallic finish. Any lettering required for identification purposes should be no more than 25mm high on the sign housing or, if applied by means of a label, should be printed on a label that is either transparent or the same colour as the sign housing. On no account should any label or any part of the sign housing comprise retroreflective material.

VMS must conform to the requirements of BS EN 12966-1:2005+A1:2009[6].

Any part of the sign surrounding the rectangular area used to display a message should be coloured grey or black. There must be no text or symbols on the surround as this would render the sign unlawful.

Figure 1 VMS displaying a tactical traffic legend

FORM OF DISPLAY

Regulation 58 of TSRGD permits a VMS to display most of the fixed signs prescribed in TSRGD as well as legends prescribed in Schedule 15. Special provisions apply to vehicle activated VMS and these are explained in detail in Traffic Advisory Leaflet 1/03, "Vehicle Activated Signs"[7].

Text on a light-emitting VMS must be displayed in white, off-white or yellow. A prescribed sign incorporating a black legend or symbol on a white or yellow background may be displayed with the colours reversed, i.e. as a white, off-white or yellow symbol on a black background. Any red triangle or circle forming part of the sign must be retained.

A VMS should exhibit a black or grey rectangular area to approaching traffic when no message is being displayed.

Where the construction of the VMS permits, the text should be displayed in the form of the Transport Medium Alphabet prescribed in Part I of Schedule 13 to TSRGD. Otherwise, the alphabet prescribed in Part V of that schedule must be used. The size of characters in the transport alphabet is expressed in terms of x-height, which is the height of a lower-case letter "x". Upper-case displays are defined by the height of the characters. The height of upper-case letters is 1.4 times the height of the lower-case "x" for fixed signs and 1.2 times for VMS. The values in Table 2 and 3 have been determined using this method and thereafter adjusted to match technology.

Regulation 58 of TSRGD requires that a VMS "shall be of a size appropriate to display the messages … having regard to the normal speed of traffic on the road on or near which the sign is situated."

Tables 2 and 3 set out the minimum sizes of characters recommended for use on text-only and mixed text/pictogram VMS. They do not apply to regulation 58(7) which requires the use of special character sizes for VMS displaying "SLOW DOWN". Note that these character sizes are different from those that appear in the performance specification, TR 2516B[5] which should only be used for selecting the appropriate optical performance class.

A VMS that displays a sign shown in one of the Schedules to TSRGD must do so at the prescribed size appropriate to the traffic approach speed unless special authorisation has been obtained. In practice, the more complex pictograms contained within many warning signs lose resolution at smaller sizes and so the largest size (generally 1500 mm) should be used wherever possible to ensure adequate clarity.

Figure 2 Travel time VMS legend

MESSAGES

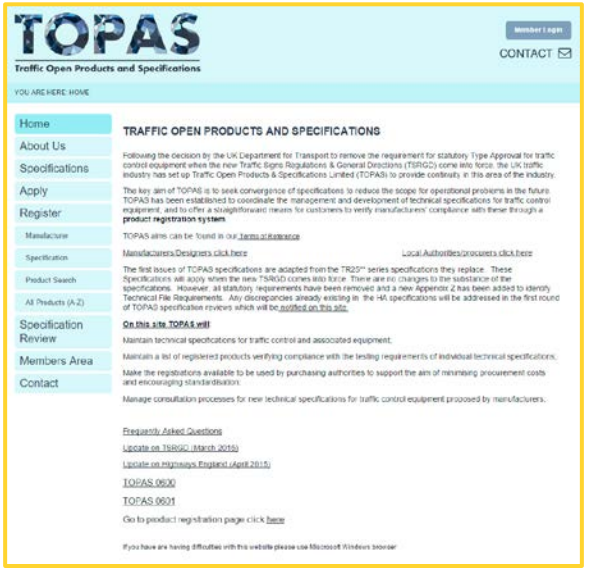
VMS may only be used to display traffic signs, as defined in the Road Traffic Regulation Act. Their use to display any other message renders the installation unlawful.

Messages should be as short as possible while being fully comprehensible to drivers. They should not normally consist of more than eight words or six units of information. All messages must be displayed on a single sign aspect. **It is unlawful to display messages that require the use of multiple displays ("paging") or scrolling text.**

For the purposes of message construction and the use of Tables 2 and 3, the principles in Table 1 apply:

TOPAS – Traffic Open Products and Specifications Group

- TOPAS has now replaced the Highways England process for Type Approval
- www.topasgroup.org.uk
- Existing type approvals must be registered with TOPAS
- TOPAS registration is mandated for all new products



Portable / Temporary VMS

- EN12966 now covers portable and temporary VMS
- TSRGD now specifically references paged messages:

  "When a variable message sign displays a sign or legend the variable message sign must display the whole of that message at the same time"

MESSAGES

VMS may only be used to display traffic signs, as defined in the Road Traffic Regulation Act. Their use to display any other message renders the installation unlawful.

Messages should be as short as possible while being fully comprehensible to drivers. They should not normally consist of more than eight words or six units of information. All messages must be displayed on a single sign aspect. **It is unlawful to display messages that require the use of multiple displays ("paging") or scrolling text.**

Extract from DfT TAL 1/15

Sign Evolution

Then…

4 x 15 Characters
100mm
External Lanterns
14.3mm LED Pitch
Single Colour (Yellow)
2,100 LEDs in Display

Now…

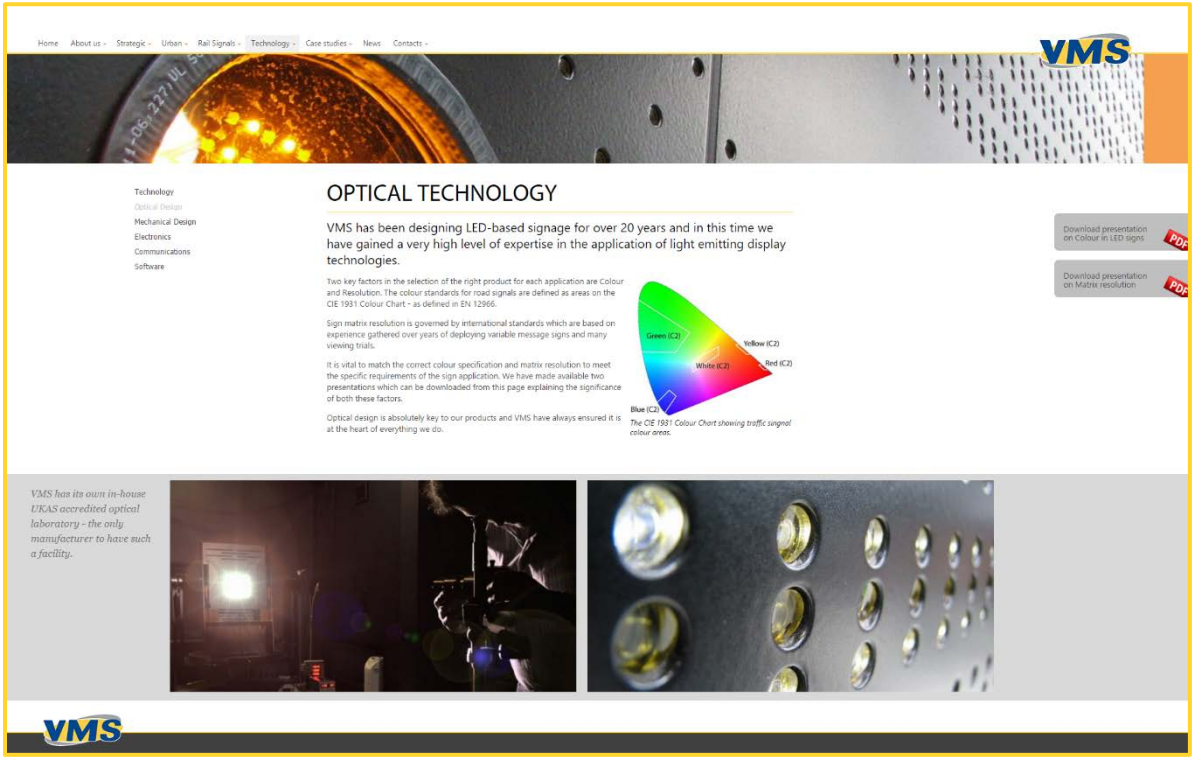
4 x 15 Characters
100mm
Virtual Lanterns
7.2mm LED Pitch
Dual Colour (Red/Yellow)
33,792 LEDs in Display

Display Technology

- LED's
- Colours
- Resolution
- Size
- Weight
- Cost

Technology Developments

Further information



www.vmstech.co.uk/optical

THANK YOU

Websites: www.vmstech.co.uk www.artsm.org.uk
Email: sales@vmstech.co.uk
Telephone: 0191 4237070

Time for Questions


VMS