Variable Message Sign Trailers

i:TS Intelligent Traffic Systems

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1. **What standard are the VMS designed to?**
    AS 4852.2, Variable Message Signs – Portable Signs.

2. **What does VMS stand for?**
    VMS stands for "Variable Message Sign".

3. **What does a VMS do?**
    A VMS allows the operator to program text based messages or graphic images in to the memory of the VMS trailer controller so that they can display those messages or images to motorists.

4. **Where can a VMS be used?**
    VMS can be used in road construction work sites, at mine sites, at sporting event venues, public events, shopping complexes, air ports, on council roads and on main interstate highways to name a few.

5. **What traffic speed zones are the VMS suited for?**
    LED-VM1720X1100/1100C: are suitable for approaching vehicle speeds up to 60 km/h.
    LED-VM2440X1400/1400C: are suitable for approaching vehicle speeds up to 90 km/h.
    LED-VM2650X1720/1720C: are suitable for approaching vehicle speeds greater than 90 km/h.

6.
    What technology is used to display the messages on the VMS display?
    The VMS uses 5mm diameter Light Emitting Diodes (LED's) as the display element component.

7. **What colour are the LED's?**
    LED-VM1720X1100, LED-VM2440X1400, LED-VM2650X1720: For our Amber VMS they are Amber which is a shade of orange and sometimes referred to as yellow.
    LED-VM1720X1100C: For our 4 Colour VMS the LED colours are Amber, Red, White and Green.
    LED-VM2440X1400C, LED-VM2650X1720C: For our 5 Colour VMS the LED colours are Amber, Red, White, Green and Blue.

8. **I've heard of the term pixel, what is a pixel?**
    A pixel is 1 individual display element that make up part of the entire VMS display screen and when illuminated is used to form text or images.

9. **How many pixels make up the entire display screen on the VMS?**
    LED-VM1720X1100, LED-VM2440X1400, LED-VM2650X1720: In total the display has 1,344 pixels, 28 pixels high x 48 pixels wide.
    LED-VM1720X1100C, LED-VM2440X1400C, LED-VM2650X1720C: In total the display has 1,344 pixels, 28 pixels high x 48 pixels wide, per colour.

10. **When I look the picture of the VMS, the pixels look like they are several lights joined together, why is this?**
    LED-VM1720X1100, LED-VM2440X1400, LED-VM2650X1720: Each pixel is made up of 4 LED's. This makes each pixel large enough so that it is easy to see from the distances the VMS display needs to be seen from and to also produce the right amount of light required.

    LED-VM1720X1100C: Each pixel is made up of 12 LED's. This makes each pixel large enough so that it is easy to see from the distances the VMS display needs to be seen from and to

also produce the right amount of light required. There are 3 LED's for each colour.

LED-VM2440X1400C: Each pixel is made up of 15 LED's. This makes each pixel large enough so that it is easy to see from the distances the VMS display needs to be seen from and to also produce the right amount of light required. There are 3 LED's for each colour.

LED-VM2650X1720C: Each pixel is made up of 20 LED's. This makes each pixel large enough so that it is easy to see from the distances the VMS display needs to be seen from and to also produce the right amount of light required. There are 4 LED's for each colour.

11. What are the dimensions of the VMS display screens?
LED-VM1720X1100/1100C: The display housing itself is 1720mm wide x 1100mm high and the actual LED display area is 1600mm wide x 960mm high.
LED-VM2440X1400/1400C: The display housing itself is 2440mm wide x 1400mm high and the actual LED display area is 2112mm wide x 1280mm high.
LED-VM2650X1720/1720C: The display housing itself is 2650mm wide x 1720mm high and the actual LED display area is 2450mm wide x 1600mm high..

12. How many words can fit on the display screens?
It depending on the length of the words but typically for these displays you can fit between 8-9 characters wide on the display screen and up to 3 lines of characters on a single display screen. This is based on the required minimum 5 pixels wide x 7 pixels high matrix required for each text character.

13. What is a matrix?
A matrix is a grid of LED's allocated to form a text character on the VMS display screen.

14. How tall are the LED characters on the screens if it is 5 pixels wide x 7 pixels high?
LED-VM1720X1100/1100C: Approximately 220mm.
LED-VM2440X1400/1400C: Approximately 320mm.
LED-VM2650X1720/1720C: Approximately 400mm.

15. Can the VMS displays different fonts and different sized fonts?
The VMS can display the 5 standard built in fonts which are LED matrix dimensions, 3 x 6, 5 x 6, 5 x 7, 7 x 10 or 6 x 16 pixels and also some windows based fonts that are installed on a connected computer/laptop if one is connected.

16. How many messages can the VMS display?
Technically the VMS can display up to 100 messages but in reality a motorist will really only have time to read 2-3 messages before they pass the VMS.

17. Can the VMS display pictures?
Yes, of sorts. The display is what is called a Full Matrix Graphics Display so it can display very low resolution graphic images.

18. How does the display cope with brightness during bright sunlight days or dark nights?
The VMS has an auto brightness sensor built into the display that detects the ambient light in the environment around the VMS and will adjust the brightness accordingly. Bright LED's during the day and not as bright during the night.

19. Can I override the display brightness if I have to?
Yes, provided you connect a laptop or remote access, you can set the VMS to manual brightness and set the brightness to the level you require.

20. I noticed the VMS display has glass on the front of it, will this break?
It's not glass, it's called polycarbonate and it's very tough and durable and protects the LED display and keeps the display weather tight.

21. What is the weatherproof or environmental protection level of the VMS?
IP54.

22. Is the polycarbonate bullet proof?
That is quite a common question. No it's not. Polycarbonate can take a fair amount of punishment from the weather and small slow speed projectiles like stones but it's no match for a bullet.

23. I noticed that the display screen has a slight frosty look to it, why is that?
The Polycarbonate display screen has had an anti-glare (anti sun glare) process added to it. This effect helps cut down on sun reflecting off the display screen and making the messages hard to read and also to prevent from the sun reflection causing a hazard to motorists.

24. Where does the VMS get its power from?
LED-VM1720X1100/1100C: The VMS runs on three 12 volt deep cycle gel batteries that are kept charged by two 150 Watt solar panels.
LED-VM2440X1400/1400C, LED-VM2650X1720/1720C:: The VMS runs on three 12 volt deep cycle gel batteries that are kept charged by two 125 Watt solar panels.

25. How much do the VMS weigh?
LED-VM1720X1100/1100C: 700kg.
LED-VM2440X1400/1400C: 750kg.
LED-VM2650X1720/1720C: 900kg.

26. The trailer is fairly heavy, do they have brakes to help stop them?
LED-VM2650X1720/1720C: Yes, this VMS has disc brakes which are activated when the towing vehicle slows down. The VMS also has a hand brake on the tow ball coupling system mounted to the draw bar of the trailer. All other models are not fitted with brakes.

27. What are the overall dimensions of the VMS?
LED-VM1720X1100/1100C: 2850mm long x 1940mm wide x 2400mm high (including drawbar and fenders).
LED-VM2440X1400/1400C: 3300mm long x 1800mm wide x 2400mm high (including drawbar and fenders).
LED-VM2650X1720/1720C: 3650mm long x 2050mm wide x 2700mm high (including drawbar and fenders).

28. How is the display raised and lowered?
Using an electric hydraulic pump. The operator simply presses a button to raise or lower the display.

29. When the display is raised up, how high is the top of the VMS?
LED-VM1720X1100/1100C: 3400mm at full height but it can be set at a lower height is required.
LED-VM2440X1400/1400C: 3800mm at full height but it can be set at a lower height is required.
LED-VM2650X1720/1720C: 3950mm at full height but it can be set at a lower height is required.

30. Can the VMS displays face different directions in relation to the fixed trailer chassis?
Yes, the VMS the displays can face any direction within 360 degrees but it can't continually rotate in one direction due to power and data cables that can't be stretch continuously around the centre mast the display is mounted on.

31. Are the VMS 'STREAMS' protocol compatible?
No, not at this point. We are in the process of making development changes to allow for this.

32. How long does the VMS Trailer operate for on its batteries?
Because the VMS trailer batteries are constantly charged using their own solar panels, under normal operating conditions the VMS trailer will operate fully autonomously 365 days per year. In extreme extensive periods of overcast weather where sun light is very minimal, the batteries may require a top up charge from an external battery charger from time to time.
In the absolutely worst case situation where no solar charge is provided to the batteries, the VMS trailers can operate for up to 5 days on their own based on typical use and message displays.