

Oregon Department of Transportation
Truck-Mounted Portable Variable Message Sign (PVMS) Specifications
for
Qualified Products List (QPL)

1. General

These specifications describe the minimum requirements for a truck-mounted portable variable message sign to be used on a state highway to display warning and advisory messages for traffic control.

2. MUTCD Compliance

The sign assembly shall meet all applicable federal and state standards and the requirements stated in the *Manual for Uniform Traffic Control Devices (MUTCD 2000)* including the following:

- 2.1 The design of the sign shall be such that it can be mounted on a large truck or service patrol truck so the bottom of the message sign panel is a minimum of 2.1 m (7 ft) above the roadway when it is in the operating mode.
- 2.2 The sign shall automatically adjust its brightness under varying light conditions, to maintain legibility.
- 2.3 The sign controller shall include a display screen upon which messages can be reviewed before being displayed on the message sign.

3. Environmental Requirements

- 3.1 The sign shall be designed to operate within the following temperature range: -40 to 140 degrees.
- 3.2 The sign shall be designed to operate within the following humidity range: 20 to 95% non-condensing
- 3.3 The sign must be adequately ventilated to minimize fogging.

4. Sign Display Requirements

4.1 Display Technology

- 4.1.1 The sign shall use InGaAlP Light Emitting Diodes (LED) and shall have a minimum of three LEDs per pixel. Other display

technologies such as hybrid LED flip disk, lamp matrix, shuttered fiber, flip disk, etc. are not allowed.

- 4.1.2 LEDs shall be amber in color and 590 nanometers (nominal) wavelength.
- 4.1.3 The failure of a single LED within a pixel shall not impact the functionality of any pixel.
- 4.1.4 The sign shall be designed in such a way as to maintain the legibility of the message, even when the vehicle is being driven.
- 4.1.5 The brightness of the LED shall be controlled by pulse width modulation of DC current with an adjustable duty cycle. LED drive current shall not exceed the LED manufacturer's recommendations.

4.2 Characters

- 4.2.1 The display may be a line matrix, a character matrix, or a full matrix capable of displaying eight characters per line. Each character shall be defined by a 5X7 matrix.
- 4.2.2 The sign shall be capable of displaying all upper case alphanumeric characters.
- 4.2.3 The sign shall be capable of displaying two or three lines of characters. The character height shall be at least 10 inches.

4.3 Message Display

- 4.3.1 A text message using single-stroked characters shall be legible from a minimum distance of 150 m (500 ft) during both day and nighttime operation.
- 4.3.2 The sign shall be capable of storing at least 25 programmable messages.
- 4.3.3 The sign shall be capable of displaying two message panels.
- 4.3.4 The message panel should have adjustable display rates. The time it takes to alternate between panels shall be no more than 0.25 seconds.

- 4.3.5 Message changes shall be accomplished with no horizontal scrolling, flashing, or other visual disturbance.
- 4.3.6 The message shall be legible at viewing angles up to 11 degrees from center.
- 4.3.7 The sign controller shall use a keypad or keyboard for creating messages. The controller shall use password authorization to prevent unauthorized operation.
- 4.3.8 The sign controller shall be accessible from the cab of the vehicle.

4.4 Design Features

- 4.4.1 The sign shall have a high impact resistant clear non-glare UV inhibitor polycarbonate or equivalent face.
- 4.4.2 The display housing should include an ID plate showing the manufacturer's name, model number, and serial number of the sign assembly.
- 4.4.3 Advertising is not allowed on the sign except for the standard markings normally on a unit.
- 4.4.4 If mounting hardware is provided it should be designed to withstand a wind load speed of 100 mph.