

**Specification (Measurement)**

**Transport and Main Roads Specification  
MRS262 Temporary Variable Message Signs**

**July 2017**

## Copyright



<http://creativecommons.org/licenses/by/3.0/au/>

© State of Queensland (Department of Transport and Main Roads) 2017

**Feedback:** Please send your feedback regarding this document to: [tmr.techdocs@tmr.qld.gov.au](mailto:tmr.techdocs@tmr.qld.gov.au)

**Contents**

**1 Introduction .....1**

**2 Measurement of Works .....1**

2.1 Standard Work Items ..... 1

2.2 Work Operations ..... 1

2.3 Method of Measurement of Temporary Variable Message Signs ..... 3

2.4 Supply of materials ..... 4

## 1 Introduction

This Specification applies to the requirements for the supply, installation, testing, commissioning and maintenance handover documentation (including the provision for operator training) of Temporary Variable Speed Limit (TVSL) signs.

This Specification shall be read in conjunction with MRS01 *Introduction to Specifications* and other Specifications as appropriate.

This Specification forms part of the Transport and Main Roads Specifications Manual.

## 2 Measurement of Works

### 2.1 Standard Work Items

In accordance with the provisions of Clause 2.1.3 of MRS01 *Introduction to Specifications*, the Standard Work Items covered by this Specification are listed in Table 2.1.

**Table 2.1 – Standard Work Items**

Standard Item No.	Description	Unit of Measurement
<b>Temporary Variable Message Signs</b>		
67701	Supply and installation of [vehicle   trailer   concrete block] mounted TVMS Sign [with   without] solar panels, [with   without] battery bank, [with   without] gyroscopic sensor, [with   without] directional compass, stabilisers	each
67702	Supply and installation of a 10 m connecting cable between the [trailer   concrete block] and the [LED Sign display   Solar Panel Array with Battery Bank Enclosure] extension	each
67703	Supply and configuration of a hand-held SRC device to control each TVMS Sign	each
67704	Supply, installation and configuration of RSCS software on a [Laptop   PC]	each
67705	Supply, installation and configuration of configuration software on a [Laptop   Other compatible device]	each
67706	Supply and configuration of a [3G   4G] mobile phone service to allow communications between a TVMS Site Controller and [RSCS software   Mobile Phone alerts]	each

### 2.2 Work Operations

**Item 67701      Supply and installation of [vehicle | trailer | concrete block] mounted TVMS Sign [with | without] solar panels, [with | without] battery bank, [with | without] gyroscopic sensor, [with | without] directional compass, stabilisers**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) supply of fully integrated TVMS sign to MRS262, including but not limited to:
  - i. Site controller and associated components
  - ii. wireless UHF communications transmitter / receiver

- iii. wireless 3G / 4G Modem
- iv. GPS Sensor
- v. solar panel array and associated mechanical support assembly and adjustment mechanism, where required
- vi. batteries, charge regulator and all associated components, where required
- vii. gyroscopic sensor, where required
- viii. directional compass, where required.
- c) installation of the components listed in 'b)' above fully integrated into a [*Vehicle* | *Trailer* | *Concrete block*] trailer
- d) risk analysis to ensure safety in the event of sign failure
- e) configuration of [*Vehicle* | *Trailer* | *Concrete block*] mounted TVMS components listed in 'b)' above in accordance with TRUM Volume 1, Part 10 and MRST262.

**Item 67702      Supply and installation of a 10 m connecting cable between the [*trailer* | *concrete block*] and the [*LED Sign display* | *Solar Panel Array with Battery Bank Enclosure*] extension**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) supply of Cabling Options below:
  - i. supply of 10 m of connecting ELV power and signal cables from the Trailer or concrete block mounted TVMS sign to the Sign Display Extension, and, or
  - ii. supply of 10 m of connecting ELV power cable from the Trailer or concrete block mounted TVMS sign to the Solar Panel Array with Battery Bank Enclosure Extension.
- c) supply of 10 m of sufficiently sized corrugated steel conduit
- d) installation of the connecting cable within corrugated steel conduit
- e) supply of corrosion resistant IP67 rated connector (or Utilux type round seven pin plug and socket arrangement) for cable termination
- f) termination of both ends of the connecting cables with corrosion resistant IP67 rated connector (or Utilux type round seven pin plug and socket arrangement), and
- g) installation of the cable between the [*Trailer* | *Concrete Block*] and the LED sign display Extension or TVSL Solar Panel Array with Battery Bank Enclosure Extension.

**Item 67703      Supply and configuration of a hand-held SRC device to control each TVMS Sign**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) supply of two SRD hand-held units with accompanying batteries, and
- c) configuration of the SRD to comply with the, TRUM Volume 1, Part 10 and MRTS262.

**Item 67704 Supply, installation and configuration of RSCS software on a [Laptop | PC]**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) supply of a disk containing the RSCS software
- c) installation of the RSCS software onto a compatible laptop or PC
- d) configuration of the RSCS software for administration, user access management, diagnostics and alarm / event monitoring, GIS maps, etc.
- e) configuration of the RSCS software to comply with the TRUM Volume 1, Part 10 and MRST262.

**Item 67705 Supply, installation and configuration of configuration software on a [Laptop | Other compatible device]**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) supply of a disk containing the Configuration software
- c) installation of the Configuration software onto a compatible laptop or other compatible device
- d) configuration of the Configuration software for administration, user access management, diagnostics and alarm / event monitoring, GIS maps, etc.

**Item 67706 Supply and configuration of a [3G | 4G] mobile phone service to allow communications between a TVMS Site Controller and [RSCS software | Mobile Phone alerts]**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) supply a 3G or 4G mobile data (if required to suit designed TVMS sign data bandwidth requirements) and SMS communications through the engagement of a suitable mobile phone service provider, such as Telstra, Optus or Vodafone
- c) configure the TVMS sign with the mobile phone service numbers requiring to receive the critical TVMS sign alarm or alert SMS based notifications, and
- d) configure the TVMS sign such that a secure wireless Ethernet communications channel, such as a Virtual Private Network (VPN), is established between the TVMS sign and the RSCS software.

**2.3 Method of Measurement of Temporary Variable Message Signs**

This Specification provides Standard Work Items for:

- a) supply only
- b) installation only, and
- c) supply and installation

of Temporary Variable Message Signs (TVMS).

Any combination of Standard Work Items relating to these methods of measurement may be used in the Schedule of Rates. However, where a Standard Work Item for supply and installation of a particular component or group of components is included in the Schedule of Rates, no supply only nor installation only Standard Work Item shall also apply to that component or group of components, as applicable.

#### **2.4 Supply of materials**

Any materials to be supplied by the Principal will be as stated in the Principal Supplied Material List, Form C6827. All other material shall be supplied by the Contractor.

The responsibility for transport to the Site of materials supplied by the Principal shall be as stated in the Principal Supplied Material List, Form C6827. Transport to the Site of all other materials shall be the responsibility of the Contractor.

