

**Specification (Measurement)**

**Transport and Main Roads Specifications  
MRS228 Electrical Switchboards**

**July 2018**

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**Contents**

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

**2 Measurement of works .....1**

2.1 Standard Work Items ..... 1

2.2 Work Operations ..... 1

## 1 Introduction

This Specification applies to the supply and installation of switchboards for the supply of electrical power to electrical installations including traffic signal installations and Rates 2 and 3 road lighting installations.

This Specification shall be read in conjunction with MRS01 *Introduction to Specifications*, MRTS228 *Electrical Switchboards* 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>Switchboards</b>		
64201	Supply of top mounted switchboard and ancillary components	each
64202	Supply and construction of a concrete pad for the erection of switchboard post	lump sum
64203	Installation of top mounted switchboard and ancillary components	each
64204	Supply and installation of joint use traffic signal and road lighting pole, [ <i>length</i> ] metres long	each
<b>Mains connection</b>		
64251	Supply of mains connection equipment including the supply of mains connection cable, [ <i>length</i> ], [ <i>usage</i> ], [ <i>conductor size</i> ], [ <i>number of cores</i> ] cores, [ <i>core insulation</i> ], [ <i>sheath insulation</i> ], [ <i>conductor material</i> ]	each
64252	Installation of mains connection including mains connection cable	each

### 2.2 Work Operations

#### Item 64201 Supply of top mounted switchboard and ancillary components

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 switchboard post as per Standard Drawing 1628
- c) supply of top mounted switchboard enclosure
- d) supply of electrical components including din rail, mains isolation switch, circuit breakers, change over switch and contactors
- e) supply of photoelectric control switch and socket
- f) supply of earth stake, cable and clip

- g) supply of circular electrical pit, pit collar and cover (as per Standard Drawing 1417) 100 mm PVC conduit to switchboard
- h) supply of Type 3 electrical pit, pit cover, and 20 mm HD PVC conduit to switchboard, and
- i) supply of ragbolt sub-assembly as per Standard Drawing 1422.

**Item 64202 Supply and construction of a concrete pad for the erection of switchboard post**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) supply and construction of a 150 mm thick, N25/20 concrete pad for the erection of the switchboard post as per Standard Drawing 1627.

**Item 64203 Installation of top mounted switchboard and ancillary components**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) installation of switchboard post
- c) installation of switchboard enclosure on switchboard post
- d) installation of pits and conduits as per Standard Drawing 1627
- e) installation of ragbolt sub-assembly and concrete as per Standard Drawing 1421
- f) installation and mounting of switchboard electrical components
- g) installation of photoelectric control switch and cabling to switchboard
- h) installation and cabling of earth stake
- i) connection of mains connection cabling and road lighting cabling to switchboard
- j) testing of installation, and
- k) installation of switchboard cover.

**Item 64204 Supply and installation of joint use traffic signal and road lighting pole, [*length*] metres long**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) supply, fabrication and installation of pole
- c) mortar grouting of base plate
- d) supply and installation of traffic signal terminal panel and road lighting terminal panel
- e) supply and installation of road lighting cable from pit to luminaire and supply and installation of road lighting junction box in pit
- f) supply of all fixing bolts, nuts and washers, and
- g) testing of road lighting installation.

**Item 64251      Supply of mains connection equipment including the supply of mains connection cable, [*length*], [*usage*], [*conductor size*], [*number of cores*] cores, [*core insulation*], [*sheath insulation*], [*conductor material*]**

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 mains connection equipment
- c) supply of mains connection cable from pole to switchboard (for Rate 3) or road lighting pole/cable joint (for Rate 2), and
- d) supply of UV stabilised 50 mm PVC conduit and fittings.

**Item 64252      Installation of mains connection including mains connection cable**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) installation of mains connection equipment on pole
- c) installation of conduit on pole and to pit
- d) installation of conduit from pit to switchboard (for Rate 3) or road lighting pole / cable joint (for Rate 2)
- e) installation of cable from pit to switchboard (for Rate 3) or road lighting pole / cable joint (for Rate 2), and
- f) testing of installation.

