

User Manual for the SSI Memory Module Tester

PS/PSL-RD-309/MAN/011

Issue 5



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Summary

This document describes how to use the ST 301 SSI Memory Module Tester.

Issues

Issue number:	Date:	
Issue 1	November 2007	First Issue
Issue 2	April 2008	Updated to include changes to electrical connections & interfaces
Issue 3	April 2009	User interface changes requested by Network Rail
Issue 4	April 2009	Amended in line with ISA comments
Issue 5	December 2009	Detailed description of all supplied items added to Section 2.

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User Manual for the SSI Memory Module Tester



1. INTRODUCTION

1.1. Purpose

This document provides instructions on the use of Park Signalling's ST301 Memory Module Tester.

1.2. Scope

This document details how to use the Memory Module Tester.

Note that information on obtaining authorisation / permission to work on a live signalling system is beyond this document's scope.

1.3. Abbreviations

EPROM	Erasable Programmable Read Only Memory
RAM	Random Access Memory
SSI	Solid State Interlocking
Tester	Memory Module Tester
UV	Ultraviolet

2. EQUIPMENT DESCRIPTION

2.1. Supplied Items

The Tester consists of test control software, an interface unit, a mains power supply, an interface cable and a serial communications lead.

- The software is supplied on a CD and installation on the host PC is described in Section 4.
- The interface unit is a metal box (100 x 45 x 110 mm) housing all of the electrical and electronic circuits of the Memory Module Tester. Mounted on the box are a 40-way IDC connector for connection to the Memory Module under test, a 9-way D-type connector for connection to the PC, a barrel-type socket for connection to the power supply and an ON/OFF switch.
- The power-supply is a 230V 50Hz to 5V/1A DC switched mode power supply mounted in a UK plug housing.
- The interface cable is a ribbon cable with two IDC connectors. Two interface cables are supplied. One has a 40-way IDC at the interface unit end and a 50-way IDC at the Memory Module end and is used for Westinghouse MkIII MPMs (Specification WS1905B) only. The other cable has a 40-way IDC at the interface unit end and a 40-way IDC at the Memory Module end and is used for all other MPMs and for PPMs.
- The serial comms lead has a 9-way D-type socket (female) at both ends to connect the interface unit to a serial comms port on the host PC.

2.2. Storage and Handling

The Tester should be stored in a dry environment with a temperature range of 0-35°C. The Tester should not be carried by its' flying leads. When using the Tester, be aware of the trip hazard presented by the leads. As the Tester is electronic equipment, please dispose of it responsibly when it is life-expired.

3. DESCRIPTION

The Tester consists of test control software, a memory module interface unit, mains power supply and serial communications lead. The software is designed to run on a PC running Windows 2000 or later.

SSI Memory Modules contain UV EPROMs and RAM.

The EPROMS contain the main program software and data specific to the railway scheme.

Some versions of the Memory Module use paged memory to access EPROM data.

The Tester is capable of diagnosing the status of the Memory Module under test and provides a clear indication of any failure found.

Test results may be saved to the PC's hard drive.

The Tester provides the following functions:

- Go/No go test of the Memory Module
- Identifies checksums of the EPROMs
- Tests the RAM
- Test the address mapping

4. SOFTWARE INSTALLATION

Administrative rights will be needed in order to carry out the installation.

If the Tester software is not pre-installed on the PC, double-click the 'MMT_x.yy.msi' file on the installation CD (where Tester version = x.yy), and follow the on-screen instructions.

5. OPERATION

5.1. Condition check

Check for any signs of damage, particularly to the connector that mates with the Memory Module. If the Tester appears to be damaged then do not use it. Contact Park Signalling immediately and arrange for the Tester to be repaired.

5.2. Compatibility check

Ensure that the Memory Module to be tested is one of the following:

Testing a Memory Module not included in the list below may result in damage to the Memory Module and/or to the Tester.

5.2.1. Alstom Memory Modules

- SS1311
- SS1321
- SS1331

5.2.2. GEC Memory Modules

- SS1312
- SS1315
- SS1316
- SS1317
- SS1325

5.2.3. Westinghouse Signalling Memory Modules

- E20816/1
- E20816/3
- E20816/5
- E25000/1

5.3. Connections & settings

1. Turn on the PC and start the “Memory Module Tester” software.
2. When prompted, select the COM port to which the serial data cable will be connected, and the file location to save test results in.
3. Connect the power supply to the Tester.
4. Connect the Tester's serial data cable to the serial port of the PC running the Tester program.
5. Connect the Tester's interface cable to the Memory Module being tested.
6. Turn the Tester on (‘Communications okay’ will be displayed on the screen to confirm connections).

5.4. Running the test

1. Enter operator name on the PC.
2. Enter your location on the PC.
3. Enter the interlocking system's name on the PC.
4. Select the Memory Module manufacturer on the PC.
5. Select the Memory Module type on the PC.
6. Enter the Memory Module's serial number on the PC.
7. Enter the IC4 checksum on the PC.
8. Enter the IC5 checksum on the PC.
9. Press the 'Test module' button on the PC.

5.5. Results

Memory Module Tester Version 0.03

Communications okay

Operator Name: Colin

Test Location: Park Signalling, Stockport

System Name: Egham Junction

Manufacturer: ALS GEC WSL

Module type: SS1331

Module Serial Number: 7-0003

IC4 Checksum: 9AC8

IC5 Checksum: 458A

Test module

IC2 RAM okay

IC3 - RAM not fitted

IC4 checksum: 9AC8

IC5 checksum: 458A

```
Date      : 22-08-2008
Time      : 10:00:44
Operator   : Colin
Location   : Park Signalling, Stockport
System     : Egham Junction
Module type : SS1331
Serial No. : 7-0003
```

IC2 RAM okay
IC4 Checksum: 0x9AC8
IC5 Checksum: 0x458A

The PC will display the results for IC2-IC5.

- If the checksums calculated by the Tester matches those entered by the user, the IC's box will be green and the test has passed (the checksums will be displayed). If the checksums do not match, then the result is a failure.
- If the IC's box is red, then the test has failed.
- If the IC's box is grey, then that component has not been tested (because it is not present on the type of Memory Module being tested).

After testing, the Memory Module can be disconnected from the Tester. Turn the Tester off before disconnecting the Memory Module and connecting the next Memory Module to be tested.