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SIEMENS IMU 100 Tester User Manual

FCC WARNING

Parts of this device have been tested and found to comply with the limits for a Class A digital device, pursuant to
Part 15 subpart B of the FCC rules.
These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Document history

Revision	Date	Author	Sections changed	Change
0.1	4/5/2023	Vishwanath Badiger	All	Initial Creation
0.0	4/10/2023	Vishwanath Badiger		Released

Information for the users

Introduction

The User Manual contains all essential information for the user to make full use of the IMU 100 tester. This manual includes a description of the system functions and capabilities, contingencies and step-by-step procedures for system access and use

Scope

This document describes IMU 100 tester/test device.

Purpose

This document describes the features, benefits, structure, and function of the IMU 100 tester.

Acronyms and Abbreviations

Table 1: Acronyms and Abbreviations

Acronym / Abbreviation	Description
AC	Alternating Current
BNC	Bayonet Neill–Concelman Connector
DC	Direct current
EN	European standard
ESD	Electrostatic Discharge
IMU	Inductive Transmission System
LCD	Liquid Crystal Display
LED	Light-Emitting Diode
TGMT ZUB	Trainguard MT Train Control System

References

Table 2: References

Reference Number	Reference Title	Document ID

[1]	IMU Train-to-wayside Communication System – Test Device	Submittal 10250.013.002

IMU 100 Tester Operation

The Trainguard IMU 100 test device is used for evaluating the transmission of data telegrams at the interface (air gap) between the on-board equipment and the trackside equipment of the inductive transmission system. This test device is able to simulate both the on-board equipment and the trackside equipment (transmission and reception of telegrams) and to display the telegram contents.
Either mains-powered testing (24 V DC or 100 to 240 V AC) or mains-independent testing is possible. In the latter case, power is supplied by a built-in storage battery.

Table 3: Technical data

Power supply	
Voltage	110 V AC, 60 Hz

Power	15 VA
Operating time of test set with charged batteries	approx. 4 h transmission power
Charging time of battery on the ma in	approx. 12 h
Dimensions	
Width	approx. 12.20 in. (310 mm)
Height	approx. 5.91 in. (150 mm)
Depth	approx. 13.78 in. (350 mm)
Weight	approx. 19.18 lb.av. (8.7 kg)

Structure of the IMU 100 test device

Terminals and controls on front

All elements described in this section are located behind a hinged protective per- spex cover, which can be opened upwards. Behind the cover, there are the ter- minals and control elements shown below.

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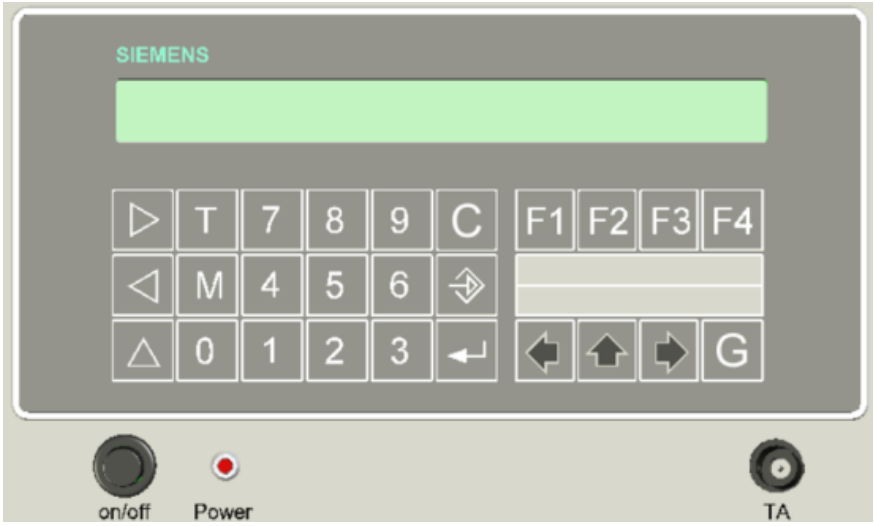

Figure 2: Control panel, on/off button with the power LED, and test antenna (TA) terminal of the Imu 100 test device

Figure 3: 2 x 40-digit LCD display with LED background lighting

Table 4: Description of front panel key

Key	Description
0 1 2 3 4 5 6 7 8 9	Keys 0 to 9: Input keys for numerical and alphanumerical values
C	"Clear" and "Cancel" key: Used to correct incorrect input
	"Input" key: Starts the input of values
	"Enter" key: Ends an input operation and initiates functions
F1 F2 F3 F4	Keys F1 to F4: Predefined function keys
G	← ↑ → keys and "Go" key: Direction keys
	Position keys: Used to select the data record position
	Shift key

The keys not listed here have no defined function in this test device.

Table 5: Description of on/off button and test antenna (TA) terminal

	Description
on/off	On/Off button
TA	TA (Test antenna) terminal

Terminals and controls on rear

On the rear of the IMU 100 test set, there are the following terminals and controls:

	Description
	24 V DC terminal Additional terminal for 24 V DC supply on the connector supplied with the test set: pin 1 = earth (above), pin 2 = 24 V DC (below)
	PC connector PC connector (SUB D9 connector) for connection of the test set to the serial interface of a PC via a programming cable
	Main power switch and inlet connector for the power cable

Table 6: Description of terminals and controls

Accessories

Table 7: Description of antennas and cable

	Description
	Test device antenna S25447-H80-A2 The test set antenna, S25447-H80-A2 has a reduced transmission power. (used for data communication with vehicle coupling coil)
	BNC 8.75 yard (8 m) antenna cable, L25010-A1-V597

Installation of test set

Prior to commissioning, the regulations for the handling of electrical equipment must be ob- served.

Modes of operation

The IMU 100 test device has two possible modes of operation described below.

Test operation using test set power supply.

Step	Action
1	Connect the test set to 110 V AC via the rear inlet connector using the power cable.
2	Switch on the power switch at the rear.
3	Switch on the test device using the on/off button at the front (power LED must illuminate).

Test operation with battery power supply

Step	Action
1	Switch on the test set using the on/off button at the front.

Charging of batteries

The batteries are charged via the mains (even if the test set is in operation and powered via the mains). The charging time is approx. 12 hours.

Step	Action
1	Connect the test set to 110 V AC via the rear inlet connector using the power cable.
2	Switch on the power switch at the rear

Charging of battery charging condition

Depending on the firmware version used, the charging condition of the batteries can be read off in the main menu when the test set is on. A charge indication on the display indicates the charging condition of the batteries in 25% steps. The indication is in the top right-hand corner of the display (V).

Figure 4: Example: main menu with charge indicatio

Overcharging of the batteries is prevented by the use of a charge monitoring board. A single warning bleep during mobile use indicates that the battery ca- pacity has fallen approx. 25% below the required level.

RF Exposure limit

The results of all measured configurations and locations yield a minimum separation distance of 20 cm from any system component in order to comply with FCC RF exposure requirements when used as specified by the manufacturer, interfaced with Vehicle Coupling Coil.

FCC Compliance Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communica- tions. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the inter- ference by one or more of the following measures:

- Reorient or relocate the receiving
- Increase the separation between the equipment and
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for

Changes or modifications to this product not authorized by Siemens Mobility Inc. could void the electromagnetic compatibility (EMC) and wireless compliance and negate your authority to oper- ate the product.

This product has demonstrated EMC compliance under conditions that included the use of com- pliant peripheral devices and shielded cables between system components. It is important that you use compliant peripheral devices and shielded cables between system components to reduce the possibility of causing interference to radios, televisions, and other electronic devices.

Responsible party (contact for FCC matters only):

Siemens Mobility, Inc. One Penn Plaza

New York, NY 10119 USAwww.siemens.com/contact

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	SIEMENS IMU 100 Tester [pdf] User Manual S25447-H8-A2, 2A8HRS25447-H8-A2, 2A8HRS25447H8A2, IMU 100 Tester, IMU 100, Tester

References

- User Manual

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2A8HRS25447-H8-A2, 2A8HRS25447H8A2, IMU 100, IMU 100 Tester, S25447-H8-A2, SIEMENS, Tester

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