

Safety Features and Precautions

The **SECUSTAR | FM** has been manufactured in accordance with the following safety regulations: IEC/EN 61010-1 / VDE 0411-1, DIN VDE 0404, IEC/EN 61577 / VDE 0413-2,4.

When used for its intended purpose, the safety of the user, the test system and the device under test (electrical equipment or electrical medical device) is assured.

Read these short-form-instructions and the complete operating instructions, **ba_d_secustar.pdf** file on **CF-Card** in the **/GMC/secustar/...** subdirectory carefully before placing your test system into service.

Observe the following safety precautions:



- The instrument may only be connected to electrical systems with a maximum of 230 V which are protected with a fuse or circuit breaker with a maximum rating of 16 A.
- **Measurements within electrical systems are prohibited.**
- Be prepared for the occurrence of unexpected voltages at devices under test (for example, capacitors may be dangerously charged).
- Make certain that the measurement cables are in flawless condition, e.g. no damage to insulation, no cracks in cables or plugs etc.
- **Leakage current measurement:** It is absolutely essential to assure that the device under test is operated with line voltage during performance of the leakage current measurement. Exposed conductive parts may conduct dangerous contact voltage during testing, and may not under any circumstances be touched (mains power is disconnected if leakage current exceeds approx. 10 mA).

The measuring and test system may not be used:

- If it demonstrates visible damage
- With damaged connector, measuring or probe cables
- If it no longer functions properly

In such cases, the instrument must be removed from operation and secured against unintentional use.

Meanings of Symbols on the Instrument

- 300 V CAT II** Maximum permissible voltage and measuring category between connections 1 through 4, the test socket and ground System with maximum 16 A nominal current
-  Warning concerning a point of danger (attention: observe documentation!)
-  Indicates EC conformity

Initial Start-Up

- Make sure that the battery pack is properly inserted and connected
- Charge the inserted battery pack by connecting the **SECUSTAR | FM** to the mains with the included power cable (charging time: at least 3 hours).
- Switch the instrument on with the **ON | START** key (press and hold approx. 3 s).
- Initial start-up: touch-screen calibration: tap crosshairs accurately, one after the other, with the wand.

Login Without Password

- “..” appears next to Inspector name.
- Ignore the password prompt. Tap the Login key.






Login With Password (user status)

- Select an inspector from a list after tapping the drop-down arrow.
- Enter the appropriate password using the keyboard which appears at the display. The password is activated by tapping OK. This point can be skipped if the inspector name is not password protected.

Tap the Login key.

Testing the Test System's Mains Connection

The following test steps should be executed after changing from one mains connection to another, and before testing is started.

- Connect the **SECUSTAR | FM** to the mains; the  symbol appears.
- Open the Manual Test menu. 
- Tap the Test button. 
- Select the **PE connection test** measurement. 
- Start testing with the **ON | START key**. Measurement results must be “OK”.
- Select the **PE potential test** measurement.
- Start testing with the **ON | START key**. Touch the contact surface. 
- Measurement results must be “OK”.

Control Panel

ESC+HELP: Standby / switch off

PRINT: Key for hardcopy functions or print-out of test reports (in test administration)

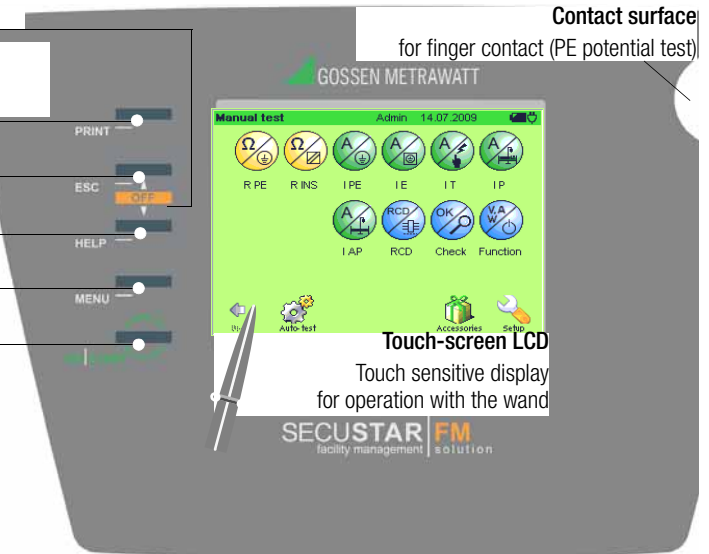
ESC: Return to previous level *

HELP: Access context sensitive help

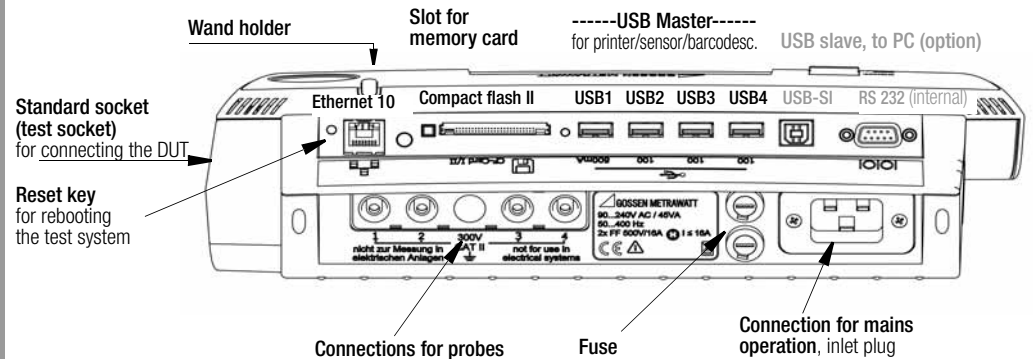
MENU: Access the main menu *

ON | START: Switch on (press approx. 3 s)
Start/stop measurement

* Refresh the display when a USB sensor is connected



Connections



Loading Test Sequences

As of software version 1.9.3, fixed sequences and test step specifications are no longer stored to the test system, and are instead included on a CF card.

This allows you to select which sequences you actually need and load them to the test system.

- Open the **Administration** menu. 
- Select the Im-/Export index card
- Touch the **Import** icon. 
- Select Files in **XML Format on the CF Card**. 
- Selected the appropriate XML file. The XML file is loaded.

Manual Test – Individual Measurement

Overview

Symbol	Measurement / Test	Terminals
Abbr.	Manual test	Test socket Sockets 1-2 3-4 Safety Tests
Resistance measurements		
R PE	Test socket	●
	Permanent connection	●
	Permanent connection + earth electrode	●
R INS	SC1 with mains plug	●
	SC2 with mains plug	●
	Permanent connection	●
Current measurements		
I PE	Direct measuring method	●
	Differential current measuring method	●
	Alternative measurement	●
I E	Direct measuring method	●
	Differential current measuring method	●
	Alternative measurement	●
I T	Direct measuring method	●
	Differential current measuring method	●
	Alternative measurement	●
I P	Direct measurement with permanent connection	●
	Direct measuring method	●
I AP	Alternative measurement	●
	Alternative measurement	●
Functions Tests		
RCD Test	RCD time to trip	●
	PRCD time to trip	●
Function	Voltage / load current	●
	Active/app. power P/A	●
	Power factor PF	●
	Energy E	●
Connection test ⁽¹⁾ test system mains connection)		

Symbol	Measurement / Test	Terminals
Abbr.	Manual test	Test socket Sockets 1-2 3-4 Safety Tests
OK	PE connection test ^{1) 4)}	●
	Short-Circuit Test	●
	On Test	●
	Safety class check	●
Test	PE potential test ¹⁾	●
	Probe test	●
Measurement with sensors (option)		
Humi	Temperature	●
	Humidity (with Z751B)	●
Light	Illuminance (with Z751C)	●
		●

1) test system mains connection

2) Special case IT network: causes erroneous measurements

Execute individual measurements:

- Select an individual test from the “Manual Test” menu with the appropriate softkey.
- Select the measurement or connection type.
- Check all adjustable parameters e.g. measuring range and duration, and adjust as required.
- Start the test with the **ON | START** key; the symbol shown at the right appears.
- End the test with the **ON | START** key; the symbol shown at the right appears.



Return to the main menu by pressing the ESC or the MENU key.



Attention!

The function test (Function) may only be performed after the DUT has successfully passed all safety tests!

Automatic Test – Test Sequence

Overview of Test Sequence Symbols

Symbol	Meaning
Black line	Deadlines tab: test in future
Blue line	Deadlines tab: test is due today
Red line	Deadlines tab: test overdue
T	Filter function active – pre-selection of cust. / loc. / object type
E	Editing option – edit / save DUT
Hourglass	Test is active – test steps are being processed
Microscope	Test step: start of visual inspection
Wrench and screwdriver	Test step: measurement is being performed
Green checkmark	Test step: measurement / visual inspection passed
Red X	Test step: measurement / visual inspection not passed
Printer	Save test results (icon shown upon completion of test)
Document	Display test results (icon shown upon completion of test)

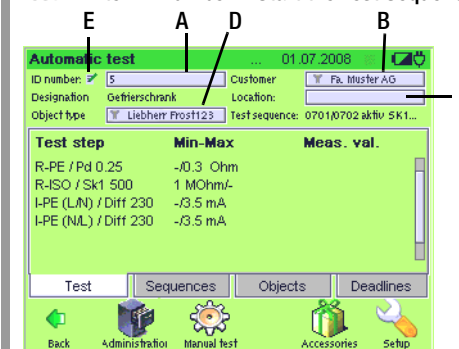
- Select automatic test.



There are four ways to select the automatic test:

- **Direct selection of the ID number via Test (object data and test sequences have already been entered for the DUT via the administration function)**
- Selection via **Deadlines**
- Selection via **Objects**
- Selection via **Sequences** (in this case, **test sequences** can also be executed **without reference to object data**)

Test – Enter ID Number – Start the Test Sequence



Enter the ID no. in the appropriate field, or by means of a barcode scanner (Z751A).

- Start test sequence with the **ON | START** key.
- Completed test steps are flagged with **✓** (passed) or **✗** (not passed).

A) You can load a device under test along with the respective additional data by entering the appropriate ID number.

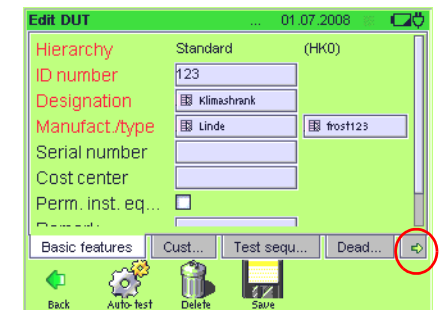
If a nonexistent ID number is entered to the test index card, a prompt appears for the entry of a new object. The screen is switched to the administration view to this end.

If you have selected the sequences, objects or deadlines index card, you can filter the displayed objects:

- B) Customer pre-selection
- C) Location pre-selection
- D) Object type pre-selection

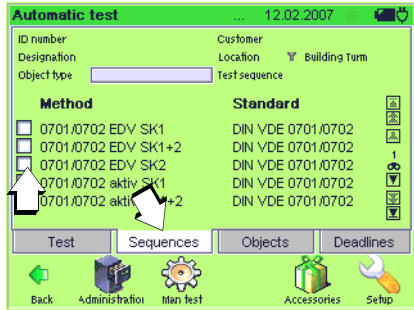
E) Editing Function

The editing icon appears at the end of each object line. The editing mode can be entered for the respective test object by tapping this icon. In this way, test object data can be edited and saved shortly before testing without having to switch to the administration menu.



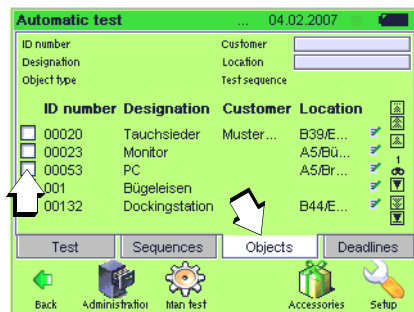
All fields which are highlighted red must contain a valid value. In addition to this, a test sequence must be specified and the device under test should be supplemented with additional data such as customer information and deadlines. You can view all of the test results which have been saved for the DUT, as well as the results of the test, in the test index card (use arrow framed in red to advance).

Test Sequences – Selecting a Sequence



- ⇒ Select a **sequence** from the list.
Index card **Test** with ID no. is activated.

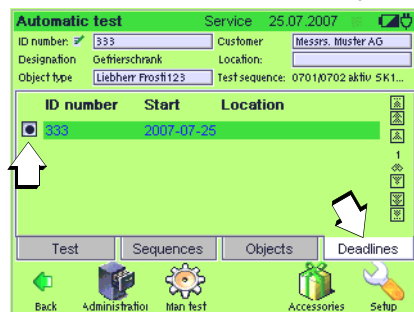
Objects – Select DUT (customer, location)



The list of objects can be restricted after tapping Customer or Location.

- ⇒ Select an **object** from the list.
Index card **Test** with ID no. is activated .
Exception: several sequences exist for the object, selection see below.

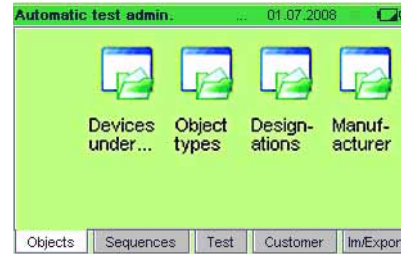
Test – Select Deadline – Start Test Sequence



- ⇒ Select a **Deadline** from the list.
Index card **Test** with ID no. is activated.

Automatic Test Administration

Object Administration



Devices under test are entered to **Object Administration**, where they are also assigned to customers and locations, and the associated test sequences are selected.

Elements can be **entered** to the individual catalogs. When doing so, all of the fields in the submenu which are **highlighted in red** must contain a **valid** value, and all entries must be subsequently saved with the button.

Elements can also be **changed** by tapping the line (not by activating the respective checkbox).

In order to delete an existing catalog element, first select the desired entry by activating the respective checkbox. Then tap the Delete icon .

Editing the DUT catalog:

- Select a hierarchy.
- Assign a **unique** ID number.
- Enter a designation and an object type.

Editing the object types catalog:

- Select a hierarchy.
- Enter a designation, a manufacturer and a type.

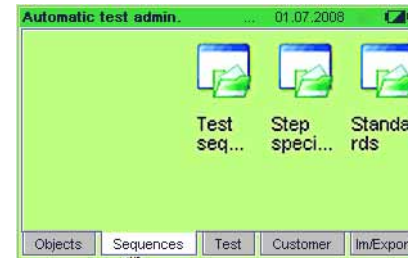
This catalog can be used when entering DUTs and test sequences.

Editing the designations / manufacturers catalog:

- Enter a designation.

This catalog can be accessed when entering a new object type.

Administration Sequence



Test sequences can be seen as test regulations in accordance with which DUTs are tested. The various test sequences are based upon the applicable standards, and consist of several test steps.

Editing the test sequence catalog:

- Enter a standard and a designation.
- Add test steps and sort in the **test steps index card**.

- Assign object types in the **object types index card**.

Editing the test step specifications catalog:

- Select the test step type:
Measurement
Multiple measurement (measure several test points at a single DUT)
Visual inspection (prompts the inspector to assess the DUT)
Test instruction (note in text form, instructions, warning regarding next test)
External measurement (enter and evaluate measurement results from an external measuring instrument)
Time lapse (insertion of a time interval between two test steps)

The corresponding index cards must be filled out for the respective test steps:

General index card:

Designation must be entered and basic information is displayed.

Evaluation index card:

Limit values must be entered here which result in test failure in the event that they are fallen short of

(MinLimitValue) and/or exceeded (MaxLimitValue). A setpoint can be entered here as well.

Parameters index card:

The parameters for the measuring function must be entered here. Various parameters are displayed, depending upon the measuring function.

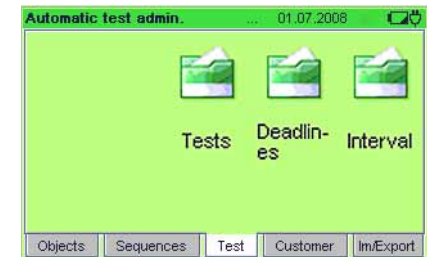
Visual inspection questions index card (for visual inspection only):

Appropriate questions for the visual inspection must be formulated and arranged here.

Editing the standards catalog:

- Enter a designation.
- Enter a description.

Test Administration



You can query all information related to already executed tests in **test administration**, and deadlines and intervals can be managed and created.

Tests catalog:

- Activate the respective checkbox and tap the document icon in order to display general test data.
- Print data out by pressing the print key.

Edit the **test** (by selecting the line):

- Assign an interval.
- Reset the test.

Create a deadlines catalog:

- Assign an interval.
- **DUT ID no.** Select an ID number.

- Enter a start date.
- Enter an activity.

Editing the intervals catalog:

- Enter the size of the interval.
- Select a type: day, week, month or year.
- Select carry forward.

Customer Administration



Customers and locations for the devices under test are entered with the **customer administration** function.

Editing the **customers catalog**:

- Select a customer type (person, company or department).
- Enter customer data.

Editing the **locations catalog**:

- Open up the hierarchy levels by pressing the “+” symbol.
- Always enter the location with the highest hierarchy first: Property → Building → Floor → Room.

Editing the **department designations catalog**:

- Create designations for departments.

Editing the **location designations catalog**:

- Create a designation.
- Select a location type: property, building, floor or room.

Data Import / Export



Carefully read the respective section in the complete operating instructions first.

Data from the database in the **SECUSTAR | FM** can be exchanged with other databases, in particular with **visual FM / PS | 3 AM**, by means of export and import files.

- Plug in a CF card / USB stick and select **prepare CF card** or **USB stick**.
- Then select **CF sync** or **USB sync**, in order to synchronize the hierarchies.

Data can now be exchanged in L&H format between the **SECUSTAR | FM** and **visual FM / PS | 3 AM** using the **Import / Export** menu functions.

Data can also be imported and exported as a **version-independent XML file**, but not to **visual FM / PS | 3 AM**.

SETUP

Symbol	Designation	Change to Submenu	Symbol	Meaning
	User			Administrate inspectors, only after login as admin
	Roles			Assign authority, only after login as admin
	Display			Calibrate the touch-screen
	Display			Adjust brightness and contrast
	Printer			Search printer
	Language			Select a user interface language
	Energy options			- Enter a standby time - Quick charge the batteries
	Mains			Setup a LAN connection
	Database			Database backup
	Database			Database restore
	Database			Initialize the database
	Database			Automatic database backup
	Database			Database statistics
	Tests			Define conditions for carrying forward
	Object hierarchy			Administrate object hierarchies

Additional Information

An overview of the individual tests included in the test sequences is included on the CF card in PDF format.

No more than 5000 DUTs should be stored to the **SECUSTAR | FM**, because the test system’s computing speed is otherwise greatly reduced.

Contact Persons

Product Support

Technical queries (use, operation, software registration)

If required please contact:

GMC-I Messtechnik GmbH

Product Support Hotline

Phone: +49 911 8602-0

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e-mail support@gossenmetrawatt.com

Software Enabling for visual FM / PS | 3 AM

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Training

Training in Nuremberg, on-site training at customer facilities (scheduling, prices, registration, travel, accommodation)

If required please contact:

GMC-I Messtechnik GmbH

Training Division

Phone: +49 911 8602-406

Fax: +49 911 8602-724

e-mail: training@gossenmetrawatt.com

Information regarding Facility Management

(product documentation for the **SECUSTAR | FM** and accessories)

Available from the Internet at www.gossenmetrawatt.com.

(Products → Facility Management Solution → **SECUSTAR | FM**)