comemso

MINI-CHARGER-TESTER

GENERATION 3.6

SUPPORTED AND TESTABLE STANDARDS

DIN IEC ISO SAE INTERNATIONAL

MEMBER OF

electric mobility south-west CHARIN CHAdeMO

FUNDED BY

Federal Ministry of Education and Research

INVENTED IN GERMANY

THE NEW CHALLENGES OF **ELECTRIC MOBILITY**

The MINI-CHARGER-TESTER can be used in the field for service and maintenance.
The completely new developed 3.6 generation provides an intuitive touch screen, creates detailed test reports and is easy to handel.

THE EASY-TO-USE CHARGING STATION TESTER

The number of charging stations in the field is increasing, and so are the costs for the maintenance. In order to ensure that a charging station works as it should after the start-up, after a service interval or after repairs have been carried out, a final functional test is essential. For the test of the charging stations, testers use two different vehicles for example, each with a different charging standard, e.g. one with a CCS connection and the other one with CHAdeMO.

To simplify these tests and to receive reliable results, comemso offers the portable "MINI-CHARGER-TESTER". The tester simulates vehicle signals, communication protocols and the performance of a small vehicle battery of the charging standards DC-CCS and CHAdeMO, upon request also AC (without load circuit).

The test results are displayed in real time on the touch screen and are also stored in the device.

The MINI-CHARGER-TESTER therefore, is able to simulate two vehicles with different charging standards, all this within an ultra-portable, very easy-to-use device with detailed test reports.

TESTING OF ELECTRICAL SYSTEMS

The testing of electrical systems is a highly important instrument to ensure the increase in their reliability and endurance.

The electrical system requirements have increased enormously due to the standards of the last decades. As a result, the importance of testing electrical systems has changed into an independent and very important field of activity within the electrical installation technology. For on-site testing of charging stations, the following three standards are highly relevant.

STANDARDS

1 INITIAL TESTS

The initial tests are carried out in order to determine, whether the protection of persons and property is ensured. The relevant standard for this is **DIN VDE 0100-600**. The purpose is to reveal defects that may have arisen during the installation or operation of the electrical system.

2 PERIODIC TESTING

Recurring inspections at defined time intervals for the determination of the condition of the electrical system. The requirements for the periodic tests are defined in the standard: **DIN VDE 0105-100** "OPERATION OF ELECTRICAL SYSTEMS".

3 INSPECTION AFTER REPAIR / MODIFICATION

The inspection of the electrical safety of electrical systems after repair and modifications is regulated in the standard **DIN VDE 0701-0702** "TESTING AFTER REPAIR, MODIFICATION". There are determined time frames for the tests - for charging stations these are inspection intervals of 1 year.

The initial and periodic inspection is not only a safety issue. Initiating defects and potential sources of danger can be detected in time through a good testing process. The advantage of this is the detection of initiating defects, ageing processes and the possibility of being able to take preventive measures in order to avoid larger repairs. On the following pages, you will learn how the comemso Mini-Charger-Tester can support you in this.

THE MINI-CHARGER-TESTER
GENERATION 3.6

1 Easy to lock for a save transport with trolley funktion

2 Intuitive touch-screen interface

3 Communication progress report and results of passed/failed tests - accessible via USB

4 Measurement tabs

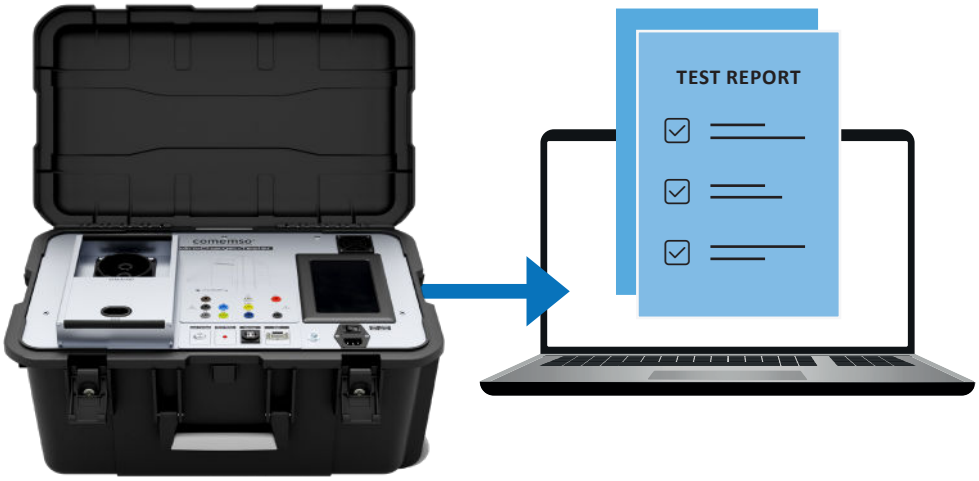
5 CSS/CHAdeMO Inlet

IT CAN BE SO EASY TO OPERATE A MINI-CHARGER-TESTER.

- Connect the CCS/CHAdeMO charging cable and press start to initiate the test.
- Read the result on the display.

LARGE MEMORY TO SAVE ALL DATA EVEN AFTER MAINTENANCE.

- The MINI-CHARGER-TESTER offers enough memory capacity to save all data, retrieve them later or print them on the computer.



POWER SUPPLY
MADE EASY

In case the charging station provides a service flap with an integrated socket, the MINI-CHARGER-TESTER can be be plugged in and used (230 V or 100 - 110 V).

The MINI-CHARGER-TESTER can also be connected to the cigarette lighter of a car by using a 1 kW inverter.

DEVELOPED FOR
FIELD USE


Lock / Unlock
Over Temp.
service
CAN

AN **INNOVATION** THAT **INSPIRES**

Innovationspreis 2019
des Landkreises Esslingen

With the **MINI-CHARGER-TESTER** comemso is **winner of the innovation price 2019** of the district of Esslingen (Baden-Württemberg)

1. THE MINI-CHARGER-TESTER SIMULATES TWO DIFFERENT EVS

With the Mini-Charger-Tester you do not need a vehicle for testing. The device simulates two different electric vehicles according to CCS (DIN 70121, ISO 15118) and CHAdeMO up to version 1.2. For CCS, AC option is added depending on the device variant.

2. EV SIMULATION

Fully automatic EV simulation regarding communication and the DC load circuit.

3. REAL TIME RESULTS

Test results are displayed on the touch screen in real time and also saved on the unit.

4. PORTABILITY

The Mini-Charger-Tester is equipped with transport wheels and handles, and is perfectly suitable for mobile use.

5. NO COMPUTER REQUIRED ON SITE

Due to the integrated touch display no computer is required for on site testing.

6. RECOGNITION OF THE LIMITS OF THE CHARGING STATION

What would be the actual possible charging capacity? The EVSE is communicating the possible charging capacity to the Mini-Charger-Tester, where it is recorded.

7. PROGRESS THANKS TO SIMULATED TEST VEHICLES

By simulating vehicles it is possible to provide understandable test results for service technicians. With a vehicle this would be a real mystery.

8. SUPPORTS VARIOUS RECURRING SAFETY TESTS

Leakage current, PE break, test of the insulation monitor, short circuit of the CP communication signal.

9. TEST REPORT WITH YOUR OWN COMPANY LOGO

You have the option of printing your own company logo on your test reports, giving them a personal touch.

Benefit from manufacturer independent test to check whether EVSEs can charge and work safely.

Since the Mini-Charger-Tester has been developed particularly for technicians and not for development purposes, a standard conformity of the EVSE is expected by the Mini-Charger-Tester.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MINI-CHARGER-TESTER
IN DETAIL

Our MINI-CHARGER-TESTER can be adapted to your needs.
The following table lists the possible configurations.

- Portable unit for field use
- Charging test with approx. 1.8 kW
- Adjustable charging time up to 30 seconds

Illustration similar

KONFIGURATION

NAME	ITEM NUMBER	DC-CCS COMBO 1	DC-CCS COMBO 2	CHADEMO	AC TYP 1	AC TYP 2	POWER TRANSFER DURING EV SIMULATION	ISO. FAULT SIM.	FEATURE AC PLC	REPORT FILE
Combined 1 +F	061-1-364	●		●			appx. 300 V, 6 A	●		●
Combined 2 +F	061-1-365		●	●			appx. 300 V, 6 A	●		●
DC-CCS 1 +F	061-1-360	●					appx. 300 V, 6 A	●		●
DC-CCS 2 +F	061-1-361		●				appx. 300 V, 6 A	●		●
DC-CCS 1 + 2 +F	061-1-362	●	●				appx. 300 V, 6 A	●		●
CHAdeMO +F	061-1-363			●			appx. 300 V, 6 A	●		●
Combined 1 +AC, +PLC +F	061-1-369	●		●	●		appx. 300 V, 6 A	●	●	●
Combined 2 +AC +PLC, +F	061-1-370		●	●		●	appx. 300 V, 6 A	●	●	●
DC-CCS 1 +AC +PLC +F	061-1-366	●			●		appx. 300 V, 6 A	●	●	●
DC-CCS 2 +AC +PLC +F	061-1-367		●			●	appx. 300 V, 6 A	●	●	●
DC-CCS 1 + 2 +AC +PLC +F	061-1-368	●	●		●	●	appx. 300 V, 6 A	●	●	●
MAINTENANCE & SERVICES										
1 year	061-7-002									
Factory calibration ISO 9001	061-8-002									
Calibration ISO 17025	061-8-003									
TRAINING										
Training video	910-1-026									

TECHNISCHE DATEN

GENERAL	
AC power supply voltage	100 .. 240 V AC (Input), Suitcase version can be connected to a 12 V DC cigarette lighter via an inverter (inverter not included).
Size (W x H x D) / Weight	600 x 330 x 400 mm / 16 Kg
Operating temperature	- 15 .. + 40 °C
Results	On display and PDF report stored in device.
Test / analysis standards	CHAdeMO: Ver. 0.9.1, 1.0.0, 1.0.1, 1.1 and 1.2, DC-CCS: DIN 70121 or ISO 15118 as well as AC for ISO 15118 on demand. Can be changed by configuration via touchscreen.
Power consumption	max. 500 VA, in rush current higher
Inrush current	CHAdeMO: appx. 10.7 A, DC-CCS: appx. 8.3 A
Water resistance according to IEC 60529	closed lid: IP66; open lid: IP43
MEASURING RANGE, ACCURACY ETC.	
Voltage measurement Range Resolution (Display) Accuracy	 0 .. 1000 V +/- 1 V +/- (1 V + 0.5 % of measured value)
Current measurement Range Resolution (Display) Accuracy	 0 .. 7 A +/- 0.1 A +/- 0.5 A
EV SIMULATION	
Integrated battery emulation	Not just a simple load.
Voltage	approx. 300 V (output)
Current	approx. 6 A
Duration charge cycle	approx. 30 sec. (Enough time to check whether the EVSE works in general.)
ISOLATION FAULT SIMULATION FOR DC-CCS	
Choose different resistors between DC+ to PE / DC- to PE	780 kOhm, 690 kOhm, 600 kOhm, 500 kOhm, 475 kOhm, 400 kOhm, 300 kOhm, 200 kOhm, 95 kOhm, 50 kOhm, 47 kOhm
MISCELLANEOUS	
Isolated Banana sockets DC / AC	 to validate the voltage / connect AC load (up to max 32 A per phase)
Lock extension	for DC-CCS Inlet

START SUCCESFULLY INTO THE FUTURE **WITH A COMEMSO PRODUCT.**

We are pleased that you are interested in our products. Do not hesitate to contact us. Our sales team will be pleased to answer your questions and to submit you an offer. Furthermore, you can at any time get an online-demonstration.

SALES@COMEMSO.COM

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You will be well looked after by our support team as well as our aftersales customer care team.

PERHAPS YOU ARE ALSO INTERESTED IN THE **MINI-CHARGER-TESTER EOL & EOL HPC**

FEEDBACK

"We´ve been using the comemso Mini-Charger-Tester to test our hyper-fast charging, and we´re impressed by the ease of use, stability and precision of the compact solution."

Jack Johansen
Project Manager, Clever A/S

"Dank unserer Partnerschaft mit dem Testgerätehersteller comemso sind wir in der Lage, alle erforderlichen Messungen zur Instandsetzung und Wartung Ihrer DC-Geräte vor Ort durchzuführen. Zuverlässig und herstellerübergreifend. Der kombinierte Mini-Charger-Tester simuliert Fahrzeugsignale der Ladestandards DC-CCS und CHAdeMO und kommt bei Installationen, Wartungen oder Instandsetzungen zum Einsatz, um Ladevorgänge normgerecht auszuführen. So werden Fahrzeugsignale, die Kommunikation sowie der Lastkreis auf Funktionsfähigkeit geprüft."

Michael Borowski
Head of Product Management Electromobility, .synfis

MINI-CHARGER-TESTER EOL
IN DETAIL

If your focus is on end-of-production testing, we offer a suitable solution with the End-of-Line (EOL) variant. It is designed for a permanent operation with approx. 2.5 kW power under laboratory conditions.

- Dual unit for production (EOL test) and portable for tests in the field.
- Functional test for average charging loops with reduced power (~ 1 h).
- Recommended operating time is 8 h/day.

Illustration similar

KONFIGURATION

NAME	ITEM NUMBER	DC-CCS COMBO 1	DC-CCS COMBO 2	CHADEMO	AC TYP 1	AC TYP 2	POWER TRANSFER DURING EV SIMULATION	ISO. FAULT SIM.	FEATURE AC PLC	REPORT FILE
Combined 1 EOL, +F	061-1-115	●		●			appx. 360 V, 7 A	●		●
Combined 2 EOL, +F	061-1-116		●	●			appx. 360 V, 7 A	●		●
DC-CCS 1 EOL, +F	061-1-111	●					appx. 360 V, 7 A	●		●
DC-CCS 2 EOL, +F	061-1-112		●				appx. 360 V, 7 A	●		●
DC-CCS 1 + 2 EOL +F	061-1-113	●	●				appx. 360 V, 7 A	●		●
CHAdeMO EOL +F	061-1-114			●			appx. 360 V, 7 A	●		●
Combined 1 EOL +AC +PLC +F	061-1-117	●		●	●		appx. 360 V, 7 A	●	●	●
Combined 2 EOL +AC +PLC +F	061-1-118		●	●		●	appx. 360 V, 7 A	●	●	●
Combined 1 + 2 EOL +AC +PLC +F	061-1-119	●	●	●	●	●	appx. 360 V, 7 A	●	●	●
MAINTENANCE & SERVICES										
1 year	061-7-002									
Factory calibration ISO 9001	061-8-002									
Calibration ISO 17025	061-8-003									
TRAINING										
Training video	910-1-026									

TECHNISCHE DATEN

GENERAL	
AC power supply voltage	100 .. 240 V AC (Input), can be connected to a 12 V DC cigarette lighter via an inverter (inverter not included).
Size (W x H x D) / Weight	appx. 483 x 532 x 584 mm / appx. 25 Kg
Operating temperature	- 15 .. + 40 °C
Results	On display and PDF report stored in device.
Test / analysis standards	CHAdeMO: Ver. 0.9.1, 1.0.0, 1.0.1, 1.1 and 1.2, DC-CCS: DIN 70121 or ISO 15118 as well as AC for ISO 15118 on demand. Can be changed by configuration via touchscreen.
Power consumption	max. 500 VA, in rush current higher
Inrush current	CHAdeMO: appx. 10.7 A, DC-CCS: appx. 8.3 A
MEASURING RANGE, ACCURACY ETC.	
Voltage measurement Range Resolution (Display) Accuracy	 0 .. 1000 V +/- 1 V +/- (1 V + 0.5 % of measured value)
Current measurement Range Resolution (Display) Accuracy	 0 .. 7 A +/- 0.1 A +/- 0.5 A
EV SIMULATION	
Integrated battery emulation	Not just a simple load.
Voltage	approx. 360 V (output)
Current	approx. 7 A
Duration charge cycle	Up to 60 min.
ISOLATION FAULT SIMULATION FOR DC-CCS	
Choose different resistors between DC+ to PE / DC- to PE	780 kOhm, 690 kOhm, 600 kOhm, 500 kOhm, 475 kOhm, 400 kOhm, 300 kOhm, 200 kOhm, 95 kOhm, 50 kOhm, 47 kOhm
MISCELLANEOUS	
Isolated Banana sockets DC / AC	 to validate the voltage / connect AC load (up to max 32 A per phase)
Lock extension	for DC-CCS Inlet

MINI-CHARGER-TESTER EOL HPC
IN DETAIL

If your focus is on End-of-Line (EOL) tests with higher power, we offer a suitable solution for tests up to 500 kW.

- Designed for operation in an end-of-line test bench.
- Functional test during long charging processes.
- For high power charging tests up to 500 kW (1000 V / 500 A).

Illustration similar

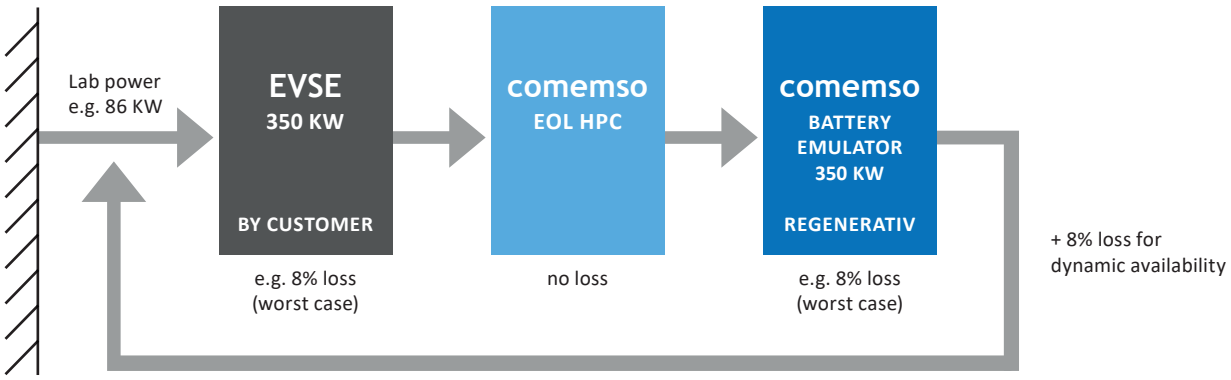
KONFIGURATION

NAME	ITEM NUMBER	DC-CCS COMBO 1	DC-CCS COMBO 2	CHADEMO	AC TYP 1	AC TYP 2	POWER TRANSFER DURING EV SIMULATION	ISO. FAULT SIM.	FEATURE AC PLC	REPORT FILE
Combined 1 EOL HPC +F	061-1-215	●		●			depends on request	●		●
Combined 2 EOL HPC +F	061-1-216		●	●			depends on request	●		●
DC-CCS 2 EOL HPC +F	061-1-212		●				depends on request	●		●
DC-CCS 1 + 2 EOL HPC +F	061-1-213	●	●				depends on request	●		●
CHAdeMO EOL HPC +F	061-1-214			●			depends on request	●		●
Combined 1 + 2 EOL HPC AC +PLC +F	061-1-219	●	●	●	●	●	depends on request	●	●	●
POWER RANGE										
For a personal offer, please let us know the current voltage and power required for the desired HPC application. In addition, whether you already have a battery emulator.										
MAINTENANCE & SERVICES										
1 year	061-7-003									
Factory calibration ISO 9001	061-8-002									
Calibration ISO 17025	061-8-003									
TRAINING										
Online training 1/2 day	910-1-012									

TECHNISCHE DATEN

GENERAL	
Size (W x H x D) / Weight	depends on customers requirements
Operating temperature	- 15 .. + 40 °C
Results	On display and PDF report stored in device.
Test / analysis standards	CHAdeMO: Ver. 0.9.1, 1.0.0, 1.0.1, 1.1 and 1.2, DC-CCS: DIN 70121 or ISO 15118 as well as AC for ISO 15118 on demand. Can be changed by configuration via touchscreen.
MEASURING RANGE, ACCURACY ETC.	
Voltage measurement	
Range	5 .. 1000 V
Resolution (Display)	+/- 1 V
Accuracy	+/- (1 V + 0.05 % of measured value)
Current measurement	
Range	0.3 .. 200 A / 500 A
Resolution (Display)	+/- 0.1 A
Accuracy	+/- (0.1 A + 1 % of measured value)
EV SIMULATION	
battery emulation	depends on customers request
ISOLATION FAULT SIMULATION FOR DC-CCS	
Choose different resistors between DC+ to PE / DC- to PE	780 kOhm, 690 kOhm, 600 kOhm, 500 kOhm, 475 kOhm, 400 kOhm, 300 kOhm, 200 kOhm, 95 kOhm, 50 kOhm, 47 kOhm
MISCELLANEOUS	
Isolated Banana sockets	
DC / AC	to validate the voltage / connect AC load (up to max 32 A per phase)
Lock extension	for DC-CCS Inlet

POWER CONNECTION WITH BATTERY CHARGER 350 KW



Example of conducting a 350 kW charging test with a lower grid connection, using the battery emulator's regenerative power capability.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