
MotorAnalyzer 2
Hochspannung DC
4600 V
0.274 µA
VORSICHT ! HOCHSPANNUNG - LEBENSGEFAHR
CAUTION ! HIGH VOLTAGE - DANGER OF LIFE

Motor Repair
Electrical Engineering
Maintenance

The MotorAnalyzer-Class
Unbeatable versatility

MotorAnalyzer 2 | All-purpose electric motor tester

Highlights

- 11 test methods
- surge voltage up to **3000V**
- high-voltage DC up to **6000V**
- large, very well-readable color display
- innovative handy input via rotary button
- structured menu and practical functioning buttons
- fully-automatic fault analysis
- automatic switchover between the three motor connecting leads
- manual and automatic tests
- locating turn-to-turn faults
- adjusting the neutral zone
- rotary button for a quick test method selection
- integrated result storage for a subsequent transfer via USB-interface
- storing and printing of test results via PrintCom
- network or battery operation
- worldwide voltage supply 110V…250V / 47…63Hz
- low weight
- all-purpose solid case including all measuring leads “on board”

The all-purpose MotorAnalyzer 2 serves for checking electric motors and winding goods. It combines eleven different test methods within a user-friendly and mobile tester. The combination of test methods, its extremely compact design, as well as the battery operation turn the MotorAnalyzer into an ideal tool for the on-site operation, especially in difficult installation positions.

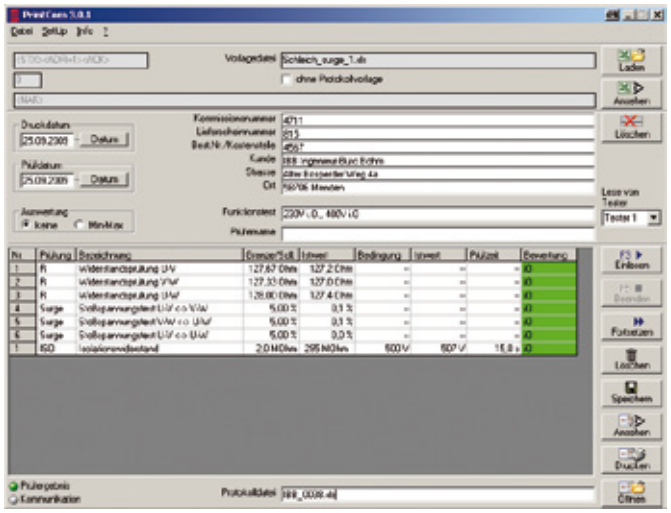
For checking a 3-phase motor the three winding connections and the motor’s cabinet are connected to the tester. This should be performed in four-wire technology for a high-precise resistance measuring. Afterwards the MotorAnalyzer analyzes the motor fully-automatically via surge-voltage, resistance, and inductivity test. For this the MotorAnalyzer automatically switches the different test methods to the four measuring points one after another via its internal relay matrix. After this the motor is also tested automatically with a high-voltage test in order to evaluate the motor’s quality quickly and clearly.

In addition to the motor test the MotorAnalyzer also assists in adjusting the brush holder at DC motors as well as in locating turn-to-turn faults.

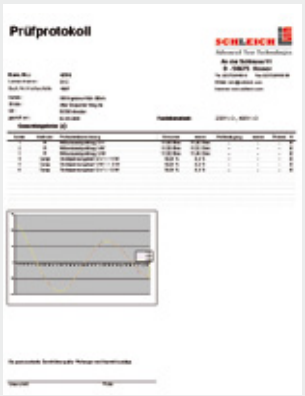
The very compact case is sturdy and waterproof. On the right-hand side of the operating element there is a storage space. All measuring leads and test probes are stored here. Thus the operator can always access the necessary components during the measuring. For an optimum operator guidance the LEDs indicate the measuring leads that are activated for the respective measuring.

All control elements and connections are clearly arranged

Large and high-contrast color display



Scanning and storing test results in Excel®



PrintCom RESULTS

PrintCom – filing and printing test results in Excel®

With PrintCom you can protocol and store your test results quickly and comfortably:

- scanning test results
- storing test results in Excel®
- printing test results

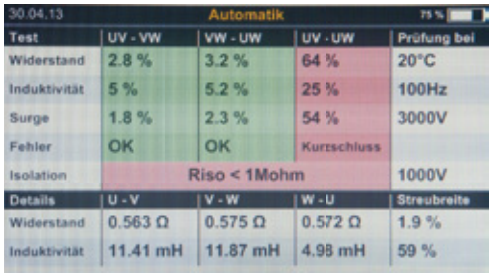
For detailed information please look at page 68

Printing test results

inspection test of a pump motor

MotorAnalyzer 2 | 11 test methods in one tester

① Automatic analysis

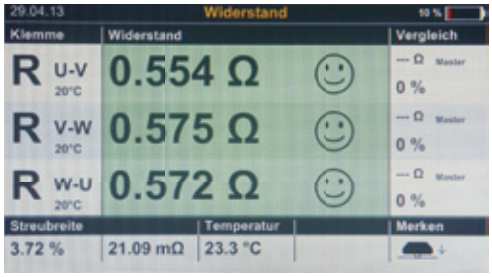


For the automatic test of a three-phase current motor the three winding connections and the motor cabinet have to be connected to the tester. The MotorAnalyzer analyzes the motor fully automatically via the resistance, inductivity, the surge-voltage, and the high-voltage test. It checks whether the winding is ohmically or inductively symmetrical. If the deviations of the three phases among each other are too large the motor is defect. In addition the electric strength within the winding and to the motor's cabinet is tested.

② Surge test up to 3000V

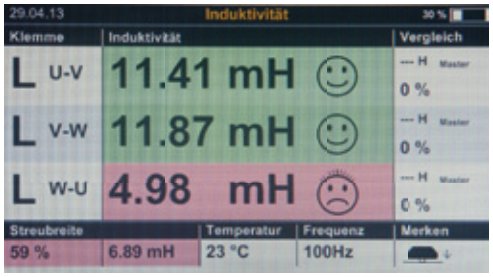
For the inductive winding check the MotorAnalyzer generates surge pulses up to **3000V** that can be continuously adjusted. The patented automatic surge voltage comparison of the windings among each other or to a reference test object provides precise statements regarding the winding's symmetry. The MotorAnalyzer detects any nonsymmetries automatically.

③ Resistance test



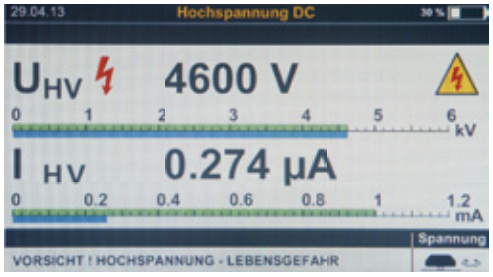
The resistance test is performed with very high precision in four-wire technology. The symmetry evaluation of the three winding resistances or the comparison to a preset value is performed automatically. A temperature compensation converts the copper resistance to 20°Celsius if required. For the ambient temperature measuring an ambient temperature sensor has to be connected to the Motor Analyzer.

④ Inductivity test



The inductivity test is also performed in four-wire technology like the resistance test. The symmetry evaluation of the three winding inductivities or the comparison to a preset value is performed automatically.

⑤ High-voltage test DC



For the high-voltage test the MotorAnalyzer generates a very stable test voltage from 50 to **6000V** DC. At the automatic test the voltage is max. 3000V and at the manual test it is max. 6000V due to the test probes. The voltage can be set manually at the rotary button. Alternatively it can also be set automatically to a programmable value. A step voltage measuring is possible as well.

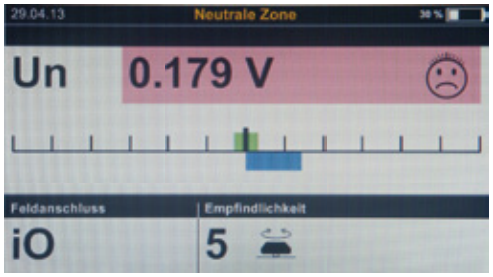
⑥ Insulation resistance test

For the insulation resistance test the MotorAnalyzer generates a very stable test voltage from 50 to 6000V DC. At the automatic test the voltage is max. 3000V and at the manual test it is max. 6000V due to the test probes. The voltage can be set manually at the rotary button. Alternatively it can also be set automatically to a programmable value. A step voltage measuring is possible as well.

⑦ Polarization index test

For the DAR and polarization index test the MotorAnalyzer generates a very stable test voltage from 50 to 6000V DC. The voltage can be set manually at the rotary button. Alternatively it can also be set automatically to a programmable value. The measuring time runs automatically.

⑧ Neutral zone setting

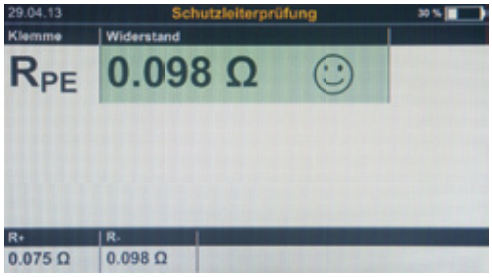


The graphic display of the brush holder's false position facilitates the adaptation of the "neutral zone" to direct current motors. Via a bar display with central point the user can directly see whether he is in the neutral zone or in which direction the brush holder needs to be turned.

⑨ Turn-to-turn fault location

By means of the induction test probe the operator locates the slots in which the turn-to-turn fault occurred. The probe also serves for measuring at the stator, an armature, or for searching the bar break at a squirrel-cage motor.

⑩ PE-resistance test



The PE-resistance test is performed with high precision in four-wire technology. It is measured with DC.

⑪ Rotary field test

At one- or three-phase motors it is displayed during the manual rotation of the motor shaft whether the shafts rotates to the left- or right-hand side.

MotorAnalyzer 1 | All-purpose electric motor tester

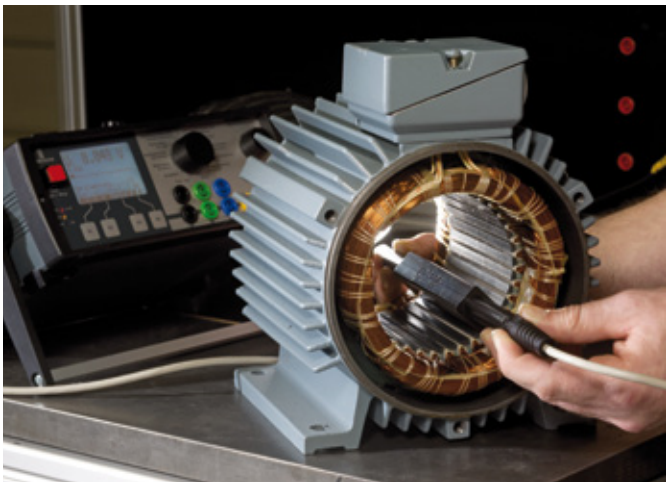
USB
RS232
PC
I/O

Highlights

- ten test methods
- high-voltage up to 4KV
- fully automatic fault analysis
- automatic switchover between the three motor connecting leads
- manual and automatic tests
- location of turn-to-turn-faults
- mains and/or battery operation
- low weight
- can also be supplied in a sturdy measuring box
- rotary button for a quick test method selection
- integrated result storage for a later transfer via RS232- or USB-interface
- storing and printing of test results via PrintCom

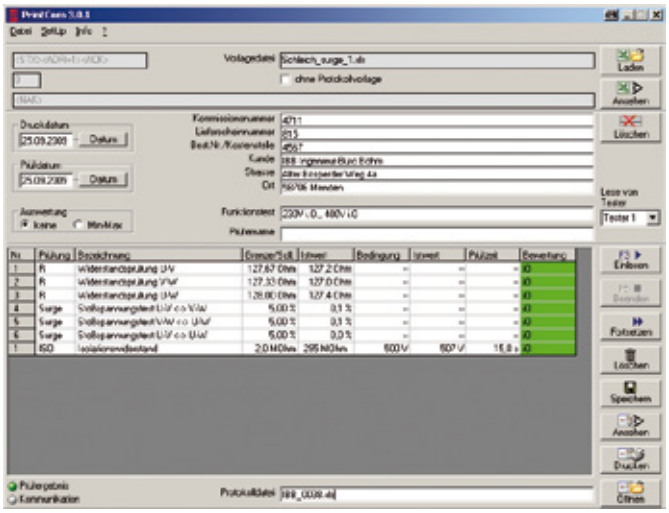
The MotorAnalyzer is an all-purpose tester for testing electric motors and winding products. It combines ten different test methods in a user-friendly, mobile tester. The combination of test methods, its very compact design, as well as the option of a battery operation turn the MotorAnalyzer into an ideal tool for the at-site use – especially at difficult installation positions.

For checking the three-phase current motor the three winding connections as well as the motor cabinet are connected to the tester. Afterwards the MotorAnalyzer analyzes the motor automatically via the surge and resistance test. After this a high-voltage test is also performed at the motor in order to evaluate the motor's quality quickly and clearly.

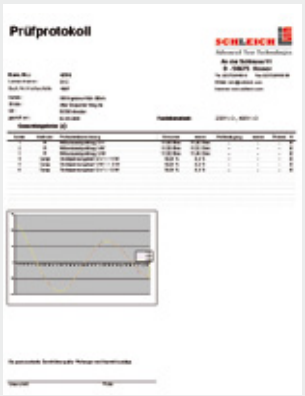


Search of a turn-to-turn fault at a stator with induction test probe

MotorAnalyzer 1-portable



Scanning and storing test results in Excel®



PrintCom

PrintCom – filing and printing test results in Excel®

With PrintCom you can protocol and store your test results quickly and comfortably:

- scanning test results
- storing test results in Excel®
- printing test results

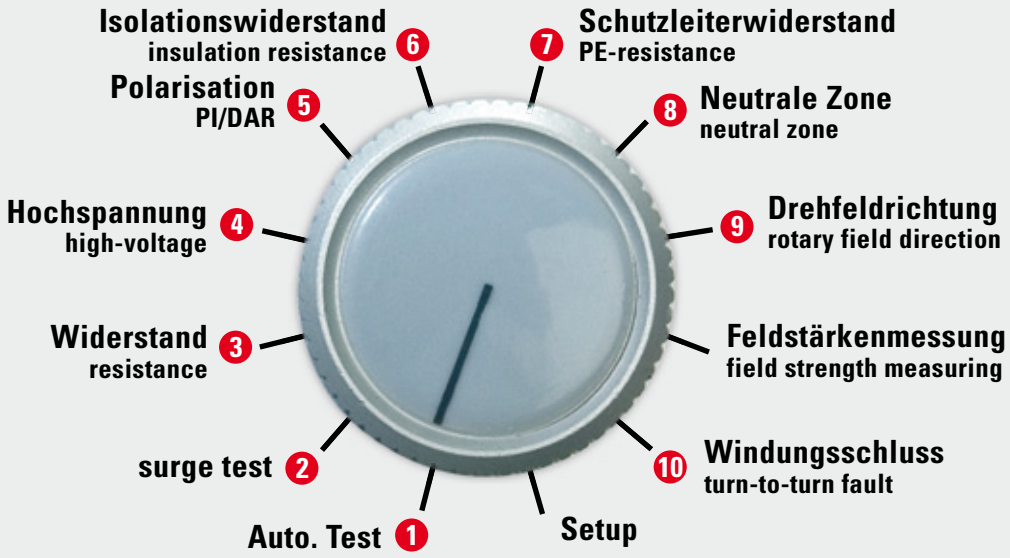
For detailed information please look at page 68

Printing test results

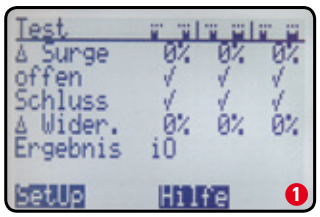
Motor test

MotorAnalyzer 1 with stator size 350

MotorAnalyzer 1 | 10 test methods in one tester

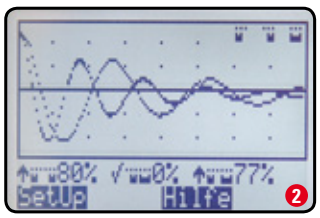


① Automatic analysis



For the automatic test of a three-phase current motor the three winding connections and the motor cabinet are connected to the tester. Afterwards the MotorAnalyzer analyzes the motor fully automatically via the surge and resistance test. It checks whether the winding is ohmically or inductively symmetrical. If the deviations of the three phases among each other are too large the motor is defect.

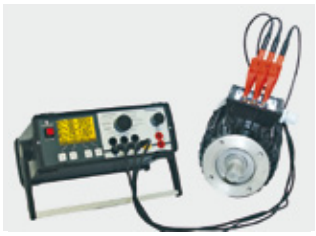
② Surge test



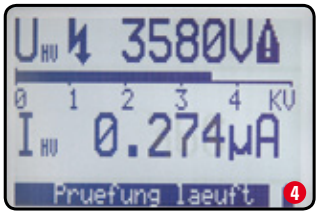
For the inductive winding check the MotorAnalyzer generates surge voltages with a low level. The patented automatic surge voltage comparison of the windings among each other or to a reference test object provides precise statements regarding the winding's symmetry. The MotorAnalyzer detects any nonsymmetries automatically.

③ Resistance test

The resistance test is performed with high precision in four-wire technology. The symmetry evaluation of the three winding resistances or the comparison to a preset value is performed automatically. A temperature compensation converts the copper resistance to 20°Celsius if required.

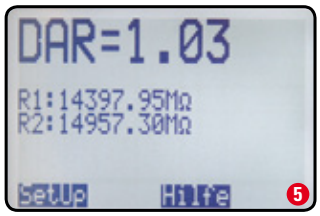


④ High-voltage test DC



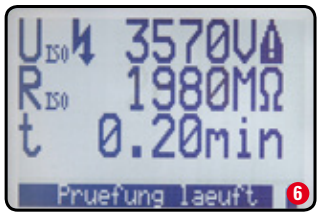
For the high-voltage test the MotorAnalyzer generates a very stable test voltage from 50 to 4000V DC. The voltage can be set manually at the rotary button. Alternatively it can also be set automatically to a programmable value.

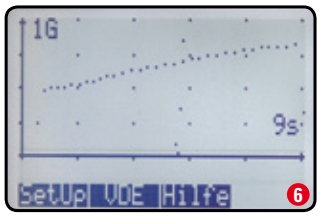
⑤ Polarization index test



For the DAR and polarization index test the MotorAnalyzer generates a very stable test voltage from 50 to 4000V DC. The voltage can be set manually at the rotary button. Alternatively it can also be set automatically to a programmable value.

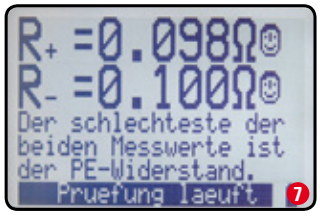
⑥ Insulation resistance test





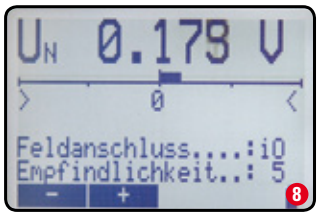
For the insulation resistance test the MotorAnalyzer generates a very stable test voltage from 50 to 4000V DC. The voltage can be set manually at the rotary button. Alternatively it can also be set automatically to a programmable value. A step voltage measuring is also possible.

⑦ PE-resistance test



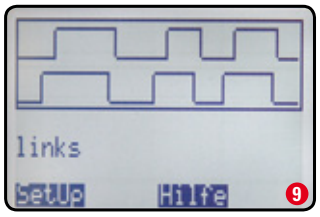
The PE-resistance test is performed with high precision in four-wire technology. It is measured with DC.

⑧ Neutral zone setting



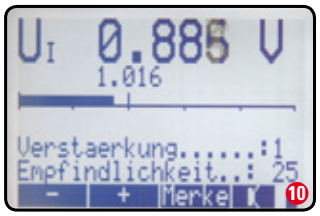
The graphic display of the brush holder's false position facilitates the adaptation of the "neutral zone" to direct current motors. With the MotorAnalyzer it can thus be adjusted in a very user-friendly way. Via a bar display with central point the user can directly see whether he is in the neutral zone or in which direction the brush rocker needs to be turned.

⑨ Rotary field test

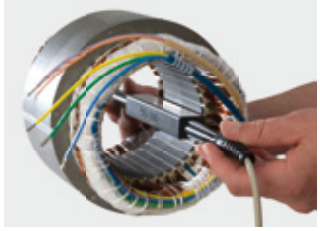


At one- or three-phase motors it is displayed during the manual rotation of the motor shaft whether the shafts rotates to the left- or right-hand side.

⑩ Turn-to-turn fault location



By means of the induction test probe the slots at the stator or armature are located in which the turn-to-turn fault occurred. The probe also serves for searching the bar break at a squirrel-cage motor.



MotorAnalyzer 1 and 2 | Product and accessory overview

MotorAnalyzer 1

MotorAnalyzer 1 portable

MotorAnalyzer 2

		resistance	surge voltage	turn-to-turn faults	inductivity	high voltage DC	insulation resistance
		1mΩ…500KΩ four-wire measuring	low-voltage, surge voltage & autom. analysis	fault locating of the turn-to-turn fault			0…100GΩ
Model	**art. no.**						
MotorAnalyzer 1	403101	❶	● 12V	❷	●	● 0…4KV	❸ 0…4KV DC
MotorAnalyzer 1 portable	403141	❶	● 12V	❷	●	● 0…4KV	❸ 0…4KV DC
MotorAnalyzer 2	403167	❶	● 3000V	❷	●	● 0…6KV	❸ 0…6KV DC
Test probes | measuring leads							
4-wire measuring tips for armatures	4000395	○	—	—	—	—	—
4-wire Kelvin tongs set	40001100	○	—	—	—	—	—
4-wire Kelvin tongs small	4007209	○	—	—	—	—	—
4-wire Kelvin tongs medium	4007212	○	—	—	—	—	—
4-wire Kelvin tongs large	4007168	○	—	—	—	—	—
temperature sensor for the ambient temperature compensation	403109	○	—	—	—	—	—
turn-to-turn fault test probe 9mm	403106	—	—	○	—	—	—
turn-to-turn fault test probe 19mm	403107	—	—	○	—	—	—
turn-to-turn fault armature test probe	403123	—	—	○	—	—	—
Giga-Ohm measuring lead	403110	—	—	—	—	—	○
neutral zone measuring lead	403102	—	—	—	—	—	—
rotary field test probe for stator	403103	—	—	—	—	—	—
rotary field test probe for motor	403112	—	—	—	—	—	—

Accessories

foot switch	4010611
start buttons for test probe	403111
transport box for MA 1	403124
Netbook-holder for MA1-portable	403149
PrintCom PC-software	401871

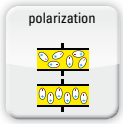
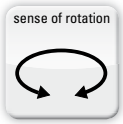
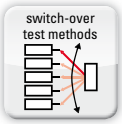
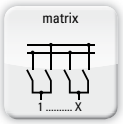
For accessories please look at page 66

four-wire measuring tips

four-wire Kelvin tongs

turn-to-turn fault test probe

Netbook holder

 polarization	 neutral zone	 sense of rotation	 PE resistance	 switch-over test methods	 matrix			
0…4000V DC	comparison assistance for the neutral zone at DC-motors	measuring at stator and motor	1mΩ…1Ω four-wire measuring	automatic test method switchover	clamps: U-V-W-body high-voltage	measuring lead with alligator clamps	measuring lead with test tips for the high-voltage	battery operation
❸ 0…4KV DC	❹	❺	●	●	●	7	2	●
❸ 0…4KV DC	❹	❺	●	●	●	7	2	●
❸ 0…6KV DC	❹	❺	●	●	❻	7	2	●
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
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● included in the delivery extent
❶ For increasing the measuring accuracy at resistances below 1Ω it is recommended to use four-wire Kelvin tongs in addition.
❷ For locating the turn-to-turn fault an additional probe is required.
❸ In order to measure insulation resistances above 100Ω more precisely an additional GigaOhm-measuring lead is recommended.
❹ For connecting the DC-motor an additional measuring lead is required.
❺ For measuring the sense of rotation one additional probe is required for the stator measuring and one additional measuring lead for the motor measuring is required.
❻ Switchover automatically up to 3KV. High-voltage test up to 6KV via separate test tips.
○ measuring probes | measuring leads that need to be ordered in addition
— not available