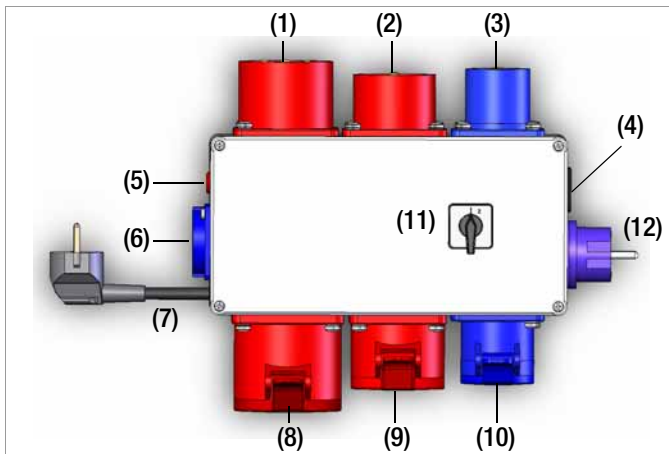


VL2 E Test Adapter

For Testing Devices and Cables

in Combination with DIN VDE 0701-0702 Test Instruments

3-349-242-15
6/2.10

- (1) Surface mounted test plug: CEE 3P+N+PE 32 A 400 V
- (2) Surface mounted test plug: CEE 3P+N+PE 16 A 400 V
- (3) Surface mounted test plug: CEE 1P+N+PE 16 A 230 V
- (4) Surface mounted inlet test plug: 1P+N+PE 16 A 230 V
- (5) Connector socket for probe cable from the DIN VDE test instrument, for testing cables only
- (6) Surface mounted earth contact test outlet: 1P+N+PE 16 A 230 V
- (7) Earth contact connector cable for connection to test sockets at DIN VDE test instruments
- (8) Surface mounted test outlet: CEE 3P+N+PE 32 A 400 V
- (9) Surface mounted test outlet: CEE 3P+N+PE 16 A 400 V
- (10) Surface mounted test outlet: CEE 1P+N+PE 16 A 230 V
- (11) Rotary selector switch for cable function tests
- (12) Surface mounted earth contact test plug: 1P+N+PE 16A 230 V

1 Safety Precautions

The test adapter has been manufactured and tested in accordance with the following regulation:

DIN VDE 0411/IEC 348

“Regulations for electronic testers and controllers, part 1: safety measures for electronic measuring instruments”
Safety is only assured for the user and the test adapter when used for its intended purpose in combination with DIN/VDE 0701-0702 test instruments. In order to maintain flawless technical safety conditions, and to assure safe use, it is imperative that you read these operating instructions thoroughly and carefully before placing the test adapter into service, and that you follow all instructions contained herein.

- Measurements within electrical systems are prohibited!



Attention!

The VL2 E test adapter may only be connected via its cable (7) to the socket of an external DIN VDE 0701-0702 test instrument for tests without line voltage. If it is connected, for example, to a test panel with a „VDE-MAINS“ switch-over, the switch must be set to the „VDE“ position, otherwise the RCCB of the supplying system might trigger.

- Be prepared for the occurrence of unexpected voltages at devices under test (e.g. due to charged capacitors).
- Before connecting the device under test to the test adapter, subject it to a thorough visual inspection first. Damaged devices under test must be repaired prior to testing.

- Only extension cables which have been plugged into the test outlets at the test adapter may be connected to the surface mount plugs on the test adapter for testing.
- In order to assure compliance with technical safety requirements, the test adapter may only be repaired by a qualified electrician, who is preferably employed by the manufacturer.
- If the test adapter and/or its connector cables demonstrate visible damage, no longer function or have been stored for a lengthy period of time under unfavorable conditions, it must be assumed that hazard-free operation is no longer possible. Remove the test adapter from service and secure it against inadvertent use.

2 Applications

The test adapter is intended for the performance of measurements and testing at electrical devices and extension cables with CEE plug connectors in combination with test instruments in accordance with the following standards:

DIN VDE 0701-0702:2008 (testing after repair and for periodic testing)

3 Connecting the Test Adapter to a DIN VDE 0701-0702 Test Instrument

- The test adapter's earth contact plug may only be plugged into the earth contact outlet at a DIN VDE 0701-0702 test instrument which is identified as the test socket.

Testing Extension Cables

- Additionally plug the test instrument's probe into the SL socket (5).

4 Connecting a Device Under Test to the Test Adapter

After the visual inspection has been passed and before plugging the device under test into the appropriate connectors, all functions must be activated, making sure, for example, that thermostat contacts are closed etc. Always measure protective conductor resistance first for safety class I devices under test, because the measurement of insulation resistance and equivalent leakage current is not possible without a properly functioning protective conductor.

This measurement is of special importance for function testing as well, because a defective or reversed protective conductor may represent a hazard for the user!

5 Testing Devices

The following tests in accordance with DIN VDE must be performed in consideration of the operating instructions for the utilized test instrument.



Note

Automatic test sequences in combination with test adapter VL2 E are only possible with SECUTEST S2 N+ or SECUSTAR FM.

5.1 Measuring Protective Conductor Resistance

- **When testing devices:** Connect the probe cable to the housing of the DUT, making sure that good contact is established.
- **When testing extension cables:** Plug the test instrument's probe into the SL socket (5). Connect the plug and the socket of the extension cable under test to the corresponding surface mount plug and surface mount outlet on the test adapter.
- Perform testing in accordance with the operating instructions included with the test instrument.
- Read the measured value and compare it with permissible values per DIN VDE 0701-0702.

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Attention!

The connector cable must be shaken back and forth, section by section over its entire length, during measurement (for permanently installed devices only in so far as the connector cable is accessible during maintenance, modification or testing).

Compensation of Test Adapter Connector Cable Resistance

Cable resistance amounts to 0.07 Ω . This value must be subtracted from the displayed measured value for measurements in extreme ranges. A resistance value of 0.3 Ω may not be exceeded for devices under test with cable lengths of up to 5 meters. A value of 0.3 Ω , plus 0.1 Ω for each additional 7.5 meters, applies for lengths of greater than 5 meters.

5.2 Measuring Insulation Resistance

During this test, L1, L2, L3 and N are measured against PE (rotary selector switch set to position 1).

- ⇨ Perform testing in accordance with the operating instructions included with the test instrument.
- ⇨ Read the measured value and compare it with permissible values per DIN VDE 0701-0702. When testing extension cables, a value of 2 M Ω should not be significantly fallen short of.



Note

If there is any uncertainty about applying insulation voltage, for example with electronic devices, or, in the case of safety class I devices, if there is no assurance that all components subjected to line voltage will be taken into account by the measurement, the DUT must be tested using a leakage current measuring method with a suitable test instrument.

5.3 Measuring Equivalent Leakage Current

- ⇨ Perform testing in accordance with the operating instructions included with the test instrument.
- ⇨ Read the measured value and compare it with permissible values per DIN VDE 0701-0702.

6 Function Test for Extension Cables

- ⇨ Select insulation measurement at the test instrument.
 - ⇨ Set the test adapter's rotary selector switch to position 2.
 - ⇨ Read the measured value.
- The adapter may indicate a value ranging from 0 Ω in the event of a short-circuit of all wires to infinite (display overrange) in the event of a wire interruption. Owing to the good insulation of undamaged cables a test value of 7 M Ω with a tolerance of 10% has been established for this efficient test method.
- All values in the range from 6.3 to 7.7 M Ω therefore indicate that testing has been passed.
- If a fault has been detected, the precise fault type such as short-circuit or interruption of wires, reversed wiring and/or inadequate insulation must be evaluated.

The following characteristics can be tested with this procedure:

- ⇨ Testing of AC cables for short-circuiting and continuity
- ⇨ Additional testing of 3-phase cables and caravan cables for reversed wiring of L1, L2, L3 and N (clockwise rotation)



Attention!

Do not touch the plug-in contacts of the plugs of long connection cables after testing. They could be electrically charged.

7 Characteristic Values

Nominal Range of Use

Maximum voltage	For measuring insulation resistance: 600 V DC For measuring equivalent leakage current: 230 V AC
Maximum current	For measuring protective conductor resist.: 10 A DC/AC

Electrical Safety

Safety class	I
Measuring category	I for insulation resistance measurement, 300 V CAT II for all other measurements

Ambient Conditions

Storage temperature	- 20 °C ... + 60 °C
Operating temperature	- 10 °C ... + 50 °C
Accuracy range	0 °C ... + 50 °C
Relative humidity	Max. 75%, no condensation allowed
Elevation	Max. 2000 m
Deployment	Indoors; outdoors only within the specified ambient conditions

Mechanical Design

Protection	Housing: IP 40 per DIN VDE 0470, part 1 Terminals: IP 20
Dimensions	W x H x D: approx. 330 x 230 x 145 mm
Weight	Approx. 1.7 kg

8 Maintenance

Self-Test

Self-testing for protective conductor continuity at the connector cable is performed automatically for all VDE tests.

Housing

No special maintenance is required for the housing. Keep outside surfaces clean. Use a slightly dampened cloth for cleaning. Avoid the use of cleansers, abrasives and solvents.

9 Repair and Replacement Parts Service Calibration Center* and Rental Instrument Service

When you need service, please contact:

GMC-I Service GmbH
Service Center
Thomas-Mann-Str. 20
90471 Nuremberg, Germany
Phone +49 911 817718-0
Fax +49 911 817718-253
E-Mail service@gossenmetrawatt.com

This address is only valid in Germany. Please contact our representatives or subsidiaries for service in other countries.

* **DKD** Calibration Laboratory for Measured Electrical Quantities: DKD – K – 19701, accredited per DIN EN ISO/IEC 17025:2005

Accredited measured quantities: direct voltage, direct current values, DC resistance, alternating voltage, alternating current values, AC active power, AC apparent power, DC power, capacitance, frequency and temperature.

10 Product Support

When you need service, please contact:

GMC-I Messtechnik GmbH
Product Support Hotline
Phone +49 911 8602-0
Fax +49 911 8602-709
E-Mail support@gossenmetrawatt.com