

also
suitable for
24 V / 48 V
systems

LV 124 AUTOMOTIVE

On-board power supply simulation



System components for your applications

- **4-quadrant power supply up to ± 100 V / ± 40 A**
320 W / 1 kW peak expandable to 6.4 kW / 20 kW peak
Bandwidth > 100 kHz, ripple up to 400 kHz
- **Arbitrary power supply up to 100 V / 320 A,**
AC superposition up to 70 kHz, 320 W / 1 kW to 5.2 kW / 16 kW
- **Electronic switch for short interruptions**
up to 60 V / 100 A; tr / tf < 500 ns
- **Software TOELLNER WaveControl** for generating any voltage /
current waveforms, many standard waveforms included
- All devices can also be used stand-alone

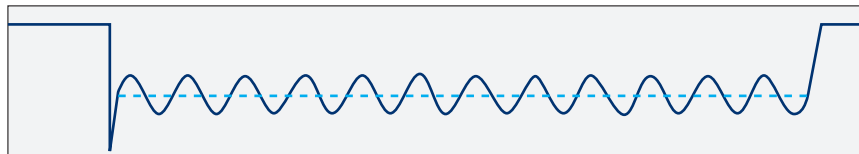
Standards and tests

Due to the ever-increasing complexity of electronic systems in modern vehicles, the requirements for components that are operated on the **on-board vehicle electrical system** are also growing.

Leading German automobile manufacturers originally defined the **LV 124 test standard** for testing these components and later derived individual standards from it.

TOELLNER develops and manufactures equipment to perform tests in accordance with the resulting standards and other related test standards, such as **BMW GS 95024-2, GMW 3172, ISO 16750-2, MBN 10567, MBN 10615, VW 80000, BMW GS 95026, ISO 21780, LV 148, VDA 320, VW 82148.**

The test standards specify a large number of different test pulses that represent many types of possible real-world influences.



Example voltage curve of a cold start test

Test	TOELLNER
E-01	✓
E-02	✓
E-03	✓
E-04	✓
E-05	✓
E-06 up to 200 kHz	✓
E-07	✓
E-08	✓
E-09	✓
E-10	✓
E-11	✓
E-12	✓
E-13	✓
E-14	✓
E-15	✓
E-16	✓
E-17	✓
E-18	-
E-19	✓
E-20	-
E-21	✓
E-22	✓
E-23	✓

In various electrical tests, the requirement is to generate **static or highly dynamic** overvoltage and undervoltage profiles, but also **fast high-impedance interruptions**.

TOELLNER devices are used to **provide such signals** for these tests. Automotive manufacturers for example the Volkswagen Group, Mercedes, BMW, as well as their suppliers and test bench builders, use TOELLNER devices for this purpose at many locations all over the world.

TOELLNER is characterized by reliable, robust and durable instruments that can be used universally, flexibly and modularly for a wide variety of tests and test objects.

Based on the original test standard LV 124 and the test standards derived from it, we thereby support almost all electrical tests and, in addition, many more tests from other test standards.



BOSCH



ZOLLNER



KOSTAL



Developed and manufactured in
Germany

LV 124 Electrical system simulation with Toellner

Recommended components

Since not every test item needs to pass every test, TOELLNER offers not only complete solutions but also partial solutions tailored to your needs for performing selected or customer-specific tests.

Our trained team of technical sales representatives will customize the optimal and cost-efficient equipment combination for your individual testing requirements.

In order to achieve the **best possible test coverage**, load-resistant, DC stable, and highly dynamic bipolar power supplies with high sink capability are required.

The TOELLNER 4-quadrant amplifiers **TOE 7621** have all of the necessary features. The devices provide a **short-circuit proof bipolar** voltage or current power supply with identical source and sink power. They are very **DC stable**, and with their wide bandwidth, they offer **high dynamics** on a **wide variety of different loads**.

In parallel connection, a continuous power of up to 3,200 W and a short-term power of up to 10 kW is achieved. In special cases, a continuous power of 6,400 W and a short-term power of up to 20 kW is possible.

Furthermore, our **TOE 7621** offers many additional functions such as an adjustable output resistance (R_i), output voltage sensing, ground-free, reverse polarity-proof, and short-circuit-proof outputs, short-term load current options, interlock/inhibit, ...

For fast high-impedance interruptions, the **TOE 9261** electronic switch is applied. This device is offered in different current carrying capacities of the power switch. Four additional auxiliary switches allow the interruption of control lines. The **TOE 9261** generates the interruptions with correspondingly short rise and fall times **$t_r, t_f < 500 \text{ ns}$** at defined reference resistor loads.

Reference resistor kits suitable for the **reference measurements** required by the test standards are available as an option.

A larger number of control lines can be interrupted in a flexibly configurable way with the **TOE 9268** modular signal line switch.



4-Quadrant Amplifier
TOE 7621



Electronic Switch
TOE 9261

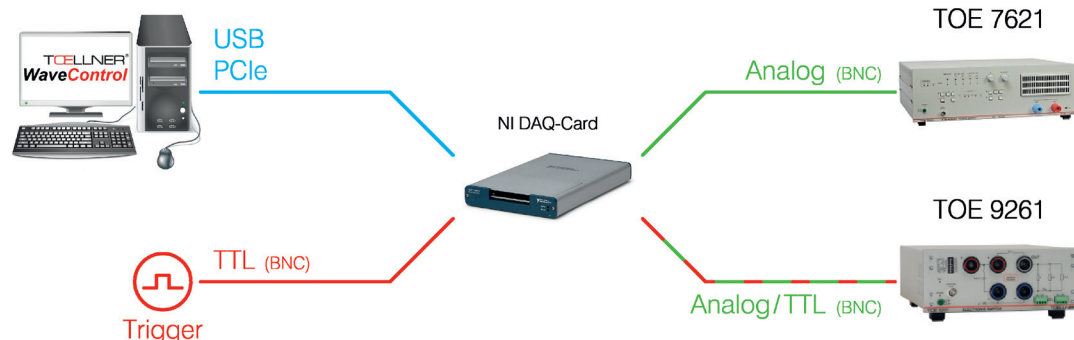


Reference Resistor Kit
TOE 9260/110

TOELLNER WaveControl

The **TOELLNER WaveControl** software makes it easy to access predefined test pulses from a waveform library and to edit and load test waveforms on a PC. The generated signal data can be transmitted directly to TOELLNER devices with digital interfaces.

Devices with analog interfaces can be controlled via NI DAQ cards in order to convert the signal data into the required control voltage.



Configuration of a test setup with TOE 7621, TOE 9261, and signal generation incl. trigger capability.

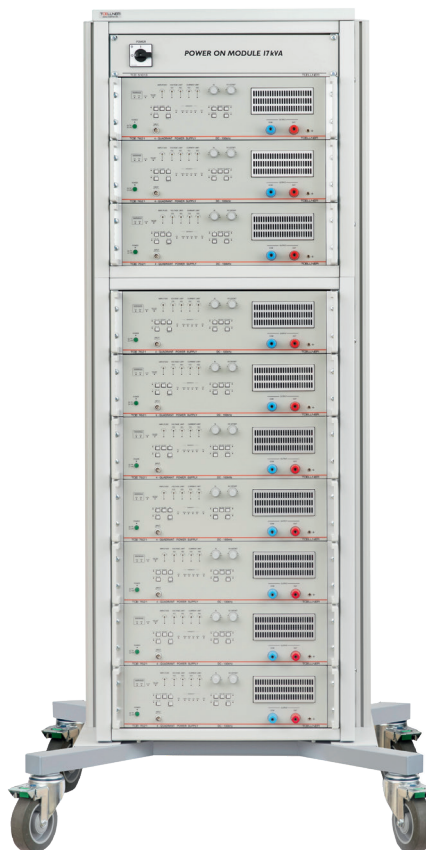
Your TOELLNER test system

Together with you we determine the selection of components (hardware and software) that are tailored to your wishes and requirements.

On request, we will install the devices in a **TOELLNER LabMobil** (19" rack).

We can also provide suitable connection panels that allow the test system to be conveniently integrated into the environment of your application. Cables and other accessories are supplied as required so that the system is provided ready for operation.

Contact us, we will be pleased to assist you.



*19" rack "LabMobil", 32 U,
with 10 x TOE 7621
(output power:
3.2 kW continuous /
10 kW peak)*

<https://www.toellner.de/distribution-international>
Please check our website for distributors all over the world.

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