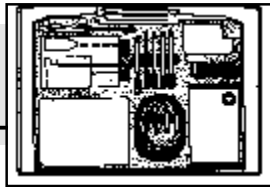


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02 / 2004

Measurement

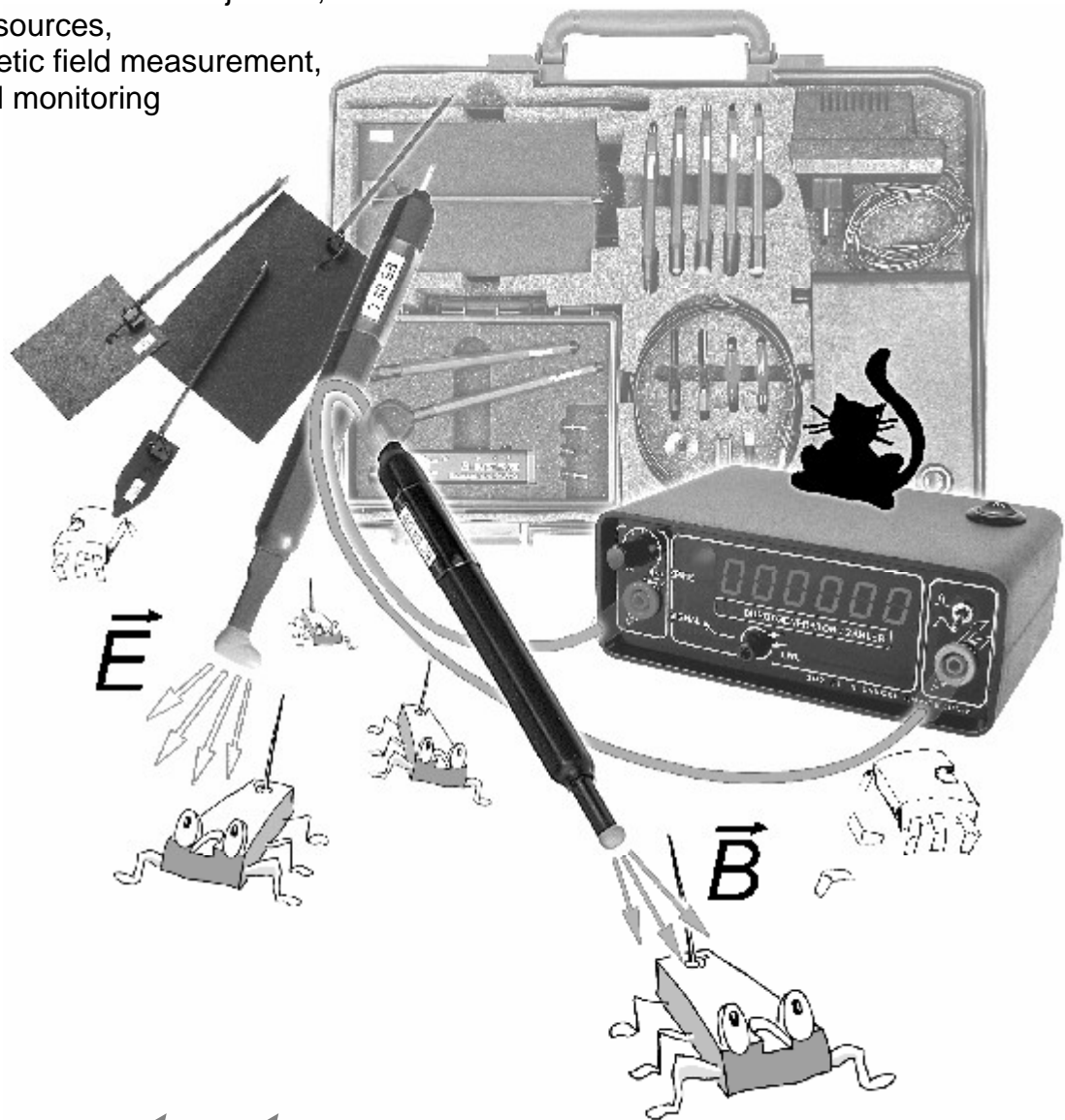
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Development System for Disturbance Immunity

E 1

Disturbance current injection,
Field sources,
Magnetic field measurement,
Signal monitoring



New strategy

to eliminate burst and ESD faults on p.c.b.'s

New disturbance immunity strategy: systematic fault identification with the help of E1!

In general, the incompatibilities detected during tests for compliance with the standard EN 61000-4-4 (burst) can only be eliminated with complicated filtering and screening material.

The E1 development system offers a new, cost-saving procedure.

You can locate the weak points responsible for these incompatibilities using the measurement technology developed by Langer.

The various tools included with the E1 enable four measuring strategies to detect the most complicated disturbance immunity faults.

Fault detection based on four measuring strategies:

1. Analysis of the disturbance current paths, direct injection into the p.c.b. via the SGZ21 generator
2. Location of the faults with the field sources
3. Measurement of the magnetic burst fields to track the disturbance current
4. Monitoring of critical logic signals from the p.c.b.

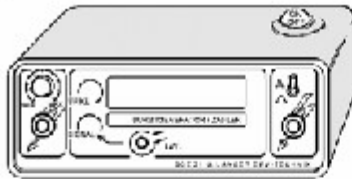
Systematic isolation of the faults:

- Analysis of the disturbance current paths, reproduction of the fault indication produced during standard compliance testing
- Location of the susceptible leads and component connections with the help of field sources
- Furthermore, critical logic signals can be monitored and magnetic disturbance fields can be measured.

Contents Case E1

Burst generator SGZ 21

1



Accessories:

1 x Optical fibre (1 m)

2 x Generator cable

2 x Measuring leads

1 x Mains adapter



3 x Miniature-clips



2 x Crocodile clamps

EMC sensors
for disturbance
threshold and
signal detection



S31

4



Wire



6 x sockets



Cable

short

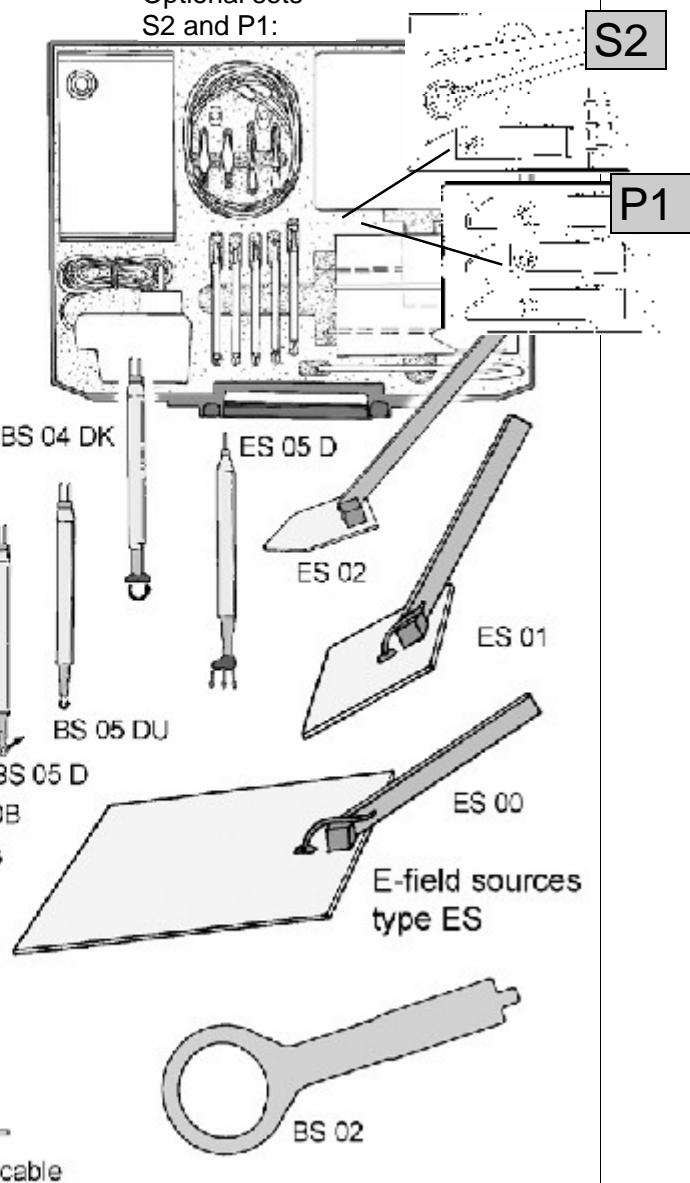


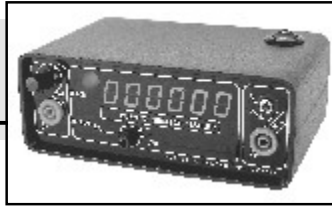
long



Adapter cable

Optional sets
S2 and P1:





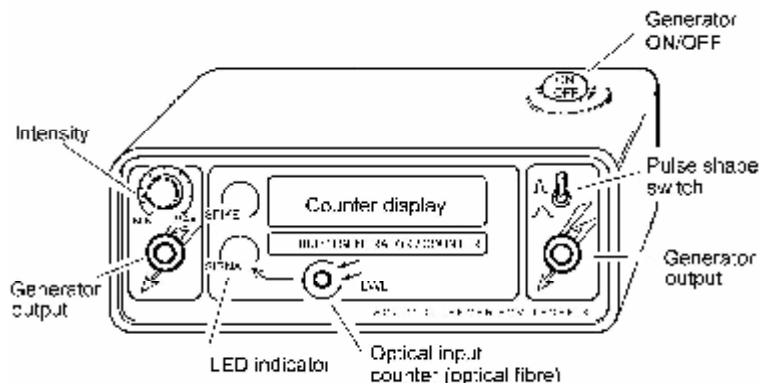
Burst Generator SGZ 21

LANGER
EMV-Technik

Burst Generator SGZ 21

Technical data

Output	max. 1,5 kV Burst 2/10 ns
Auxiliary energy	Plug-in power supply unit 12 Volt DC
Display	counter, 6-parts
Measuring time	1 sec
Dimension	ca. 154x62x100 mm



Special feature

The isolated output of the SGZ 21 facilitates trouble shooting with a wide variety of measurement set-ups.

You can:

- feed selective **disturbance currents** through individual sections or the entire unit under test.
- generate **electrical fields** between the unit under test and the environment (screen, metallic casing or structural parts)
- connect **field sources** that generate small fields (of a few mm²) and are used to exactly locate the susceptible points in the layout.

The SGZ 21 burst generator has been specially designed for development-accompanying measurements directly in electronic modules.

Compared to test generators that generate ESD and burst pulses for device testing, it provides attenuated disturbances directly on the electronic modules for the identification of faults. These are fed into the GND system of the unit under test by conductive coupling without destroying the electronics.

The SGZ 21 is based on the pulse-rate procedure.

In connection with a sensor that is included in the E1 disturbance immunity development system, this procedure enables you to assess modifications to the unit under test within a second and thus considerably shortens the development time. A counter with optical input is integrated into the SGZ 21 to evaluate the sensor signals.



Magnetic Field Probe Set S2

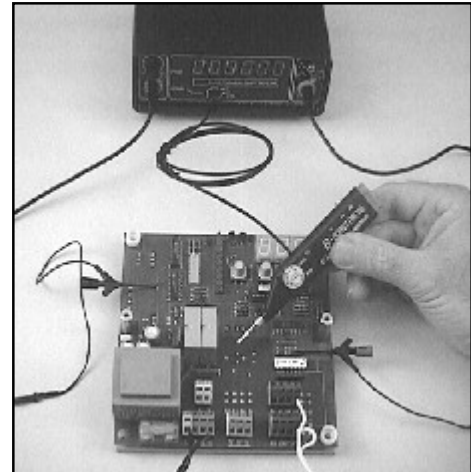
Contents

active magnetic field probe
with probe heads:

Magnetic field probe
Magnetic field probe
Instructions
Case

MSA 02
05 R (weiß)
05 U (orange)
05 K (schwarz)
MS 101
MS 102 U

175x140x32 mm³



Measure the magnetic field distribution on your p.c.b. and thus determine the exact path of the disturbance current. You can dimension specific corrective measures and evaluate the effect of modifications to the GND system, for example, within seconds.

Measure the burst current in an isolated circuit:

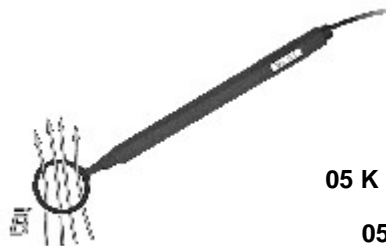
on cables

with probe
MS 102U



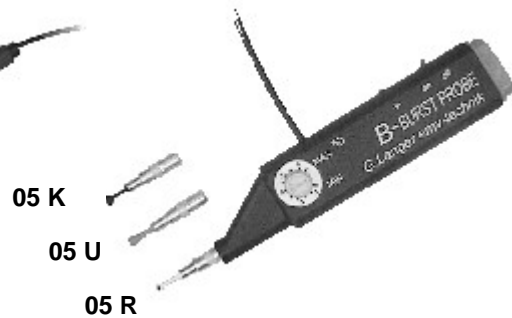
on casings
and screens

with probe
MS 101



in your p.c.b.

Resolution <1mm
with probe
MSA 02



The MS 102U and MS 101 probes have a fibre-optic output and work without auxiliary energy. The MSA 02 probe contains an amplifier with a fibre-optic output for connection to the SGZ 21 or an optical receiver. Three exchangeable probe heads for various measuring tasks are included in the scope of delivery.

The S2 probe set and the SGZ 21 burst generator are an optimum combination and supplement the E1 disturbance immunity development system.