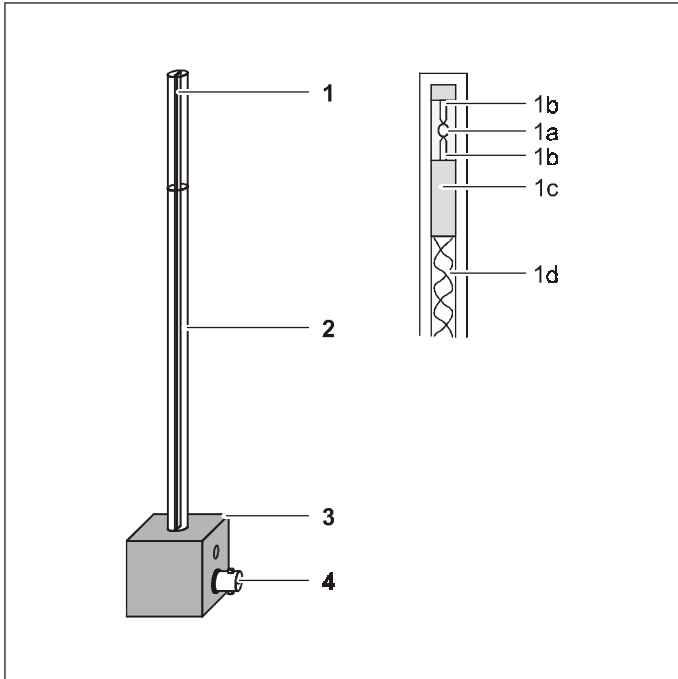


06/05-W97-Bb



Instruction Sheet 737 35

E-Field Probe (737 35)

1 Support

Detector diode (1a), dipole antenna (1b), graphite layer (1c), Cu conductor paths (1d)

2 Plastic tube

3 Base

4 Signal output

1 Technical data

Frequency range:	8.5-11.5 GHz
Detector diode:	Silicon Low Barrier Schottky
Bias current draw:	10 μ A
Polarisation:	linear in the longitudinal axis
Sensitivity:	approx. 10 mV *
Output signal:	AC
Output:	BNC socket
Base:	Steel, coated
Length:	295 mm
Weight:	400 g

* Measured on a rotating antenna platform (737 405) in the radiating aperture of the horn antenna (737 21) using a Gunn oscillator (737 01) with PIN modulator (737 05) and isolator (737 06)

Note

The E-field probe requires only the bias current for the detector diode in order to operate. Applying external voltages of over 10 V will risk destroying the detector diode.

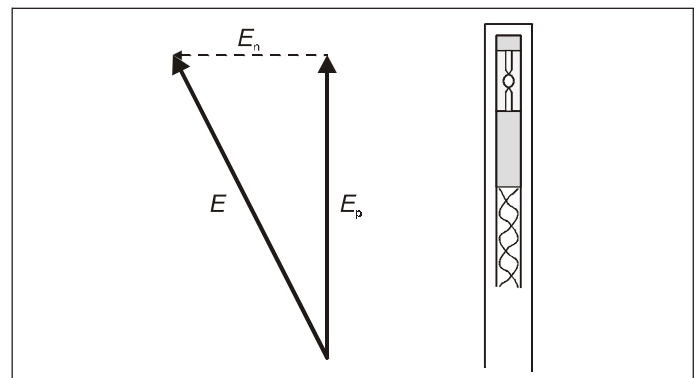
- Do not connect E-field probe to function generators or power supplies.

2 Description

The E-field probe is used for point measurement of the electrical field strength in microwave fields at 8.5-11.5 GHz. The design keeps interference of the field under analysis to a minimum. The magnetic field present at the same location does not trigger the E-field probe (which is as it should be).

The built-in detector diode requires a small bias current which is automatically provided by the Gunn power supply with amplifier (737 020) or the Gunn power supply with SWR meter (737 021).

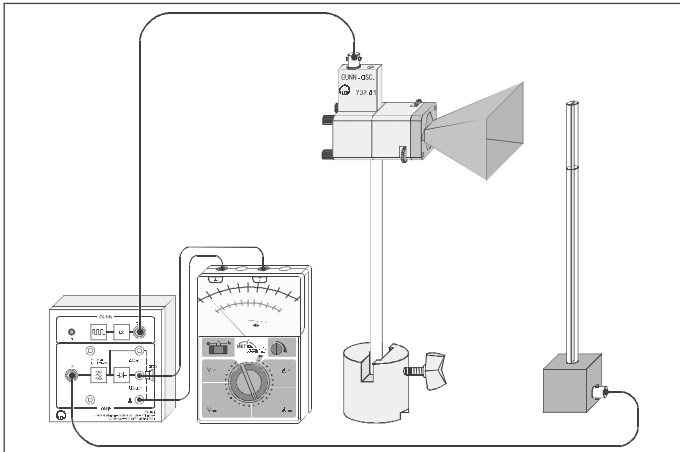
In microwave fields of low power density such as are generated when using the Gunn oscillator (737 01), the output voltage of the E-field probe is proportional to the square of the parallel components E_p of the electrical field strength. The detector diodes demodulate the high frequency oscillations of the microwaves in the received signal.



3 Operation

3.1 Configuration with Gunn power supply with amplifier:

- Connect E-field probe to INPUT on Gunn power supply with SWR meter (737 021).

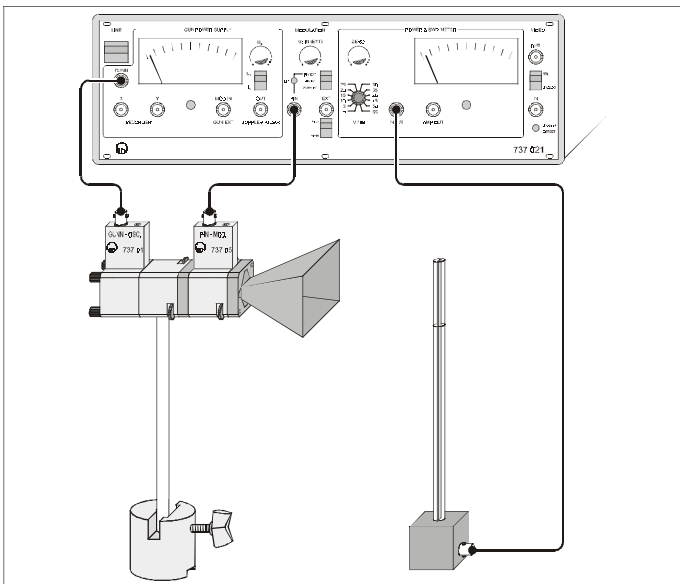


Also needed:

- | | |
|------------------------------------|--------------|
| 1 Gunn Oscillator | 737 01 |
| 1 Large Horn Antenna | 737 21 |
| 1 Gunn Power Supply with Amplifier | 737 020 |
| 2 HF cables, 2 m | 501 022 |
| 1 Voltmeter, U max. 10 V | e.g. 531 100 |

- Connect E-field probe to AMP IN of the Gunn power supply with amplifier (737 020).

3.2 Configuration with Gunn power supply with SWR meter:



Also needed:

- | | |
|------------------------------------|---------|
| 1 Gunn Oscillator | 737 01 |
| 1 PIN Modulator | 737 05 |
| 1 One-Way Attenuator | 737 06 |
| 1 Large Horn Antenna | 737 21 |
| 3 HF cables, 2 m | 501 022 |
| 1 Gunn Power Supply with SWR Meter | 737 021 |