Physical Environment

MiniZap systems are intended for operation in a laboratory environment, protected from excess dust and liquids.

- No condensing humidity or standing water on the floor or work surfaces.
- No significant dust or other contamination.

Operating limits

Temperature:	15 - 40° C
Humidity:	10 - 50%, non-condensing
Altitude:	5000 feet max.

Storage limits

Temperature:	0 - 50° C
Humidity:	10 - 90%, non-condensing
Altitude:	5000 feet max.

Test Area Considerations and Site Preparation

Special Consideration for ESD Testing

This device complies with the requirements of the EMC Directive, 89/336/EEC, as stated in the declaration of Conformity. However, the ESD test pulse is by nature an interference test and can therefore create a possible source of disturbance to other electronic equipment that is not intended for test. This device should be used in an environment free of other equipment that could be affected by these emissions, or in a shielded room.

Maintenance

There are no, user servicable parts within the MiniZap. Service is solely by Keytek-trained, authorized technicians.

Decommission Issues

When decommissioning the MiniZap the following precaution must be taken.

The MiniZap contains nickel-cadmium batteries. These are considered a hazardous material which must be removed before disposal of the remainder of the unit. Local laws and regulations may require special consideration in disposal.Consult the factory for recommendations for disposal.

INTRODUCTION

The patented MiniZap model MZ-15/EC is a small, portable, lightweight ESD* simulator designed with special emphasis on simulating real world ESD phenomena in a repeatable manner. The MZ-15/EC and the MZEC1 through MZEC4 Model Groups that are based on it are designed for Engineering, Production and Field Service applications.

*Electrostatic Discharge

INTRODUCTION (CONT.)

The model MZ-15/EC operates at voltage settings to ± 15 kV in the Air Discharge mode and to ± 10 kV in the Contact or Current Injection mode.* Operation can be either hand held or while mounted on a (user-supplied) tripod, preferably with a plastic head.

The model MZ-15/EC may be operated with an AC plug-in adapter or with internal rechargeable NiCd batteries.

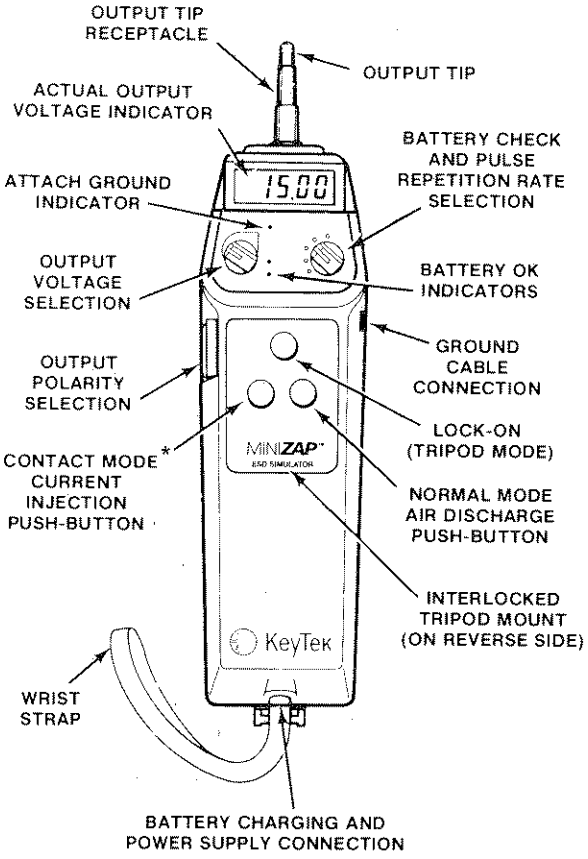
KeyTek has refined the simulation technology to provide air discharge and Contact Mode (current injection) test waves that not only meet the requirements of ESD test standards and simulate real-world ESD's, but also allow correlation of test results between the MZ-15/EC and any appropriately configured KeyTek Series 2000 simulator, since both series are totally repeatable.

The fast risetimes produced simulate a fast approach hand/metal discharge stressing the EUT (equipment under test) properly even with normal variation in actual tester approach speeds.

TRUE-ESD® Air Discharge ("NORMAL" mode): Simulates a fast approach hand/metal discharge (see specifications). Standard MiniZap models are supplied with 150pF/330 ohm (standard) or many optional RC discharge networks.

Fast Rise Current Injection, FR/CI™ ("CONTACT" mode): Provides current injection "equivalent" per the revised IEC 801-2 with a fast rising slope (see specifications). Supplied with 150pF/330 ohm (standard) or many optional RC networks. (They include the Model HBM-MZ-15, providing human body model ***waves*** for MIL-STD-883C and the draft MIL-STD-1686B.)

*To 8 kV at up to 20/s; to ~10 kV at up to 1/s.



*U.S. Patent No. 4,721,899.

Figure 1
Typical MiniZap ESD Simulator

SPECIFICATONS

System Description

The Model MZ-15/EC MiniZap is tripod mountable, and includes IEC Air Discharge ball tip TPA-2, IEC Contact Mode pointed TPC-2 OMNI-TIP*, a safe IEC ground cable, AC adapter/battery charger, set of four built-in long life rechargeable batteries, and operator manual, all fitted into a soft carry case.

Feature

Voltage Range	±0.5 to ±15kV
Air Discharge	Standard IEC 801-2 TPA-2 tip, and optional, TPA-1 tip with fastest and most realistic risetime up to 4kV.
Contact Mode (See Notes 1,2)	0.7 to 1.0 ns risetime independent of charge voltage; 3.75/kV ±10% peak current, i.e. 30A @ 8kV.
RC Network (See Note 3)	150 pF/330 ohm std per IEC 801-2, 1991 revision.
Lock On	std (w/safety interlock)
Rep Rate	Single shot as well as 1/sec and 20/sec repetitive operation.

Notes: (1) Relay actuated per the revised IEC 801-2. (Two million shot warranty on replaceable relay module in the MZ-15/EC.)

(2) The standard TPC-2 OMNI-TIP is specifically designed to meet the reduced requirements of the revised IEC 801-2 standard (namely 0.7 to 1.0 ns risetime, and 3.75A/kV peak current). The optional TPC-1 provides a much faster (~200 ps) risetime wave, with higher peak (~5 to 8A/kV), typical of actual, worst-case human discharge.

(3) Consult factory for other RC network requirements.

* U.S. Pat. No. 4,803,594

SPECIFICATIONS (CONT.)

Feature	
High Voltage and Display	Digital display with 10V resolution measures actual HV at the tip. DC voltage accuracy ±3% typical, ±5% maximum.
Ground Connect Warning	LED indicates ground cable not connected to MiniZap.
Power	Operated either from 120 VAC, 50/60 Hz or 4 internal NiCd batteries w/LED charge status indicator. (220/240 VAC, 50/60 Hz and European plugs optional.)
MiniZap Size	10″ x 3.5″ x 3.2″ (25.4 cm x 8.9 cm x 8.1 cm)
MiniZap Weight	29 oz (822 gm) nominal plus case & accessories.