



ZTEC Probe Manual

Probes ZT6101
ZT6102
ZT6103

User's Manual: 0004-000056
Revision 5

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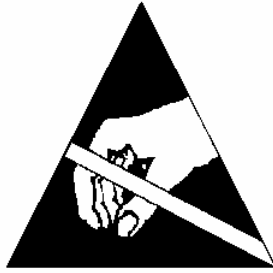
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Handling Precautions for Electronic Devices Subject to Damage by Static Electricity

This instrument is susceptible to Electronic Static Discharge (ESD) damage. When transporting, place the instrument or module in conductive (anti-static) envelopes or carriers. Open only at an ESD-approved work surface. An ESD safe work surface is defined as follows:

- The work surface must be conductive and reliably connected to an earth ground with a safety resistance of approximately 250 kilo Ohms.
- The surface must NOT be metal. A resistance of 30–300 kilo Ohms per square inch is suggested.

Ground the frame of any line-powered equipment, chassis, test instruments, lamps, soldering irons, etc., directly to the earth ground. To avoid shorting out the safety resistance, ensure that the grounded equipment has rubber feet or other means of insulation from the work surface.

Avoid placing tools or electrical parts on insulators. Do NOT use any hand tool that can generate a static charge, such as a non-conductive plunger-type solder sucker. Use a conductive strap or cable with a wrist cuff to reliably ground to the work surface. The cuff must make electrical contact directly with the skin; do NOT wear it over clothing.

Note: Resistance between the skin and the work surface is typically 250 kilo Ohms to 1 mega Ohm using a commercially-available personnel grounding device.

Avoid circumstances that are likely to produce static charges, such as wearing clothes of synthetic material, sitting on a plastic-covered stool (especially when wearing woolen material), combing the hair, or making extensive pencil erasures. These circumstances are most significant when the air is dry.

When testing static sensitive devices, ensure DC power is ON before, during, and after application of test signals. Ensure all pertinent voltages are switched OFF while circuit boards or components are removed or inserted.

Revision History

Rev	Date	Section	Description
1	2-03-06	All	Initial Release
2	3-13-06	All	Updated ZT412
3	5-15-07	All	Updated ZT410
4	5-25-07	All	ZT4610
5	4-10-08	All	ZT4210, changed format, added rev. history

General Safety Summary

Review the following precautions to avoid injury and prevent damage to any products connected to the probe.

To Avoid Fire and Personal Injury

Observe Maximum Working Voltage. Do not use the probes above the voltages listed in Table 1.

Table 1 - Maximum Working Voltage

	Maximum Working Voltage (V dc, CAT I)
ZT6101	600
ZT6102	300
ZT6103	600

Do not elevate the common terminal.

Do not operate with suspected failures.

Do not operate in wet/damp conditions.

Do not operate in an explosive environment.

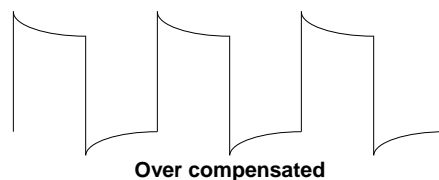
Keep product surfaces clean and dry.

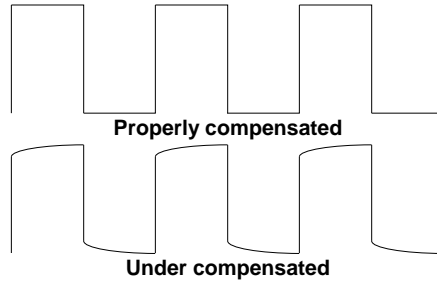
Compensating your probe

To maximize the bandwidth of an attenuating probe, the probe capacitor must be adjusted such that the input capacitance of the scope is canceled. The 10x probes have a built in compensation network. To compensate the probe:

1. Attach the probe to the oscilloscope
2. Connect a 1 kHz square wave to the probe tip
3. Use the provided adjustment tool to adjust the compensation network (located on the probe tip on the ZT6103 and on the BNC connector on the ZT6101) to obtain a waveform that is as square and flat topped as possible. The waveform should not have overshoot or rounding. See Fig 1 for the correct square wave response.

Figure 1 - Probe compensation square wave response





Specifications

The system bandwidths for the various ZTEC Instruments products versus Probe is listed in table 2

Table2 - System Bandwidths (in MHz)

	ZT6101	ZT6102	ZT6103
ZT4210	300	17	280
ZT4611	450	17	480
ZT410	100	15	100
ZT412	150	10	150
ZT431	90	15	90
ZT432	90	7	100
ZT450-20	250	80	250
ZT450-50	NA	70	NA
ZT450-55	450	15	450
ZT452-20	50	30	250
ZT452-50	NA	30	NA
ZT452-55	NA	NA	450
ZT1428	100	20	100

If your instrument is not represented in Table 2, please visit our website at www.ztecinstruments.com for current information.

Table 3 – Electrical Characteristics

	ZT6101	ZT6102	ZT6103
Attenuation	10x	1x	10x
Input Resistance	10M Ω	1M Ω	10M Ω
Input Capacitance	14pF	100pF	8pF
Compensation	Yes	None	Yes

For probes which are able to be compensated, refer to the compensation procedure.



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