

RT-ZP03

Tastteiler/Probe

Benutzerhandbuch

User Manual



3622281702



Test & Measurement

Benutzerhandbuch / User Manual

Version 04

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Important hints

Declaration of Conformity

CE The manufacturer declares the conformity of this product with the actual required safety standards in accordance with the Low Voltage Directive IEC 61010-031 Safety requirements for electrical equipment for measurement, control and laboratory use.
Part 031:
Safety requirements for hand-held probe assemblies for electrical measurement and test

WEEE/RoHS Directives



This electronic product is classified within the WEEE/ RoHS category list as monitoring and control equipment (category 9). Category 9 products are exempted from the restrictions under the scope of the RoHS directive. Your help and efforts are required to protect and keep clean our environment. Therefore return this electronic product at the end of its life either to the manufacturer or take care of separate WEEE collection and professional WEEE treatment yourself. Do not dispose as unsorted municipal waste!

EC Directives:

- WEEE Directive 2002/96/EC - Waste Electrical and Electronic Equipment
- RoHS Directive 2002/95/EC - Restriction of the use of certain Hazardous Substances in Electrical and Electronic Equipment

IEC Measurement Categories

The measurement categories refer to transients from the power system. Transients are short, very fast (steep) current and voltage variations which may occur periodically and nonperiodically. The level of potential transients increases as the distance to the source of the low voltage installation decreases.

- **0** (instruments without measured measurement category): Other circuits that are not connected directly to the mains
- **Measurement CAT II:** Measurements on circuits electronically directly connected to the mains (e.g. household appliances, power tools, etc.)
- **Measurement CAT III:** Measurements in building installations (e.g. power distribution installations, power switches, firmly installed sockets, firmly installed engines etc.).
- **Measurement CAT IV:** Measurements at the source of the low voltage installations (e.g. meters)

Symbols

The following symbols may appear on the product or in this instruction manual:



Caution, risk of danger. Refer to manual.



Caution, risk of electric shock.

IEC Pollution Degrees

- Pollution Degree 1 - No Pollution or only dry, non conductive Pollution. The Pollution has no influence.
- Pollution Degree 2 - Only non-conductive Pollution. Occasionally, however, a temporary conductivity caused by condensation must be accepted.
- Pollution Degree 3 - Conductive Pollution occurs or dry, non-conductive Pollution occurs which becomes conductive due to condensation which is to be expected.

Safety Information

Read the following safety precautions to avoid personal injury and to prevent this product or products connected with it from fire or damage. This probe should be used by qualified personnel only.

Indoor use only:

This probe is intended for an indoor use only. Do not use this probe in wet or damp environments. Keep the surface clean and dry. Do not use the probe in explosive atmospheres.

Connecting the probe:

Before connecting the probe to a circuit under test make sure the probe is connected to a grounded measurement instrument.

Using the probe:

Do not use this probe with voltages exceeding the limits in the data sheet. This probe should not be used in circuits with measurement category II, III or IV. With increasing frequency the voltage on the probe tip should not be higher than illustrated in the derating curve.



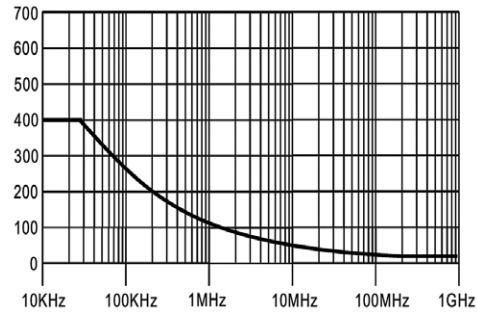
If the manufacturers specifications are not observed, this can result in electric shock, fire and/or serious personal injury, and in some cases, death.

The probe lead should not be connected to any other potential than earth ground.

Specifications

1:1/10:1 Probe RT-ZP03		
Electrical specifications		
Attenuation ratio:	1:1	10 : 1
Bandwidth:	10 MHz (-3dB), typ.	300 MHz (-3dB), typ.
Rise time:	35 ns, typ.	1.15 ns, typ.
Input impedance:	1 M Ω 82 pF	10 M Ω 12 pF
Input voltage:	max. 55 V _{RMS}	max. 400 V _{RMS} (600 V transient overvoltage)
Miscellaneous		
Temperature range:	0 - 40 °C	
Relative humidity:	max. 80%, without condensation	
Altitude:	max. 2000 m	
Polution degree:	2	
Cable length:	ca. 1.20 m	

Derating




 Note that the input impedance of the probe decreases as the frequency of the applied signal increases.

Fig. 1: Derating curve

Included in delivery



- 1 Probe
- 2 Ground lead
- 3 Retractable hook
- 4 Adjustment tool
- 5 Protection cap
- 6 Identification tags
- 7 IC Insulating cap
- 8 Additional probe tip
- 9 Ground clip

Fig. 2: Parts included in delivery

Adjustment

The probe can be adjusted for low (LF) and high frequency compensation (HF).

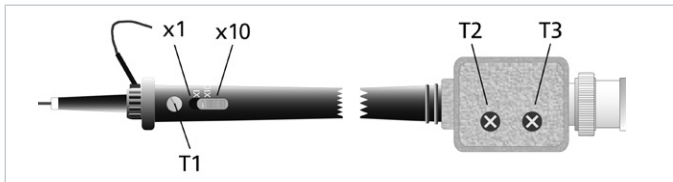
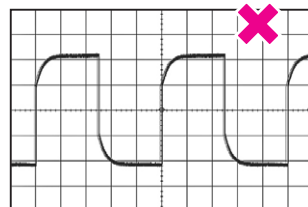
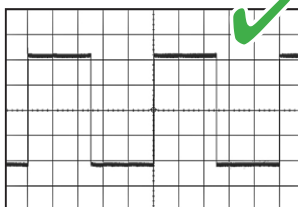
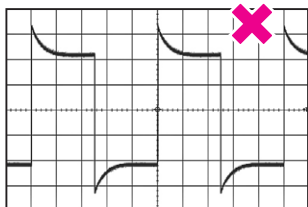


Fig. 3: Compensation trimmer

LF adjustment

Connect the probe to a 1 kHz square wave signal. Adjust LF compensation trimmer T1 for optimum square wave response.

1 kHz Signal (LF)



RF adjustment

The probe has two adjustable trimmers for RF compensation. Before starting the adjustment make sure the trimmers are in a center position. Use the probe adjust output on the oscilloscope or a pulse generator (less than 1ns rise time) for full bandwidth adjustment. Set the timebase of the oscilloscope to 5ns/div. Start the RF adjustment with trimmer T3 and turn it until the peak of the adjustable pulse response reaches the end level without any overshoot. Then, turn trimmer T2 in the same way, but accept a small overshoot for the first few nanoseconds. Fig. 4 shows the compensation times for both trimmers.

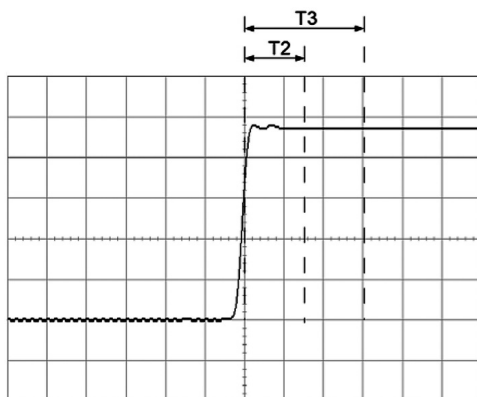


Fig. 4: HF adjustment

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