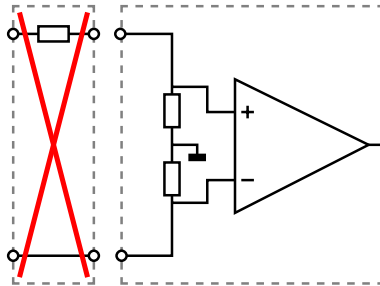


Differential attenuator TP-DA25

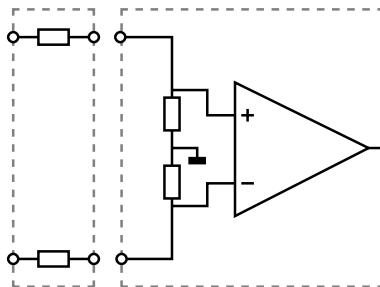


The Differential attenuator TP-DA25 is a passive differential 1:25 attenuator, combined with a low noise differential measure lead. It is specially designed to be used with the Handyscope HS6 DIFF.

Due to the differential inputs of the Handyscope HS6 DIFF, a standard attenuator or attenuating oscilloscope probe cannot be used without introducing measuring errors, because these are single ended and only have attenuation in one of the two signal paths.



Instead a differential attenuator with attenuation in both signal paths is required.



A differential input also means that both sides of the input have a high impedance. There is no connection to ground as in conventional oscilloscopes which are used with coax cables. Using a coax cable on the Handyscope HS6 DIFF would result in the instrument picking up a lot of external interference.

The specially designed Differential attenuator TP-DA25 has a high Common Mode Rejection Ratio (CMRR), it is very insensitive to external interfering signals. The two ends can be placed up to more than two meters apart, while picking up very little interference. With a conventional oscilloscope with a standard oscilloscope probe this is not possible. The maximum distance between the positive side and ground is then usually limited to approximately 20 cm. And this 20 cm is very susceptible to interference. The Differential attenuator TP-DA25 for the Handyscope HS6 DIFF does not have this disadvantage. External interference is very well suppressed by the special construction of the Differential attenuator TP-DA25. Measuring between two distant points is now possible.

The Differential attenuator TP-DA25 can simply be placed directly on the input of the instrument and the test probes directly on the 4 mm banana plugs at the end of the measure lead. The Differential attenuator TP-DA25 has a passive design and does not require a battery.

Safety and operating instructions



Read the operating instructions carefully and especially observe the safety information. If you do not follow the safety instructions and information on proper handling in these operating instructions, we assume no liability for any resulting personal injury or damage to property. Such cases will invalidate the warranty/guarantee.

Safety

- The Differential attenuator TP-DA25 is not a toy. Keep it out of the reach of children and pets.
- Do not leave packaging material lying around carelessly. These may become dangerous playing material for children.
- Protect the Differential attenuator TP-DA25 from extreme temperatures, direct sunlight, strong jolts, high humidity, moisture, flammable gases, vapours and solvents.
- Do not place the Differential attenuator TP-DA25 under any mechanical stress.
- If it is no longer possible to operate the Differential attenuator TP-DA25 safely, take it out of operation and protect it from any accidental use. Safe operation can no longer be guaranteed if the Differential attenuator TP-DA25:
 - is visibly damaged,
 - is no longer working properly,
 - has been stored for extended periods in poor ambient conditions or
 - has been subjected to any serious transport-related stresses.
- Please handle the Differential attenuator TP-DA25 carefully. Jolts, impacts or a fall even from a low height can damage the Differential attenuator TP-DA25.
- Also observe the safety and operating instructions of any other devices which are connected to the Differential attenuator TP-DA25.

- Never use the Differential attenuator TP-DA25 immediately after it has been brought from a cold room into a warm one. The condensation generated could destroy the Differential attenuator TP-DA25. Allow the Differential attenuator TP-DA25 to reach room temperature before connecting and using it. This may take several hours.
- For installations in industrial facilities, follow the accident prevention regulations for electrical systems and equipment of the government safety organization or the corresponding authority for your country.
- In schools and training facilities and hobby and self-help workshops, the use of measuring devices must be monitored by trained and responsible personnel.
- Protect the Differential attenuator TP-DA25 against electromagnetic fields, such as speakers, during use and storage.
- Check the Differential attenuator TP-DA25 and test leads for damage prior to each use. Do not use the Differential attenuator TP-DA25 if damaged in any way.
- Never conduct measurements if the protective insulation is damaged (torn, missing, etc.).
- Do not use the Differential attenuator TP-DA25 immediately prior to, during or just after a thunderstorm (chance of lightning! / high energy over voltage). Please make sure that your hands, shoes, clothing, the floor, switches, switching components, etc. are dry.
- Do not use the Differential attenuator TP-DA25 if the cover is neither properly nor fully closed. Risk of fatal electric shock!
- When measuring, make sure your fingers do not reach over the protective barrier and hence touch the test leads. When conducting measurements and if the test leads do not work securely, never touch exposed wires, connection parts, plugs or circuits. Risk of fatal electric shock!
- Never use the Differential attenuator TP-DA25 on voltages higher than $1000 V_{DC}$ / $1000 V_{AC\ peak}$. That can cause a fatal electric shock and damage the Differential attenuator TP-DA25.
- Be extremely careful when measuring direct voltages higher than $42 V_{DC}$ or alternating voltages higher than $30 V_{AC\ rms}$. Risk of fatal electric shock!
- Do not measure any voltages higher than the permissible input values. Disconnect all power circuits and discharge all capacitors before conducting any resistance measurements, diode tests or continuity tests. The measuring results could be inaccurate otherwise.

Software

- In the Multi Channel software, set the **Probe setting** of the channel(s) with a Differential attenuator TP-DA25 connected to **25 x** to get proper values along the axis.

Miscellaneous

- Consult a professional if you require assistance with Differential attenuator TP-DA25 operation, safety or connection.
- Maintenance work, adjustments and repairs may be carried out only by a professional or at a specialist workshop.
- If you have questions which remain unanswered by these operating instructions, contact our technical support service or other technical personnel.

Specifications

Attenuation	25 x, differential
Bandwidth	2.5 MHz
Impedance	25 MOhm // 15 pF (on an input with 1 MOhm impedance)
Maximum input voltage	1000 V CAT II
Connectors	
Instrument side	isolated BNC connector
Test point side	red and black 4 mm shrouded banana plugs
Dimensions	
Total length	2000 mm
Length to split	800 mm
Length individual ends	1200 mm
Width	50 mm
Height	25 mm
Weight	140 g
Color	black
Certifications and compliances	
CE	yes
RoHS	yes
Accessories	
Color coding rings	5 x 3 rings, various colors
Suitable instruments	Handyscope HS6 DIFF



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