

4 kV, 50 Ω SMA Wideband Pick-Off Tee PT-45B-TNC

Advanced TLP/HMM/HBM Solutions

- Wideband pick-off tee for TLP/VF-TLP measurements
- General purpose voltage probe 45:1
- Nominal pick-off transfer coefficient -33 dB
- DC to 3 GHz bandwidth ($S_{31} \pm 2$ dB)
- Insertion loss typ. 0.8 dB at 3 GHz
- max. 4 kV peak pulse voltage (1.6 μ s pulse width)
- max. 80 V DC (port 1, port 2 to port 3)

1 Description

The wideband pick-off tee can be used to measure the voltage amplitude of incident and reflected waves in a 50Ω transmission line. Pulse input and output are electrically equivalent and can be also changed in the setup.

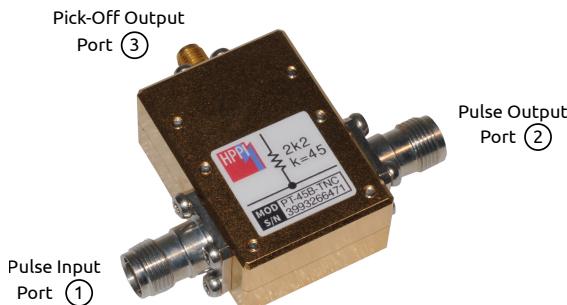


Figure 1: PT-45B-TNC connectors

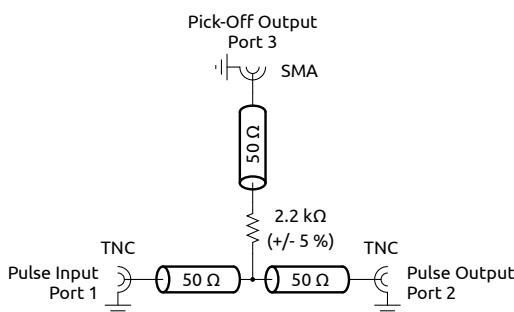


Figure 2: PT-45B-TNC schematic diagram

Input (Port 1): 50Ω pulse force input.

Output (Port 2): 50Ω pulse force output.

Pick-Off Output (Port 3): This output must be terminated with 50Ω . Normally it is directly connected to the oscilloscope input. The pick-off voltage transfer coefficient is calculated $k = (R+50)/50$ where $R = 2.2 \text{ k}\Omega$, which results in a voltage transfer coefficient of $k = 45$. The voltage transfer coefficient k can be calculated also from Fig. 4 using $k = 1/(10^{(S_{31}/20)})$, with S_{31} in [dB].

CAUTION: IF THE MAXIMUM INPUT VOLTAGE OF THE OSCILLOSCOPE IS 5 V THEN THE MAXIMUM ALLOWED TLP VOLTAGE IN THE 50Ω TRANSMISSION LINE IS $5 \times 45 = 225$ V. A HIGHER SIGNAL LEVEL MAY DAMAGE THE OSCILLOSCOPE INPUT. IT IS RECOMMENDED TO CONNECT AN ADDITIONAL ATTENUATOR IN SERIES, ACCORDING TO YOUR REQUIREMENTS.

2 Electrical Characteristics

2.1 Frequency Response (50Ω S-Parameter)

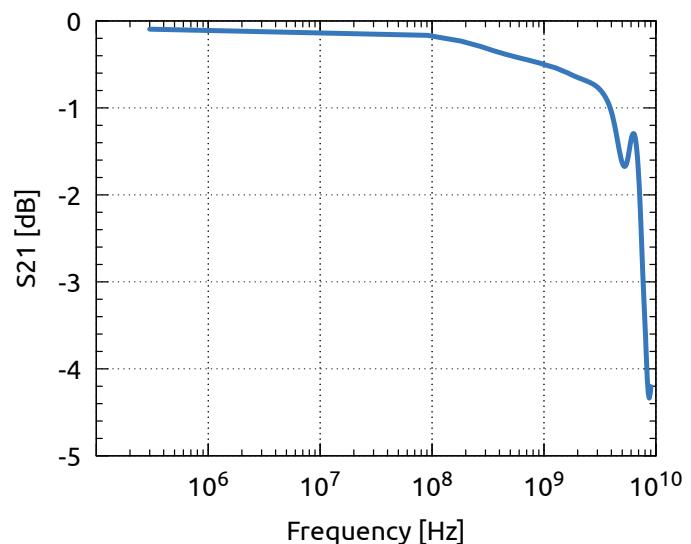


Figure 3: Typical insertion loss of the PT-45B-TNC from port 1 to port 2 (Fig. 1)

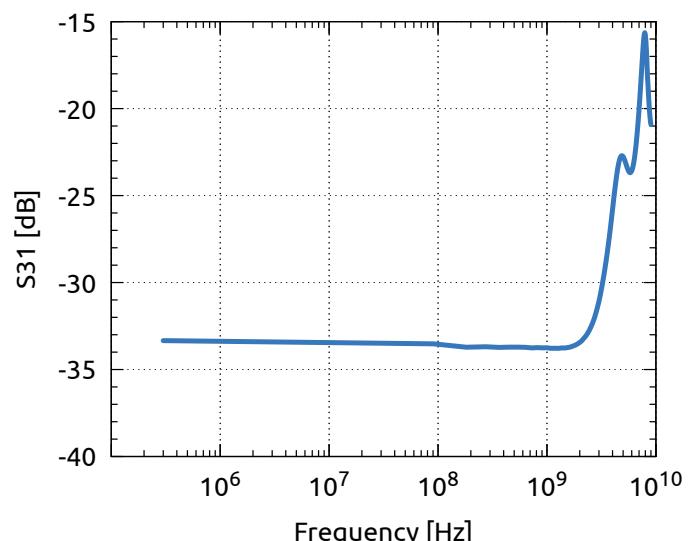


Figure 4: Typical transfer characteristic of the PT-45B-TNC from port 1 or port 2 to port 3 (Fig. 1)

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3 Ordering Information

Pos.	Description	Part No.
01	50 Ω TNC Wideband Pick-Off Tee ($k = 45$)	PT-45B-TNC

General

The product data contained in this data-sheet is exclusively intended for technically trained staff. You and your technical departments will have to evaluate the suitability of the product for the intended application and the completeness of the product data with respect to such application. Our products are solely intended to be commercially used internally and should not be sold to consumers. This data-sheet is describing the specifications of our products for which a warranty is being granted by HPPI GmbH. Any such warranty is granted exclusively pursuant the terms and conditions of the respective supply agreement. There will be no guarantee of any kind for the product and its specifications. For further information on technology, specific applications of our product, delivery terms, conditions and prices please contact HPPI:

High Power Pulse Instruments GmbH
Stadlerstrasse 6A
D-85540 Haar, Germany
Phone : +49 (0)89 8780698 - 440
Fax : +49 (0)89 8780698 - 444
E-Mail : info@hppi.de

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