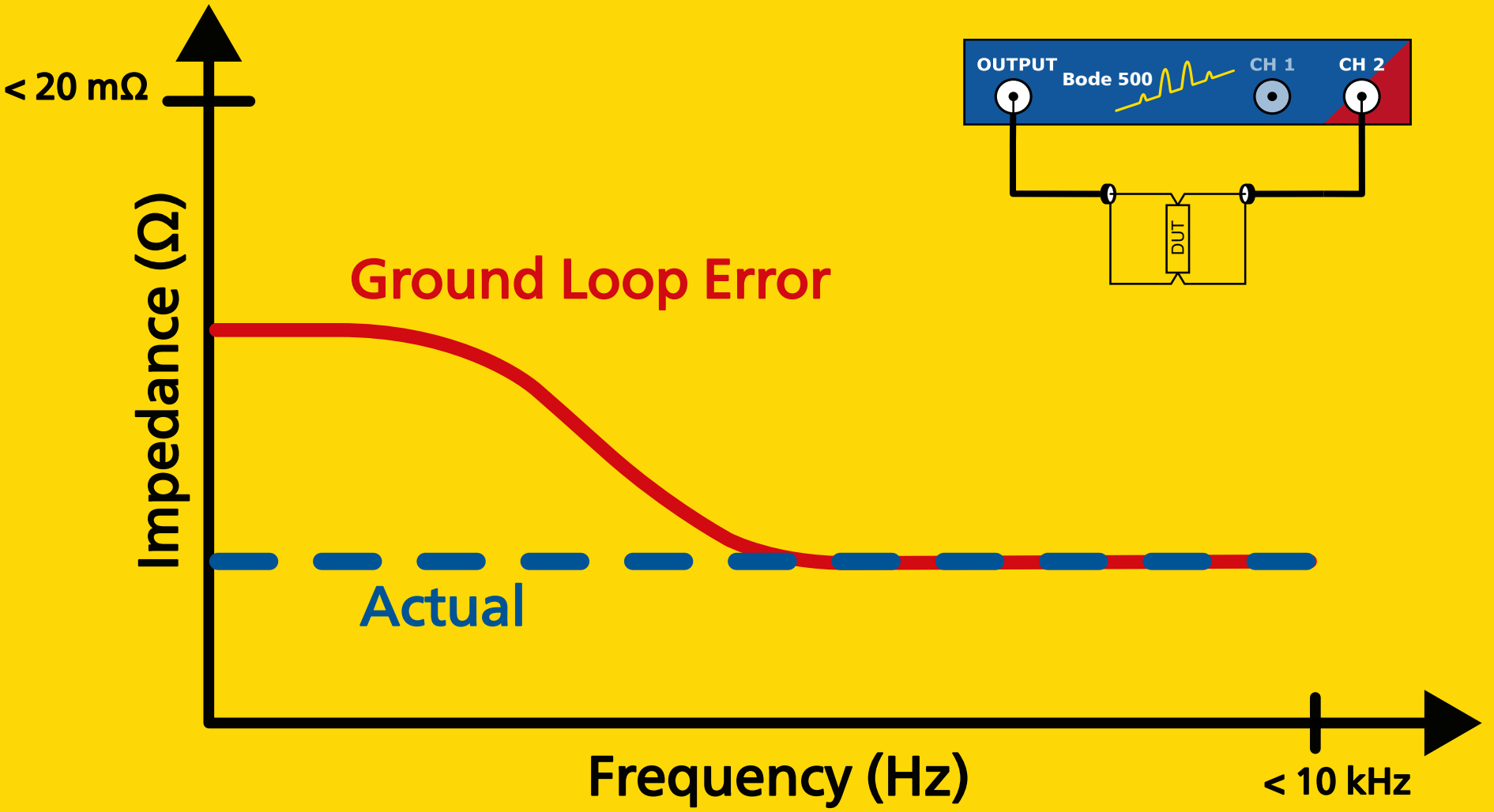
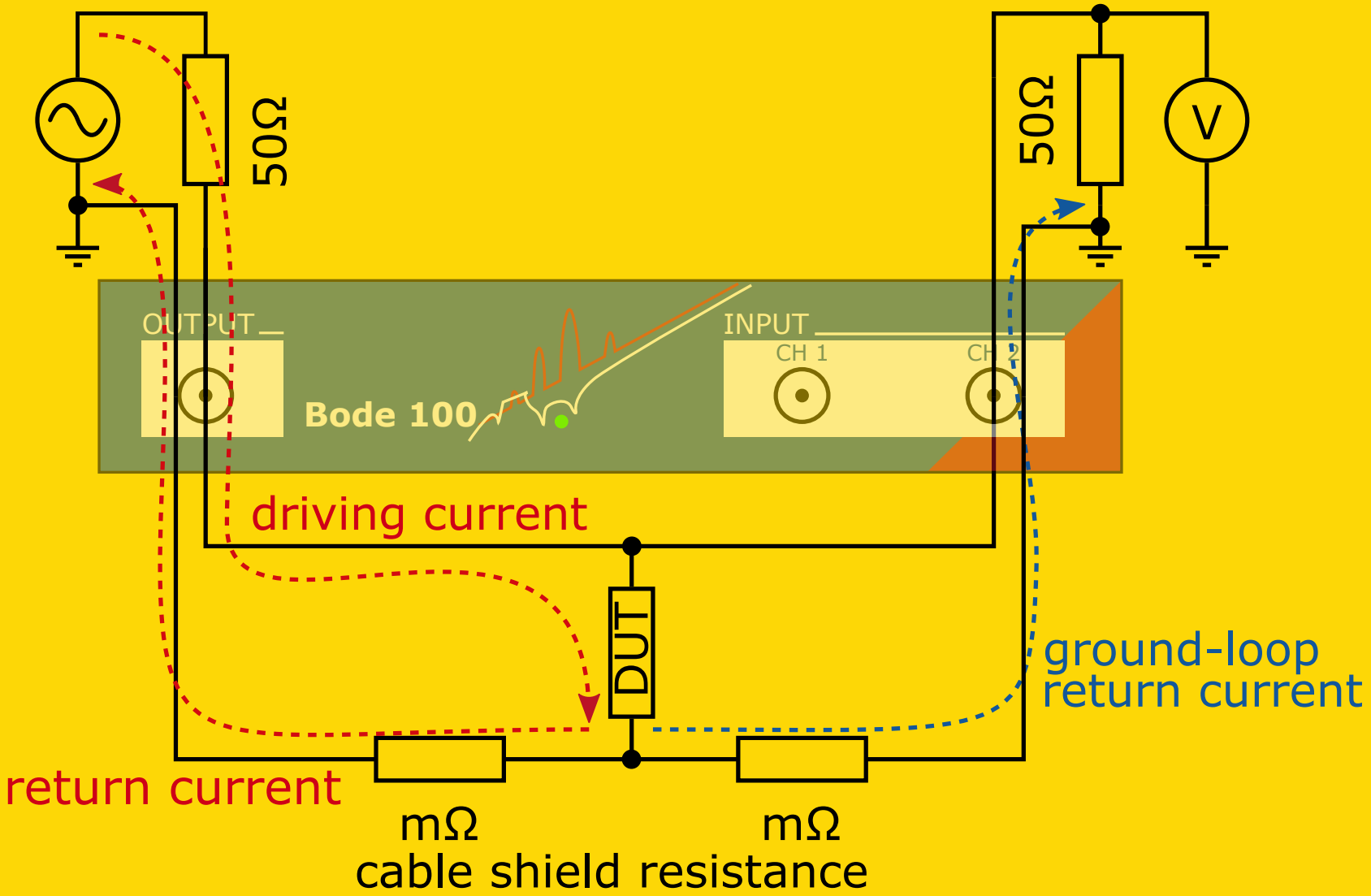
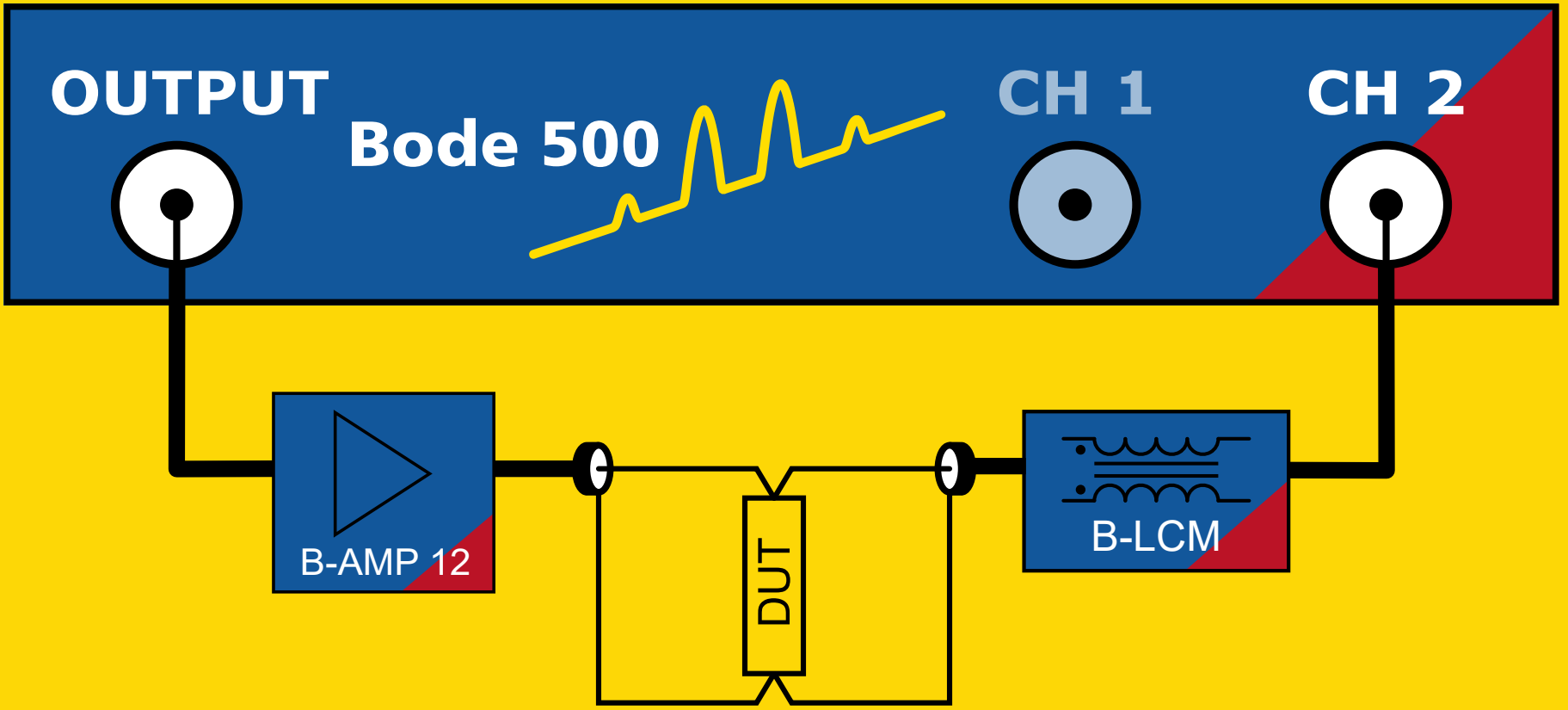
How to Identify a Ground-Loop Error in Shunt-Thru Measurements?





In Shunt-Thru setup, the grounds of the signal source and the input channel are connected internally in the Bode 100 and 500, a ground loop is formed. This ground loop can cause a current that does not return to the source but flows to the CH2 GND, causing a systematic error. The ground-loop error is larger when measuring smaller impedance at lower frequencies.

If the impedance values are less than 20 mΩ and measured below 10 kHz, a common mode choke like the B-LCM can be used to suppress the ground loop error. For very low impedance values of 1 mΩ and below, it is recommended to use an amplifier such as B-AMP 12 to boost the signal and increase the signal to noise ratio. The B-LCM and B-AMP 12 are recommended to be used together with Bode 100 and 500 to provide the best setup for low impedance at low frequencies.



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