

Connecting Victoria for In-Service Measurements

Connecting Victoria directly to a circuit in order to supervise it may cause problems, as the signal input interface of the instrument is of low impedance. This can easily be solved by using the AD210 attenuating probe.



Application Note AN.VASO.ISM.1.0.E



The Widest Range of Test and Measurement Products

TrendCommunications

The measurements in telecommunications networks can be divided into two main groups: intrusive or out-of-service measurements and non-intrusive or in-service measurements.

- Out-of-service measurements are generally made by introducing a test signal on a circuit that does not carry user information. The measurements are carried out starting from the possible modifications that the channel and intermediate instruments may cause in the test signal. When making out-of-service measurements, the user data flow across the circuit under test needs to be interrupted. Hence the name intrusive measurements.
- Unlike out-of-service measurements, the purpose of in-service measurements is to obtain information on the performance of a network, a link, a circuit, etc., without changing the user data flow. Not changing the user data means keeping its integrity during the measurement, without altering the waveform of the signal, were it electrical, optical or radio signal.

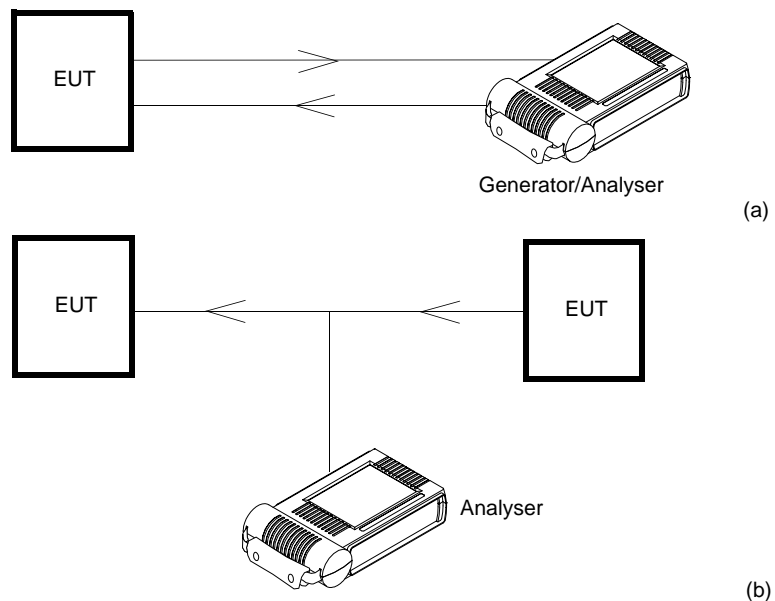
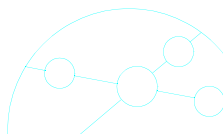


Figure 1

(a) Out-of-service measurement. A signal generator introduces a test signal to the entity under test (EUT) and the response is analysed by the receiver. (b) In-service measurement. The analyser is connected to the EUT without disturbing the signal it carries. No generator is needed.

This application note deals with the ways to connect a Victoria to a coaxial transmission line for in-service measurements, minimising the impairment. For this, you should use the AD210 attenuating probe.



THE AD210 ATTENUATOR

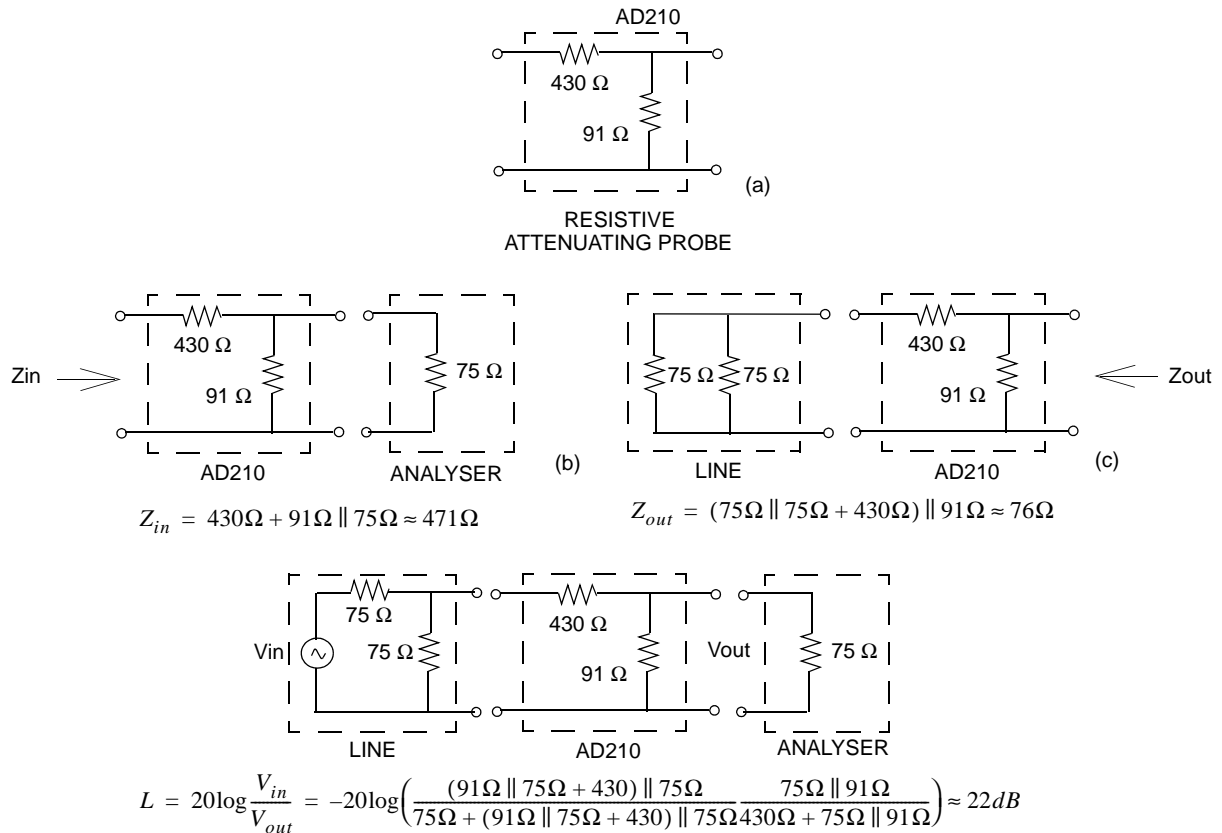


Figure 2 (a) Diagram of the AD210 attenuator. (b) Input impedance. (c) Output impedance. (d) Attenuation.

Connecting Victoria (low impedance input, 75 Ω) to a link for its surveillance, without taking any precautions, produces a decrease in power at the receiving end and a change in the adaptation of impedances on the line, which causes unwanted reflections. All this results in performance degradation of the received signal, or even a crash of the link.

The AD210 accessory is a resistive attenuator that makes it possible to connect Victoria to a non-protected monitoring point without degrading it. The probe lets you extract a small sample of the signal (approximately 0,63 % of the power), without altering the impedance match of the line.

The result is a considerable attenuation of the signal at the input of Victoria that can be compensated by programming the input gain block of the tester correctly.

PHYSICAL CONNECTION OF THE PROBE

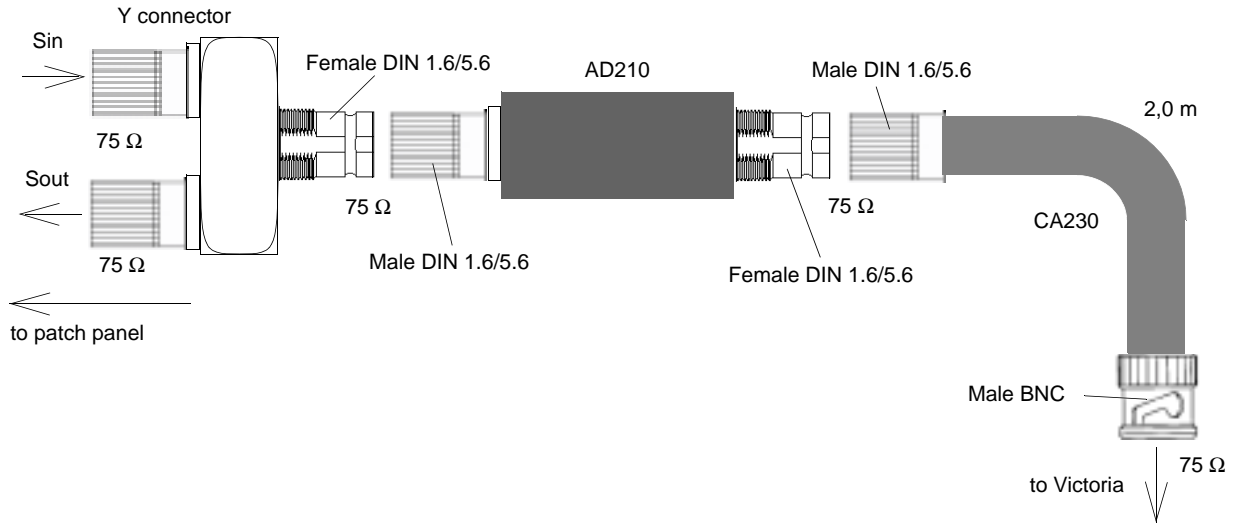


Figure 3

Connecting the AD210 attenuator to the network and to the tester.

The AD210 attenuator can be connected to a distribution frame by a Y adaptor. The connections to the attenuator should be of DIN 1.5/5.6 type, whereas the connector for Victoria should be BNC.



TrendCommunications

Trend Communications SL
Pujades, 60
08005 Barcelona (Spain)
www.trendcomms.com
info@trendcomms.com

Trend Communications Ltd
Knaves Beech Estate
Loudwater, High Wycombe
Buckinghamshire HP10 9QZ UK

International: +44 1628 524977
España:..... 93 300 3313
UK:..... 01628 524977
Deutschland: 089 32 30 09 11

Italia: 02 73 91 414
France: 01 69 35 54 70
India:..... 22 8597 463/4
US: 256 461 0790