Limiter

Model MP-1

Product Description

METRIX Electromagnetics Ltd.

Limiter MP-1

Product Description

1. General description

High disturbance voltage pulses created by the DUT can damage measurement receivers. A reliable protection of the first stages of EMI measurement receivers is the limiter MP-1.
The MP-1 reduces unwanted transients to a level that protects the receiver front end from damage. A reliable limiter reacts fast while it will secure the impedance requirements of a LISN. The limiter MP-1 is built up with semiconductors and it fulfils the requirements for connection with common used measurement receivers. The limiter will be simply connected between the coax connector of the LISN and the coax cable, which is connected to the receivers RF input.

2. Design and Function

The MP-1 consists of a 10 dB attenuator in the input circuit and a following semiconductor limiter. The input connector is of male 50 Ω BNC type. The output connector is a BNC female.

The input signal is first attenuated by 10 dB and then guided to the limiter circuit. In the case of transients the limiter becomes a short circuit and so the voltage peaks are grounded. The reference ground is the enclosure and the shielding of the BNC connectors.
The attenuator is important in order to guarantee a correct impedance matching to the receivers front-end and to discharge existing coupling capacitors.
The limiter is also working at impedance mismatch at the measurement device. However the measurement device must have an impedance of nearly 50 Ω so that the limiter can act according to the technical specification.

3. Operation and Safety Instruction

The limiter will be connected between the LISN and the EMC-receiver. The input is connected to the LISN. The output ist connected to the EMC-receiver. Do not exchange input and output connectors because this will cause malfunctioning and the limiter could be damaged.

Do not exceed 150 dBµV @ 50 Ω pulsed voltage at the input port because this could cause damage to the limiter.

If the housing of the limiter has a higher temperature than 65 °C than it must be withdrawn from the measuring circuit. High housing temperature indicates overloading of the limiter.

The limiter acts correct according to its specifications only in a 50 Ω environment. Ambient temperature of higher than 70 °C should be avoided.

The limiter is in compliance with ROHS requirements of the European Community.

4. Technical data

Frequency range:	DC ... 230 MHz
Insertion loss:	10 dB nom.
Limit:	~136 dBµV @ 50 Ω for positive and negative pulses
Nominal impedance:	50 Ω
Pulse Handling:	100 mWs
Max. input voltage:	100 V / 50 ms, 20 V continuous
Return Loss |S11|:	> 20 dB (VSWR 1.2:1)
RF Connectors:	BNC 50 Ω; male – input; female – output
Size:	(60 x 60 x 20) mm
Warranty	12 months

Manufacturer:

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