North Hills™ Signal Processing
A Porta Systems Company

ISO 9001:2000 Certified

RLB Series - Return Loss Bridges for UTP and Balanced Systems

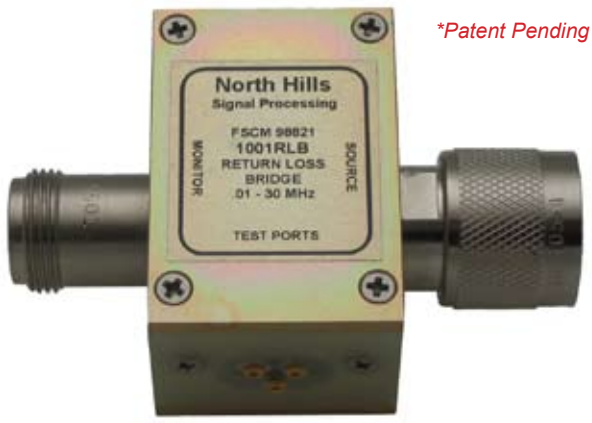
In communication circuits, maximum power transfer occurs when source and load impedance are matched. By relating it to a reference source impedance, the magnitude of a load impedance may, meaningfully, be expressed as “return loss.”

North Hills Series RLB Return Loss Bridges interface with network analyzers to measure return loss of UTP cable and other balanced systems. There are models for balanced reference impedances from 100 to 150 ohm for either 50 or 75 ohm network analyzers, covering frequency ranges from 10kHz to 300MHz.

There is also a companion **RLC Series of Return Loss Bridges** for 50, 75, and 93 ohm coax reference impedances and a **RLT Series** for twiaxial networks.

Application Note 155 explains the meaning of return loss and includes formulas and tables relating impedance, return loss, reflection factor and transmission losses.
Application Note 157 is a tutorial on return loss bridges.

**Patent Pending*



The North Hills RLB Series Return Loss Bridge

Features:

- Excellent Bridge directivity
- Frequency range 0.01 to 300 MHz
- 100, 110, 120, 135 and 150 ohm balanced impedances available
- Other impedances available upon request

Benefits:

- Ideal for UTP cable measurements
- Easy interface with 50 or 75 ohm network analyzers
- Excellent directivity across a broad frequency range

Test Procedure:

Step 1: Plug the bridge input directly into the Network Analyzer Output.

Step 2: Apply the bridge reflected signal output to the Network Analyzer input through a cable of impedance equal to that of the Network Analyzer.

Step 3: With test port open, normalize display to 0 dB.

Step 4: Terminate the test port with the test load and measure return loss directly.

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RLB SERIES - RETURN LOSS BRIDGES

Designed to facilitate the measurement of return loss in conjunction with a network analyzer.

Mechanical Specifications:

Unless otherwise specified

Connectors:	N type
Socket Terminals:	For ø.040 inch (18 GA.) PIN
Case/Cover Material:	Aluminum Alloy 6061-T6
Weight:	110 grams (3.9 oz) Typical

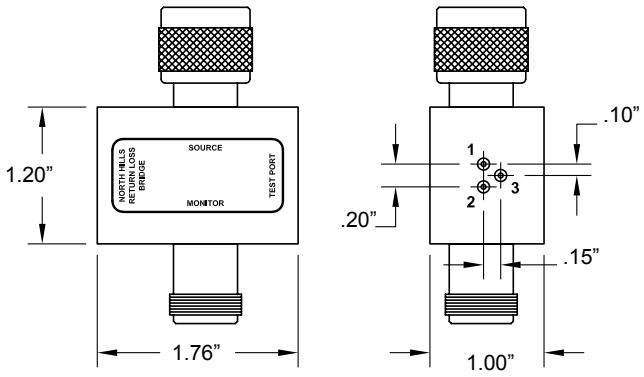


Figure 1. Return Loss Bridge Dimensions

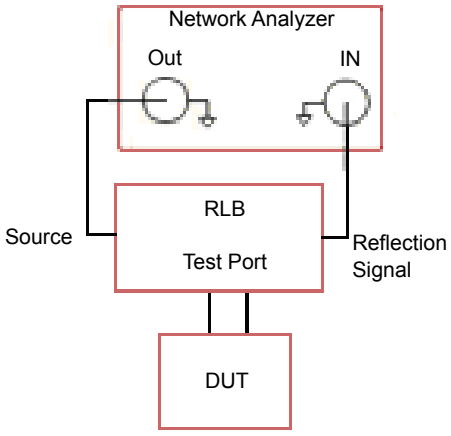
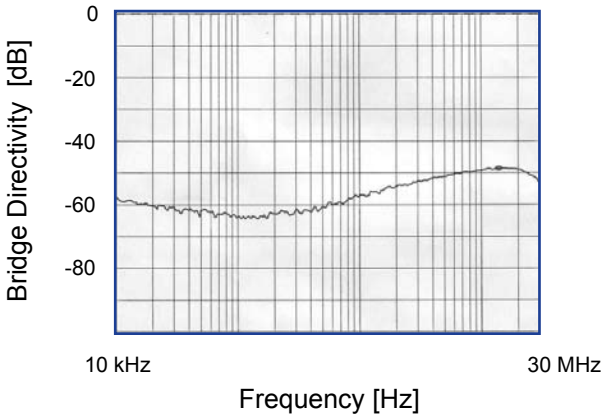


Fig. 2. Return Loss Bridge Measurement Circuit

Typical Characteristics - Model 51100RLB:



Ordering Information:

Impedance ohm	Network Analyzers	
	50 ohm Part#	75 ohm Part#
10kHz-30MHz		
100	51100RLB	71100RLB
110	51110RLB	71110RLB
120	51120RLB	71120RLB
135	51135RLB	71135RLB
150	51150RLB	71150RLB
0.1-100MHz		
100	52100RLB	72100RLB
110	52110RLB	72110RLB
120	52120RLB	72120RLB
135	52135RLB	72135RLB
150	52150RLB	72150RLB
1-300MHz		
100	53100RLB	73100RLB
110	53110RLB	73110RLB
120	53120RLB	73120RLB
135	53135RLB	73135RLB
150	53150RLB	73150RLB

Specifications subject to change without notice

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