



# BIRD

## Electronic Corporation

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Quality Instruments for  
RF Power Measurement

Instruction Sheet

for

Installation-Operation-Maintenance

TENULINE<sup>®</sup>

Model 8350-200

Coaxial Attenuators

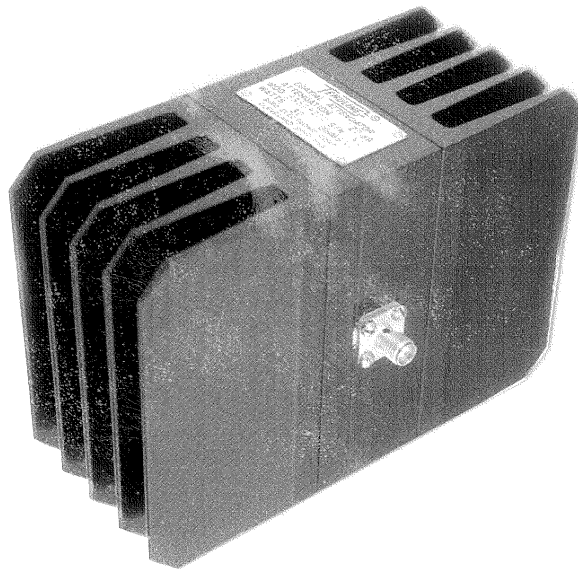
### GENERAL DESCRIPTION

The Model 8350-200 Attenuator is a low-reflection resistance network for application in the measurement of medium power in controlled and known amounts. With 50-ohm basic impedance, it is designed to match commonly used coaxial transmission line system.

This TENULINE<sup>®</sup> Model is a self-contained instrument intended to be cooled by natural convection in normal ambient air with a power input of 30 watts.

The RF input and output connectors at front and back are not the changeable style and must not be removed, but the unit is bi-directional and either connector may be used for input or output.

The unit may be used for isolation of power sources up to 30 watts, and for low level monitoring. The low power value obtained at the Attenuator output may easily be read on an oscilloscope or terminated in a small RF load resistor.



### THEORY OF OPERATION

The Model 8350-200 Attenuator is an electrically symmetrical "T" pad, with the power distribution on the legs being different. A "T" configuration is used to provide equal input and output impedance for the 50-ohm transmission line attenuation.

The input resistor is joined to the "T" leg joint in a housing designed to provide proper input impedance, and likewise the output resistor is so enclosed to return to the characteristic impedance of 50 ohms. The input and output legs being equal, it makes no difference which end is used for input and/or output.

### INSTALLATION AND OPERATION

The RF Attenuator is self-contained. No additional equipment or outside power is required. It should be placed as close as possible to the operating point.

The Model 8350-200 convection type attenuator is designed for portable use. It may be operated in any attitude provided clearance for proper air circulation is observed - generally not less than 3 inches all around.

With suitable cable, connect the attenuator to the transmitting equipment and load. The input side of the unit should be placed as close as feasible to the transmitter output. Connect the output to a load, oscilloscope, frequency counter etc., as required.

### MAINTENANCE

The Model 8350-200 TENULINE<sup>®</sup> is rugged in construction and relatively uncomplicated in design and should require only nominal routine attention. The attenuator is intended to operate for long periods of time if care is taken not to exceed its power handling capabilities.

The outside surface of the instrument should be wiped free of dust and dirt when indicated. Clean the input and output connectors and their sockets if necessary, with a dry cleaning solvent on a cotton swab stick. Provide adequate ventilation and observe normal precautions when using dry cleaning solvents.

Accurate measurement of the DC resistance between the input to ground, output to ground, and input to output will provide a good check of the condition of the attenuator. For these measurements, a resistive bridge with an accuracy of one percent or better at 50 ohms (such as Leeds & Northrop Model 5305 Test Set) should be used. Use low resistance leads, preferably a short piece of 50-ohm cable (RG 58A/U or RG 174/U) attached to male plugs which match the female connectors on the attenuator. When the resistance of the equipment is checked at room temperature, the measured readings should be close to the values listed on the data sheet shipped with the unit. The unit is not subject to field disassembly; if the unit requires further maintenance, it should be returned to the factory.

Model 8350-200 TENU LINE<sup>®</sup>

Coaxial Attenuator

Specifications

Power Rating .....	30 watt average continuous
Nominal Attenuation .....	20dB dc to 1500MHz
Impedance .....	50 ohms nominal
VSWR .....	1.10 to 1.00 max dc to 500MHz 1.15 to 1.00 max 500 to 1000MHz 1.20 to 1.00 max 1000 to 1500MHz
Maximum Deviation .....	±0.75dB
Ambient Air Temperature .....	-40 to 45°C (-40°F to 113°F)
Connectors .....	Female SMA
Operating Position .....	Any
Overall Dimensions .....	2-45/64 x 4-11/16 x 3-1/4" (68.7 x 119 x 82.6mm)
Weight .....	1 lb. 12 oz. (.79kg)
Finish .....	Lusterless black enamel (Fed. Spec. TT-E-527)
Input/Output Configuration ...	Symmetrical

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