

70 and 140 MHz Variable IF Delay and Amplitude Slope Equalizers

Models VEQ-1-70 and VEQ-1-140 (single channel)
Models VEQ-2-70 and VEQ-2-140 (dual channel)



This series of variable group delay and amplitude slope equalizers are designed to compensate for the nonlinear delay distortion and amplitude slope introduced by the various components and sub-systems of the satellite earth station.

Features

- Variable group delay (magnitude and center frequency)
- Variable amplitude slope
- Single or dual channels
- Unity gain
- Eight group delay selections standard per channel (up to twelve selections available)
- Alarm outputs

Number of Channels	Frequency of Operation (MHz)	Model Number
1	70 ±18	VEQ-1-70
2	70 ±18	VEQ-2-70
1	140 ±36	VEQ-1-140
2	140 ±36	VEQ-2-140

Specifications

Frequency	Refer to table
Number of channels	Refer to table
Number of group delay sections	Eight (four group delay modules)
Gain	0 dB nominal, at center frequency
Group delay adjustment range (70 ±18 MHz)	
Parabolic	0.04 to 0.15 ns/MHz ² (per section)
Linear	0 to ±1.5 ns/MHz (per section)
Group delay adjustment range (140 ±36 MHz)	
Parabolic	0.006 to 0.019 ns/MHz ² (per section)
Linear	0 to ±0.37 ns/MHz (per section)
Amplitude slope adjustment range	±3 dB
Input return loss	23 dB minimum
Output return loss	20 dB minimum
Input/output impedance	75 ohms
Amplitude flatness	±0.1 dB maximum
Power output (1 dB compression)	+8 dBm minimum
Third order output intercept point	+18 dBm
IF output level fault adjustment range	0 to -15 dBm (there is an internal switch to disable level alarm if required)

Options

1. Optional configurations.
 - 1-1. One group delay module (two sections).
 - 1-2. Two group delay modules (four sections).
 - 1-3. Three group delay modules (six sections).
 - 1-4. Four group delay modules (eight sections) standard.
 - 1-5. Five group delay modules (ten sections).
 - 1-6. Six group delay modules (twelve sections).

2. Fine adjustment equalizer module, 70 ±18 MHz.
 Group delay (Parabolic): 0.012 to 0.043 ns/MHz²
 (Linear): 0 to ±0.42 ns/MHz

11. Higher gain by addition of input amplification.
 - A. 10 dB gain minimum.
 - B. 20 dB gain minimum.

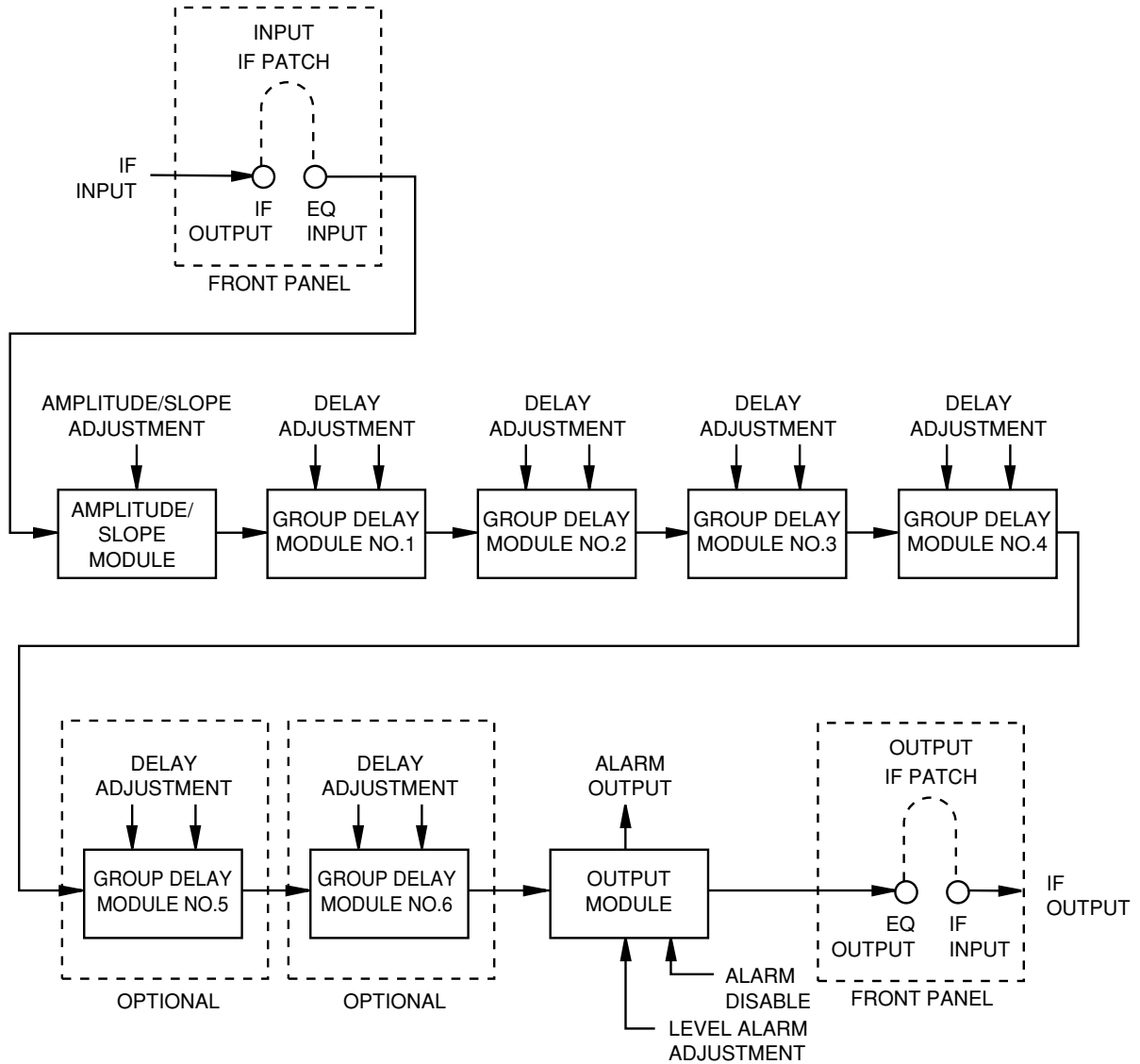
15. 50 ohm IF impedance.

Notes: Missing option numbers are not applicable to this product.

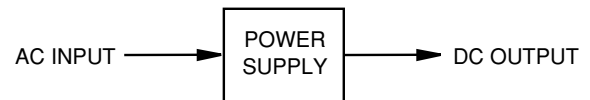
For literature describing the adjustment and performance of the variable IF delay and amplitude slope equalizers, refer to MITEQ's Technical Note 25T014.

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Functional Block Diagram



NOTE:
EACH GROUP DELAY MODULE
CONSISTS OF TWO INDEPENDENTLY
ADJUSTABLE GROUP DELAY SECTIONS.



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General Specifications

Primary Power Requirements

Voltage.....	100, 120, 220/240 VAC +10%, -13% (rear panel selectable), 250 VAC maximum
Frequency.....	47–63 Hz
Power consumption	4 W typical/channel

Summary Alarm

Contact closure/open for DC voltage and/or IF level fault

Physical

Weight.....	15 pounds (6.8 kg) nominal
Overall dimensions	19" [482.6mm] x 3.5" [88.9mm] panel height x 22" [558.8mm] maximum (chassis depth 20" [508mm] excluding protrusions)
IF connectors	BNC female
Summary alarm connector	DE-9P
DC voltage test point	Jack receptacle
IF level test point.....	Jack receptacle
IF level alarm (front panel).....	Red LED

Environmental

Operating

Ambient temperature	0 to 50°C
Relative humidity	Up to 95% at 30°C
Atmospheric pressure	Up to 10,000 feet

Nonoperating

Temperature.....	-50 to +70°C
Relative humidity	Up to 95% at 40°C
Atmospheric pressure	Up to 40,000 feet
Shock and vibration	Normal handling by commercial carriers



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