

1/3 Rack Mount Amplitude/Slope Equalizer Systems

TRE Series



Standard Unit

Shown with Option 17

Model TRE-100200 is ARSTRAT Compliant

 With Options 11 and 16: 2nd harmonic is
60 dBc at 2 GHz with 0 dBm output

Frequency (MHz)	Model Numbers
TRE Series	
50 – 90	TRE-050090
100 – 180	TRE-100180
950 – 1450	TRE-950145
950 – 1750	TRE-950175
950 – 2150	TRE-950215
1000 – 2000	TRE-100200

TRE Series 1/3 Rack Mount 1RU Configurations Available

See rear page of this brochure for detailed illustrations

- Up to three amplifier/equalizer channels in 1RU package
- 1:1 configuration: via use of RSU-TR switchover unit (see D-322)
- 1:2* and up to 1:12* configurations: via use of NSU2/NSUN controller (see D-323B)

*1:2 and up to 1:12 configurations require additional rack height for NSUN controller and additional channels

These third rack amplitude/slope equalizer systems offer independent gain and slope adjustment in the IF and L frequency bands. These systems are designed to compensate for long cable run loss and can be configured to provide system redundancy in a 1RU package.

TRE Units Feature

- RF hot-swappable units
- Rack mountable
- Current fault alarm/summary alarm
- Independent power supplies
- Remote status (Option 17 only)
- Module current fault detection
- CE Mark

Options

- Remote control for attenuation/slope adjustment, fault alarms
- Input/output signal monitors
- Increased gain
- Increased output power

U.S. Patent #7,510,090





Specifications	IF-Band	L-Band
Gain	20 dB minimum (at center frequency and 6 dB slope adjustment) 10 dB nominal (at 0 dB slope)	15 dB minimum (at center frequency and 6 dB slope adjustment) 18 dB nominal (at 0 dB slope)
Gain adjustment range	20 dB minimum	
Amplitude slope adjustment range	0 to 6 dB (see Figure 1)	0 to 6 dB (see Figure 2)
Amplitude flatness	0.5 dB p-p maximum (at 0 dB slope)	1.5 dB p-p maximum (at 0 dB slope)
Power output (1 dB compression)	+10 dBm minimum (at maximum gain and 6 dB slope)	+10 dBm minimum (at maximum gain and 0 dB slope)
Third order intercept point	+20 dBm minimum (at maximum gain and 6 dB slope)	+20 dBm minimum (at maximum gain and 0 dB slope)
Noise figure	10 dB maximum (at maximum gain and 6 dB slope)	10 dB maximum (at maximum gain and 0 dB slope)
Spurious	Below thermal noise	
AM/PM conversion	0.5°/dB maximum at 0 dBm output	0.5°/dB maximum at 0 dBm output
Input/output return loss	18 dB minimum	
Input/output impedance	75 ohms (50 ohms optional)	50 ohms

Note: TRE-100200 with Options 11 and 16, 2nd harmonic: 60 dBc at 2 GHz with 0 dBm output (ARSTRAT Compliant).

General Specifications

Primary Power Requirements

Voltage 95-250 VAC
 Frequency 47-63 Hz
 Consumption 10 W typical

Summary Alarm

Contact closure/open for DC voltage and/or amplifier alarm
 Status alarm readout on remote control bus (digital front panel required, Option 17)

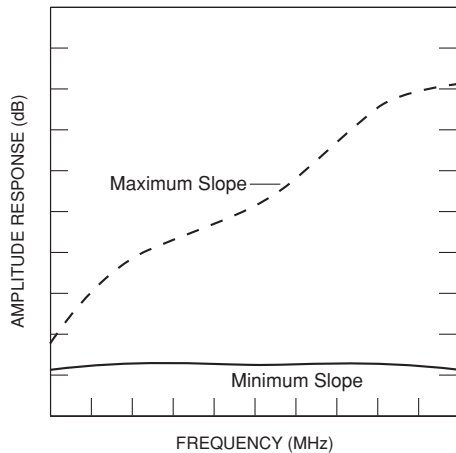
Physical

Weight 3 pounds (1.36 kg) typical
 Overall dimensions 5.70" [144.8mm] x 1.48" [37.6mm] x 18" [457.2mm] (excluding connectors)
 Connectors
 Primary power input IEC 320
 RF connectors SMA female
 3.5 mm compatible above 22 GHz
 Status interface DE-9S
 Redundancy interface DE-9P
 Remote interface (Option 17) RJ-45 female for Ethernet, RS422/485 available on status connector

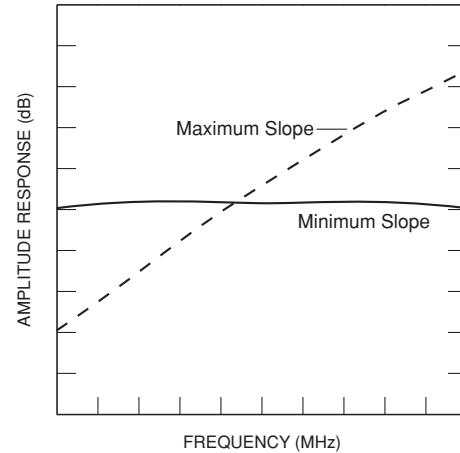
Environmental

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

IF-Band Slope Adjustment (Figure 1)



L-Band Slope Adjustment (Figure 2)



Options

1. Input monitor with -20 dBc nominal level.
2. Output monitor with -20 dBc nominal level.
11. Increased output power (L-band only).
Power output (1 dB compression): +20 dBm minimum (at maximum gain and 0 dB slope).
Third order intercept point: +30 dBm minimum (at maximum gain and 0 dB slope).
Output return loss: 14 dB minimum.
15. Impedance, 50 ohm (IF-band only).
16. Increased gain, 30 dB minimum (at center frequency and 6 dB slope adjustment).
17. Remote control 10/100Base-T Ethernet interface providing:
HTTP-based web server
SNMP 1.0 configuration
Alarm reporting via SNMP Trap
Telnet access
Password protection and selectable RS485/422
Gain control is 30 dB in 0.2 dB steps
Slope control is 6.0 dB in 0.1 dB steps

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

Option 1 will degrade noise figure proportional to loss of device inserted before amplifier/equalizer.

Option 2 will degrade output power compression point proportional to insertion loss of device inserted after the amplifier/equalizer.

For literature describing local control (front panel) and remote control (bus control), refer to MITEQ's Technical Note 25T066.

Rack Mount Frame

Accessories

1/3 Rack mount frame

Model number.....	OL-TR3-20
Weight	1.5 lbs. [0.68 kg] nominal
Dimensions.....	19" [482.6mm] x 1.75" [44.5mm] x 20" [508.0mm]

Single unit frame (includes rack slides)

Model number.....	OL-TR1-20
Weight	2 lbs. [0.9 kg] nominal
Dimensions.....	19" [482.6mm] x 1.75" [44.5mm] x 18" [457.2mm]

Dual unit frame (includes rack slides)

Model number.....	OL-TR2-20
Weight	3 lbs. [1.35 kg] nominal
Dimensions.....	19" [482.6mm] x 1.75" [44.5mm] x 18" [457.2mm]

TRE Series: 1/3 Rack Mount Amplitude/Slope Equalizer Systems

Some Configurations Using MITEQs Patented 1/3 Rack Mount Equipment

Three Channel Amplifier/Equalizer System: 3 - Standard TRE amplifier/equalizer models are shown, TRE amplifier/equalizer models (with Option 17 display) can be substituted



TRE Amplifier/Equalizer

TRE Amplifier/Equalizer

TRE Amplifier/Equalizer

1:1 Redundant Amplifier/Equalizer System: 2 - TRE amplifier/equalizer models (with Option 17 display) are shown, standard TRE amplifier/equalizer models can be substituted and 1 - 1/3 rack RSU switchover unit



TRE Amplifier/Equalizer

RSU-S/S-TR Switchover Unit

TRE Amplifier/Equalizer

1:2 Redundant Amplifier/Equalizer System: 1:2 Redundant Configuration shown using 3 - TRE amplifier/equalizer models (with Option 17 display) and 1 - NSU2 switchover unit



TRE Amplifier/Equalizer

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NSU2 Switch

Configure Up To 1:12 Redundant Equalizer System: 1:11 Redundant Configuration shown with 12 - TRE amplifier/equalizer models (with Option 17 display) and 1 - NSUN control unit

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NSUN Control Unit



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