

# ECLIPSE



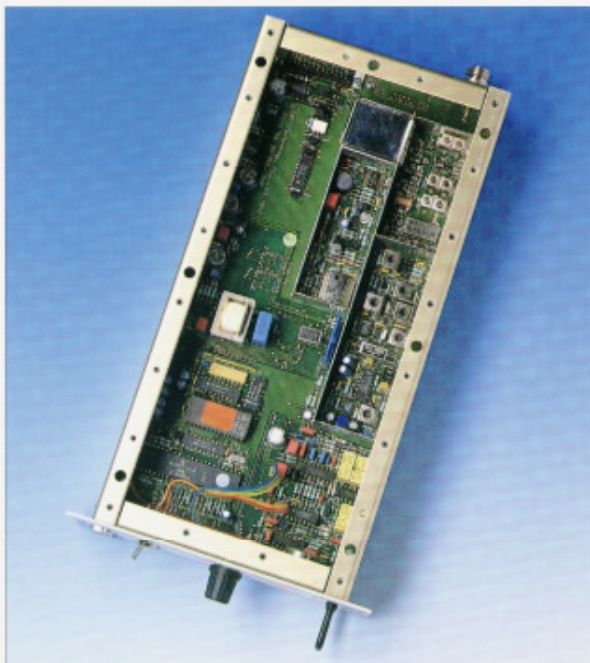
## Base Station/Repeater System

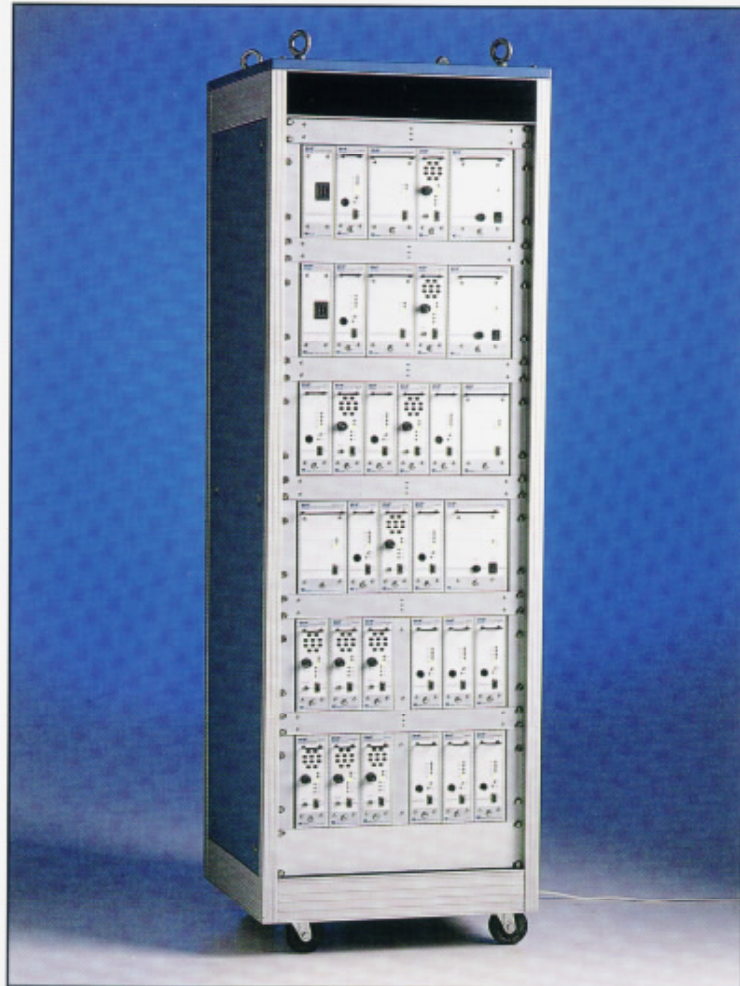
**RF** Technology

The **ECLIPSE** range is a totally new state of the art Base Station/Repeater system. Following an extensive survey of user requirements, high reliability and superb performance were combined with many unique features to produce a superior, user friendly product.

## Features and Advantages

- Exceptional systems performance.
- Modular construction with independent Receivers and Transmitters. This allows split RX and TX racking for convenient connection to multicouplers etc.
- Easily configured for Duplex, Simplex, Trunked or Linked applications.
- High Power Exciters can be used alone for 1-25 watt applications.
- Separate High Power Amplifiers can be added for 25-150 watt output.
- Transmitter power adjustable over a wide range to meet local licensing requirements.
- Synthesized design with programming by IBM compatible PC through front panel RS232 port on each Receiver and Transmitter.
- 100 channel capacity.
- Individually programmable CTCSS with squelch tail elimination for each channel.
- Programmable processor controlled repeater hang time.
- Internal links for flat or emphasised audio response.
- Wide Receiver and Transmitter frequency spreads.
- The 19" rack module positions can be simply coded to automatically select channel and CTCSS tones.
- All modules mate with readily available D range connectors.
- DCS compatible without modification.
- Direct FSK data transmission options are available for paging and data link applications.
- Balanced 4 wire 600 Ohm and Unbalanced audio I/O.
- Separate sub-audible ports allow tones and data to be repeated without regeneration, or for easy connection to tone panels.
- Isolated DC loop for PTT and COR functions.
- Built in diagnostics of: low supply voltage, power out, reverse power, receive signal strength, VCO voltage, channel information, squelch open/close, CTCSS, noise and carrier squelch.
- Remote monitoring, channel change and programming through RS232 port.
- Front panel display of alarm functions.
- System monitoring and service made easy with "TechHelp" software.
- 20 msec TX/RX for efficient data transmission.
- Carrier adjustable squelch from -140 to -70 dBm.
- Low signal alarm adjustable -140 to -70 dBm for links etc.
- Signal strength adaptive noise squelch virtually eliminates squelch tail on signals over 2 uV.
- Operational over temperature range -30° C to +60° C.
- Automatic protection with power reduction at high VSWR and temperature.
- All external preset controls are multi-turn potentiometers.
- Simulcast and Voting compatible.
- Monitor speaker included in Receiver.
- All modules operate from 13.8 Vdc (nominal 12v) supply.
- Fully rated linear Power Supply available.





**RF Technology Pty. Ltd.**

# ECLIPSE SERIES SPECIFICATIONS SUMMARY

	Frequency	Receiver	Exciter	Power Amplifier	Channel Spacing
<b>Eclipse 50 Series</b>	25-32 MHz	R50	T50	PA50A	Software selectable
	30-40 MHz	R50	T50	PA50B	
	38-50 MHz	R50	T50	PA50C	
<b>Eclipse 70 Series</b>	66-88 MHz	R71A	T70A	PA70	12.5,15,20,25,30 kHz in 5 or 6.25 kHz steps
<b>Eclipse 150 Series</b>	136-156 MHz	R150A	T150A	PA150A	12.5,15,20,25,30 kHz in 5 or 6.25 kHz steps
	148-174 MHz	R150B	T150B	PA150B	
<b>Eclipse 220 Series</b>	215-240 MHz	R220A	T220A	PA220A	6.25, 7.5, 12.5, 25 in 6.25 or 7.5 kHz steps
<b>Eclipse 350 Series</b>	300-330 MHz	R350D	T350D	PA350D	12.5,20,25,30 kHz in 10 or 12.5 kHz steps
	330-360 MHz	R350C	T350C	PA350C	
	360-380 MHz	R350A	T350A	PA350A	
	375-400 MHz	R350B	T350B	PA350B	
<b>Eclipse 500 Series</b>	400-430 MHz	R500A	T500A	PA500A	12.5, 25 kHz in 5, 10, 6.25 or 12.5 kHz steps
	425-453 MHz	R500D	T500D	PA500A / PA501A	
	450-490 MHz	R500B	T500B	PA500B / PA501B	
	485-520 MHz	R500C	T500B	PA500B / PA501B	
<b>Eclipse 800 Series</b>	800-830 MHz	R800A	T800A	n/a	12.5, 25 kHz in 6.25, 10 or 12.5 kHz steps
	850-870 MHz	R800B	T800B	n/a	
	896-930 MHz	R800C	n/a	n/a	
	928-941 MHz	n/a	T800C	n/a	

<b>General</b>	<b>Receiver</b>	<b>Exciter</b>	<b>Power Amp</b>	<b>With Fan</b>	<b>PA 501</b>	<b>SMPS-12</b>	<b>PS-PS</b>
----------------	-----------------	----------------	------------------	-----------------	---------------	----------------	--------------

<b>Weight</b>	1.45 Kg	1.8 Kg	3.55 Kg	4.85 Kg	4.65 Kg	2.6 Kg	8.0 Kg
<b>Dimension</b>	2UW	2UW	3UW	4UW	5UW	2UW	4UW

\*(width) 2UW=62mm(2 7/16 inch)

**Mounting Rack** 13UW wide, 4U high, 19 inch 4.55 kg  
**Blank Front Panel** Available in 1UW, 2UW, 3UW, 4UW width  
**Power** +13 Vdc or 120/240 volt, 50/60 Hz AC with SMPS12 power supply or PS12 power supply  
**Channel Capacity** 100 Channels, BCD coded 00-99  
**Tone Squelch** Fully programmable, one EIA Tone per channel  
**Programming** Through serial port of IBM compatible PC  
**Software** TechHelp (Dos) or Service Monitor (Win 95/98)  
**Test & Diagnostics** Front panel test connector and ALM, SQ, ALC, Tx and PWR LEDs  
**Audio Response** Selectable flat or 750uSec pre/de-emphasis  
**Audio Interface** Standard 600 Ohm 0dBm balanced and Hi-Z unbalanced

<b>Receivers</b>	<b>R50</b>	<b>R71</b>	<b>R150</b>	<b>R220</b>	<b>R350</b>	<b>R500</b>	<b>R800</b>
<b>Frequency spread for 1dB degradation</b>	25 MHz	15 MHz	20 MHz	25 MHz	5 MHz	10 MHz	25 MHz

**Frequency stability** 5 ppm std, 1 ppm optional 1 ppm standard ( TCXO )  
**Sensitivity** 0.2 uV for 12 dB SINAD, 0.28 uV for 20 dB Quieting  
**Spurious & Image** Rejection 90 dB  
**Selectivity** 80 dB at 25 kHz spacing per RS-204-C, 70 dB at 12.5 kHz spacing  
**Intermodulation** 80 dB per RS-204-C  
**Modulation acceptance** 7.5 and 3.75 kHz  
**Squelch** Noise squelch, adjustable from 6 to 26 dB SINAD Carrier squelch, adjustable from 1 to 200 uV  
**Audio response** +1 to -3 dB  
**Audio level** 600 Ohm line adjustable from -10 to +10 dBm Monitor output, 3 watts @ 4 Ohms Discriminator & subtone output 1 V peak at 100% system deviation  
**Audio Distortion** Less than 3 % at 1 kHz, 60% system deviation with 750 uSec de-emphasis  
**COS output** Opto-coupled +12V, GND and free Switch connections  
**Alarms** Unlock, tuning voltage, signal strength, external mute and supply voltage

Exciters / Transmitters	T50	T70	T150	T220	T350	T500	T800
<b>Frequency spread</b>	25 MHz	15 MHz	20 MHz	2 MHz	5 MHz	10 MHz	25 MHz
<b>Frequency stability</b>	5 ppm std, 2 ppm optional			1 ppm standard			
<b>Power output adjustable</b>				5 to 25 watts		1 to 15 watts	
<b>Power regulation</b>	+/- 10% from 12-16 Vdc, 0 to 50 deg C, all channels						
<b>Duty Cycle</b>	100% to 40 deg C						
<b>Carrier &amp; modulation attack time</b>	Less than 20 mSec						
<b>Spurious and harmonics</b>	Less than 0.25 uW						
<b>Audio response</b>	+1 to -3 dB						
<b>Audio distortion</b>	Less than 3% at 60% system deviation at 1 kHz						
<b>Residual hum &amp; noise</b>	Less than -50 dB relative to 60% system deviation						< -45 dB
<b>Audio input level</b>	600 Ohm line, -30 to +10 dBm Hi-Z input, 25 mV to 1 Vrms Subtone input compatible with receivers, Test microphone, 6 mV rms at 200 Ohms						
<b>Remote keying</b>	DC Opto-coupled input						
<b>External ref. option</b>	Allows the transmitter to be phase locked to an external 1 MHz reference						
<b>Alarms</b>	Unlock, tuning voltage, forward and reverse power, time out and supply voltage						

DC Power Consumption (DC Amps)	R50	R71A	R150	R220	R350	R500	R800
Idle	0.50	0.40	0.39	0.39	0.42	0.43	0.41
50% vol.	0.55	0.48	0.48	0.48	0.52	0.51	0.51
100% vol.	0.60	0.65	0.66	0.66	0.68	0.68	0.69

Transmitter		Standard					50 Watt PA		100 Watt PA		
Tx Model	Idle	2W	5W	10W	15W	25W	35W	50W	50W	75W	100W
T50	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	6.0	7.5	8.8
T70	0.3	1.6	2.2	3.0	4.0	4.7	4.4	6.0	n/a	n/a	n/a
T150	0.3	1.8	2.5	3.3	3.9	5.0	5.0	6.2	10.0	12.0	14.4
T220	0.2	2.3	3.2	4.2	5.0	6.6	n/a	n/a	n/a	12.8	15.0
T350	0.2	1.8	2.5	3.3	4.1	5.6	4.6	5.2	n/a	n/a	n/a
T500	0.2	2.3	3.2	4.2	5.0	6.6	4.4	4.8	n/a	n/a	n/a
T800	0.2	2.2	2.8	3.8	5.0	n/a	n/a	n/a	n/a	n/a	n/a

Note: for a repeater or base station add Rx, Tx and PA currents for a total figure

AC Power Input (AC Amps)		Quiescent			Tx On		PA On	
Switch Mode Supplies		Rx	Rx / Tx	Rx / Tx / PA	15W	25W	50W	100W
SMPS12-2	13.8 Vdc	0.18	0.21	0.21	0.67	0.58	1.22	2.14
SMPS28-1	28.0 Vdc	0.085	0.175	0.213	n/a	0.73	0.98	1.38
Linear Supply		Quiescent			Tx On		PA On	
PS12	13.8 Vdc	Rx	Rx / Tx	Rx / Tx / PA	15W	25W	50W	100W
		0.08	0.11	0.11	0.67	0.75	1.37	2.35

We reserve the right to alter specifications or design without notice. In any special critical application please consult with the manufacturer. This publication is issued to provide an outline of specifications of the products shown. It is not to form an order or contract or be regarded as a representation of the product unless agreed to in writing by the company.