

ECLIPSE ALARMS

LED FLASH CADENCE

RECEIVER ALARMS

TRANSMITTER ALARMS

Flashes 5 times, pause	Synthesizer unlocked	Synthesizer unlocked
Flashes 4 times, pause	VCO Tuning Voltage outside limits	VCO Tuning Voltage outside limits
Flashes 3 times, pause	Signal level below preset threshold (for fixed links)	Low forward power
Flashes 2 times, pause	Unused – future development	High reverse power
Flashes 1 times, pause	DC voltage supply voltage low or high	DC voltage supply voltage low or high
LED ON continuously	External Squelch is active	Transmitter timed out

COMMON ALARM INTERFACE (RTSC) CARD (option)

The receiver and transmitter alarms are combined as OR function so that any alarm condition provides a common alarm output. The common alarm output is provided through Pin 4 (DB25F) on the interface card. The common alarm output can be set active low or high, (default active low).

BATTERY CHARGER, CHANGE OVER CARD (option)

The battery trickle charger and change over card provides a separate alarm output that monitors the DC supply voltage. It is adjusted so that if the DC supply voltage falls below 11.5V, the relay connects the standby battery to the system. At the same time the alarm output signal goes low. The alarm signal returns high only when the DC supply rises above 12.2V and continues above that level.

ECLIPSE MODULES – Standard Factory settings

RECEIVER				TRANSMITTER			
Function	Level	Range (Vrms, dBm)		Function	Level	Range (Vrms, dBm)	
Discriminator Audio output	0.5V	0.3V	2.0V				
Direct Audio output	0.51V	0.3V	1.5V	High Z input		25 mV	1V
Line Level (600 ohm) output for 60% of max deviation	0.775V 0dBm	0.245V -10 dBm	2.45V 10 dBm	Line Level (600 ohm) input for 60% of max deviation	0.388V -6.0dB	0.0245V -30 dBm	2.45V 10 dBm
Noise Squelch (typical)	0.18uV -122dB	0.18uV -122dB	0.50uV -113dB				
Carrier Squelch (typical)	Min	1uV -150dB	999uV -47dB				
				Microphone input	6 mV	Into 200 ohms	

Antenna System Considerations

Single Frequency with T/R Switch

Controlled by Transmitter T/R output
T/R Switch will withstand high VSWR

Power Rating

VHF 100 Watts

UHF 50 Watts

Two Frequency Duplex Operation

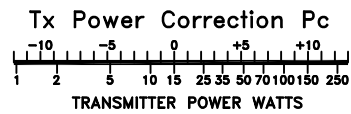
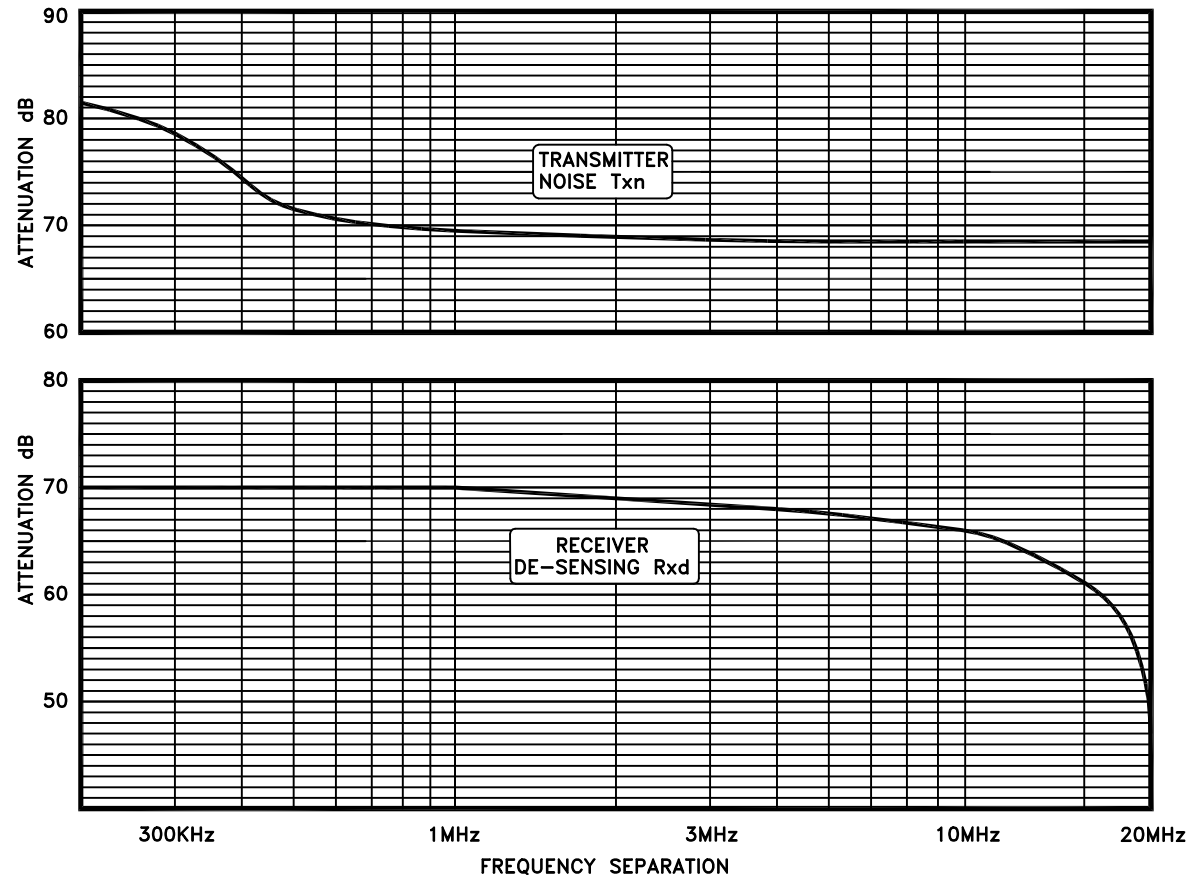
Always use double shielded coax

Tx – Rx Isolation see Duplex Operation Curves

Suppress Tx noise at Rx frequency $> T_{xn} + P_c$

Attenuate Tx signal at Rx input $> R_{xd} + P_c$

DUPLEX OPERATION CURVES FOR 400-520 MHz



$$\text{Minimum Tx freq. attenuation} = Rxd + Pc$$

$$\text{Minimum Rx freq. attenuation} = Txn + Pc$$

Audio and Control Interconnections

Typical Systems

Simple Repeater

Link Controlled Base

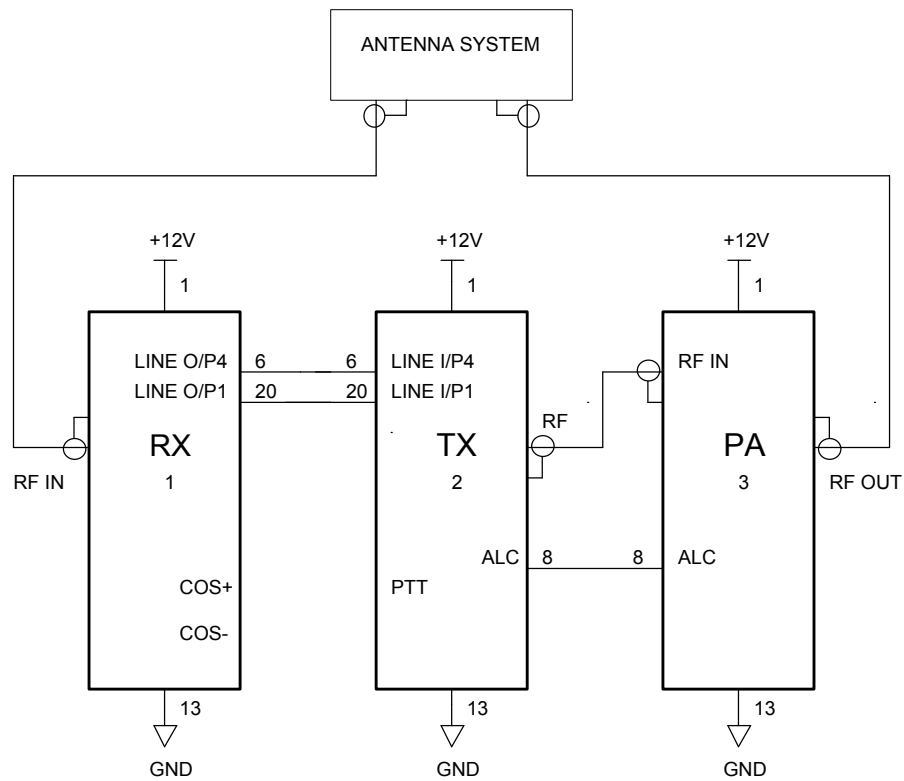
Repeater with Link Access

Shared Repeater with Third Party Tone Panel

Remote Site with Voting System

Simplex Remote Base with T/R Switch

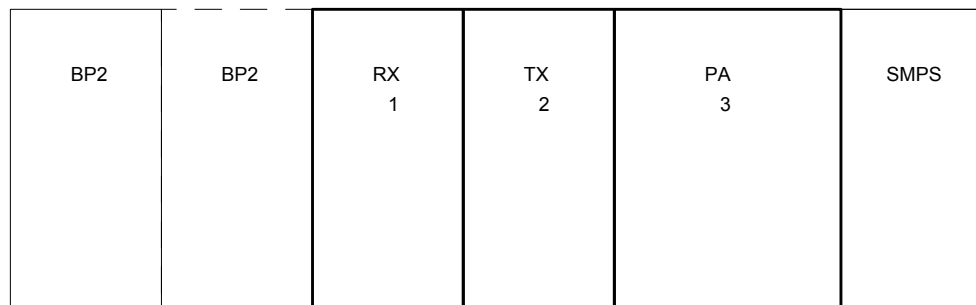
Microwave with 4 wire + E & M



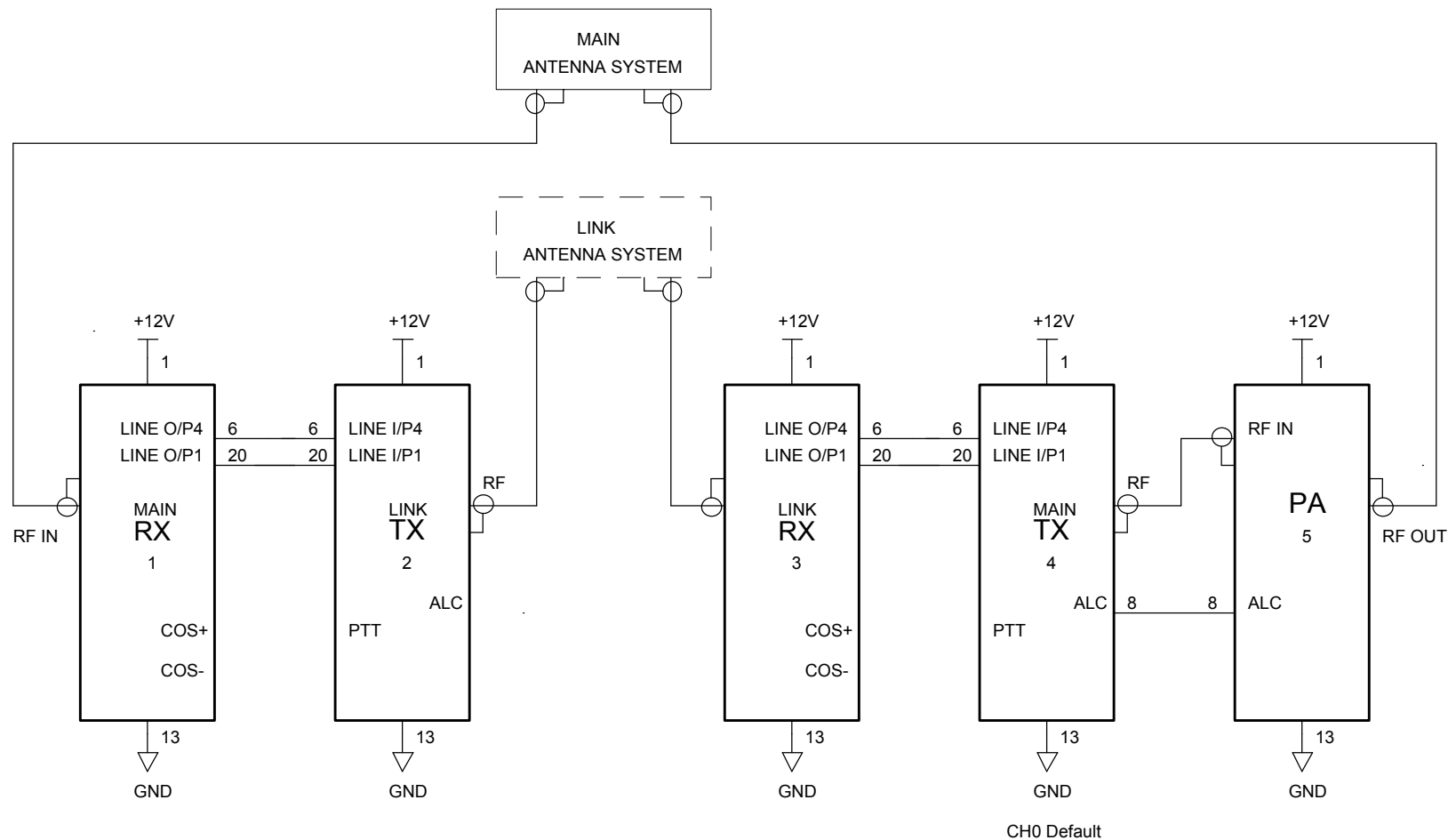
CH0 Default

REPEATER

DC Loop to key up Transmitter



Title Repeater		
Author GL RFT		
File C:\My Documents\Training\p30 Repeater w.dsn	Document	
Revision 1.0	Date 26 June 2002	Sheets 1 of 1



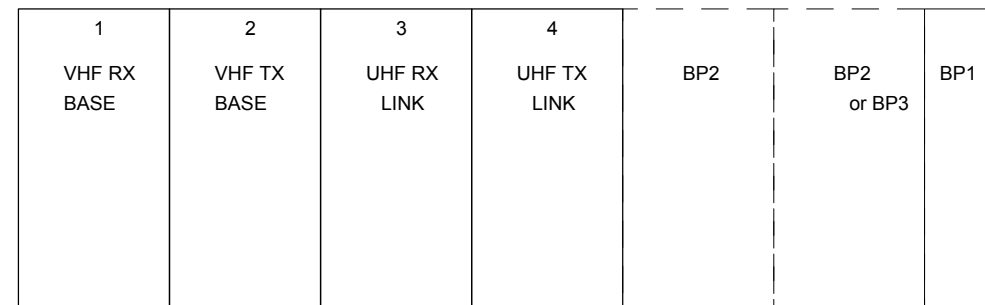
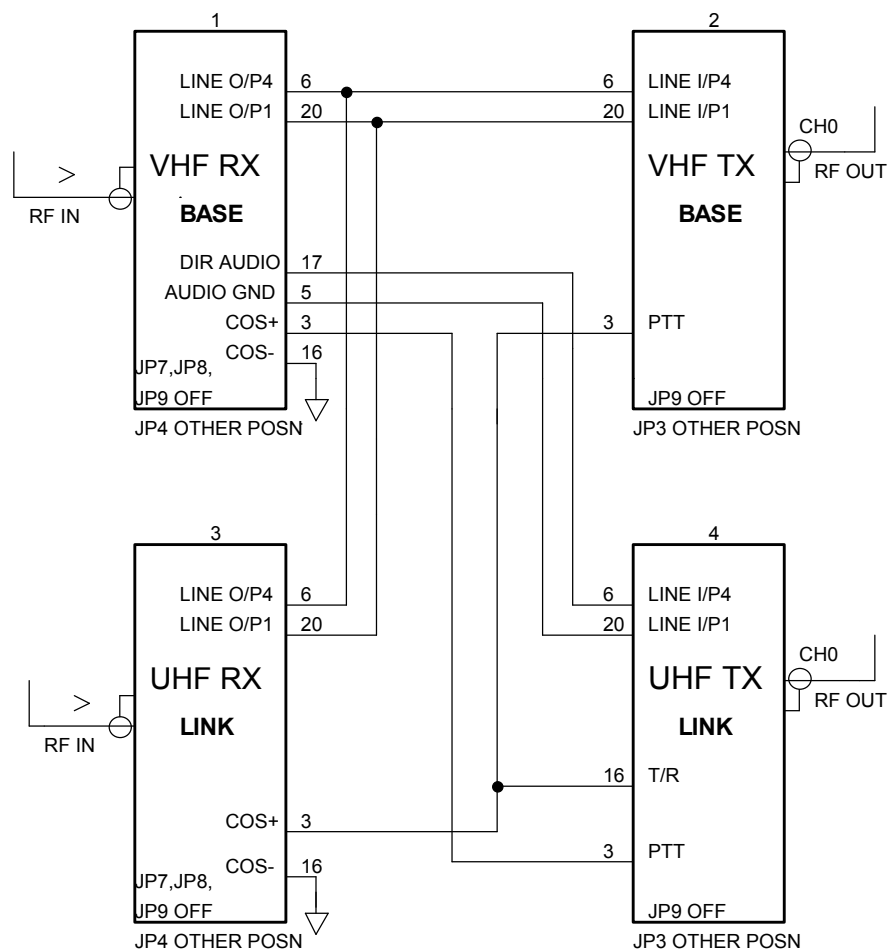
LINK CONTROLLED BASE STATION

DC Loop to key up Transmitter

CH0 Default

MAIN RX 1	LINK TX 2	LINK RX 3	MAIN TX 4	PA 5	SMPS
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Title Link Controlled Base Station		
Author GL RFT		
File C:\My Documents\Training\p31 Link Controlled Repeater w.dsn	Document	
Revision 1.0	Date 26 June 2002	Sheets 1 of 1



THE LINK RECEIVER AUDIO IS NOT ECHOED BACK THROUGH THE LINK TRANSMITTER

THE LINE OUTPUT LEVELS OF BASE RX AND LINK RX ARE ADJUSTED TO PRODUCE EQUAL DEVIATION OF BASE TX

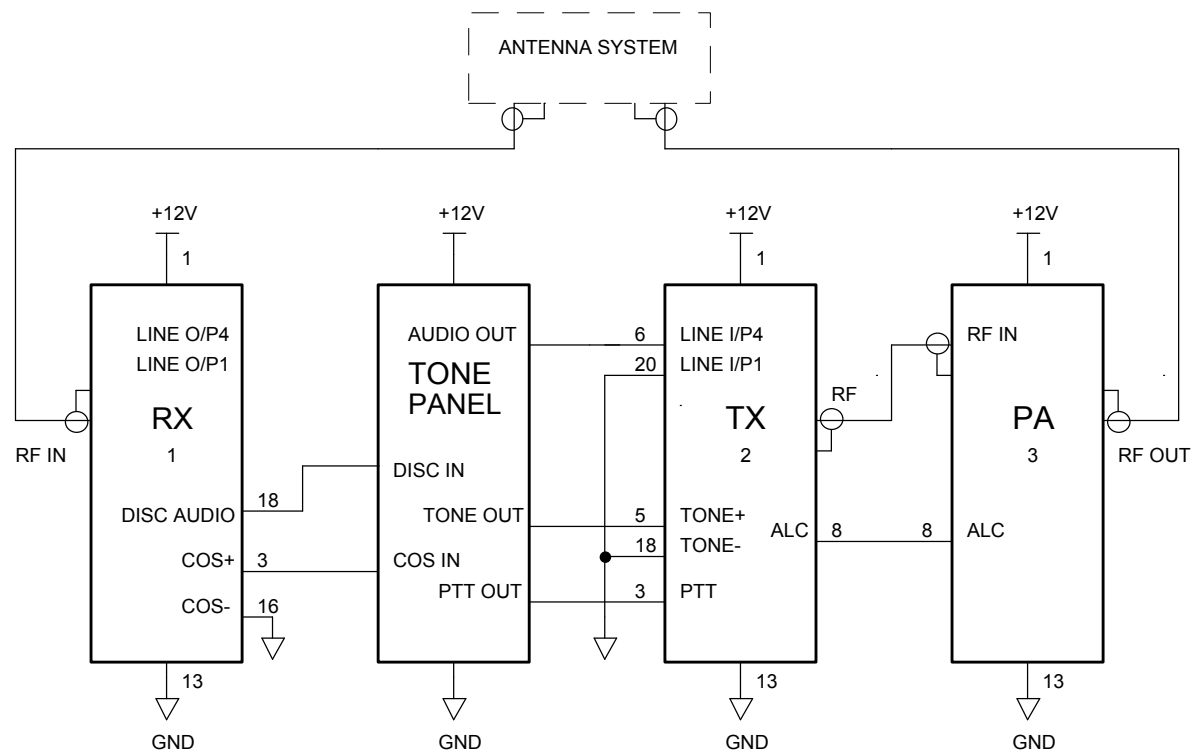
THE LINE INPUTS OF BASE TX AND LINK TX MAY THEN BE ADJUSTED TO OBTAIN THE REQUIRED DEVIATION

REPEATER WITH LINK ACCESS

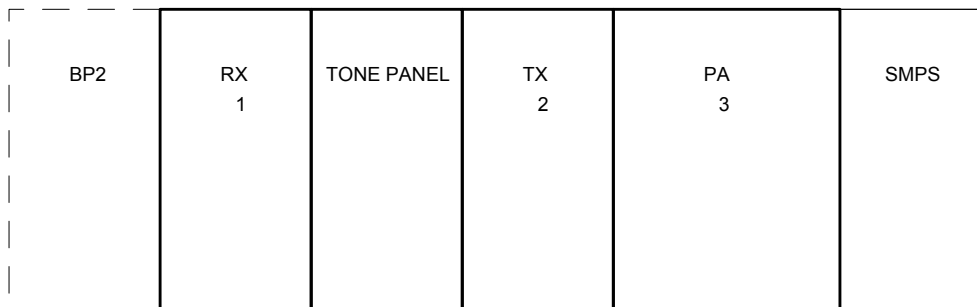
VHF BASE RX keys up LINK TX and BASE TX

UHF LINK RX keys up BASE TX only

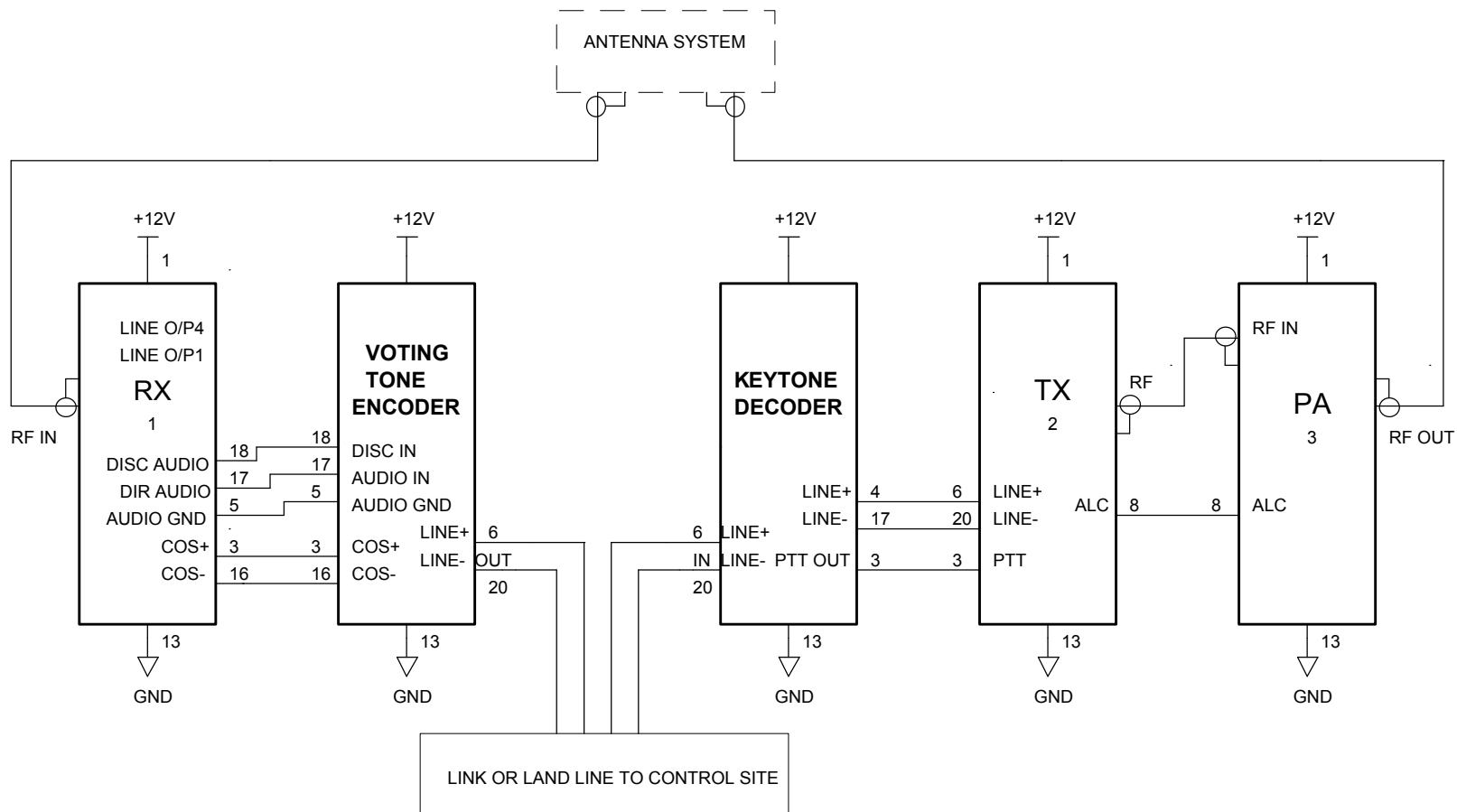
Title Repeater with Link access		
Author GL RFT		
File C:\My Documents\Training\p32 Repeater - Link access w.dsn		Document
Revision 1.0	Date 26 June 2002	Sheets 1 of 1



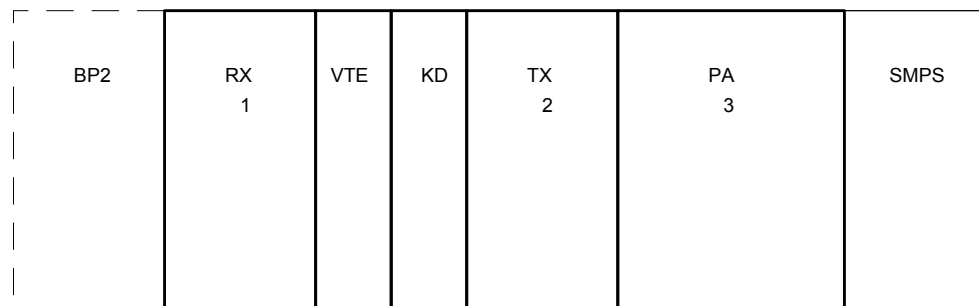
SHARED REPEATER WITH THIRD PARTY TONE PANEL



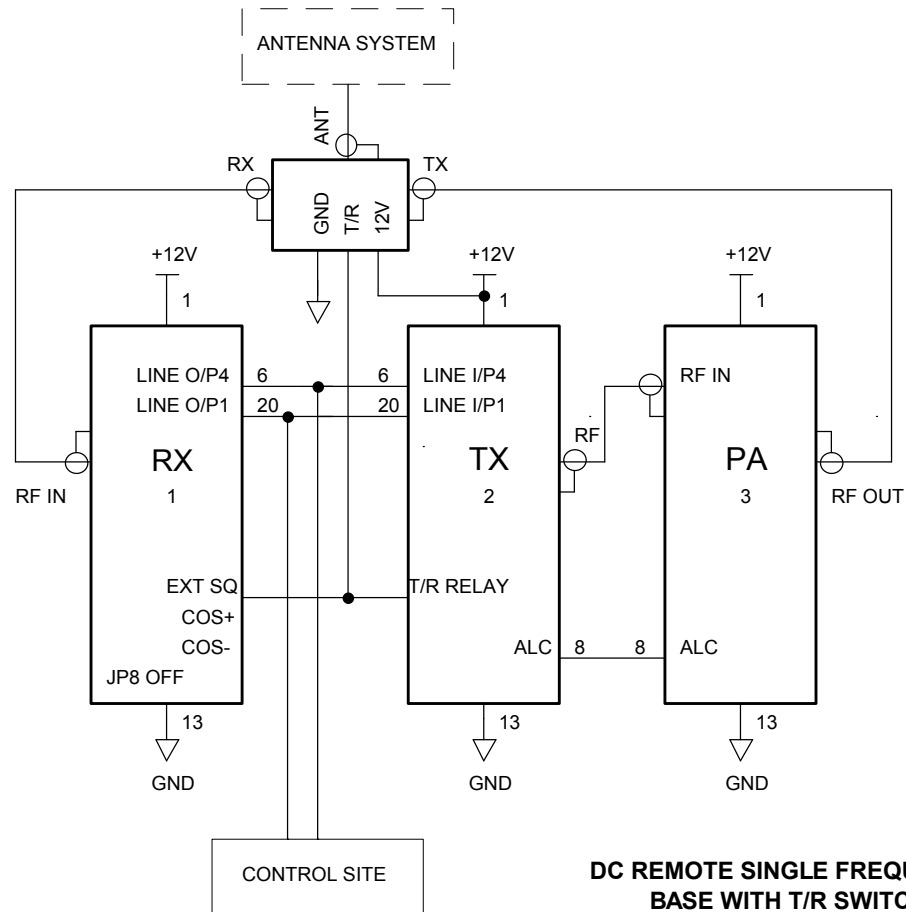
Title Repeater with tone panel		
Author GL RFT		
File C:\My Documents\Training\p33 Repeater with tone panel.dsn		Document
Revision 1.0	Date 26 June 2002	Sheets 1 of 1



REMOTE SITE WITH SIGNAL STRENGTH VOTING



Title Remote site - signal str voting		
Author GL RFT		
File C:\My Documents\Training\p34 Remote Site Voting.dsn	Document	
Revision 1.0	Date 27 June 2002	Sheets 1 of 1

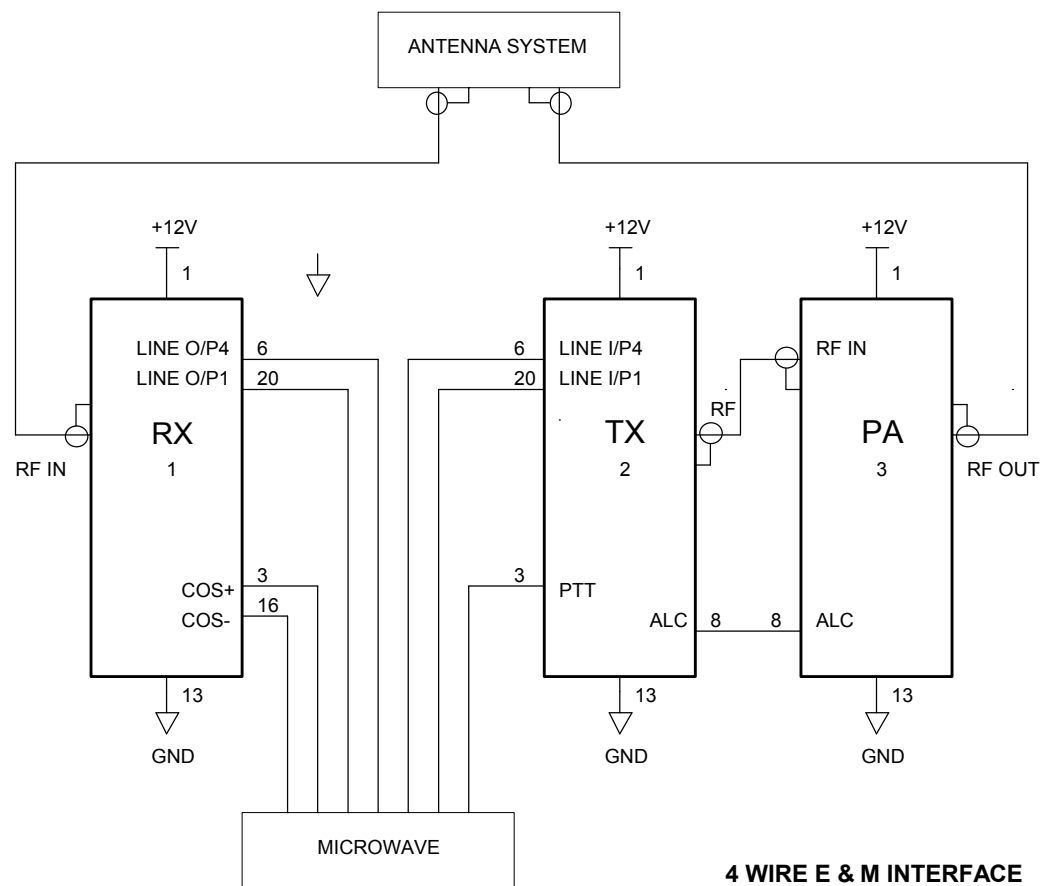


DC REMOTE SINGLE FREQUENCY BASE WITH T/R SWITCH

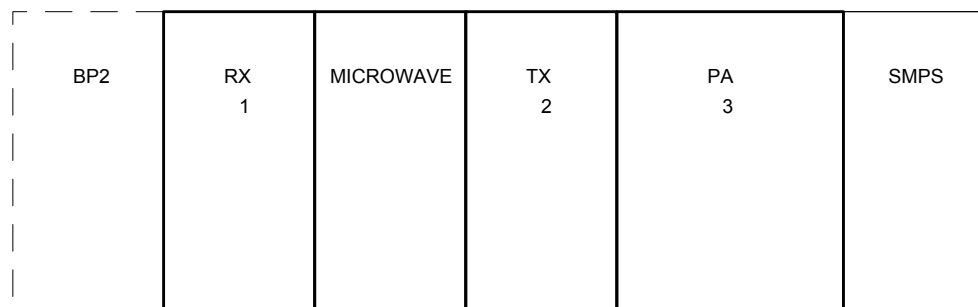
DC Loop keys up Transmitter

BP2	BP2	RX 1	TX 2	PA 3	SMPS
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Title Remote Base with T/R switch		
Author GL RFT		
File C:\My Documents\Training\p35 Remote Base & TR switch.dsn		Document
Revision 1.0	Date 26 June 2002	Sheets 1 of 1



4 WIRE E & M INTERFACE



Title 4 Wire E & M Interface		
Author GL RFT		
File C:\My Documents\Training\p36 4 Wire E & M interface.dsn		Document
Revision 1.0	Date 26 June 2002	Sheets 1 of 1