



Two-channel Monopulse tracking receiver is one of the sub systems of auto-track system. The tracking receiver receives two signals at IF corresponding to the sum channel and error channel of the feed assembly. It uses AGC and coherent demodulation to derive output voltages proportional to azimuth and elevation errors. These output voltages are used by antenna control unit to correct off-pointing. The tracking receiver accepts sum and error 70 MHz signal from tracking down converter and provides DC voltage output proportional to pointing error which is used to correct antenna pointing towards satellite. The tracking receiver design employs Automatic Gain Control (AGC) loop, phase Locked Loop (PLL) and coherent detection for superior performance. It has fl

PARAMETER	DESCRIPTION
Input Frequency	70 MHz \pm 250 KHz
Input Impedance, Return Loss	50 Ohms, 18 dB
Input Dynamic Range	-20 to -90 dBm
Image Rejection	40 dB
Differential Gain between Sum and Error Channels	\pm 2 dB
Differential Phase shift between Sum and Error Channels	\pm 10°
Channel Isolation	40 dB
Tracking Loop Noise Bandwidth	3 KHz, 1 KHz and 300 Hz selectable
Threshold C/No	45 dB-Hz
Manual Search Range	\pm 250 KHz
Sweep Rate	<div> <div>Loop Noise BW</div> <div>Sweep Rate</div> <div>3 KHz</div> <div>120 KHz/s</div> <div>1 KHz</div> <div>30 KHz/s</div> <div>300 Hz</div> <div>5 KHz/s</div> </div>

Sweep Width	$\pm 50\text{KHz}$, $\pm 150\text{KHz}$, $\pm 250\text{KHz}$ selectable
AGC	Coherent (in locked condition) Non-coherent (in unlocked condition)
AGC Time Constants	100 ms, 1000 ms selectable
Outputs	For error 10 dB below sum signal: Az: $\pm 10\text{V}$ adjustable across $1\text{K}\Omega$ EI: $\pm 10\text{V}$ adjustable across $1\text{K}\Omega$ AGC volt
Monitoring Outputs	Az and EI error voltages IF outputs LO outputs
Error channel output for error signal input terminated	$\leq \pm 50\text{ mV}$
Error Output DC drift at Null-depth	1% of maximum output voltage
Phase Adjustment Facility (pre-tuned)	Provision for phase adjustment upto 360° of 26.9 MHz LO in error chain with reference to 26.9 MHz LO in sum chain. Storing facilities for more than 32 LO phase settings.
Monitoring & Controls (M & C)	All controls and status shall be available with RS-232 interface