

# X-BAND TRANSCEIVER

ACTR-X High Power Series (150 & 200W)



Ed. 03

05/10/16

The ACTR-X series is an integrated transceiver, designed for X-band satellite communication systems. The ACTR-X series is consisting of a RF Block-Up Converter (BUC) and a RF Down Converter.

This equipment has been tested and calibrated between -20° and +55°C, so they assure very good gain stability with temperature. It also includes a temperature alarm and power supply shutdown to protect the amplifier from permanent damages in high temperature conditions. Moreover, ACTR-X series allows RS-232/485 communication with TCP/IP and SNMP as option.

## TRANSMITTER SPECIFICATIONS

Input frequency.....	950 – 1450 MHz (L-Band)
Maximum input level without damage.....	+10 dBm
Input impedance.....	50 Ohms
Input L-Band VSWR .....	<1.5:1
Output frequency.....	7.9 – 8.4 GHz (X-Band)
Output impedance.....	50 Ohms
Output X-Band VSWR .....	<1.3:1
Output coupled sample .....	-40 dBc ± 2 dB

Transmit Characteristics @ 25°C	P1dB (typ)	Gain	Power Consumption	Size (LxWxH)	Weight
ACTR-X150W	51.8 dBm	72 dB min	1200 W	495 x 265 x 255 mm	25 kg
ACTR-X200W	53.0 dBm	75 dB min	1300 W	19.5 x 10.4 x 10 inches	55 lbs

Gain ripple over the whole bandwidth.....	± 1.5 dB
Gain ripple over 40 MHz.....	± 0.75 dB
Gain stability with temperature .....	± 1.5 dB over the whole range
Gain stability (24 Hours) .....	< 0.5 dB in a temperature of the range
Attenuation range .....	20 dB, with 0.5 dB steps
Mute .....	≥ 50 dB
Spurious .....	< -60 dBc at POUT=P1dB dBm
Harmonics .....	< -50 dBc
Mains related spurious.....	≤ -35 dBc
SSB added spurious.....	≤ -41 dBc
Noise figure .....	≤ 15 dB (at maximum gain)
Carrier to intermodulation ratio .....	< -25 dBc, for 2tones Δf=5Mhz Pout = P1dB-3 dB

## RECEIVER SPECIFICATIONS

Input frequency .....	7.25 – 7.75 GHz (X-Band)
Input impedance .....	50 Ohms
Input X-Band VSWR .....	< 1.5:1
Output frequency.....	950 – 1450 MHz (L-Band)
Output power @ P1 dB .....	> +5 dBm
Output impedance.....	50 Ohms
Output VSWR (L-Band).....	< 1.5:1
Linear Gain .....	30 ± 1 dB
Gain ripple over the whole band .....	± 1.5 dB
Gain ripple over 40 MHz .....	± 0.75 dB
Gain stability with temperature.....	± 1.5 dB over the whole range
Gain stability (24 Hours) .....	≤ 0.5 dB in a temperature of the range
Attenuation Range.....	20 dB with 0.5 dB steps
Dependent spurious.....	< -60 dBc @ Pout = -10 dBm
Independent spurious.....	< -60 dBm
Noise figure.....	≤ 15 dB (at maximum gain)
LNA power supply.....	+15V, 500mA max
LNA alarm .....	current sensing

## LOCAL OSCILLATOR

Local oscillator frequency .....	.6.950 GHz (TX) / 6.3 GHz (RX)
Output phase Noise (IESS-308/309 – 8 dB):	
100 Hz .....	-70 dBc/Hz
1 KHz .....	-78 dBc/Hz
10 KHz .....	-88 dBc/Hz
100 KHz .....	-105 dBc/Hz
Reference frequency.....	10 MHz
Reference frequency level .....	0 dBm ±3dB (multiplexed at TX L-Band input connector)
Reference mode .....	External (internal as option)
Reference stability.....	same as external reference
Minimum reference to compliant typical phase noise (IESS-308/309 – 8 dB):	
100 Hz .....	-130 dBc/Hz
1 KHz .....	-140 dBc/Hz
10 KHz .....	-145 dBc/Hz

## POWER SUPPLY

AC input voltage .....	85 - 265 VAC (47-63 Hz) (48 VDC as option)
------------------------	--

## ENVIRONMENTAL SPECIFICATIONS

Storage temperature .....	-40 to +85°C
Operating temperature.....	-20 to +55°C (-40 to +55°C as option)
Relative humidity .....	up to 95%
Operating altitude.....	up to 3500m

## MECHANICAL SPECIFICATIONS

Interfaces:		
TX input (L-band + Ext. ref): .....	Type N(F) 50 ohm	
X input (X-band): .....	Type N(F) 50 ohm	
Sample Output (X-band): .....	Type N(F) 50 ohm	
TX output (X-band): .....	WR112 CPRG flange	
RX output (L-band):.....	Type N(F) 50 ohm	
M&C (RS232/485): .....	62IN12E12-14S-4-622	(mating connector provided)
M&C (IP/SNMP) as option: .....	62IN12E12-8S-4-622	(mating connector provided)
LNA supply: .....	62IN12E8-4S-4-622	(mating connector provided)
Supply:.....	62IN12E12-3P-4-622	(mating connector provided)
Cooling system.....	Forced air integrated	

## OPTIONS

MP1: .....	48 VDC Power supply
MP2: .....	Internal 10 MHz Reference
MP3: .....	Operating temperature (-40 to +55°C)
MP4: .....	Ethernet interface (TCP/IP)
MP5: .....	SNMP Agent