



COMMAND TRANSMITTER SYSTEM 370-450MHz

WV Communications Command Transmitter Systems offers many features including full redundancy with Automatic Failover, Multi kW Modular construction, Flight Termination Turn Key System, Local Control via a color touch screen, and remote control via Ethernet UDP.

The same look and feel is carried on across all products used to build up a system. Not only the physical aspect but also the command set and syntax.

Local control is done via a color LCD touch screen with multiple tabs. BOTH Ethernet and RS-232 is built in to remotely control and monitor parameters. Several options are available such as discrete tone inputs/outputs, portable mission command storage via removable memory interface, and crypto interface.

Turn Key System incorporates all components required for a modern fully redundant and robust Flight Termination System. WV offers IRIG/High Alpha (Secure Tone) and the latest EFTS formats on our equipment. All components are designed using the latest technology available to maximize performance. This includes employing Microcontrollers, FPGA and DSP chips as building blocks to achieve flexible design allowing firmware changes without modifications to the hardware.

High Power Amplifiers manufactured by WV Communications are designed and built in house. Our engineers specifically design for reliable and dependable operation with the latest available solid state LDMOS and GaAn transistors. The Class AB linear amplifier systems efficiencies (including power supplies and all losses to the output port) are in the 50 percent range! This allows for quiet operation with minimal air cooling requirements. The Dual 1 kW Redundant system can be ordered with a 3 phase or single phase power supply. All power supplies are configured for N+1 redundancy at no additional cost. WV amplifiers are designed in a modular fashion from both aspects of RF and Digital control. All drawers are built to the exact same RF phase and amplitude standard allowing combining of multiple drawers into larger power amplifier systems. The digital status and control system is also modular and expandable via an internal RS-485 multi-drop bus allowing multi drawer systems to be built efficiently. Each power module and driver contains an internal microcontroller that is used to monitor the supply current of each power device, the module temperature, and the detected module output power. Major faults might be avoided by monitoring these parameters.

The amplifiers provide Variable Voltage Attenuator (VVA) or Automatic Level Control (ALC) modes of operation. The amplifier accepts AM, FM, and Pulse type modulation. Over temperature protection, Graceful Degradation, and output VSWR protection are standard.



Redundant Exciters and 1 kW Amplifiers with Verification Receiver and Amplifier Switchover system with Hot Standby Loads shown.

Exciters are frequency agile synthesizers with low noise characteristics in 100.0 kHz steps as standard (smaller steps are optional). With a single remote command or push of a softkey button you select either IRIG or High Alpha mode. The single DSP chip then generates either up to six simultaneous IRIG tones or a complex High Alpha command waveform.

Verification Receivers employ frequency agile local oscillator phase lock loop synthesizers with low noise characteristics in 100.0 kHz steps (smaller steps are optional) incorporating DSP based Tone or Command Decoder allowing for accurate operation. Typical tone verification time is under 10 mSec. The receiver reports accurate deviation levels, and with a high dynamic front end provides a 120 dB Received Signal Strength Indication (RSSI) range.



Command Transmitter System summary Specifications

OPERATING FREQUENCY RANGES: 370-450MHz
AMPLIFIER RF OUTPUT POWER: 1 kW Min at 1 dB Compression (1,250Watt Typical)
RF OUTPUT POWER CONTROL: 23 dB Minimum in 0.1 dB Steps
RF OUTPUT PROTECTION: Integral Output Isolator protected No Oscillation at any Condition /Load
SMALL SIGNAL GAIN FLATNESS: ±1.5 dB Maximum Into 1.05:1 VSWR
INPUT AND OUTPUT IMPEDANCE: 50 Ohm Nominal
INPUT VSWR: 2.0:1 Maximum (Ref 50 Ohm)
HARMONIC SIGNAL LEVELS: Integral Low Pass Filter -90dBc Maximum from 1100 – 2750 MHz
SPURIOUS SIGNAL LEVELS: -55 dBc Maximum
RF OUTPUT CONNECTOR: Type N Female
OUTPUT BLANKING ON/OFF RATIO: 40 dB Minimum
OUTPUT VSWR: 2:1 at Full power, 3:1 Reduced output Power to 250 W Reflected Maximum
RF OUTPUT TURN-ON-TIME: <50 mSec after RF power received
HARMONIC DISTORTION: 1% Maximum
MODULATION DISTORTION: 1% Maximum
LOCAL CONTROL: Via Color Touchscreen LCD Display
REMOTE CONTROL: Via RS-232C at 38.4KB,N,8,1, Ethernet UDP/IP
COOLING: Forced air via integral Front Panel Intake and Rear Panel Exhaust Fans
OVER TEMPERATURE PROTECTION: Thermostat Shut-Off Indication at +85 Deg C Heatsink Temperature
TEMPERATURE RANGES: Operating 0 to +50°C
ALTITUDE: MSL to 70,000 Ft
CHASSIS DEPTH: 26.75" Maximum
POWER SUPPLY: Redundant N+1 Configuration
AC INPUT POWER: 180-264VAC, 47-63Hz Three (3) Phase (One Phase Optional)
at 2.5KVA Maximum, built in N+1 Design

CONTROLS AND STATUS

(ALL AVAILABLE BOTH IN Local and Remote)

MANUAL/AUTOMATIC FAILOVER EITHER TRANSMITTER
MULTIPLE REDUNANCY OPERATION MODES
CARRIER STNADBY/ONLINE
RF OUTPUT LEVEL CONTROL
FAULT ALARM (ALL FAULTS)
DEVIATION SELECTION
DEVIATION LEVEL MONITOR
VVA/ALC MODE

EXCITER

RF CARRIER FREQUENCY
RF OUTPUT POWER
LOCAL / REMOTE ETHERNET AND RS232/422
CARRIER ON/OFF
TONE ON/OFF AND COMMAND ON/OFF
DEVIATION CONTROL/MONITOR
IRIG/HIGH ALPHA (SECURE TONE) /EFTS OPTIONS
COMMAND MODE OPTIONS

VERIFICATION RECEIVER

RF CARRIER FREQUENCY
RF INPUT POWER
LOCAL / REMOTE ETHERNET AND RS232/422
CARRIER ON/OFF INDICATION
TONE DECODED AND COMMAND DECODED
DEVIATION MONITOR TOTAL AND INDIVIDUAL TONE
IRIG/HIGH ALPHA (SECURE TONE) /EFTS OPTIONS
COMMAND MODE OPTIONS

POWER SUPPLY

VOLTAGE AND CURRENT FRONT PANEL METERS
INDIVIDUAL MODULE FRONT PANEL FAULT LED
REMOTE CPU MONITORED VOLTAGE/CURRENT/FAULTS

COOLING:

FORCED AIR ALL REAR PANEL EXHAUST

WEIGHT:

1200 Lbs Typical