ANYWAVE

ATSC 560W DTV Transmitter

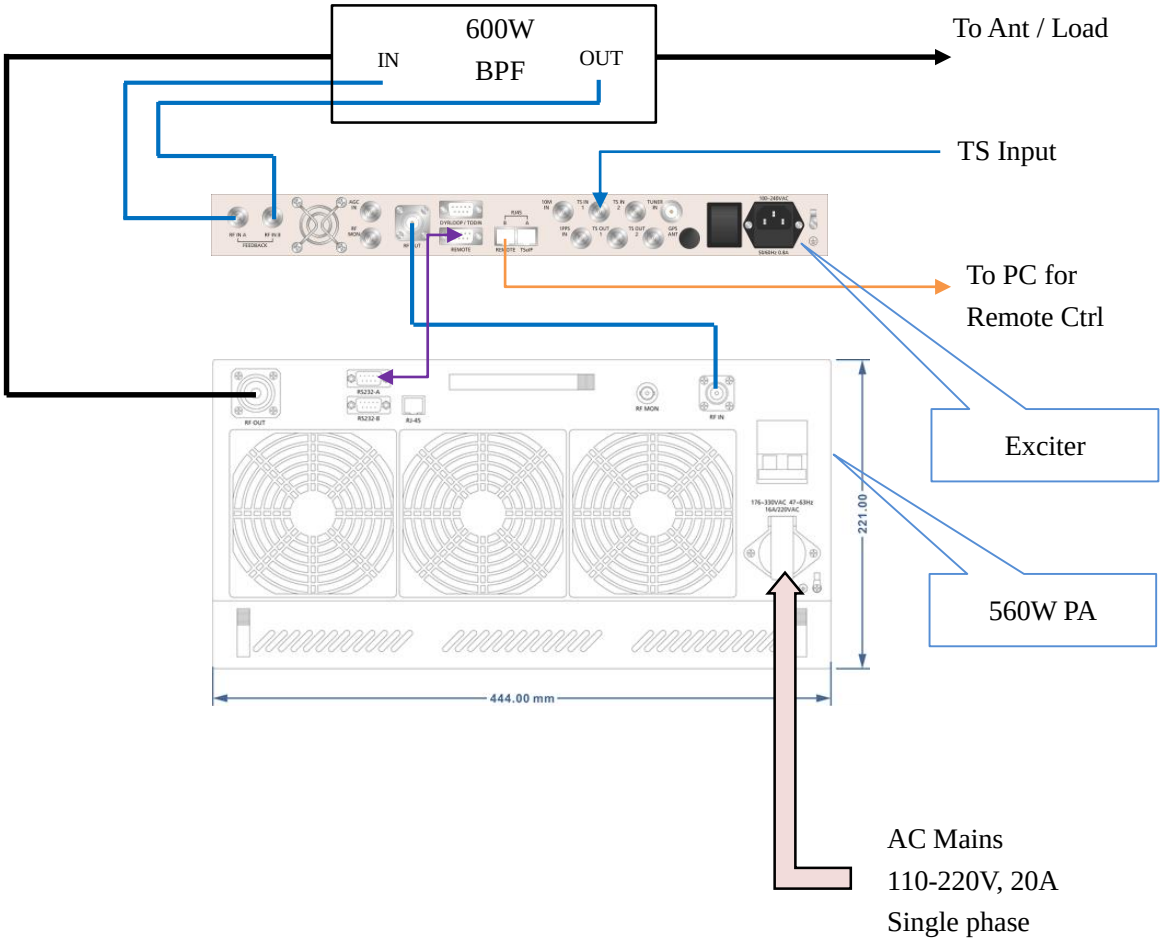
Operational Description

CONFIDENTIAL

Contents

1 TX System Schematic

The ATSC 560W DTV transmitter is composed of three basic components, a digital exciter, 560W PA, and 600W BPF as outlined below.



2 Theory of Operation

The ATSC 560W DTV transmitter is conceptually simple to understand and easy to operate.

The Transmitter operates on single phase 110 or 220V, 20A AC Mains service.

A standard ATSC ASI input stream is provided to one of the BNC connectors located on the rear panel of the Exciter. The Exciter performs the appropriate FEC and Signal Processing to modulate a standard 19.39 Mbps ATSC TS to produce an RF output at the desired channel frequency.

The modulated RF output signal from the Exciter is fed to the RF Input of the 560W PA. The PA module contains 4x BLF888A devices that amplify the RF signal to produce ~700W of output power (560W after the BPF). The amplified output signal is connected from the PA output to the input of a Harmonic filter (if required) before entering the channel mask BPF. The output of the 600W BPF connects to the Antenna feed to radiate the DTV signal on-air.

The Exciter receives two feedback signals from FWD and REV couplers located on the BPF. These before and after BPF feedback signals are used by the Exciter to provide automatic Linear and Non-Linear pre-correction of the ideal 8-VSB forward path signal.

The Exciter communicates with the 560W PA via an RS-232 serial link which allows the Exciter to display the operating parameters of the PA (including FWD Pwr, VSWR, voltages, and currents of the PA power supplies, etc.) on the Exciter front panel LCD. The Exciter acts as the main TX user interface for monitoring and control via its local front panel and remote web interfaces.