

ZHC518D Digital TV Exciter



Overview:

This product is a newly developed digital TV exciter using software radio technology. The digital TV excitation board using the built-in new technology FPGA + DDS technology architecture, full patch welding process and very few components ensure excellent product quality reliability and performance consistency while obtaining superior indicators. The device has 2 ASI inputs, 1 ASI loop out, and 1 RS232 interface. Support built-in GPS module (optional), support 2 IP inputs; fully support all working modes covered by various digital TV standards, with GPS 10MHz and 1PPS input and output ports; support single frequency network, satellite single frequency network and multi frequency network Working mode; support linear and nonlinear adaptive correction, nonlinear correction ACPR increase 12db (typical value), linear correction in-band flatness correction gain 10db (typical value), can improve the output performance of the transmitter. The frequency range of the exciter is 30~960MHz, with excellent RF output performance and frequency stability, and supports local and remote configuration of modulation parameters. Stable and reliable work, high-efficiency switching power supply, real-time display of working parameters, the exciter adopts one 19 "standard aluminum alloy chassis, which can be widely used in the production and testing of digital TV broadcast network composition and set-top box design, and suitable for all levels of TV stations.

Features:

- The digital TV exciter board with built-in brand new FPGA + DDS technology architecture, superior performance, high reliability and good consistency. It fully supports all working modes covered by various standards of digital TV broadcast exciters, and

supports single / multi-frequency network mode simultaneously supporting multi-carrier and single-carrier.

- Supporting linear non-linear self-adaptive correction pre-distortion function, advanced self-adaptive algorithm, call the corresponding correction curve according to the communication interface instructions, especially optimized for multi-body high-efficiency power amplifier, the correction effect is excellent.

- Built-in GPS module (optional), supports 2 IP inputs, supports full duplex, single network port simultaneously bidirectional transmission, supports automatic switching of four input signals, mutual backup, and supports the effective bit rate of all input code streams at the same time The ability to test. When the effective bit rate of the main channel is lower than the threshold value, it will automatically switch to the next stream with the effective bit rate higher than the threshold value and send an alarm, and the switching time is less than 1 second; the switching sequence is analogous, if all The effective bit rate of the channel does not reach the threshold, keep the original main channel broadcast, do not switch, and send an alarm; when a bit rate of the channel is lower than the threshold (settable), send an alarm; the exciter RF normal power output when there is no code stream input.

- Excellent phase noise and MER performance, $MER \geq 48\text{db}$

- RF frequency output range 30 ~ 960MHz, 0.1Hz stepping, constant temperature crystal oscillator, frequency stability up to 0.1ppm, support 10MHz monitoring output, local oscillator monitoring output and RF monitoring output

- Supporting transmitter output signal monitoring, the accuracy of RF index output by transmitter MER monitoring is not less than 40db, the accuracy of shoulder monitoring is not less than 50db, and the error is not more than 2db.

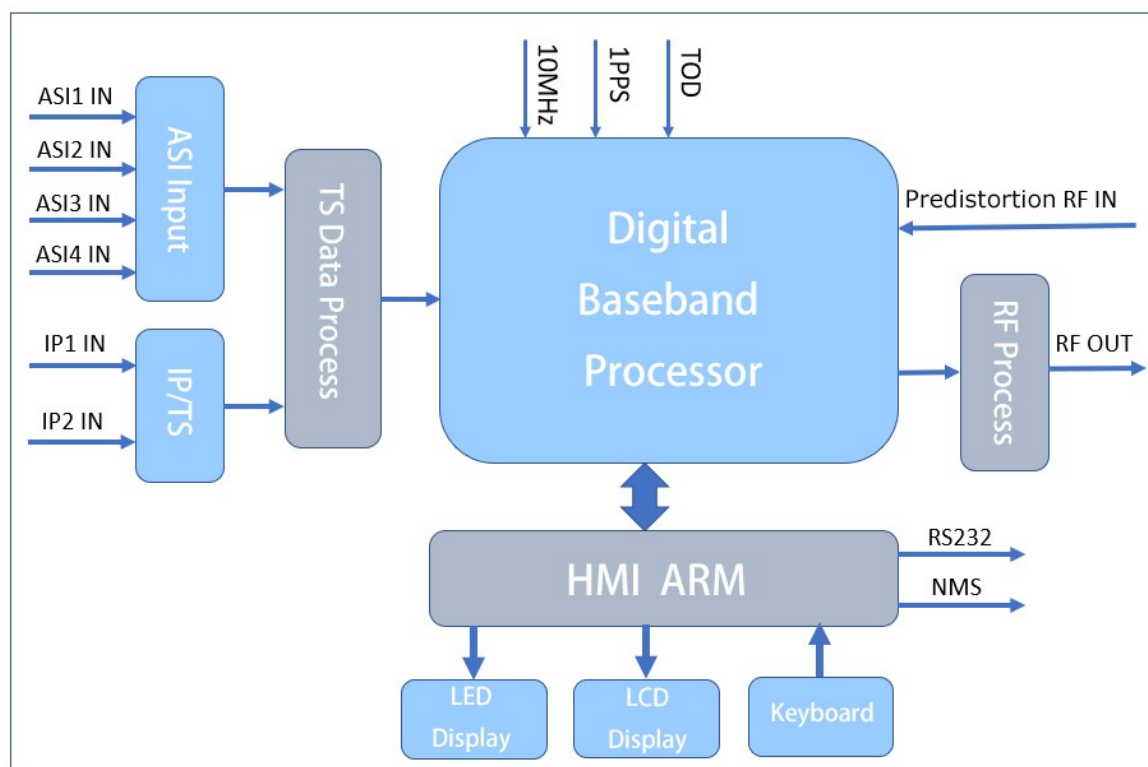
- Adopt modular design concept, which is convenient for long-term maintenance and upgrading.

- It has MLC and ALC control functions, there is no shock pulse of power ON/OFF and it's using power output slow rise function, which can protect the transmitter. And there is whole machine and component level lightning protection measures. Perfect protection measures can reduce equipment damage.

- Supporting Web network management, with intelligent network management and monitoring, and with external RS232, TCP / IP and other communication interfaces. It has real-time detection of the working parameters of the exciter and computer control software with perfect functions, and has self-diagnosis function. It has various monitoring and alarm functions, various technical parameters can be read through the front panel LCD display.

- Using famous brand's high-quality switching power supply which has protection measures such as over-voltage, over-current, under-voltage, over-temperature, short circuit, anti-lightning strike, etc., it has high efficiency, good voltage regulation range, and strong ability to adapt to external power changes.
- Adopt high-resolution LCD screen and multi-button design to make the exciter compact in structure and beautiful in appearance.

ZHC518D Digital TV Exciter Principle Diagram:



Technical Specifications:

RF output

1. Working frequency band: VHF / UHF
2. Output power: $-39.9\text{dBm} \sim +9.9\text{dBm}$
3. Output impedance: 50Ω
4. RF output interface: N-50K
5. Useless transmission: $\leq -50\text{dB}$ in adjacent channels;
 $\leq -60\text{dB}$ outside adjacent channels
6. In-band unevenness: $< \pm 0.5\text{dB}$
7. Band shoulder: $\geq 60\text{dB}$
8. MER: $\geq 45\text{dB}$

9. Phase noise: <-75dBc / Hz @ 10Hz
<-118dBc / Hz @ 10kHz
<-98dBc / Hz @ 100Hz
<-108dBc / Hz @ 1kHz
<-120dBc / Hz @ 100kHz
<-132dBc / Hz @ 1MHz

Signal input

1. Digital video signal input: 4 channels ASI input, DVB standard, BNC interface
2. TS stream IP input (optional): 2-way UDP multicast mode code stream, 10/100/1000M, RJ interface
3. Reference clock input: 10MHz, BNC interface
4. Second pulse input: 1PPS, BNC interface
5. RF input: Pre-distortion RF input, BNC interface

Modulation parameters

1. Digital TV standard (one of which can be selected according to requirements):
 - 1) Chinese terrestrial digital TV standard: DTMB: GB20600-2006
 - 2) European terrestrial digital TV standard: DVB-T / T2: ETS1300744
 - 3) Japanese terrestrial digital TV standard: ISDB-T / ISDB-TB
 - 4) American terrestrial digital TV standard: ATSC-T
2. Modulation method: QPSK, 16QAM, 64QAM, 256QAM (normal or rotation)
3. Bandwidth: 6M, 7M, 8M
4. Guard interval: 1/128, 1/32, 1/16, 19/256, 1/8, 19/128, 1/4
5. FFT mode: 1k, 2k, 4k, 8k, e8k, 16k, e16k, 32k, e32k
6. FEC coding rate: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6
7. FEC length: short (16K), long (64K)
8. Working mode: MFN / SFN

System parameters

1. LCD displays various parameters
2. Button or network interface for parameter setting
3. Support online software upgrade

Physical parameters

1. Working environment temperature: -10~+45 °C

2. Dimensions: 483mm (width) × 44mm (height) × 300mm (depth)
3. Weight: 4Kg
4. Power supply: single-phase 100VAC~240VAC, 50Hz
5. Power consumption: <25W

The technical specifications meet the requirements of "GB/T 28436-2012 Technical Requirements and Measurement Methods for Terrestrial Digital TV Broadcast Exciters" and "GY/T 229.2-2008 Technical Requirements and Measurement Methods for Terrestrial Digital TV Broadcast Exciters".