

ZHC618F-1000W Light FM Stereo Transmitter



1. Overview

ZHC618F-1000W/LIGHT stereo FM radio transmitter is an integrated high-quality FM transmitter that **stereo-encodes** the input left and right channel **audio signals** and adjusts the **FM modulation** to the broadcast band, then **RF amplify** to the 1000W output power for wireless broadcasting. The transmitter adopts the most advanced software radio technology to achieve the international leading level of product performance indicators.

With a new large-scale field-programmable gate array (**FPGA**) and direct digital frequency synthesis (**DDS**) technology at up to **5G**, the product achieves the **highest technical specifications** in the industry to date, providing listeners with a **CD-like** sound experience.

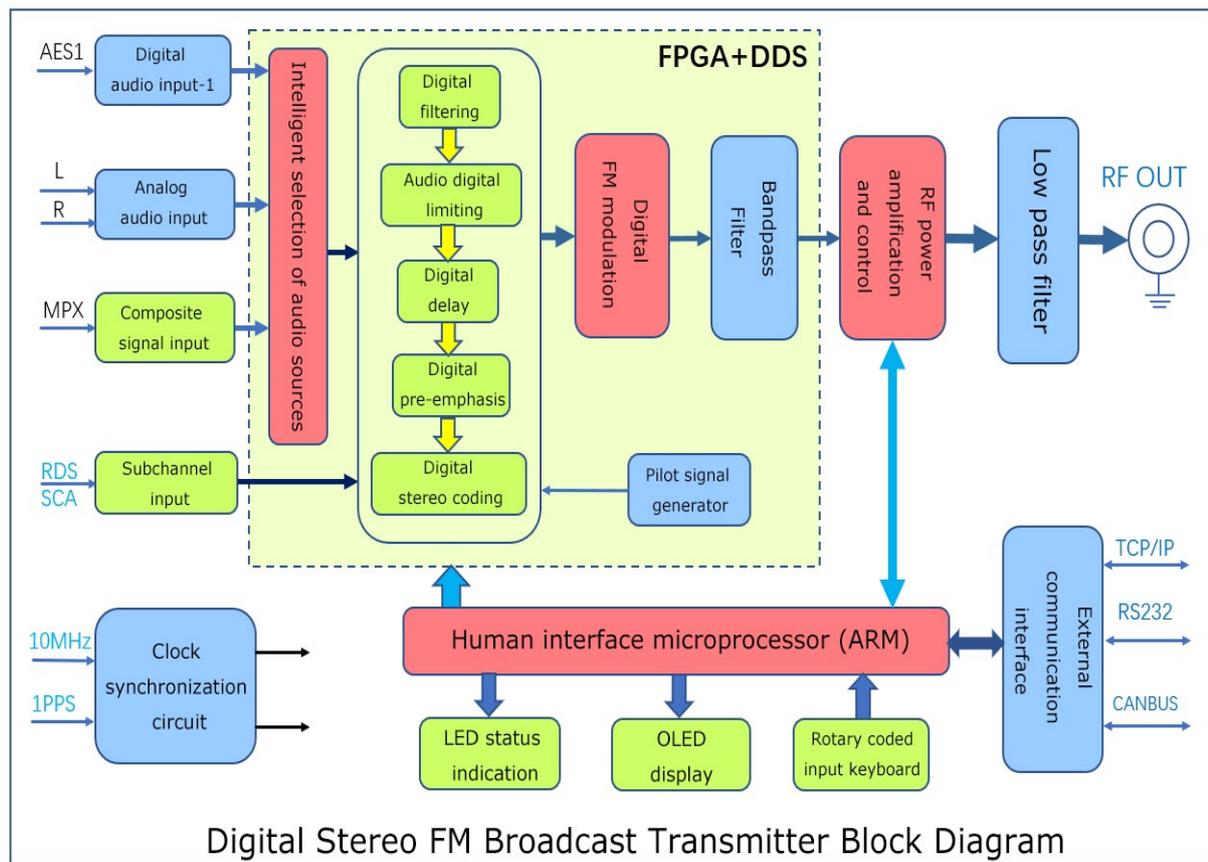
The product consists of audio interface unit, digital processing and frequency modulation unit, RF power amplifier unit, human-machine interface unit, communication interface unit, clock synchronization unit and power supply unit. The transmitter is installed in a 19-inch 2U standard chassis, intensive design, small size and light weight. The whole transmitter is designed with high reliability, which makes the product run continuously and stably for a long time.

2. Technical characteristics and principle block diagram

Product technology has the following technical features:

- Full process digital processing to achieve a perfect auditory effect of **CD-like** sound quality
- Full-scale digital processing with large-scale field-programmable gate array (**FPGA**) technology
- Direct digital frequency synthesis (**DDS**) technology at speeds up to 5G to peak transmitter specifications
- High reliability microprocessor (**ARM**) technology as the primary controller
- Support for multiple audio source inputs (transmitters can be **automatically** selected by priority):
 - ◆ **AES/EBU** digital audio signal input (highest priority)
 - ◆ Analog stereo analog audio signal input (2nd priority)
 - ◆ **MPX** stereo composite signal input (3rd priority)
- Supports one **RDS** or **SCA** subcarrier input
- Upgradeable to FM **synchronous** broadcast transmitter
- Electronically controlled **AGC** controls output power zero drift
- Perfect over-current, over-voltage, over-temperature, over-power, standing wave ratio alarm and protection
- One-touch shuttle quick keyboard input
- Real-time display of operating parameters using **OLED**
- With **TCP/IP, RS232** communication interface
- 19-inch standard chassis, height 2U

The Transmitter Block Diagram:



3. Technical specifications

1. Nominal emission frequency 87MHz~108MHz
(other frequencies can be customized), stepping 10kHz
2. Carrier frequency tolerance $\pm 200\text{Hz}$
3. Output power 0~1000W continuously adjustable
4. Output power tolerance $\pm 1\text{dB}$
5. Output impedance 50Ω
6. RF output connector 7/16" or 7/8"
7. Residual wave radiation $< -70\text{dB}$
8. Parasitic amplitude modulation noise $< -50\text{dB}$
9. Pilot frequency deviation $\pm 0.1\text{Hz}$
10. 38KHz residual component in the S signal $< -50\text{dB}$
11. 100% modulation frequency offset $\pm 75\text{KHz}$
(maximum modulation frequency offset 112.5KHz)
13. Audio pre-emphasis $0\mu\text{s}/25\mu\text{s}/50\mu\text{s}/75\mu\text{s}$ optional
14. Distortion $< 0.05\%$ (30Hz ~ 15000Hz, 100% modulation)
15. Frequency response $\pm 0.1\text{dB}$ (no emphasis, no de-emphasis); $\pm 0.2\text{dB}$ (emphasis, de-emphasis)

16. Signal to noise ratio	$\geq 88\text{dB}$ (1kHz, 100% modulation)
17. Stereo resolution	$\geq 70\text{dB}$ (L \rightarrow R, R \rightarrow L)
18. Left and right channel level difference	$< 0.05\text{dB}$ (100% modulation)
19. Analog audio input	-12dBm ~ +8dBm
20. Analog audio input impedance	600 Ω balance
21. AES input impedance	110 Ω balance
22. AES input level	0.2~10Vpp
23. AES sampling rate	30kHz ~ 96kHz
24. Audio Level Gain	-15dB~+15dB Step 0.1dB
25. Heat dissipation method	Forced convection
26. Power supply voltage	100VAC~265VAC/ 47Hz~63Hz
27. Chassis Standard	19"
28. Chassis size	2U (width 445mm \times height 88mm \times depth 500mm)
29. Total weight	13.5Kg (including packaging)
30. Operating environment temperature	-10 ° C ~ +45 ° C
31. Relative humidity	$< 95\%$
32. Altitude	$< 4500\text{m}$