



1 Overview

K3 is the world's fastest power-to-play Wi-Fi media player solution for Internet radio, Podcast, Bluetooth speaker, DLNA network streaming, DAB/DAB+ and FM radio products (optional) and CD playback. With 8-10 seconds power-to-play the last-played station, K3 is almost an order faster than the other solutions. In addition, K3 excels in power efficiency that enables an Internet radio to run over 10 hours with a 2000 mAh Li battery (1.5 watt audio output). ALD/Skytune's total solution enables music playback device manufacturers to develop competitive media playback products with minimum engineering resources. In most cases, manufacturers need only a power supply, LCD display, audio amplifier, driver speaker and keypad to implement designs of table top radios, Wi-Fi/BT speakers and media adapters, allowing them the precious time and efforts to focus on market and value-added developments, which they excel.

Powered by a highly integrated SoC with dual-core CPU, Wi-Fi and Bluetooth engine and real-time OS, K3 supports a variety of music formats including AAC, HE-AAC, MP3, WAV and FLAC and industry standard streaming formats like Apple HTTP streaming (BBC's primary audio format) and Shoutcast/Icecast. Well architected firmware design enables manufacturers to offer products with different hardware configurations consistent and intuitive user interfaces, saving much work in sales and support personnel training.

In addition to the ultra-fast power-to-play operation, the grouping of all favourite stations of the different radio modes (IR, DAB and FM) under one Favourite listing is also a highly praised feature of the ALD/Skytune Internet radio streaming solution, saving the need for switching to radio modes and their respective Favourite station storage positions for fastest and intuitive radio access.

K3 solutions integrate an embedded web server to allow the use of a web browser in PCs, smart phones or tablets to manage the playback of Internet radio stations and the management of the 150 favourite stations. Users can add/remove their favourite stations, name them or, move the positions with the much more powerful MMI interfaces at ease. Not to be out done by the embedded server, on-device control for the same functionalities is available. The most distinguished feature of the Favourite station management is that, no Skytune, Internet connected server is required to give the ultimate security from potential server breakdown.



2 Features

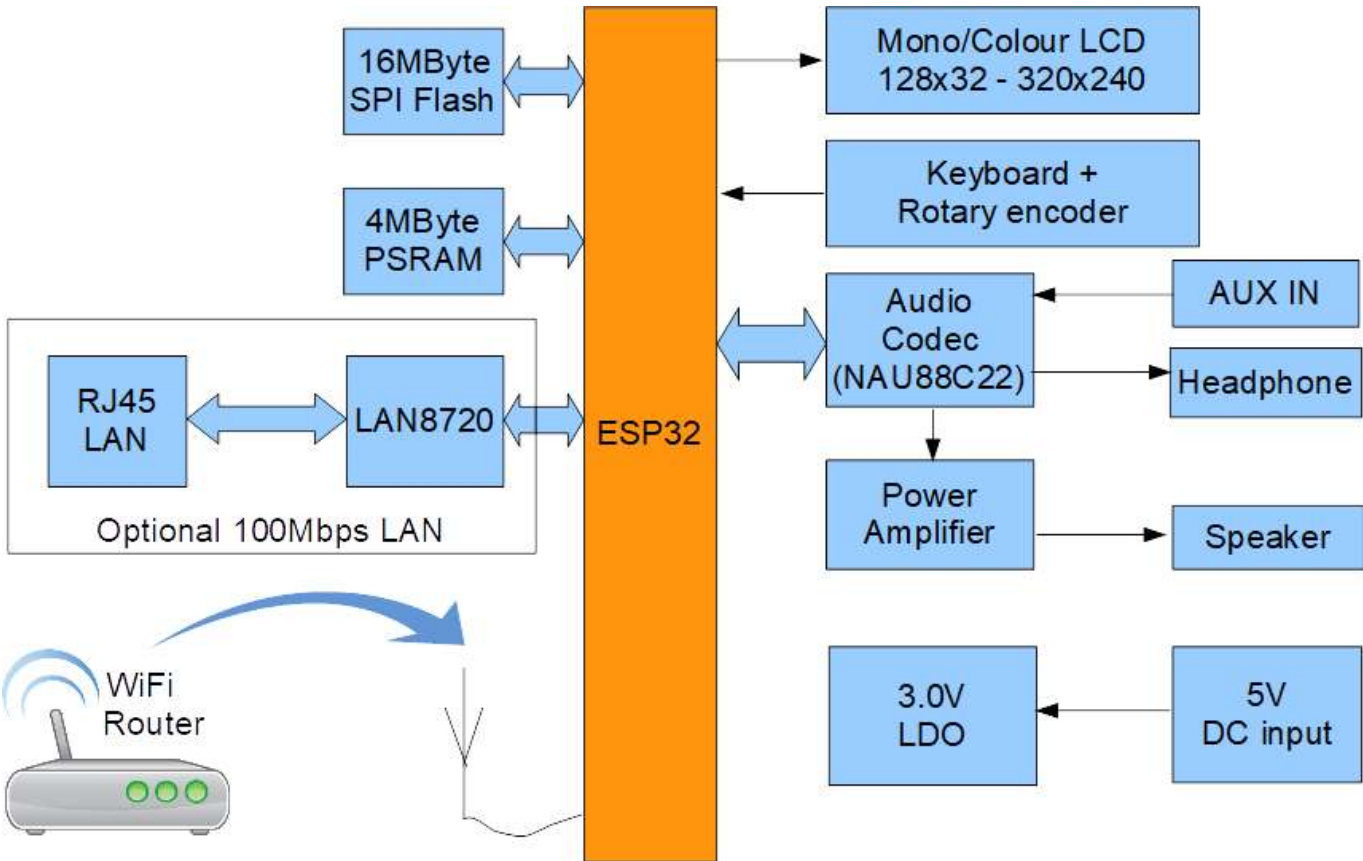
2.1 Hardware Features

Feature	Description
Wi-Fi	IEEE 802.11 b/g/n up to 150 Mbps
	2.4~2.5 GHz
	A-MPDU and A-MSDU aggregation and 0.4 S guard interval support
	Printed PCB antenna with optional IPEX antenna
Ethernet	Optional PHY for 10/100 Mbps Ethernet LAN
Bluetooth	Bluetooth V4.2 BR specifications
	NZIF receiver with -97 dBm sensitivity
LCD	SPI interface for 320x240/160x120 TFT LCD, 160x128 TFT LCD or 128x64/48/45/32 STN LCD
Key Input	Up to 2 rotary encoders and 20 tactile switches
Audio CODEC	I2S interface audio CODEC with 5-band EQ control and EQ presets; 3-D audio enhancement
	Integrated input mixer and output mixer
	16-bit audio with sampling rate at 22.05, 24.0, 44.1 and 48.0 KHz
	Built-in amplifier for 16 ohm headphone output (40 mW)
S/PDIF Output	Optional S/PDIF output in optical and co-axial
AUX-in/-out	Supports input from other audio devices and external amplifier
Power Supply	2.7~3.3V DC supply (minimum 80 mA, maximum 500 mA)
SD Card	Optional SD card support
Power Efficient Wi-Fi Playback	150 mA @ 3.7V for Wi-Fi streaming (headphone output)
Ultra-Low Standby Power	Less than 250 mW in standby with clock display (meets ERP 1.0 W even with linear power supply)



2.2 Firmware Features

Feature	Description
802.11 b/g/n	up to 150 Mbps
Wi-Fi AP Scanning	Automatic Wi-Fi AP scanning upon power up
WPS Push Button Setup	WPS PBS allows one-touch of push button to associate Wi-Fi AP
Automatic Network Settings	DHCP process for automatic network configuration
Wi-Fi Security	Wi-Fi Protected Setup 2 (WPA2, WPA and WEP)
Network Time	Obtains network time and location to determine local time
Location Setup	Identifies location of radio to setup Local Radio
Radio Directory Service	Skytune radio server listing over 31,000+ free-to-listen radios
Radio Station Browsing	Browse according to Location or Radio genre or search function
Listening Trends	Most popular stations globally, per country and per state
Storage of Favorite Stations	99 stations can be stored locally for easy access
History of Played Stations	99 stations of last played radio to explore stations across world
Managing Favorite	On device control to move position (Top/Bottom/Up/Down) and/or delete favourite station entries
Browser-based Control	Embedded server ensures station URLs can be managed independent of any remote server through web browser (PC, smart phone or table) for easy management with bigger screens
Auto-playback on Power	Option to play the last station on power up
Podcast Streaming	Offers the most diversified audio contents on-demand (coming soon)
OTA Firmware Update	Remote, over-the-air firmware update without the need for a connected PC or storage medium
DLNA/UPnP Playback	Streams music from smart phones, PCs and devices in the local network
Dual Alarms	Dual alarms (with snooze) to wake user to radio or built-in tone
Sleep Timer	Turns off radio playback in 15/30/45/60/120 minutes
Backlight Dimmer	Adjustable backlight mode and backlight level (down to 1% brightness)
Multiple Languages (13)	English, German, French, Spanish, Italian, Nederlands, Polskie, Russian, Czech, Slovak, Croatia, Romania and Simplified Chinese
DAB/DAB+ Radio	Optional Band III DAB/DAB+ reception (with DLS and slide-show support)
FM Radio	Optional Worldwide FM band (with RDS) support
Audio Formats	MP3, AAC, HE-AAC, FLAC (22.05, 24.0, 44.1 and 48.0 MHz sampling frequency)
Streaming Formats	Apple HTTP (HLS), Shoutcast and Icecast
Equalizer	Advanced 5-band equalizer and EQ presets
Bluetooth V4.2 A2DP	Plays music from most smart phones with BT
CD Playback	Supports ALI and Silan CD solutions
Power-Efficient	150 mA when playing Internet radio with Wi-Fi connection (3.7 V Li battery) (headphone out)
Rechargeable Battery	Supports rechargeable Li battery



System Block Diagram