

World-Class high-resolution digital audio

Experience engaging and musical sound delivered by

# Dual Sabre<sup>32</sup> Reference DACs

NOVAFIDELITY X45



P o w e r e d   b y   N O V A T R O N



## Comprehensive feature set

- High-performance dual core ARM Cortex A9 processor running at 1.0Ghz
- Dual ESS ES9018K2M Sabre<sup>32</sup> Reference DAC chips, built-in separately for right and left channels
- 16 Core microcontroller with advanced RISC architecture for high performance USB DAC operation
- USB audio class 2.0 output built-in to connect an external USB DAC
- Isolated power source circuit design for digital and analogue sections
- Toroidal transformer to minimise idle noise
- High speed optical disk drive for quick and accurate CD ripping
- Phono input (moving magnet) for turntables
- 7 inch TFT LCD (1024 x 600 pixels) screen for intuitive GUI
- DAB+/FM tuner built-in
- Giga fast ethernet (10/100/1000Mbps) built-in
- Support up to 8TB of storage on 3.5"/2.5" HDD or SSD
- Rugged chassis construction with a 13mm thick aluminium front panel and CNC cut knobs
- HDMI out connector for an external screen to display the GUI or used as an audio signal out

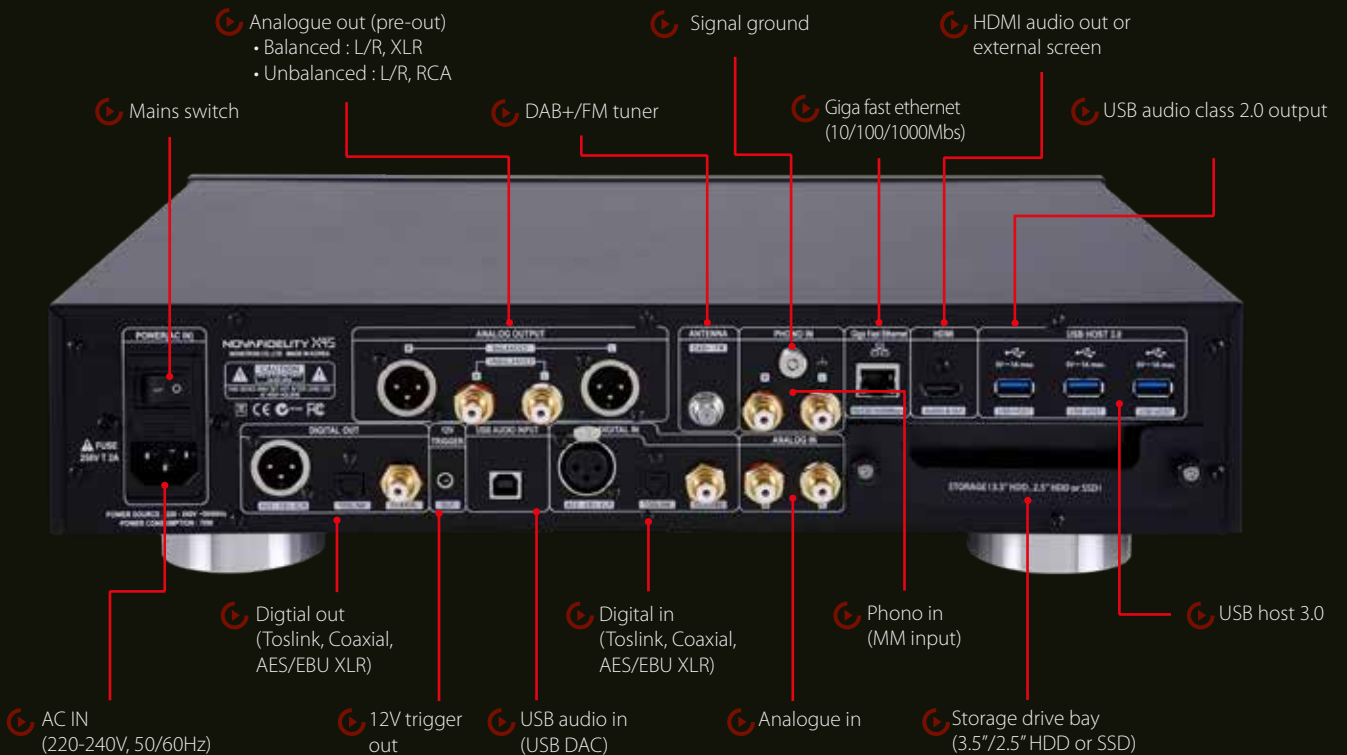
## Extensive compatibility and a versatile feature set

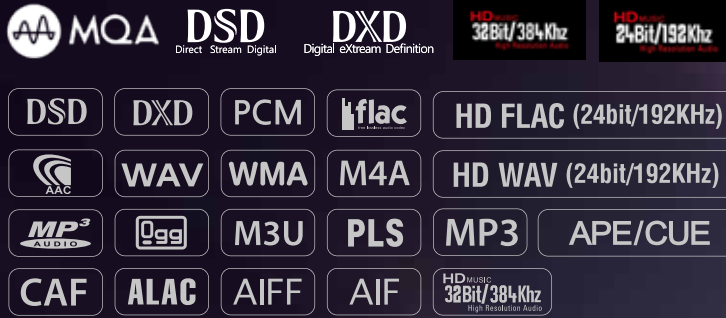
- Support for various file formats including MQA, DSD(64/128/256), DXD(24Bit/352.8Khz), PCM up to 32Bit/384Khz including 24Bit/192Khz HD WAV/ HD FLAC and a full range of hi-res audio formats
- Breathtaking sound quality delivered by Dual ES9018K2M Sabre<sup>32</sup> Reference DACs
- CD ripping with metadata and album cover art provided by Gracenote
- Connect a turntable via the phono input to play vinyl directly, the signal is also mirrored to the digital outputs
- Load your vinyl and cassette tape collections, DAB+/FM radio, internet radio to the X45 MusicDB via the recording function with a hi-res sampling rate of 192Khz
- Play hi-res files (PCM, MQA, DSD, etc) in your PC directly through X45 via its advanced USB DAC function
- High connectivity through numerous digital and analogue options
- Versatile network functions (UPnP(DLNA) Server/Client/Media Renderer, Samba Server/Client, FTP Server, Web Server, etc
- Music streaming services (TIDAL, TIDAL MQA, Deezer, Qobuz, Napster, Amazon Music, Highresaudio) and internet Radio(Airable)
- Customised remote control App 'NOVATRON MusicX' for iOS and Android
- Customised WebInterface(WebUI) for remote control and MusicDB management by PC
- 'Roon Ready' for use as a Roon end-point



## What is the NOVA FIDELITY X45 ?

The X45 is a world-class high-resolution audio player and DAC, featuring Dual Sabre<sup>32</sup> Reference DAC chips, CD ripping, music serving, network streaming, audio recording, and more





## High performance operating system and custom-designed software

Based on a dual core ARM Cortex A9 processor running at 1.0GHz, with 64Bit/1000MIPS Microcontroller and custom-designed software, the X45 is designed to fully satisfy all music lovers with fast intuitive and versatile features.

## Breathtaking sound quality through circuit design technology expertise and high quality components

Equipped with dual ESS Sabre<sup>32</sup> Reference DAC ES9018K2Ms, a 64Bit XMOS chip, TCXO oscillator and a high quality toroidal transformer, including isolated power source circuit design technology, Novatron's experience and excellence in circuit design delivers a product capable of a truly engaging and musical performance.

## Dual Sabre<sup>32</sup> Reference DAC separated for right and left channels

Experience exceptional sound quality delivered by dual Sabre<sup>32</sup> ES9018K2M DAC, built-in separately for right and left channels.



## XMOS 64Bit/1000MIPS 16 core powerful microcontroller



The X45 USB DAC function can support up to PCM 384Khz/32Bit, DSD Native 256 and MQA.

## USB digital - to - analogue converter(DAC)



## Toroidal transformer



Isolated power source circuit design for digital and analogue parts minimises idle noise.





## High quality analogue output terminal

A high quality, well-shielded analogue output terminal ensures lossless signal transmission

## Balanced & unbalanced analogue out

- Balanced XLR: Dynamic Range: 130dB(Max 4.5Vrms, stereo) THD +N: 0.0004%
- Unbalanced RCA: Dynamic Range: 130dB(Max 2Vrms, stereo) THD +N: 0.0004%

## USB audio class 2.0 output

An external USB DAC can be connected

## Phono In (moving magnet) for turntables

Default sensitivity is 7.5mVrms but controllable between 3.75~15mVrms

## DAB+ tuner and FM radio tuner

For high quality digital radio the X45 offers a DAB+ tuner, alongside a traditional FM receiver

## Two high speed USB 3.0 host ports

For quick data transfer the X45 offers two high speed USB 3.0 host ports

## 6.35mm headphone out

The X45 offers headphone out with a sensitivity of 100mW+100mW@1Khz, 600ohm, 0.1% THD





## 🔄 CD ripping with Gracenote CD metadata and album cover art

Load CD collections onto the X45 Music Database in FLAC, ALAC, WAV or MP3 file format with CD metadata and album cover art from Gracenote.



## 🔄 Music database function

The X45 has a well-organised music database built-in, which offers smart and convenient functions such as search, display by text or cover art, sort A-Z, Z-A, and various views, etc.





Archive vinyl and cassette tape collections to the X45 as 192Khz hi-res digital audio files

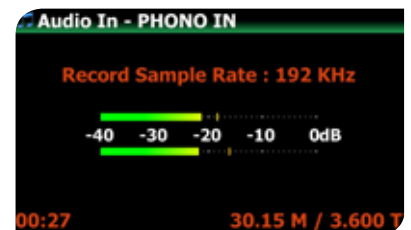
## 🔗 Phono input(MM) for turntables

Turntables can be connected directly, enabling users to enjoy their vinyl collection through the X45, audio input is conveniently mirrored to the digital outs. Also archive music to high quality digital files. The X45 then offers an intuitive auto cutting feature, for easy organisation and cataloguing of the resulting recordings.



## 🔗 Recording with 192Khz hi-res sampling rate

The X45 offers a recording function for internet radio, DAB+/FM radio, analogue and digital inputs. Create digital music collections with pristine sound quality at 192kHz.



## 🔗 Auto/Manual cutting for recorded files

The auto/manual cutting function allows editing of recorded files on the X45. Easily edit files and import them into the X45 Music Database.





## 🔄 Versatile networking and remote control with a customised app

Connect the X45 to home networks for streaming music to and from other devices, listen to internet based music services and control it remotely using mobile devices with the customised remote control app, 'NOVATRON MusicX' or 'WebInterface'.



## 🔄 Control remotely on mobile devices with the custom remote control App, 'NOVATRON MusicX'



## 🔄 Music streaming service integration

Access tens of thousands of internet radio stations and online music services like TIDAL, Deezer, Napster, Qobuz, Highresaudio, Spotify Connect and Amazon Music.



## 🔄 Control remotely by PC with WebInterface

Control the X45 and manage the music database remotely from PCs with the convenient WebInterface function. Just enter the device IP address in a browser to load the interface.

## 🔄 Support for various network protocols - UPnP Server/Client/Renderer, Samba Server/Client

Stream songs to and from other compatible devices in the same network.

## 🔄 AirPlay and Spotify Connect

Play songs from iOS devices and music from Spotify via the X45 wirelessly.

## 🔄 Control the X45 from Roon

The X45 is 'Roon Ready' for control via the Roon application.





## 7 inch TFT LCD screen for intuitive GUI and HDMI out for external screens

A big 7 inch screen allows control of the X45 easily with its intuitive GUI. Even connect it to TVs for a bigger GUI or a slideshow of photos whilst listening to music.



## DAB+/FM radio tuner built-in

Enjoy high quality digital radio via a DAB+ tuner or the traditional FM receiver and record any song or broadcast with high quality sound.

## High connectivity for various external devices

- 2 x USB3.0 host (rear) and 1 x USB2.0 host (front)
- USB audio class 2.0 output
- GigaFast ethernet LAN
- HDMI out for external screen or audio out
- USB audio input for USB DAC function
- Digital out (Coaxial, Toslink, AES/EBU XLR, HDMI)
- Digital in (Coaxial, Toslink, AES/EBU XLR)
- Analogue output/input
- Phono (MM) input

## Storage for use as a music server

3.5"/2.5" SATA hard disk and Solid State Drive(SSD) can be inserted in the X45, up to 8TB capacity. Install any storage easily thanks to a customised storage drive bay.



## Rugged and durable casing

The X45 front panel is formed of 13mm thick CNC cut aluminium and has a completely metal chassis. The die-cast aluminium feet provide rigidity along with additional resistance from external vibrations.

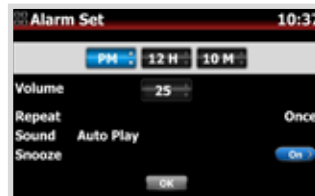
# Multi-functional features

Made possible by custom-designed smart software, developed in-house by Novatron's R&D center



## Listing by text or cover art

Display album or song lists by text or cover art by pressing the TEXT/ART key on the remote control



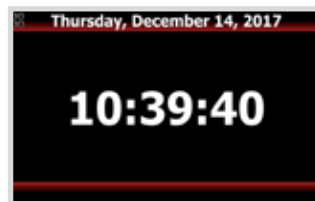
## Alarm

The X45 offers an alarm function



## Sleep function

Pressing the SLEEP key on the remote control will make the X45 power off automatically after a set time



## Clock & Display OFF

Pressing the CLOCK key on the remote control will make the X45 screen show the current time or turn the display off



## Jump to song mode

On the 'Now Playing' screen, pressing the CAP/NUM key on the remote control will lead to 'Jump to Song Mode'. Pressing a numeric key will then jump to that song number



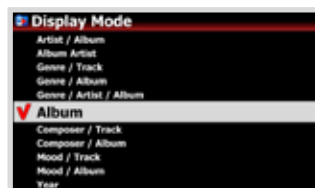
## Seek to percent mode

With 'Seek to Percent Mode' pressing a numeric key will seek the location of the playing file as a percentage of the total duration



## Auto CD ripping function

When ripping many CDs, the Auto CD ripping function is helpful. Insert a CD into the X45 and the whole ripping process is automated until the CD is ejected



## Display mode

Display the Music DB list by album, genre, track, artist, composer, year, mood, etc



## Merge multi-albums into one folder (album)

Rip multi-albums into one convenient album folder



## Reservation recording

Schedule when the X45 will record internet radio with reservation recording



## Auto cutting function

Using this function, easily edit recorded files



## Edit recorded files

Edit recorded files by cutting to a new track and adding album/track tag info



### ROON ready

Use the 'ROON' application to output to the X45



### Audio CD burning

Burn audio CDs with the X45



### Scroll speed

Control text scroll speed on the screen



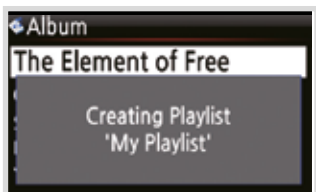
### Import & export music

Import/export music to/from the X45 Music DB via USB or over a network



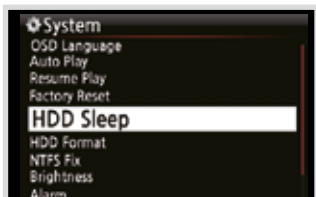
### Make playlists

Make playlists for different moods and occasions. Burn playlists to CD or export audio files for listening on other devices.



### Make 'My Playlist'

An on-the-go playlist feature, for cueing songs whilst listening



### HDD Sleep

Go into sleep mode as set



### Section repeat

Set specific sections to play repeatedly



### Audio file format conversion

Convert existing audio files into other formats, (e.g. mp3, FLAC, WAV, MP4) for use on other devices -MP3 player, car stereo, etc



### Gapless playback

For listening to mixed compilations seamlessly



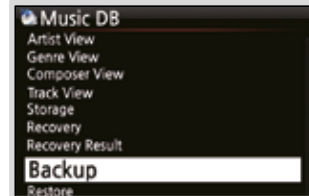
### HDD format

Easy solution to format hard disk with Linux file system or NTFS



### Edit music tag info

Easily add metadata to the library for ease of browsing and searching music, enhancing listening pleasure



### Music DB backup & restore

Protect the music library with easy and convenient back up settings



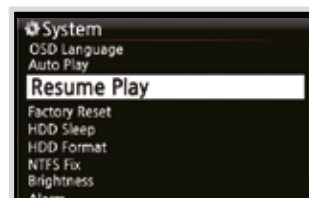
### Auto shutdown

Schedule when the X45 will power off



### USB keyboard

Use an USB keyboard to edit song tag information easily



### Resume play

After booting up, resume playing automatically where it was last stopped

# Specification

Model name	NOVAFIDELITY X45		Remarks
Host CPU & Memory	CPU: dual core ARM Cortex A9 running at 1.0GHz		
	Main Memory: DDR-1066 1GByte		
	NAND flash 8GByte		
CD Player	Type	Front loading	
	Supported media	CD, CD-DA, CD-R, CD-RW, DVD-R/RW	
Display	7.0" TFT LCD (1,024 x 600pixels) (* able to connect to ext. screen via HDMI out)		
Interface	Key & Jog (Volume/Scroll), IR Remote Control, Customised Remote App for iOS and Android devices, Web Interface		
Analogue out (Sabre <sup>32</sup> ES9018K2M Dual DAC)	Balanced (PRE-OUT)	XLR, Dynamic Range: 130dB (Max 4.5Vrms, Stereo) THD +N: 0.0004%	
	Unbalanced (PRE-OUT)	RCA, Dynamic Range: 130dB (Max 2Vrms, Stereo) THD +N: 0.0004%	
	Headphone out	6.35mm Jack, 100mW+100mW@1Khz, 600ohm, 0.1% THD	
Digital out (Variable/Fixed)	COAXIAL x 1	S/PDIF 75ohm RCA, Sample rate: up to 24bit/192KHz	
	TOSLINK x 1	S/PDIF, Sample rate: up to 24bit/192KHz	
	AES/EBU/XRL x 1	110ohm, Sample rate: up to 24bit/192KHz	
	USB audio x 1	USB audio class 2.0 output	
	HDMI out x 1	HDMI audio out (**Shared with HDMI out for external screen)	
Analogue input	LINE in x 1	L&R RCA at the rear, default 2Vrms(controllable 1~4Vrms)	
	Aux in x 1	3.5mm phone jack on the front, default 1Vrms(controllable 0.5~2Vrms)	
	Phono in x 1	MM input, default 7.5mVrms(controllable 3.75~15mVrms)	
Digital input	COAXIAL x 1	Sample rate: up to 24bit/192KHz	
	TOSLINK x 1	Sample rate: up to 24bit/192KHz	
	AES/EBU XLR x 1	Sample rate: up to 24bit/192KHz	
USB audio input (USB DAC)	USB B type connector, USB audio class 2.0 input (support up to PCM 384KHz/32Bit, DSD Native 256, and MQA file)		
Supported storage	Hard disk	2.5" SATA, up to 2TB	* Bigger capacity of storage will be supported by firmware update when available in the market
		3.5" SATA, up to 8TB	
	SSD	2.5" SATA, up to 2TB	
Tuner	DAB+/FM radio	Selectable for DAB/DAB+ or FM radio	
Connectivity	USB Host	USB3.0(5V/1A) x 2 at rear / USB2.0(5V/1A) x 1 at front	
	Network	Wired	Giga Fast Ethernet(10/100/1000Mbps)
		Wireless (option)	802.11b/g/n WiFi USB dongle (option)
	HDMI out	Connect to external screen (* Shared with HDMI audio out)	
Codecs & formats supported	MQA, PCM 384KHz/32Bit, DSD(DSD64, DSD128, DSD256), DXD(24Bit/352.8KHz), HD WAV(24Bit/192KHz), HD FLAC(24Bit/192KHz), APE/CUE, WAV, FLAC, ALAC, AIFF, AIF, AAC, M4A, MP3, WMA, CAF, Ogg Vorbis, PCM, M3U, PLS, etc		
Network protocols supported	UPnP(DLNA) Server/Client/Media Renderer, Samba Server/Client, FTP Server, Web Server, etc		
Internet services	Internet radio	Airable	
	Online music services	TIDAL, Deezer, Qobuz, Napster, Spotify Connect, Highresaudio, Amazon Music	
Supported OSD languages	English, German, French, Spanish, Italian, Polish, Dutch, Russian, Traditional Chinese, Korean, Japanese (To be added by request)		
Isolated Power management	Toroidal Transformer	For audio signal management	
	70W internal SMPS	For digital CPU management	
12V Trigger Out	Max 200mA, 12V		
Power Source	220V area	AC 220V - 240V, 50/60Hz	
	110V area	AC 110V - 120V, 50/60Hz	
Mechanical	Material	Front	13mm thickness aluminium by CNC cutting
		Knob	Aluminium by CNC cutting
		Body	Metal
	Dimensions	Without foot	441mm(W) x 330mm(D) x 100mm(H)
		With foot	441mm(W) x 330mm(D) x 111mm(H)
Certificate	CE, FCC, EMI, et		

※ Specification to be changed without notification



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