

ECLIPSE

by FUJITSU TEN

Approaching perfection.



It's always all about the music.

ECLIPSE always places priority on the quality of sound. Each of the six new models of powered CD Receivers incorporates audio-dedicated design elements to make them extraordinary performers for music fidelity and playback accuracy.



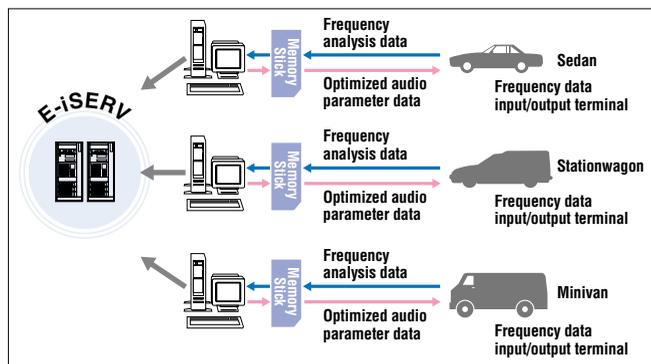
Notable new features.

The new CD Receivers line features unparalleled technological advances that enhance music reproduction in a very difficult acoustic environment — a vehicle, whether stationary or in motion. Optimizing overall system response in such environments has always been problematic, with many systems just relying on brute power to try to overwhelm system shortcomings and acoustic difficulties. ECLIPSE has always felt that the right way would not just rely on maximum volume but rather to provide the technology that would allow an in-car system to have a response comparable to the finest audiophile home setups. An approach that is admittedly more difficult, but one that ultimately honors the music. Because that's really what it's all about.

E-iSERV

A revolutionary feature that only the convergence of audio and digital technologies could bring about, E-iSERV is the easiest way to achieve the perfect in-car system response for your vehicle.

A main feature of the CD8454, E-iSERV allows a degree of customization and system adjustment that could only have been achieved previously with many hours of system testing and



measurements with test instruments then tweaking system components to obtain the optimal system response. Tedious and complex, it's understandable why many simply chose power and more power in an attempt to achieve an accurate response. E-iSERV makes use of the Memory Stick feature to download a



CD8454

ESN E8 High-Power "Customize" CD/MS Receiver with MP3/WMA/ATRAC3 Decoder and NOB Remote

The flagship unit in the new CD Receivers, the CD8454 sets a new standard in audio-dedicated music reproduction for the mobile environment. Whether the program source is CD, CD-R/CD-RW, MP3, radio broadcasts or even WMA files on a Memory Stick, sound quality is always exceptional. Music takes on the effortless quality that is the hallmark of the best audio components.

High Preamp Output Voltage

The CD8454 circuits deliver a very high preamp output of 8 volts to help lower system noise and increase system dynamics since the power amplification stage can be driven optimally. The output signal's low impedance of 55 ohms is also electrically ideal for audio signal transfer.

Full-dot Vacuum Fluorescent (VF) Display

This display makes best use of the space available with alphanumeric characters that retain high contrast in all light conditions. Brightness levels

can be set to suit user preferences for day and night driving conditions and illumination can be switched from green to red. A graphic assist function helps confirm parameter changes.

NOB Remote (standard)

The most advanced remote control in the ECLIPSE product line, the elegantly simple NOB Remote sports a smart rotary encoder that combines multiple pushbutton and rotary control knob functions for more efficient control. The NOB is pushed to bring up a menu that can be scrolled through till a desired control function is arrived at to make desired parameter changes.



CD5444

ESN E5 High-Power "Customize" CD/MS Receiver with MP3/ATRAC3 Decoder and Remote

The CD5444 delivers a level of performance and a wide range of features to satisfy demanding audiophile users. In terms of cost performance the CD5444 is unequalled, retaining the superior audio qualities of the top CD Receiver model while sacrificing little in the way of user convenience.

High Preamp Output Voltage

In keeping with its highend personality, the CD5444 delivers a high signal of 5 volts at the preamp outputs. This level is more than enough to drive power amplification optimally, while helping to improve the system S/N ratio and dynamic range. The low impedance of 55 ohms is also electrically ideal for audio signal transfer.

Soundfield Control.

To suit user listening preferences, this feature offers five preset acoustic environments with varying level and time characteristics to instantly recreate different spatial settings.

"sonic snapshot" of the system's present uncorrected response.

The Memory Stick can then be taken to any PC from where E-iSERV's server can be accessed. Once connected, the server reads the information on the Memory Stick which also includes the vehicle's acoustic characteristics and anomalies. All the information is then analyzed and processed on the server, optimized for that particular vehicle, then downloaded onto the Memory Stick. The Memory Stick now containing all the data necessary for optimizing system response is simply inserted into the CD Receiver where it takes over, performing all the parameter adjustments to achieve that elusive perfect response. E-iSERV revolutionizes vehicle system tuning with its ease of use.

Digital power works for better audio.

New circuits in the new CD Receivers retain the digital signals in digital domain from input to output. That means right from the laser pickup to the DSP section, then the 24-bit $\Delta\Sigma$ DAC with a 116dB dynamic range so it can be converted to very high quality analog. Staying all digital has allowed ECLIPSE to design a powerful DSP section that features sophisticated user-customizable functions such as speaker system Time Alignment, speaker system electronic Crossover setting and Parametric EQ. Composed of twin DSP chips each dedicated to processing specific tasks, all audio tasks are efficiently handled with no compromise in digital source quality. The processing power of this DSP block specs out at an awesome 150mips.

Intuitive GUI

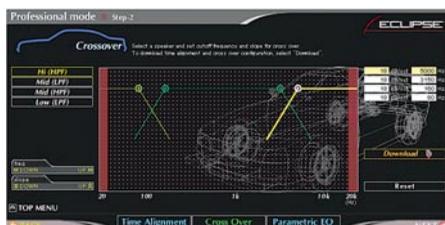
The displays of the new CD Receivers provide useful information on operation and work together with system controls to provide an intuitive interface. DSP functions appear graphically and respond with visual feedback as controls are manipulated, simplifying all operations.



The CD8454 and CD5444 represent the two select models of the new CD Receiver line and share many of the advanced ECLIPSE technology and features that make them such accomplished performers.

E-iSERV ready.

Using digital technologies and making use of a central E-iSERV server to optimize in-car system response makes it possible for anyone to easily accomplish what was previously a tedious and difficult task only professionals would attempt. The vehicle's uncorrected system response is downloaded to a Memory Stick. Once inserted into a PC, this can be graphically seen. After correction by E-iSERV, the fully optimized parameter set can also be graphically viewed on a PC.



Crossover (as viewed on a PC display)



Time Alignment (as viewed on a PC display)

A visit to the ECLIPSE website will provide more information on E-iSERV and its settings.
<http://www.eclipse-web.com>

DSP functions

Position

A convenient function that allows choosing from multiple sound settings to optimize playback based on seated listener locations.

Time Alignment (CD8454)

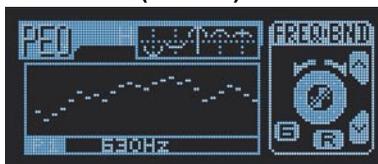


An advanced technique often found in high-end audio loudspeakers that achieves natural sound with accurate imaging by adjusting delay times on a multi-speaker system. This makes all sound arrive at a listener's ears at the same time while maintaining phase integrity. Delay times can be adjusted independently for each L and R High, Mid and Low speaker.

Separate equalization modes

Because the mobile environment presents so many acoustic problems, ECLIPSE has included two separate EQ modes that are optimized for different applications.

Parametric EQ (CD8454)



This professional equalization technique tames the frequency peaks and dips to enable the smoothest, well-balanced frequency response. Mid (63Hz — 16kHz) and Hi (200Hz — 16kHz) frequency bands with bandwidth adjustable in three increments allow precise tonal contouring.

Graphic EQ

For adjusting program material equalization to suit listening preferences, a two-channel 13-band equalizer mode is provided for tonally contouring sound.

Crossover (CD8454)



An electronic crossover function offering user-selectable speaker crossover points and adjustable filter slopes to optimize multiple speaker integration.

- low pass filter settable from 63Hz — 200Hz
- mid high pass filter settable from 63Hz — 200Hz
- mid low pass filter settable from 200Hz — 10kHz
- high pass filter settable from 200Hz — 10kHz
- slope settings: pass/6/12/18/24dB/octave

Multi Harmonizer

Digital encoding of music files requires significant compression that can have a degrading effect on the audio quality when the files are played back because harmonic data had been lost during encoding. This feature restores the harmonic data so that digital music files whether encoded for MP3, WMA or ATRAC3 will sound their best.

Additional features

Source Volume Control (SVC)

SVC performs the useful chore of adjusting the volume levels of all program sources. This eliminates the annoying level variations when switching sources from CD to FM to MP3 to Memory Stick. With SVC activated, you can switch sources and the volume will remain unchanged.

High Performance Digital Tuner

Engineered to get the maximum from terrestrial broadcasting, the tuner offers 18 FM and 6 AM station presets. Once the tuner homes in on a station, it locks onto it and blocks out any interference, noise or distortion other stations in close proximity may be causing. Reception quality maintains absolute clarity, free of breaks and static. This is maintained even in urban areas that often have many tall buildings, or are close by airports and other reception problem areas.

Graphic operation assist

As controls are moved, an onscreen graphical assist feature reflects the actual adjustment for easy confirmation.

Memory Stick security

The memory stick also provides extra security for the system. Once you input your own PIN code on the card, it



(CD8454 and CD5444 models include a 32MB Memory Stick as standard equipment.)

will act as a key to "unlock" the system and allow it to operate. If the memory stick is removed, the system will not operate.

ATRAC3 encode/decode

Memory Sticks are a convenient way for anyone to carry digital data around. Both the CD8454 and CD5444 incorporate an ATRAC3 decoder for compatibility with music files on Memory Sticks.

MOSFET power amplification

Specially selected for their natural-sounding characteristics for use in many audiophile amplifiers, MOSFETs are also used by ECLIPSE for their premium models. The CD8454 and the CD5444 amplifier sections both have power ratings of 50W ¥ 4 channels for dynamic sound reproduction.

Telephone mute automatically mutes the system when making or receiving a cell phone call.

From the entry level unit to the top of the line, each unit offers more value and higher performance than any other of its class.



CD3434

ESN E3 High-Power "Full-Face" CD Receiver with MP3 Decoder and Remote

Performance at a level this high just didn't happen on anything less than the top ranking models before the CD3434. By focusing on audio quality before anything else, ECLIPSE created another standard of quality.

- Full optical disc format compatibility — CD, CD-R/RW, and MP3.
- 50W × 4 channels of power amplification with MOSFET
- Advanced FM and AM digital tuner section
- Source volume control (SVC) for uniform system volume setting from any program source

- LCD display readout with large alphanumeric characters with adjustable contrast control
- NOB smart rotary encoder control
- Front/Rear/Non-fader preamplifier RCA output terminal pairs
- Remote control provided as standard equipment
- CD Changer control capability
- Flexible bass and treble controls
- Speaker crossover frequency setting
- Non-fader level phase control
- Guide tones to confirm operation
- Motorized tilting faceplate
- Digital Servo System (DSS)



CD3424

ESN E3 High-Power CD Receiver with MP3 Decoder and Remote

Designed to fulfill the strong user demands for high performance with the most wanted convenience features, the CD3424 firmly establishes itself as a midrange leader, distinguishing itself from the competition.

- Full optical disc format compatibility — CD, CD-R/RW, and MP3.
- 40W × 4 channels of power amplification
- Advanced FM and AM digital tuner section

- NOB smart rotary encoder control
- Front/Rear/Non-fader preamplifier RCA output terminal pairs
- Auxiliary input for system expansion
- Remote control provided as standard equipment
- CD Changer control capability
- Flexible bass and treble controls
- Speaker crossover frequency setting
- Non-fader level phase control
- Guide tones to confirm operation
- Digital Servo System (DSS)



CD3414

ESN E3 High-Power CD Receiver with MP3 Decoder

Attractive features with attractive pricing are a tough combination, but ECLIPSE managed to come up with a model that included MP3 compatibility and a performance that has to be heard.

- Full optical disc format compatibility — CD, CD-R/RW, and MP3.
- 40W × 4 channels of power amplification
- Advanced FM and AM digital tuner section
- NOB smart rotary encoder control
- Dual Front/Rear preamplifier RCA output terminal pairs
- Flexible bass and treble controls
- Guide tones to confirm operation
- Digital Servo System (DSS)



CD3404

ESN E3 High-Power CD Receiver

Aimed at the music enthusiast who wants superb CD reproduction at an attractive price, ECLIPSE engineers retained essential high performance music reproduction while cutting some convenience features. The CD3404 has no equal in its price range.

- 35W × 4 channels of power amplification
- Advanced FM and AM digital tuner section
- NOB smart rotary encoder control
- Dual Front/Rear preamplifier RCA output terminal pairs
- Flexible bass and treble controls
- Guide tones to confirm operation
- Digital Servo System (DSS)

High-sensitivity pickup

High-sensitivity integrated optical pickup accurately reproduces optical disc program material signals, delivering an output signal that is optimized for audio.



Better S/N ratio achieved with redesigned integrated pickup that provides a higher output signal.

DSS (Digital Servo System)

Proprietary digital servo system employs five servos to achieve perfect tracking by constantly

calibrating laser focusing and tracking as well as optimizing laser sled positioning, adjusting pit tracking linear velocity and aligning the laser lens.

Shock-resistant oil-damping used to isolate the laser pickup from disc transport mechanisms.

Redundant error correction activates to eliminate skips and tracking errors from discs with less than pristine surfaces.

Interface customization

Versatile onboard memory for creating FM/AM station presets and CD title information displays.

Auxiliary input (CD8454, CD5444) for connecting additional audio program sources.

Switchable green and red illumination to suit day and night driving.

11-step LCD contrast control adjustment (CD5444, CD343).

System expansion options

The CD8454, CD5444, CD3434 and CD3424 can easily expand their scope to handle other external amplifiers and speakers as well as CD changers as a full complement of I/O options including digital I/O (CD8454), digital output (CD5444) and various analog outputs has been provided.

E-LAN data link to allow daisy chaining other ECLIPSE components with a single data link cable.



Keeping the system secure.

Any ECLIPSE mobile entertainment system is an investment. It's protected with ECLIPSE

Security Network (ESN), an effective theft-deterrent feature which totally disables a head unit until a Key Disc recognized by the head unit is inserted. ESN is so secure that ECLIPSE guarantees ESN protected products against theft for a full year.

CH3083

8-Disc Changer with Magazine Unit

Handles CD, CD-R and CD-RW discs to create an immense music library to enjoy on the road. Built to the same exacting standards as ECLIPSE's other CD transports and including a digital output. Also allows easy connection to ECLIPSE units without digital inputs by using the proprietary E-LAN data link system.



Remote Control

1802

NOB Remote standard with the CD8454

Optional with: CD5444
CD3434
CD3424
CD3414
CD3404



1602

Wireless Remote standard with the CD5444, CD3434 and CD3424

Optional with: CD3414
CD3404



Feature List

	CD8454	CD5444	CD3434	CD3424	CD3414	CD3404
Control						
Remote Control	standard (1802)	standard (1602)	standard (1602)	standard (1602)	optional	optional
CD Changer Control (Daisychainable)	●	●	●	●	—	—
CD-R/CD-RW	●	●	●	●	●	●
WMA	●	—	—	—	—	—
MP3	●	●	●	●	●	—
Digital Servo System (DSS)	●	●	●	●	●	●
Integrated Optical Pickup	High-Sensitive	High-Sensitive	High-Sensitive	High-Sensitive	High-Sensitive	High-Sensitive
8-times Oversampling Digital Filter	●	●	●	●	●	●
1-Bit D/A Converter	—	—	●	●	●	●
TUNER						
STARTUNER® V	●	●	●	●	●	●
Station Name Input	●	●	—	—	—	—
Audio						
MOSFET Amplification	●	●	●	—	—	—
All digital circuitry 24-bit $\Delta\Sigma$ DAC	●	●	—	—	—	—
DSP*	●	●	—	—	—	—
Electronic Crossover Control	●	●	●	●	—	—
Non Fader Pre-out	●	●	●	●	—	—
Dual Pre-out	●	●	●	●	●	●
Dual Pre-In	—	—	—	—	—	—
Digital Output (for E-com)	●	●	—	—	—	—
AUX In	●	●	—	—	—	—
Audiophile Components/Parts	●	●	●	—	—	—
Memory Stick						
ATRAC3 Decode/Encode	●	●	—	—	—	—
E-iSERV Connection	●	●	—	—	—	—
Memory Stick ESN	●	●	—	—	—	—
General						
ECLIPSE Security Network	●	●	●	●	●	●
Display	VF (Full dot)	LCD	LCD	LCD	LCD	LCD
Full Face Tilt	●	●	●	—	—	—
Bright & Dimmer Control	●	—	—	—	—	—
LCD Contrast Control	—	●	●	—	—	—
ECLIPSE COMMANDER ADVANCE ready	●	●	—	—	—	—
E-Lan data link system	●	●	●	●	—	—

*includes Time Alignment (CD8454), Parametric EQ (CD8454), Crossover (CD8454), Graphic EQ, Multi Harmonizer.

Specifications

	CD8454	CD5444	CD3434	CD3424	CD3414	CD3404
GENERAL						
Power Supply	14.4V DC(11 — 16V)					
Current Drain	3A	3A	3A	3A	3A	3A
Dimensions (W × H × D)	7" × 2" × 6-1/8" (178 × 50 × 155mm)					
FM TUNER						
Frequency Range	87.75 ~ 107.9 MHz (200kHz step)					
Usable Sensitivity	13dBf					
50dB Quieting Sensitivity	14dBf					
Frequency Response	30 ~ 15,000Hz, ± 3 dB					
Stereo Separation	38dB (1kHz)					
AM TUNER						
Frequency Range	530 ~ 1,710kHz (10kHz step)					
Usable Sensitivity	20 μ V					
CD SECTION						
Frequency Response	20 Hz ~ 20,000Hz, ± 3 dB					
Wow & Flutter	Below measurable limits					
Stereo Separation	85dB	85dB	80dB	76dB	76dB	76dB
S/N Ratio (A-weighted)	100dB	100dB	95dB	90dB	90dB	90dB
Dynamic Range	98dB	98dB	95dB	90dB	90dB	90dB
Total Harmonic Distortion	0.01%	0.01%	0.01%	0.02%	0.02%	0.02%
AUDIO AMPLIFIER						
Power Output	13W × 4 (20 ~ 20,000Hz, 0.8%THD, 4 Ω)					
	MAX. 50W × 4			MAX. 40W × 4		MAX. 35W × 4
Lineout Output Level/Impedance	8V (0dB)/55 Ω	5V (0dB)/55 Ω	2.7V (0dB)/330 Ω	2.7V (0dB)/330 Ω	2.7V (0dB)/330 Ω	2.7V (0dB)/330 Ω
Tone Control	BASS +12db at 80Hz +12db at 10kHz					
	TREBLE +12db at 10kHz					
Loudness	+10dB at 100Hz/+6.5dB at 10kHz					
Memory Stick Player Section						
Frequency Response	20Hz ~ 20,000Hz, ± 3 dB					
S/N Ratio (A-weighted)	100dB	100dB	—	—	—	—
Total Harmonic Distortion	0.01%	0.01%	—	—	—	—

Product safety notice

- To ensure safe operation of products, please read the owner's manuals carefully prior to use.
- ECLIPSE is not responsible for accident or damage due to improper connections or products modified in any way.

Warning

- All products are intended for DC 12-Volt operation in negative grounded vehicles only. Never use them in 24-Volt vehicles such as heavy trucks or diesel cars with cold-region specification.
- Do not adjust controls while driving. To adjust the controls, stop the car in a safe location.

Caution

- Installation of products requires experience and knowledge. Ask your ECLIPSE retailer for proper installation.
- E-iSERV graphic examples are from pre-release software and may slightly vary from the finalized version.

Others

- It may not be possible to install all products in some vehicles. In this event please consult your ECLIPSE retailer.
- Some recent audio discs may resemble conventional music CDs but are technically not Compact Discs (CD Red Book format) because of the copy protection technology employed. ECLIPSE cannot guarantee operation and performance if these discs are used.
- CD-R/RW playback quality may be affected by disc surface condition and disc format initialization process.

- It may be necessary to purchase additional connecting cables for the products.
- Due to the effects of photography and printing processes, the color of the actual product may differ somewhat from that shown here.
- "Dolby", and the double D symbol  are trademarks of Dolby Laboratories Licensing Corporation.
- Memory Stick is a registered trademark of Sony Corp.
- Design and specifications are subject to change without prior notice.
- ATRAC3 is an efficient compression codec for digital music files, allowing files to take up just 1/10 their uncompressed size without degrading audio quality.
- Recording/playback of song data is only possible on Magic Gate-compatible memory stick devices.



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